



**The curse of Venezuela's oil**  
**A descriptive analysis of Dutch disease symptoms**

**BACHELOR THESIS**

for the attainment of the academic degree

“Bachelor of Arts (B.A.)”

in the degree programme International Business Management

of the

Hochschule für Wirtschaft und Recht Berlin

Berlin School of Economics and Law

Submitted by: Heinrich, Stefanie  
E-Mail: s\_heinrichst@stud.hwr-berlin.de  
Matriculation number: 1715941

First examiner: Professor Dr. Martina Metzger  
Second examiner: Professor Dr. Jennifer Pédussel Wu

Berlin, 29.07.2022

## **Title page**

### **International Business Management**

Heinrich, Stefanie

Matriculation number: 1715941

E-Mail: s\_heinrichst@stud.hwr-berlin.de

First examiner: Prof. Dr. Martina Metzger

Second examiner: Prof. Dr. Jennifer Pédussel Wu

Title of Bachelor Thesis: The curse of Venezuela's oil. A descriptive analysis of Dutch disease symptoms

Word count: 13.806

<b>Table of Content</b> .....	I
List of Tables .....	II
List of Figures .....	II
List of Abbreviations .....	III
1. Introduction .....	1
2. Theoretical part .....	4
2.1 Explaining the natural resource curse .....	4
2.1.1 Rent-seeking behavior.....	4
2.1.2 Volatility.....	5
2.1.3 Dutch disease .....	5
2.2 The model of Dutch disease.....	7
2.2.1 Monetary channel by Edwards .....	8
2.2.2 Core model by Corden and Neary .....	10
2.2.3 Overvalued exchange rates and development .....	12
2.2.4 Policy measures .....	12
3. Empirical part: Venezuela's case .....	16
3.1 Venezuela's crisis and its dependence on oil.....	17
3.2 First symptom: real exchange rate appreciation.....	18
3.2.1 Determinants of Venezuela's real effective exchange rate .....	19
3.2.2 Balance of payments .....	24
3.2.3 The role of the Central Bank, Government, and Petróleos de Venezuela S.A. ....	28
3.2.4 Assessment of the first symptom.....	32
3.3 Second symptom: decline of the non-oil tradable economy .....	34
3.3.1 Non-oil tradable sector.....	34
3.3.2 De-industrialization.....	38
3.3.3 Assessment of the second symptom.....	44
4. Conclusion.....	46
5. References .....	48

## List of Tables

Table 1: Dutch disease and resource curse effects .....	7
---	---

## List of Figures

Figure 1: OPEC share of proven oil reserves per country (%), as of 2022 .....	18
Figure 2: Average Merely crude oil price per barrel in U.S. dollars, 2005-2019 .....	19
Figure 3: Real effective exchange rate index and oil exports in billion U.S. dollars, 1999-2016 .....	21
Figure 4: Current account balance (% of GDP), 1999-2018 .....	24
Figure 5: Goods balance with oil and non-oil trade balance in million U.S. dollars, 1999-2018 .....	25
Figure 6: Service, income, and current transfer balance in million U.S. dollars, 1999-2018 .....	26
Figure 7: Capital and financial account, changes in reserves in million U.S. dollars, ....	27
Figure 8: Annual M2 growth (annual % change), 1999-2017 .....	29
Figure 9: Inflation rate, average consumer prices (annual % change), 1999-2017 .....	30
Figure 10: Transfers to FONDEN, PDVSA and ONT in million U.S. dollars, 1999-2018 .....	31
Figure 11: Foreign exchange and total assets of BCV in million U.S. dollars, 2013-2018 .....	32
Figure 12: Oil exports and non-oil goods exports (% of total exports), 1999-2014 .....	35
Figure 13: Export Diversification Index, 1999-2014 .....	36
Figure 14: Non-oil goods balance in million U.S. dollars, 1999-2018 .....	37
Figure 15: Different types of manufacturing exports (% of total exports), 1995-2005 ..	40
Figure 16: Laspeyres index of manufacturing production volume by type of manufac- turing activity, 2007-2018 .....	41
Figure 17: Value-added per sector (% of GDP), 1999-2014 .....	42
Figure 18: Employment in manufacturing (% of total employment), 1999-2015. ....	43

## List of Abbreviations

GDP	Gross Domestic Product
BOP	Balance of Payments
Petróleos de Venezuela S.A.	PDVSA
RER	Real Exchange Rate
REER	Real Effective Exchange Rate
CAB	Current Account Balance
FA	Financial Account
CA	Current Account
IMF	International Monetary Fund
OPEC	Organization of the Petroleum Exporting Countries
U.S. dollars	United States Dollars
VEB	Venezuelan Bolívar
BCV	Banco Central de Venezuela
FONDEN	Fondo para el Desarrollo Nacional
ONT	Oficina Nacional del Tesoro

## 1. Introduction

One of the crucial topics analyzed in the science of economics addresses the question of what promotes decent economic development. Why are certain countries more developed and others less? Terms like growth, education, inequality, or poverty are often associated with development. It is a multidimensional concept, and there is neither a single definition of development everyone agrees on nor one particular reason why some countries are more developed than others. Instead, several distinct determinants influence development, and economic geography is one of them. Access to the sea, for example, is advantageous for trade and lowers transportation costs. On the other hand, climate conditions influence the prevalence of infectious diseases like malaria, negatively influencing human well-being.

Economic geography also addresses the relationship between natural resource abundance and development, which several economists have discussed. Sachs and Warner (1995) mentioned the notion of the resource curse, describing that natural resource-abundant countries tend to witness lower growth rates than economies without natural resource endowment. In a sample of 97 developing countries, the authors report a robust negative relationship between resource exports to gross domestic product (GDP) and real GDP growth per capita (Sachs and Warner, 1995, p.2). Hence, the term “resource curse” suggests that countries have suffered from negative consequences of natural resource endowments. Different reasons attempt to explain lower growth rates in countries with a high dependence on resource exports. Mineral or oil resources deteriorate institutional quality and hinder long-term economic growth (Subramanian and Sala-i-Martin, 2003, p.24). Resource-rich societies also tend to become less entrepreneurial and engage in rent-seeking behavior. Moreover, in economies with a high dependence on resource exports, the volatility of commodity prices induces contractions in GDP income, negatively affecting investment, poverty, income distribution, and growth (Hausmann and Rigobon, 2003, p. 7 ff.).

Venezuela owns the world's largest proven crude oil reserves of roughly 303 trillion barrels and demonstrates how the abundance of oil can negatively impact development and even contribute to a significant economic collapse (OPEC, 2022). Once belonging to the wealthiest countries in South America, Venezuela recently encountered a crisis of inordinate proportions, including poor health conditions, a weak transport system, and limited water and electrical supply (Hausmann, 2020). According to Abuelafia and Saboin (2020), Venezuela's

crisis originated from the contraction of economic activity due to macroeconomic mismanagement, a rise in state interventionism, and changes in the oil sector. The country also suffered from severe hyperinflation rarely witnessed in history before (Hausmann, 2020). From its peak in December 2013 to the beginning of 2020, the economy's size decreased by 86% due to a collapse in oil production and a reduction of the non-oil tradable goods sector (Abuelafia and Saboin, 2020, p. 1 f.).

The concept of Dutch disease addresses the link between resource wealth and a contraction in the non-oil tradable economy. It describes the circumstance where a rise in natural resource prices leads to increased foreign currency inflows, inducing the real exchange rate to appreciate (Ebrahim-zadeh, 2003, p.50). Dutch disease countries followingly experience an overvaluation of their domestic currency, which deteriorates the international competitiveness of non-oil exports and leads to a decrease in the manufacturing sector. Corden and Neary (1982) and Edwards (1985) suggested different channels, how high oil prices result in the appreciation of the real exchange rate. While Edwards (1985) emphasized the monetary channel, which acts through the balance of payments (BOP), Corden and Neary (1982) focused on the demand-side (aggregate spending) and supply-side (resource allocation) channels (Jahan-Parvar and Mohammadi, 2009, p. 98).

This paper applies the concept of Dutch disease to Venezuela and investigates whether the country demonstrated symptoms of the disease during high oil prices. It focuses on the period between 1999 and 2019, incorporating one of the most significant historical oil booms (Hausmann, 2020). To examine the paper's topic, "Venezuela's oil curse, a descriptive analysis of Dutch disease symptoms." the research question will be: Did Venezuela show symptoms of the Dutch disease during 1999-2019 after the oil boom in the early 2000s? A case study interprets and presents secondary data sets descriptively in the empirical part and analyzes the prevalence of two prominent symptoms of Dutch disease: real exchange rate appreciation and a declining non-oil tradable sector which includes the de-industrialization of the manufacturing sector.

Current Dutch disease literature predominantly uses Corden and Neary's core model acting through demand (aggregate spending) and supply-side channels (resource allocation) to explain the real appreciation. Edwards' monetary channel, functioning through the BOP, is only sporadically applied. This paper addresses the gap by theoretically providing an overview of

both approaches but focusing on Edwards' monetary channel in the empirical part, including its impacts on Venezuela's BOP and the domestic money supply. Additionally, previous literature mainly concentrates on cross-country studies based on earlier periods when oil prices increased. This paper conducts a single country study, addressing the Venezuelan case explicitly. Furthermore, the chosen period analyzes one of the most recent oil booms in the early 2000s, which has not yet been the focus of Dutch disease research in many cases.

The thesis is structured as follows: Chapter 2 introduces the theoretical part by describing the resource curse more in detail and mentioning three causes why resource-abundant countries tend to experience lower growth rates: rent-seeking behavior, the volatility of resource rents, and the Dutch disease. The second part of chapter 2 presents the theoretical model of Dutch disease and the two approaches suggested by Edwards (1985) and Corden and Neary (1982). In addition, it describes the negative development implications of exchange rate overvaluation, which characterizes Dutch disease countries. Lastly, policy measures propose different methods to counteract the disease and conclude the literature review.

Chapter 3 introduces the empirical part and presents a case study that examines and interprets secondary data. It focuses on the analysis of two Dutch disease symptoms in the timeframe between 1999 and 2019. An overview of Venezuela's crisis and the importance of oil within the country introduces the case study. For the first symptom, the paper investigates the appreciation of the real exchange rate and applies Edwards' monetary channel acting through the BOP. Therefore, it investigates the impact of high oil prices on Venezuela's BOP and international reserves. Later, the thesis examines the country's loose monetary policy and the responsibility of its Central Bank, state-owned company *Petróleos de Venezuela S.A.* (PDVSA), and the government in monetizing substantial amounts of oil revenues which, according to Edwards, causes inflationary pressure. Inflation represents one channel to appreciate the real exchange rate (Edwards, 1985, p.1). The analysis of the second symptom focuses on the decline of the non-oil tradable sector and later concentrates on the contraction of the manufacturing industry. Chapter 4 concludes the paper.

## **2. Theoretical part**

### **2. 1 Explaining the natural resource curse**

Sachs and Warner (1995) described the resource curse as the circumstance that resource-rich economies are often vastly outperformed by resource-poor countries in economic growth. Japan and Switzerland, two economies with low availability of natural resources, surged ahead of countries like Russia, with a high value of resource exports to GDP in the nineteenth and twentieth century. In addition, the world's best performers in the past 50 years have been newly industrializing, resource-poor economies of East Asia, while natural resource-abundant countries such as Venezuela or Nigeria have faced bankruptcy. Counterintuitively, one might believe that abundant natural resources primarily benefit resource-rich countries. However, as the name resource curse implies, many economies have suffered from negative consequences of natural resource endowment, whereas, in some cases, disadvantages outperformed the benefits. In a research study of 97 developing countries, Sachs and Warner (1995) found a negative relationship between the ratio of resource exports to GDP and real GDP growth per capita during the years 1970-1989. The findings support the argument that, on average, resource-abundant economies tend to experience lower growth rates (Sachs and Warner, 1995, p. 2). Different explanations in literature try to uncover the reason for the existence of the natural resource curse. The first is associated with the engagement in rent-seeking behavior, while the second focuses on the repercussions of volatility. The third and last suggested explanation is the concept of Dutch disease, which will be examined thoroughly in this paper. The following sections analyzes each of the three theories.

#### **2.1.1 Rent-seeking behavior**

According to its widespread definition, rent-seeking behavior describes “the socially costly pursuit of wealth transfer” (Tollison, 1996, p. 506). Kalcheva and Oomes (2007) claim that incentives for rent-seeking behavior arise when the expected net payoffs from inefficient activities to acquire existing wealth surpass the net payoffs from participating in productive activities to create new wealth (Kalcheva and Oomes, 2007, p. 6). According to Sala-i-Martin and Subramian (2003), oil abundance tends to cause fights over existing resources, leading to lower growth and deteriorating institutional quality. The authors found empirical evidence of how particular natural resources like oil negatively impact growth in Nigeria through their detrimental impact on institutional quality (Subramanian and Sala-i-Martin, 2003, p. 24). Large rents collected from oil also incentivize private agents and governments

to engage in corruption and civil conflicts (Kalcheva and Oomes, 2007, p. 6). Hausmann and Rigobon (2003) argue that oil prosperity makes societies less entrepreneurial. According to the two authors, in oil-wealthy economies, entrepreneurial individuals perceive it more profitable to participate in unproductive rent-seeking activities to capture the wealth floating around the government than to create more wealth. The unpredictability of property rights over the resource income or common-pool problems inefficiently focuses economies on fighting over prevailing resources and hence, may generate lower growth (Hausmann and Rigobon, 2003, p. 7).

### **2.1.2 Volatility**

The second argumentation for the natural resource curse is the volatility of resource rents due to their low price-elasticities of supply. Hausmann and Rigobon (2003) provide an example of how volatility results in income shock to GDP in an oil-dependent economy. According to the authors, the standard deviation of changes in oil prices is between 30 to 35 percent per year. In a country where oil contributes to 20 percent of GDP, an oil price shock of one standard deviation constitutes an income shock equal to 6 percent of GDP, representing relatively high GDP volatility compared to industrial countries and even developing countries, facing around 2 percent and between 3 and 4 percent, respectively. Hence, the price volatility of commodities can result in significant declines in GDP income, negatively impacting consumption and output, investment, and economic growth (Hausmann and Rigobon, 2003, p. 9 f.).

### **2.1.3 Dutch disease**

The last explanation often addressed by literature is the notion of Dutch disease. It classifies a situation in which extra wealth from an export boom leads to a decline in other tradeable sectors by initiating a real appreciation of the domestic currency (Kojo, 2015, p. 2). This paper aims to explain the notion of Dutch disease theoretically and will later investigate whether Venezuela showed symptoms of the disease from 1999 to 2019. The term originates in the 1960s when the Netherlands experienced an extensive increase in its wealth due to gas discoveries in the North Sea. Surprisingly, this, to all appearances, healthy development had severe consequences on essential sectors of the country's economy, as the domestic currency gained strength resulting in a decrease in the competitiveness of non-oil exports. Dutch disease, although frequently linked to a natural resource discovery, can occur from any development causing considerable foreign currency inflows, including foreign direct investment,

foreign assistance, and an increase in natural resource prices (Ebrahim-zadeh, 2003, p.50). It describes the concept that an exogenous increase in resource output or resource prices results in real exchange rate appreciation, a decline in the manufacturing sector, and an erosion of competitiveness of the non-booming tradable sector (Kalcheva and Oomes, 2007, p.7). Although frequently considered identical, the resource curse and Dutch disease are two separate issues. Both originate from resource abundance but are present in different forms as demonstrated in table 1 below (Kojo, 2015, p. 9).

Resource curse depicts the observation that resource-abundant economies experience slower growth than resource-poor countries, using GDP per capita as a measure and which a combination of influences can cause (Larsen, 2006, p. 610 f.). There is a broad agreement that the question around development and resources is only partly of economic nature and significantly impacted by the interaction between resource rents, social and political institutions. Hence, the resource curse considers that plentiful resources impact the development of a country through a combination of different factors. Fluctuations in commodity prices, depletion of institutions and governance by inducing corruption, rent-grabbing behavior, or the deterioration of the legal system, civil wars, and armed conflicts act as several channels (Kojo, 2015, p. 9). Thus, slower growth in aggregate output per capita can result from the influence of political and social institutions as well as the impact of resource rents on a country's development. Dutch disease, however, is an economic concept most scholars use to describe that an inflow of foreign currency results in real appreciation and a decline of the non-oil traded goods sector (Kalcheva and Oomes, 2007, p.7).

