SANCTIONING VENEZUELA

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Upping the Ante[1]

During the summer of 2017, a new rumor started making the rounds in Washington circles: the U.S. was considering imposing an oil embargo on Venezuela. On June 4, Reuters published a story stating that U.S. authorities were contemplating slapping sectoral sanctions aimed at restricting trade between Venezuela's state-owned oil sector and the rest of the world. The proposal, the story claimed, had been "discussed at high levels of the administration as part of a wide-ranging review of U.S. options." However, U.S. authorities were moving cautiously, as they understood that "if such an unprecedented step is taken it could deepen the country's economic and social crisis" (Gupta and Spetalnick 2017). Then in mid-July, President Trump threatened "strong and swift economic actions" if Maduro went ahead with the plan to convene the all-powerful National Constitutional Convention (Woody 2017).

The announcement found significant resistance among policy circles, many of whom foresaw the Trump administration going down the same rabbit hole of the U.S.'s Cuba policy, promoting economic isolation that would only help entrench the regime. Moisés Naím, one of the foremost Venezuelan intellectuals in exile, wrote in the Spanish newspaper *El País* that prohibiting Venezuelan oil imports could "strengthen the government in Caracas, weakening the opposition and aggravating the humanitarian crisis that is devastating Venezuelans" (Naim 2017). Others were less cautious: OAS Secretary General Luis Almagro told a U.S. Senate Hearing that "sanctions will not worsen the suffering of the Venezuelan people…we need more economic pressure on a government that is investing the money it earns through natural resources that belong to the people to fight and kill that very same people." (OAS 2017).

In the end, the Trump administration shied away from imposing a full-fledged oil embargo, opting instead for more limited financial sanctions barring issuance of debt. The reasons appear to have had to do primarily with the concerns of specific U.S. economic interests, in particular of refiners. The vice-president of Valero Energy, the Texas-based refining behemoth, stated in reaction to the news that an import ban would simply rechannel Venezuelan fuel to other markets and raise domestic fuel prices in the U.S. (Reuters 2017a). The chief executive of the American Fuel and Petrochemical Manufacturers, a trade group, sent a letter to President Trump arguing that oil sanctions on Venezuela "would likely hurt consumers and businesses right here in the United States"(Argus Media 2017).

Instead, the United States government opted to impose financial sanctions impeding the government and state-owned firms from accessing international credit markets. A number of prior controversies around the financing of the Maduro regime– particularly the Goldman Sachs scandal and the hunger bonds controversy – had given Venezuelan debt a sufficiently toxic aura to make it an easier target of policy. In contrast to the oil sanctions, financial sanctions that were seen as impeding the government from digging the country more deeply into debt were generally well-received.

However, as I will argue in this document, financial sanctions had a significant effect on a crucial part of Venezuela's oil industry: the joint ventures with multinationals that the government had

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increasingly relied on to stabilize oil production. By stopping these firms from entering into financial agreements with their foreign partners, the sanctions hit hard at what was at the time the only source of growth in Venezuelan oil output.

Over time, the Trump administration would enter into a cat-and-mouse game in which it would systematically threaten the Maduro government with tighter sanctions if the regime crossed certain lines - only to see those lines crossed time after time. Oil sanctions would ultimately be adopted in early 2019, followed by a ban on all transactions with the Venezuelan government later that year and sanctions on foreign firms that helped market Venezuelan oil in non-US markets in early 2020. By the end of 2020, U.S. policy towards Venezuela was totally focused on finding ways to further increase restrictions on the economic and financial transactions of the regime, premised on the assumption that "maximum pressure" could ultimately cause a change in government.

An Overview of Venezuela Sanctions Decisions

The Venezuela sanctions regime is an interrelated set of laws, regulations, and executive branch decisions that restrict the interactions that U.S.-based individuals and firms can have with the Venezuelan state as well as individuals linked to the government of Nicolás Maduro. Generally, they are based on the authority of the U.S. government to restrict interactions with certain actors that are seen as posing a threat to U.S. national security. This authority stems from legislation first adopted during World War I aimed at granting the president the power to restrict trade and financial interactions with the country's enemies during wartime. In its most recent iteration, which dates from 1977, the International Emergency Economic Powers Act allows the president to declare the existence of a national emergency when an "unusual and extraordinary threat" to national security originates outside of the United States. Cornell law school (n.d.) The Trump administration used the same principle was used in 2019 by the Trump administration to circumvent appropriations restrictions to fund the construction of a border wall between Mexico and the United States after declaring a national emergency concerning the border situation. (Federal Register 2019).

The current Venezuela sanctions regime – with some exceptions[2] – is based on a 2015 declaration of a national emergency with respect to the situation in Venezuela issued by the Obama administration. Declaring Venezuela an extraordinary threat to national security at the time entailed, to put it mildly, a somewhat flexible interpretation of the concept of national emergency. Yet this is not uncommon – national emergency declarations have generally been viewed as formalities that give the administration the tools to systematically increase pressure on hostile governments and have raised few eyebrows until the Trump administration decided to use them for purposes of domestic policy.

However, the Obama administration used the national emergency declaration somewhat selectively, sanctioning only seven individuals, seven of whom were security force officers involved in human rights violations around the 2014 protests (the other was a prosecutor who had filed conspiracy

[2] Venezuelans associated with the regime have been added to the list of sanctioned individuals, also known as Specially Designated Nationals (SDN) as far back as 2008 for providing assistance to terrorist organizations like Hezbollah or for drug-related offenses.

charges against opposition leaders).[3] The decision to significantly extend the reach of sanctions and make them into the lynchpin of U.S. strategy towards Venezuela is more characteristic of the approach taken from 2017 onwards under the Trump administration.

A Basic Taxonomy

One of the most significant sources of confusion and disagreement in policy discussions about Venezuela is, curiously, a somewhat vague and imprecise terminology. Given that the vast majority of U.S. government-imposed restrictions on Venezuela trade stem from the same basic set of laws, they are usually grouped under the same broad label of the term "sanctions." But there is a huge difference between restrictions that impede Maduro associates from moving personal funds through the U.S. financial system and prohibitions on commercial transactions with Venezuela's oil sector.

First, there are personal sanctions. These commonly work by including individuals associated with the regime in a list of Specially Designated Nationals (SDNs) maintained by the Office of Foreign Assets Control. U.S. persons and firms are legally prohibited from entering into any type of commercial or financial transaction with persons on the SDN list. There are currently 184 Venezuela-linked SDNs, including political leaders and businesspersons allegedly associated with corruption, human rights violations, or subversion of democracy.[4] Most designations occur under the basis of the Obama administration's 2015 declaration of a national emergency with respect to Venezuela, but other legal instruments – such as the Kingpin Act aiming to restrict drug-related capital movements – are at times invoked.

Several nations aside from the United States, including Canada, Switzerland, and the European Union, have also imposed personal sanctions, making this the one area of policy in which there has been some degree of multilateral convergence. Personal sanctions can have broader economic consequences because they prohibit U.S. persons from entering into negotiations or contracts with SDNs even when these are acting as representatives of a foreign state rather than in a personal capacity. U.S. Department of the Treasury (2014). There is also the strategic concern that rather than create incentives for regime change, excessive application of personal sanctions may have raised perceived exit costs, spurring key Chavista leaders to rally around Maduro (see chapter 10).

Then, there is a broad array of economic sanctions. These are sanctions aimed at entities that have significant relevance for the functioning of the Venezuelan economy. They may include financial sanctions, which preclude lending to the government or state-owned entities, or sectoral sanctions targeting complete sectors of the economy – e.g., oil, mining, banking – that are claimed to contribute to the national emergency. One type of sanction that can have overarching effects is government sanctions that restrict dealings with any representative of the Venezuelan government or entities it

[3] In total, the Obama administration issued 20 designations of Venezuelan individuals or entities. However, only 7 were issued within the framework of the 2015 national emergency declaration. The remaining designations were issued within the framework of anti-terrorism or anti-drug regulations (Barlett and Ophel 2021).

[4] The 185 designations are broken down into 135 individuals or entities designated under Venezuela sanctions, 44 under the Kingpin act, 5 under Iran sanctions, and 1 under the Global Terrorism program.

controls. Broad government sanctions can have a chilling effect on any business in Venezuela due to the simple fact that it is very difficult to do business in a country without interacting with its government.

It is at times not straightforward to tell some of these sanctions apart. For one, many of them take the form of SDN designations – that is, the inclusion of entities in the list of sanctioned nationals maintained by the Treasury Department's Office of Foreign Assets Control (OFAC). In fact, what is likely the single most important restriction on trade with Venezuela imposed by the United States is the designation of the state-owned oil firm Petróleos de Venezuela (PDVSA) as an SDN. From a legal standpoint, this is just the designation of an additional firm and thus would appear to be a personal sanction (aimed at a juridical person). However, given that PDVSA has a legal monopoly on the production and commercialization of oil in Venezuela, its designation has the same economic effects as a full-fledged oil embargo on the country.

The United States government does not have jurisdiction to impose restrictions on the trade of nationals of other countries with Venezuela. What it can and does do is impose secondary sanctions limiting the trade of U.S. nationals with firms that "materially assist" the Venezuelan government or state-owned entities. Given the importance of the U.S. financial system and the reputational effects of inclusion in the OFAC list, a credible threat of secondary sanctions is enough to deter most non-U.S. firms from interacting with Venezuelan entities. For this reason, many non-U.S. multinationals with a significant presence in or involvement with Venezuela routinely consult OFAC to ensure that they are not crossing a line that would lead them to be targeted with secondary sanctions.

There are other U.S. government decisions, not formally labeled sanctions, that have significant implications on commercial or financial interactions with Venezuela. One important example of these is the January 2019 decision by the United States government to recognize the interim government of Juan Guaidó despite its not having any level of *de facto* control over the territory. While technically this is neither a sanction nor an embargo, it can have the same economic effects. This is because the only government entitled to represent Venezuela, and therefore to manage governmental bank accounts in the U.S., is the one recognized by the U.S. government. While the Maduro government may control the oil fields and thus the nation's capacity to extract oil and ship it overseas, it is the Guaidó government that has the legal authority to collect any payments for Venezuelan oil. Even absent any economic sanctions, Venezuela would be unable to sell any oil to the United States unless Guaidó and Maduro were able to agree on a mechanism to manage the proceeds of the sales.

Additional decisions of the executive and legislative branches have also raised the cost of doing business with Venezuelan authorities. For example, advisories from the Financial Crimes Enforcement Network (FinCEN) issued in 2017 and 2019 warned financial institutions that all Venezuelan government agencies "appear vulnerable to public corruption and money laundering" and that both official and non-official transactions originating in Venezuela should be subject to additional scrutiny (FinCEN 2017,2019). Directives like this have contributed to a generalized phenomenon known as over-compliance, where financial institutions deny or block transactions that are not strictly prohibited as a result of the high costs of ensuring compliance with the law and the associated reputational and regulatory risks of compliance failures.

The U.S. government retains the authority to approve exceptions to any of these sanctions to allow certain transactions to take place. Some of these exceptions are indispensable to avoid imposing undue costs on U.S. nationals or third parties. For example, without a license that specifically permits it, U.S. citizens or residents in Venezuela would not be able to fill their tanks with gasoline at government-owned stations in Venezuela.[5] There are currently 28 active general licenses, as well as an additional number of specific licenses that are not public. These licenses establish exceptions to the restrictions imposed by the sanctions regime. They include the allowance of transactions related to humanitarian assistance, operations of PDVSA's U.S. refining arm CITGO and other entities controlled by the Guaidó administration, authorization to divest of some Venezuelan financial securities in the secondary debt market, operations of U.S. firms involved in the oil sector, and operations of international organizations and U.S. nationals in Venezuela. These restrictions are limited and have been curtailed over time. There are also exceptions to the sanctions regime that are not codified but are a matter of policy. For example, up until October of 2020, the U.S. had a policy of not imposing secondary sanctions on non-U.S. firms that restricted their trade to swaps of oil for diesel or debt repayments.[6]

The Evolution of U.S. Sanctions Toward Venezuela.

Although the basic framework for the adoption of Venezuela-related sanctions, as well as the first designations of government officials within this framework, were undertaken by the Obama administration, it would be the administration of Donald Trump that would come to use sanctions intensively as the basis of their policy.

