




“State-owned enterprises as a political tool: The case of a Venezuelan oil company”

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STATE-OWNED ENTERPRISES AS A POLITICAL TOOL: THE CASE OF A VENEZUELAN OIL COMPANY

Abstract

Public companies represent a valuable tool for the state to intervene in the economy by correcting market failures. However, critical positions that advocate its privatization continue to appear since they do not usually have great returns. This study analyzes the effect that political goals have on the efficiency of a state-owned enterprise (SOE) when ownership and management tend to be concentrated in the same actor. Agency theory served as a reference framework, using *Petróleos de Venezuela (PDVSA)* as a case study during the period 1995–2014. First, the period was divided into four stages differentiated by changes in the SOE volumetric strategy, the exploration strategy, the position regarding foreign capital, and the SOE participation in social development activities. Later, the SOE economic and productive efficiency was analyzed in the stages to identify relevant changes. The results indicate that the interests of the principal and the agent by good management of the SOE increase when the profit is reduced. It is mainly due to the need of the government to benefit from these activities. However, when the company surplus increase, the government tends to intensify its control to obtain additional benefits, especially during electoral events.

Keywords

political goals, state-owned enterprise, agency theory, efficiency, management

JEL Classification

D72, H21, L32, M11

INTRODUCTION

The study of state-owned enterprise (SOE) management is an issue that has acquired significant relevance since the late 1970s with privatization policies. Although SOEs emergence was associated with ideological factors, its privatization stage has been driven more by economic factors (Bel, 2011). In fact, one of the objectives pursued by governments with the SOEs privatization has been productivity improvement since, by nature, these would be inefficient and could progress after privatization (Megginson & Netter, 2001; Li et al., 2019). However, the argument for the inefficiency of public ownership has not been conclusive even when ideological objectives continue to weigh on SOEs management.

Accordingly, it is interesting to know what happens with efficiency when an SOE is forced to implement additional productive objectives for political or ideological reasons. Undoubtedly, it is not always possible to quantify the effect that these types of policies have on SOEs, especially when they are not explicit. However, it may be useful to debug the company's accounts from these policies (as much as possible) to observe their productivity over time.

Therefore, it is essential to use SOE management measurements according to the nature of their purposes. However, it is also essential to



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differentiate the objectives according to the nature of the company from those that are not, to have an appropriate assessment of their management. In this sense, few studies take these particularities into account when evaluating the efficiency of SOEs and run the risk of comparing them using measurement criteria that are distant from their context.

On the other hand, it is clear that in some instances, the governments in power are tempted to use these companies for political purposes to favor party members or to influence electoral results, especially when the company size may have a significant impact on public policy.

1. LITERATURE REVIEW AND HYPOTHESES

One of the theories that have explained the lower efficiency of some SOEs is the agency theory (Jensen & Meckling, 1976; Fama & Jensen, 2008). According to this theory, SOEs' lower efficiency would be due to the inefficiency of its owner (P) to establish an adequate control and incentive system that allows it to reduce the residual loss of efficiency that the separation between ownership and management of the subordinate unit entails. Vickers and Yarrow (1991) affirm that differences in agency costs could better explain differences in SOEs efficiency since these would rise in both public and private companies. In this sense, Vergés (2014a) affirms that if an SOE shows accounting results and its production efficiency is lower than that of another comparable private enterprise (prE), the causes of diminished efficiency should be sought in those elements that determine net agency costs.

Bearing in mind that SOE owner usually has different interests than those of prE, prior to looking at the differences in agency costs, attention should be paid to its different objectives so that two equivalent realities are compared. For example, suppose a P has set a goal of benefit maximization. In that case, better results in terms of profitability are expected if a P has set a goal to maximize social welfare or political benefit. On the other hand, Mühlenkamp (2015) and Haririan (1989) argue that, in the case of SOEs, economic benefits are not a good comparative measure against prE, since it usually is not their objective. Therefore, the result of comparing prEs and SOEs in terms of profitability may not be valid due to the lack of equivalence in the conditions.

Therefore, to make a valid comparison, ensuring that the information used corresponds to the

subject under study is necessary. In this sense, comparisons could only be based on productivity measurements. This approach would be valid for comparative studies between SOEs and prEs as well as for longitudinal studies on one or more SOEs. Although this may be obvious, there are numerous comparative studies that fail to filter the data sufficiently.

In the case of SOEs, there can be non-productive objectives (Parris et al., 1987) that can be summarized as:

- a. Become an economic policy instrument for regional development (Bernier, 2014; Oğuz et al., 2014; Carnes et al., 2019);
- b. Meet social service obligations (Hayllar & Wettenhall, 2013; Roy & Hackett, 2017);
- c. Be used for political purposes (Pandey & Wright, 2006; Stazyk & Goerdel, 2011; Malay & Fairholm, 2020).

In the first two cases, it is understood that intervention in the economy via SOE to deal with market failures that compromise social welfare may be necessary. However, the costs of SOE under these conditions would probably be higher than what microeconomic efficiency would pursue. On the other hand, the third objective is not explicit, and therefore, it is not easy to quantify the impact on efficiency. The public choice theory explains this behavior very well by stating that politicians or officials pursue their own interest or that of their party rather than general interests (Buchanan & Tullock, 1962; Caplan, 2005; Inoue, 2020; Lecy et al., 2019). This materializes in behaviors that seek to maximize the vote, personal or party benefits. Picazo-Tadeo et al. (2012) analyzed urban water services and affirmed that political and ideologi-

cal motives have an important influence on public service management. Similarly, when programs force agencies (SOEs) to enter conflicts in which they are asked to support and restrict that goal, the resulting uncertainty among staff regarding priorities can have a negative impact on operations (Carrigan, 2018).