Indeed, the analysis of the crisis in Venezuela is not only of economic nature but more a combination of all the concepts mentioned above, concurrently causing a natural resource curse in the country. In the following chapters, however, the paper will focus on the theoretical approach to Dutch disease and its main symptoms, real appreciation, and a declining non-oil tradable sector, including the de-industrialization of the manufacturing industry.

**Table 1: Dutch disease and resource curse effects**

		Dutch Disease	
		No	Yes
Resource Curse	No	Overall growth and diverse export base	Overall growth, but strongly contracted manufacturing
	Yes	Stagnant growth, but diverse export base	Stagnant growth and strongly contracted manufacturing

Source: Larsen (2016, p. 612)

**2.2 The model of Dutch disease**

The main complication of the Dutch disease lies in the appreciation of the real exchange rate (RER), and different channels for transmitting higher oil prices to the RER have been introduced (Jahan-Parvar and Mohammadi, 2009, p. 98).

Catão (2007) argues that nominal exchange rates express the price of a currency in terms of another currency. However, the real exchange rate between two currencies provides information on what one can buy with a currency. It represents the product of the ratio of prices between two countries and their nominal exchange rate. Taking the example of the RER between dollar and euro, the core equation is:

$$RER = e P^*/P$$

Where **e** represents the nominal dollar-euro exchange rate, **P** is the average price of a specific good in the United States, and **P\*** is the average price of that identical good in the eurozone. Nevertheless, when evaluating the overall alignment of a currency, policymakers and economists focus more on the real effective exchange rate (REER). The REER represents an average of bilateral RERs between one country and every trading partner, weighted by the

corresponding trade share of the trading partner (Catão, 2007, p. 46 f.). It measures the value of a currency against a weighted average of different foreign currencies, divided by an index of costs or a price deflator (IMF, 2022). The REER development over time can provide a rough assessment to determine when a currency is misaligned. If currencies are in equilibrium under relative or absolute Purchasing Power Parity, there should be no variation in REER. However, deviations are not necessarily an indicator of fundamental misalignments because factors like tariffs, consumption patterns, and transportation costs also play a crucial role in moving the REER of a currency that is not misaligned (Catão, 2007, p. 46 f.). Real appreciation, i.e., an increase in the REER, happens in two ways. Firstly, when the domestic currency appreciates nominally against the currencies of the trading partners, or secondly when the price level in the domestic market increases, or decreases to a lower extent than the average price level of the trading partners. In both cases, the domestic basket of goods becomes relatively more expensive than the foreign basket (Deutsche Bundesbank, 2019, p. 35). Appreciation of the REER indicates a decline in import prices and an increase in export prices; hence, appreciation demonstrates a decline in price competitiveness (IMF, 2022).

The following sections elaborate on the different theories by Edwards (1985) and Corden and Neary (1982) and consider how the approaches explain the transmission between high oil prices and the real exchange rate appreciation. While Edwards accentuated the monetary channel, which acts through the BOP, Corden and Neary focused on the demand-side (aggregate spending) and supply-side (resource allocation) channels (Jahan-Parvar and Mohammadi, 2009, p. 98). Thirdly, the paper elaborates on the negative development implications of an exchange rate overvaluation, which characterizes Dutch disease countries. The last section indicates possible policy implications to counteract the disease.

### **2.2.1 Monetary channel by Edwards**

Edwards (1985) considers the monetary channel through the BOP for transmitting high oil prices to the real exchange rate. Feenstra and Taylor (2014) state that the BOP incorporates all current outflows and inflows between a country's residents and the rest of the world. It incorporates the current account balance (CAB), the financial account (FA), and the capital account (Feenstra and Taylor, 2014, Ch. 16). Since it indicates whether a country is spending more or less than its income, the current account (CA) plays a significant role in economic debates. It represents one of the decisive components of the balance of payments (Wanjau, 2014, p. 97). Imports and exports of goods and services, income, and current transfers report

their summation as the current account balance, an overview of all international transactions in goods, services, and income that arise through market transfers or transactions (International Monetary Fund, 1993, p. 38). Edwards (1985, p.1) argues that a surge in resource-based exports results in a surplus in the balance of payments as the oil-exporter's trade balance improves, resulting in the accumulating international reserves. Omoregie and Ikpesu (2018) investigated the influence of the oil price on the CAB in Nigeria, a mono-economy depending heavily on revenues from crude oil exports, and identified that an oil shock results in a positive change in the country's CAB, supporting Edwards argument. The two authors detect a long-term relationship between oil price, current account, and exchange rate as an outcome of their research (Omoregie and Ikpesu, 2018, p. 85).

Foreign exchange from oil exports used to pay for domestic imports does not induce real appreciation (Ebrahim-zadeh, 2003, p.50). However, the Central bank will also absorb foreign reserves by expanding the domestic money supply (Jahan-Parvar and Mohammadi, 2009, p.99). With a fixed nominal exchange rate, foreign exchange converted into domestic currency and later spent on domestic nontraded goods will increase the domestic money supply, and pressure from domestic demand will raise domestic prices (Ebrahim-zadeh, 2003, p. 50). Absent sterilization mechanisms and increased domestic liquidity cause higher price inflation, one of the mechanisms that appreciates the REER, resulting in the deterioration of competitiveness of the non-oil tradable sector. Suppose the country's nominal exchange rate is flexible; the increase in foreign reserves directly results in appreciation in both real exchange rates and nominal exchange rate and a loss of competitiveness without inflation and higher money growth (Jahan-Parvar and Mohammadi, 2009, p. 99). Lee (1997) states that even though surging capital flows magnify levels of investment and promote economic growth, they also tend to induce destabilizing side effects like feeding inflation and undermining competitiveness as the domestic currency supply increases without a corresponding increase in production. Too much money chases too few services and goods. Central banks strive to sterilize capital flows as mitigating measures to ease the potential threat of inflation and currency appreciation. With an effective sterilization procedure, bank reserves plus currency, representing the domestic part of the monetary base, are diminished to counterbalance the reserve inflows at least temporarily. In theory, several channels can accomplish this, such as permitting foreigners to borrow from the domestic market or stimulating private investments overseas. To decrease the domestic monetary base, open market

operations such as the sale of treasury bills and other financial instruments are more commonly utilized. Implementing analogous sterilization operations can be complicated because a seemingly successful procedure potentially increases domestic interest rates and further encourages capital inflows. Numerous developing countries lack the means to operate a sterilization practice or consider it too expensive to manage without a fully liberalized financial system (Lee, 1997, p. 1 f.).

### **2.2.2 Core model by Corden and Neary**

Corden and Neary (1982) addressed the demand and supply side as a transmission channel between high oil prices and the real exchange rate. Corden (1984) states the core model of Dutch disease contemplates a small open economy consisting of three different sectors: the booming sector (O), the lagging sector (M), and the non-tradeable sector (S). In our case, (O) can be regarded as the oil sector, (M) as manufacturing, and (S) as the service sector. The lagging sector (M) can potentially produce both non-booming importables and exportables, and the sector does not necessarily only incorporate manufacturing. In countries like Nigeria and Australia, the lagging sector also consists of tradeable agriculture products, hence, the term de-industrialization would be equivocal since the significant effect can present itself as a de-agriculturalization. Under those assumptions, an export boom in (O) leads to a declining sector (M) through the spending and resource movement effect (Corden, 1984, p. 360 ff.). According to Kojo (2015, p. 2), international competition determines the price of booming and non-booming products, while domestic demand and supply regulate the price of non-tradable goods. The model ignores monetary considerations, and only relative prices, measured by the price of non-booming products, matter. Labor moves between the three sectors but is internationally immobile.

The significant effect of the boom typically results from the spending effect (Kojo, 2015, p. 2). High windfall revenues increase spending indirectly through the collection of taxes, later used by the government or directly by factor owners (Corden, 1984, p. 361). Increased spending raises demand for non-tradable services of (S) and non-booming manufacturing goods of (M). As international competition determines the price of tradable manufacturing goods, it does not rise regardless of higher demand. Thus, an increase in imports eliminates excess demand for non-booming manufacturing goods. Considering non-tradable goods of sector (S), excess demand increases the domestic supply of services, which cannot expand

quickly enough to eliminate additional demand. Thus, the relative price of non-tradable services increases to remove the excess demand, causing real appreciation of the domestic currency. Labor is pulled out of the lagging sector (M) into the service sector (S) as it increases production (Kojo, 2015, p. 2 f.).

The resource movement effect considers that the oil supply is not perfectly inelastic (Kalcheva and Oomes, 2007, p. 8). An increase in oil prices leads to rising demand for capital and labor in the booming sector (O), pulling labor out of the non-tradable service (S) and the non-booming manufacturing sector (M). The reduced availability of labor leads to a decline in the output of the two sectors (Kojo, 2015, p. 2). This resource movement effect occurs in two parts: The labor movement from the lagging manufacturing sector into the booming oil sector is called direct de-industrialization (Corden and Neary, 1982, p. 830). However, at a constant real exchange rate, labor also shifts from the service sector to the oil sector (O) and creates an excess demand for (S) in addition to the spending effect, thus bringing about additional appreciation. Consequently, it induces an additional labor movement from the manufacturing to the service sector, strengthening the de-industrialization from the spending effect (Corden, 1984, p. 361). According to Oomes and Kalcheva (2007), the core model by Corden and Neary generates the following predictions. As the relative price of services rises, the real exchange rate, which defines the price of non-tradable services to tradable goods, appreciates. The two combined effects lead to a labor movement from (M) to (S), which describes the indirect de-industrialization, and the labor movement from (M) to (O), also called direct de-industrialization (Kalcheva and Oomes, 2007, p. 9). Both effects bring about a decline in employment and output in the non-booming tradable manufacturing sector (Kojo, 2015, p. 3).

Ismail (2010) researched the impact of oil prices on manufacturing and discovered how a permanent rise in oil prices negatively impacts output in manufacturing, consistent with the symptoms of the Dutch disease. Moreover, the study finds that manufacturing experiences a 3.4 percent decline in value-added associated with a 10 percent rise in oil windfalls. The effect is enhanced if the manufacturing sector is more labor and less capital intensive (Ismail, 2010, p. 16 ff.). The persuasive studies by Sachs and Warner (1995, 2001) also found evidence that a rise in the ratio of natural resource exports to GDP was associated with lower manufacturing export growth.

### **2.2.3 Overvalued exchange rates and development**

Real appreciation in Dutch disease countries causes an exchange rate overvaluation, which leads to a decline in the non-oil tradable sector of the economy. Pfeffermann (1985) described the decline in a country's share in world exports as one specific warning signal of overvaluation. The author mentions several other propositions on how the exchange rate misalignment affects the economic development of a country. Firstly, overvaluation undermines exports, which constitute a significant share of total employment and production and determine the availability of foreign exchange. The exchange rate misalignment not only reduces incentives to produce all tradable goods but also import substitutes. The competitiveness of export goods contracts and imported goods become relatively cheaper. Overvaluation encourages imports and the demand for foreign exchange; hence, e.g., tourism expenditures abroad and imports will increase.

Consequently, pressure for protecting import-competing industries rises, inducing governments to create new protective structures, often less beneficial to allocating resources and adverse to growth. Decreasing exports and increasing imports deteriorate the trade balance and put pressure on the CA. Governments may temporarily be able to increase borrowing to pay for imported consumer goods. However, due to the increasing CA deficit and commonly diminishing domestic savings, borrowing requirements expand and the debt burden grows, resulting in a crisis. Ultimately, at a certain point in time, devaluations become inevitable, causing complications for those owning debt held in foreign currency. As imports are relatively cheaper under an overvalued exchange rate, governments often avoid devaluations to curb inflation. Although in many developing countries, imports constitute a reasonable weight of the cost of living, their proportion is often not sufficient to influence measured inflation. Lastly, even if this approach manages to lower inflation, subsequent and inevitable devaluations will provoke inflationary pressure, typically wiping out the beneficial impact of cheap imports (Pfeffermann, 1985, p. 17 ff.).

### **2.2.4 Policy measures**

Different economists discussed several policy implications for counteracting the Dutch disease and focused on fiscal policy, boosting competitiveness, and focusing on volatility management (Kojo, 2015, p. 15 ff.).

Fiscal policy represents the primary tool to deal with unfavorable Dutch disease effects for the subsequent motives. As an instrument, it can limit the spending effect and reduce expenditure to diminish volatility (Brahmbhatt et al., 2010, p. 5). Counter-cyclical fiscal policies represent the first shield against volatility in commodity prices. Public finances should be disconnected from volatile resource revenues to safeguard macroeconomic stability in resource-abundant countries (Kojo, 2015, p. 15). Katz et al. (2004, cited in Brahmbhatt et al., 2010, p. 5) provided evidence that government spending is related to growth in natural resource revenues in resource-abundant countries. Thus, separating spending from resource revenues and introducing a fiscal order through regulating revenues spent or saved in a natural resource fund might additionally decrease the adverse effect of volatility on the economy (Davis et al., 2003, cited in Brahmbhatt et al., 2010, p. 5). A stabilization fund can accumulate natural resource revenues devoted to investment in offshore assets or liquidity management, used as a fiscal stimulant when commodity prices decrease or foreign currency outflows surge (Kojo, 2015, p. 15). According to the fund's purpose (reducing the spending effect, promoting future growth, or decreasing volatility), a savings fund, investment fund, or stabilization fund with precise rules can manage inflows into and outflows out of the fund (Brahmbhatt et al., 2010, p. 5). Kojo (2015, p. 16) adds, while counter-cyclical fiscal policy addresses the expenditure side, tax instruments are helpful to regulate booms in the real estate industry or fast rises in private consumption.

Dutch disease countries should also focus on boosting general competitiveness and eliminating barriers to business activity. Boosting productivity in the non-oil tradable sector can be promoted through privatization or restructuring (Ebrahim-Zadeh, 2003, p. 51). In addition to fiscal policy measures, a complex approach is necessary to target an economy's productivity growth and competitiveness while protecting it from the volatility of international capital and the commodity market. In the long run, such an approach strives toward enhancing export and product diversification. The economy's transformation to a new equilibrium comprises inevitable transition costs like bankruptcies, administrative costs of closing and founding businesses, or short-term unemployment. Land and factories, representing physical capital, are frequently sunk costs. Eliminating supply-side bottlenecks such as complicated administrative proceedings for starting businesses, labor market rigidities, and insufficient access to finance might enhance the economy's flexibility, encourage supply reaction to raised demand, and accelerate the adaptation procedure. Additionally, more consistent execution

of regulation, a strict rule of law, policies to encourage free competition, and stable institutions are essential to increase productivity and foster innovation, hence promoting overall competitiveness needed for diversifying exports (Kojo, 2015, p. 16).

The last proposed mechanism by Kojo (2015) is volatility management since capital inflows and commodity prices are highly unpredictable. Economies disclosed to extensive resource inflows need to create stable institutional frameworks to reduce the transmission of volatility in the economy and guarantee a stable macroeconomic environment in which the private sector can thrive. Unstable currency inflows may result in a temporary misalignment of the real exchange and animate borrowings by those who falsely estimate the durability of the foreign exchange flows or boom, raising the risk for a financial or balance-of-payments crisis (Kojo, 2015, p. 15). Changing to a somewhat flexible exchange rate regime has been shown to help mitigate the effect of volatility in capital inflows (IMF, 2013, cited in Kojo 2015, p. 16). Further literature proposes using different instruments to control distinct capital inflows – such as the leverage ratio, liquidity ratio, reserve requirements on loan deposits, or loan-to-value ratio help preserve the financial sector (Kojo, 2015, p. 16).

