

The Performance of Argentine Oil Industry over a Century. (Draft for comments)

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Historical Background and Geological Profile

Argentina recently celebrated its Oil Century (December 13, 1907), making it one of the oldest national territories in the world to initiate oil exploration. In fact, oil exploitation started in the 19th century in some provinces, although the commercial discovery took place in a southern fiscal coastal area, in Comodoro Rivadavia city (by that time a very small village in the distant southern Patagonia), in a period of enthusiastic search by international oil Companies all over the world. However, it was a National Government' office the responsible of that successful finding. That fact would earmark the dominant presence of the State in Argentina's oil industry up to the early 1990s, when oil industry was fully privatized.

By that starting time, Argentina belonged to the group of the ten richest countries in the world, based upon its natural resources (meat and wheat), with a similar productive profile to the United States of America. The political leadership also contributed to the creation of an attractive environment for financial and human capital by the end of the 19th century. As a result, an extended railroad network was build by the British, and a constant flow of immigration arrived over a period of 50 years. Inside a sort of liberal economic regime (although too much concentrated in a group of wealthy landowners), the National State started its institutional consolidation with a political elite very much compromised with a long run strategic behavior. One of those actions was the selection and training of a group of geologists, both national and international that brought from Europe the most advanced geological techniques for an incipient oil industry.

These factors allowed domestic economic potential to expand and increased the potential for foreign trade¹. Although the economy grew at an annual rate of 5.6% from 1885 to 1913, in a globally trade framework, according to its comparative advantages (as supplier of raw material), there was a modest economic development². Oil discovery came to enlarge the core of a primary wealthy exporting economy.

Expectations based on oil wealth were huge and rapidly attracted both strategic and speculative interests in a sector that by that time was not well regulated, while

¹ With 0.4% of World population Argentina represented by early XX century more than 3% of international trade.

² According to Guerchunoff and Llach (2003), by that time Argentina' per capita income was almost 3 times the waged average of Brazilian, Chilian, Colombian, Mexican, Peruvian and Venezuelan altogether. An alternative ratio is two thirds of either UK or United States. In spite of this fact, there was a low national industrial development, focused to simple technological processes.

the international oil industry was still going through an infant economic stage. The age of coal was still booming.

The national Mining Code (from 1886), following the Hispanic tradition, considered that earth wealth subsoil belonged to the Provincial State, but it could only feasibly be exploited by private companies. As it had been defined to exploit superficial wealth, the code demonstrated shortcomings arising from its resemblance of the activity to oil production. By comparison, in the latter exploration, investment represents a greater share of the full investment than in superficial mining.

By the time the government had made the effort to find oil reserves, the liberal regulatory regime would have imposed a restriction to state owned production thus generating considerable externalities for private investors as they could have asked for a perpetual concession in that very place³.

Facing with the promise of discovery, however, the National Government decided not to allow any private concessions in that area. Hence, for better or for worse, the history of the Argentinean oil industry started with a history of contractual cheating. Based upon the Land Law N° 4167, and due to the fiscal conditions of that territory (at that time the political division of the country was not as clear as it is today), the government managed to keep the exploitation of that area to itself.

In the presence of a fairly elementary tax system, which based the core of its income in trade duties, appropriation of the new territory was the only mechanism available for the National State to keep its new source of economic rent, which by the beginning of the second decade of the 20th century was starting to show very great potential⁴. That potential would consolidate after the 1920's when the combustion engine start to become popular.

Most Patagonian provinces acquired that status during the 1950's. Before then the country disposed an extended national territory. Therefore, it was easy for the government to dispose some extension in those areas where traditional agriculture production was not developed, and the region was almost unpopulated and undeveloped.

The combination of a powerful state; the birth of an incipient new economic activity; and the incorporation of relatively new lands to the nation (conquered from the natives by the end of the 19th century in the so-called "Desert Campaign"), allowed the government to bypass the liberal ongoing regime and to build a new administrative structure to exploit the new resource. In fact, the oil business was still in its infancy, and regulations seemed to be *ad hoc* designed to achieve the strategic goals of the government.

³ That was what happened on December 14, the day after the 1st discovery, according to expedient 6366-M-907 (Montamat, 1995)

⁴ The record of a major engine conversion was the decision of Mr Winston Churchill, the British Chancellor of the Exchequer, who decided to convert the British fleet from coal to oil derivative in 1911

Soon after the first discovery, there appeared to be a rush to capture oil rent by private investors. The administrative structure was overwhelmed by demands for perpetual concessions, according to the liberal legislation mentioned above. Thus, in the context of a global search of new oil areas by international oil companies (IOC), there seemed to be a race between the state and the companies that motivated the surge of a nationalism. By that time, in other parts of the world, such as Mexico, that race became a dangerous challenge for foreign investors⁵. Instead, Argentina still represented a peaceful destiny for them in Latin America (for example Peru). As time went by, the greater economic significance of oil strengthened the debate between the liberal regime and the nationalistic position.

After an initial period of high expectation, it became apparent that Argentina was not such a rich geological region, and the target of self-sufficiency would only gradually be reached by the late 1980's, and only after the structural reforms of the 1990s, a decade characterized by deregulation and privatization of the whole energy sector (this will be analyzed later).

Returning to history, in 1924, a presidential Decree suspended oil concessions to the private sector until a new legal framework could regulate the industry. This decision was based on a perception of speculative demand favoring local entrepreneurs who, once they got the rights, appropriated a major share of oil rent by negotiating associations with foreign companies.

Part of this perception was correct; however, some local participants started to develop their own skills and national private production started its own record. This was the case of pioneering enterprises like Astra (1915) and Sol Petróleo (1919).

By then, the National Government had incorporated another fiscal area to State production in Plaza Huincul (Neuquen province, also in Patagonia in 1918). As proof of the externalities that public exploration generated, private production again increased its activity nearby the fiscal areas and in other provinces, particularly in Salta (northwest of the country). By the early 1920s there was a mix of national and international companies sharing a production that became inadequate to meet consumption requirements for a wealthy economy, especially after the development of the combustion engine. By late 1920s, Argentina was the third per capita car user in the world after USA and France, and by far the highest Latin American oil consumer.

The increasing scope of the sector and the continuous operative bottlenecks in the state owned activities, mainly related to fiscal budget constraints, demanded an administrative split of the business from the Central Government, in order to acquire partial financial independence. The decision gave rise to Yacimientos Petrolíferos Fiscales (YPF), the first National Oil Company in a non-communist country, in 1922.

⁵ Specially after the Mexican Revolution in 1911.

A dispute over subsoil generated a major conflict in the province of Salta between the State, the province and the Standard Oil. It started because the province gave a concession to the company instead of the YPF. Through its top manager, (colonel) Enrique Mosconi, the state owned company took up a belligerent position against this deal. This confrontation converted Mosconi into an icon of the fight against international trusts⁶. Apart from that, his true virtue was, through his management, to keep the National oil Company at arms length from political influence. Both factors confirm his reputation as the leading figure in national oil history.

The optimistic projections made by Mosconi proved unattainable and domestic production was replaced by increasing imports. On the other hand, the building of a new large refinery gave YPF the chance to sell its own production avoiding IOC intervention. This process consolidated during 1930's when YPF had the monopoly of foreign trade, and the domestic market split downstream into specified quotas to different brands (mainly Shell, Standard Oil and YPF).

In 1935, Law 16.161 started specifically regulating oil activity. According to this legislation, National and Provincial States were allowed to explore for and to exploit hydrocarbons and to industrialize, transport and market the production, either directly, through Joint Ventures or through YPF. Consequently, YPF got exclusive exploration rights to the entire country, with the exception of those areas covered by the above-mentioned perpetual (or "old") Concessions, and become the executive branch of the state oil policy.

Up to late 1930's YPF shared oil production with private companies, both nationals and internationals. Many of them as simple traders pretended to get rid of the oil rent by transferring areas to bigger companies. This mechanism would show up again in the most recent area allocation process of the 21st century period of President Kirchner's administration, just to confirm that oil history repeats itself.

Over time the government continued enlarging fiscal areas in higher potential prospective zones, and the concessionary regime became more restricted and discretionary. Under this scenario, IOC focused their business on the refining and marketing (Downstream) segments, which were less regulated than Upstream ones.

Law 16.161 apparently allowed private companies to participate, in association with YPF, in exploration and production. In practice, it supported the dominant position of YPF. Hence, from a maximum production in 1934, the market share of private companies started to decline.

⁶ The conflict between Standard Oil and Mosconi for Oil Concessions was extended all over the 1920' decade up to the intervention of the Supreme Court. The strong adversity of YPF' top manager seemed to be originated in a commercial restriction imposed by the American trusts over oil military requirements. However, there was an implicit conflict between both countries as they competed in agriculture production. In 1919 USA had proclaimed Fordney-McCumber duty against Argentinean production. Also in 1926 there was a conflict that involved meat exports.

During the nationalist governments of the 1940s, foreign capital remained alien to the oil industry. In addition to the scarcity of capital and trade possibilities caused by the War, the national government's neutral position and its veiled sympathy to the Reich further alienated foreign capital and the availability of oil imports⁷.

Short before the end of the war Argentina began to support the Allies and foreign trade normalized resulting in increasing oil imports. However, its former hesitant attitude conditioned foreign assistance. In addition, President Peron claimed for renewed neutrality inside the new world division between communists and capitalists. Global oil investment touched bottom. The effect of which was a productive capacity deterioration that lasted until the late 1950s.

When Domingo Peron took office in 1946, the arrival of populism further weakened private oil business. In 1949, a Constitutional Reform was set up. It explicitly took into account the oil sector, entitling those resources as **imprescriptibly** and inalienable property of the Nation. Polemic article 40 of that Supreme Law also implied restriction to foreign capital. This would prove to be controversial in future political decisions during the second government of President Peron.

The national debate around oil property, not only between the private and the public sector but also Federal – National ownership, seemed to be far away from the target of oil rent maximization that would have provided additional resources. In addition, due to political decisions YPF saw its capability to reinvest very much limited by fixing generalized subsidies and the obligation to transfer a major share of its income to the National Treasury.

In spite of willingness to transfer oil rent to the citizens, the lack of investment ended up reducing domestic rent and increasing external trade deficit through a scarcity of oil products . Eventually YPF abandoned its original autonomy. However, it kept its leading technological role (mainly regionally) throughout the 1940s, after the inauguration of the Applied Technology Center in greater Buenos Aires in 1941. At the same time, at the geological stage, many discoveries showed a new potential capability (although not impressive) to domestic YPF' production in the four productive basins: Golfo San Jorge (been Comodoro village the epicenter of it); Neuquina; Cuyana and Northwestern⁸.

With benefit of hindsight it is arguable that the model of Import Substitution Industrialization (ISI) that started after the Great Depression and was widened during the Second World War and throughout the 1940s, paid too much attention to consumer industries rather than to capital-intensive substitutive processes (as

⁷ After a succession of military governments with antagonistic positions, in March 1945, a couple of months before the defeat of the Germans, Argentina declared the war on the Reich. This expression of support would be seriously considered by the Americans in order to financially contribute to the country during the post war period.

⁸ By that time there was a combined success of the four basins in production. Challacó at Neuquina; Caleta Olivia at San Jorge Gulf; Tupungato at Cuyana; and latter Campo Duran and Madrejones fields in NW.

was the case at the beginning of the century), such as the energy sector. Therefore increasing restrictions on foreign capital participation in the oil industry squeezed oil potential and further threatened energy self-sufficiency.

When the second government of Peron (reelected due to his Constitutional Reform) entered into an economic slowdown, and the oil sector put heavy pressure on external exchange, a 180 degree change in oil policy was projected. Peron tempted international companies to enter the country to boost production. It was an expensive political manoeuvre as only few years ago the same Supreme Law had imposed severe restrictions on private foreign investments⁹.

His attitude came to reinforce a recurrent principle in Argentine economic politics, where strategies are defined according to circumstance. This makes some measures adequate for a period of time, but completely inadequate for others. This ambiguity would affect our oil history until the late 1980s.

For the nationalists, especially former Peron supporters, it meant a betrayal. For the opposition it was an opportunity to stress the weakening of a government that was used to mixing populism with authoritarian behavior¹⁰. Here was a new opportunity to reinstall a military regime, in a process that put the military in the center of the political scene from 1930, and finally ended after the violent dictatorship of 1976-83.

The main characteristic of this period of alternating military and civil regimes was a continuous shift in oil policy in respect of the previous administration (independently of a possible affinity). A change in administration implied an oil policy turnover. Herein, the lack of long term stability very much affected a sector where the final outcome of an investment decision can only be seen after a long period of maturity.

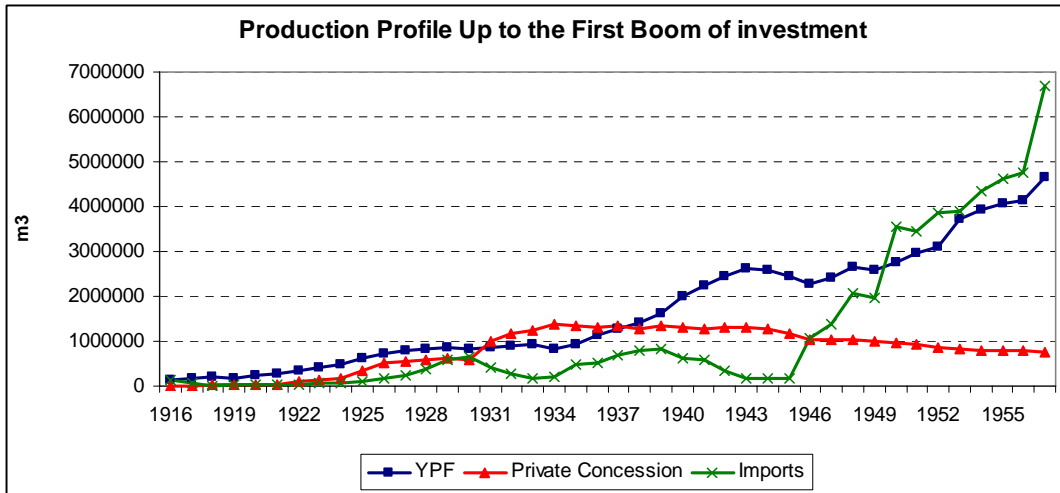
Even though the call for international capital could have been right for a more liberal administration, like the one that followed Peron's government, to boost oil industry, the traditionally pendular reaction made the military reject that possibility of opening up to foreign capital. The fact that Peron had called IOC was enough to cause them to reject that measure the spirit of which was to update local deals according to international experience. In those cases, they split oil rent on a fifty-fifty basis between national governments and IOC in a model that would be extended up to the early 1970s. Neglect of this agreement made oil imports the

⁹ After talks with foreign investors, the national government arrived at an agreement with the Standard Oil of California (publicly known as the California Contract). For this agreement, the national subsidiary of the IOC would have received a territory of 50000 km² for 40 years to explore and produce oil.

¹⁰ There are many writings about this period of history. Half of the library supports the peronist administration and other half complain about it. Undoubtedly, this was a time of increase in the wage sector participation on the economy with cyclical economic growth. Notwithstanding, Peron received an economy plenty of wealth (reserves, incomes from the social security system) in a devastated world. For economic detractors he failed to consolidate a model of capital accumulation. Although import substitution supported industrial growth, the diversity of branches developed did not put focus to sustained competitive advantages.

main source of supply during the 1950s; although politically it meant a betrayal for oil nationalism.

Figure 1



Source: Own elaboration based on Energy Secretary Data.

The balance of the first 50 years of oil policy is not very satisfactory. There was increasing state intervention, and successive fights and rule changing resulting in opportunistic behavior. Maybe the period up to the 1930's could be considered as that of strongest development supported by a relatively peacefully coexistence between public and private sectors. However, the geological environment was not conducive to developing a very rich oil industry.

In spite of this, Argentina has managed to develop its technical and scientific skills during this first phase of the oil story, while having had a wealthy international standard, even more so during the ISI period. In a way, this state backed development impulse backed put the country in a relative leadership position in Latin America.