In this regard, this study analyzes the effect that extra productive objectives have had on SOEs management, using *Petróleos de Venezuela, SA (PDVSA)*, a prominent company in the Venezuelan oil sector, as an illustration. This case study is relevant since the company ranked 19th among oil and gas production companies worldwide (Helman, 2015). Moreover, it kept a workforce of almost 115 thousand employees and generated 94% of Venezuela's exports by 2015.

Hypothetical assumptions are:

- H1: *SOEs tend to be efficient when they operate with clear objectives and have autonomy in their management.*
- H2: *The concentration of ownership and management of SOEs by the government negatively affects their management.*
- H3: *When the size of the SOE has a relevant weight in a locality, state, or country, the government's incentives to use it as a political tool increase.*

2. METHODS

The methodological approach began with the contextualization of the company. Then, the paper defined the variables that allow analyzing the principal-agent relationship and the division of the period into stages of relevant changes in this relationship. Next, the study evaluated the economic and productive behavior to analyze the performance of the SOE.

Organizational changes in PDVSA. The first phase of this section consisted of having an approach to PDVSA context and then analyzing the management style of this SOE, using the agency theory as a theoretical framework, identifying its main stag-

es and the state's role in the imposition of political objectives. An equivalent method has already been used to analyze the effect that organizational changes have on SOE efficiency (Morales, 2005; Garlick, 2019). Finally, management autonomy delegated to the SOE is analyzed and the imposition of the company's social objectives.

The first phase of the analysis defined the stages that mark relevant differences throughout the 20 years of study. The agency theory and a previous study by Núñez and Pagliacci (2007) served as reference. The variables that could influence company management were also defined as follows.

Volumetric strategy includes the variations observed in oil production volume and the government's oil policy. Three categories are included: a) *conservationist*, when production is expected to maintain or diminish; b) *moderate growth*, when an increase in production is aspired to without the capacity for production expansion; and c) *significant expansion*, when an increase in production and refining capacity is observed.

Exploration strategy refers to the policy applied against the search for new reserves. It includes two categories: a) *intensive exploration*, when an investment policy that seeks to increase reserves is observed; and b) *maintenance exploration*, when exploration activities seek to maintain existing reserves.

Position regarding foreign capital refers to the expected participation of private capital in the oil business. It includes three categories: a) *promotes participation*, when seeking participation in exploration and production activities; b) *promotes mixed participation with state control*, when private capital participation is sought yet is under state control; and c) *avoids participation*, when private equity participation is not encouraged.

Company participation in social development activities refers to the political intention of the company to participate in non-productive activities of social development. The categories include a) *high*, when a company participates directly and with a relevant investment in social development activities; b) *medium*, when a company participates directly but with a reduced interest; and c) *low*, when

a company does not participate directly in social development activities.

Measuring the efficiency of the company. In the next phase of the study, SOE efficiency is analyzed based on economic and productive indicators. The analysis is carried out based on the audited accounts of the company and the productive activity published in the management reports from 1995 to 2014 and in the US Securities and Exchange Commission until 2004.

Based on this data, purification and standardization of the information were carried out for the entire period, and the margin rates were estimated. Then, the first approach to PDVSA efficiency is made through a global productivity index based on constant prices from 2014.

Finally, an analysis of the effect that social objectives have had on the SOE efficiency was carried out from 1995 to 2014. However, the years 2015 and 2016 were excluded from the study because the financial statements were adjusted for inflation, and the procedure to eliminate its effect was unclear.

The model used combines economic performance and productivity indicators used as alternative measures. This approach was used by Morales (2007) and Vergés (2014b), and it is applied as a starting point in this study to assess company productivity from its accounts. The operating margin rate (*m*) is used as an economic indicator, and the global productivity index (GPI) and the average total cost per unit of production (ATC) are used as productivity indicators.

The operating margin rate *m* is defined as:

$$m_t = \frac{OI_t - OC_t}{OI_t}, \quad (1)$$

where *m* is the margin rate for the year *t*, *OI* stands for operating income, and *OC*, operation costs.

To calculate GPI and ATC, it was necessary to deflate outputs *OI* and inputs *OC*. As weighting output, the product prices were used, taking the year *R* as a reference, in which the measure of the global output for the year *t* is equivalent to the income of year *t* recalculated at year prices *R*, (*OI*):

$$OI_t^* = \sum_i q_{i,t} \cdot p_{i,R} \equiv \sum_i q_{i,t} \cdot p_{i,t} \cdot \frac{p_{i,R}}{p_{i,t}} \equiv \sum_i OI_{i,t} \cdot \frac{1}{ivp_{i,t}}, \quad (2)$$

where *i* = 1, 2, ... *n*, represents *i* company outputs *q* in the year *t*; *p_{i,R}* are the weights for each output *q*; *ivp_{i,t}* is the average rate of change of the company's prices for output *i*, in the year *t*; *ivp_{i,R}* = 1.

