

Democratization



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The centipede game: *Chevron vs Rosneft*

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Abstract

In this paper, game theory is used to model Chevron and Rosneft's behavior in the context of the sanctions on the Government of Venezuela. We reached a Nash equilibrium where each player has incentives to cooperate with each other and continue operations in the country by increasing crude oil production.

The “new” Baron Rothchild

Nathan Rothchild began operations in England at the end of the 18th century. He bought fabrics that he then sent to Germany at the beginning of the Industrial Revolution. He entered the financial business in 1811, opened branches in the main European cities and participated in the financial markets with innovative debt instruments.

During the Napoleonic Wars, France imposed a tight commercial blockade on the British crown and its operations in Europe. The British had Rothschild to circumvent these sanctions. The baron's experience in the tissue trade and his financial businesses allowed smuggling gold with the European continent and saving the British from Napoleon. The operation involved

great risks that were naturally compensated with high returns. Thus, he became the greatest banker of the 19th century and perhaps the most influential in history.

History is plagued with examples of entrepreneurs who manage to break through –like Nathan Rothchild– finding new ways of doing business despite significant obstacles. If not, ask the Catholic Monarchs of Spain, who ended up discovering America after the fall of Constantinople in 1453 at the hands of the Turks.

Glasnot and Perestroika

In 2019, American and European sanctions sought to promote the change of political regime in Venezuela. However, after 3 Executive Orders (OE .13,692; OE13,850; OE13,884) and the designation of PDVSA, CVG MINERVEN, BANDES, Banco de Venezuela, Banco Bicentenario, Banco Central de Venezuela and the Government of Venezuela as blocked persons (Specially Designated National, SDN), the odds of reaching their goal in 2020 are low.

After a year of sanctions, the pressure mechanism has achieved a change of *economic regime*. I have identified this as a Venezuelan perestroika¹. The balance of the Venezuelan crisis in 2019 represents an advance in economic freedoms and a setback in political freedoms. Thus, the sanctions have had a mixed effect on the regime: positive in the economic and negative in the political².

1 Angel Alvarado, “Estructura económica en Venezuela y su camino hacia la democracia”, *Democratización* (Octubre, 2019): 103-121.

2 According to the More Consulting pollster, in a study conducted from January 8 to 10, 2019, 50.6% of Venezuelans think that 2020 will be better than 2019 compared to 44.8% who think it will be the same or worst. This

Historically, economic prosperity in Venezuela tends to reinforce the prevailing economic regime (democracy or autocracy). This has meant that businessmen and Wall Street lobbyist, Texas and Caracas could be beginning to prioritize their individual welfare function in the face of lower probabilities of political change, and thus not miss out on latent business opportunities in such a country endowed with natural resources, human capital and private savings.

During the dictatorship of Juan Vicente Gómez and Marcos Pérez Jiménez, Venezuela offered business opportunities to all who were willing to be far from dissident political sectors, remaining indifferent to political avatars. This made economic prosperity strengthen the political system (lock-on), making regime change more difficult.

A quadrant in which the business sectors assign low probability to political change paves the incentives for a more intense lobby in the Treasury Department so that they are allowed to carry out their operations with greater freedom while the regime changes. It is a survival strategy according to the natural economic interests of the sector and the apparent failure of a path taken in 2019 that has not yielded the expected results.

If the sanctions on PDVSA of January 2019 (called at the time the nuclear option) have not had the expected effect in terms of regime change, it is largely due to the fact that the same sanctions have made the national oil industry more efficient, through the transfer of PDVSA's operations to international private capital, catalyzing the "privatization" of the sector.

feeling of improvement responds to greater economic freedoms and the decrease in inflation from 2,688,870 as of January 2019 to 7374% by the end of the same year.

This has generated incentives for companies operating in Venezuela to want more business participation, with the natural lobbying of the Treasury Department to issue licenses to maintain their operations in the country, so that the Venezuelan “oil niche” remains in the hands of those with interests in the Western Hemisphere. This, in a scenario of prolongation of the conflict, could mean that the world’s largest oil reserves could be at the service of regional destabilization.

Treasury incentives in this scenario (niche preservation) are then oriented to renew the licenses of Chevron and other American companies to continue operating in Venezuela as long as they find no mechanism to exert pressure on Rosneft. This creates a Nash equilibrium where Chevron is the leader and Rosneft follows him, in the style of “oligopolistic model” developed by Stockelberg studied in game theory. We will take a further look at this issue in the next section.

The centipede game

The situation described above can be modeled as **the centipede game** used in game theory, and shown in Figure 1. This is a finite game with perfect information in which there are two players. In the original game each player starts the game with \$1 in his bag. Each player plays after the other saying “I continue” or “stop” starting with player 1.