To summarize, Kojo (2015) stated that countries dealing with extensive foreign capital inflows need to safeguard the domestic economy from volatility in international capital and commodity markets, create stable institutions to promote overall competitiveness, and limit adjustment costs instead of aiming to prevent declines in specific industries. According to Hausmann and Rigobon (2003), a diversified economy with a notable non-oil tradable sector is less likely to be constrained by volatile government spending than resource-specialized economies. The reason is that modifications in production structure can compensate for shocks to non-tradable demand, whereas specialized economies depend on expenditure shifting (Hausmann and Rigobon, 2003, p. 37).

There are few examples of resource-rich countries that have escaped the Dutch disease. Economic literature often considers Norway as one example of a natural resource-abundant country that demonstrates a lack of symptoms and Larsen (2004) investigated how the country dealt with the disease. Although some sources state that Norway demonstrated some symptoms between 1970 and 1980, it fostered a well-performing non-oil tradable sector after that period (Bye et al., 1994, cited in Larsen 2004, p.11). Larsen (2004) examined possible reasons for Norway's success and proposed the combination of conscious macroeconomic

policy, a stable judicial system, and the establishment of economic and political institutions and social norms. As the government exercised fiscal discipline, e.g., repaid debt or created a petroleum fund, the country could limit the spending effect of the Dutch disease. To avoid nominal appreciation and protect the economy from a loss in competitiveness, Norway created the fund held in foreign currency. The fund prevents excessive demand and increasing domestic prices, the two channels for the appreciation of the real exchange rate. The government, for example, also actively applied counter-cyclical policy and used resource rents to counteract recessions. Other policies addressed factor movements, spillover-loss, education, research, and labor market development (Larsen, 2006, p. 13 ff.).

### **3. Empirical part: Venezuela's case**

The empirical part conducts a case study to investigate whether Venezuela showed Dutch disease symptoms between 1999 and 2019. The period is suitable for the analysis because it incorporates a significant oil boom between 2004 and 2014 that led to a considerable increase in Venezuela's oil revenues. The case study focuses on the two following Dutch disease symptoms: appreciation of the real effective exchange rate and a decline in the non-oil tradable sector and manufacturing industry. The World Bank, Statista, the International Monetary Fund (IMF), Venezuela's Central Bank, the National Statistical Institute of Venezuela, and the United Nations Conference on Trade and Development will be the sources for the secondary data extraction.

Firstly, the appreciation of the real exchange rate will be reviewed. Therefore, the REER trend is compared to the evolution of two of its determinants: oil prices and petroleum exports. The analysis considers Edwards' (1985) theory and his proposed monetary channel, acting through the BOP. Hence, the paper later investigates the influence of oil prices on the country's CA and international reserves in the FA. Furthermore, it addresses the role of the Central Bank's loose monetary policy and financing needs of PDVSA and the government, which led to the monetization of considerable amounts of oil revenues resulting in an increase of the domestic money supply (Vera, 2015, p. 560). According to Edwards' theory, the result of an expansion in the domestic money supply is higher price inflation and the appreciation of the real exchange rate (1985, p.1).

In the second part, the paper explores the effect of Venezuela's overvalued exchange rate on the competitiveness of the non-oil tradable sector including the de-industrialization trend of the manufacturing industry. Data on non-oil exports as a percentage of total exports, the export diversification index of the IMF, and the country's non-oil trade balance indicate a clear deteriorating trend in the competitiveness of the non-oil tradable sector and an encouragement of imports. Moreover, the trend of Venezuela's manufacturing exports, the Laspeyres index of manufacturing production volume, value-added by sector, and employment participation per sector point toward declining output and employment in the manufacturing industry. The findings are consistent with Corden and Neary's (1982) proposed spending and resource movement effect. Prior to the analysis of the Dutch disease symptoms in sections 3.2 and 3.3, section 3.1 provides insights about the country's recent crisis and highlights the importance of Venezuela's oil sector.

### **3.1 Venezuela's crisis and its dependence on oil**

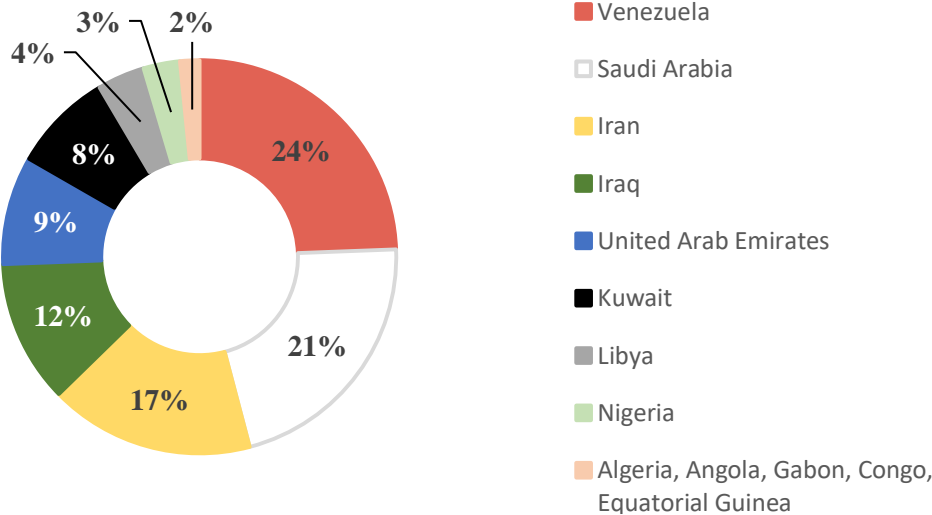
Once one of the wealthiest countries in Latin America, Venezuela faces one of the biggest economic and humanitarian crises and is dealing with an increasing number of refugees, hyperinflation, and infrastructure degradation. Hausmann states that Venezuela faced hyperinflation, seen in very few historical cases, comparable to the Weimar Republic shortly after World War I in Germany. Regarding emigration, Venezuela competes with Syria, a country where around five million people have fled within the last years. Health conditions, water supply, transportation, and electricity supply have deteriorated (Hausmann, 2020).

Venezuela's crisis originates from the contraction of economic activity due to macroeconomic mismanagement, a rise in state interventionism, and changes in the oil sector (Abuelafia and Saboin, 2020). Economic mismanagement contributed to the crisis as the country failed to acquire buffers to absorb external fluctuations. Imports increased simultaneously with the oil boom while public debt and spending extended. When the oil price declined, foreign currency inflows and the availability of external financing decreased, and the government chose to finance a monetary deficit contributing to the country's hyperinflation. During the oil boom, an increase in imports served to promote consumption. As oil exports increased between 2004 and 2012, imports rose in line with raised currency inflows, replacing domestic production. In 2012, imports of goods made up 50 percent of GDP, accounting for only 22 percent in 1997. In addition to increased imports, public spending expanded significantly. By 2020, Venezuela possessed the highest public spending in Latin America. Chavez's administration also failed to apply savings mechanisms as the government chose not to invest funds for macroeconomic stabilization, absorb currency inflows and accumulate savings for the future. Among the consequences of the mismanagement is a high public debt rate, amounting to 500 percent of GDP, determining a considerable problem for the recuperation process of Venezuela. Human capital, a substantial factor in the recovery, is reduced due to the migration process already surpassing 5 million people. From its high in December 2013 to the beginning of 2020, the economy's size decreased by 86 percent because of a collapse in oil production and an enlarging diminution of the non-oil tradable goods sector. Non-oil GDP at the beginning of 2020 was 17 percent below 1998, and the oil GDP decreased to 53 percent below the levels observed twenty years ago (Abuelafia and Saboin, 2020, p. 1 ff.).

The oil sector generates the most significant share of Venezuela's export revenues with an estimated 99 percent (OPEC, 2021). Venezuela discovered its first significant oil reserves in

1914. Production started during World War I, and oil quickly substituted agriculture as the economy's foundation (Kaushik, 2017, p. 59). According to the Organization of the Petroleum Exporting Countries (OPEC), Venezuela owns the world's largest proven crude oil reserves. While OPEC members control 79.4 percent of the world's crude oil reserves, non-OPEC countries hold 20.6 percent. Venezuela's proven crude oil reserves amounted to 303.47 billion barrels as of 2022, and the country controlled the most influential OPEC share of reserves with 24.4 percent (OPEC, 2022). The economic structure remains heavily dependent on oil, which provides a high proportion of the country's foreign exchange earnings and about half of the country's fiscal revenues (Centro de Inversiones de la FAO and Investment Centre Division, 2006, p. 4).

**Figure 1: OPEC share of proven oil reserves per country (%), as of 2022**



Source: OPEC (2022)

**3.2 First symptom: real exchange rate appreciation**

The appreciation of the real exchange rate defines the main symptom of the Dutch disease. Economists generally focus more on the REER when assessing the overall alignment of a currency (Catão, 2007, p. 47). Appreciation of the REER indicates a decline in import prices and an increase in export prices; hence, appreciation demonstrates a fall in trade competitiveness (IMF, 2022). The REER development over time can provide a rough assessment to determine when a currency is misaligned. If currencies are in equilibrium under relative or absolute Purchasing Power Parity, there should be no variation in REER (Catão, 2007, p. 47).

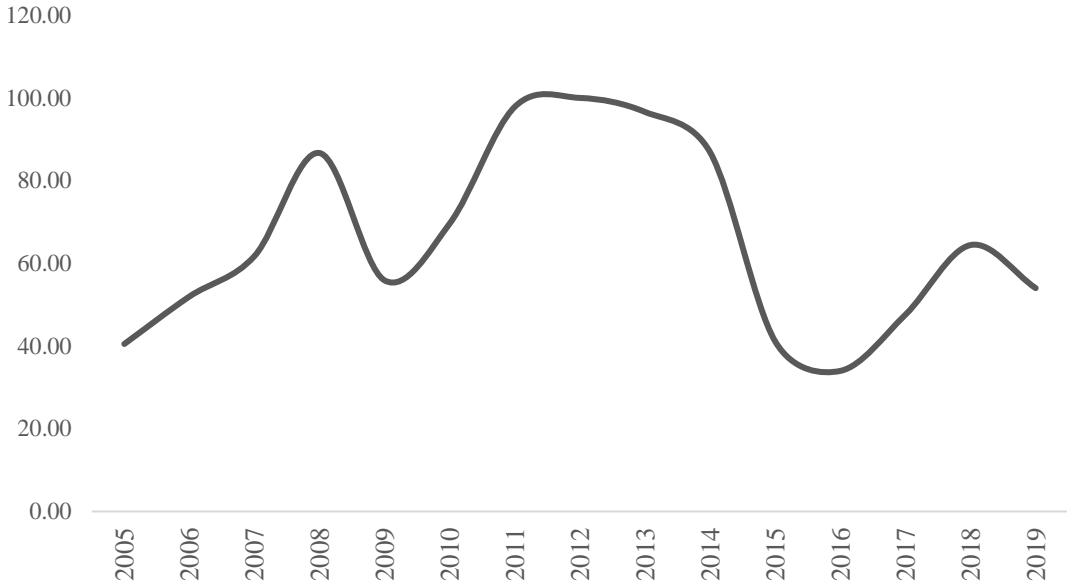
**3.2.1 Determinants of Venezuela’s real effective exchange rate**

Zalduendo (2006) researched the determinants influencing Venezuela's equilibrium RER and proposed the following:

- 1. Crude oil prices (or other commodities) as the dominant source of real exchange rate fluctuations.
- 2. Fiscal and monetary policy choices as the state-owned company PDVSA generates two-thirds of oil production and resource revenues constitute a significant government income source.

Since 2003, Venezuela's currency has been pegged to the U.S. dollar and influenced by foreign exchange regulations. Rising oil revenues in the 2000s, combined with foreign exchange controls, have led to a diverging equilibrium real exchange rate from the observed rate. Increased commodity prices generally result in appreciation pressure on the real effective exchange rate (Zalduendo, 2006, p. 4 f.). As crude oil prices act as one of the determinants influencing Venezuela's REER, figure 2 considers the country's average Merely crude oil price in U.S. dollars from 2005 to 2019.

**Figure 2: Average Merely crude oil price per barrel in U.S. dollars, 2005-2019**



Source: Alves (2021)

According to Hausmann (2020) Venezuela's crude oil prices experienced the most significant historical increase in the 2000s. Between 2005 and 2008, the country encountered the first stage of the oil boom, and its crude oil price grew to 86 U.S. dollars per barrel until the financial crisis led to a decline in the price in 2009. From 2009 to 2014, average prices experienced a second and more substantial increase, with a peak in 2012 at 100 U.S. dollars per barrel. After 2014, prices dropped and did not reach the level of earlier years again. Since crude oil prices experienced a considerable increase over the analyzed period, possible appreciation pressure on the REER developed.

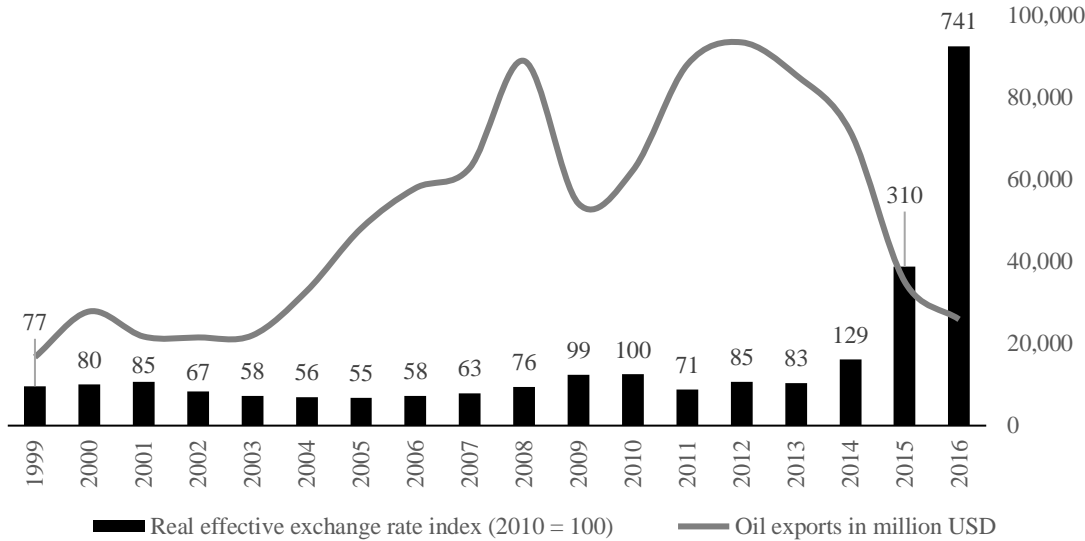
Zalduendo (2006) mentioned monetary and fiscal policy as other determinants affecting the RER equilibrium and changes in the REER trend incorporates adjustments in the nominal exchange rate. The Bolivar has been pegged to the U.S. dollar since 2003 and the Central Bank used devaluations to increase price competitiveness and reverse the appreciation pressure on the real exchange rate (Zalduendo, 2006, p. 3). Bahar et al. (2018) and Iyer and Rodríguez (2021) summarized the devaluations of Venezuela's official exchange rate between 2003 and 2016. According to Bahar et al. (2018), the exchange rate was devalued twice in the first two years after the Central Bank of Venezuela implemented the exchange rate controls in February 2003. Between 2005 and 2010, the fixed exchange rate was set at 2.15 Venezuelan Bolívares Fuertes per U.S. dollar, although compounded annual inflation amounted to 18.6 percent. Hence, the official exchange rate substantially missed an adjustment for inflation for five years. In January 2008, the Venezuelan Bolívar (VEB) replaced the Venezuelan Bolívar Fuerte. Between 2010 and 2016, four devaluations of the official exchange rate took place.

- On 8 January 2010, a dual exchange rate system emerged, with two new rates amounting to VEB 4.30 and 2.60 to the dollar, replacing the former fixed exchange rate set at VEB 2.15 per U.S. Dollar.
- On 30 December 2010, the two exchange rates merged into one official exchange rate of VEB 4.30 to the dollar (Bahar et al., 2018, p. 96 ff.).
- On 8 February 2013, the official exchange rate was devalued from VEB 4.30 to 6.30 per dollar, although by that time, the black-market exchange rate traded at 27 VEB/U.S. dollar.

- In January 2016, the government devalued the currency with a minor adjustment. Between February 2012 and January 2018, prices increased at an average annual rate of 242 percent (Iyer and Rodríguez, 2021, p. 4 f.)