As input weighting, the prices of the production factors were used, with which the GPI denominator will be equivalent to the costs of year *t* at constant prices of year *R*, (*OC*):

$$OC_t^* = \sum_j f_{j,t} \cdot k_{j,R} \equiv \sum_j f_{j,t} \cdot p_{j,t} \cdot \frac{p_{j,R}}{p_{j,t}} \equiv \sum_j OC_{j,t} \cdot \frac{1}{ivk_{j,t}}, \quad (3)$$

where *j* 1, 2, ... *n*, represents *j* different inputs *f* in the year *t*; *k* represents the weights for each input *f*; *ivk_{j,t}* is the average rate of change of prices paid by the company for *j* inputs, in the year *t*; *ivk_{j,R}* = 1. Thus, the effect that price increases could have on the variations in the productivity indicators has been separated, in which an adequate evaluation of productive efficiency will be obtained.

Once the income (*OI*) and costs (*OC*) have been calculated at constant prices, productivity indicators represented by GPI and ATC were estimated:

$$GPI_t = \frac{\sum_i q_{i,t} \cdot p_{i,R}}{\sum_j f_{j,t} \cdot k_{j,R}}, \quad (4)$$

$$ATC_{i,t} = \frac{\sum_j f_{j,t} \cdot k_{j,t}}{\sum_i q_{i,t}}. \quad (5)$$

To calculate economic and productivity indicators, disaggregated data extracted from the company's financial statements were used: operating income (*OI*), operating costs (*OC*), and profit. The year 2014 was taken as reference *R* and the following assumptions were raised to recalculate the *OI* and *OC* to the year *R*:

1. The change of the average prices per barrel of the export package was used as a reference to

assess the sales of crude oil and its derivatives abroad. For purchases of crude oil and products, the average prices per barrel of the export package were used (PDVSA, n.d.).

2. For depreciation, depletion, and amortization, given that around 70% of the expenditure was associated with production and refining facilities, it was assumed that they have varied in parallel with the producer price indexes: Oil and gas field machinery and equipment manufacturing.
3. For sales revenues of crude oil and its derivatives in Venezuela, it was assumed that they have varied according to the official Bolivar/Dollar exchange rate (Banco Central de Venezuela, n.d.) given that they are revenues generated in bolivars and that the price of fuel was remained unchanged during all the analyzed periods.
4. For exploration and operation expenses and selling, administrative and general expenses, it was assumed that they have changed according to the producer price indexes. Mining support activities are drilling oil and gas wells (U.S. Bureau of Labor Statistics, n.d.). This is due to its variation in bolivars tends to adjust to the exchange rate variation (therefore, it would already be compensated for the value of USD).

3. RESULTS

The first phase of the analysis consisted of defining the context of PDVSA and the stages that mark relevant differences throughout the 20 years of study.

3.1. SOE context

To understand the role that oil has had for Venezuela, it is important pointing out that by 1928, the country produced more than 290,000 barrels per day (b/d), exporting around 275,000 b/d, ranking as the second world oil producer and the first exporter (Agüero, 2012). Likewise, the country's production capacity had a continuous increase until reaching 3,780,000 b/d in 1970.

Although the hydrocarbons law of 1922 had already authorized the state to develop oil activities by creating companies directly, it was not

until 1976 that PDVSA was created. Since that moment, the oil activity in the country was under the responsibility of PDVSA, as headquarters, accompanied by 14 subsidiaries. In 1977, the operating subsidiaries were reduced to five, then in 1978, it was restructured into four, and in 1986, they were restructured into three: Lagoven, Maraven, and Corpoven. Finally, in July 1997, a new restructuring was approved that eliminated these subsidiaries and created three sizeable functional business companies that make up the corporation: PDVSA Petróleo y Gas; PDVSA Exploration and Production; PDVSA Manufacturing and Marketing and PDVSA Servicios.

The definition of the central guidelines of the oil sector has always fallen on the Ministry of Energy and Mines, which occupies the highest level of responsibility. Then, in order of hierarchy, there is PDVSA that supervises and controls the activity. PDVSA has had a broad level of autonomy since its creation. In 1991–2000, it advanced in an aggressive agenda for transforming the national oil sector called "Apertura Petrolera." The company's high level of autonomy caused the conflict with the government after Chávez took power in 1999. In fact, Lander (2004) finds here part of the insurrection in the Venezuelan oil industry at the end of 2002.

This high degree of company autonomy facilitated a high level of vertical integration through alliances with foreign investors both downstream and upstream, which led it to become one of the large multinationals in the sector worldwide.

To understand the environment around this SOE, Baena (1999) explains that three factors influenced the oil industry: the oil market situation, the country's political context, and the financial situation of the government. Likewise, Baena (1999) explains that the influence that PDVSA exerted in the country and the difficulty of the executive and legislative branches to exercise their control mechanisms minimized in a certain sense PDVSA accountability to Congress and its subordination to the executive. This led to the conflict where the government progressively took control of the company, thus displacing the management and canceling the agency relationship.

3.2. Owner and agent position by stages

Dividing the history of an organization into stages is always a complex task due to the discretion that it may imply to define some variables to observe and then observe a change. However, the agency theory helps in this task. In a complementary way, the paper relies on Núñez and Pagliacci (2007), who have already carried out this task by defining the main changes for the company under study. Furthermore, Hults (2011) carried out an in-depth analysis of the different changes that the company has observed since its creation. These findings provide a more precise delimitation of the periods that defined relevant organizational changes and helped define the stages in this study. Similarly, the results of Manzano and Monaldi (2010) have been beneficial to contrast the information collected from the rest of the studies and the company information.

The stages are presented below, highlighting their main characteristics in a summarized way.