However, for the state owned company, the lack of political independence would trigger its future performance and the national potential oil development. For the private sector, there would be a changing scenario based on the mood of the ruling government and the need to increase capital flows for a very capital-intensive industry. This type of requirement would provide a boom period of fast development. Part of this success would be possible due to the accumulation of a considerable geological background developed by YPF up to the 1950s.

The First Boom Period and its Aftermath

The Peronist period is characterized as a populist / nationalist period, with a considerable authoritarian quota, that mainly characterized military governments' behavior, which had a protagonist role in Argentina since the coup d'etat of 1930, and in most Latin America up to the late 1980s.

However, the military approach to the oil problem was not homogeneous. Although some of them supported a position of openness to foreign capital, their main principle was to reverse all that Peron had done. In this case, the California Contract had the merit to unify all anti Peronist sentiment. In a sense, authoritarianism and antagonism were and are deep-rooted national feelings.

In any case, the end of Peron government surrendered a worst national oil company. Its poor performance since 1940s was associated with its use as a vehicle for rent distribution, instead of an entrepreneurial approach to the production. Hence, there was not only a need for capital inflow but also of a general restructuring. Besides, from 1955 to 1958 there was a political commitment of the military government to maintaining a nationalistic oil approach

In 1958 a weak supported democratic government took office¹¹ Frondizi's political campaign was also based on a nationalistic approach to the oil problem, supporting that view with his own theories based upon the strengthening of YPF¹². However, the solution to oil scarcity required the inflow of sufficient capital to mobilize the non-developed reserves discovered by YPF geologists. That capital was not domestically available. Frondizi quickly understood that the nationalist claim for oil policy was not compatible with a target of self-sufficiency. Whether he noticed this problem once in government or while he was campaigning is an open question. The speed of his decision supported the hypothesis that the announcements made during his campaign demonstrated opportunistic behavior. With a foreign capital-friendly approach, Frondizi betrayed his manifesto.

Frondizi pretended not to appear as a treacherous, so he did not concede ownership over any area of production and tried to adapt his speech¹³. The effect of private capital inflow was a jump in oil production. Through foreign investment, Argentina moved into third position for oil well drills, after the USA and Canada. Perforation contracts started from May 1958 and consisted of the following: ENI

¹¹ It emerge with a tight control of the militaries that decided Peron prescription (until early 1970s). This fact would damper all subsequent democratic governments, increasing domestic political violence.

¹² His 1954' book "Petróleo y Política" emphasized the need of nationalize the oil industry without any foreign participation.

¹³ "En materia de Petróleo, el nacionalismo consiste en alcanzar el autoabastecimiento y no seguir dependiendo de la importación" (In oil matters, nationalism consists of achieving self-sufficiency and ceasing to depend on imports).

(through its associated SAIPEM), 600 wells up to 1963; South Eastern Drilling, 1000 in four years; Kerr McGee, 500 in three years; SNPA Forez, 600 in six years.

There were development contracts with Panamerican Oil, Loeb Rhoades and Cities Services; also with Tennessee and ENI, in the form of service contracts. By that time, ASTRA was the most challenging national company (through the El Huemul contract). The Service Contracts stipulated that YPF was titleholder of the mineral interest and that the oil production had to be delivered to the state oil company. In addition, they signed exploration contracts that were not successful with Esso; Shell; Ohio; Unocal and Conoco.

Inside the state oil company, the general manager, Arturo Sábato, tried to adjust the managerial criteria of the company to make it profitable. In fact, oil state production increased twofold between 1957 and 1962 through the acquisition of 36 rigs, while total production jumped from 5.4 to 15.6 million m³. During this period, the Austral basin (at the southern extreme of the continent) added its production to the other four basins in activity: Neuquina, San Jorge, Noroeste and Cuyana.

Internationally, in spite of an oil price slowdown, the 1960's saw important advances in geological knowledge applied to oil industry. This also helped to increase domestic productivity and to incorporate the largest volume of reserves even seen in national oil history, both at the same time. On the other hand, the politics surrounding oil industry conditioned the degrees of freedom of free capital movements, as biggest American oil companies were identified as a branch of imperialism¹⁴. However, for Argentina the arrival of external aid was the vehicle for investment to improve productive efficiency.

Political support for President Frondizi later collapsed¹⁵. The stagnation of the economy contributed to his firing from the government. Once again, the oil policy agenda was in the center of the political campaign. Candidate Arturo Illia promised to review all oil contracts signed by Frondizi, and with the Peronist party still prohibited, his formula got the first minority¹⁶.

Once in power Illia fulfilled his campaign promises. From a political perspective, this decision was a dominant strategy. First because he did not cheat his electoral base as Frondizi did. Second, because for the time being there was no oil problem, as the country had achieved self-sufficiency based on the previous boom investment period. The cancellation of oil contracts was based upon the alleged illegal signature of "hidden concession" type of contracts.

¹⁴ It is also worth mentioning that during the 1960's the world was shocked by the aggressive USA external policy towards Vietnam, Cuba, Korea, etc. In the popular view, American oil companies represented in a way that aggressiveness.

¹⁵ His conflicting relations with the military implied more than 50 military complains. He also had a conflicting relation with the proscribed Peronism, especially when he allowed free election in Buenos Aires province and he lost that election against a peronist candidate that the military did not allow to take office and obliged him to resign. His vice president, Guido, finished his government period.

¹⁶ As a fact "abstention" votes (Votos en Blanco), representing Peron supporters was the majority will.

Although it was a good opportunity to appropriate foreign sunk investment, it seemed that the ideological decision did not take into account the negative effect of those expropriatory measures on the National Budget. The cancellation of contracts and its annulment was resolved in an out-of-court settlement in 1965. Three of the contracts were renegotiated in 1967 and two are still in effect (Anticlinar Grande – Cerro Dragón, now Panamerican Energy, and La Ventana, now Repsol YPF). It neither considered the long run effect in oil supply, nor most hurtfully, the damage to the reputation of state policy.

National oil policy became prisoner of a conflicting dilemma. On one hand, the participation of foreign capital was thought of as an ideological concession to imperialism. On the other, there was not enough domestic financial and technical resources to strengthen oil development. This trade off would in time continue conditioning oil policy evolution and state policy reputation, for a sector characterized by the need for huge capital spending that should stay long periods before collecting productive income. Consequently, successive calls for foreign capital inflow would require increasing benefits for investors as higher risks demanded higher returns.

Although the “Golden Sixties” was an economic growth period , the political environment was highly unstable. Unionists put a great deal of pressure on Illia’s government which finally quit power in 1966¹⁷. In a traditionally pendular response, the new military government once again promoted the arrival of private capital, mainly national, in a process that lasted until 1973.

In 1967, a new Hydrocarbon Law was enacted. Law 17.319 still covers the oil industry¹⁸. Formally, the law promoted the development of private oil concessions, but in practice, no new concession appeared up to the 1990’s. However, on this new legal basis, YPF entered into the Entre Lomas agreement in 1968 with a consortium made up of Perez Companc (a national company) and Apco Oil Corporation in Neuquina basin. There also appeared secondary recovery production contracts with private sector, like Lindero Atravesado and Catriel Oeste.

A new wave of success followed for the national oil industry in all basins: Neuquina with YPF’s discovery of Puesto Hernández in 1967; Cuyana with the Vizcachera development, Austral basin with the discovery of El Cóndor in southern Santa Cruz, and San Sebastián, Cañadón Piedra and Cabeza de León in Tierra del Fuego island. YPF also awarded 2375 km² of the B/Chihuido block to Amoco to explore the area. It started the seismic surveys in 1970 as a joint venture with Bidas SAPIC in an 8 year service contract. However, in June 1973 Amoco –

¹⁷ President Arturo Illia not only affected foreign oil companies but also American laboratories at a time when the military corporation had improved bilateral relations. That situation relied on its alignment on the fight against international left-wing guerrillas. This hypothesis is basically attributed to the Radical party.

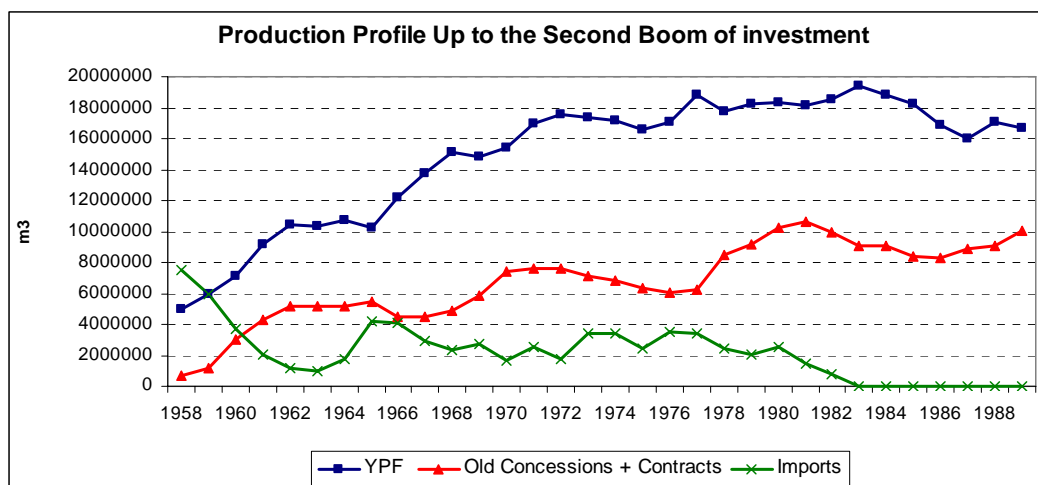
¹⁸ the ruling law was notoriously sanctioned by a non constitutional government, supporting a view of a correlation between oil wealth and authoritarianism (M. Ross, 2001). In the Argentine case the alternative behavior of strong governments was populism and oil industry deterioration.

Bridas stopped operating the area when a new wave of interventionism commenced.

Between 1973 and 1976 after the return of the elderly leader (and his dead) there was a period characterised by institutional fragility and social unrest. Oil production stagnated up to the arriving of a new military dictatorship. Bizarrely, in 1977, after a chaotic institutional framework YPF discovered the biggest gas field in history. The giant field of Loma La Lata, with reserves greater than 250000 million m3 of gas, was found in an area previously explored by Shell and Esso. This (apparently) lucky discovery boosted the expansion of natural gas within the Argentine fuel scheme¹⁹.

It has a private oil friendly approach. Law 21.778 of 1978 proposed a new framework for risk service contracts. Through this figure, the new administration transferred oil rent to private national companies. Many of them formed a group of national companies that could develop their strengths by taking advantage of:

- a) skilled state oil workers and geological background transferred to private firms;
- b) a system of industrial protection against foreign trade by public companies' domestic procurement (Compre Nacional); and a lobbying capacity to fight for oil rent distribution in a closed and very inflationary regime.



Source: Own elaboration based on Energy Secretary Data.

Unlike Frondizi's contracts these had prices unrelated to international prices, that saw a new hike in its value by late 1970s (as with the first crisis of 1973). This situation provoked a state of continuing renegotiation, also during the 1980's, that endorsed the relation with private companies into a discretionary distributive conflict that extended up to the conversion of these contracts into concessions during the early 1990's.

¹⁹ According to off the record testimony by a former Exxon manager, the company knew the existence of a large reservoir but President Illia rejected a millionaire investment program by the IOC.

Fresh support of the military for a group of national entrepreneurs consolidated a privileged group, the so-called “captains of Industry”. The revival of national oil companies dated from that period. Many of them had participated in the oil industry since the very beginning of national oil story. ASTRA was one of them. Others started growing in the late 1960’s after the signature of production contracts, as Perez Companac (based on the Law 17.319) signed the Entre Lomas agreement. Pluspetrol signed an agreement to develop the Ramos field in the Northwest basin (province of Salta) in 1978. Between July 1976 and June 1980 YPF called for 37 contract bids. Thirteen of them were Risk Contracts, onshore and offshore. For the latter, private companies utilized the submersible platform “General Mosconi” bought by YPF in 1976.

Manufacturing production related to oil inputs, or oil industry service, also grew fast after the late 1960s and early 1970s. One achieved outstanding performance: Hughes Tool Company. Starting with a small factory in Escobar, it expanded to Comodoro Rivadavia by mid 1970’s, and from there it supplied drilling tools to many Latin American countries. This Company would also be the source for the top management that commanded the transformation of the oil state Company and its later privatization at the beginning of the 1990’s. Another national service company, Bolland also installed its factory in Comodoro and later became Petrolera San Jorge, a successful oil company of the beginning of the post privatization process. Bidas was the other national company who started its activity as a service contractor, and the first that merged with an international firm (AMOCO) during the 1990’s.

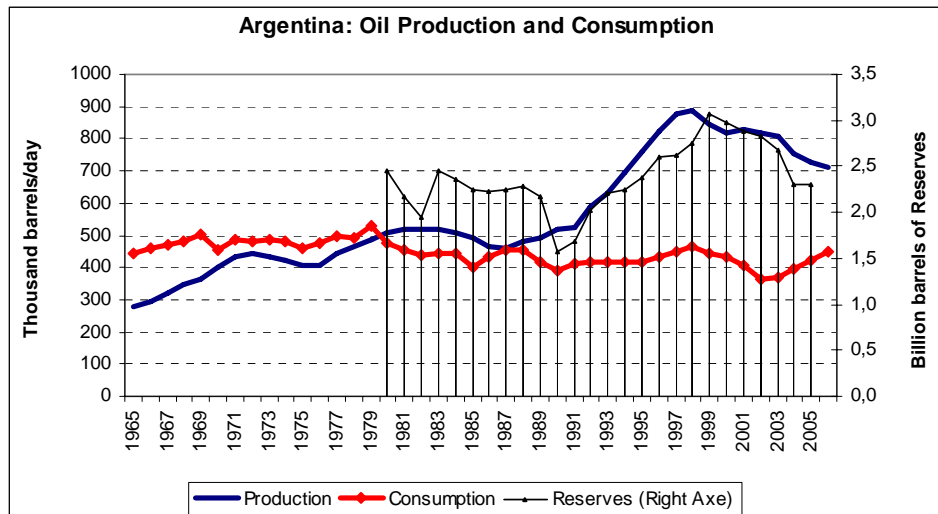
The transitory success of oil policy after 1976 supports the unattractive hypotheses that the authoritarian method of decision making in this sector use to be effective. However, the discovery of Loma La Lata knocked down that kind of rationality. By authoritarian, we include regulatory regimes designed by Presidential Decrees, such as those that earmarked the 1990’s deregulation of the oil industry²⁰.

In a way, the beginning of a new democratic cycle (fortunately uninterrupted) installed in the early 1980’s, inherited a self-sufficient oil industry, but also a highly indebted YPF that jumped from US\$ 640 million to US\$ 1650 million debt between 1976 and 1982 . Part of this self-sufficiency was due to the depressed consumption of a recessive economy rather than a substantial increase in production²¹.

²⁰ Amassing was the fact that during the chaotic democratic period between 1973 and 1975, while the economy stayed stagnant, service companies started growing steadily

²¹ The military government utilized the National Oil Company as collateral for the foreign capital inflow that was required to sustain a stabilization program based on the anchoring of the exchange rate that started at the beginning of 1979. By that time, the availability of petro dollars made it possible to finance all Latin American budget disequilibria. The cycle ended dramatically after the Mexican default of 1982 and a sudden reversion of financial flows. For our Argentina the crisis was aggravated by the military adventure to recover the Malvinas (Falkland) Islands in a desperate bid by the military to keep power.

During Alfonsín's government there was an intention to preserve oil industry openness to private capital. However, the economy revealed itself to be heavily regulated. In this context, oil rent was spilled between service contractors, unionists, other public offices, and the government bureaucracy.



Source: Own elaboration based on Energy Secretary Data and BP statistics

The government launched the Houston Plan (Decree 1443/85) to open to bidding marginal productive areas that belonged to YPF. While the intention was to tempt foreign investment with better conditions, the national economy remained heavily regulated. Apart from that, YPF reserved the right to participate as shareholder in new joint ventures. Therefore, the outcome was equally marginal, as the country did not receive significant investment (less than 250 million dollar). Oil production and reserves stayed almost stagnant up to end 1980's. Domestic production fell 14% between 1981 and 1987 while consumption stayed stagnant.