The first step taken by the Trump administration was to increase the reach of personal sanctions to direct them at some of the highest-ranking members of the government. While Obama had designated officials directly linked to human rights violations, the Trump administration decided to directly target high-ranking members of the government. These began with the designation of Vice-President Tareck El Aissami in February of 2017, a month after his appointment to that post, and were subsequently increased to cover several cabinet members, supreme court justices, high-ranking PDVSA officials, the president, first lady, and many of their close associates.[7]

In some cases, sanctions decisions have been presented as responses to specific acts by the individuals or entities that the sanctions target. For example, in May 2017, the Treasury Department sanctioned eight Venezuelan Supreme Tribunal justices, including the court's president and all

[5] Purchases of oil products are allowed by General License 10a. General License 32 authorizes U.S. nationals in Venezuela to enter into transactions involving the government that are incidental to their day-to-day activities - such as housing expenses, acquisition of goods or services for personal use, payment of taxes or fees, and purchase or receipt of permits, licenses, or public utility services. General License 35 allows U.S. firms in Venezuela to pay taxes, fees and import duties provided that they report this to OFAC when they are made in U.S. dollars. See U.S. Department of the Treasure (n.d.) for a listing of all valid and archived general licenses.

[6] The US ended in late October 2020 its sanctions exemption for diesel supplied by non-US companies under transactions that had been permitted on humanitarian grounds since January 2019 (Argus Media 2020a).

[7] While El Aissami's 2017 designation was done in the context of the Kingpin Act related to drug-trafficking activities, most other designations were done within the framework of Obama's national emergency declaration.

Constitutional Chamber justices, citing as reasons the multiple decisions through which the Chamber had "usurped the authority of Venezuela's democratically-elected legislature." The decision came a few months after the Constitutional Chamber's controversial March 2017 decision to strip some legislative functions from the National Assembly (see chapter 6). "The eight judges designated today were responsible for those decisions," according to the Treasury Department's press release at the time of the designation (U.S. Department of the Treasury 2017).

At other times, the links have been somewhat more tenuous. For example, the designation of PDVSA Chief Financial Officer Simón Zerpa in July of 2017 was motivated by a National Assembly investigation on corruption in PDVSA during the 2004-14 period, previous to Zerpa's appointment to the firm in 2017. Nevertheless, the designation had a very specific effect, which was to limit the ability of the designated official to represent PDVSA in financial transactions. This is because, as explained above, even though personal sanctions are in principle targeted at limiting an individual's financial transactions, they also restrict the transactions conducted by that person in the exercise of their official capacity.

That personal sanctions should affect dealings with the government is not a straightforward conclusion from existing sanctions regulations. It would be natural to assume that the prohibition on conducting transactions with an individual would **not** extend to transactions that are unrelated to that individual's personal finances and much less to those in which the individual represents a foreign government that is not itself sanctioned. Nevertheless, OFAC has affirmed the principle that these designations preclude dealing with SDNs in their official capacity through its Frequently Asked Questions (FAQ), a principle that it reiterated in the Venezuelan case immediately after Vice-President El Aissami's designation (Westpandi 2017).

From a legal standpoint, OFAC FAQs are the government's interpretation of existing laws and regulations and could be found by a court to be incorrect.[8] Yet from a practical standpoint and given the reputational and financial costs of being found in violation of sanctions, this advice from OFAC was sure to bring to a halt any transactions involving the individuals in question. Lawyers for firms involved in dealings with Venezuela advised their clients to take care not to enter into any contracts executed by PDVSA's sanctioned CFO "as that would apparently be construed as a direct or indirect dealing with an SDN" (Westpandi 2017).

The U.S. would take the first step in the direction of more explicit economic sanctions on August 24, 2017. On that day, President Trump issued an Executive Order prohibiting the purchase of new debt issued by the Government of Venezuela or PDVSA as well as the purchase of previously-issued debt held by the government or entities under its control. It also barred dividend payments to Venezuela, impeding the government from using the profits from its offshore subsidiaries to fund its budget. Exceptions were built in for short-term commercial debt, winding down of existing contracts, and transactions related to the financing of purchases of agricultural commodities or medical goods from the United States.

[8] In U.S. Administrative law, the deference accorded to interpretation by federal agencies of its own regulations is known as Auer deference. In a 2019 decision, the Supreme Court strongly circumscribed this deference to cases where there is genuine ambiguity about the interpretation and the agency's interpretation is considered reasonable, among other conditions (Supreme Court of the United States 2018).

As I pointed out above, the financial sanctions appear to have been a substitute for the oil sanctions, which were also under consideration in mid-2017. The sanctions were specifically motivated by the government's decision to go ahead with elections for the Constitutional Convention, designed to strip away all powers from the opposition-controlled National Assembly, on July 30 of that year. Two weeks ahead of the vote, as part of a concerted effort to get Maduro to back down, Trump promised that if the Maduro regime went ahead, the U.S. would respond with "strong and swift economic actions" (see chapter 6) (Reuters 2017b). Maduro went ahead with the vote, and the Trump administration responded three weeks later with the financial sanctions.

The fact that the U.S. built in an exception for food and medicines into the financial sanctions merits special mention. The special provisions, captured in a general license published at the time of issuance of the executive order, are not known to have been used by the Venezuelan government. At the time, I proposed in an article in the *Financial Times* development blog that the government use this exception to refinance maturing debt with new instruments whose proceeds would be earmarked to humanitarian goods (Rodriguez 2017a). The matter, however, became moot a few weeks later, when Maduro decided to default on the country's debt. If the U.S. wanted to shut Venezuela off from international credit markets, Maduro seemed to say, then Venezuela would have no problem making U.S. creditors bear the cost.[9]

During 2018, the U.S. government made some minor changes to financial sanctions but by and large focused on personal sanctions, adding 25 entities to the SDN list. It issued three additional executive orders, none of which had major direct economic effects. The first one, published in March, blocked all transactions in cryptocurrencies issued by the Venezuelan government. This came as a response to the announcement by Maduro that he would launch a cryptocurrency, the *petro*, backed by Venezuelan oil reserves and intended to attract international investment. A second order, issued in May of the same year, blocked Venezuela from selling debt owed to the government – for example, accounts receivables of the state-owned oil company – or pledging existing assets as collateral to obtain financing. At the same time, it issued an exception allowing creditors to seize Venezuelan assets if the government defaulted on certain collateralized obligations.

The third executive order signed that year would also not have any immediate effects on the Venezuelan economy or government but would lay the groundwork for actions which could – and did – impose significant economic restrictions on the country further down the road. This was the November 2018 executive order allowing the Secretary of the Treasury, in consultation with the State Department, to determine that actors in a given sector of the economy were contributing to the national emergency generated by the Venezuelan situation. Authorities originally presented the order as aimed at restricting trade in the country's gold sector, yet the order gave the government the leeway to target any sector of the economy.

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[9] Even if we accept the redundancy hypothesis that a costly default would have occurred in the absence of sanctions – and in section 5 we discuss reasons why it is far from clear that this would have happened – it is clear that the announcement of the intent to restructure the debt was not due to the government's running out of money, for the simple reason that the government made a large payment of USD 1.1bn in maturing bonds at the time that it announced the restructuring on November 2 (BBC Mundo 2017). The payment appears to have been intended as an olive branch to creditors in order to convince them to lobby the U.S. government to withdraw sanctions. In fact, Venezuela would only go into default in the sense of not making scheduled payments on November 13 for its PDVSA bonds and November 14 for its sovereign bonds.

Eventually, the Trump administration would determine that four broad economic sectors were contributing to the national emergency: gold (November 2018), oil (January 2019), finance (March 2019), and defense and security (May 2019). It subsequently added several private and public sector entities belonging to these sectors to the SDN list. The designations were broad enough to essentially preclude U.S. actors from doing business with anyone in these sectors of the Venezuelan economy.

Oil, accounting for 93 % of exports and 12 % of GDP at the time of the January 2019 sanctions, was, by and large, the most relevant sector of those targeted. Accordingly, the U.S. announced the decision to designate PDVSA as part of a major ratcheting up of pressure on the Venezuelan regime, with National Security Advisor John Bolton saying that he expected PDVSA to lose USD 11bn in export proceeds – a number equivalent to more than a third of the country's oil exports at the time – additional to the effect of freezing of USD 7bn in assets. (De Young, Mufson and Faiola 2019). The decision was made public on January 28, just five days after the U.S. decision to recognize Juan Guaidó as the country's interim president, and its announcement included a direct exhortation to Venezuelan security forces "to accept the peaceful, democratic and constitutional transfer of power" to the new government (McClatchy 2019).

Bolton's $11bn estimate appears to have been a simple calculation of the value of Venezuela's oil exports to the United States at the time.[10] Yet the net effect of sanctions would depend on Venezuela's capacity to route that oil to other markets. For that reason, the U.S. immediately focused efforts on blocking Venezuela from channeling to other destinations the oil it could not export to the U.S., explicitly pressuring some of PDVSA's other clients not to increase imports from Venezuela after the U.S. decision.[11]

As the country's political crisis dragged on without clear resolution, the U.S started to mull the possibility of increasing pressure on non-U.S. firms to cut (rather than just not to increase) their purchases from Venezuela. In August 2019, it sent a strong signal that it was willing to do so by adopting a new Executive Order that blocked any transactions with the government of Venezuela and that also gave the executive branch the power to sanction non-U.S. persons for having "materially assisted" the Venezuelan government or its state-owned entities.

There was a sense in which the August 2019 order was redundant. By that time, most of the entities of the Venezuelan public sector, including all its oil industries, had been blocked as a result of past actions or decisions. The assets of the central bank and the government had been transferred to the Guaidó administration, and courts had confirmed the power of Guaidó appointees over U.S.-based subsidiaries. It is highly improbable that at that time, there was any remaining entity controlled by Maduro that had not decided to move its business outside of the U.S. financial system. And even the U.S.'s power to sanction third parties had already been established for PDVSA – if not for the government as a whole – by the firm's January SDN designation.

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[10] According to U.S. Energy Information Administration data, Venezuela exported on average 514 thousand barrels of day of crude oil to the U.S., which valued at the price of the Venezuelan oil basket on the week prior to the announcement (USD 56) gives USD 10.5bn.

[11] Reliance Industries, Venezuela's largest customer in India, announced in March 2019 that its U.S. subsidiary had stopped all business with Venezuela (as required by sanctions) and that its global parent "has not increased crude purchases." This happened after consultations with U.S. authority and a direct warning from the Indian government (Chakraborty and Kassai 2019; Bloomberg 2019; Gordon, Gupte and Bambino 2019).

Nevertheless, U.S. authorities made a point of highlighting their new powers to sanction non-U.S. firms, to the extent that many analysts characterized the new order as the adoption of secondary sanctions.[12] Speaking one day after the publication of the new order in a meeting in a summit on the Venezuelan crisis held in Lima, National Security Advisor John Bolton said that the U.S. had issued this order to "deny Maduro access to the global financial system," and used the opportunity to send a stern message to third parties: "There's no need to risk your business interests in the U.S. for the purposes of profiting from a corrupt and dying government" (Kurmanaev and Jakes 2019).

Bolton, however, would leave the White House in September; he would later claim that his disagreements with Trump included the latter's indecisiveness on Venezuela.[13] Some Venezuela clients then began pushing back on U.S. policy. In an October interview with the Financial Times, the finance minister of India – which, together with China, had become one of the main purchasers of Venezuelan oil after the closing off of the U.S. market – acknowledged that the U.S. had tried to convince India to stop buying Venezuelan oil, but said that the country also needed to maintain its own strength and strategic interests. "India is a strategic partner for the United States of America and you want a strategic partner to be strong and not weakened," the minister said he had told U.S. representatives (Reuters 2019a).

The next turn in policy would come in February, on the heels of an international tour designed to showcase Guaidó's global support that culminated in a visit to the White House and an appearance at President Trump's annual State of the Union address. U.S. authorities decided to ratchet up the pressure on the Maduro regime by making use of the authority to impose secondary sanctions. Administration officials said that the U.S. government's "maximum pressure" campaign against Venezuela was only "50-60 %" implemented and would continue to be ramped up as long as Maduro refused to give up power (Lawler 2020).

The key new decision was to sanction two subsidiaries of the Russian energy company Rosneft that had been in charge of business with Venezuela. (Mohsin and Millard 2020; U.S. Department of Treasury 2020.) The U.S. also sanctioned two Mexican companies that had signed oil-for-food deals with Venezuela (Kassai 2020). Rosneft, at the time, was handling around 75 % of Venezuela's oil sales as a result of other partners' caution at doing direct business with the country (Yagova, Aizhu and Parraga 2019). It had also supplied almost all the gasoline imported by the country during the previous year, as Venezuela's refining infrastructure remained beset by operational problems. (Argus Media 2019). Predictably, the country began suffering severe gasoline shortages shortly after Rosneft halted all trade with Venezuela and divested from its Venezuela operations in response to the sanctions.

[12] See, for example, De Alba (2019).