Stage 1 (1995–1999). This stage is described by Hults (2011) as a period where “Venezuelan politicians initially refrained from interfering in PDVSA because of the justifications behind that company’s formation and its early successes.” It was the last central government of the country that had a clear separation between the functions of the proprietor (Ministry of Energy and Mines) and the agent (PDVSA). However, despite the separation of duties, there was a clear harmony between their objectives in promoting the oil business, encouraging the participation of private capital, and avoiding the duality of objectives for the company. In addition, the company management believed that it could protect the oil sector from government intervention by signing contracts with outside companies that included extensive procedural protections (Manzano & Monaldi, 2010). In this period, PDVSA drove aperture strategy for foreign domestic upstream investment. It is also marked by low oil prices, which remained below \$20 per barrel.

Stage 2 (2000–2003). This stage is defined by Hults (2011) as a “transition in state goals” where the national government takes a turn to the extreme left accompanied by an increase in government pres-

sure (principal) to exercise greater control over the company (agent). The government’s interests sought to reduce productive investment and private capital and increase the company’s participation in social development activities and greater government interference in the company management. It is a period where barrel prices begin to increase, which gives rise to the emergence of social missions in charge of the company.

Stage 3 (2004–2009). The confrontation between the principal and the agent that characterized the previous stage resulted in the mass dismissal of workers at the end of 2003. In addition, it caused the appointment of the Minister of Energy and Mines (principal) as President of the SOE (agent). This cancels the separation between ownership and management and increases the use of the company in activities other than the oil business. Contracts renegotiation was characterized by opportunistic expropriation, generating high uncertainty on property rights and investment flight (Manzano & Monaldi, 2010). During this stage, 21 funds and social missions managed by the company are created to support government initiatives in community development to ensure the victory of the governing party in various elections. It is a stage where prices per barrel rise significantly, and production and exploration activity show a substantial increase.

Stage 4 (2010–2014). This last stage stands out for intense company participation in social development activities. The company’s average investment in these activities exceeded 20,000 million dollars annually. Aside from social contributions and missions, the company incorporated seven non-oil subsidiaries, adding 14,000 to 30,000 employees to non-oil activities. There is no separation between the principal and the agent during this stage, and the government remains as company manager. It also coincides with the highest prices per barrel for the analyzed period. Table 1 summarizes changes observed in the variables at each stage.

3.3. Political objectives in SOE management

The second phase of the study consisted of organizing the audited accounting information of the

Table 1. Position regarding the oil policy between the owner and the agent by stages

Source: Núñez and Pagliacci (2007).

Oil policy and management	Owner and agent	Stage 1	Stage 2	Stage 3	Stage 4
Volumetric strategy:	Owner (P): government	c	b	b	b
a-Conservationist	Agent: Company	c	c	b	b
b-Moderate growth					
c-Significant expansion					
Exploration strategy:	Owner (P): government	b	b	a	a
a-Intensive exploration	Agent: Company	b	b	a	a
b-Maintenance exploration					
Position regarding foreign capital:	Owner (P): government	a	b	b	b
a-Promotes participation	Agent: Company	a	a	b	b
b-Mixed participation with state control					
c-Avoids participation					
Company participation in social development activities	Owner (P): government	c	b	b	a
a-High	Agent: Company	c	c	b	a
b-Medium					
c-Low					

company for 20 years. Then, the variables defined were analyzed based on the information published on the company's management reports, classifying by stages. Table 2 shows the company's operational information.

The first step to calculate the margin rate was to ensure that only operational income and costs are used, excluding expenses and financial income,

expenses and income outside the productive activity of the company (Vergés, 2014b). Table 3 shows the evolution of the company's operating income (OI) and operating costs (OC) during the different stages of the study, highlighting the continuous increase in the calculated margin rate (m) from equation 1. The average rate of change indices (ivp and ivk) used to deflate operation costs, and incomes are also included.

Table 2. PDVSA operation data by stage

Stages	Year	Proved Reserves: Crude oil (million barrels)	Total Dry or abandoned wells	Average sales price: Crude oil (\$ per barrel)	Total crude oil, liquid petroleum gas, and net natural gas (in thousands of BOE per day)	Number of PDVSA employees (petroleum)	Number of PDVSA employees (non-petroleum)	Social investment (million US dollar)
Stage 1	1995	66,328	613	14.84	3,836	46,587	–	–
	1996	72,575	884	18.39	3,806	46,545	–	–
	1997	74,931	1,058	16.31	4,101	45,743	–	–
	1998	76,108	753	10.57	4,133	44,795	–	–
	1999	76,862	349	16.04	3,776	42,267	–	–
Stage 2	2000	77,685	474	25.91	3,938	41,462	–	–
	2001	77,783	479	18.95	3,973	40,945	–	34
	2002	77,157	366	21.19	3,522	40,133	–	14
	2003	77,140	206	24.35	3,298	28,841	–	549
	2004	80,582	313	32.22	3,657	33,281	–	2,316
	2005	80,012	379	45.32	3,776	43,807	–	3,762
Stage 3	2006	87,324	543	55.21	3,783	47,433	–	5,274
	2007	99,377	566	64.74	3,775	56,769	–	8,048
	2008	172,323	604	85.36	4,056	73,580	ND	4,990
	2009	211,173	495	57.01	3,892	86,790	ND	6,006
	2010	296,501	368	72.18	3,812	93,769	14,023	22,223
Stage 4	2011	297,571	402	100.11	3,860	98,422	17,000	28,657
	2012	297,735	469	103.42	3,802	106,465	20,744	28,293
	2013	298,353	454	98.08	3,811	113,369	22,338	23,340
	2014	299,953	ND	88.42	3,730	116,806	30,320	15,681

Note: BOE means barrel-of-oil equivalent.