As shown in the World Bank report, between 1980 and 1988, in spite of YPF efforts operational surpluses were, except for 1982 to 1985, higher than the company's investment expenditure, and transfers made from YPF to other public entities were higher than the transfers received by them (except for 1983)²².

The report also stated that by the end of the 1980's YPF controlled enormous resources and occupies a position of great importance in the Argentine economy. However, its contribution to the economy was limited by:

- i) distorted prices that were frequently less than actual costs of production for crude oil, natural gas and refined products;
- ii) a royalty scheme whereby the Government required YPF to pay the provinces about 24% of its crude oil revenue and nearly 75% of natural gas revenue to satisfy a 12% royalty;

²² World Bank (1990)

- iii) a multiple excise tax system that increases costs and diminishes incentives to profitability (15% VAT on all purchases), plus a 10% tax on the value of all crude oil processed in local refineries;
- iv) contract pricing practices that result in YPF paying contractors more for crude oil production services than the price at which it could be resold in the internal or export market;
- v) regulations that require YPF to sell a significant portion of its crude oil (nearly 40%) to competitor refiners at a price that was less than YPF's actual cost of production;
- vi) obligations to purchase locally produced or supplied goods and services (Compre Nacional), even though these may be of poor quality and/or significantly more expensive than any imports;
- vii) labor and wage policy decisions were set outside the company;
- viii) subsidies made to other entities.

YPF had neither autonomy of decision nor the freedom of action to plan its own future program of investments and operations. Of the 32 presidents the company had in history, 22 remained less than one year in charge. Those complex operating conditions did not allow the Company to function as a normal, competitive, profit oriented organization, and resulted in poor financial performance. At the environmental level, it also became apparent there were weak controls as there wasn't an independent regulatory Agency acting on behalf of the community.

To achieve acceptable performance by YPF, the Government needed to implement measures to fully deregulate prices for crude oil, natural gas, and refined products. At the same time it needed to establish a competitive environment to allow YPF to function with autonomy of decisions and profits maximizing criteria.

Alfonsín's government aimed to consolidate democratic institutions, a very difficult task that he found difficult to fulfill²³. Conversely, at the economic stage he was not able to consolidate economic stability and growth. Although there was an initial oil production recovery during the last military administration, all economic indicators pointed to its deterioration by early 1980s. The re born democracy arrived with a heavy debt burden and an inflationary inertia that was almost impossible to revert. Part of the structural crisis was related to the public sector over dimension and the weakness of fiscal institutions.

State-owned companies expenses represented an aggregated deficit of 3.4% of GDP and the stabilization plans (mainly the Austral plan) were not able to attack structural weaknesses. Mainly because the Radical Party did not have political majority in Congress and the opposition did not allow introducing those necessary reforms. For public opinion the necessity to make such structural reforms as deregulation and privatization arrived during the final stage of Alfonsín'

²³ Although the military's prestige weakened to a minimum after the Malvinas surrounding, the judgments of their leaders for human rights violations was a brave political decision of Alfonsín, who had to resist the rebellion of the force and a dangerous menace to democratic institutions.

administration. A few months later, after the Peronist candidate had won the national election, he resigned from government. Although national economic structural weakness had been endemic within society since the early 1940s, the outcome of a huge fiscal deficit and a distributive conflict that joined in an explosive way into hyperinflation.

The New Economy. Consensus on Privatization.

The end of the 1980s looked as if the glorious country of the beginning of the XX century, the “Barn of the World”, had arrived at a self-inflicted economic crisis and definitive bankruptcy. High unemployment, robberies and food ransacking was the image of Argentine decadence. On top of the State crisis, there was a general crisis of credibility, deeper than anything previously experienced. The expectation that a new nationalistic economic approach threatened domestic and international economic agents even further.

When President Menem took office six months before schedule due to the economic and social crisis, it became apparent that the energy sector, as well as the main infrastructure assets, were at the core of the institutional crisis. The energy blackout of summer 1989 provoked civil disappointment and a social predisposition to a radical turnover in energy matters. However, there was no sign of energy privatization in his political platform. In fact, the Peronist party that he represented was strongly opposed to the opening of YPF to private capital during Alfonsín’s administration.

With a very depressed international image (based on his populist and ill-defined political platform based on a message of faith), President Menem put into practice a “trial and error” scheme. Soon after he took office, fresh hyperinflation signalled the him the shortcomings of the economic policy²⁴. His decision was to align his Congress majority for a radical Reform of the State (Law 23.696) privatizing all state-owned companies. As his political campaign was devoid of contents, we cannot say that he betrayed his electorate with this kind of measure. His merit was to understand what citizens clamoured for, and the political circumstance for change.

As González Fraga stated, *“these privatization did not result from an overall government belief in the expediency of transferring productive assets to the private sector, nor did they spring from convictions about the advantages of deregulation*

²⁴ First hyperinflation arrived during Alfonsín’ government. Price hike, measured by CPI, reached a zenith of 78% in May 1989, and the dollar in the marginal market climbed from 1 austral to 290 between January and May 1989. Within this environment there was a feeling of complete disappointment that well matched Menem’s campaign speech: “Follow me, I will not disappoint you”. That was all that he put forward as a political platform. By late 1989 a new hyper-stagnated the economy was in place once again.

*that privatization implies. The sale responded to practical case-by-case advantages and isolated pressure... Perhaps the most important criterion on which the Argentine government based its decisions was circumstance. The need to transfer goods to the private sector reflected fiscal concerns more than an effort to reassign resources or make them more productive*²⁵.

It is noticeable that public policies have introduced distortions since the post war period. As time went by protectionism further isolated domestic economy dampening productivity. The transforming of that scenario took the form of a drastic move towards privatization. Internationally there was also a mood in favor of friendly market policies, particularly after the fall of the Berlin' wall. This mood inspired an update in regulation theory aiming to avoid transferring monopolistic rent to the private sector. As will shown this spirit was present in gas and electricity utilities.

YPF was not listed in Law 23.696. it was intended to reform the oil sector although there was no clear target for the company. As a start, the Executive Power dictated three National Decrees in 1989 derived from the Administrative Emergence and State Reform Law. These were Decrees 1055, 1212 and 1589. They established free market for crude oil (free availability), and elimination of export and import duties for oil and derivates as main principles. In addition, domestic trading was liberalized. That meant that domestic prices supposedly would be aligned with internationals, allover the 25-years concession period.

Based on those rules, domestic balance and logistic restrictions conditioned internal differentials with respect to international prices. For the newly competitive and surplus upstream oil market, local price was determined according to export parity. Due to improvements in logistics, the gap converged to the quality differential (lower for Neuquina basin crude oils).

Reserves and production started to increase in 1990²⁶. That coincided with the transfer of areas to private companies by different means. The bidding for marginal areas only attracted domestic operators and, initially, not much interest. The process continued over the following years adding the bidding of central areas that offered shares of YPF of almost 9% of national oil production. Finally, there were a series of bilateral negotiations with service contractors of YPF to convert those agreements into concessions, a process that years before had been considered sacrilege.

As seen before (Figure xx) there was a leap in oil and gas production based in the use of new modern international techniques. There was also strong support for oil

²⁵ Javier González Fraga (1991).

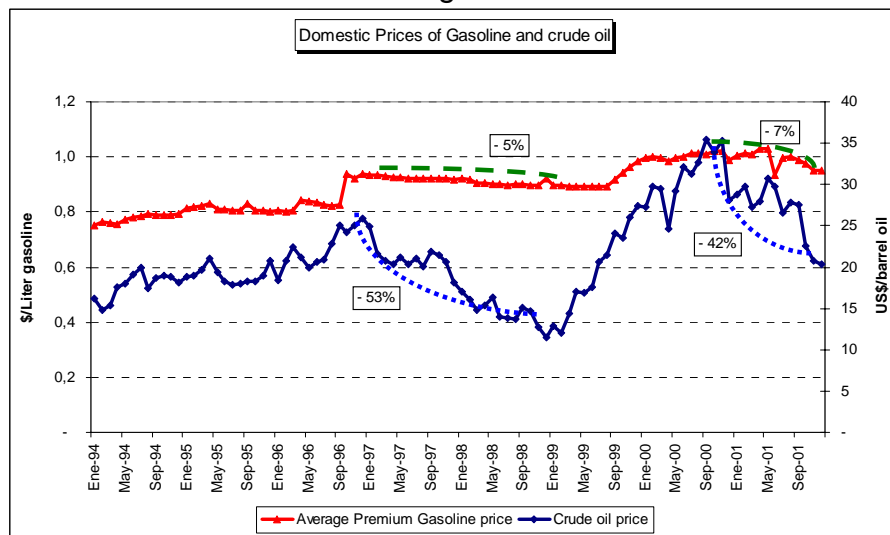
²⁶ As shown in Annex xx, reserves suddenly fall just before the area selling process started in 1990, and then started to increase. The review made by Gaffney and Cline was controversial. According to Bravo and Kosulj (1993), it was so done as to reduce the price of the areas. The point strengthens the hypothesis we make, ergo that it was necessary to become very concessive for the regime to attract foreign capitals, as the country reputation was weakened by successive cheatings on oil contracts.

competition. After YPF's privatization in 1993 there were more than 30 companies operating in the country. That included national and international big players. However, the split of the former state own company (mainly in gas production) was not as widespread as expected according to a dominant position over YPF S.A. appropriate size²⁷.

The incremental productive process was reinforced through the action of a new administration at YPF by an experimented oil executive: Jose "Pepe" Estenssoro, who wanted to transform YPF into a dynamic and profitable company. As mentioned before, part of its inefficiency was based on the multiplicity of targets that the company had, not upon its professional capabilities. In fact, YPF had been the source of professional supply of the entire private oil companies in the country, and this continued until Estenssoro decided to retain and increase his staff.

In the refining and marketing branch, there was an increase in competitiveness that followed the spillover of former state-owned assets (refineries, distribution factories and facilities, service stations, etc.), although inherent conditions determined the presence of dominant groups while the country was net supplier of oil derivatives. This characteristic affected the existence of entry barriers that ended up by fixing domestic prices according to import parity. In theory, there was open possibility to build new facilities (refineries, distribution centers, service stations, etc.) and to compete from abroad. As a fact, new dealers entered the market pressing over domestic margins. Notwithstanding this, the gasoline market, as did other markets, remained relatively protected²⁸.

Figure



Source: Own elaboration based on S.E. data

²⁷ That position was supported by Estenssoro who thought that it was necessary to have a a major scale in order to be considered an international player. The other extreme one privileged an atomized low scale framework in order to have gas on gas price competition that never arrived.

²⁸ In the case of the LPG market, the Defense of the Competence office initiated a demand to the private sector in 1998 for abuse of dominant position. The Court considered that there was a prejudice to society mainly because export contracts forbid the re entrance of the LPG sold abroad by the buyers.

The figure reveals the level of protection against competence the downstream sector had during the 1990s. As in other period of the oil story, when the upstream was closed for private investors and big corporations participated in the profitable downstream, new opportunities arose for these groups, and for other nationals that entered into this business. Perez Companc bought refinery assets from YPF (San Lorenzo Refinery, near Rosario); and Astra, a participation on Refinor Refinery (Salta).

In 1991, a new oil tax system reduced the burden of tax on the oil business. In the same year Decree 2178 launched the bidding process for exploratory areas known as the Argentinean Plan, considered one of the most openly exploratory regimes (whoever discovered the resource could continue to exploit the area). As previously mentioned, this concessionary scheme was required by investors, mainly nationals, who knew of Argentina's bad reputation. This program coincided with the splitting of YPF into marginal and the joint ventures set up in central areas. In 1993 Law 24.145 approved YPF' privatization (as Estenssoro wanted). For that purpose, it was necessary to include the Federalization of oil reserves. That meant that next bidding process would enlarge provincial budgets.

The new regime was based on a set of concessions to every participant in an apparent win-win strategy. It also meant the redistribution of the oil rent to make the reform possible. For the provinces (governors) who supported the privatization, there was a 39% share of YPF equity and the compromise to transfer productive areas after end of the initial concessions (Law 24.145). For the national government 51% of equity of a safe company that generated positive results and a consequent profit tax; and particularly the cash inflow of more than 2400 US\$ millions. Meanwhile the National Budget was fighting against a chronic deficit. For ordinary people there was a transfer of wealth to retired people: they received YPF shares in exchange for a long-term debt that was never expected to be collected. For local entrepreneurs a very convenient contractual conversion substitutes new 25 year concessions for service contracts that were on the verge of expiry²⁹. Unionists received a considerable transfer of money to stay quiet³⁰. YPF employees that remained with the received 10% equity and improvements to their wages. For the retired ones there was financial compensation and different subsidies to develop their skills outside the company, as contractors.

Globally evaluated, the new Argentinean oil model, based on the 1967 Law, the Regulatory Decrees and the new Law of Federalization and Privatization (Law 24145), was considered one of the most favorable regimes for the private sector. The government return relied on 12% Federal Royalties and the national corporate tax. In the case of Tierra del Fuego province, this last tax was exempted³¹.

²⁹ Some studies quantify the transferred amount as millionaire (Guerchunoff, 1995, Gadano and Sturzenegger, 1999)

³⁰ In this case, there is no estimation of transfer. However, many assets (like buildings) were split from the new society and became assets of the former union SUPE.

³¹ According to Johnston (1999) classification, it was the corporative most favorable system of the world.

For natural monopolies, Law 24076 (gas) and 24065 (electricity) adopted the frontier regulatory concepts to the gas and electricity public services. As a result, the domestic network was enlarged and a new wave of gas-led growth started.

At a macro level the Convertibility Plan of 1991 abolished domestic inflation within an anchoring exchange rate regime. Initially the structural reforms alleviated the budget deficit, but soon excessive expenditure (private and public) reintroduced a well-known twin deficit scenario, where the oil sector contributed with foreign capitals, operating in a way as a buffer to the macro instability. Hence, the macro equilibrium relied on excess in capital inflows that also turned into an outstanding productivity gain, as the production function shifted towards a capital-intensive mix, with the fast development of higher capital/labor share industries (mining, utilities, automobile, agriculture, etc.), while domestic currency started its appreciation. This gain had the bitter counter face of sustained unemployment. Meanwhile at the highest governmental level the structural reforms did not curb the traditional curse of Argentina's leading group: corruption. On the contrary, it did not disappear with privatization, as it seemed to be rooted in the new ruling party.

The initial alert to the shortcoming of this model came after the Mexican crisis of end 1994 (the "Tequila" effect). The tight monetary policy kept the Convertibility plan save in 1995 at a cost of an output fall (-4.5%) and unemployment reaching a ceiling of 18.5%. The first social group that exposed the deterioration of global working conditions were the former YPF employees³².

The Red Lights of the New Model

1995 was complicated not only because the economy suffered an external shock, but also because Estenssoro died in an airplane accident³³. During his leadership, the company was conducted in a very individualistic way. Although controversial his management was very pushing for the industry that couldn't keep its inertia for more than 2 years while his lieutenant, Nels Leon, managed YPF S.A.