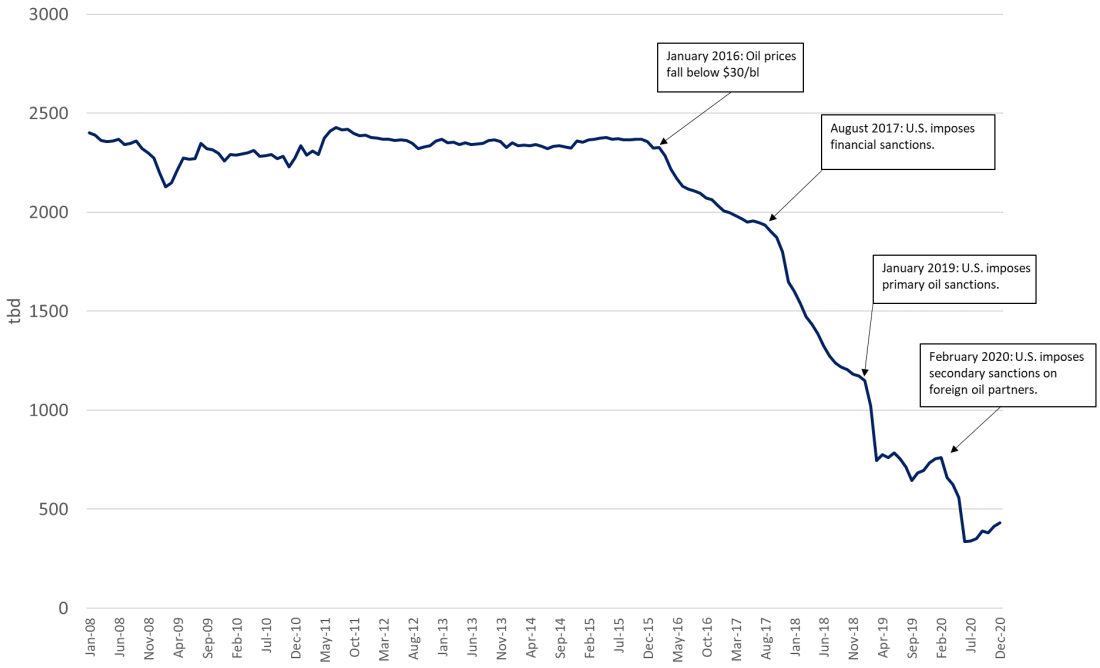
[13] Former Trump National Security Advisor John Bolton says that efforts to topple the Maduro regime were partly derailed by Trump's wavering, including his desire to meet with Maduro and his request that the Guaidó administration guarantee preferential access to U.S. oil companies (Bolton 2020).

Sanctions and Oil Production: A First Look

Figure 7.1 plots the evolution of Venezuela's oil production between 2008 and 2020, according to data reported by secondary sources to OPEC. As I have already discussed in chapter 4, this series shows remarkable stability up until 2016. Production begins falling in 2016, and the rate of decline accelerates markedly after that. Venezuela's production level at the end of 2020, at around 400 tbd, is around one-sixth of its pre-2015 production, and lower than the level of domestic consumption when the economy is working at full capacity.[14]

The series represented in Figure 7.1 also suggests that there are three distinct periods in the evolution of Venezuela's oil production data. Production remains relatively stable at around 2.3mn barrels up to December of 2015. At the start of 2016, it begins to decline and falls at rate of 1.0% per month. Then, from September of 2017 onwards, the rate of decline accelerates, averaging 3.1% over the following 16 months. In the last part of the sample, it suffers two discrete jumps: a 35.2% drop (405 tbd) between January and March of 2019, and a 55.7% drop (423 tbd) between February and June of 2020.

Figure 7.1: Venezuela's Oil Production, 2008-2020



Source: OPEC, U.S. Department of Energy, Colombian National Hydrocarbons Agency

[14] There are several data series for oil production in Venezuela. All of them show a break in trend in the second half of 2017, as well as in the initial months of 2019 and 2020. Data produced by secondary agencies tends to show stability in the 2008-15 period, while data produced by the Venezuelan government tends to show a pre-2016 decline. Most oil industry experts are distrustful of the official data, which becomes highly volatile in the post-sanctions period. It is possible that the pre-2016 decline in the official series is an artifact of changes in the magnitude by which the government decided to exaggerate output.

In the last section of chapter 4, I provided a discussion of the determinants of oil production growth up until 2016. To briefly recap my argument, Venezuela's oil sector significantly underperformed that of its peers in terms of production growth between 1999 and 2016, with the country's output going from accounting for 10.5% of total OPEC production in 1999 to 7.5% in 2015. Venezuela's inability to take greater advantage of its oil wealth was largely a consequence of overtaxation of the oil industry and numerous arbitrary changes over time imposed by the government on its private sector partners and providers.

Nevertheless, petrostates don't usually kill the goose that lays the golden eggs. They are, after all, interested in self-preservation. Over time, authorities came to grudgingly accept a model of oil sector management which relied significantly on joint ventures with private sector multinationals such as Chevron, Eni and Total and state-controlled firms of allies such as China's CNP or Russia's Rosneft. This partly occurred through PDVSA ceding *de facto* operational and financial control to the minority foreign partners. Originally intended as vehicles to renegotiate the terms of pre-Chávez operational agreements, these joint ventures became islands of productivity in the country's oil sector.

One of the mechanisms used to grant joint venture partners more control over revenues was through financing agreements whereby foreign partners would lend funds into joint ventures with the state-owned oil company as long as the loan could be repaid directly from the joint venture's production. Given that Venezuelan law requires the government to be the majority shareholder in joint ventures (JVs), this design allowed foreign partners to fund most of the investment in the firms, without being formally granted a higher stake in the company. In return, partners would be paid directly from offshore accounts into which the proceeds from oil sales would flow directly before being transferred to the PDVSA-controlled entity. Partly through these arrangements, Venezuela managed to stabilize oil production at 2.4 million barrels per day between 2008 and 2015.

I also discussed in chapter 4 how PDVSA cut investment in response to the 2014 oil price shock. That a decline of production ensued in 2016 is thus not surprising. But I also argued that there were no reasons to expect cuts of these magnitudes to lead to anything more than a moderate decline of production, and certainly not the virtual disappearance of the country's oil industry, as both financial and real indicators of investment remained within their historical range. Oil industry analysts expected oil production to stabilize or, at worst, decline moderately, while economic analysts were expecting the economy to turn the corner sometime between 2017 and 2018, given recovering oil prices and the expectation of stable production.

Several oil-producing countries saw similar production declines in 2016 after prices plummeted. Recall that Venezuela had been opposed to OPEC's going into a price war in 2014 because it had no capacity to expand production. Thus, while countries like Saudi Arabia and Russia were able to ramp up production from their low-cost oil fields in 2016, high-cost and highly leveraged producers like Venezuela were particularly vulnerable to oil price declines. This was not unique to Venezuela: many high-cost leveraged producers were forced to cut back investment and suffered losses in production at the time. For example, oil output in neighboring Colombia, part of whose oil industry was also highly leveraged, saw production fall by similar levels during 2016, as did those of

Argentina (which shared a similar policy framework during more than a decade) and Mexico (whose politicized national oil company is often compared to Venezuela's). Not surprisingly, this was the period of the spectacular collapse of Pacific Rubiales, a Colombian oil venture run by Venezuelan expatriates who had left their country's oil industry after Chávez's takeover (Peinado 2011; Quevedo 2016).

As Figure 7.1 also shows, there was a marked acceleration in the rate of decline in oil production after August of 2017. The change in trend coincides with the approval of the August 2017 executive order barring U.S. persons from providing new financing to the Venezuelan government or PDVSA. The adoption of sanctions occurred within the broader context of financial toxification described in chapter 6, whereby it became increasingly clear that institutions that decided to enter into financial arrangements with Venezuela would have to be willing to pay high reputational and regulatory costs. This included the National Assembly letters to international banks to block financing deals, the fallout from the Goldman Sachs financing deal, and the issuance of FinCen directives recommending treating all dealings with Venezuelan state entities as suspect.

Loss of access to credit stopped PDVSA from obtaining financial resources that could have been devoted to investment or maintenance. Of course, given the high levels of debt, it is unclear that the loss of market access should be attributed solely to sanctions. One can certainly argue that Venezuela's unsustainable policies would have led it to lose market access in 2017 even if its finance hadn't become toxic. Nevertheless, countries that lose market access typically have the possibility of regaining it after entering a debt restructuring process, a door that was closed to Venezuela after the August 2017 Executive Order. The problem was not whether Venezuela would have defaulted or not on its debt in 2017, but rather whether it would have been able to regain access to capital markets after restructuring its debt, as it would most certainly have done in the absence of sanctions.

The January 2019 designation of PDVSA barred any U.S. nationals from doing business with the company or any of its affiliates. Since PDVSA is the majority stakeholder in oil joint ventures in Venezuela's oil sector, it also effectively constituted a prohibition of purchases of Venezuelan oil, as well as of exports of oil products to Venezuela. The U.S. decision to recognize Guaidó as the nation's legitimate interim President had the implication that bank accounts of the Venezuelan government and Central Bank were transferred to the Guaidó administration. Guaidó appointees also were able to successfully request recognition by U.S. courts to their appointments to the board of state-owned corporations (Reuters 2019b).

As a result of the OFAC designation, Venezuela lost complete access to the U.S. oil market and financial system. All the exceptions that had been carved into the financial sanctions became moot both because they were disallowed by PDVSA's SDN designation (e.g., trade credit of less than 90 days) or because the contracting entity would, in any case, have had to be the Guaidó administration, which lacked any real control over the oil industry. At the same time, U.S. authorities extracted commitments from other key partners (namely India, the most important destination for Venezuelan oil after the U.S.) not to increase oil purchases from Venezuela.

Oil sanctions were directly followed by a drop of oil production of magnitude similar to that of the lost U.S. market. Between January and March of 2019, production fell by 405 tbd and stabilized at a level of around 750tbd for the subsequent twelve months. Export data produced by Bloomberg

based on loading of vessels in PDVSA docks in Venezuela and the Caribbean, as well as ship-to-ship transfers, showed total loadings dropping by 34.9% between January and June of 2019. Exports to the United States had fallen to zero by February of 2019, as compared to 326tbd on the month before sanctions – and an average of 521 tbd in the twelve previous months- while exports to India and China remained stable through 2019 (Bloomberg 2021). [15]

Likewise, the decision to sanction Rosneft, which was at the time was responsible for the marketing of approximately three-fifths of Venezuela's oil exports, as well as the Mexican companies involved in oil-for-food deals had a chilling effect on Venezuela's remaining foreign partners, who since decided to curtail all of their involvement with the country's oil sector (Parraga and Verma 2020). These actions were followed by a subsequent discrete drop of oil production, which fell by 423tbd over the next four months. During the next months, it became increasingly difficult for Venezuela to find any partners willing to supply it with oil products or inputs to the oil industry. Later that year, Venezuela would turn to Iran – also a target of a U.S. 'maximum pressure" sanctions campaign for assistance in fixing its refineries and importing gasoline, drawing stern warnings from the U.S. and the Guaidó administration (Argus Media 2020b; Lipin 2021; Reuters 2020).

In the remainder of this chapter, I will provide a discussion of what the evidence tells us regarding the contribution of sanctions to the decline in Venezuelan oil production. I begin with a recap of what the literature tells us about the economic effects and effectiveness of sanctions. I then discuss the results of existing research on Venezuela and provide a set of new econometric estimates to quantify the effects of these sanctions on oil production and the Venezuelan economy.

Economic Effects of Sanctions: A Review of the Literature

Cross-National Studies

Economic sanctions are commonly used to attempt to induce changes in the conduct of targeted nations or entities, with sanctions increasingly seen as an alternative to full-fledged armed conflict over the past few decades. The study of sanctions forms part of a much more extensive literature on the use of economic policy as part of the foreign policy toolkit used to influence the decisions of other nations and actors, a field known as economic statecraft (Baldwin and Kapstein 2020; Fabre 2018; Nephew 2018). Although they are often imposed through multilateral bodies such as the United Nations Security Council, unilateral sanctions are also common. The frequency with which the U.S. government imposes unilateral sanctions as well as the breadth of their coverage have risen markedly in the recent past, with the absolute number of U.S. sanctions designations more than doubling over the past decade (Imperiale 2020).

Despite their growing use, there is considerable controversy regarding the effectiveness as well as the impact of economic sanctions. Huffbauer et al. (1990) documented 116 sanctions episodes since 1914 and spawned a literature of empirical studies analyzing the determinants of the success of

[15] Data from the U.S. Energy Information Administration tells a similar story, with imports averaging 514tbd during 2018 and falling to zero by June of 2019 (EIA 2019).

sanctions. Sanctions have been found to be more effective in politically unstable countries, countries with a weak economy and those with closer ties with the sanctioning country.[16] Some have argued that sanctions are ineffective at sparking regime change because they generate inadequate incentives to relinquish power (Peksen and Drury 2010; Oechsling 2014; Cohen and Weinberg 2019); others contend that sanctions specifically aimed at fostering democracy increase the probability of rulers losing power (Soest and Wahman 2014).