Table 3. PDVSA operation income and costs

Stages	Year	OC*	OI **	m	Average index applied to income ivp	Average index applied to costs ivk
Stage 1	1995	17,989	26,041	0.309	7.71	4.75
	1996	20,599	33,855	0.392	5.41	4.10
	1997	23,095	34,801	0.336	5.92	4.15
	1998	20,766	25,526	0.186	8.65	5.10
	1999	23,622	32,600	0.275	6.07	4.29
Stage 2	2000	34,195	53,234	0.358	3.92	3.29
	2001	33,761	45,786	0.263	4.94	3.64
	2002	32,280	42,312	0.237	4.24	3.50
	2003	34,452	46,210	0.254	3.64	3.25
Stage 3	2004	43,311	62,695	0.309	2.77	2.64
	2005	52,452	84,553	0.380	1.99	1.85
	2006	59,534	99,267	0.400	1.63	1.47
	2007	49,969	96,242	0.481	1.41	1.31
	2008	71,373	125,499	0.431	1.08	1.10
	2009	52,150	73,819	0.294	1.61	1.43
	2010	58,654	94,929	0.382	1.23	1.25
Stage 4	2011	65,191	124,754	0.477	0.89	1.00
	2012	74,701	124,459	0.400	0.87	0.98
	2013	72,289	113,979	0.366	0.90	0.97
	2014	79,984	105,271	0.240	1.00	1.00

Note: * in millions of dollars, no financial expenses, no extraordinary expenses, and losses; ** in millions of dollars, no financial income, no extraordinary income and benefits.

As of 2004, the gap between income and operating costs increases significantly due to the increase in oil prices (Table 3). The increase in operating costs is mainly due to the variation in the “purchases of crude oil and products” account, which is based on the international prices of the oil basket. Despite the increase in revenues obtained since 2004, the company’s net profit reported after taxes remained below 10,000 million dollars through-

out the period, mainly due to the incursion of the company in financing extra productive activities (Figure 1). This income was not directly absorbed by the state but was administered by the company in compliance with the government’s political objectives. According to Hults (2011), PDVSA took functions simultaneously as an operating company, development agency, political tool, and government cash cow.

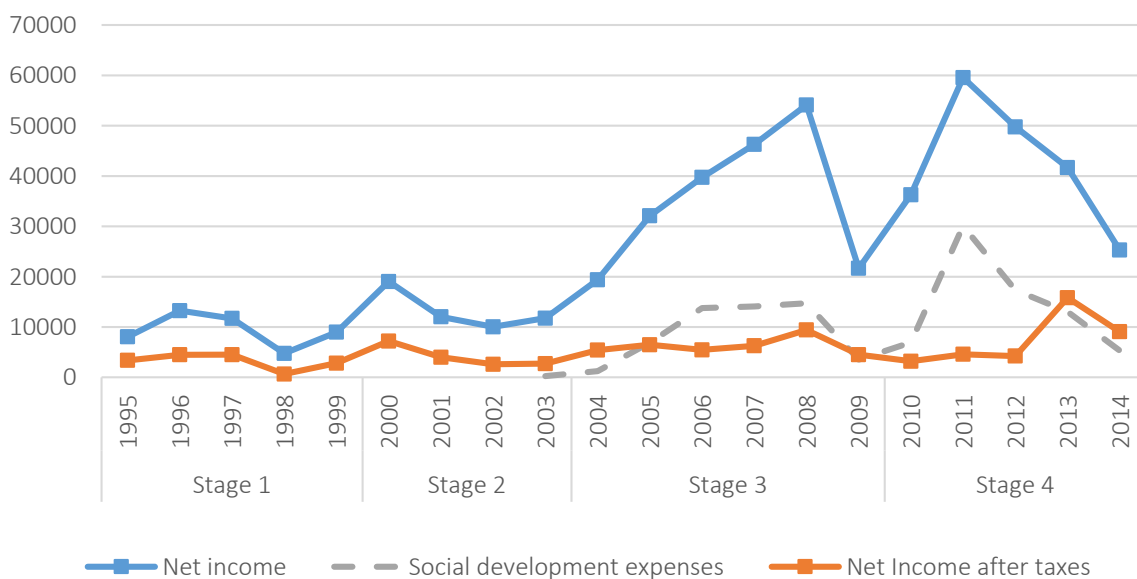


Figure 1. Evolution of company’s profit and social development spending (in millions of USD dollars)

As of 2003, the company ventures into social development activities and manages as many resources as the state itself. However, this gap begins to increase simultaneously as the benefit of exploitation. It occurs when company management is absorbed by the government (owner) to reduce the firm's autonomy and achieve political objectives. Initially, the government's interest was focused on the organization of missions, projects, and funds aimed at meeting various population needs, from missions to meet food and health requirements to feasibility care programs and hydraulic works. Table 4 shows the expenses of the government in social development.

Table 4 shows the diversity of operations attended by the company, the numerous resources allocated to each one, and the permanence and growth of these missions over time. Moreover, that is where the political profit comes from. The government used these programs to increase its political capital anchored in its ties to these missions, which would have their fruit as mechanisms of social pressure in the participation of the various elections. Figure 2 shows the behavior of voters in the various election scenarios from 1995 to 2015.