So far, the appreciation pressure of surged oil prices and an official exchange rate that substantially lagged inflation imply a divergence of the RER equilibrium from the observed rate. A visual inspection of Venezuela's oil exports and its REER index trend in figure 3 helps to examine their joint development over time. It represents oil exports in billion U.S. dollars and the REER index from 1999 to 2016. World Bank utilized data from the IMF to calculate Venezuela's CPI-based REER, supposing 2010 to be the 100 with increased numbers demonstrating REER appreciation.

**Figure 3: Real effective exchange rate index and oil exports in million U.S. dollars, 1999-2016**



Source: The World Bank (2016), Banco Central de Venezuela (2018a)

Real appreciation, or an increase in the REER, either happens through appreciation of the nominal exchange rate or an increase in the domestic price level. In both cases, the domestic basket of goods becomes relatively more expensive than the foreign basket (Deutsche Bundesbank, 2019, p. 35). Venezuela's REER varied throughout the years and notably appreciated at the beginning of 2014, coinciding with the beginning of the country's hyperinflation. Oil exports in billion U.S. dollars evolved in line with the oil price trend described in figure 2.

According to Vera (2015), external factors like political and economic disturbances also influenced the oil sector and its exports. In 2001, former president Chavez introduced new business and economic reforms raising critical voices at “Fedecamaras”, Venezuela's chamber of commerce. In addition, the “Confederation of Venezuelan Workers” claimed the new laws were detrimental to workers, undermining property rights, and put into place without further consultation. As a result, several organizations started a general strike in December 2001. Another protest took place in April 2002, when Venezuela's most prominent labor union supported a strike caused by PDVSA management changes due to the hydrocarbon law in January, where Chavez strengthened his influence in the oil sector. Oil revenues declined when the oil price slumped because of the terror attack in the United States in September 2001, leading to an economic slowdown in the Venezuelan economy (Vera, 2015, p. 544 f. ). Moreover, the country's oil production experienced a decline long before oil prices fell in 2014. Difficulties in the sector resulted from decreasing production, facing a decline of 13 percent in 2013 and a total accumulated decline of 73 percent by 2020. The contraction in oil production is related to the state's high degree of operational intervention. In addition, the lack of transparency and investment required to maintain production levels, and inefficient management further contributed to the collapse (Abuelafia and Saboin, 2020, p. 6). Espinasa and Sucre (2017, cited in Abuelafia and Saboin, 2020, p. 6) state that permanent government interference in PDVSA's operations and increasingly alternating laws for the petroleum sector had become an obstacle to foreign policy investment.

Additionally, the lack of funding for PDSVA impacted the output negatively, and the state-owned company's funds were used for other purposes. For example, PDVSA had to assign 255 billion U.S. dollars to sponsor social programs up to the year 2015, which in turn restricted the resources it could have had accessible for investments in the oil industry. To compensate for the shortage of funding, PDVSA obtained a considerable amount of debt during the oil sector's peak time (Abuelafia and Saboin, 2020, p. 6). Another contributor to the decline in production might have been former President Hugo Chavez's dismissal of 18,000 employees after the protests in 2001, which at the time demonstrated half of the workforce of the state-owned oil company PDVSA. To further penalize the employees, a ban prevented them from pursuing employment with any corporation doing business with PDVSA making Venezuela diminish its skilled labor workforce in the oil sector. Production stagnated, and Venezuela faced difficulties increasing it again and taking full advantage of the oil wealth. (Kaushik, 2017, p. 60).

Apart from oil exports, the Central Bank's monetary policy also determined the REER trend over time (Zaldueño, 2006, p. 3). Although the Banco Central de Venezuela (BCV) devalued the Bolívar several times between 2003 and 2016, Vera (2017) claimed that the Bolívar was constantly overvalued after introducing the new exchange rate controls in 2003 (Vera, 2017, p. 11). Another difficulty emerged in 2014, when global oil price started to fall. Venezuela's oil export revenues declined, and the primary revenue source of the government faded, leaving it with insufficient funds to pay for the country's high public spending obligations. Chavez's government previously introduced extensive social programs requiring a fundamental rise in budgetary expenditures (Pittaluga et al., 2021, p. 340 f.). Accelerating inflation in 2014 worsened the overvaluation of the Bolívar, and the REER index started to appreciate considerably, causing the countries' price competitiveness to deteriorate (Vera, 2017, p. 15). Pittaluga et al. (2021) performed causality tests and found evidence indicating that Venezuela's hyperinflation starting in 2014 was fostered by exceptionally loose monetary policy emerging from the urgency to cover increasing fiscal deficits (Pittaluga et al., 2021, p. 343)

To conclude, Vera (2017, p.11) claimed that during the high inflows of oil export revenues, the domestic currency faced chronic overvaluation, which led to declining productivity in the non-oil tradable sectors, later discussed in part two of the empirical analysis. The Central Bank used several devaluations of the nominal exchange rate between 2003 and 2016 to improve price competitiveness and counteract appreciation pressure from high oil export revenues. Generally, one must consider when analyzing Venezuela's REER trend, that several factors influenced the development over the years. Increased windfall revenues, fiscal deficit spending starting in 2014, and devaluations that adjusted the nominal exchange rate, jointly act as determining factors. Nevertheless, section 3.2.1 confirmed Venezuela's overvaluation throughout the years and suggested oil prices as one of the determinants of the real exchange rate equilibrium.

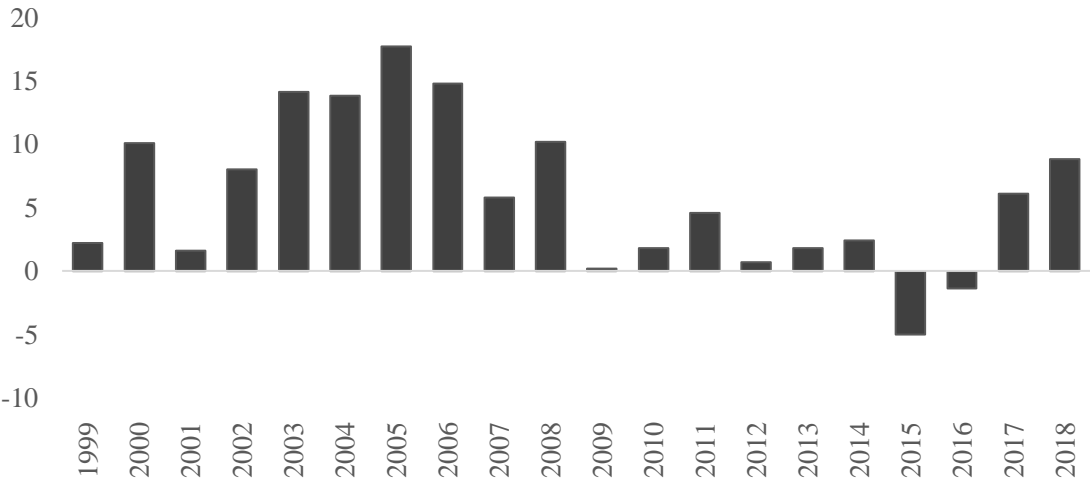
As presented in the theoretical part, Edwards (1985) proposed one transmission channel explaining how higher oil prices lead to an appreciation of the real exchange rate through the BOP. Hence, the following sections descriptively explore the prevalence of Edwards' monetary channel, whereas 3.2.2 starts by analyzing the development of Venezuela's BOP during the oil boom.

**3.2.2 Balance of Payments**

Edwards (1985) stated that surges in resource-based exports result in a surplus in the BOP as the oil-exporting country's trade balance improves, leading to the accumulation of international reserves. The Central Bank partly absorbs those increased resource inflows by expanding the money supply, which causes price inflation and, consequently, triggers real appreciation (Edwards, 1985, p. 1). This section examines the impact of Venezuela's oil exports on the CA and investigates the trend of the financial account and foreign exchange reserves. Subsequently, it addresses the role of the loose monetary policy of the BCV and how financing Venezuela's government's programs and PDVSA expanded the domestic money supply. And contributed to the country's increasing price levels, demonstrating one channel to appreciate the real exchange rate.

The current account consists of the goods and service balance and primary and secondary income balance. The primary income balance incorporates employee salaries and investment income, and the secondary income balance includes current transfers (International Monetary Fund, 1993, p. 51). Figure 4 demonstrates the CA balance as a percentage of GDP from 1999 until 2018, based on data from the International Monetary Fund.

**Figure 4: Current account balance (% of GDP), 1999-2018**

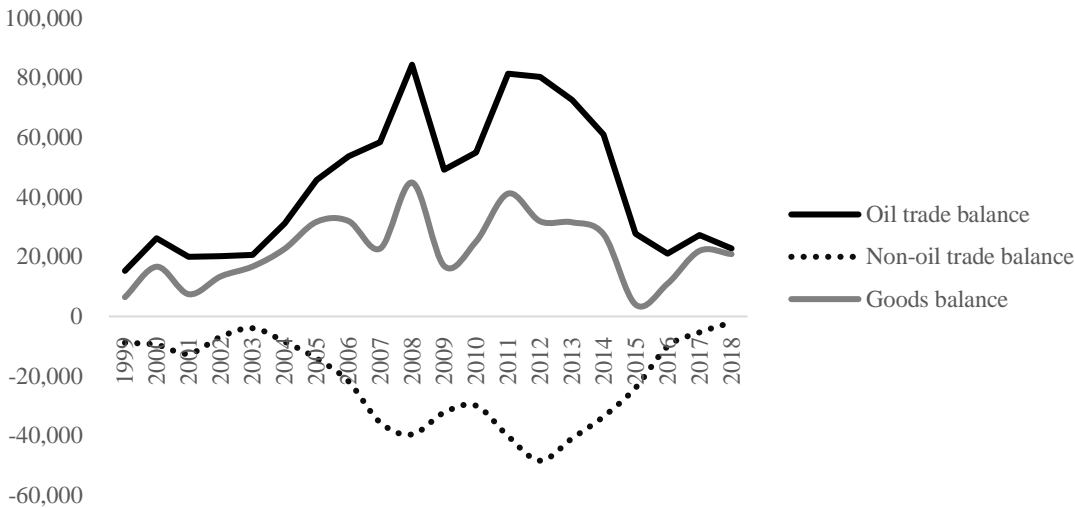


Source: International Monetary Fund (2022)

Benefiting from an acceleration of oil prices in the 2000s, Venezuela obtained CA surpluses mostly above 8 percent of GDP between 2002 and 2008. During the financial crisis in 2009,

the CA equaled 0,2 percent of GDP and demonstrated comparably low figures after that. In 2015 and 2016, Venezuela recorded a CA deficit, mainly due to declining oil prices and decreasing oil export revenues, as oil exports in the trade balance were the most significant contributor to the CA surplus. Thus, Venezuela's CA surplus throughout the years originated from increased earnings in oil exports. Consistent with Edwards' theory, oil windfalls increased the CAB during high oil prices. In addition, the country's imports grew over time and were mainly associated with non-oil products. Figure 5 represents Venezuela's goods balance as part of the CA, including its two contributing balances of oil and non-oil trade from 1999 to 2018.

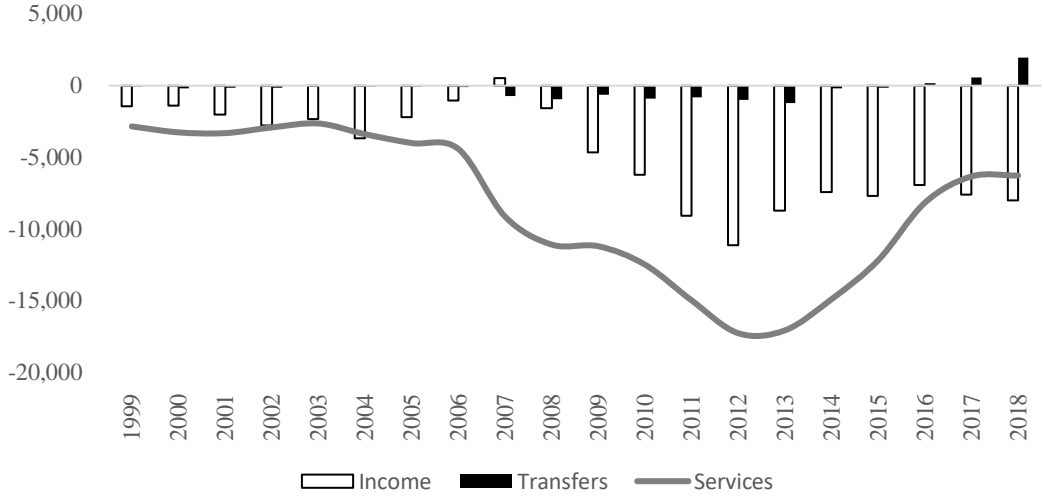
**Figure 5: Goods balance with oil and non-oil trade balance in million U.S. dollars, 1999-2018**



Source: Banco Central de Venezuela (2018a)

As explained in the theoretical part, exchange rate overvaluation causes exports to decline and encourages imports as they become relatively cheaper (Pfeffermann, 1985, p. 18). Non-oil imports increased steadily until 2012, whereas non-oil exports stagnated, consistent with Pfeffermanns' proposition. Venezuela's oil trade balance caused the surplus of the goods trade balance. Services in the CAB incorporate transportation, travel, communication, construction, and insurance (International Monetary Fund, 1993, p. 51). Figure 6 demonstrates the contribution of services, income, and current transfers to the CA.

**Figure 6: Service, income, and current transfer balance in million U.S. dollars, 1999-2018**

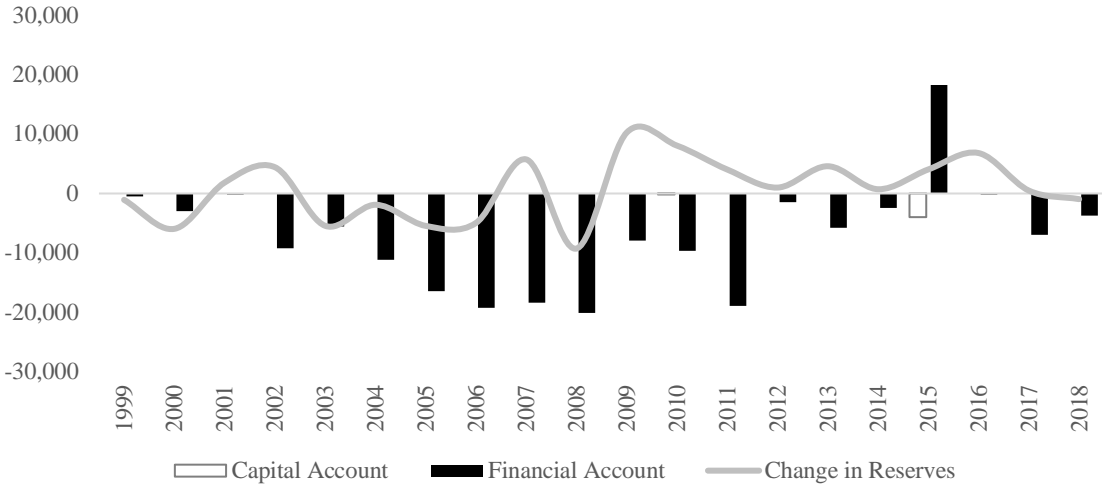


Source: Banco Central de Venezuela (2018a)

Imports in services increased over time and promoted a deficit in the service balance. In contrast, income and current transfers played a less significant role in the CA. Since the service balance showed an increasingly negative trend until 2012, imported services increased and exports in services stagnated, which is also in line with Pfeffermann's (1985) proposition of overvaluation. The primary income balance includes compensation of employees and investment income which incorporates direct investment income paid or received on debt and equity instruments, portfolio investment income, and other investment income. The negative income balances each year, except for 2007, indicate an income outflow, thus transferring investment income from residents to non-residents. From the beginning of 2009, income outflows out of the country increased, reaching their peak in 2012, with a negative balance of 11 billion U.S. dollars due to growing outflows of investment income. Current transfers comprise cash transfers between governments, worker's remittances, or contributions paid to international institutions by member governments. However, they do not involve the transfer of ownership of fixed assets or a transfer of funds linked to fixed assets (International Monetary Fund, 1993, p. 75). Current transfers demonstrated negative balances, indicating net outflows made from Venezuela to the rest of the world. From 2016 to 2018, however, the current transfer balance was positive, indicating a transfer inflow, coinciding with the country's recent economic crisis. Thus, there was a transfer inflow from foreign governments, worker's remittances, or international institutions during those years. In the next step, financial and capital account will be looked at in figure 7 and provide

information on how the CAB was financed, incorporating the change in reserves between 1999 and 2018.

