The Monetary and Fiscal History
of Venezuela 1960–2016[†]

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—————————— Abstract ——————————

I document the salient features of monetary and fiscal outcomes for the Venezuelan economy during the 1960 to 2016 period. Using the consolidated government-budget accounting framework of Chapter 2, I assess the importance of fiscal balance, seigniorage, and growth in accounting for the evolution of debt ratios. I find that extraordinary transfers, mostly associated with unprofitable public enterprises, and not central-government primary deficits, account for the increase in financing needs in recent decades. Seigniorage has been a consistent source of financing of deficits and transfers—especially in the last decade—with increases in debt ratios being important in some periods.

1 Introduction

In the post-war era, Venezuela represents one of the most dramatic growth experiences in the world. Measured as real gross domestic product (GDP) per capita in international dollars, Venezuela attained levels of more than 80 percent of that of the United States by the end of 1960. It has also experienced one of the most dramatic declines, with levels of relative real GDP per capita reaching less than 30 percent of that of the United States nowadays. Understanding the features—institutional or policy driven—that determined such dramatic episodes of growth and collapse is of great importance. The purpose of this paper is to take a small step towards understanding some aspects of the institutions and policies that may have contributed to these experiences. The focus is on the monetary and fiscal outcomes during the period between 1960 to 2016. While the connection of monetary and fiscal policies to long-run growth may seem tenuous, in the case of Venezuela, they provide a perspective on the extent to which the government was involved—directly or indirectly—in the determination of prices, the allocation of resources, and therefore, outcomes.

Venezuela became on oil economy after discovering crude oil around 1913, with a large endowment of oil reserves. Today, Venezuela enjoys one of the largest proven oil reserves in the world. During the 1920s, oil production, at the time mostly done through concessions to foreign companies, was an important contributor to Venezuela's structural transformation and development. Over time, discussions about the nationalization of the oil industry in the late 1960s and early 1970s put a break in this development even though nationalization was only formalized in 1976. For instance, total crude oil production declined substantially

from the peak in 1970 by 70 percent in the mid 80s. In addition, the nationalization of the industry and its impact on fiscal policy implied that distortions accumulated over time as vast amounts of resources were being allocated by government officials and disparate policies and not by market forces. These distortions were exacerbated with the increase in oil prices in 1974—which lead to a windfall in government revenues—and the larger volatility observed in oil prices since then. Oil represents more than 90 percent of all exports and more than 60 percent of government revenues. But contrary to some theories, such as that of dutch disease, oil is not the problem of the Venezuelan economy, the problem lies in how the vast amounts of resources generated from oil were utilized. Other economies, such as Norway, have managed the oil wealth properly, with diametrically different economic outcomes.

Figure 1 documents the (log) real GDP per capita in Venezuela from 1960 to 2016. The figure illustrates the positive growth process between 1960 and 1977 and the subsequent decline and volatility. To put this growth process in perspective, note that between 1960 and 1977, the average annual growth was only 2.3 percent, lower than the growth achieved by Venezuela in the decades prior, and also lower than that observed for the United States during the same time period. An important element in this relative low growth is the process of nationalization of the oil industry. The period between 1978 and 1989 had a negative average annual growth of -2.6 percent, a remarkable economic collapse. From 1990 to 2016 the annual average growth was -0.2 percent, with dramatic declines in output per capita between 2001 and 2002 of 19 percent (associated with political uncertainty and an oil strike); and between 2013 to 2016 of 30 percent.

Venezuela is also distinct from many other Latin American economies in that for as for much

Figure 1: The log of Real GDP per Capita
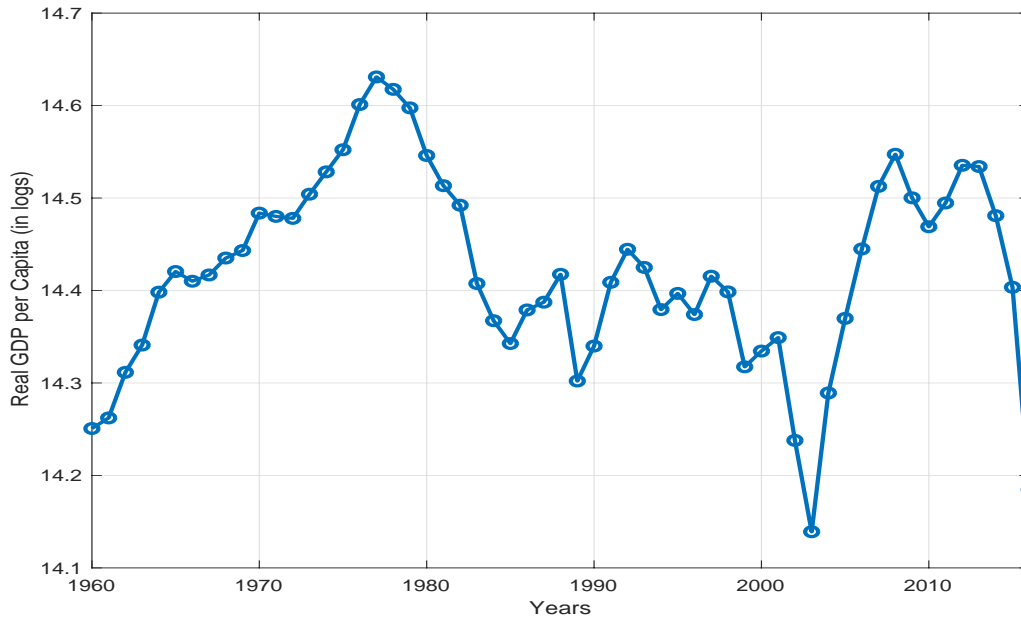
Notes: The logarithm of Real GDP per capita, 1997 base prices in millions of Bolivares.