The effectiveness of economic sanctions in achieving their intended goals is also significantly related to the magnitude of their overall economic effect as well as the distribution of that effect among agents in the sanctioned country. Neuenkirch and Neumier (2015) find that U.N. sanctions on average decrease the sanctioned country's per capita growth rate by 2.3-3.5 percentage points, but that the effect of unilateral U.S. economic sanctions is smaller and less distinct. Afesorgbor and Mahadevan (2016) find that sanctions have a negative effect on the target country's income inequality, while Biglaiser and Lektzlan (2020) find that import sanctions cause losses in the sanctioned country's stock market only when the target country is not already affected by multiple previous sanctions.

Some legal scholars have argued that collective punishment of civilians is a violation of international law, akin to the use of siege warfare which is currently considered a war crime (Shagabutdinova and Berejikian 2007; United Nations 2019). Understanding the effect of sanctions can also be highly relevant in planning for post-conflict recovery, as large sanctions impact could imply a more rapid pace of growth once sanctions are lifted even in the absence of large levels of aid.

Most studies of economic sanctions use cross-national panel data sets to attempt to identify the effect of the adoption of sanctions on several outcome variables (Febelmayer 2020; Kavakli, Chatagnier and Hatipoglu 2019; Ahn and Ludema 2020). In the absence of adequate sources of exogenous variation, these studies are plagued by the problems frequently associated with cross-country econometrics. Precisely because sanctions are designed to respond to political developments in the targeted country, it is hard to tease out cause from effect in the correlations observed in the data. Sanctions, for example, often target emerging authoritarian regimes in cases where the international community is trying to halt a process of democratic backsliding. To the extent that the political conflict sparked by an incumbent's power grab has negative economic effects, it is not surprising to observe acute deteriorations in economic indicators occur after sanctions. For the same reasons, evidence of growth recoveries after sanctions are eased could be simple reflections of the economic effects of the changes in government conduct that led to the lifting of sanctions.

Previous Studies of Venezuela Sanctions Impact

Most studies of the effect of Venezuela sanctions have focused on their impact on the country's oil sector.[17] Since oil accounted for 95% of Venezuelan exports prior to sanctions, it would be natural to expect any first-order effects to impact the economy through the oil sector. Prior research,

[16] See the survey in section 4 of Kamepfer and Lowenberg (2007)

[17] An exception is Bull and Rosales (2020). which focus on the incentives for informalization and criminalization of the Venezuelan economy created by sanctions.

discussed in greater detail in chapter 4, has documented the high level of import-dependence of the Venezuelan economy, establishing a clear channel through which oil activity can impact growth: lower oil rents lead to import contraction, which drives the reduction in investment either as the economy attempts to save its new wealth or as capital flows in to help satisfy the increased demand for non-tradables.

Rodríguez (2018) first pointed out that the adoption of financial sanctions coincided with the acceleration of the rate of decline in Venezuela's oil production, which went from 1.0 % monthly in the period preceding the 2017 financial sanctions to an average of 3.1 % per month in the subsequent 16 months. Rodríguez (2018) also suggested the use of neighboring Colombia, which had similar pre-sanctions trends in oil production to Venezuela, as a potential counterfactual. While Colombia saw a similar decline in output in 2016 and early 2017, possibly a common reaction to plummeting global oil prices, Colombian oil output stabilized after oil prices began recovering in 2017, while Venezuelan oil output continued declining.

Weisbrot and Sachs (2019) used this evidence to contend that both financial and oil sanctions had led to significant declines in oil revenues and thus caused the import contraction that led to major deteriorations in socio-economic indicators. They argue that it is "virtually certain that the U.S. economic sanctions made a substantial contribution" to the increase in mortality observed in 2018, associated with an additional 40 thousand deaths.

In an initial reaction, Hausmann (2019) and Santos (2019) questioned their analysis, alleging that the decline of Venezuela's oil output preceded the sanctions and that the Weisbrot and Sachs comparison was distorted by the use of different graphical scales for Colombia and Venezuela. In their response, Weisbrot and Sachs (2019b) argued that using Venezuela's share of OPEC production, as Hausmann did, to argue in favor of a long-run decline, implied introducing extraneous factors, and that Santos's argument that oil output for two different-sized countries should be viewed in the same absolute scale made little sense if the objective was to compare growth rates.

In a more extensive response, Hausmann and Muci (2019) questioned the counterfactual assumption that oil production would not have declined in the absence of sanctions and claim that the 2019 drops in oil output were caused by electrical blackouts. They contend that Colombia is not a good control group because the series are uncorrelated in longer-run data going back to 1999. Morales (2019) proposes the alternative of militarization of the oil industry as an explanation for the decline in oil production. Bahar, Bustos, Morales and Santos (2019) argue that social indicators show strong pre-existing trends before the sanctions and thus likely reflect the effect of past policies. As we already argued in chapters 4 and 6, this last argument is problematic as recovering oil prices in the 2017-19 period suggest that the Venezuelan economy should have at least stabilized in a counterfactual scenario without sanctions.

To the best of our knowledge, this set of authors, who wrote in early 2019, has neither revised nor restated their claims on the effect of oil sanctions after the availability of more recent data.[18]

[18] Throughout 2019, Venezuela suffered a series of nationwide blackouts, with two major outages: the first lasting 105 hours and beginning in March 7 and the second lasting 95 hours and beginning in March 25. Two more major blackouts occurred in April and July, for a total of 235 hours of blackout or 9.8 days. Since then, despite the poor electric coverage

However, given that electricity blackouts have eased from their early 2019 highs, an argument linking them with the sustained post-2019 drop in oil output would appear to be less tenable. Rodríguez and Rodríguez (2019a) argue that lack of diesel fuel needed to run backup thermal power plants after the U.S. banned diesel imports, as well as reluctance by U.S. companies to extend credit to replace power generators after the 2017 financial sanctions contributed to the intensity and duration of the February 2019 blackouts.

Oliveros (2020) surveys the qualitative evidence of the impact of sanctions on the economy. He finds significant evidence of overcompliance and inability to use the humanitarian exceptions approved by the U.S. government to its sanctions regime. He cites several examples of humanitarian agencies that have had payments for medical supplies blocked by financial institutions alleging sanctions-related restrictions. He also quotes business leaders claiming that the harm caused by sanctions to their productive capacity is similar to that of the 2007-08 wave of expropriations. Oliveros also presents several counterfactual exercises based on extrapolations of prior trends. Even in the most conservative of these scenarios, he estimates that sanctions can be associated with a cumulative decline in oil production of 616 thousand barrels per day. Equipo Anova (2020) uses a regression discontinuity design approach to estimate the break in trend in oil output at the time of sanctions and finds that they are associated with a decline of 698 tbd in oil production, or 33.1% of pre-sanctions oil output.

Many scholars, however, remain skeptical of the financial channel. Hausmann and Muci (2019), Bahar et al. (2019), and Zambrano (2019) claim that on the eve of sanctions Venezuela had effectively lost access to international financial markets due to the market's perception of its external unsustainability, making financial sanctions redundant. We can term this the redundancy hypothesis, which argues that financial sanctions could not have had an effect on the Venezuelan economy because the country had no access to capital markets, making the sanctions not binding. I return to this argument after a discussion of new econometric estimates.

New Econometric Estimates

I explore the key empirical issues in identifying the effect of sanctions on the Venezuelan oil sector through three complementary approaches. First, I use a data-driven method to select an appropriate comparison group that can serve as a counterfactual for how the Venezuelan oil sector could have evolved in the absence of sanctions. Second, I use cross-national data to study the effect of sanctions on oil production in a panel of countries. Third, I use firm-level data from Venezuela's oil industry to assess how the impact of sanctions varied according to firms' financial exposure.[19]

Synthetic Control Estimates

The crucial identification issue for adequately estimating the effect of sanction on oil production refers to being able to specify an adequate counterfactual for what would have happened in the

and rolling blackouts in some regions -particularly rural regions- no major nationwide blackouts have occurred. See Rodríguez (2019d).

[19] This section presents updated results of research originally published in Rodríguez (2019a).

Venezuelan oil industry in the absence of sanctions. As I noted above, the original suggestion of using Colombia as a counterfactual due to its high-cost structure and similar pre-2017 performance met with criticism by those who highlighted structural dissimilarities between the oil industries of the two countries.

This type of discussions is not new to event-study analyses. Similarity is often in the eye of the beholder: no two observations are identical and cases that may look alike some analysts will likely look different to others. One approach to this problem is to let the data tell you which other cases form an adequate counterfactual. This is the approach taken by Abadie and Gardezeabal (2003) and Abadie et al. (2010) who use a synthetic control group estimator to choose an adequate counterfactual to estimate intervention effects. This method is based on the observation that a combination of control units designed to replicate as closely as possible the evolution of the treatment group before an intervention can serve as a much better comparison for the unit exposed to the intervention than any single unit on its own. The method creates a counterfactual as a linear combination of potential control units that approximates the values of the predictors of the outcome variable of interest in the pre-treatment period.

Using this method, I build a synthetic Venezuela that approximates the values of a set of control variables that serve as predictors for oil production. My set of covariates includes domestic oil consumption, refining capacity, oil reserves, political institutions, and lagged oil production 4, 8 and 12 years before treatment. I work with a 12-year window, which begins in 2005 because longer-run windows are affected by the 2002-03 oil strike, which caused a 79.8% decline in oil production within a two-month period.[20]

In applying the synthetic control method, it is particularly important to choose the donor pool from economies that are not also being treated, and that share some basic similarities with the treatment group. I therefore restrict our control group to non-sanctioned economies with an average GDP per capita less than 40 thousand dollars in 2014[21] (Venezuela's was 18 thousand). This leaves us with a donor pool of 13 countries.[22]

[20] Although production never returned to its pre-strike levels, the data suggest that most of the effect of the strike was gone by 2005. Because of how atypical – and idiosyncratic – the oil strike plunge and subsequent recovery is, it is hard for any other countries to replicate the Venezuelan data. While using a longer window does not qualitatively change our results, it does diminish the capacity of the synthetic control group to replicate the pre-treatment data.

[21] 2014 is the last year of Venezuelan GDP data in the World Bank's World Development Indicators Database.

[22] Algeria, Argentina, Azerbaijan, Brazil, China, Colombia, Egypt, India, Indonesia, Kazakhstan, Malaysia, Mexico and Vietnam. Eleven countries are excluded from the donor group by the income criterion (Australia, Canada, Denmark, Kuwait, Norway, Oman, Qatar, Saudi Arabia, UAE, the United Kingdom and the United States), three by the sanctions criterion (Iran, Iraq and Russia) and eight because of insufficient data in either the dependent variable or the covariates (Angola, Ecuador, Equatorial Guinea, Gabon, Libya, Nigeria, Sudan and Syria).

Figure 7.2: Venezuela and synthetic control production, 2005-2018

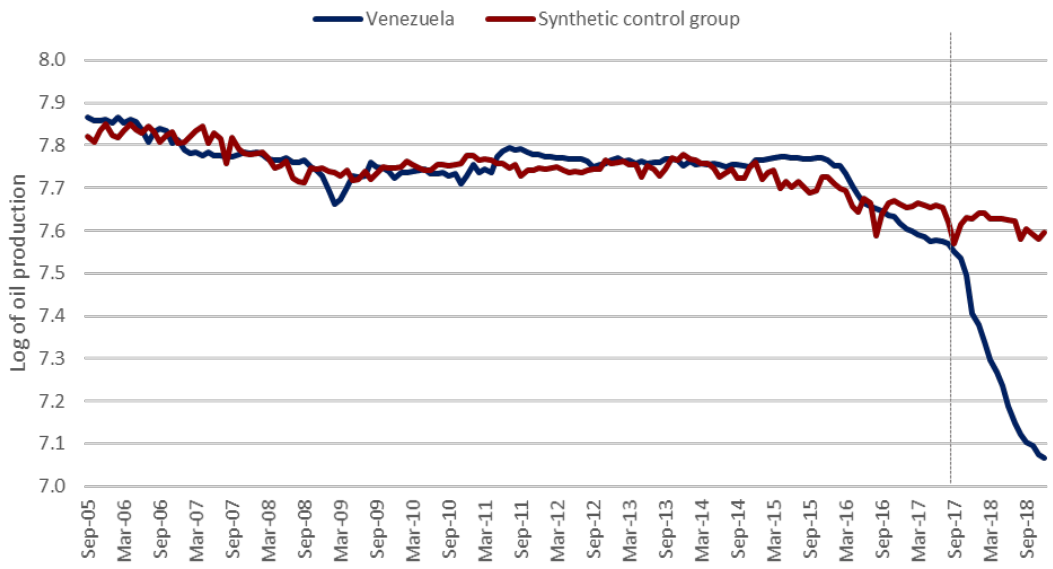


Chart displays the evolution of oil production in Venezuela and a synthetic control group. The synthetic control group is created by the method of Abadie, Diamond and Hainmueller (2010). Pre-treatment period begins in September of 2005 and thus has a 12-year length. Controls include domestic oil consumption, per capita GDP, refining capacity, oil reserves and the Polity Index. All variables except for the polity index are represented in logs. Donor pool includes all non-sanctioned countries with a per capita GDP of less than USD 40,000 in 2014.