**Figure 7: Capital and financial account, changes in reserves in million U.S. dollars, 1999-2018**



Source: Banco Central de Venezuela (2018a)

The capital account is usually of minor importance comprising two components: capital transfers like debt forgiveness and the disposal or acquisition of non-produced, non-financial assets. Only in 2010 and 2015, the capital account displays a negative balance representing an outflow of capital transfers or decrease in intangible assets. In turn, the financial account balance provides insights into changes of ownership of foreign financial assets and liabilities (International Monetary Fund, 1993, p. 77). Venezuela's financial account demonstrates negative balances, except in 2015. Hence, it mostly acted as a net capital exporter, meaning the country's claims against the rest of the world increased, for example, in the form of supplier credits or decreases in liabilities. Figure 7 shows that net capital exports intensified as the CA surplus increased during high oil prices. Vera (2015) argues that Venezuela could not terminate its permanent role as an exporter of capital. Its financial transfers also originated from increasing economic and political instability, exchange rate, and monetary policy. International reserve assets play significant importance in the analysis because the Central Bank had to deplete the accumulated reserves and foreign exchange inflows and use them, for example, for financing the government's social programs and PDVSA (Vera, 2015, p. 559 ff.). From 2003 to 2006 and in 2008, for example, the BOP documented an increase in reserve assets, thus, an accumulation of international reserves. A positive balance in 2007 and between 2009 and 2017 implies a decrease in reserve assets held by the BCV. Consistent with Edwards' (1985) proposition, rising oil exports resulted in a surplus in the BOP because

the country's trade balance in the CA improved significantly. Venezuela mostly acted as a net capital exporter and accumulated international reserves for several years during the oil boom. To further analyze the prevalence of the monetary channel, the roles of the Central Bank, PDVSA, and the Venezuelan government in the country's loose monetary policy require consideration. According to Vera (2017, p.12 f.), absent sterilization mechanisms of the BCV lead to an excess supply of money. As Edwards (1985) proposed, increasing money supply leads to higher price inflation, demonstrating one channel to appreciate the real exchange rate.

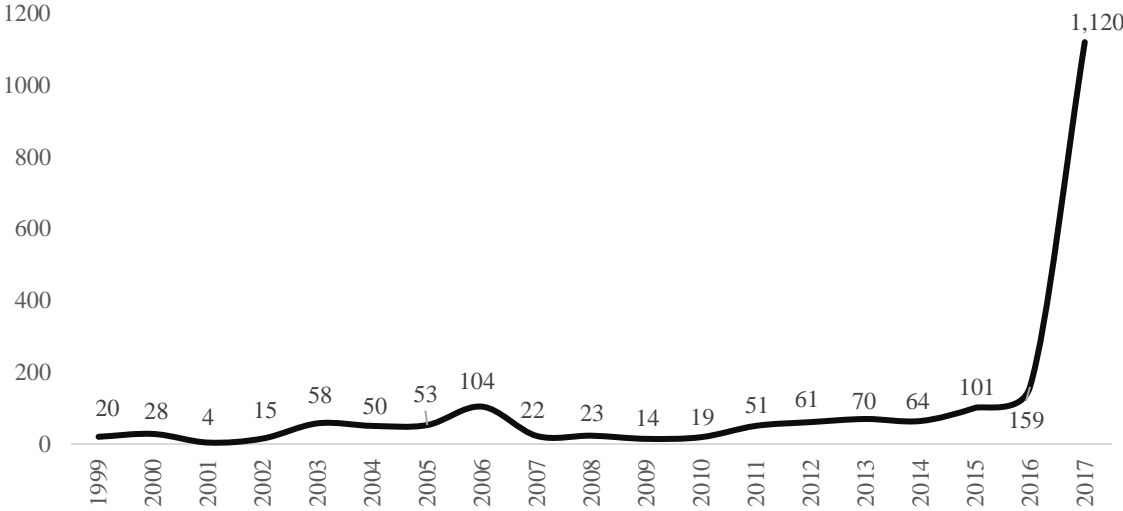
### **3.2.3 The role of the Central Bank, Government, and Petróleos de Venezuela S.A.**

The BCV, Venezuela's government, and PDVSA jointly contributed to substantial monetization of oil revenues, increasing the domestic money supply, and affecting the domestic price level, one of the mechanisms inducing real appreciation according to Edwards (1985). Therefore, the responsibility of the three entities and their actions require consideration.

Following protests in 2003, President Chavez recovered complete control of PDVSA and centralized the administrative governance of the oil company to better influence the management of hydrocarbon operations (Vera, 2015). With the newly created form of governance, there was no separation between the operational management of PDVSA, the state bureaucracy, and Chavez's political presentation. The former president's primary goal was to obtain oil rents to finance his social development agenda, representing an extensive combination of publicly funded missions determined by a framework of institutional bypassing without supervision by the central government. Programs addressed low-income families and individuals, targeting health, education, and nutrition. The programs were partly financed by the 2005 created development fund 'Fondo para el Desarrollo Nacional' (FONDEN) and by utilizing state-owned company PDVSA as an additional budgetary fund (Vera, 2015, p. 563 ff.). Important in clarifying the control loss of the oil bonanza is the contract and relationship between state-owned PDVSA and the Central Bank concerning the appropriate amount of international reserves. An undertaken reform in 2005 modified the autonomy between the two institutions, giving more flexibility in satisfying government claims for settlements in foreign currency and transmitting foreign exchange to government funds. Additionally, several agreements were signed (in exchange for loans, goods, and services) with Latin American countries and the Republic of China, affecting PDVSA's cash

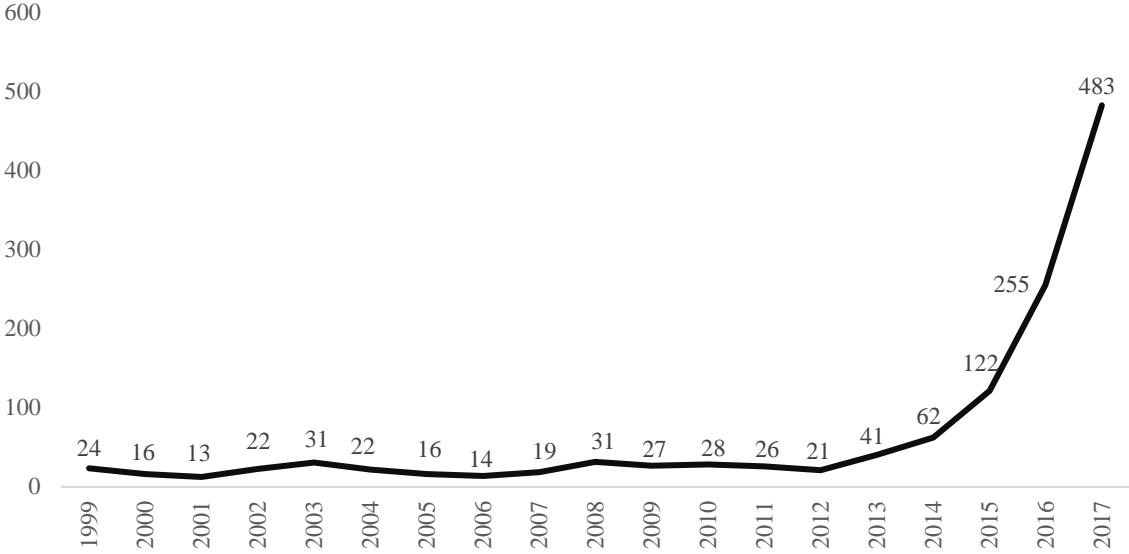
flow. Through a set of oil-backed agreements, the country received loans worth more than 50 billion U.S. dollars from China, whereas hundreds of thousands of barrels of oil were shipped daily in exchange for the duration of the loan. Those institutional modifications lowered the income of foreign exchange from PDVSA's operations. It also eroded the Central Bank's ability to navigate its reserve assets adequately and to react to exchange market pressure. In 2009, a newly introduced law permitted the BCV to acquire bonds issued by state-owned company PDVSA. Financing the oil company is one of the reasons for monetary supply expansion leading to notable growth in the amount of money circulating in the economy (Vera, 2017, p. 12 f.). Initially, the Central Bank's legislation was widely modified in the 90s to promote independence from the executive branch. However, de facto independence and its operational autonomy determined by changing and poor institutional quality are questionable. In the years of high oil surpluses starting with the boom in 2004, the Central Bank was obliged to monetize quantities equal to a considerable share of its monetary base at the time. BCV's sterilization procedure was insufficient with highly liquid instruments, considered close substitutes to money; hence, measures of money notwithstanding increased as demonstrated in figure 8. BCV poorly managed monetary aggregates and the continuous high inflation, which can be observed in figure 9 (Vera, 2015, p. 555 ff.).

**Figure 8: Annual M2 growth (annual % change) 1999-2017**



Source: Banco Central de Venezuela (2018b)

**Figure 9: Inflation rate, average consumer prices (annual % change), 1999-2017**



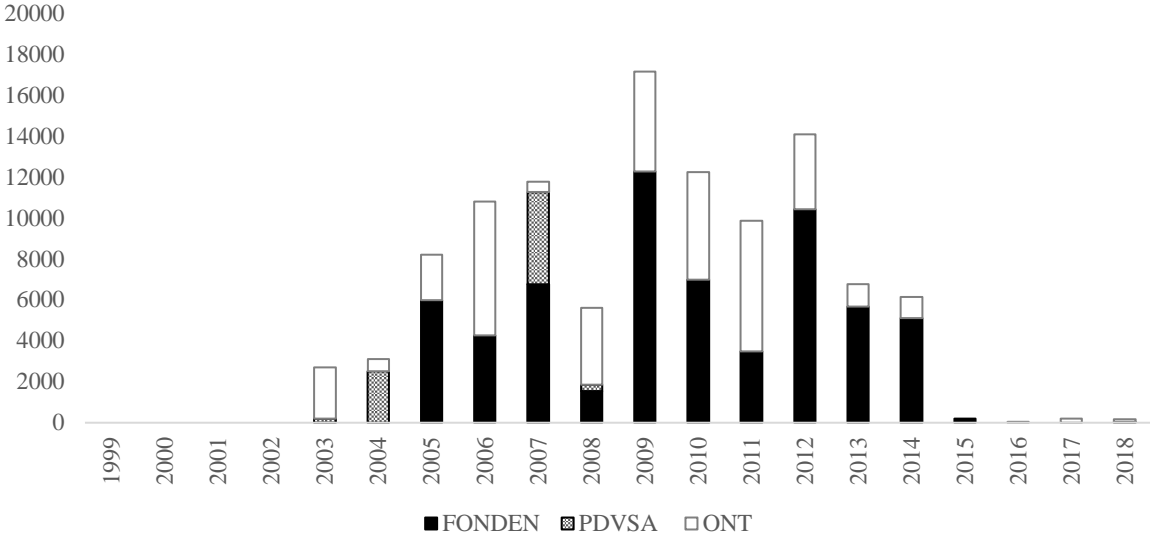
Source: International Monetary Fund (2022)

Money supply targeting based on the two prerequisites of the controlled money supply by authorities and robust demand for the monetary aggregate, failed. Predictions about money demand were difficult to determine. Institutional instability and exchange rate expectations have persistently produced considerable amounts of capital outflows and speculative inflows, eroding the Central bank's capability to estimate money demand. Decisions about the monetary base, adjusted according to the government's fiscal financing requirements, significantly impacted the monetary policy. In Venezuela's permanent and intensifying inflation environment (figure 9), public agencies and the central government utilized inflation-adjusted nominal spending to defend themselves against inflation. Though, substantial amounts of fiscal revenues in Bolivars are attached to oil earnings in U.S. dollars. If oil prices and related revenues are constant and the official nominal exchange rate pegged, fiscal oil earnings converted into domestic currency do not increase, inducing government spending to grow while fiscal revenues stagnate. During Maduro's term, this discrepancy between exchange rate and fiscal policy undermined monetary policy and raising government debt and growing non-oil taxes filled the gap (Vera, 2015, p. 559 f.).

In 2005, a reform act was introduced, establishing the optimal level of international reserves held by the Central Bank and enabling the creation of FONDEN (Vera, 2015, p. 563). Figure 10 demonstrates the contributions of the Central Bank to FONDEN, Oficina Nacional del

Tesoro (ONT), and PDVSA between 1999 and 2018. ONT represents the decentralized body of the Ministry of People's Power for Economy and Finance, which acts as a unit specialized in coordinating and financial planning for Venezuela's public sector (Gobierno Bolivariano de Venezuela, 2021).

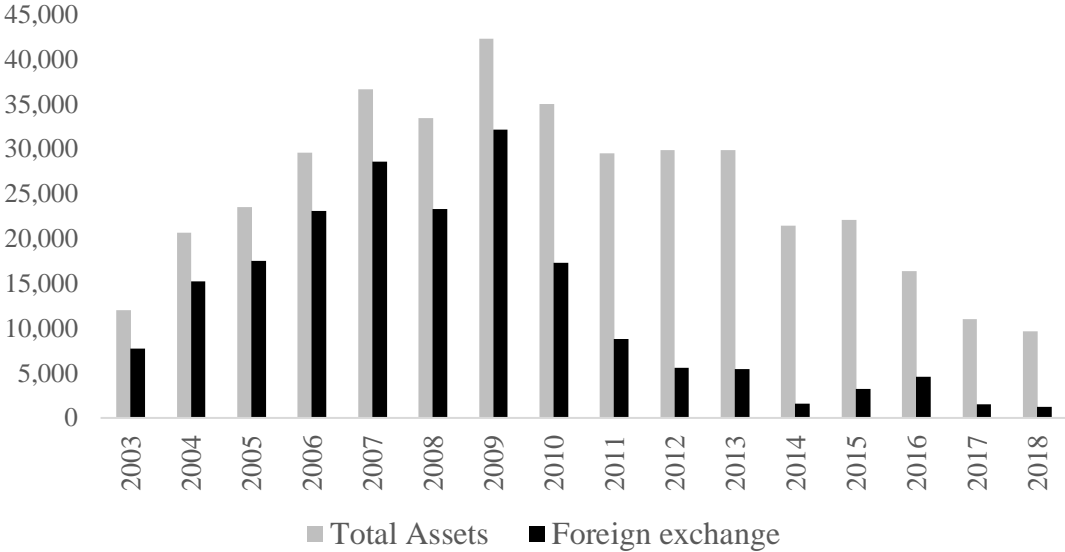
**Figure 10: Transfers to FONDEN, PDVSA and ONT in million U.S. dollars, 1999-2018**



Source: Banco Central de Venezuela (2018d)

Before the elections in December 2005, the BCV needed to transfer 6 billion U.S. dollars to the development fund when President Hugo Chávez was about to be re-elected. Between 2005 and 2013, BCV transferred international reserves beyond the prearranged optimum level worth 53.5 billion U.S. dollars to the development fund. The money was eventually used by government agencies without further congressional approval. Instead, disbursements mostly started with the president's authorization and were later inspected by a board of directors of his nearest allies. Transferring foreign exchange earnings to FONDEN diminished the availability of international reserves and signaled poor management execution, including the ability to back the domestic currency .(Vera, 2015, p. 564 f.). Figure 11 displays the foreign exchange and total asset position of the BCV between 2003 and 2018. Values are recorded in millions of U.S. dollars and extracted from the beginning of the year.