When player 1 says “I continue” a dollar is taken from his bag by the referee and is placed in the opponent’s bag, adding \$2. A \$3 transfer to the opponent occurs. If player 1 says “stop” the game ends and each player receives whatever they have accumulated. Once player 1 has moved, it is player 2’s turn, who

has the same two options. Each player has incentives to cooperate with the opponent to maximize revenue. The game ends when both players exceed \$100.

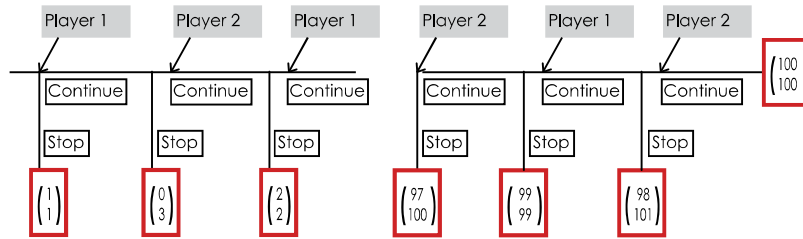


Figure 1: The centipede game

In this game, there are several Nash equilibria, but each of them is abandoned, starting with Player 1 in the first round and followed by Player 2 in the next round. Thus, the game becomes cooperative until they both reach the sum of \$100.

Extrapolating the game to the Venezuelan case allows to model player 1 as PetroPiar (where Chevron is a partner B of PDVSA) and player 2 as PetroMonagas (where Rosneft is partner B of PDVSA). They start the game each producing or raising the same amount of crude to collect outstanding debts (about 130 kbd each³). Once player 1 obtains a US Treasury license to continue operating, it invests more in Venezuela and removes production volume from player 2 as a percentage of total production. Then player 2 decides to continue operating and takes volume from player 1 as a percentage of total production. In this game, each

³ According to the consultant Gas Energy LA, the crude production of each of these companies was 130 kbd for January 2019 when PDVSA was sanctioned by the US Department of the Treasury.

player has incentives to “continue”⁴ and cooperate in their operations, thus raising oil production until the end of the game⁵.

In this game, each company has incentives to cooperate with each other and with the “referees” who can stop the game by not renewing licenses (Treasury and Maduro). The “selfish” incentives of each player are aligned to increase crude oil production. We assume that the increases in production consolidate Maduro and the probability of the low regime change. We do so following the “logic” of the prevailing political and diplomatic rhetoric.

The arbitrators can also cooperate with each other: if the Treasury decides to sanction Rosneft, Maduro could sanction Chevron and vice versa. In this sense, there is a Nash equilibrium between the referees so as not to sanction the players and give licenses to each company to operate. We assume that each players’ and the referees’ incentives are to increase the companies’ production to maintain the niche.

A benevolent referee

At this point, we can suggest changes in the assumptions of the centipede game. We decide to change the assumptions that move one of the arbitrators and change their objectives. For instance, what if the Treasury is not selfish but benevolent, and decides that its objective is to achieve political change in Venezuela?

4 In this variation of the game, continuing implies the lobbying of each player to obtain the respective licenses of the Trump Government and the Maduro Government.

5 PetroPiar has been the leader of this game, except for two months February, March and October where PetroZamora led. By the end of 2019 PetroPiar was producing about 120k bpd and PetroZamora about 80K bpd.

Perhaps they could increase the pressure on Rosneft, and their Venezuelan crude oil trading in the Moluccas Islands. Thus, Maduro could withdraw Chevron's licenses, and "stop" the game definitively.

This would cause a drop in crude oil production in the next 6 months, which, as stated, would increase the probability of changing the political regime.

The players are aware of this possibility and will do everything in their power to prevent it (Becker, 1983⁶). This will involve lobbying before each referee to keep their interest on the "production niche", and not stop the game before running out of reserves⁷.

By the end of 2019, Chevron through its joint ventures with PDVSA, PetroPiar and PetroBoscan produced about 180 kbd⁸, while Rosneft with its mixed company PetroMonagas produced

6 "The basic assumption of the analysis is that taxes, subsidies, regulations, and other political instruments are used to raise the welfare of more influential pressure groups. Groups compete within the context of rules that translate expenditures on political pressure into political influence and access to political resources. These rules may be embodied in political constitutions and other political procedures, including perhaps "rules" about the use of force to seize power."

Gary Becker, "A theory of competition among pressure groups for political influence", *The quarterly journal of economics* XCVIII, No 3, (August 1983): 374.

7 "Groups compete for political influence by spending time, energy, and money on the production of political pressure" Gary Becker, "A theory of competition among pressure groups for political influence", *The quarterly journal of economics* XCVIII, No 3, (August 1983): 380.

8 According to Gas Energy LA estimations.

about 80 kbd⁹. The old Gazprom, now called NefteGaz in its joint venture PetroZamora, produces about 80 kbd¹⁰.