Source: OPEC, Own calculations

Figure 7.2 plots the evolution of the logarithm of oil production in Venezuela and the synthetic group. The method chooses as synthetic control group for Venezuela a combination of Mexico (55.5%), Kazakhstan (31.9%) and China (12.6%). The synthetic control reproduces the treated country very well throughout the whole pre-2017 period. Venezuela somewhat outperforms the synthetic group in 2015 and underperforms it in 2016, but in both cases the difference is within two standard deviations of the mean-squared error (MSE). These periods of under and overperformance offset each other, so that the decline in Venezuela's oil output during the 2014-16 plunge in oil prices is virtually identical to that of the control group. By August 2017, the month at the end of which financial sanctions were imposed, the difference between the synthetic and treatment groups was of 5 log points, as opposed to an MSE of 4 log points.

This difference grows markedly after the adoption of U.S. financial sanctions. On the month after treatment[23] the difference between synthetic and control group production rises to 8 log points, and then in November it rises again to 13 log points, more than three standard deviations of the pre-trend difference. By the end of the sample in December 2018 – just before the adoption of U.S. oil sanctions, the difference had grown to 53 log points, or more than 14 times the pre-treatment standard

[23] I.e., October of 2017

deviation of the series. Taking the August 2017 level of production as the baseline, this would imply a loss of 797tbd in production, or $ 17.5bn at today's oil prices. [24]

In Rodríguez (2019a), I provide a set of additional tests to assess the robustness of this result. They include placebo tests, which assess whether similar sanctions effect could have been identified in a country chosen at random from the donor pool, as well as estimation using alternative treatment windows and donor groups. These tests confirm the conclusion of an economically and statistically significant effect of the 2017 financial sanctions, as well as the adequate power of the estimator against alternative hypotheses.

Cross-Country Panel Data.

An alternative approach to using the data of oil producers to estimate the effect of sanctions is by pooling the experience of Venezuela with other producers that have been subject to sanctions. Instead of comparing a group of non-sanctioned countries with Venezuela, as I did in the previous subsection, in this section I will consider the performance of all sanctioned oil producers relative to non-sanctioned producers.

Figures 7.3 and 7.4 show two examples: Iraq and Iran. In August of 1990, the United Nations Security Council imposed oil sanctions on Iraq on the aftermath of its invasion of Kuwait. These sanctions were in place up until the fall of Saddam Hussein in 2003, but for practical effects were considerably relaxed with the star of the U.N. oil-for-food program in 2006. We see a precipitous drop in output of 87% in the year of sanctions. Output remains low for several years after the war and then recovers almost all the lost ground when Iraq is permitted to begin exporting oil again through the oil-for-food program. Sanctions are lifted after invasion in 2003, and production begins to recover.

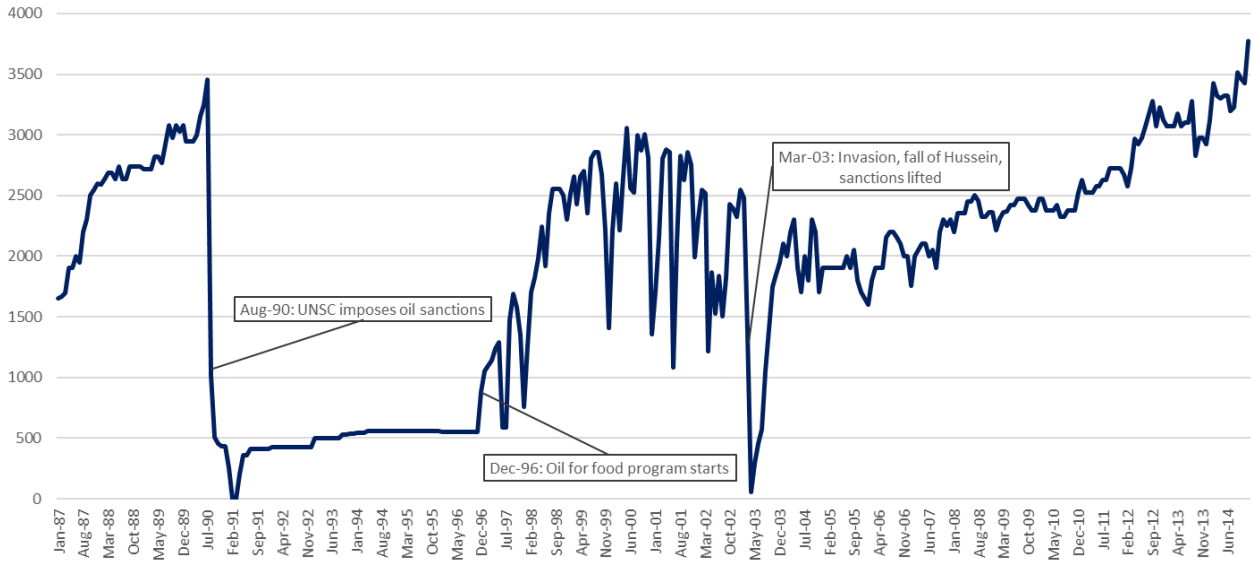
In the case of Iran, multilateral sanctions were imposed in 2012 as a response to Iran's development of nuclear weapons. Output fell by approximately 20% after the E.U. banned oil imports from Iran and the U.S. implemented secondary sanctions on countries trading with Iran. These restrictions are lifted in January 2016, and output subsequently recovered most of the lost ground. In May 2018, the U.S. again imposed secondary sanctions on Iranian oil sales, leading to a decline of a similar proportion. It's worth noting that most of Iran's oil exports go to Asia, making the threat of secondary sanctions very relevant. During the periods covered in this figure, the U.S. exempted several of Iran's trading partners from these sanctions, as long as they made a commitment to significantly reduce oil imports from Iran.

[24] I use a current oil price of $60 for Venezuelan oil exports.

Figure 7.3: Iraq oil production, 1987-2014

Source: B.P. statistical Review

In order to explore these results more systematically, I run a set of panel regressions on monthly data from 38 oil exporting countries for the 1999-2020 period.[25] My base specification is:



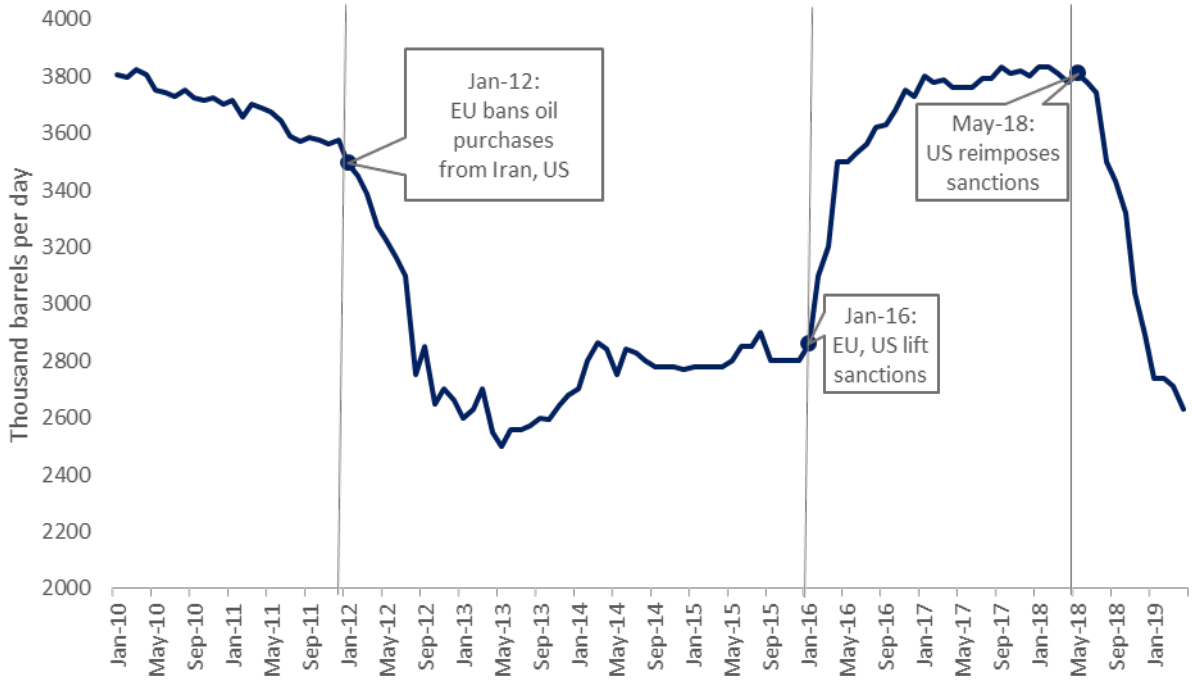
$$o_{it} = \alpha_i + \gamma_t + \pi_i t + \beta_0 X_{it} + \beta_1 S_{it} + \varepsilon_{it} \quad (5)$$

Where o_{it} denotes oil output in country i at time t, X_{it} is a $jx1$ vector of covariates and S_{it} is an indicator variable capturing whether the country was subject to oil sanctions. α_i and γ_t respectively denote country and time fixed effects, while t is a time trend.[26]

[25] My oil production variable is taken from several sources: OPEC's Monthly Oil Market Report, the U.S. Energy Department's International Energy Statistics, the U.S. Energy Information Administration's International Energy Statistics, Bloomberg's Crude oil production data (OPEC<GO> on the Bloomberg Terminal) and Colombia's National Hydrocarbons Agency's *ANH en Datos* dataset. I choose the series with the highest coverage for each country. See Rodríguez (2019a) for more details.

[26] I make no attempt in these regressions to identify a separate effect for financial sanctions. Venezuela's case is atypical in the presence of financial sanctions without oil sanctions. Typically, both financial and oil sanctions are imposed and removed simultaneously, impeding us from empirically estimating the effects separate from each other. Therefore, the coefficient estimates in this section could be interpreted as the joint effect of oil and financial sanctions.

Figure 7.4: Iran oil production, 2010-2019



Source: Bloomberg

Figure 7.5 represents one of our specifications, in which I estimate separate coefficients for months before and after sanctions[27]. If the correlation was due to reverse causation, we would expect the data to show significant effects appear before the sanctions. In contrast, there are no significant effects prior to the sanctions, with the significant estimated effects appearing on the month of adoption and reaching their highest levels 3 months after adoption. This is consistent with the patterns shown in Figure 7.1 for Venezuela as well as 7.4 and 7.5 for Iraq and Iran, in which the production effect of sanctions is quite rapid.