**Figure 11: Foreign exchange and total assets of BCV in million U.S. dollars, 2003-2018**



Source: Banco Central de Venezuela (2018e)

During the first oil boom between 2003 and 2008, oil export revenues increased, resulting in large CA surpluses. Despite sharp increases in CA surpluses to GDP ratio, foreign assets held by the Central Bank only increased modestly. In 2009, BCV reached its highest holding with total assets worth 42 billion U.S. dollars and foreign exchange with a value of 32 billion U.S. dollars. After this peak, foreign assets demonstrate a declining trend, partly due to substantial monetization of oil revenues and transfers to PDVSA and FONDEN. Additionally, reforms and institutional changes discussed previously led to fast depletion of the foreign assets level, which reached 42.0 billion in 2009 and started to drop at a fast pace when Venezuela was about to face the oil price decline following the global financial crisis. At the end of 2012, the country had already exhausted nearly all its international reserves (Vera, 2017, p. 13).

**3.2.4 Assessment of the first symptom**

In conclusion, the first part of the empirical analysis explored the appreciation of the real exchange rate, one of the main symptoms of the Dutch disease. After the introduction of Venezuela’s pegged exchange rate regime in 2003, the Bolivar faced constant overvaluation (Vera, 2015, p. 553). According to Pfeffermann (1985), overvaluation encourages imports and leads to a decline in exports, which was verified by the development of Venezuela’s non-oil goods and service balance. The descriptive case further demonstrated, that increased

oil export revenues improved the country's CAB, leading to an accumulation of international reserves. Venezuela's loose monetary policy and failed sterilization mechanisms of the BCV led to an increasing domestic money supply. The Central Bank poorly managed monetary aggregates and continuous high inflation (Vera, 2015, p. 555 ff.). In conclusion, the case study was able to descriptively present the following indications that are consistent with Edwards' approach:

1. Increased oil exports caused surpluses in Venezuela's CA.
2. The Central Bank accumulated international reserves in the first years of the oil boom.
3. Vera (2015) pointed out, that the Central Bank poorly managed monetary aggregates and continuous high inflation.
4. The domestic currency faced constant overvaluation after the introduction of the pegged exchange rate regime (Vera, 2015).

### **3.3 Second symptom: decline of the non-oil tradable economy**

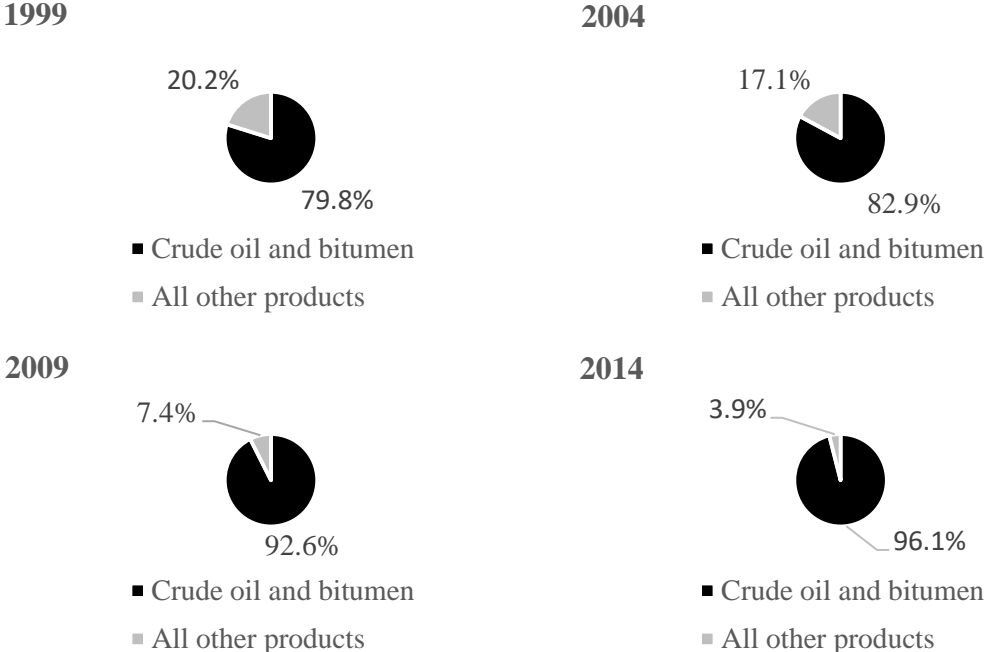
Part one focused on the validation of the appreciating real exchange rate. Part two of the case study addresses the negative consequence connected to overvaluation, namely de-industrialization as the symptom mainly brought into relation with Dutch disease. As Corden and Neary (1982) described, de-industrialization can be misleading because the agricultural or other tradable sectors can be equally affected. Resource movement and spending effects discussed in the theoretical part bring about declining employment and output in the manufacturing sector.

The analysis will first consider the country's non-oil sector and determine its competitive position over time. The diminishing ratio of non-oil exports to total exports, a worsening export-diversification index, and deteriorating non-oil trade balance indicate a decline and loss of competitiveness in the country's non-oil tradable sector. Subsequently, the paper focuses on the manufacturing sector and discovers a de-industrialization trend. Manufacturing exports as percentage of total exports, production volumes in different manufacturing industries, value-added as a percentage of GDP per sector, and employment data indicate a de-industrialization trend over the studied period.

#### **3.3.1 Non-oil tradable sector**

Appreciation of the real exchange rate inherits many negative implications for an economy. Overvaluation undermines exports and encourages imports as they become relatively cheaper (Pfeffermann, 1985, p. 18). One way to broadly evaluate the external positioning and competitive profile of Venezuela's non-oil tradable sector is by observing the evolution of non-oil exports. Figure 12 demonstrates oil and non-oil exports as a percentage of total exports in five-year intervals in 1999, 2004, 2009, and 2014 with data extracted from the BCV.

**Figure 12: Oil exports and non-oil goods exports (% of total exports), 1999-2014**



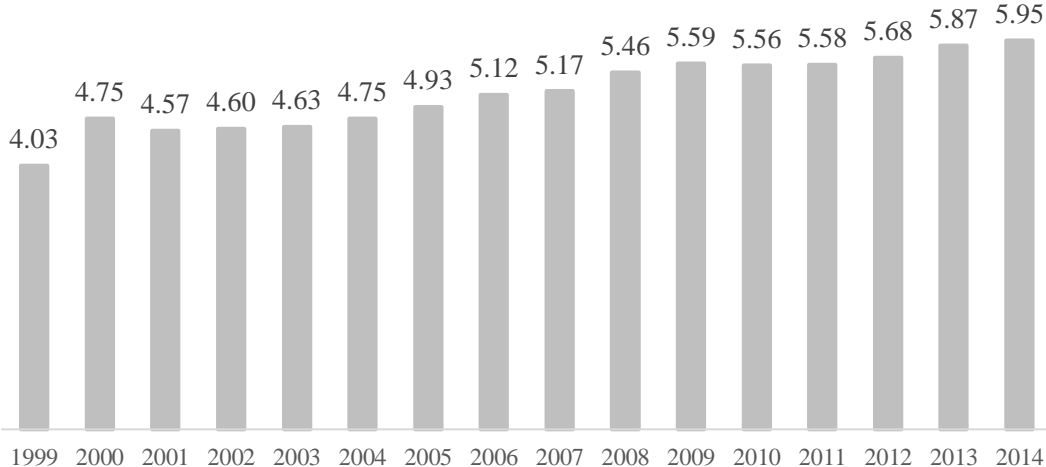
Source: Banco Central de Venezuela (2018a)

Venezuela's non-oil goods exports decreased by 49 percent, providing the first implication for a decrease in the competitiveness of the non-resource tradable sector. While in 1999, the country exported goods worth of 4.2 billion U.S dollars, in 2014, non-oil goods exports only amounted to 2.9 billion U.S. dollars (also see figure 13 below). Hence, the diminishing share of non-oil exports as a percentage of total exports is also caused by an absolute decline of non-oil exports, and not only due to the increase in oil exports which captured a greater share during high oil prices. Declining non-oil exports enhanced the dependence of the non-resource economy on foreign exchange generated by the oil sector. Venezuela's non-oil economy absorbed around 90 percent of foreign exchange attributed to imports and barely generated ten percent of it (Vera, 2009, p. 106). Problems emerged, especially after the first oil price decline in 2009, when the allocation of foreign exchange for payments and imports decreased. Total imports were diminished by 22 percent from the level documented in the year 2008. Roughly 77 percent of imported goods into the country are intermediate inputs resulting in a supply-side limitation that negatively affects domestic production (Vera, 2015, p. 552). The analysis of symptom one demonstrated that despite high oil windfall and CA surpluses, poor governance and macroeconomic mismanagement have developed severe external liquidity shortages. At the end of 2012, even before oil prices began to fall, Venezuela

had almost exhausted nearly all its international reserves and was denied access to international financial markets. President Maduro's administration attempted to solve external imbalances by compressing imports and tightening exchange controls. A complicated multi-tiered currency control system rationed foreign exchange and has raised black market pressure, undermining the strength of the parallel exchange rate. As a result, import reduction induced extreme scarcity of intermediate imports essential for the productive sector and a fundamental drop in domestic output. Essential stimuli for domestic production have dissolved as the economy moved beyond market mechanisms for determining price and managing the distribution and production of goods (Vera, 2017, p. 10).

Thus, a lack in the accessibility of foreign exchange constrained domestic output to the extent that Venezuela's economy had lost the capability to import the required intermediate inputs for its production. The decline in non-oil trade has one of its roots in deteriorating domestic production, as required intermediate inputs declined because of foreign exchange constraints (Vera, 2017, p. 10). The export diversification index of the IMF serves as an indicator to assess the country's decreasing export variety. It incorporates export quality measures across various aggregation levels of export products (IMF, 2019). Figure 13 shows Venezuela's index between 1999 and 2014, where higher numbers correspond to lower export diversification.

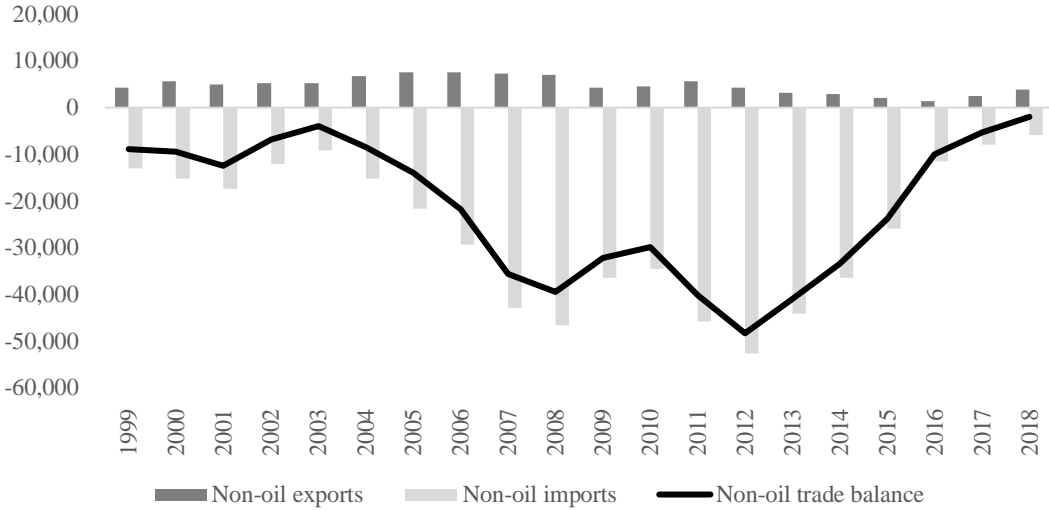
**Figure 13: Export Diversification Index, 1999-2014**



Source: International Monetary Fund (2019)

Foreign exchange constraints define only one contributor negatively impacting the country's non-oil tradable sector. Vera (2017, p. 11) argues how sustained overvaluation of the Bolivar deteriorated the country's international competitiveness, diminishing exports and increasing imports. Figure 13 demonstrates the composition of the non-oil trade balance between 1999 and 2018. Non-oil goods exports decreased between 2006 and 2016, whereas imports increased during the periods of high oil prices between 2004 and 2008 and 2010 and 2012. As oil prices declined in 2008 and 2012, foreign exchange constraints led to cutting imports (Vera, 2017, p. 10). Overall, chronic overvaluation additionally decreased the price competitiveness of exports, encouraged imports, and led to a deterioration of the non-oil trade balance.

**Figure 14: Non-oil goods balance in million U.S. dollars, 1999-2018**



Source: Banco Central de Venezuela (2018a)

To conclude, the non-oil tradable sector demonstrated a declining trend in exports and an encouragement of imports during high oil prices, indicating a loss in price competitiveness. Furthermore, the export diversification index from the IMF displays the development toward a less diversified export variety. Section 3.3.2 focuses on the development of the manufacturing sector and its de-industrialization dynamics in recent years.

### 3.3.2 De-industrialization

The de-industrialization process is a common feature in almost all developed nations, as well as in the so-called "newly industrialized economies" of East Asia and other developing countries. An extensive literature on the tertiarization of the economy has given rise to the so-called knowledge-based economies led by information and communication technologies. It is unclear whether, in developing economies, the structural shift towards the tertiarization of the economy is of this type. The economic literature on structural change towards the tertiarization of the economy recognizes that this can be the result of both a successful transition and a pathological transformation and therefore speaks of positive and negative de-industrialization (Vera, 2009, p. 91).

Premature de-industrialization is a highly negative phenomenon in developing economies and may reflect a relative loss of manufacturing employment at low-income levels, with a growing presence of the informal sector (S. Dasgupta and A. Singh, 2006, cited in Vera, 2009, p. 94). Under these circumstances, the economy's productivity is stagnant without generating sustained and long-term growth processes. Palma (2005 cited in Vera, 2009, p. 94) presents empirical evidence showing that since the 1980s, de-industrialization processes in many developing economies have been occurring at substantially lower per capita income levels than in the past. In Latin American countries, not only the orientation of trade and, in the case of Venezuela, the exchange rate misalignment, but also changes in the economic policy regime would account for this premature de-industrialization. Subject to macroeconomic and institutional instability and with the beginning of de-industrialization at relatively low levels of per capita income, the Venezuelan economy seems to have experienced what Dasgupta and Singh (2006, cited in Vera, 2009, p. 94) have described as a process of premature de-industrialization.

Hausmann and Rigobon (2003) related the topic of de-industrialization to economic growth and argued that one explanation why de-industrialization is disadvantageous is because it includes volatility. The smaller the size of the manufacturing sector, the more challenging it is for a country to compensate for shocks with labor mobility. In an extreme scenario where the manufacturing sector disappears permanently and the oil sector employs no labor, the service sector will represent the only employer. Thus, unemployment and expenditure switching compensate for disruptions, implying increased volatility. However, the primary reason Dutch disease and its resulting de-industrialization might result in lower growth rates

is that manufacturing activities incorporate technological spillovers and are more innovative and competitive than other sectors. Due to the absence of high rents, manufacturing companies usually encounter more competition and smaller concentration ratios, enhancing their efficiency. Moreover, because of the essence of the manufacturing progress, there is more space for technological improvement than for resource extraction. Lastly, manufacturing is prone to incorporate more horizontal and vertical spillovers from technological advancement than natural resource sectors (Hausmann and Rigobon, 2003, p. 37).