Looking at proxy figures for financial investment it is possible to identify the surge given to the oil sector by Estenssoro-Leon's period of management at YPF, as well as the impact on productivity gain in every private company³⁴. However, it seems

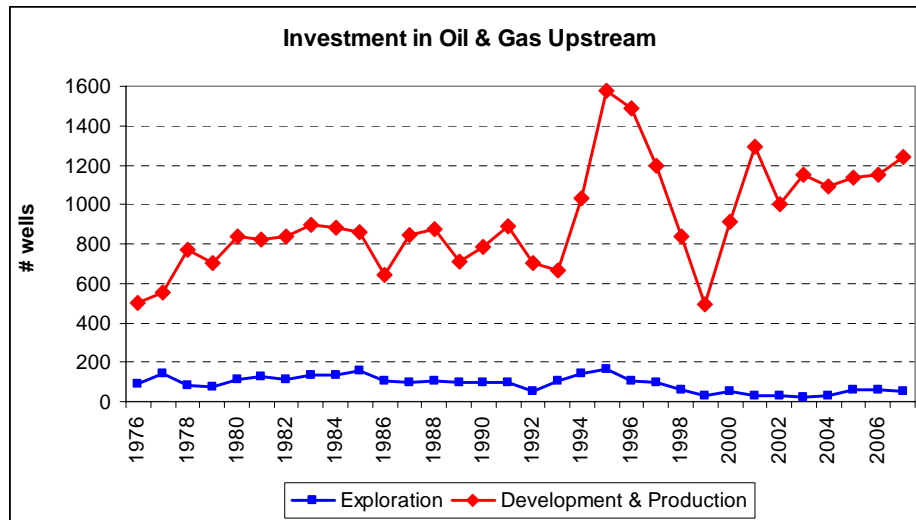
³² The riots started in Neuquen at Plaza Huincul (the 2nd birthplace of oil industry), with the cutting of national and federal routes. These movements gave origin to the "piqueteros": people that interrupt networking transport.

³³ The success of Pepe as top manager of YPF put him in line for economic minister candidature in the second government of Menem, who modified again the Constitution as his former leader, Juan Perón, did 50 years before. Many of Estenssoro projects died with him. One of his biggest challenges was the acquisition of an American oil company, Maxus, with main upstream assets in US, Indonesia and Bolivia.

³⁴ It is difficult to have a financial historical picture of investment. Before privatization, public figures did not follow standard accountability principles; therefore, there are no homogeneous series. A proxy for this indicator is the number of wells drilled.

as if there was no a good incentive scheme to perpetuate oil rent after privatization as exploration investment remained very low. The Estenssoro-Leon period at YPF management is an exemption, as the former state-owned oil company started operating as a National Agency, concentrating the biggest share of the 2000 million dollars of the upstream national investment.

Figure



Source: YPF Bulletins, IAPG

The Figure shows the number of exploratory wells as a proxy of the exploratory investment, although it is not enough as a measure of effort as new technologies allow to use other tools of geological information. However, the pattern observed is that exploration never over passed an historical threshold, as if the country geological wealth were limited to a modest endowment.

Technological catch-up after deregulation also contributed to the new oil boom. In 1990 YPF recorded the first three dimensional seismic at Chihuido de la Sierra Negra area. Near Chihuido, at Rincón de los Sauces village, Compañía Petrolera San Jorge discovered El Trapial field (at Huantraico), converting this area in the most productive of the whole country: between 25% and 30% of aggregate production. The other significant discovery made by this company was in the southern flank of the San Jorge basin.

Cost reduction also added Northwestern basin gas reserves at big deep (mainly Aguaragüe) converting the area into a potential source of supply for Chilean and Brazilian gas demands³⁵. Also in the Austral basin, the availability of gas discovered by YPF allowed the interconnection with Chile in some areas operated by a consortium between YPF and the Chilean state own company³⁶.

³⁵ Most of these projects that are next presented had origin inside the private sphere with limited government intervention. This was a considerable shortfall as integration was not possible due to lack of regulatory harmonization.

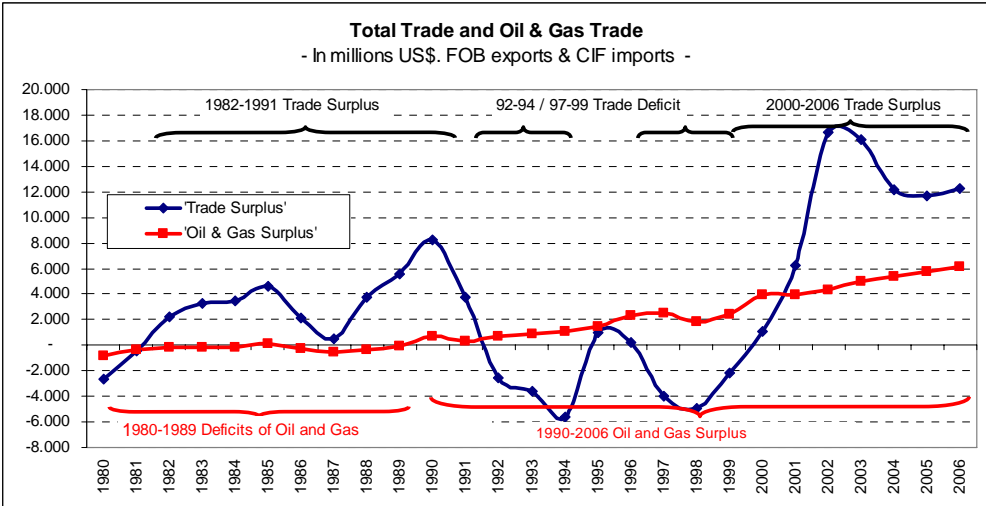
³⁶ In this area, few time before, Shell returned the area to the Nation, as its results were not satisfactory for the Dutch company

So, apart from productivity gains, privatization brought about a strong impulse towards regional interconnection, especially after the oil pipeline building that connected Argentina with Chile in the Andean region of Neuquen, inaugurated in 1994. The project seemed to be a challenge solely defined by Estenssoro without any central planning restrictions, By this time “central planning” had become an antique concept in new mainstream thinking

By this time the pushy Argentinean oil sector was the main supplier of the Brazilian “old-fashioned” (in the view of Argentine business) state own oil business planner. For private entrepreneurs there was no ceiling on gas led projects, either for the domestic market or to supply the region. The 20 year horizon for gas was not a good reference to keep for private concessions that should stay 25 years time in a traditionally risky country. The most popular concept was the “monetization” of reserves. That meant that privately there was no incentive to leave any cubic meter of gas after the concession ended. The evolution of demand would show that private projects would not be consistent with domestic aggregate availability. As for oil, the dominant idea seemed to consider 10 years oil reserves as a steady state even though production was increasing, as if it were a renewable energy source. In this framework the geological restriction was under estimated and there were soft export permission constraints.

From 1995 onwards oil and gas exports showed a surplus of over 2000 million dollars, which jumped towards a new level of 4000 in year 2000, transforming the traditional agricultural trade picture, as if the country had turned into an oil abundant country, instead of a country with limited oil and gas resources. The foreign trade picture also shows the substantial contribution of the oil sector to the most recent reversion of trade deficit of late 1990s.

Figure xx



The first question that we should make with hindsight is whether it was correct to allow the companies to freely export national non-renewable resources considering that the stock of reserves was also decreasing (Annex A). In addition, taking into account oil price evolution, huge reserves were sold at low prices.

A Gas Fired economy

The booming oil sector also took a shortsighted approach to gas fire projects, as if Argentina were a superabundant gas supplier. Domestically, gas primary share grew from 34.4% (16.6 tep) in 1985 to 38.7% (31.6 tep) in 1999. Most projects were thermoelectric developments. Consequently, thermo capacity grew twofold from 1992 to 2001 (from 6541 MW to 12414). Industrial and transport sectors also change their power consumption technology. Argentina became the world biggest gas fueled car market (Annex A).

From the regulatory point of view, Argentina adopted the most advanced criteria. Replicating US and UK regulation, the market was split into a wholesale competitive sector, based on Law 19317 from 1967; and two different regulated sectors: transport (from gas basins to the countryside of big cities), and distribution (inside each city). Law 24076 sanctioned in 1993 was the new instrument that approved this³⁷

The Gas Law It basically determined the theoretical autonomy of each sector (by restricting vertical integration); defined a regulatory authority (Enargas); defined different type of tariffs and their periodical adjustments; classify types of consumers; etc. The result was an increase of transport and distribution capacity (transport network grew from 64 MMm³/day of capacity in 1990 to 120 in 2000, while distribution network, while the number of total gas users grew from 4.5 to 6 million in the same period) at international reduced final tariffs³⁸. However, the regulatory model imposed in Argentina had a very serious drawback that would be evident after the 2002' devaluation: tariffs were tightened to US dollar prices.

In the past Argentina had been a net gas importer. Since late 1970s, it maintained a flow of imports from Bolivia (with a capacity of 6 MMm³/d), until 1999. In the early 1980s, it imported from the Chilean southern area of Magallanes from a pipeline that reverted the flows from Argentina to Chile since mid 1990s to supply raw material to a methanol plant in Chile. The extraordinary gas pipelines expansion that added capacity from a widespread gas network that converges on Buenos Aires dates from this period.

³⁷ The approval of this Law reflected Argentinean institutional quality. As it needed Parliamentary majority, the official party sat an outsider on the sit of an absent Deputy, who raised his hand for a manual vote counting. With that vote, and the absence from the Camera of the opposition parties, the new law was set up.

³⁸ FIEL, 1999

By the end of the century, there were so many regional pipelines built that most of them had free capacity (two of them were built in parallel simultaneously). In addition, the radial convergence of the national network gave gas transport a natural monopoly (as opposed to the more competitive US transport gas market)

Gas Pipeline Projects

Link between countries	Name	Headpoint	Capacity	Length	Diameter	Operative
			MM m3/day	Kms	inches	since
Argentina - Chile	Methanex II	San Sebastián - Tierra del Fuego	2	48	10	1996
	Methanex III	El Cóndor - Santa Cruz	2	6	12	1999
	Gas Andes	La Mora - Mendoza	10	465	24	1997
	Gas Pacífico	Loma La Lata - Neuquen	9	540	20	1999
	Atacama	Cornejo - Salta	9	942	20	1999
	Norandino	Pichanal - Salta	9	1055	20	1999
Argentina - Brasil	Aldea Brasileira - Uruguiana	Aldea Brasileira - Entre Ríos	10	470	24	2000
Argentina - Uruguay	Paraná - Paysandú	Paraná - Entre Ríos	1	435	10	1999
	Bs.As. - Montevideo	Punta Lara - Buenos Aires	3	210	18-24	2002
Argentina - Bolivia	Transierra	Yacuiba - Bolivia	20	441	32	2003

To all these projects, was added the link between Bolivia and Brazil (1800 kms with 30 million capacity up to San Pablo and 1165 kms inside Brazil), but the whole system required a battery of regulations that never arrived. Later in 2000s the insufficiency of fluid to satisfy the aggregate demand would become apparent. For Argentina, the connectivity meant an increase in gas exports from 1.83 million m3/day to 16.6 between 1997 and 2001.

According to Law 24076 gas exports would only be permitted if they did not affect domestic supply, also contemplating that reserve evolution would not decline. In practice, there was an automatic authorization regime, and the Enargas did not pay much attention to this restriction.

By the end of the decade, new fiscal pressures and an increasing macroeconomic crisis created the opportunity for foreign investors to increase their share of the national oil industry. As a consequence, during an extraordinary low oil price period, the National government decided to sell the remains of its most precious asset: its 15% of YPF shares. The same fiscal need that motivated all provinces to sell their YPF shares since they receive those financial resources from privatization.

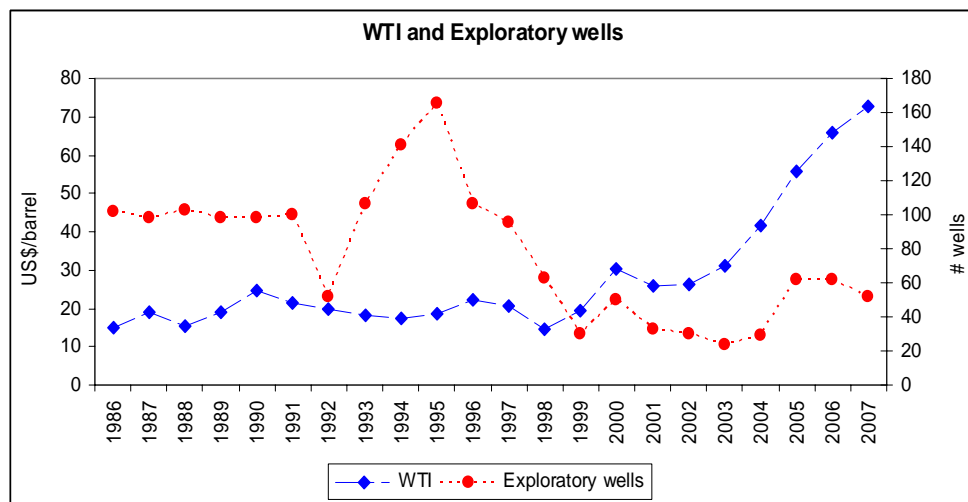
It was difficult but tempting for the rest of national oil entrepreneurs to resist massive takeovers for their companies. Then, with a very permissive scheme of capital gain taxation, the oil sector became a 96% foreign capital investment sector. In addition, the planning institutions remained disarticulated in a stagnant economy where the perspective of a new mega crisis appeared. In this context, the oil sector would start the 21st century in a critical downturn with respect to its successful short time performance of the beginning of the 1990s.

The Start of the Downturn

After a severe economic stagnation the government of De la Rúa, who followed Menem's second administration, faced an institutional crisis that ended with his dismissal at mid term. During his short government, the performance of the oil sector deteriorated, as did many other sectors. The growing fiscal unbalance pressured over oil assets. As a way to solve a short term fiscal distress the government decided to extend Loma La Lata concession for fresh money injection. Although legally available, the measure resulted in an opportunistic behavior aimed at solving a structural conflict³⁹.

The reduction in investment can't therefore be analyzed in isolation from the whole economy. Private oil companies decided to accelerate the rhythm of their production without additional investments, or to sell their assets. The second choice benefited private companies from a very light wealth tax system and allowed them to avoid a dangerous domestic scenario.

After the National government decided to sell their shares, Repsol was able to make a hostile overall equity takeover, as established in the Company Statute. With an overall investment of 15 thousand million dollars, the Spanish company acquired the Argentine company by the time the oil price reached its lowest value in a decade⁴⁰.



³⁹ There is an analysis of this contract in Scheimberg (2007,a). Although it seemed as very favorable to the company by that time, the new regulatory scheme after devaluation in 2002 very much affected the cash flow over that field.

⁴⁰ After the offer, Repsol had 99% of YPF equity and the National State kept its golden share (and a seat in the Directory). This share allows the state to intervene in strategic decisions, like sale of assets, transferring of shares, etc.

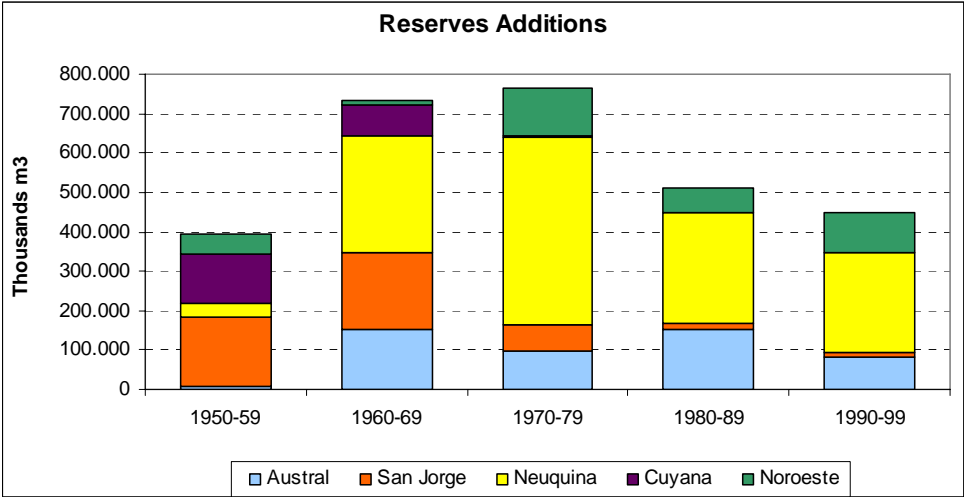
The Spanish company became public at the same time as YPF, and was biased towards Refining and Marketing. The availability of reserves was essential to its development, not only in Argentina but also in the whole Latin America. The deal couldn't have been better. After 2000, oil prices started to increase and, with a controlled budget capital, the buyers recovered their money in only five years.