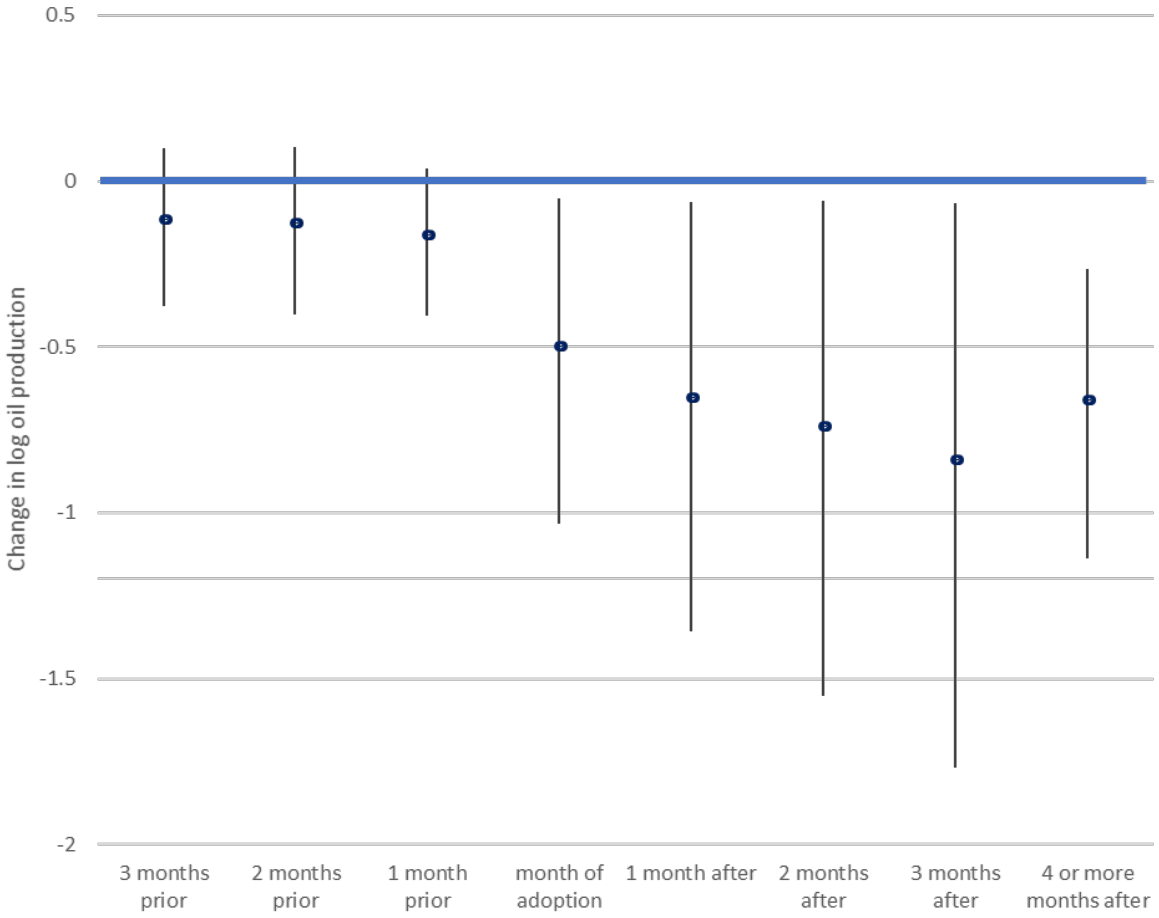
Numerically, the regression estimates of equation (1) deliver a range of -66 to -73 log points. [28] Applied to the Venezuelan economy, these effects would imply a decline of between 556tbd and 596tbd if we take the January 2019 production level as our starting point. Valued at current market

[27] This follows the idea of Autor (2003) of using Granger causality tests to study whether sanctions effects precede or are preceded by changes in oil production.

[28] That is, the imposition of sanctions would lead to a decline of between 48 and 52 percent in output. See Rodríguez (2019a) for a discussion and a full set of regression tables. The coefficient drops in a specification with controls for a number of industry covariates to -20 log points yet remains strongly statistically significant. Nevertheless, as we discuss there, the reduction in coefficient magnitude is due to the loss of observations, which include some cases of sanctioned economies.

prices, this would amount to $12.2-$13.1bn in foregone oil revenues. It would also represent around double of the country's estimated 2021 level of imports.

Figure 7.5: Estimated Effects Relative to Timing of Adoption of Sanctions, Panel Data Estimates



Source: Own calculations

Note that because financial sanctions almost always accompany oil sanctions (Venezuela being an atypical case), coefficient estimates from this model could be interpreted as proxying for the joint effect of financial and oil sanctions.[29] The results thus suggest that the financial sanctions imposed on Venezuela in 2017 had similar effects on the economy than those that could have been expected from full-fledged oil sanctions.

[29] Attempts to separately estimate a financial sanctions effect in these regressions yielded unstable coefficient estimates, which makes sense given the high level of collinearity with the oil sanctions variable. However, the coefficient on oil sanctions remained robust to the inclusion of a control for financial sanctions.

Firm-Level Panel Data Estimates.

My third and last estimation makes use of a firm-level panel data set of monthly production levels in Venezuela's Orinoco Belt region. The Orinoco Belt is home to 262 billion barrels of oil reserves, the bulk of the country's proven reserves of 304 billion (Ministerio del Poder Popular de Petróleo 2019). The Belt is located around the Orinoco River Basin which divides the country's southern tropical forest areas from its northern, more urbanized regions. Its main deposits of crude petroleum are located in three key eastern states (Anzoátegui, Guárico and Monagas) and consist largely of heavy crude with a higher production cost than Venezuela's western fields.

The Orinoco Belt generates around half of the country's production and more than two-thirds of its production by joint ventures. This is largely a result of the opening of Orinoco Belt Investment to foreign investment in the late 90s (Rodríguez 2005). During that period of low oil prices, authorities deemed the investment cost of developing these fields as too high for then cash-strapped PDVSA. The contracts initially assigned in the 90s were renegotiated by the Chávez administration in 2006. At that moment, PDVSA negotiated their conversion from operating contracts with private sector firms into joint ventures in which PDVSA held a majority stake.

Over time, the Orinoco Belt became one of the main sources of production growth in the Venezuelan oil industry. This was due in part to the greater concentration of joint venture arrangements with national and multinational companies in the area, which allowed FDI inflows into an area of significant potential during a period of high oil prices. As Figure 7.6 shows, Orinoco Belt production showed moderate production growth during the 2009-2015 period, which partially offset a trend of declining production in other areas of the country.

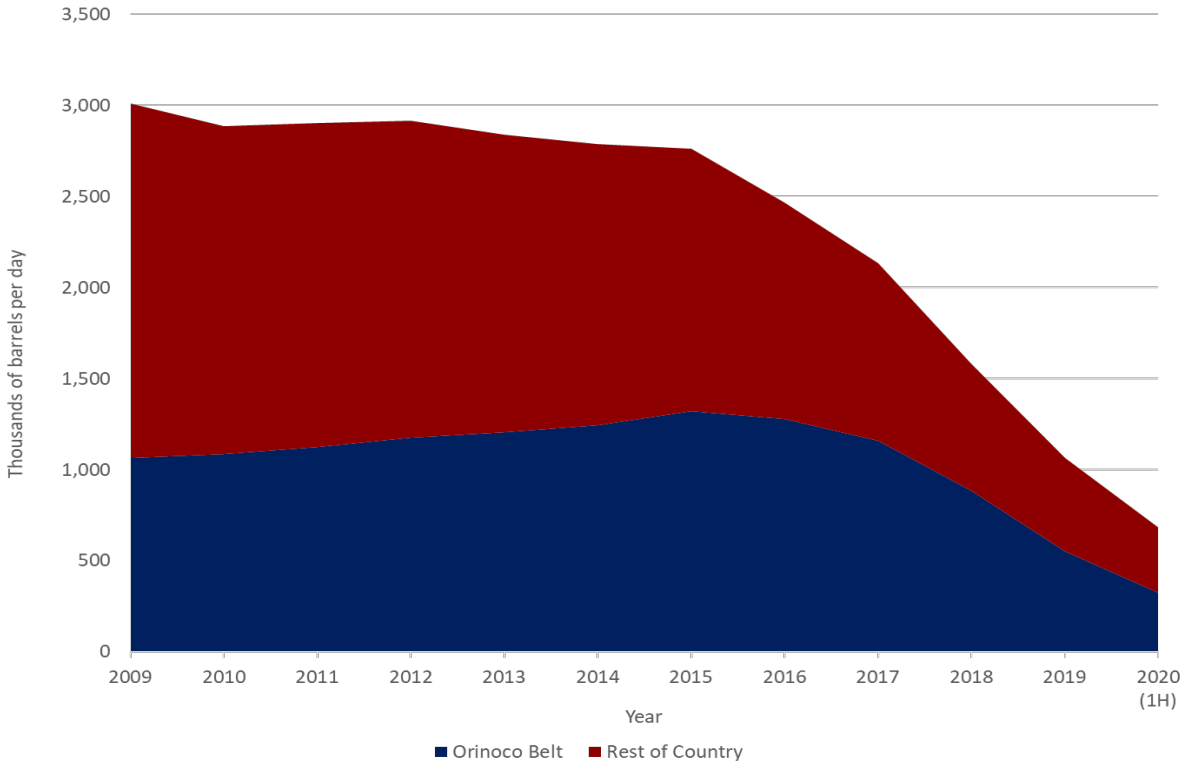
In other words, while there were factors leading to the decline of oil production before 2015 in the nation's western fields, the Orinoco basin area seemed impervious to them. Even as production turned the corner in 2016 with the collapse of oil prices, Orinoco Belt production remained relatively resilient: in the first seven months of 2017 (the period prior to the adoption of the first financial sanctions), Orinoco Belt production was only 7 % lower than its average 2015 levels. Understanding the subsequent turnaround in Orinoco Belt production is therefore essential to figuring out why Venezuelan oil production collapsed from 2017 on.

My estimation approach follows a difference-in-differences specification to assess the performance of firms with access to the Special Financing Vehicle (SFV) deals relative to those that did not have the deals before and after 2017. These special deals allowed foreign partners to lend to the joint venture, effectively opening up a credit channel that was active until the adoption of financial sanctions. The idea of this estimation approach is to take seriously the redundancy hypothesis outlined in the previous section – according to which financial sanctions were not binding because credit markets were already closed – by distinguishing between those firms that had credit market access at the time of the sanctions from those who lacked it.

My data corresponds to observations of monthly production in 33 production blocs in the Orinoco Belt spanning the twelve-and-a-half-year period from January 2008 to June 2020. A bloc is a geographic subdivision formed by one or more fields. The subdivisions were created to allocate areas

of the region to oil-producing firms, which may or may not be joint ventures. In the sample, six firms from six different countries were involved in SFV deals before the first sanctions.[30] At the same time, 16 joint ventures in the Basin were not involved in SFV deals, nor were any of the 10 blocs operated completely by PDVSA. This implies that there is considerable variation in SFV exposure both in the sample as a whole as well as within nationalities of foreign partners.

Figure 7.6: PDVSA Production by Region, 2009-2020



Source: Own calculations, PDVSA

Firms with access to SFV deals faced financial conditions which were not too different from those of non-distressed oil firms in the rest of the world. With one exception, interest rates are at or below Libor + 5.8% (approximately 6.5% at the time), well below levels typically associated with high expectations of default.[31] This is precisely what makes focusing on SFV firms akin to replicating an

[30] A seventh firm concluded a financing deal in 2018 with China's CNPC for the Petrozumano bloc. Since this deal is after the imposition of the sanctions, I maintain this firm as a non-SFV firm for my baseline specification. Including it in the treatment group does not significantly alter our results. Inclusion in the treatment group could be justified with the argument that what SFV intends to measure is access to SFV financing, for which having obtained such financing, regardless of when it happened, is a good proxy.

[31] The exception is PetroDelta, the only deal with a Venezuelan-owned firm, whose rate was 12%.

experimental sector: unlike the rest of the Venezuelan oil sector, it is clear that this set of firms was able to obtain financing prior to sanctions, and lost that financing access at the time of sanctions.

The panel data regressions include time-specific treatment effects, treating the six firms with SFV agreements as of the time of the announcement of financial sanctions on August of 2017 as the treatment group and the remaining twenty-six firms[32] that did not have SFV deals at that time as the control group. Therefore, the baseline specification is:

$$p_{it} = \eta_i + \lambda_t + \delta(SFV_i \cdot t) + \sum_{k=T_0}^{T} \beta_k SFV_i S_k + \varepsilon_{it}, \quad (1)$$

where p_{it} is an indicator of production in firm i at time t, η_i denotes a firm-specific fixed effect, λ_t a month-specific fixed effect, t a time trend, S_k an indicator variable that takes the value 1 on month k and 0 on all other months, SFV_i an indicator variable that tales the value 1 for firms for which there is a special financing vehicle arrangement during our sample and 0 for those for which there is not, T_0 is the first month of sanctions (August 2017) and ε_{it} an iid error term.

At first sight, our data does not seem to have the characteristics associated with the ideal differences-in-differences specification. In the ideal framework, the control and treatment group should have similar behavior after the intervention, and begin to differ after the intervention. This characteristic of the control and treatment groups is what is known as the "parallel trends" hypothesis. The differences-in-differences method can still be applied to data with no parallel pre-intervention trends, but the interpretation of the results is somewhat different: instead of testing for the effect of an intervention on the level of an outcome, we are testing for the effect on its growth rate – that is, we are attempting to capture deviations from the "parallel growth" hypothesis. Precisely for this reason, it is advisable to include a group-specific trend in this specification, as I do in (2) (Bilinski and Hatfield 2019). [33]

However, there is another way to look at our data which also yields an appealing interpretation. This is to think of the sanctions as the end of the treatment rather than their beginning. This squares well with the idea that our treatment group was different from our control group before the sanctions but not after them. The reason is that, by closing off access of all public sector firms to international financing, the sanctions made SFV firms, which previously had access, similar to non-SFV firms, which previously lacked them. In this interpretation, we would expect to see trend growth rates to be parallel after the sanctions and not before them. That is indeed what we see in the data (Figure 7.7).