Looking at the period 1995–1999, it is seen that citizen participation in elections moved from 46.15%

Table 4. Expenses for social developments (in millions of US dollars)

Social Programs / Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
"Ribas" Mission			32	320	371	280	133	330	599	361	322	405	150	157	3460
Food Mission				146	303	325	916	212		1210	1238	317	1569	1607	7843
"Barrio Adentro I, II y III" Mission			34	275	309	1693	3258	130	7	3463	3781	5581	3888	4321	26740
"Vuelvan Caras" Mission				172	220	240	29	11							672
Miracle Mission					125		25	9							159
"Sucre" Mission			3	113	668			17	6	156	2			1	966
Science Mission						291	28								319
Energy Revolution Mission						210	219	174	745	2115	2197	69	196	250	6175
Dwelling Mission			300	500	500	476	659	221	157	1251	4010				8074
Farming Mission											1140				1140
Children of Venezuela Mission												598			598
"Amor Mayor Venezuela" Mission												1241			1241
Tricolor neighborhood Mission													325		325
Farming Projects				600	600	423	919	848	54	14	362	109	102	17	4048
Infrastructure Projects										335	623	63	799	204	2024
Self-gas Projects									91	202	116	230	89	5	733
"Alba Caribe" Fund						40	72		50						162
"Bicentenario" Fund										738			149		887
Youth special Fund													40		40
Security Fund										455	84		19		558
"Miranda" Fund										5083	4306	5113	4705	687	19894
Sport Fund										28	97				125
Chinese Fund								864	2065	2507	5022	5760	5817	6854	28889
Roadways Plans					113	28	77	237	125	93	1155	210	1657	50	3745
"Caracas Bicentenario" Plan											145	170	77	10	402
Hydraulic works						27	23	54	14	24	757	6	180	3	1088
Endogenous development Cores					55	47	130	46	5						283
Electric sector PDVSA contributions						163	650	822	1089	3578	1566	1435	1097	601	11001
Rain Emergency contributions										37	219	175	103		534
Community contributions	34	14	12	133	5	677	418	148	382	245	585	3808	1430	413	8304
Contributions for Social projects						202	262	578	369	297	623	1680	343	131	4485
Other Missions and contributions			168	57	493	152	230	289	248	31	307	161	503	162	2801
Saving funds for workers												1162	102	208	1472
Total contributions in missions and social programs	34	14	549	2,316	3,762	5,274	8,048	4,990	6,006	22,223	28,657	28,293	23,340	15,681	149,187

Note: Balance de la gestión social y ambiental 2014. Petróleos de Venezuela S.A. (Author's translation).

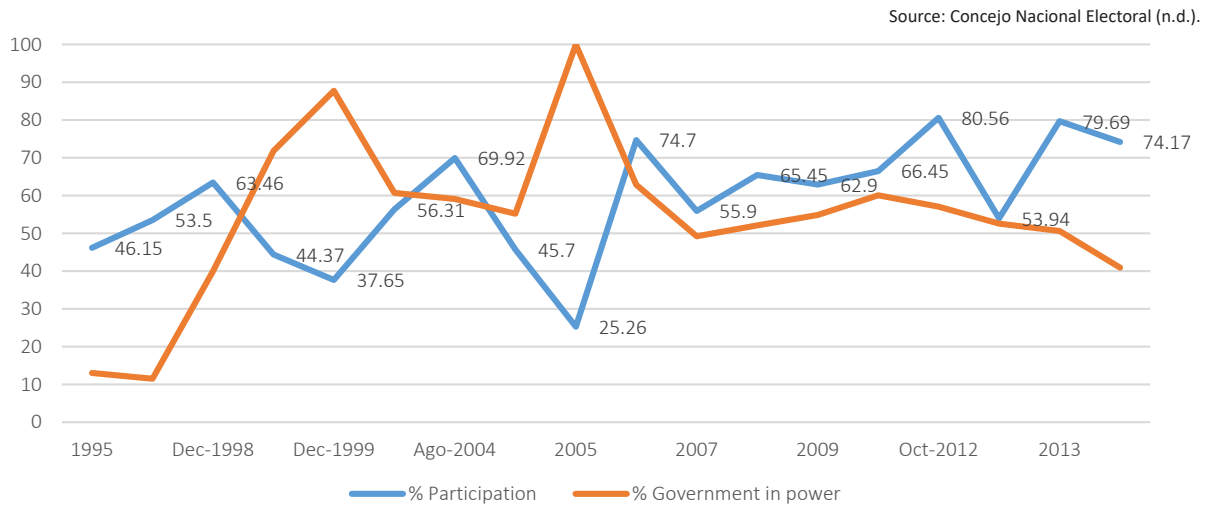


Figure 2. Participation of citizens in national elections in Venezuela

in 1995 to 37.65% in 1999. However, from the moment the missions began to take hold, the percentages of citizen participation increased to 80.56% in 2012. The 2005 election represents an atypical case since that year the opposition decided not to participate, and the government held 100% of the seats, although it registered participation of 25.26%. This policy based on the promotion of the participation of political capital motivated by perks allowed the government to maintain power with stakes greater than 50%.

3.4. Effects of political objectives on SOE efficiency

As mentioned before, in the case of an SOE, a negative result of the margin rate does not necessarily

imply inefficient management, and vice versa, SOEs' results may be affected by variables not controlled by the company that directly affect its management. Therefore, the next step was to deflate income and costs once the margin rate was calculated using equations 2 and 3, respectively. Subsequently, the GPI was calculated using equation 4.

Results in Figure 3 show that, in stages 1 and 2, the company decreased its productivity index sustainably, reaching a decrease in the productivity index of 17.76% in stage 1 and 24.94% in stage 2. In the first four years of stage 3, there is an increase in productivity, but this falls again in the next two years, averaging an improvement of 9.3%. Finally, global productivity fell again by 17.26% in stage 4.