For the rest of the companies there were also good opportunities as oil prices went up and investments remained flat. The acceleration in the speed of extraction responded to a pure market incentive approach: knowing that their concession would end in a short time, it was wise to extract as much as possible at present.

In addition, knowing the bad reputation of public policy in Argentina, it would have been prudent to return to a more regulated policy for the oil sector, pretending to modify former oil rent distribution. That threat increased short run corporate policies. On the other hand, during the 1990s, the regulatory role of the state over the oil sector was minimized after YPF privatization. The Energy Bureau had little influence over private sector decisions, and endowed with a small budget, the same companies had the responsibility to control their investment plans.

As shown above, productivity gain was the main advantage of the new privatized model. On the disadvantage side, we had few reserve incorporation. Therefore, although there was a sort of second regulatory boost (the first was the Frondizi' one), the long run sustainability of the oil industry was almost unaffected. Because of the privatization, it only appeared an increase in short run efficiency indicators⁴¹.

Figure



Source: Scheimberg 2007(a)

⁴¹ In addition, some geologists argued that excessive voluntarism damaged reservoirs: the aim of showing increasing sales in the companies' balance sheets generated an accelerated depletion path. This view stresses the abuse of water injection for secondary oil recovery at Chihuido, which ended by watering the field. Consequently, a decade after its booming period, the area produces half of the former 10 million cubic meters a year.

As the figure shows, over time the availability of new fields slowed down. It can also be seen that the geological performance was independent of the administrative failures (specially during the 1970s). That fact gave the domestic oil professionals the good reputation they have had up to today. Those skills, starting to develop in the state own company, are the most valuable assets the oil industry has to reverse ongoing trends, although it seems that Argentine geology is not particularly generous.

Except from the environmental control, where the system showed a suspiciously steep improvement, all other aspects of central planning were disregarded. In particular, no sanctions were imposed on investment scarcity, whether in production and development or in exploration (where the figures were amazing).

When new fiscal pressures emerged and the economy entered into a new balance of payment crisis, an institutional vacuum also came down. Once again, a stability program based on an exchange rate anchoring reached an end. However, by this time domestic debt and all contracts were in dollars. Therefore, the traditional recessive devaluation was not an available solution; meanwhile the surviving administration completely lost its political support.

The chaotic economic situation of ending 2001 degenerated into successive riots and the final resignation of President De la Rúa. As he did not accept devaluation, the market did it by itself⁴². In a very depressive environment, unemployment and poverty reached historic maxima (25% and 58%, respectively). In that context, the new provisory government approved a new Law of Economic Emergency. The aim was to avoid a massive transfer of wealth from the non-tradable to the tradable sector, assisted by devaluation. In addition, there was a process to transform dollar debts and tariffs into national currency contracts. In the midst of a very complex reorganization of contracts, public services prices, originally established at dollars times the Convertibility rate, were frozen at the relation of 1 peso = 1 dollar, when the free market exchange climbed over a 3.5 peso/dollar ratio.

For private utilities, it meant a significant wealth transfer mechanism to society that also benefited by wellhead gas prices freezing until the beginning of 2004, when a pricing path was agreed between companies and the national government⁴³.

Trade taxes applied to oil and its elaborated products, as was the case with some agricultural exports. There was a differential between raw material (oil) and derivates, aimed at promoting domestic industrialization. The measure focused on fiscal budget reinforcement and domestic price control. Some price agreements initially applied to domestic gasoline and diesel sales. No price freeze was applied to gas exports. The customs duty was also a vehicle to redistribute the sudden

⁴² Between December 20 2001 and January 5 2002, five presidents took office. The critical situations of robberies and riots cost 30 human lives.

⁴³ From 2002 onwards, agreements had coercive characteristics. That meant that the balance of power switched from the private to the public sector. A political scientist would better explain this phenomenon.

wealth increase in the oil sector, which started from mid 2003, to see a sustained increase in international prices.

The Emergency Law was borne as a transitory instrument aiming at stabilizing internal disequilibria and shifting into domestic currency a **dollar tighten** contractual scheme. However, as time went by, what appeared as transitory became permanent.

Many criticisms can be made of the energy sector of the 1990s: lack of competence; excessive concentration; lack of social concern; inadequate state planning; etc. However, that past development allowed supporting an impressive economic recovery since 2003 of more than 50% of GDP, without new investments since year 2001. From the government side, the opportunity to take advantage of an increasing oil rent, reappeared, as a *deja vu* cycle in the national oil history (similar to the Frondizi – Illia dispute).

The newly opportunistic choice in State policy came as a result of the investment sunk of the past (**Annex xx**). In addition, as the legal framework was not able to consolidate the ruling law of 1967 with the Executive Decrees of 1989, their shortcomings made possible for the State to get rid of the increasing oil rent that helped the economy to survive the crisis. This does not mean that a more accurate law couldn't have been changed by a new Parliament. As a fact, the Convertibility Law was thought as a definitive new rule for the economy, and it ended when the political power took that decision. What this changing scenario clearly reveals is that contractual stability does not exist in Argentina. The lack of stability is partially responsible for a lower investment after the 1990s.

Apart from that, the model revealed that the combination of a poor geology, a weak scheme of long-run incentives, and a lack of appropriate coordination state policies converged into a quick depletion of resources that would dampen economic industrial structure which had moved in the past towards a wrongly-perceived resource availability.

The lesson learned from this last crisis (and from other previous chaotic experiences) has a cost that increases with previous cheating experiences. Therefore, it appears as a vicious circle: private companies do not invest unless they receive new concessions that become higher as past reputation reflects a higher investment risk. In an instant, society considers those concessions were unfair and decides to reverse them. The wheel starts again for new capital inflow and the system becomes unstable. When investment is not quickly recovered due to confiscatory measures, companies enter into judiciary disputes. These could be through either local or international arbitration⁴⁴. In addition to complex dispute

⁴⁴ As shown in Scheimberg (2007, a) there were contractual improvements for the companies who renegotiate with the State the extension of concessions long in advance. Repsol reached that target when fiscal urgency was extreme at the end of 2000; Panamerican suspended its international litigation when it benefited with an extended 20 years concession. However, in the case of Repsol, the gas price frozen two years after the

resolutions significant differences sometimes appear in investment treatment, differentiating between old and new investors, where most often the latter corresponds to businessmen who are close to political power.

The Rebirth of a Distorted Model

At the end of year 2001 the economic crisis that started in 1998 reached its zenith. The country passed through a balance of payment and fiscal crisis where unemployment and poverty rocketed. Political leadership disappeared and social unrest returned to a society that entered into a new cycle of disappointment and lack of credibility. The feeling of entering into the abyss as in the previous decade, governed economic decisions and redirected resources: capital and human resources started an unprecedented migration.

In spite of the intention of structural reforms of the 1990s to quit “winter pasture capitalism”, corruption and corporate behavior reinstalled the distributive conflict⁴⁵. A new Emergency Law (accompanied by a “Reform of the Exchange Rate” regime) came to the rescue of the remains of the economy. The dominant target of the new provisional government of President Duhalde was to distribute rent where it was available. A set of measures dealing with the oil sector and its rent distribution was therefore put in place. After a very traumatic 2002, in mid 2003 the economy started its reactivation. Without hesitation we can affirm that the energy sector, in particular the oil sector, had a big responsibility in the Argentinean economic recovery at the cost of a new drawback in oil contract reputation and long run sustainability: one of the biggest threats for the ongoing administration.

In the spirit of the Emergency Law (# 25.561), first of all, on February 13th 2002 a National Decree (N° 310) established differential export duties for crude oil (20% nominal) and elaborated products (5% nominal)⁴⁶. Decree 809 of May 2002 added duties to diesel and LPG. Their rates fluctuated as a mechanism of domestic price controls. Other instruments disguised as “agreements” were set up, but were in fact, they were compulsory mechanisms to discipline local prices.

The government also mediated between producers and independent refiners (Exxon and Shell) in order to establish a stabilization scheme, but this situation became unsustainable when crude oil jumped to a higher permanent level at the beginning of 2004. After the end of the price-freezing scheme, the Economy Ministry decided to increase oil duty to 25% and later on a variable export duty starting at 25% and reaching 45% (Resolutions 337/2004 and 532-7/2004). By that

extension of Loma La Lata contract affected the company cash flow. The same happened to oil prices for Panamerican, who saw its operative margin frozen (and reduced) since November 2007.

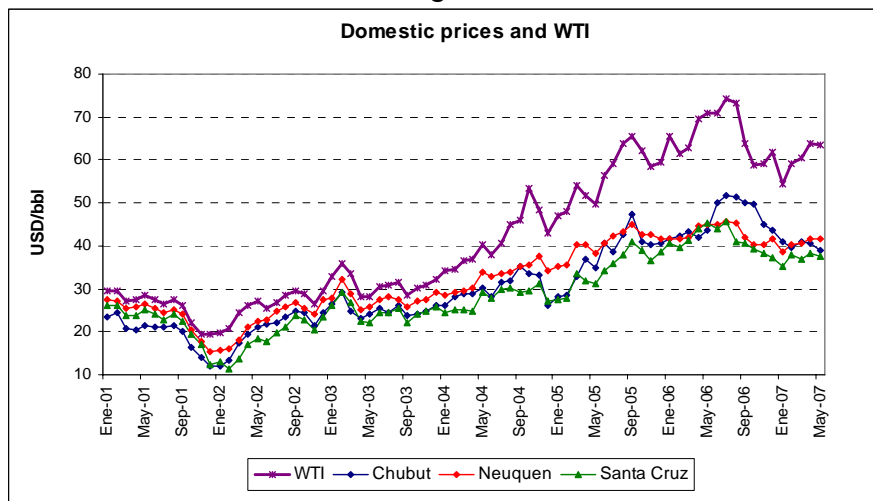
⁴⁵ This concept is developed in Mauricio Rojas (2004)

⁴⁶ Those percentages are calculated over the full price plus the duty. The effective rate is calculated as: $t/(1+t)$. To illustrate its arbitrariness, the announcement of this measure was made on January 8th and the application started on March 1st. During these 3 months, oil producers registered a lot more exports than usual.

time, many oil producing countries had decided to increase taxation on crude oil, provoking a debate over the fairness of the oil take split due to this windfall on production benefits (Scheimberg, 2007a).

Taxes on exports generated a dual effect. On one hand, they increased fiscal revenues; on the other, they reduced domestic prices, thereby cutting the link developed during the 1990s between domestic and international prices. For national crude oils, they also created a gap between domestic prices and WTI.

Figure



Source: Own elaboration based on S.E.

As shown in the figure, domestic prices matched WTI until beginning of 2004 (from the 1990s). Neuquen crude was the highest until mid 2006. Then, when production from that province declined and most exports came from Chubut, its price was greater. This correlative path persisted until the November 2007, when Resolution 394 from the Economy Ministry decided to regulate domestic prices at a fixed value of 42 US\$/barrel, in order to define an absolute revenue value for oil producers and refiners⁴⁷.

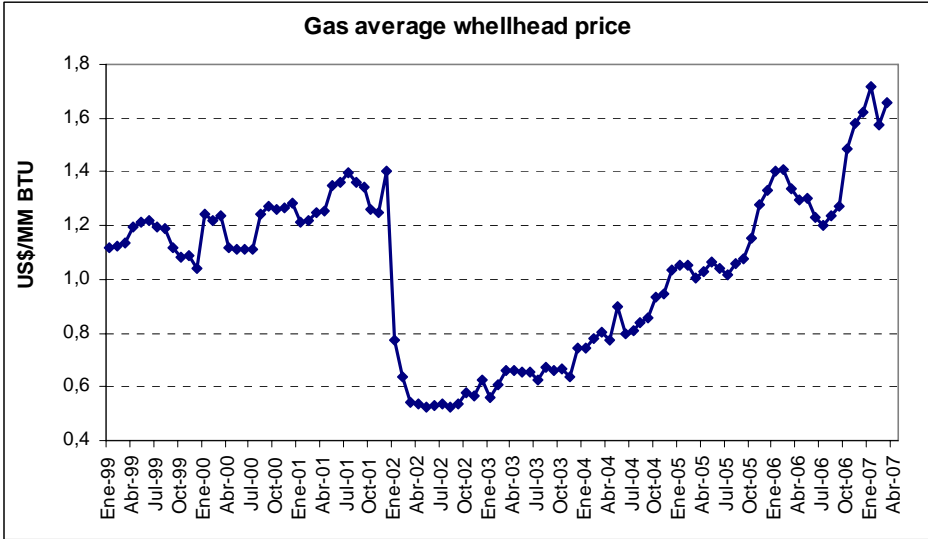
In the case of the wholesale gas market, there was a mix of instruments to regulate domestic price. Firstly, there was a freeze for most consumers that was later focused towards the regulated segment (residential, small shops and factories), as industry, that had previously contracted gas services with local distributors, was obliged to contract directly with producers. For the power sector, there was also a complicated mechanism to allow the substitution of the alternative input (diesel or fueloil) for the subsidized natural gas. Starting in May 2004 a new regulatory mechanism was set up. The target was to deregulate all distribution except residential consumption, revealing that a short-term political goal took precedence over a rational long term strategy⁴⁸. As part of it, gas producers signed an

⁴⁷ The same procedure applied to oil products. The norm resulted very controversial as the net effect of a WTI increase became a benefit squeeze for producers. This also distorted oil prices in the domestic market.

⁴⁸ The alternative approach to this subsidy was a social tariff targeting low income population.

“agreement” with the government for an increasing price path, and export duties started to apply. The Economy Ministry decided to set them at 20% in May 2004, and as domestic scarcity forced the signing of an import contract with Bolivia, the tax rate increased to 45% in July 2006. As the average domestic wellhead price was substantially lower than the cost of imports (1.5 vs 5 US\$/mcf) the mechanism aimed to compensating the differential with an extra cost by Chilean importers.

Figure



Source: Own elaboration based on S.E. data

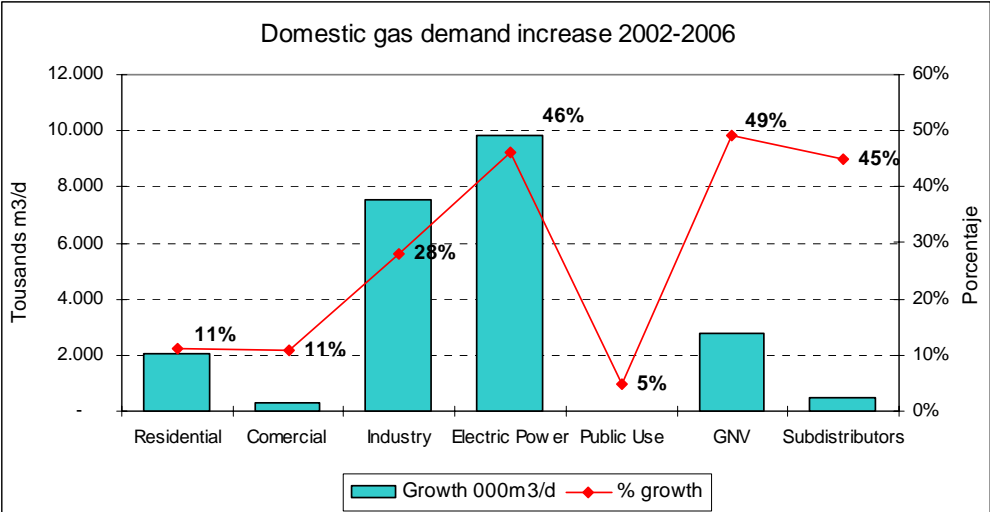
As shown in the graph, by the of 2006 wellhead average price reached the devaluation level seen before 2002. However, as the international hydrocarbon market rocketed, there was a relative deterioration in domestic gas prices, reinforced by the freeze of the regulated segments (transport and distribution) over final tariffs. Hence, the tariff-anchoring, first conceived as a transitory mechanism to mitigate wealth transferring effect, was adopted as a State policy, and put domestic gas prices at a non-sustainable level, showing substantial differences with respect to regional prices, as happened with oil products (Annex C). As managed throughout the state-owned period, once again the political agenda dominated the whole energy sector.