Table 7.1 presents my estimates. I use three different measures of production because the standard measure (log of production) is biased given that a large part of the sample falls to zero production after the sanctions: the absolute level of production (in barrels per day), production

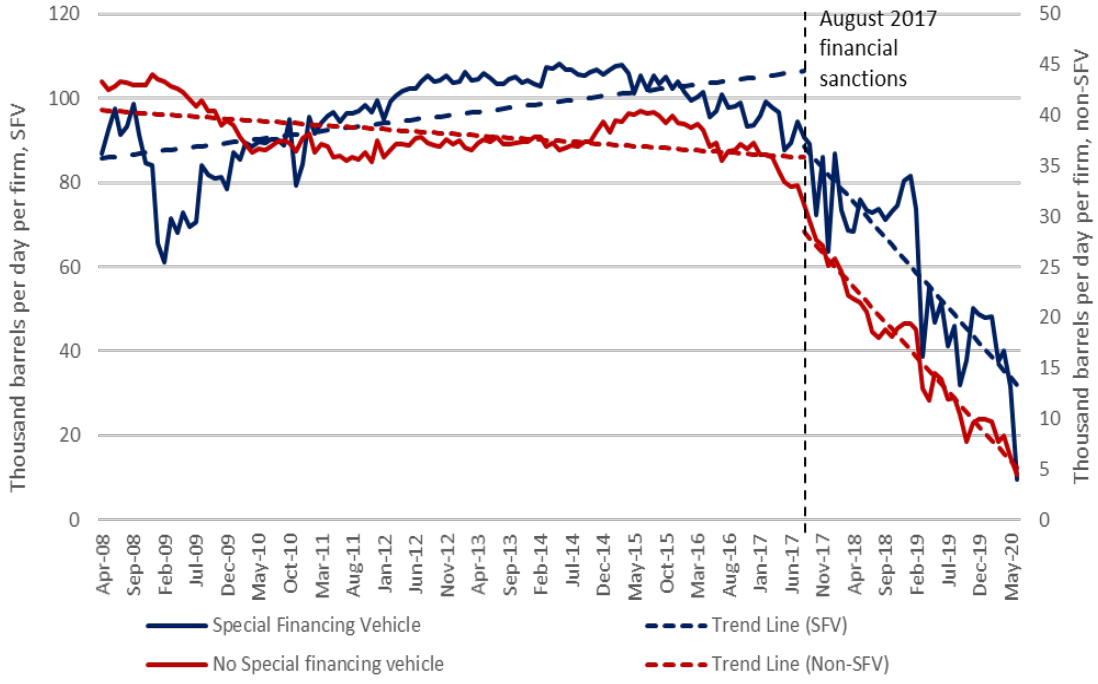
[32] Time-specific treatment effects are necessary so that the treatment group trend does not pick up variation over time in the treatment effect (Wolfers 2006). I refer indistinctly to firms and blocs in our discussion for ease of exposition. While each firm operated by a JV is operated by a distinct firm (even if the foreign partner is the same), the 10 blocs wholly operated by PDVSA are operated by a single firm, a PDVSA subsidiary known as the Corporación Venezolana de Petróleo (CVP)

[33] I do not use this term in the specification provided in section 8.5.3 because in that case the interventions occur at different moments in the sample, whereas here they occur at the same moment.

standardized using the firm-level sample mean and standard deviation, and the logarithm of production with an imputed minimum.

Table 7.1 reports the average treatment effects as well as the trend coefficient and associated standard errors for the three specifications of the dependent variable. When the dependent variable is the level of production (column (1)), I find an average treatment effect of 39.3 thousand barrels per day, which is strongly significant (p=.006). If I just calculate the treatment effect over the period of oil sanctions (from January 2019 until the end of our sample on June 2020), I get a somewhat stronger effect of 51.4 thousand barrels per day, or 54.2% of pre-sanctions production (p=.003). The logarithmic specification delivers a treatment effect of 52.0 log points, equivalent to a decline of 40.5% from the initial baseline, yet the statistical significance is still milder (p=.061). When I use standardized levels as the dependent variable, the effect is slightly larger as a share of initial output: sanctions are associated with a 1.7 standard deviation drop in production, which evaluated at the SFV averages yields a 48.5% output drop, and statistical significance is much stronger (p=.000). [34]

Figure 7.7: Orinoco Belt Production by Financing Access, 2015-2020



Source: Own calculations, PDVSA

[34] Alternative specifications of the scaled variable, such as those using production as a percentage of average pre-sanctions or of August 2017 production, deliver similarly strong results.

Table 7.1: Panel Regression Results, Baseline Specification

Dependent variable	Level of Production	Log of Production (imputed minimum)	Standardized
Financial Sanctions Effect	-39312***	-0.527*	-1.736***
	(13215)	(0,272)	(0,395)
Oil Sanctionn Effect	-51413***	-0.719*	-2.106***
	(16177)	(0,393)	(0,453)
N	4188	4188	4188
Adjusted R-Squared	0,2528	0,4623	0,4801

*Table captures estimates of equation (1) using four alternative specifications of our outcome variable. Standard errors in parentheses. Asterisks denote statistical significance: *10%, **5%, ***1 %. All specifications include month dummies, firm fixed effects, and post-treatment month*SFV interactions. Average Treatment Effect is the average of estimates of δk in equation (2).*

Source: Own calculations

In Rodríguez (2021a) I provide a battery of additional robustness tests of this specification. This includes controlling for the nationality of the largest partner – which yields the interesting result that U.S. firms were actually more protected from the impact of sanctions given the waivers approved by OFAC - controlling for higher-order non-linear trends and providing an alternative specification in which I consider the treatment period as the pre-sanctions period, in line with the idea that sanctions made the control and treatment groups more similar instead of more different. All these variations produce consistent results, with most of them strengthening the statistical significance.

What do these estimates mean in terms of the economic magnitude of the effects? I estimate that sanctions can explain around 46% of the loss of production of SFV firms, or around 235 thousand barrels per day. Yet SFV firms only accounted for 47% of the production loss observed in the whole region, so my estimates can account directly only for around 21% of the observed loss of production in the region. Furthermore, the SFV model was much less extended in the non-Orinoco oil fields (for which the monthly data used in this estimation is not available), so this number is likely to be even smaller if applied to the country's whole oil sector. Nevertheless, it is worth highlighting that this number is far from meaningless in the current context: at current oil prices of $60/barrel, this would represent $ 5.1bn, enough money to nearly double the country's annual import bill of $6.5bn.

One reason why this may be too conservative an estimate is the assumption that the rest of the oil sector had absolutely no access to international capital markets could be too extreme. As I have noted, PDVSA was able to conclude other financial deals outside of SFV agreements in the period immediately before sanctions, namely through collateralized loans and conversion of arrears with providers into New York Law obligations. If the non-SFV sector had some level of capital market access, then the estimates of Table 7.1 must be treated as lower bounds for the total effect.

Yet another, perhaps more compelling reason why the estimate is conservative is that it assumes that the Maduro government would not have extended the SFV model more broadly in the absence of sanctions. Yet if the SFV model was yielding positive results in terms of production growth, and the Maduro government was increasingly appealing to it, it seems safe to assume that in the absence of sanctions it would have seized on this type of arrangements to help offset the decline in production that was occurring in firms that had no financial market access. More broadly, it is hard to

imagine a scenario in which PDVSA would not have ultimately restructured its debt in the face of prohibitive financing costs for most if its production, allowing the whole firm to regain access to capital markets. In such a scenario, the correct counterfactual would apply the coefficient estimates of Table 7.1 to all of the country's oil sector.

Consider an alternative counterfactual in which the industry would have been able to regain capital market access at some moment and in which the coefficient estimates can thus be applied to all firms, and not just those with access to the deals at the time of sanctions. In that case, the sanctions could account for the loss of around 591 tbd in the Orinoco Basin and 1,142 tbd in all of the Venezuelan oil sector. The latter number is equivalent to $25bn in foregone oil revenue and is in line with the estimates that emerge from the synthetic control and panel data estimates.

Revisiting the Redundancy Hypothesis.

The above results can help us revisit the claim that financial sanctions could not have affected the Venezuelan economy because the government had already lost access to international capital markets on the eve of the 2017 sanctions – what I have called the redundancy hypothesis. My results point to the existence of channels through which an important part of oil production could have been sensitive to the loss of access to financing, even if unsecured lending to PDVSA and the Republic was not available at reasonable rates in the moment at which sanctions were imposed. SFV deals provide a clear example of financing access which was obtainable at reasonable rates in mind-2017 and to which sanctions definitively closed the door. [35]

Another example regards the refinancing of commercial debt. Beginning in 2015 PDVSA had begun refinancing its arrears with service providers such as General Electric, Halliburton and Schlumberger through the issuance of New York law promissory notes at 6.5% interest. By mid-2017, PDVSA had issued and remained current on at least $ 3.2bn of these promissory notes. U.S. financial sanctions had two effects on these arrangements: they stopped the company from issuing new notes, and they also barred holders of these notes from trading them – unless they obtained an OFAC license to do so – thus generating large losses for the firms that had accepted to refinance PDVSA debt through these mechanisms. Blocking PDVSA's attempts to deal with provider debt was bound to have an effect on the willingness of these firms to continue to engage with the firm.

Both modalities are examples of the way in which credit is interconnected with the production process. External finance is costly in the presence of informational asymmetries because creditors cannot easily verify whether a default occurs as a result of a project's inherent risk or the debtor's decision not to pay (Smith 1987). One way in which borrowers can resolve these informational asymmetries is by entering into joint-ventures which not only give external investors an equity stake but also concede some level of operational control and access to information (Balakrishnan and Koza 1993). This can be done either by jointly operating production processes (as in the SFV arrangements)

[35] The issue is complicated by the fact that capacity to pay depends on oil revenues. Declining oil production can easily make a debt unsustainable that would not be so under other conditions. Venezuela's external debt to GDP ratio rose markedly in our period of study, with virtually all of the increase caused by the collapse of the country's GDP valued in foreign currency. See section 3.6 for a deeper discussion.

or by outsourcing some production processes to external suppliers (as in the suppliers paid with the New York law promissory notes). Suppliers can extend trade credit at rates that would not be agreed to by financial intermediaries because of their informational advantage and capacity to control assets that are required for production (Bernake and Gertler 1989). An extreme way to resolve the informational asymmetry is by fully collateralizing loans, yet this is often difficult if not impossible to do for sovereign or quasi-sovereign debtors.

In other words, modern finance is commingled with a set of other activities that are essential to production. Trade credit is often a necessary by-product of relations with vendors. While the August 2017 sanctions carved out exceptions for trade-credit of under less than 90 days, there is substantial evidence that these exceptions were far from sufficient to protect trade-related loans. Even Citgo, the PDVSA-owned U.S. refining arm which was immediately granted a license excepting it from sanctions, began having trouble obtaining routine trade credit after sanctions were imposed (Parraga and Ngai 2017). The short-term debt exception was also insufficient to cover part of PDVSA trade-credit, and completely ruled out the conversion of trade credit arrears into financial debt that was being carried out by PDVSA at the time. It further became moot after the January 2019 designation of PDVSA which impeded any type of dealings with the firm.

The redundancy hypothesis focuses on the impediment imposed by financial sanctions on the government's issuance of new debt under the policies and conditions prevalent in late 2017. Yet it disregards scenarios in which these policies or conditions would have changed so as to allow Venezuela to regain access to capital markets. In doing so, it relies on an improbable counterfactual: that Venezuela would have been shut out of capital markets not just in August of 2017, but permanently thereafter.

Such a counterfactual is particularly problematic because once governments lose access to capital markets, one of two things eventually happen: either they regain that access owing to changes in external conditions and/or policy reforms, or they enter into debt restructuring negotiations that bring down their debt to levels compatible with sustainability. Scenarios in which governments spend several years shut out of capital markets are relatively rare.[36]

Thus, even if one agrees that a Venezuelan default was highly likely as of late 2017, it does not follow that the most reasonable counterfactual scenario would have included a prolonged period during which the country's oil industry would have been unable to access international financing. Sanctions ensured that absence by impeding any issuance of new debt, including the exchange of old bonds for new bonds through which debt restructurings typically occur. Venezuela may have been partially locked out of international capital markets in 2017; sanctions made that lockout complete and permanent. While a strong argument could be made that Venezuela would have defaulted on its foreign debt on or shortly after 2017 and that that default would have probably been traumatic and led to a production loss, it is not reasonable to argue that in the absence of sanctions the oil industry wouldn't have found a way to reestablish its access to international capital markets. While the timing of sanctions is what helps us identify its effect empirically, it is the way in which they permanently

[36] Sturzenegger and Zettelmeyer (2006) present case studies of eight restructuring events. In four of them, no payments were missed prior to the time of the restructuring. In the remaining four, the time periods between the initial default and the eventual restructuring range from a few days (Ukraine) to three years (Argentina).

sever the links between the country and international financial markets that makes them particularly damaging.