China CNPC¹¹ in its mixed Sinovensa produced around 80 kbd by the end of 2019. This renders a total of 430kbd. The rest of Venezuela's production falls to PDVSA's own effort and is at least 500kbd¹². Undoubtedly, the game of the centipede allows to describe the game of interests and incentives behind the production of crude oil in Venezuela and its effect on each country's foreign policy.

The renewal of Chevron licenses by the Treasury, or their option to exert more pressure on Rosneft, is the key element of American foreign policy towards Venezuela. Beyond political and diplomatic rhetoric, this is the true *tour de force* that must be analyzed to know if the international community is willing to cross its Rubicon in the Venezuelan case.

Rosneft has gathered payments from Maduro's government of Maduro grossing about \$5 MM in the last two years (2018-2019) of intense hardships of the Venezuelan people. We wonder what Rosneft's bet will be once the debt is amortized: Withdrawing from Venezuela progressively once the credits have been recovered? Or increase their exposure in the country with oil licenses approved by the illegitimate and spurious National Assembly of Sen. Luis Parra? Will the Treasury increase pressure on Rosneft to support Nicolás Maduro once his debt has been amortized?

9 According to Gas Energy LA estimations.

10 According to Gas Energy LA estimations.

11 CNPC and Total act as *free-riders* of lobbying market leaders.

12 According to Gas Energy LA estimations.

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Following the flow of oil investments may provide more information about the probabilities of political change than is said in political and diplomatic forums.

Conclusions

On Friday, January 31st, Nicolás Maduro attended the Supreme Court of Justice and led the inauguration of the 2020 judicial year. In front of the magistrates of the dictatorship, heirs of those who more than a decade ago shouted “*Uh, ah, Chávez no se va*”¹, announced the installation of a special commission for the reform of the judiciary power. With this proposal, the dictator expressed his intention to deepen the construction of a justice system at the service of the political project led by himself.

The discursive reality and the actions of the regime seem to show its autocratic progress. In recent months, the dictatorship has not offered signs of flexibility or openness towards democracy. On the contrary, it seems that we are witnessing a process of autocratic perfection based on the consolidation of procedures far from a system of freedoms.

The issue that hereby concludes included articles by Héctor Briceño, Rogelio Pérez Perdomo, Ángel Alvarado and Juan Miguel Matheus, who delved into four topics of special importance for the understanding of the moment previously described: migration, political culture, economic reform and autocratic resilience. To conclude, we can offer three thoughts that stress the dimensions of the transformation that our country will demand in the future:

- 1) *On political culture*: Political culture is a fundamental issue to study political processes. The German author Dieter Nohlen emphasizes its importance and proposes

1 “Ooh, ah, Chavez will not leave”.

that analyzing contexts can explain how phenomena are developed. The destruction of the democratic culture in Venezuela after twenty years of the Chavista Revolution is remarkable. As Rogelio Pérez Perdomo describes it in his article “Socialist revolutions and law: perceptions and thoughts”, political change is not limited to the fall of one regime and the rise of another. It is a more complex issue that demands years of effort and transformation. Sometimes, those who are immersed in the Venezuelan tragedy lose sight of the dimensions of the damage we have suffered. It is hard for us to understand that Chavismo has entailed a historical leap that separated us from the 21st and threw us back into the 19th century. We fell back more than a century and into the rudimentary Venezuela that had not yet formed the basis for the development of a modern state, the foundations of a professional army nor the democratic mechanisms of citizen participation. We believe it is essential to identify this historical and cultural setback to move forward, with realism and hope, towards democratic transformation.

- 2) *On the autocratic dynamic*: Perhaps one of the most complex aspects of the Venezuelan political process was the identification of the autocratic nature of the Chavista Revolution. Identifying it and cataloging it as a dictatorship took years of struggle. When Hugo Chávez appeared on the political stage at the end of the 20th century, he attracted and enticed curiosity among the national and international public opinion. Populism had not yet emerged as a problem in the world, and many were optimistic while watching the rise to power by electoral means of a military coup that was close to Fidel Castro. An autopsy of the murder of our democracy could allow

identifying populism's mechanisms of political action with the purpose of creating institutional and social antibodies that stop their progress in other latitudes. In this sense, the articles of the deputies Juan Miguel Matheus and Ángel Alvarado serve as a guide that can be used by democratic forces to anticipate the survival of autocracies in the 21st century. Alvarado explains the economic reform capacity of the regime and Matheus, the resilience mechanisms of the Chavista Revolution. Both articles reveal the versatility of those who cling to power without putting limits on the means that allow them to maintain it.

- 3) *On the challenges of democratic liberation:* The particularities of the Chavista dictatorship impose uncertainties and opacities that hinder its understanding. As a new disease that affects the political body, we must reflect on the mechanisms that must be activated to overcome it. In the four editions of Democratization, we have identified dimensions that support its structure of injustice. In future research, we hope to ponder upon them and identify their interaction with the aim of promoting actions that could allow an eventual autocratic liberation.