The effect of subsidized gas prices was an increase in the domestic market from 80 Mm3/day to 100 Mm3/d, from 2002 to 2006. This jump was mainly influenced by thermoelectric demand increase (10 Mm3/d), due to a similar electricity tariff freeze, and the expansion of most industries that were gas intensive users, like petrochemical, iron and steel, and thermoplastics. On aggregate this situation emphasized primary energy dependence on hydrocarbons and a weak promotion of renewable energy sources.

On the supply side, the increment in demand represented an additional demand on the production of domestic fields where, traditionally, transport capacity was the operative constraint (in winter) to supply the market. From 2004 onwards, when

most analysts identify the “energy crunch” (initiated by Navajas, 2004), the lack of adequate domestic supply become the binding energy constraint. The effect of this pressing demand in a non-profitable new investment scenario was the acceleration on gas depletion that added pressure to long-run sustainability (Appendix D).

Figure



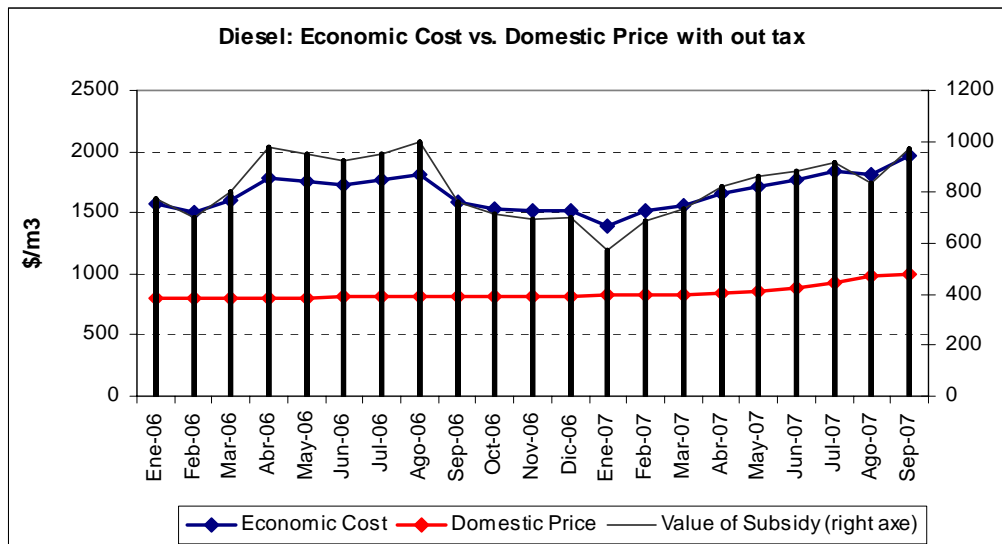
Source: Own elaboration based on Enargas data

In the oil product market the domestic price distortion combined with an income effect due to the economic recovery which generated an increase in demand that put the refineries at top capacity (Annex E). A new diesel record was attained in 2005, each time overtaken by the following year’s consumption (Annex F)⁴⁹. The picture of domestic prices above import parity of the 1990s was completely reversed after devaluation (Appendix G).

As domestic capacity was insufficient to satisfy the diesel market, it became apparent how domestic subsidies relapsed over oil companies. This situation was aggravated during the last two years. At present, this trade represents a loss of around 300 USD/m3, transformed into 220 dollars by a special regime designed by the Energy Bureau (that allows the company to retain internal taxes). The estimated figure for 2007 are 0.8 million m3 of imports and a consumption of 12.7 million m3. Fuel imports are also replacing natural gas consumption. However, as refining companies find their best opportunities by exporting products, there is a new bizarre phenomenon: while fueloil imports are growing, the same happens with its exports, thus generating a general welfare loss in this trading operation.

⁴⁹ The gasoline market focused on Premium products, as car sales also reached successive sale records in 2006 and 2007 (570000 vehicles in 2007). Diesel also faced maximum level of harvests and motorway trade.

Figure



Source: Own elaboration

Fiscal Figures and government take

The instrument of export duties (mainly in crude oil) allowed reducing producer prices not only for exports but also in the domestic surplus market, as its price was determined as export parity. This fact implied that the duty reduces both (almost) coincident prices: the domestic and the export.. The effect of this type of tax is therefore to subsidy refiners by the amount of the duty in the domestic market, as they buy at producer export parity, and to provide fiscal resources when producers sell abroad⁵⁰. The amount of income from hydrocarbon duties meant a relief for the budget, especially during the first post crisis year.

Export Duties and Fiscal Surplus. In million current pesos

	Export Duties Hydrocarbons	Primary Surplus Cash Base, NFPS	Share	GDP at market price	(1) / GDP	(2) / GDP
	(1)	(2)	(3) = (1) / (2)			
2002	1.061	2.260	46,9%	312.580	0,3%	0,7%
2003	1.312	8.688	15,1%	375.909	0,3%	2,3%
2004	1.843	17.361	10,6%	447.643	0,4%	3,9%
2005	2.942	19.661	15,0%	531.939	0,6%	3,7%
2006	3.520	23.165	15,2%	654.439	0,5%	3,5%

Source: AFIP; Sec. Hacienda; INDEC

⁵⁰ Over time, other instruments over determined domestic prices of oil products, thus eliminating the benefit to refiners (but not to consumers)

It is difficult to build a counter-factual scenario but had these resources not relieved the deficit, not only the macroeconomic equilibrium but also the social unrest could have been controlled. However, for oil-producing provinces the measure meant a transfer of resources enlarging centralized administrative power that generated resistance. As provincial royalties were paid according to net of duty prices, and at a frozen level in the case of natural gas, many governors claimed from the companies for price differentials in respect of the previous price formula. In some cases, compensation was agreed on a bilateral negotiation base. To a certain extent this type of negotiation became the rule rather than the exemption.

The dispute over oil rent resulted in a process where provincial and central government pushed towards different sides. On top of this, by early 2007 a new “short law” regulated the transferral of national areas to the provinces, according to the before mentioned Law of Federalization and Privatization of YPF in 1993.

The outcome of this law was a sort of administrative power atomization by the time several companies started to negotiate the extension of concessions: according to the law concessions extended for 25 years, with the option to extend them other 10 years. This happened at the same time that many companies carried judiciary process in international courts against the national state, due to what they defined as the “confiscatory measures” of early 2002. So once again concession contracts and oil rent became the unit of exchange for new capital investments.

For newly-bidding provincial areas (according to the Federalization of Hydrocarbon 1993 Law), there was an explicit discriminating process against foreign companies, where most bids were assigned to newly-created companies with strong political links to the government⁵¹. For other companies, especially for the biggest one (Repsol YPF), the opening of capital to local selected groups seems to be the formula that allowed the extension of present concessions.

Base on frontier prices Scheimberg (2007b) calculated oil rent and its distribution, upstream and downstream⁵².

⁵¹ In the case of Santa Cruz (the original territory from where the Kirchner couple come from) the company Oil M&S, that belongs to a businessman closely related to government, won 14 from 15 bids.

⁵² Frontier prices were calculated as export parities for oil and gasoline and import parity for diesel. In the case of natural gas the relevant price was the real export parity. As for cost of production they were estimated based on information about public companies, INDEC source and own estimation.

Upstream Oil Rent

Economic Ecuation for the Upstream: oil and gas (Average of periods)			
	1999-2001	2002-2003	2004-2006
<i>International price (US\$/bl)</i>	25,2	28,7	54,4
Sales			
Oil (tousands m3)	43.955	41.633	37.910
Gas (millions m3)	37.414	38.533	45.980
Average price			
Oil (us\$/m3)	142	163	311
Gas (us\$/tousands m3)	46	48	69
Oil Incomes	7.962	8.623	14.835
Oil (million us\$)	6.220	6.784	11.667
Gas (million us\$)	1.742	1.838	3.168
Cost of Production			
<i>Cost per BOE (in US\$)</i>	9,2	7,2	9,1
Oil + Gas (million us\$)	4.567	3.538	4.651
Upstream Benefit	3.395	5.084	10.183

Source: Scheimberg 2007b

Refined Products Economic Results

Economic Ecuation from Refining and Marketing. Average of periods			
<i>In million dollars</i>	1999-2001	2002-2003	2004-2006
Sales	7.637	5.856	9.172
Cost of Sales	6.063	5.561	8.737
Return on Assets	132	132	132
Surcharge to consumers	637		
Private subsidy to consumers		679	3.176
Financed by Oil Producers		632	2.867
Financed by Refiners		48	309
Downstream Benefit	1.442	163	302

Source: Scheimberg 2007b

The measure developed for the Upstream has two drawbacks. First it partially takes account of the cost of capital, as it considers development costs based upon real investment, so in a way it is not a fully economic cost (but rather accountable); and secondly, it does not take into account exploration cost. Therefore, instead of rent we are measure a cuasi rent.

Considering this warning, we can see how an international price hike produces an increment in oil rent in spite of the declining oil production we showed before. Besides, devaluation initially reduced domestic costs in dollar terms generating an overall cost fall. Therefore, Upstream profit (a more appropriate term than rent) increased threefold and twofold during the last interval (2004-2006) respect to the first (1999-2001) and the second (2002-2003), respectively.

As for the Downstream, the bottom line reflexes the economic rent of its activity. As it used to happen, whenever crude oil raises refining margins declines and vice

versa. So we can see a downtrend in benefits consistent with increasing benefit for the Upstream. However, this chart shows the two oil policy cycles. During the 1990s there was an implicit tax burden on oil products consumers (637 millions in average for the first period: 1999-2001), while in the following two periods there was a subsidy for them. So besides to the transferring from oil producers to refiners, part of it was received by all consumers⁵³. Final prices freeze in the third period determine a higher contribution of refiners to the final subsidy⁵⁴.

The next chart shows the overall rent (or benefit) distribution, including the gas subsidy.

Oil Rent Distribution

<i>Concept</i>	1999-2001	2002-2003	2004-2006
<i>In millions of nominal dollars</i>			
Total Oil Rent	4.837	5.247	10.485
Subsidy to oil products consumers	0	679	3.176
Subsidy to Gas consumers (*)	0	970	1.265
Profit Tax	613	574	1.212
Export Duties		389	924
Provincial Royalties	876	795	1.204
State Benefit (Nation + Provinces)	1.489	1.757	3.340
<i>As % of total</i>			
A. Total Corporate Benefit (Up+Down)	69%	35%	26%
B. Subsidy to Consumer	0%	31%	42%
C. State Benefit (Nation + Provinces)	31%	33%	32%
D. Public Benefit (B + C)	31%	65%	74%
E. Total Benefit	100%	100%	100%
(*) Exclude subsidies to regulated segments (transport and distribution)			

As can be seen, the new regulatory framework pretended to be progressive, as while price increased, the sum of government plus consumer transference increased. When we take into account all taxes and transfereces, including consumer taxes on oil products, we can see that the corporate sector reduced its overall income while the public sector increased it.

⁵³ It is worth mentioning that although Repsol and Petrobrás are vertical integrated companies, the calculation was made as if they were not.

⁵⁴ As the president of Shell Argentina stated, the company only had profits (considering the most recent period) in 2005 when President Kirchner supported a boycott against it. In the following periods, the more it sold the more it lost. Unfortunately the accountable figures of Esso and Shell are not publicly available to check this poin.

Net Oil Resources

Concept	1999-2001	2002-2003	2004-2006
Taxes to Consum (ICLG)	4.682	1.783	2.435
Other Taxes Upstream	168	146	225
Total Public Sector Income	6.340	3.686	6.000
Total Corporative Benefits	3.348	1.841	2.705

As on aggregate, the Refining sector is suspected to be close to breakeven; all corporate benefit corresponds to the Upstream as revealed by the following chart.

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Pecom Energía / Petrobras	7,1	6,3	7,6	6,2	7,7	6,3	9,3	12,4	10,5
YPF S.A.	7,9	11,0	19,6	15,2	21,7	24,3	26,9	27,1	17,5
Panamerican Energy (PAE)	1,3	7,1	25,7	16,0	22,8	21,7	27,7	31,2	38,7

From the three biggest companies that operate in the country, (that represent 2/3 of national oil production), Panamerican Energy is the only one that does not have refineries and oil product marketing, and is the most profitable firm of them all. Thus, the lower return of both vertically integrated companies is explained by the subsidy the refining sector provides to society.

Geological Perspective

Since the very beginning of oil industry, expectation regarding hydrocarbon resources was over-optimistic. The short cycles of stop and go for investments were inconsistent with long-term programs of exploration. Therefore, this activity was ordinary carried by the state-owned company while the private sector was focused on extraction. In addition, it seems a little odd that while private companies failed in high-risk exploration YPF then managed to have good performances in returned areas⁵⁵. This happened in Loma La Lata and in Magallanes fields. In other areas the outcome was definitely poor⁵⁶.

⁵⁵ See note 20

⁵⁶ Based upon Risk contracts of 1978 Total, Shell and Exxon within different consortiums made an aggressive exploratory campaign in the south. After drilling 13 wells Exxon gave back two areas of the Malvinas basin. Shell that was awarded four offshore exploration blocks also gave back the area in early 1980s after drilling 24 wildcats. The story resembles the previous try of Exxon and Shell during the beginning of the 1960s. While Exxon drilled 25 wells in Neuquina basin with little success, Shell did the same with 11 exploratory well in the Colorado Marina basin (in Buenos Aires province). Afterwards Illia annulled all contracts.

It is a fact that the biggest discoveries of reserves were carried by YPF (Turic and Ferrari, 2000), either at the time of state-owned or at the post-privatization period. However, a private company carried out the last big discovery made in the country: Petrolera San Jorge at Huantraico field (Neuquina basin). Herein, there is more than a decade of activity without any significant reserve addition. From a theoretical approach this could be understood either as a lack of a central planning policy (as when the sector remained centralized in the state-owned company) or as the wrong incentive design scheme.

Considering the second choice, Gulisano (2004) identified the reason of this stagnation since the mid-1990s as being caused by:

- a) Other countries offering better conditions for investment (or a higher expected return for their better geological conditions);
- b) Wrong exploratory concepts, as there was a search for big reservoirs instead of small to medium size onshore fields. The inconvenience that appeared was that the scope of these fields were incompatible with the minimum economic scale of big multinational firms:
- c) There wasn't enough investment involved in high-cost offshore projects, with very high risk and, consequently, the same potential.

Therefore what this geologist postulates is that the Argentinean organization model, where 96% of industry belongs to foreign capital, doesn't match with its geological conditions. In addition for the high potential offshore segment, the regulatory framework provides neither good incentives nor promissory signals. At the same time, the offshore Carina field was identified as the highest potential gas reserve for the future, after Loma La Lata field. Almost two decades after that prediction, ongoing policies do still do not allow for the development of that potential.

According to the first choice, due to the strategic characteristic of this industry and its non-renewable condition, it is only by a national company provision that exploration could be carried on. This theory is based on the condition that as this activity is characterized by the externalities it provides, free market is not the appropriate way of organization..

In a certain way, historic evidence confirms the hypothesis about a tradeoff between efficiency and sustainability, related to market structure. That means that while the state had a quasi-monopoly over hydrocarbon resources; it was feasible to increase reserves and to enlarge the reserve/production ratio, ensuring thereby the availability of resources for coming generations. However, by that time productivity was very low and the country witnessed oil and gas shortages. There also arose a State bureaucracy and a union power, which wasted many public and social resources. On the other hand, when the system became private, productivity jumped and a rent-seeking behavior was installed. Price distortions were minimized (until 2002 crisis) and foreign capitals became abundant. The counter face of this process was a shortsighted approach to the nonrenewable resource.

Aiming at maximize profits, there were low incentives to ensure sustainability by consuming the long run stock of reserves.

It is quite difficult to measure this hypothesis, as the national economy and its institutions were changing very much in this sector during the free market period. In the last five years the main characteristic was the excess of regulation inside a fully private industry. This allowed the government to take advantage of sunk costs thus generating contractual opportunism.