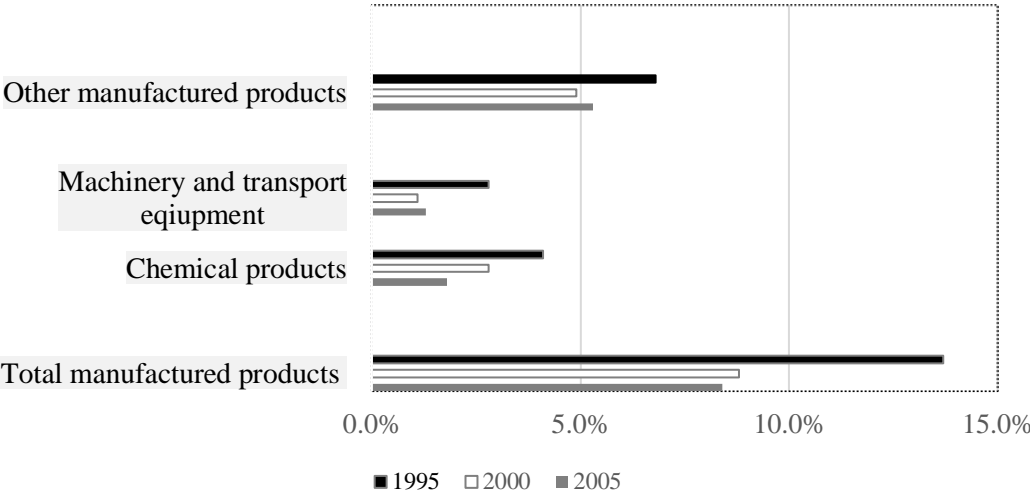
In the Venezuelan economy, manufacturing is the most important sector after oil, followed by central government services. Construction, manufacturing, and financial services have had the least favorable performance in recent years (Centro de Inversiones de la FAO and Investment Centre Division, 2006, p. 4). Additionally, state activity in the private sector increased substantially (Abuelafia and Saboin, 2020, p. 2). Within the last 20 years, the country's public institutions experienced a fundamental decline involving public procurement, fiscal institutions, governance (Abuelafia and Saboin, 2020, p. 28). As reported by CONINDUSTRIA, from 2002 to 2016, the Venezuelan government dispossessed 692 companies in construction and mainly manufacturing (cited in Abuelafia and Saboin, 2020, p. 3).

Transparencia Venezuela detected a growth in the number of public businesses from 74 in the year 2001 to 580 in 2018 (cited in Abuelafia and Saboin, 2020, p. 3). The increase in expropriated companies resulted from non-negotiated procedures often indiscriminate and based on inclusive occupations. Extensive state interventionism limited economic efficiency and competition. Government officials and military officers often directly intervened in operative decision-making by participating in management boards or the board of directors, and low transparency negatively affected productive linkages, private companies, and households (Abuelafia and Saboin, 2020, p. 3).

Venezuela's de-industrialization process has been taking place for 20 years (Vera, 2009, p. 100). García (2001) highlights that Venezuela's non-oil tradable sector is strongly dependent on the country's oil income, which determines the manufacturing sector's competitiveness. Oil booms tend to create large surpluses in the CAB, as documented in the analysis of the first symptom, leading to the real exchange rate appreciation. This exchange rate appreciation artificially reduces the competitiveness of the industrial sector (García, 2001, cited in

Vera, 2009, p. 105). The declining export participation of different manufactured products could provide the first signal toward a loss in the sector's competitiveness. Figure 15 considers the export participation of different manufactured products as percentage of total exports from 1995 to 2005.

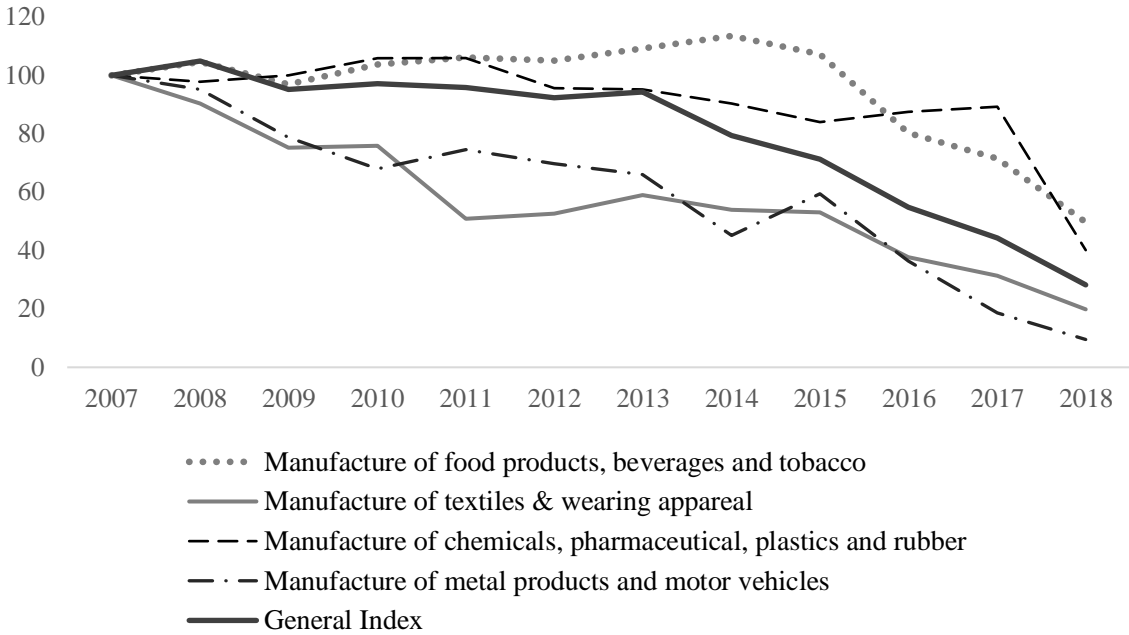
**Figure 15: Different types of manufacturing exports (% of total exports), 1995-2005**



Source: United Nations Conference on Trade and Development (2007)

Notably, all three manufactured product groups experienced declining participation in total exports between 1995 and 2005. Considering the recent composition of manufacturing production volumes in Venezuela can also offer additional elements of judgment regarding the de-industrialization that is taking place in the country. Therefore, figure 16 demonstrates the “Laspeyres” index of manufacturing production volume for sixteen industrial branches between 2007 and 2018.

**Figure 16: Laspeyres index of manufacturing production volume by type of manufacturing activity, 2007-2018**

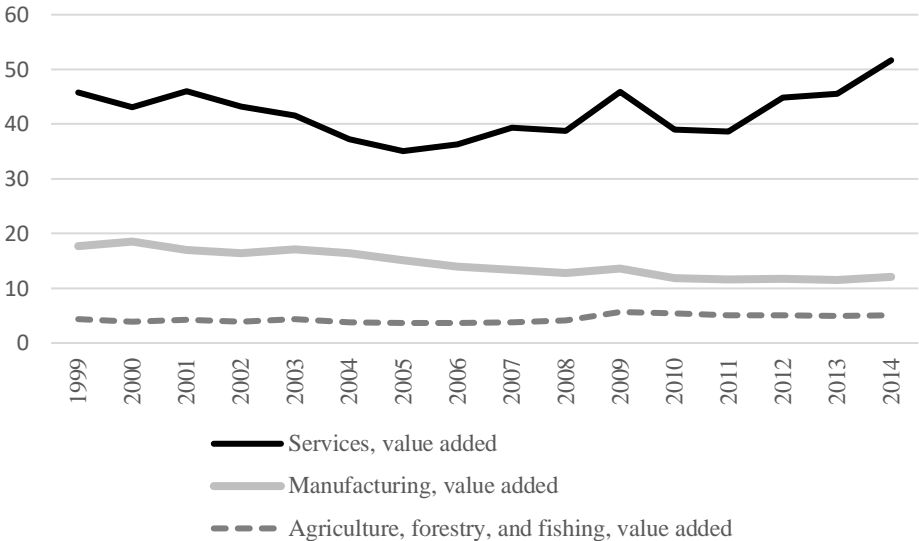


Source: Banco Central de Venezuela (2018c)

Since the index had its base year in 2007, any value lower than the base level corresponds to a drop in the production volume. Each manufacturing activities listed in the figure, in addition to the general index incorporating all sixteen groups, demonstrate a lower index in 2018 than in the base year of 2007, implying diminishing production volumes in the manufacturing sector. The lack of accessibility of foreign exchange from the beginning of 2013, constrained the capability to import required intermediate inputs for production, which also caused manufacturing production to decline (Vera, 2017, p. 10). Thus, not only did Venezuela's manufacturing share in total exports decline, but also production volumes in the manufacturing industry, signaling a decrease in output.

Ismail (2010) and Sachs and Warner (1995, 2001) discovered that manufacturing value-added declines with a rise in oil prices and increasing oil windfalls. Figure 17 below shows the value-added percentage of GDP for services, manufacturing, and agriculture between 1999 and 2014.

**Figure 17: Value-added per sector (% of GDP), 1999-2014**

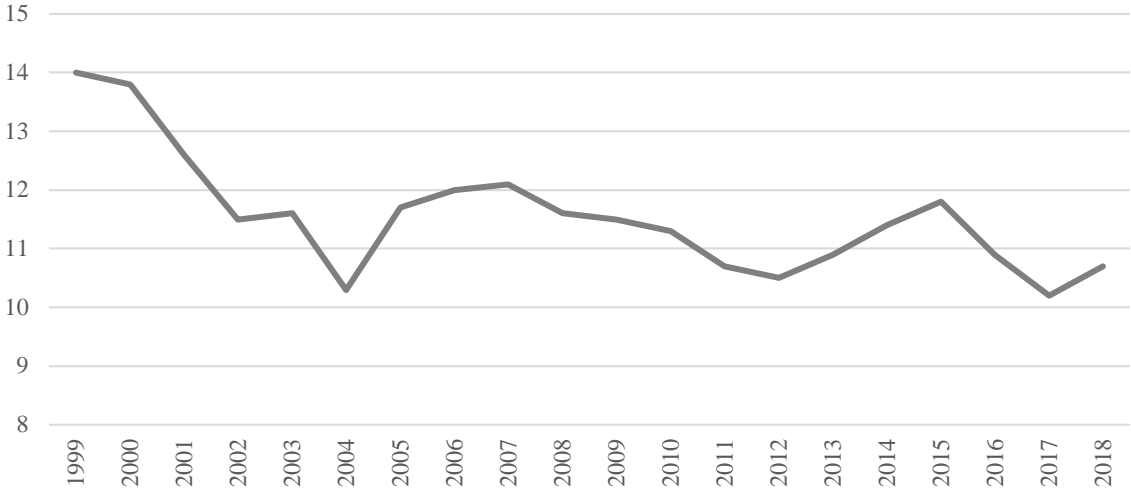


Source: The World Bank (2014 a, b, c)

Between 1999 and 2014, Venezuela's manufacturing value-added as a percentage of GDP declined from 18 percent to 12 percent. In comparison, the value-added of the service sector increased over the studied period from 46 percent in 1999 to 52 percent in 2014. Agriculture value-added grew slightly from 4 percent to 5 percent. Among the three sectors, manufacturing is the only sector experiencing a decline of 6 percent in value-added during the period of high oil prices, consistent with Ismail (2010) and Sachs and Warner (1995, 2001).

Besides production and output, Dutch disease also unfavorably affects employment (Corden and Neary, 1982). Data on the development of employment per sector measures the impact of Corden and Neary's resource movement effect on labor in the manufacturing sector. Therefore, Figure 18 considers the employment development in manufacturing between 1999 and 2015 as a percentage of total employment.

**Figure 18: Employment in manufacturing (% of total employment), 1999-2015**



Source: Instituto Nacional de Estadística (2018)

Corden and Neary (1982) described in their core model that Dutch disease leads to labor movement out of the lagging manufacturing sector. Considering the end-of-year data extracted from the National Statistical Institute of Venezuela, manufacturing demonstrates a declining trend in employment, consistent with the outcomes of the resource movement effect. While in 1999, 14 percent of the total official workforce worked in the manufacturing sector, by 2015, the employment rate decreased to 11percent. Thus, the manufacturing industry reported declining output and employment between 1999 and 2019, consistent with the symptoms of Dutch disease.

### **3.3.3 Assessment of the second symptom**

The analysis of the second symptom explored the development of the non-oil tradable goods sector, with a clear development that encourages imports and decreases exports, which Pfffermann (1985) described as one of the negative implications of exchange rate overvaluation. Moreover, Venezuela's export base became less diversified, illustrated by the deteriorating Export Diversification Index. In the analysis of the second symptom, declining participation of manufactured products in total exports and decreasing production volumes point toward the prevalence of de-industrialization as one of the Dutch disease symptoms. A reduction of value-added as a percentage of GDP in manufacturing is consistent with Ismail (2010) and Sachs and Warner (1995, 2001). Lastly, diminishing employment in the manufacturing industry supports Corden and Neary's resource movement effect (1982).

However, diagnosing Dutch disease can be challenging even with real appreciation because de-industrialization has been a globally ongoing process, independent of resource inflows. Investigating the disease includes verifying the interconnection between real appreciation, resource inflows, and a diminishing non-resource tradable sector (Kojo, 2015, p. 10). Real exchange appreciation, however, is induced by different factors and not only caused by Dutch disease, as the paper mentioned during the analysis of the first symptom. The descriptive case study in this paper only analyses the secondary data on the presence of symptoms that point toward the Dutch disease. However, it cannot diagnose it since a more specific and econometric approach is required to determine the causal relationship between Venezuela's oil resource inflows, real appreciation, and de-industrialization dynamics.

Another critical aspect is that the datasets collected for this paper mostly do not cover the entire period between 1999 and 2019. The availability of data about Venezuela's economic performance is restricted, and its accuracy and quality are in question. The Venezuelan government also stopped collaborating with financial institutions such as the IMF or World Bank. Thus, there is a lack of data about the country's economic indicators after 2014, when oil prices collapsed, and the country entered its economic crisis. The analysis of part two descriptively presented the following indications that are consistent with the second Dutch disease symptom:

1. Exports of the non-oil tradable sector and manufacturing industry decreased, while imports increased, indicating a loss of price competitiveness, possibly due to over-valuation (Pfeffermann, 1985).
2. The decline in manufacturing production volumes.
3. Decrease in value-added as a percentage of GDP in manufacturing, consistent with Ismail (2010) and Sachs and Warner (1995, 2001).
4. Reduction in manufacturing employment, consistent with Corden and Neary's (1982) resource movement effect.

## 4. Conclusion

This paper researched how economic geography and the presence of natural resources affect a country's economic development. It focused on the model of Dutch disease, which describes the concept that an exogenous increase in resource output or resource prices lead to an appreciation in the real exchange rate, a decline in the manufacturing sector, and an erosion of competitiveness of the non-booming tradable sector (Kalcheva and Oomes, 2007, p. 7). The paper applied the concept of Dutch disease to the case of Venezuela and investigated whether the country demonstrated symptoms from 1999 to 2019. Real exchange rate appreciation, declining competitiveness of the non-oil tradable goods sector, and de-industrialization of the manufacturing industry were the specific symptoms under investigation.

The theoretical part explained the model of Dutch disease. It presented two channels explaining how higher oil prices lead to real exchange rate appreciation. Edwards' (1985) approach demonstrated the monetary channel through the BOP, while Corden and Neary (1982) focused on the demand-side (aggregate spending) and supply-side (resource allocation) channels (Jahan-Parvar and Mohammadi, 2009, p. 98). Currency overvaluation characterizes Dutch disease countries and negatively impacts economic development. It encourages imports, reduces exports, and puts pressure on the CA as the trade balance deteriorates. Due to the increasing CA deficit and commonly diminishing domestic savings, borrowing requirements expand, and the debt burden grows (Pfeffermann, 1985, p. 18). Fiscal policy, boosting the non-oil sectors' competitiveness, and volatility management are policy implications to counteract the disease (Kojo, 2015, p. 14 ff.).

Venezuela's case study focused on the analysis of two Dutch disease symptoms. Real exchange rate appreciation represented the first, while the declining non-oil tradable sector and de-industrialization of the manufacturing industry characterized the second symptom. The monetary channel was applied to examine the presence of real exchange rate appreciation and discovered the following indications consistent with Edwards' approach. Venezuela's experienced a surplus in its CA due to increasing oil prices which led to an accumulation of international reserves. Foreign exchange was absorbed by the Central Bank and used for the governments' social programs and PDVSA's financing needs (Vera, 2015, p. 561). Sterilization mechanisms failed, and the domestic money supply increased. Lastly, Venezuela experienced high inflation rates over the entire period, and its currency faced persistent overvaluation, suggesting the appreciation of the real exchange rate. (Vera, 2017, p. 11).

The analysis of the second symptom explored the development of the non-oil tradable goods sector, demonstrating a clear development that encourages imports and decreases exports. Venezuela's non-oil tradable goods balance deteriorated over time, indicating one of the negative implications of an exchange rate overvaluation (Pfeffermann, 1985). A decreasing export variety was illustrated by the Export Diversification Index. The declining participation of manufactured products in total exports and decreasing production volumes point toward the prevalence of de-industrialization as one of the Dutch disease symptoms. A reduction of value-added as a percentage of GDP in manufacturing is consistent with findings of Ismail (2010) and Sachs and Warner (1995, 2001). Lastly, diminishing employment in the manufacturing industry supports Corden and Neary's resource movement effect (1982).