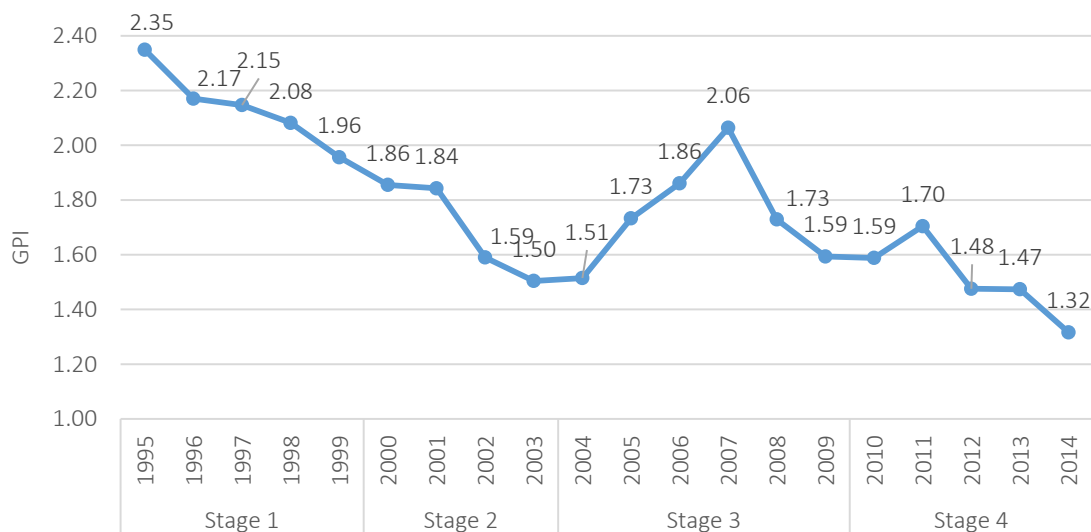


Figure 3. PDVSA global productivity index (GPI)

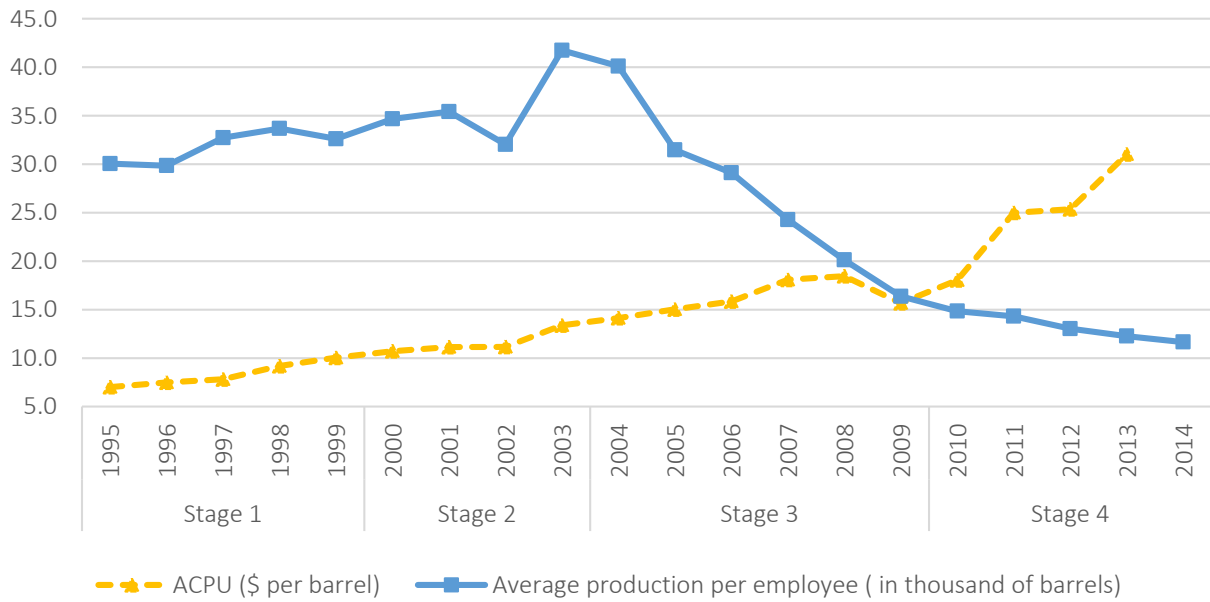


Figure 4. PDVSA average cost of production

This drop in productivity caused a continuous increase in unit production costs calculated according to equation 5 (Figure 4). This increase in production unit cost per barrel reached 30.35% in stage 1 and 20.16% in stage 2. However, it is in the following periods where it reaches a more increase in the cost of production per barrel by 53.46% in stage 3, and a 62.37% in stage 4, averaging a cost of \$31 per barrel. A variable that helps understand this in-

crease in production costs is the rise in the number of employees (Table 2). The average production per employee in BOE (barrel-of-oil equivalent) was calculated. Figure 5 highlights that, as of 2003, when it reached its maximum, there was a continuous fall of more than 70% of the productivity per employee.