At present, offshore is the hope of Argentinean oil industry, mainly in what pertains to the gas industry. However, the Carina field discovered by Total Austral could only be developed under a rather different regulatory regime for domestic gas production. Actually, present price conditions resulted in a discrimination with respect to Bolivian production⁵⁷. Notwithstanding, the accurate geological potential of the country, up to the present, is relatively low. In terms of geological-economical approach, the profit / perception ratio remains very low taking into account final corporate rent available.

Therefore, we finally ask ifk, given the ongoing incentive level to the private sector; the lack of central planning activity; the geological poor structure; and the lack of convergence between industrial and geological structural organization, is it not time to rethink the organization of the oil sector? It seems to have entered into a non-reversible down-trend cycle.

The hypothesis of an inadequate productive scale for big companies relies on the outcome observed in marginal areas sold to newcomers after the 2002 crisis, where they got a productivity jump during the last three years. This performance supports the concept previously exposed (Gulisano, 2004). It is also worth mentioning the activity carried out by PAE in the area of Cerro Dragón, where it recently got its concession extension in one of the survivors' contracts from Frondizi's time. In this case, the company managed to develop a new exploration concept searching at big deep levels. This resulted into the availability of the present richest field in the country.

The other observable phenomenon is the abuse of discretionary selection of bidders in the newest provincial bidding process and the arbitrary selection of certain businessmen to participate in the opening of equity of biggest companies or the constitution of joint ventures. This gives advantages to entrepreneurs linked to the government, and resembles the initial period of oil history when there was a raid of speculators for rent-seeking behavior⁵⁸.

⁵⁷ Carina reserves were identified in late 1980s, estimated to be 50000 m3 of natural gas with a potencial production higher than 10 million m3/day.

⁵⁸ The most recent reference to this is the case of the Petersen group that acquire 15% of YPF during the last days of 2007. Its origin is the financial sector of Santa Cruz province. Also the firm Electroingeniería entered into a JV (acquiring shares from Petrobras) to manage Transener, the High Tension National Grid network company.

The small productive scale of new dynamic players is not enough to turn off the declining big companies' production (**Annex xxxx**). For production to revert the ongoing trend, not only is dynamic small company participation required but also a stronger investment by big players, which are showing poor performance in recent years. Otherwise the oil industry that requires huge amounts of money to stay alive will not survive.

To turn this picture around it is necessary to design a stable regulatory framework that contemplates as many contingencies as possible, taking into account the geological restrictions. As international capital decides where to go in a world map, for market-friendly policies, it is necessary to beat other opportunities all over the world. In this context public policies should complement private decisions paying attention to fine-tuning the economic signals to support their decisions and behaving strategically to take advantage to a full set of energy supply choices.

Conclusions

It appears that Argentina has lost a balanced position in its oil productive organization. It started its oil record being one of the richest countries in the world, with a definitely pioneering state participation in this industry. After years of economic failure due to excesses of corporative and corruptive behavior, the State organization collapsed. Then it was the turn of free market alignment. However, the distributive conflict never ceased and a symptomatic fiscal deficit arrived. Into this scenario, the oil sector experienced a new romance with the economy, but the honeymoon was too short. A vicious cycle reemerged, of attractive rules to foreign investment followed by cheating attitudes, as if the root of the problem remains in weak institutions.

The oil sector requires what Argentinean institutions seem unable to provide: rule stability. Instead, a stop-and-go cycle dominates the oil national history overall. Initially dominated by state -owned control and tough central planning, and finally governed by private (and latter international) capital with absolutely no central planning over corporate decisions, but more recently governed by a confused and over-determined regulatory regime tending to privilege new "close to government" investors.

Three important lessons come from the empirical evidence shown. First, that the state-owned company was able to develop technical capabilities in order to search for reserves and to improve domestic technologies. However, the managerial capabilities at the state-owned company were shaded by a tight political linkage to national authorities which influenced managerial decisions. This interference affected the profit-seeking behavior that ended deteriorating the strength of YPF and created the circumstance for a radical move towards privatization in a context of international consensus towards this kind of policy.

The second lesson reveals that private companies did not perform well at expanding the reserves horizon. Even though they sometime made those investment efforts, their outcomes were disappointing. Since the late 1990s, after a promising market privatization, it became apparent that the incentive scheme was not to right to keep investing in exploration as it did in production. The regulatory scheme promoted to cash domestic reserves while the increasing economic and institutional instability supported a speedy extractive behavior with low investment effort, thus affecting long-run sustainability.

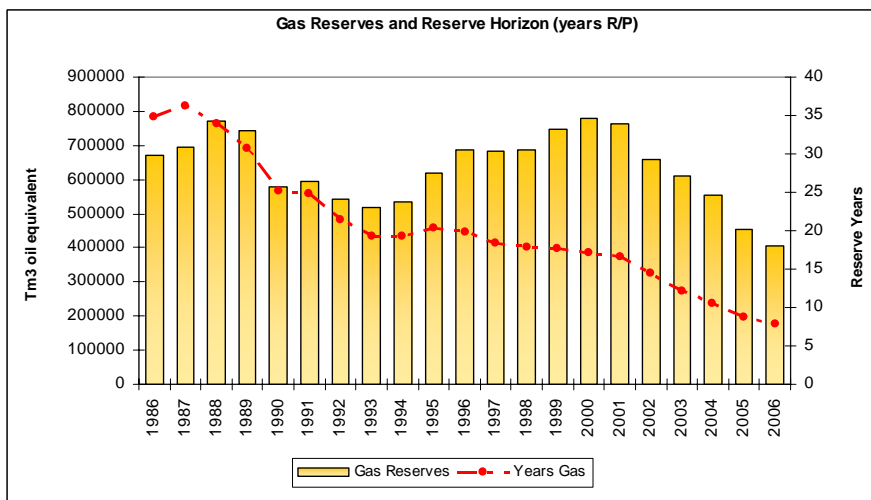
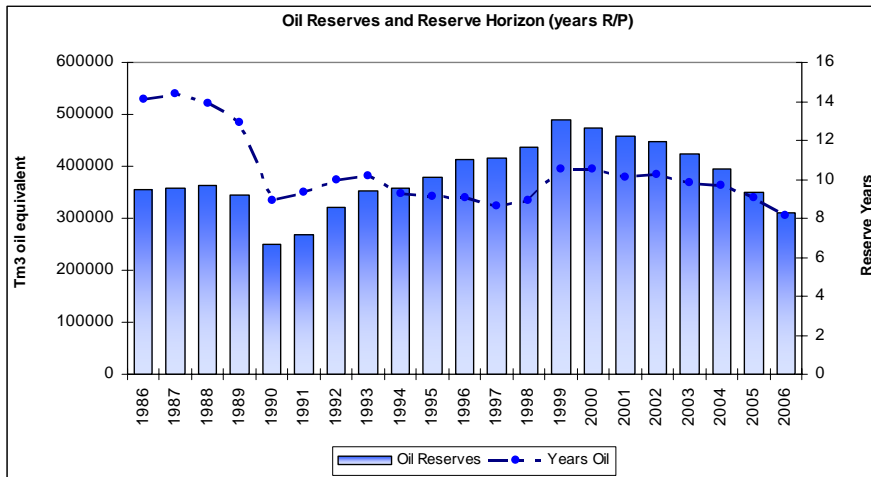
The third lesson is that there is a major role for the state in regulating and planning certain private decisions. Its absence proved to be dangerous for overall economic consistency. This lack of participation was partially a result of an ideological misconception that provided pendular responses to past actions of previous governments. As part of this behavior, political authorities decided from 2002 onwards to neglect all that was agreed during the 1990s, showing that those policies were responsible for all the evil situations in the country. Consequently there was a new **cheat** over past regulations and “old” investors.

This circumstance was part of the usual attitude of policy makers that infringe big costs for society each time there is an intention to call for private participation. The considerable concessions made for private capital during privatization and later on were a consequence of low public credibility. So the vicious cycle starts with low credibility, high concessions and a new round of expropriation that would enlarge future concessions. In the meantime, the oil sector is losing the opportunity to establish its necessary stable rules, defined in a widespread sense as a set of possible responses in the presence of a high degree of contingency.

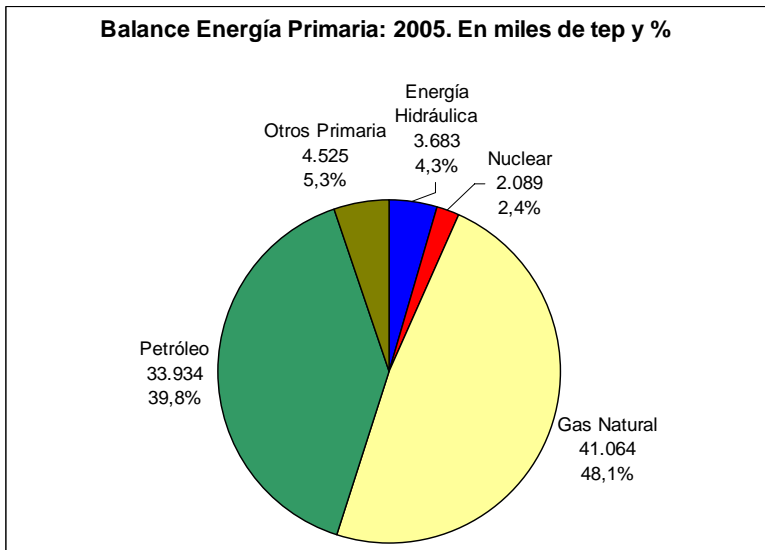
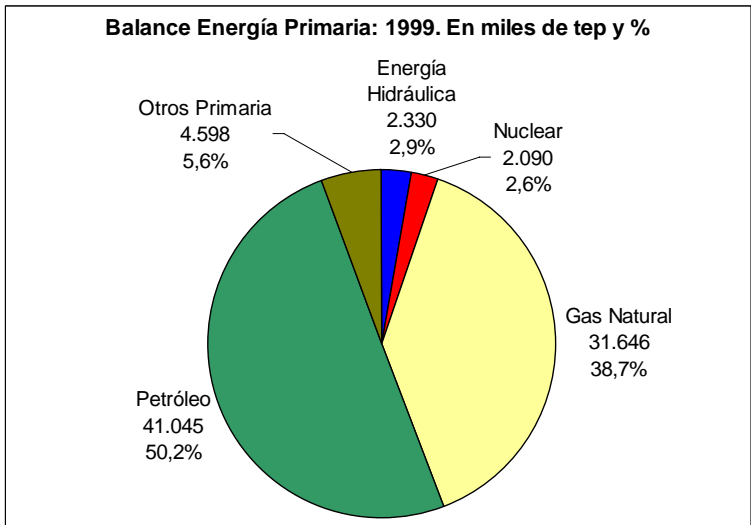
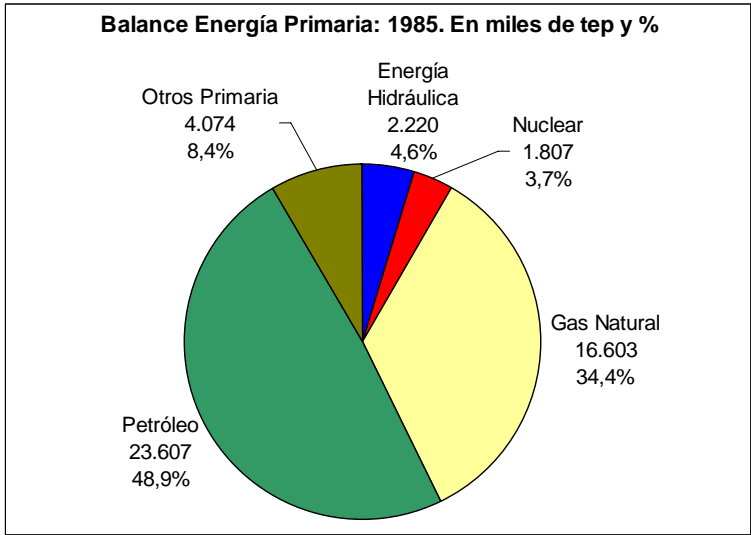
Finally, as Argentina proved not to have a privileged geology, rule stability and private concessions have to be tougher in order to develop a market-friendly oil policy, otherwise there will only be room for “friends’ market policies” (instead of a friendly market policy) where discretionary rules benefiting speculators or poorly technologically-endowed companies will apply.

A new oil battle has to be fought. This necessity would imply a serious discussion between all parties involved, to define an updated regulatory framework where the private and the public sectors would interact with harmony and foresight.

Appendix

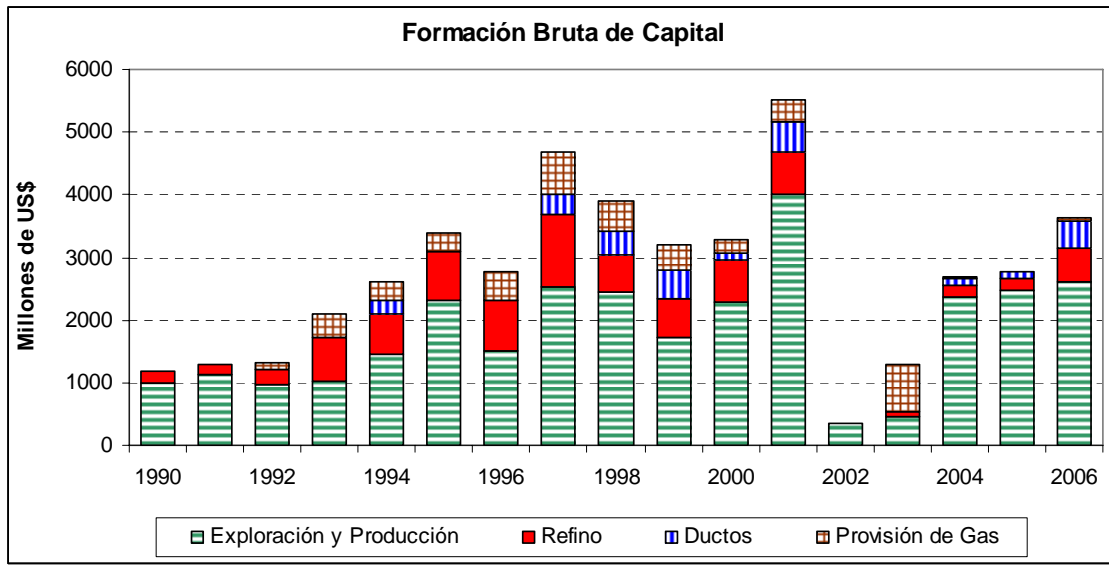


Average annual price	
Year	WTI
1986	14,88
1987	19,17
1988	15,52
1989	18,97
1990	24,47
1991	21,50
1992	19,98
1993	18,31
1994	17,19
1995	18,44
1996	22,29
1997	20,59
1998	14,43
1999	19,26
2000	30,33
2001	25,94
2002	26,12
2003	31,15
2004	41,42
2005	55,81
2006	66,01
2007	72,56



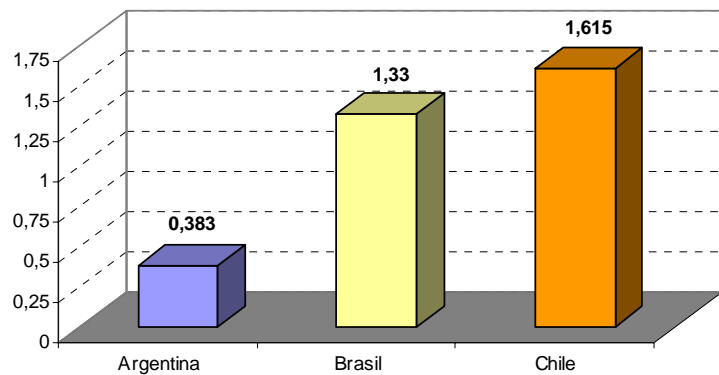
Mercado Eléctrico Mayorista								
MES	TV	TG	DI	CC	TERM	HI	NU	TOT
1992	4857	1518	82	84	6541	5721	1005	13267
1993	4836	1597	84	84	6601	6384	1005	13990
1994	4836	2128	84	84	7132	7309	1005	15446
1995	4867	2683	4	144	7698	7629	1005	16332
1996	4783	2943	4	144	7874	8230	1005	17109
1997	4752	3143	4	550	8449	8748	1005	18202
1998	4548	3161	4	1513	9226	8668	1005	18899
1999	4515	2698	4	2365	9582	8925	1005	19512
2000	4515	2032	4	4238	10789	8925	1005	20719
2001	4515	2039	4	5856	12414	8925	1005	22344
2002	4515	2022	4	6271	12812	9021	1005	22838
2003	4515	2138	4	6296	12953	9021	1005	22979
2004	4526	2098	4	6299	12927	9100	1005	23032
2005	4496	2083	4	6299	12882	9415	1005	23302
2006	4463	2266	4	6361	13094	9934	1005	24033