There are clear signs that the Venezuelan government was seriously considering a debt restructuring at the time of sanctions. In September of 2016, when it offered to exchange maturing unsecured debt for collateralized bonds, PDVSA's president told creditors that if they did not accept the deal, the company may not be able to continue honoring its debt. This type of statements is not unusual in distressed debt exchanges, and essentially reflect the fact that conceptually "voluntary" debt swaps are not necessarily all that different from explicitly negotiated debt restructurings. [37]

More explicit attempts at restructuring were put forward over the subsequent three years. Less than three months after the adoption of sanctions, the Venezuelan government announced the creation of a commission to restructure Venezuela's debt. The commission produced no results, largely because there was no legal way in which U.S. investors could negotiate with it.[38] A September 2020 offer by the Maduro government to renegotiate existing debt bonds by waiving the statute of limitations on creditor legal actions – a move that would have been unambiguously positive for creditors – also met with a tepid response, given that from a legal standpoint any such change would have had to have been signed off on by Guaidó to be valid before U.S. courts (Laya and Yapur 2020; Rodríguez 2020).

An additional problem with the redundancy hypothesis is that it fails to take into account the fact that the recovery in oil prices that took place through 2017 and 2018 would have been expected, in the absence of sanctions and toxification, to lower the cost of PDVSA financing. I already discussed this argument in chapter 6, where I showed that the historical negative correlation between the country's credit risk – a measure of the cost of financing the Venezuelan government - and oil prices broke down in 2017. Figure 7.8 shows this, but in contrast to the data presented in chapter 6, I now focus on the relationship between oil prices and the cost of insuring against a Venezuelan default, as measured by the price on five-year Credit Default Swaps (CDS).

Country risk and CDS prices are obviously related. The higher the perceived probability of default, the lower the price at which investors will be willing to purchase a country's bonds and the higher the return that those bonds will have to offer for investor to want to purchase them. Yet the measures are not identical: bond prices can be affected by the liquidity of each instrument as well as the expected recovery values after default. For example, if the market believes that a country is under particular stress that will impede it from making bond payments at a particular moment of time yet also expects it to try to cure that default quickly, its CDS prices can shoot up much more rapidly than the return on its bonds.

CDS prices, therefore, provide us with the most precise measure of the market's expectation of a default event and can thus help us evaluate the extent to which markets saw a default as inevitable

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[37] For these reasons, S&P classified the debt offer as a "distressed debt exchange" after concluding that if the exchange were not to be concluded, the firm was unlikely to meet its obligations (Chinea and Ellsworth 2016).

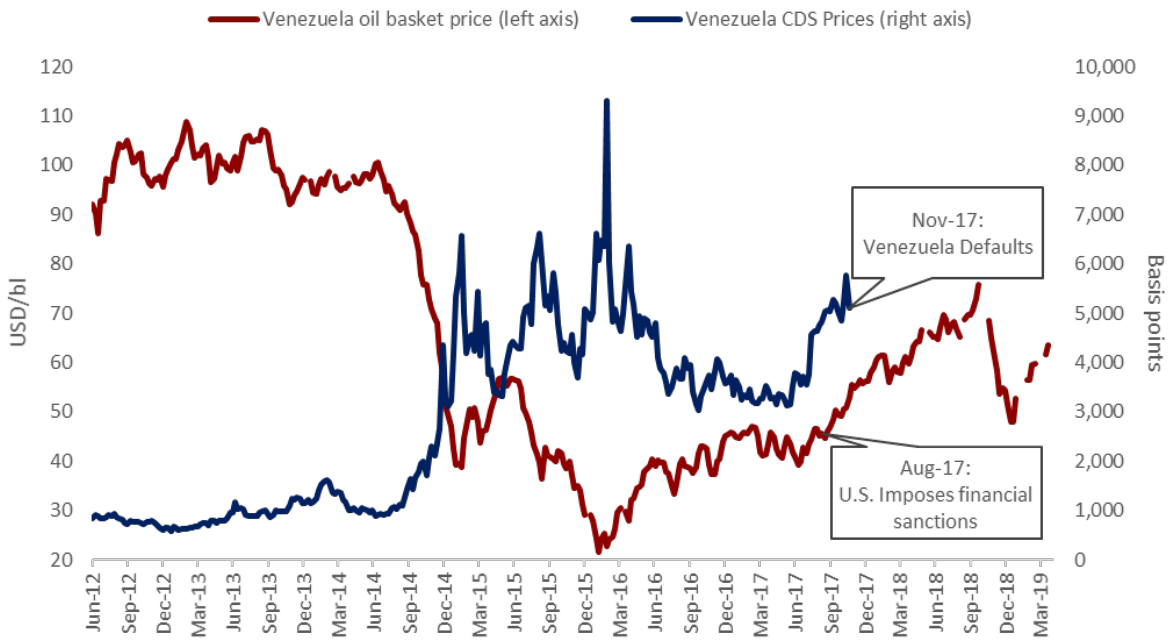
[38] Although there is no legal impediment for institutions in other countries to participate in such a restructuring, non-U.S. creditor groups have shied away from any action that would impose restrictions on their capacity to do business in the U.S. and that would leave them with bonds that would not be tradable in U.S. markets. Furthermore, any changes to existing bonds would have to be approved by the Guaidó administration to be valid under U.S. laws.

– and how this perception was influenced by oil prices. As Figure 7.8 shows, investors were willing to offer insurance on Venezuelan debt for around 1000 basis points (10% of the nominal value of the insured debt) during the period up to late 2014 when oil prices were at around $ 100. As oil prices fall to around $ 40/bl in early 2015, the cost of insuring against default rose sharply, spiking to more than 9000 bp at the moment at which oil prices reached their minimum of $22 per barrel at the start of 2016.

Yet as oil prices began to recover into the mid-40s – and the government defeated predictions of default despite the oil price stress – CDS costs fell to around 4000bp, or less than half their peaks of early 2016. This is still a high number, but $40 per barrel is also a relatively low oil price. What is interesting about the data is that prior to the adoption of U.S. sanctions, it displays a very strong negative correlation between oil prices and perceived default probabilities, with the correlation coefficient at -.93 (similar to what we saw in chapter 6 regarding bond spreads). This correlation breaks down completely after sanctions are imposed: between August and November 2017, oil prices recover strongly, but CDS prices continue to rise, with the correlation in this period now at +.79. This suggests that the market began to see oil prices as irrelevant to the occurrence of a default after the adoption of the sanctions, as it understood that the sanctions were likely to drive the country into a default regardless of the evolution of the oil market.[39]

[39] Bahar, Bustos, Morales and Santos (2019) argue that the lack of increase in the sovereign spread after sanctions suggests that the market did not perceive the default as relevant. However, they fail to consider that the relevant counterfactual in the absence of sanctions would be that spreads would have fallen, given the strong recovery experienced by oil prices in the second half of 2017.

Figure 7.8: Venezuela oil prices and Credit Default Swap prices



Source: Bloomberg

What the data is thus telling us is that in the absence of sanctions, one should have expected Venezuelan default probabilities and the cost of financing to the government to have declined as oil prices improved. Consider, for example, what we would have expected to happen with the CDS price if the pre-sanctions correlation of -.93 had been sustained into the post-sanctions period. By then end of 2018, as oil prices topped $70, this correlation would have predicted CDS prices to fall to around 2500 basis points. The implicit five-year probability of default associated with a CDS price of 2500 basis points is 36% - or an annual default probability of 8.5%.[40] While the market would have continued to be concerned about the probability of a default event, its most likely scenario would have been one in which Venezuela escaped default.

Another way to think of this issue is to consider the magnitude of the recovery in oil revenues that would have been reaped if Venezuela had not suffered the effect of sanctions that I identified in the previous sections. Between the first half of 2017 and the second half of 2018, Venezuelan oil prices rose from $43.6/bl to $64.9/bl. Taking the August 2017 production level as a reference, this implies

[40] This calculation assumes a recovery value of 30%. This is a very conservative estimate of recovery values for Venezuela given what we know about the experience ex post. Given that current bond prices have turned out to hover in the single digits, one could argue that recovery value of the bonds in net present value as of 2017 should have been much lower. This only strengthens our argument: for a given CDS spread, lower recovery rates imply that one is insuring against a costlier event and that the perceived probability of default is this lower. At a recovery rate of 10%, for example, a 2500 bp CDS price would imply a 28% 5-year probability of default and an annual probability of 6.3%.

that Venezuela would have been able to reap $ 15.0bn in additional oil revenues from increased oil prices, way more than the $ 9.0bn of service on its bonds that it was scheduled to pay in 2018. Those additional oil revenues should have significantly improved the country's access to financing in 2018 in the absence of sanctions, making a default less likely as well as improving the conditions under which the government could have refinanced or restructured its debt. If the government managed to avert default with oil prices in the 30s, one should not jump to conclude that a default, and much less a prolonged default (i.e., one that was not followed by a successful restructuring) would have become inevitable when oil prices were in the 60s.

Ultimately, an even more serious problem with the redundancy hypothesis is that it is hard to explain why the U.S. would adopt a set of policies that had no effect on the Venezuelan government's access to resources. That is, if we believe Venezuela would have had lacked access to any type of financing even in the absence of sanctions, then we must conclude that Donald Trump's August 2017 Executive Order, which then barred transactions which would not have taken place, was essentially irrelevant. It is hard to understand why the Trump administration would have chosen to respond to Maduro's decision to conduct the 2017 elections for the Constitutional Convention with a decision that had no effect on the choice set of the Venezuelan government.

The redundancy hypotheses runs counter to the statements of high-ranking Trump administration officials at the moment of the adoption of sanctions, which suggest that U.S. authorities believed that the actions significantly curtailed the Maduro regime's access to resources. At a press briefing held immediately after the publication of Executive Order 13808, National Security Adviser H. R. McMaster stated that the ban "strongly punishes the Venezuelan regime…Through the President's strong action, the United States will target the means with which the Maduro dictatorship can accumulate debt to enrich its corrupt regime insiders and perpetuate its repressive behavior" (Gearan and Faiola 2017). Treasury Secretary Steven Mnuchin added that "Maduro may no longer take advantage of the American financial system to facilitate the wholesale looting of the Venezuelan economy at the expense of the Venezuelan people." According to the redundancy hypothesis, these statements must reflect either ignorance or deliberate misrepresentation of the consequences of their actions by high-ranking U.S. officials.

Interestingly, the redundancy hypotheses also runs counter to statements by at least one high-ranking official of the Guaidó administration. On April of 2019, John Bilbao, a former PDVSA official that had been fired by Chávez in 2003, was appointed President of PDVSA-owned Monómeros, Colombia's largest producer of fertilizers, by interim president Juan Guaidó. On June 6, Bilbao told the *Financial Times* that his most pressing concern was getting U.S. sanctions lifted. The company had swung from net profits of $ 20mn in 2016 to net losses of $ 23mn in 2018, after financial sanctions were imposed. According to Bilbao in early 2019, if sanctions were lifted, Monómeros could turn to produce a profit that same year. This, in fact, was what happened: sanctions were lifted in June and the company posted earnings of $ 8mn in the second half of 2019 (Becerra 2020).

Surgical Strike

The evidence presented in this chapter strongly supports the contention that financial and trade sanctions imposed on the Venezuelan government and state-owned entities starting from 2017 on had significant effects on the country's economic crisis. Sanctions strongly impacted the country's oil sector, hampering its capacity to fund its operations and investment and blocking access to traditional markets and inputs. The high oil dependence of the Venezuelan economy ensured that such a surgical strike against its oil sector would have catastrophic effects on the broader economy, by depriving the country of what was essentially its only source of foreign currency revenue.

That Venezuela's poor economic policies played a significant role in the country's deep recession between 2013 and 2016 is not under discussion. Because of its lack of savings and investment during the oil boom, Venezuela was particularly unprepared for a strong adverse terms-of-trade shock like the one it suffered in this period. It was thus inevitable that a collapse in oil prices would be translated into deep import cuts and economic contraction.

The post-2017 contraction, however, is a different animal. Recovering oil prices would have typically been expected to lead to import recovery and some recovery in growth. This recovery never happened because of the ensuing collapse of oil production, which was to a significant extent driven by successive rounds of economic sanctions.

Yet sanctions are only one of the ways in which it was becoming increasingly costly, both for reputational and regulatory reasons, for foreign economic actors to do business with Venezuela. This process of financial and commercial toxification was itself a result of the country's worsening political crisis precipitated by the escalation into full-fledged economically-destructive political conflict. The decision by both sides of the political spectrum to embrace scorched earth political strategies in their struggle for power would lead to the progressive severing of the country's trade and financial links to the rest of the world. Things would only get worse when global oil and financial markets weren't even able to know which government of Venezuela they were supposed to do business with. I turn now to that story.

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