Another element that can help explain this continuous increase in unit costs is the change ob-

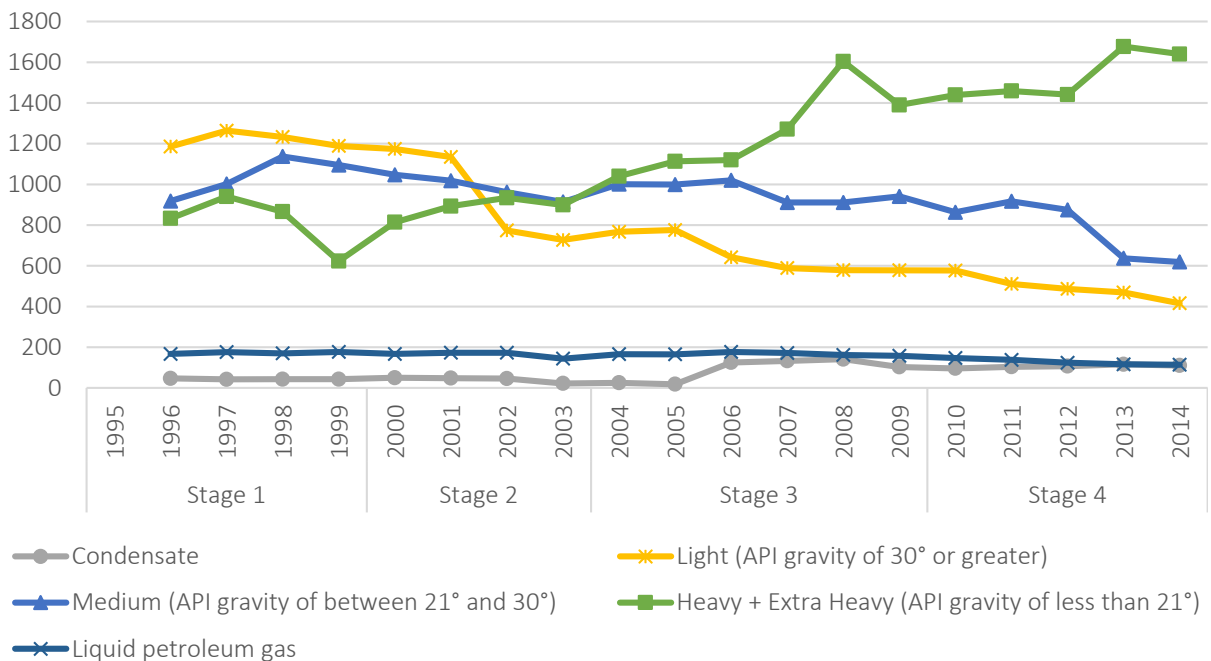


Figure 5. PDVSA total crude oil, liquid petroleum gas, and net natural gas (in thousands of BOE per day)

served in the oil basket, where the production of heavy and extra heavy oil becomes more relevant (Figure 5). This, logically, causes the unit production cost to rise due to the high cost of heavy and extra heavy oil production.

4. DISCUSSION

Although one of the hypotheses underlying the agency theory, corroborated by He and Sommer (2010) and Amamou and Ben-Ahmed (2019), indicates that by increasing the separation between property control and management increase agency costs associated with conflicts between managers and owners, this does not seem to apply to PDVSA operation in the first stage analyzed. In this state, both actors look for management marked by an openness to private capital, increased production, and the absence of political goals. This coincidence of interests was mainly due to the presence of low prices in the oil market and the need for the government to have efficient management that would increase the company's contribution to the state.

This approach is radically changed in the second stage analyzed, where the interests of both actors do not match. It is at this stage when the reduction in productivity reaches its highest value at to 24.94% decrease, despite the 50% increase in oil prices. The change in the governing party marks a change in the autonomy of the company, thus arising the first social missions. However, as Lecy et al. (2019) suggest, missions reflect the ideals of those

that create, manage, and support them, which were given by the interest of the government to retain power.

The third stage is characterized by the state taking control of the company management, caused by a conflict of interest with the leading team and by the government's interest in using the profits for political purposes. Predatory management policies based on the short term, which led to the change in production policies and the gradual incorporation of the company into social development activities, characterized this stage. Supporting Javid and Iqbal (2008), this study also concludes that companies, where the property is concentrated, tend to adopt worse governance practices. This study also agrees with the findings of Inoue (2020) and Soyeon et al. (2019) when observing how PDVSA maintained social development missions and activities to keep the mass of government voters mobilized.

During the last stage, there is a significant increase in the company's production costs and a rise in expenditure related to social development activities. As ownership and management are unified at this stage, the agency relationship characterized in the previous stages is annulled. As the company widened its scope of action, its management and productivity were negatively impacted, reaching its lowest level at the end of this stage. Similarly, Andrews and Mostafa (2019) observed that employee commitment decreases when the objectives are ambiguous.

CONCLUSION

This study provides empirical evidence on the effect of extra productive objectives on SOEs management. Findings confirm that SOEs tend to be efficient when they operate with clear objectives and have autonomy in their management. This has become clear in the first stages of the study. The study also confirms that the government's concentration of ownership and management of SOEs negatively affects their management.

When ownership and management are separated, and the company's profit is reduced, there is a coincidence of interests between the principal and the agent due to efficient management that increases the company's contribution to the state. However, when company profit increases, the government tends to raise the control over its management, even if compromising its productivity. This combination of high profit and concentration of ownership and management in the hands of the government favors the use of the company in activities far from its core, which ends up affecting its cost structure and its productivity.

This situation is more probable when the size of the SOE has a relevant weight in a locality, which brings good business in the short term for the government in power but undermines the company stability in the long term. In these cases, the SOE ends up becoming a political tool, thus distorting the evaluation of its business management.

AUTHOR CONTRIBUTIONS

Conceptualization: Juan Morales.

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Writing – review & editing: Juan Morales.

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