	OFERTA					DEMANDA						
	Generación Térmica	Generación Hidro	Generación Nuclear	Importación	OFERTA TOTAL	Exportación	BOMB	Demanda Argentina	Pérdida Red	REST TENS	REST CORTES	REQ GEN P/Demanda
1992	22861	16140	6552	2267	47820	12	354	45800	2551	3	0	48720
1993	23379	19871	7162	1212	51624	15	491	48800	2561	43	14	51924
1994	22839	24421	7660	334	55253	15	609	51884	2845	9	15	55377
1995	25767	24304	6556	292	56919	191	254	53771	2704	5	14	56938
1996	31067	22287	6921	275	60550	311	130	57778	2330	1	4	60554
1997	29067	28788	7445	450	65750	273	303	62178	2996	0	8	65758
1998	31242	28908	6926	1907	68983	79	323	65667	2914	0	1	68984
1999	41101	24859	6586	311	72857	712	474	68757	2913	0	14	72871
2000	41958	31269	5731	1011	79969	4715	132	71941	3182	0	8	79977
2001	35250	38056	6541	1450	81297	4201	40	73599	3458	0	8	81306
2002	31429	37714	5393	2210	76745	1009	64	72106	3566	0	16	76761
2003	38093	35447	7025	1233	81799	434	47	77737	3580	0	0	81798
2004	48024	31821	7313	1561	88719	2070	143	82967	3536	3	4	88723
2005	49801	36100	6374	1736	94011	1800	434	87779	3900	0	3	93916
2006	53708	42355	7153	1125	104341	2671	346	96813	4512	0	0	104342

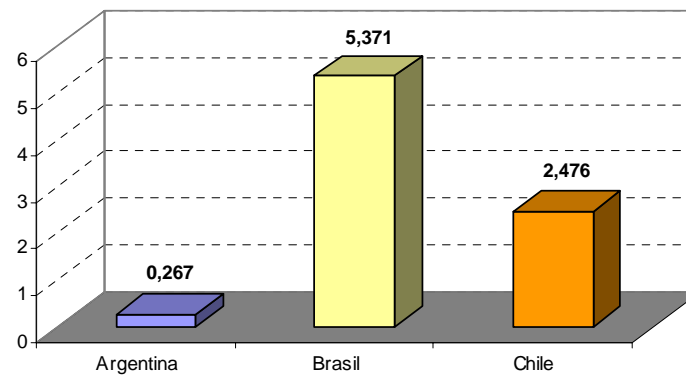


En kTEP	PETRÓLEO					GAS			
	Producción Crudo	Balance comercial Crudo	Prod. De Derivados	Balance comercial de Derivados	Consumo Interno	Producción	Balance comercial	Plantas de Transform.	Demanda Interna
1994	34.278	10.029	23.388	9.730	13.658	19.703	-1.873	21.576	18.804
1995	36.939	13.627	22.420	7.274	15.147	21.611	-1.703	23.315	20.366
1996	40.311	15.940	23.886	6.951	16.935	23.843	-1.760	25.603	21.929
1997	42.837	16.169	26.026	8.829	17.197	25.447	-799	26.247	22.352
1998	43.513	15.750	27.003	9.409	17.594	26.947	328	26.619	22.626
1999	41.045	12.855	27.324	10.243	17.082	30.919	2.461	29.510	25.045
2000	39.530	12.894	25.611	8.906	16.705	34.598	3.854	30.744	25.928
2001	40.089	13.346	25.229	10.086	15.143	34.928	5.027	29.901	23.893
2002	37.788	12.794	23.373	9.854	13.519	34.663	4.769	29.894	23.231
2003	37.079	11.258	23.752	10.056	13.696	38.880	5.291	33.588	25.589
2004	35.976	8.374	26.222	11.475	14.747	41.269	5.397	35.685	27.782
2005	34.180	6.832	25.980	10.235	15.744	41.177	3.963	37.214	28.757
2006	33.867	5.016	27.409	10.701	16.709	41.840	3.193	38.646	30.191

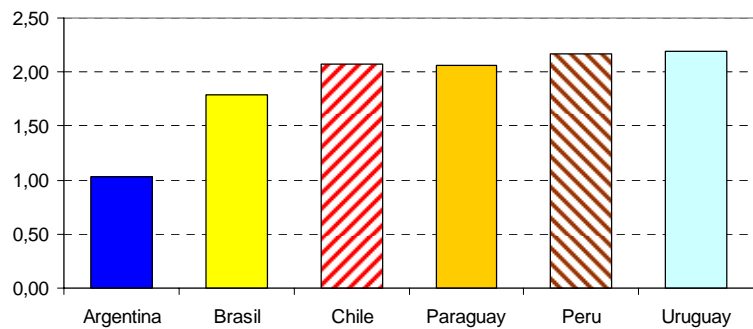
Tarifa de gas industrial \$/m3 a fin de 2006



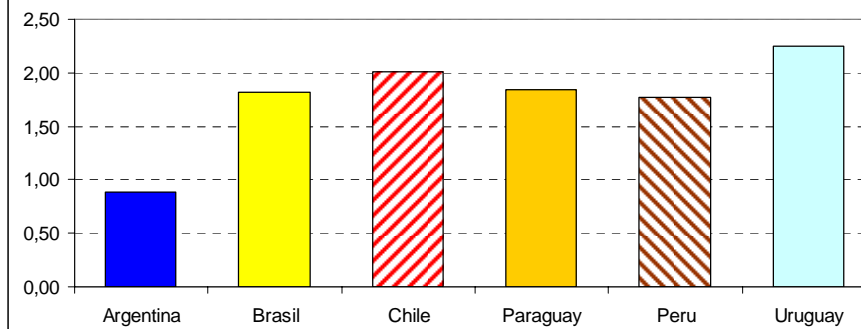
Tarifa de gas residencial \$/m3 a fin de 2006

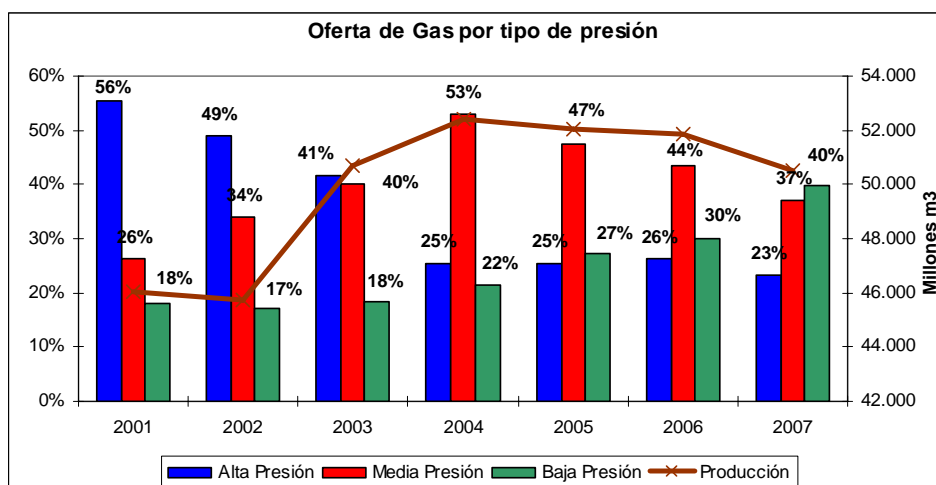


Nafta super sin impuestos año 2006. En \$/litro

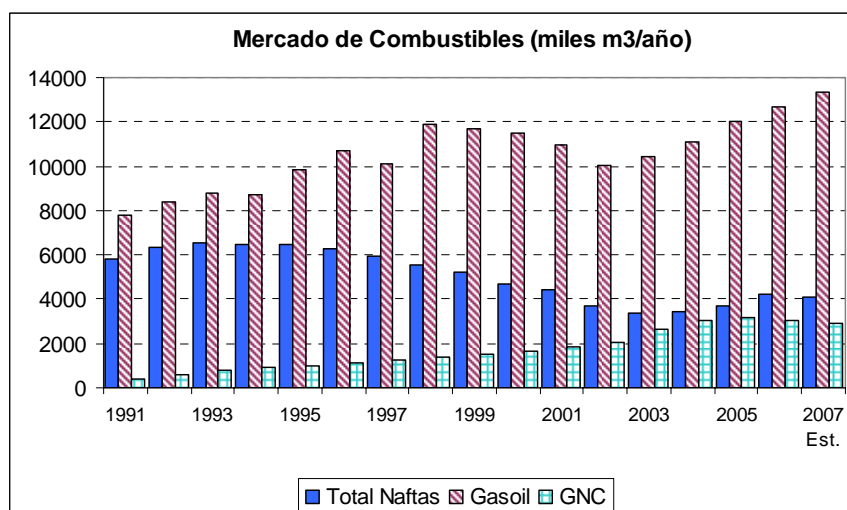


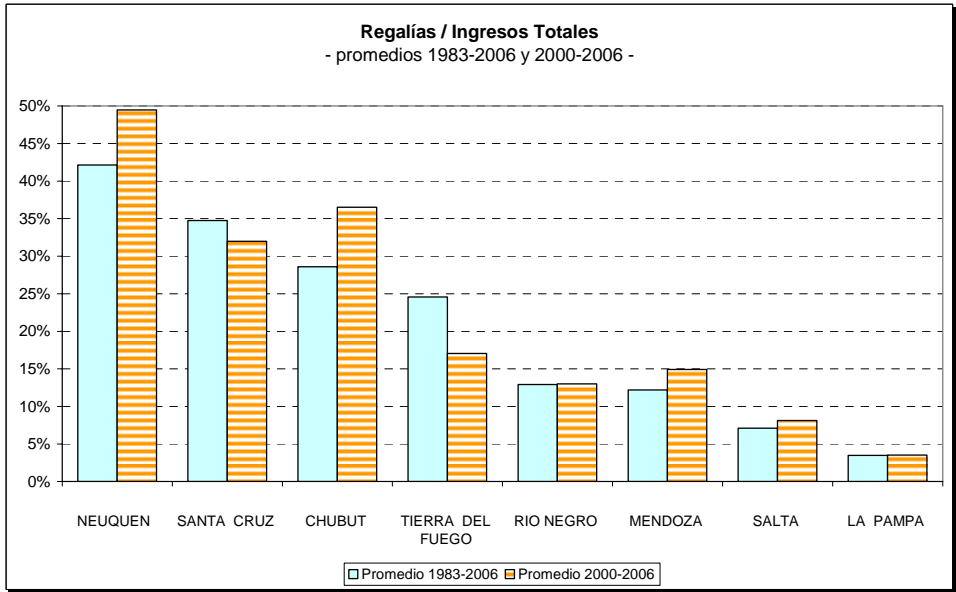
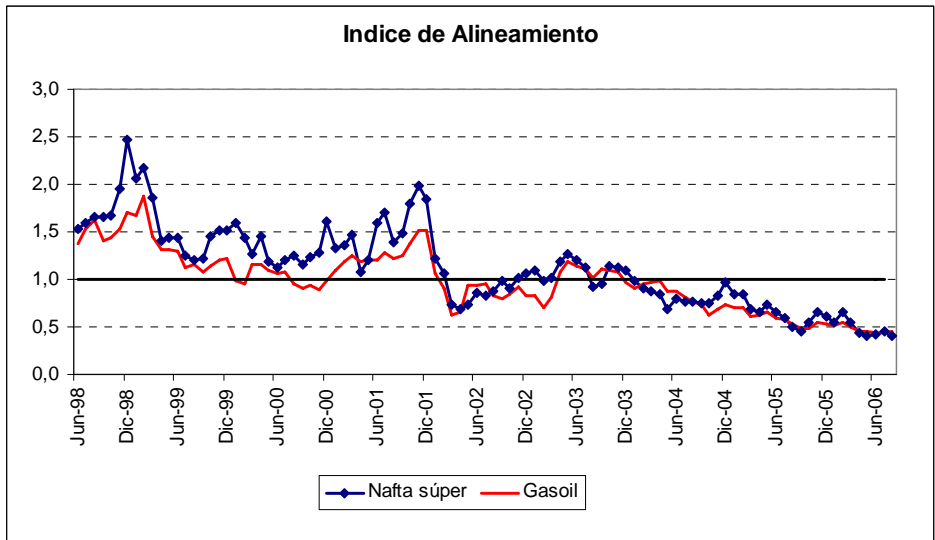
Gasoil sin impuesto año 2006. En \$/litro





REFINERIA	2006	2005	Var. %	1°Sem. 2007	1°Sem. 2006	Var. %	% PART.07
REPSOLYPF							
La Plata	10.404,7	10.006,9	4,0%	5.530,6	5.206,6	6,2%	32,5%
Luján de Cuyo	6.328,8	6.086,7	4,0%	3.113,3	3.139,6	-0,8%	18,3%
Pza. Huincul	1.501,4	1.383,8	8,5%	761,5	727,7	4,7%	4,5%
TOTAL	18.234,9	17.477,3	4,3%	9.405,4	9.073,8	3,7%	55,2%
Esso Campana	4.745,2	3.973,0	19,4%	2.423,7	2.354,9	2,9%	14,2%
Shell Dock Sud	4.937,9	4.644,7	6,3%	2.560,2	2.355,1	8,7%	15,0%
Refisan (Petrobras)	1.908,4	2.128,2	-10,3%	1.332,8	994,7	34,0%	7,8%
B. Blanca (Petrobras)	1.742,3	1.522,5	14,4%	842,0	877,7	-4,1%	4,9%
Refinor	987,5	1.041,6	-5,2%	450,1	499,4	-9,9%	2,6%
Otras	44,7	166,2	-73,1%	22,7	22,9	-1,1%	0,1%
TOTAL GENERAL	32.600,9	30.953,6	5,3%	17.036,9	16.178,5	5,3%	100,0%
% de Capacidad Instalada	91%	86%		95%	90%		





	Oil (Tousands m3)			Gas (Millions m3)		
	2004	2005	2006	2004	2005	2006
YPF S.A.	17.241	15.607	14.801	17.036	15.607	14.726
Panamerican	5.943	6.128	6.249	6.362	6.740	6.653
Petrobras Energía	4.214	3.733	3.522	4.881	4.563	4.865
Chevrón San Jorge	3.591	3.514	3.105	1.188	1.023	997
Total Austral	1.580	1.461	1.454	11.244	12.105	12.687
Tecpetrol	1.886	1.897	1.911	2.777	2.478	2.084
Ocidental	1.652	1.981	2.138	517	531	492
Pluspetrol	862	847	884	4.549	4.719	4.722
Sipetrol	1.032	800	756	1.062	947	945
Capsa Capex	751	691	689	1.052	997	961
Petrolera Entre Lomas	593	641	693	366	404	381
Apache	483	466	528	943	1.117	1.754
Petroquímica C. Rivadavia	54	195	269	92	155	171
Chañares Herrados	133	136	190	4	5	8
Petrolera Sudamericana	110	114	132	80	66	57
Petro Andina Resources	0	18	172	0	0	1
Petrolífera Petroleum Lt.	0	0	58	0	0	1
Others	527	404	717	232	214	274
Total	40.652	38.632	38.268	52.385	51.671	51.779

Note: Data from Occidental have data from Vintage Oil before 2006. Pioneer was bought by Apache