Venezuela demonstrated Dutch disease symptoms between 1999 and 2019. The case study discovered the prevalence of real appreciation and a declining non-oil tradable sector and manufacturing industry. However, the case study does not represent a tool to diagnose the disease, which can be challenging even with real appreciation. Notably, real exchange rate appreciation is induced by different factors and not only caused by Dutch disease. Diagnosing the disease includes verifying the causal relationship between resource inflows, real appreciation, and a diminishing non-resource tradable sector (Kojo, 2015, p. 10). Further research should focus on verifying this causal relationship, requiring a more specific and econometric approach. Nevertheless, the descriptive case study serves as a first tool to confirm the prevalence of disease symptoms.

## 5. References

- Abuelafia, E. and Saboin, J.L. (2020) *A Look to the Future for Venezuela*. Inter-American Development Bank. Available at: <https://doi.org/10.18235/0002621>.
- Bahar, D., Molina, C.A. and Santos, M. (2018) 'Fool's Gold: The Impact of Venezuelan Currency Devaluations on Multinational Stock Prices', *Economía*, 19(1), pp. 93–128.
- Brahmbhatt, M., Canuto, O. and Vostroknutova, E. (2010) 'Dealing with Dutch Disease', *World Bank - Economic Premise*, pp. 1–7.
- Catão, L. (2007) 'Why Real Exchange Rates?', *Finance and Development*, 44(3), pp. 46–47.
- Centro de Inversiones de la FAO and Investment Centre Division (2006) *VENEZUELA: Nota de Análisis Sectorial - Agricultura y Desarrollo Rural: Estudio Sectorial (2006)*. Rome, Italy: FAO. Available at: <https://www.fao.org/publications/card/en/c/fa99d4d6-7dc4-5a62-b969-1abe89a757d9> (Accessed: 15 May 2022).
- Corden, W.M. (1984) 'Booming Sector and Dutch Disease Economics: Survey and Consolidation', *Oxford Economic Papers*, 36(3), pp. 359–380.
- Corden, W.M. and Neary, J.P. (1982) 'Booming Sector and De-Industrialisation in a Small Open Economy', *The Economic Journal*, 92(368), pp. 825–848. Available at: <https://doi.org/10.2307/2232670>.
- Deutsche Bundesbank (2019) *Die preisliche Wettbewerbsfähigkeit einzelner Länder des Euroraums: Entwicklungen, Ursachen und Einfluss von Arbeitsmarktreformen*. 71 (1). Deutsche Bundesbank, pp. 33–53. Available at: <https://www.bundesbank.de/de/publikationen/berichte/monatsberichte/monatsbericht-januar-2019-773448> (Accessed: 01 May 2022).
- Ebrahim-zadeh, C. (2003) 'Dutch Disease Too much wealth managed unwisely', *Finance and Development*, 40(1), pp. 50–51.
- Edwards, S. (1985) 'Commodity Export Boom and the Real Exchange Rate: The Money-Inflation Link'. National Bureau of Economic Research (Working Paper Series). Available at: <https://doi.org/10.3386/w1741>.
- Feenstra, R.C. and Taylor, A.M. (2014) *International economics*. Third edition. New York, NY: Worth Publishers.
- Gobierno Bolivariano de Venezuela (2021) *Oficina Nacional del Tesoro - ONT | Nosotros*. Available at: <http://www.ont.gob.ve/nosotros> (Accessed: 15 May 2022).
- Hausmann, R. (2020) *Understanding the Venezuelan Crisis with Ricardo Hausmann*. Available at: <https://www.hks.harvard.edu/wiener-conference-calls/ricardo-hausmann> (Accessed: 15 February 2022).

- Hausmann, R. and Rigobon, R. (2003) ‘An Alternative Interpretation of the “Resource Curse”: Theory and Policy Implications’. National Bureau of Economic Research (Working Paper Series). Available at: <https://doi.org/10.3386/w9424>.
- IMF (2019) *The Diversification Toolkit: Export Diversification and Quality Databases (Spring 2014)*, International Monetary Fund. Available at: <https://www.imf.org/external/np/res/dfidimf/diversification.htm> (Accessed: 15 June 2022).
- IMF (2022) *What is real effective exchange rate (REER)? – IMF DATA Help*. Available at: <https://datahelp.imf.org/knowledgebase/articles/537472-what-is-real-effective-exchange-rate-reer> (Accessed: 01 March 2022).
- International Monetary Fund (ed.) (1993) *Balance of payments manual*. 5th ed. Washington D.C: International Monetary Fund.
- Ismail, K. (2010) ‘The Structural Manifestation of the “Dutch Disease”: The Case of Oil Exporting Countries’. International Monetary Fund (Working Paper Series). Available at: <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/The-Structural-Manifestation-of-the-Dutch-Disease-The-Case-of-Oil-Exporting-Countries-23801> (Accessed: 26 March 2022).
- Iyer, L. and Rodríguez, F. (2021) ‘Hyperinflation in Venezuela’. Keough School of Affairs, University of Notre Dame. Available at: <https://doi.org/10.7274/r0-z7wm-f385>.
- Jahan-Parvar, M.R. and Mohammadi, H. (2009) ‘Oil prices and competitiveness: time series evidence from six oil-producing countries’, *Journal of Economic Studies*, 36(1), pp. 98–118.
- Kalcheva, K. and Oomes, N. (2007) ‘Diagnosing Dutch Disease: Does Russia Have the Symptoms?’ International Monetary Fund (Working Paper Series). Available at: <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Diagnosing-Dutch-Disease-Does-Russia-Have-the-Symptoms-20650> (Accessed: 17 February 2022).
- Kaushik, A. (2017) ‘VENEZUELA: DESCENT OF AN OIL RICH STATE INTO ABYSS.’, *OORJA - International Journal of Management & IT*, 15(2), pp. 58–67.
- Kojo, N.C. (2015) ‘Demystifying Dutch Disease’, *Journal of International Commerce, Economics and Policy*, 06(02), p. 1550010 (23). Available at: <https://doi.org/10.1142/S1793993315500106>.
- Larsen, E.R. (2006) ‘Escaping the Resource Curse and the Dutch Disease?’, *The American Journal of Economics and Sociology*, 65(3), pp. 605–640. Available at: <https://doi.org/10.1111/j.1536-7150.2006.00476.x>.
- Lee, J.-Y. (1997) *Sterilizing capital inflows*. Washington, D.C: International monetary fund (Economic issues, 7).
- Omoriegie, O. and Ikpesu, F. (2018) ‘Effect Of Oil Price, And Exchange Rate On Current Account Balance In Nigeria’, *The Journal of Developing Areas*, 53(4). Available at: <https://doi.org/10.1353/jda.2018.0072>.

- OPEC (2021) *OPEC : Venezuela*. Available at: [https://www.opec.org/opec\\_web/en/about\\_us/171.htm](https://www.opec.org/opec_web/en/about_us/171.htm) (Accessed: 15 March 2022).
- OPEC (2022) *OPEC : OPEC Share of World Crude Oil Reserves*. Available at: [https://www.opec.org/opec\\_web/en/data\\_graphs/330.htm](https://www.opec.org/opec_web/en/data_graphs/330.htm) (Accessed: 15 March 2022).
- Pfeffermann, G. (1985) ‘Overvalued exchange rates and development’, *Finance & Development*, 22(2), pp. 17–19.
- Pittaluga, G., Seghezza, E. and Morelli, P. (2021) ‘The political economy of hyperinflation in Venezuela’, *Public Choice, Springer*, 186(3), pp. 337–350. Available at: <https://doi.org/10.1007/s11127-019-00766-5>.
- Sachs, J.D. and Warner, A.M. (1995) ‘Natural Resource Abundance and Economic Growth’. National Bureau of Economic Research (Working Paper Series). Available at: <https://doi.org/10.3386/w5398>.
- Sachs, J.D. and Warner, A.M. (2001) ‘The curse of natural resources’, *European Economic Review*, 45(4), pp. 827–838. Available at: [https://doi.org/10.1016/S0014-2921\(01\)00125-8](https://doi.org/10.1016/S0014-2921(01)00125-8).
- Subramanian, A. and Sala-i-Martin, X. (2003) ‘Addressing the Natural Resource Curse: An Illustration From Nigeria’. International Monetary Fund (Working Paper Series). Available at: <https://www.imf.org/en/Publications/WP/Issues/2016/12/30/Addressing-the-Natural-Resource-Curse-An-Illustration-From-Nigeria-16582> (Accessed: 20 March 2022).
- Tollison, R.D. (1996) ‘Rent seeking’, in D.C. Mueller (ed.) *Perspectives on Public Choice: A Handbook*. Cambridge: Cambridge University Press, pp. 506–525. Available at: <https://doi.org/10.1017/CBO9780511664458.024>.
- Vera, L. (2009) ‘Cambio estructural, desindustrialización y pérdidas de productividad: evidencia para Venezuela’, *Cuadernos del CENDES*, 26(71), pp. 89–115.
- Vera, L. (2015) ‘Venezuela 1999–2014: Macro-Policy, Oil Governance and Economic Performance’, *Comparative Economic Studies*, 57(3), pp. 539–568.
- Vera, L. (2017) ‘In search of stabilization and recovery: macro policy and reforms in Venezuela’, *Journal of Post Keynesian Economics*, 40(36), pp. 1–18. Available at: <https://doi.org/10.1080/01603477.2016.1273069>.
- Wanjau, B.M. (2014) ‘The Relationship among Real Exchange Rate, Current Account Balance and Real Income in Kenya’, *International Journal of Business and Social Science*, 5(9(1)), pp. 97–118.
- Zalduendo, J. (2006) ‘Determinants of Venezuela’s Equilibrium Real Exchange Rate’. Washington, D.C: International Monetary Fund (Working Paper Series). Available at: <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Determinants-of-Venezuelas-Equilibrium-Real-Exchange-Rate-19034> (Accessed: 01 April 2022).

## Data Sources

Alves, B. (2021) *Venezuela: Merey crude oil price from 2005 to 2020*, Statista. Available at: <https://www.statista.com/statistics/1240496/annual-average-price-merey-crude-oil/> (Accessed: 03 June 2022).

Banco Central de Venezuela (2018a) *Balanza de Pagos* | Banco Central de Venezuela. Available at: <http://www.bcv.org.ve/estadisticas/balanza-de-pagos> (Accessed: 05 June 2022).

Banco Central de Venezuela (2018b) *Liquidez Monetaria* | Banco Central de Venezuela. Available at: <http://www.bcv.org.ve/estadisticas/liquidez-monetaria> (Accessed: 07 June 2022).

Banco Central de Venezuela (2018c) *Manufactura* | Banco Central de Venezuela. Available at: <http://www.bcv.org.ve/estadisticas/manufactura> (Accessed: 10 June 2022).

Banco Central de Venezuela (2018d) *Movimiento Cambiario. Ingresos y egresos de divisas del BCV. Serie 1997-2019* | Banco Central de Venezuela. Available at: <http://www.bcv.org.ve/estadisticas/movimiento-cambiario-ingresos-y-egresos-de-divisas-del-bcv-serie-1997-2019#> (Accessed: 07 June 2022).

Banco Central de Venezuela (2018e) *Reservas Internacionales* | Banco Central de Venezuela, Banco Central de Venezuela. Available at: <http://www.bcv.org.ve/estadisticas/reservas-internacionales> (Accessed: 07 June 2022).

Instituto Nacional de Estadística (2018) *Fuerza de Trabajo*, Instituto Nacional de Estadística. Available at: [http://www.ine.gov.ve/index.php?option=com\\_content&view=category&id=103&Itemid=40#](http://www.ine.gov.ve/index.php?option=com_content&view=category&id=103&Itemid=40#) (Accessed: 01 July 2022).

International Monetary Fund (2019) *The Diversification Toolkit: Export Diversification and Quality Databases (Spring 2014)*, International Monetary Fund. Available at: <https://www.imf.org/external/np/res/dfidimf/diversification.htm> (Accessed: 15 June 2022).

International Monetary Fund (2022) *República Bolivariana de Venezuela and the IMF*, International Monetary Fund. Available at: <https://www.imf.org/en/Countries/VEN> (Accessed: 13 June 2022).

OPEC (2022) *OPEC: OPEC Share of World Crude Oil Reserves*. Available at: [https://www.opec.org/opec\\_web/en/data\\_graphs/330.htm](https://www.opec.org/opec_web/en/data_graphs/330.htm) (Accessed: 15 May 2022).

The World Bank (2014a) *Agriculture, forestry, and fishing, value added (% of GDP) - Venezuela, RB* | Data, THE WORLD BANK. Available at: <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=VE> (Accessed: 03 June 2022).

The World Bank (2014b) *Manufacturing, value added (% of GDP) - Venezuela, RB* | Data, THE WORLD BANK. Available at: <https://data.worldbank.org/indicator/NV.IND.MANF.ZS?locations=VE> (Accessed: 03 June 2022).

The World Bank (2014c) *Services, value added (% of GDP) - Venezuela, RB* / Data, *THE WORLD BANK*. Available at: <https://data.worldbank.org/indicator/NV.SRV.TOTL.ZS?locations=VE> (Accessed: 03 June 2022).

The World Bank (2016) *Real effective exchange rate index (2010 = 100) - Venezuela, RB* / Data, *THE WORLD BANK*. Available at: <https://data.worldbank.org/indicator/PX.REX.REER?end=2016&locations=VE&start=1999> (Accessed: 01 June 2022).

United Nations Conference on Trade and Development (2007) *UNCTAD HANDBOOK OF STATISTICS 2006-07*. TD/STAT.31. Available at: [https://unctad.org/system/files/official-document/tdstat31\\_en.pdf](https://unctad.org/system/files/official-document/tdstat31_en.pdf) (Accessed: 15 June 2022).

### **Affidavit / Eidesstattliche Erklärung**

I declare that I wrote this thesis independently and on my own. I clearly marked any language or ideas borrowed from other sources as not my own and documented their sources. The thesis does not contain any work that I have handed in or have had graded as a Prüfungsleistung earlier on.

I am aware that any failure to do so constitutes plagiarism. Plagiarism is the presentation of another person's thoughts or words as if they were my own—even if I summarize, paraphrase, condense, cut, rearrange, or otherwise alter them. I am aware of the consequences and sanctions plagiarism entails. Among others, consequences may include nullification of the thesis, exclusion from the BA program without a degree, and legal consequences for lying under oath. These consequences also apply retrospectively, i.e. if plagiarism is discovered after the thesis has been accepted and graded.

Ich erkläre hiermit, dass ich die vorliegende Arbeit selbständig verfasst und nur die angegebenen Quellen und Hilfsmittel benutzt habe. Wörtlich oder dem Sinn nach aus anderen Werken entnommene Stellen sind unter Angabe der Quelle als Entlehnung kenntlich gemacht. Die Arbeit enthält kein Material, das ich bereits zu einem früheren Zeitpunkt als Prüfungsleistung eingereicht habe.

Mir ist bewusst, dass die ungekennzeichnete Übernahme fremder Texte oder fremder Ideen als Plagiat gilt, selbst wenn diese zusammengefasst, umschrieben, gekürzt, oder anderweitig verändert wurden. Die Konsequenzen eines Plagiats sind mir bekannt. Die möglichen Konsequenzen umfassen, unter anderem, ein Nichtbestehen der Bachelorarbeit, den Ausschluss von weiteren Prüfungsleistungen im Studiengang, oder zivilrechtliche Konsequenzen, die mit dieser eidesstattlichen Erklärung verbunden sind. Diese Konsequenzen können auch nachträglich zur Anwendung kommen, also nachdem die Arbeit angenommen und korrigiert wurde.

My name: Stefanie Heinrich

Title of my thesis: The curse of Venezuela's oil. A descriptive analysis of Dutch disease symptoms.

Date: 29.07.2022

Signature: S. Heinrich