of the economic decline, Venezuela enjoyed a period of relative macroeconomic stability. Figure 2 documents the yearly inflation rate from 1960 to 2016. From 1960 to 1986, inflation was almost always below 30 percent but since 1987 inflation has been almost always above 30 percent, with 80 percent in 1989, more than 100 percent in 1996, and more than 500 percent in 2016.

Only in recent years, Venezuela is suffering a more standard period among Latin American economies of hyper-inflation, fuelled by a substantial and systematic process of government deficits that in the absence of external credit are being financed by seigniorage and the inflation tax. Figure 3 documents the government deficit as a proportion of GDP from 1960 to 2016, it also reports the primary deficit which excludes interest payments on public debt. In the 1960s and early 1970s government deficits or surpluses represented around 2 percent

Figure 2: Yearly Inflation Rate (%)
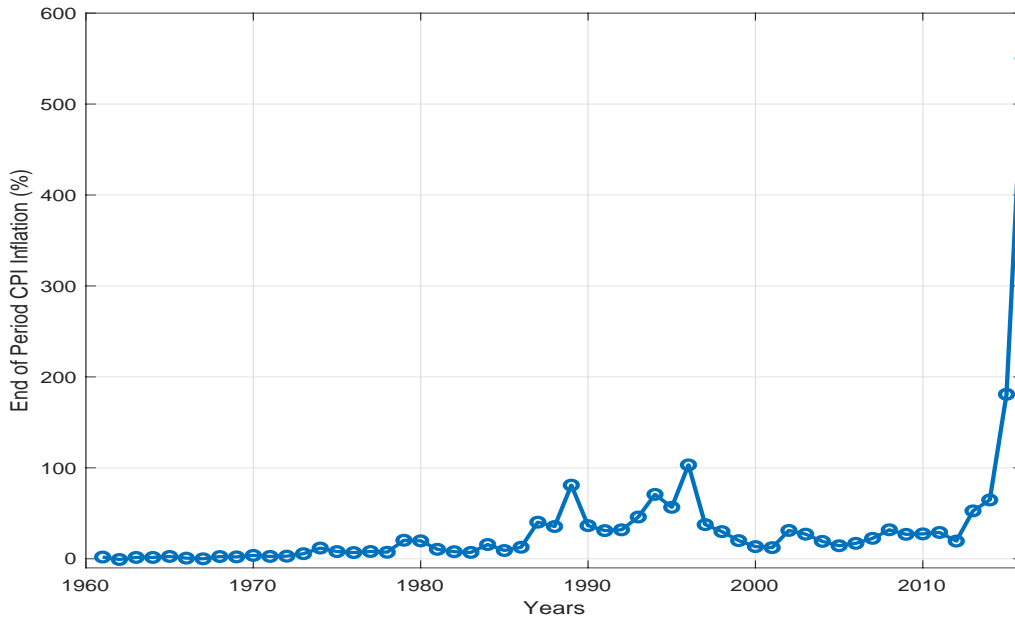
Notes: The inflation rate is the percentage change in the Consumer Price Index.

of GDP (an average surplus of 0.9 percent of GDP), but starting in 1974, movements in government deficits were as high as 6 and 7 percent of GDP, with year-to-year variations of around 5 percentage points. Only starting around 2006, government primary deficits have become systematic and large in magnitude, with an average between 2006 and 2016 of 3.6 percent of GDP.

To make a systematic analysis of monetary and fiscal outcomes, I follow the conceptual framework of Chapter 2 (the consolidated government-budget equation) to account for the events that lead to episodes of substantial inflation or run up in debt. Interestingly and contrary to many other Latin American economies, the contribution to financing needs of the government does not rest with primary deficits or even commitments on government debt. Instead, a large amount of transfers to other decentralized agencies accounts for all

Figure 3: Government Deficit to GDP (%)
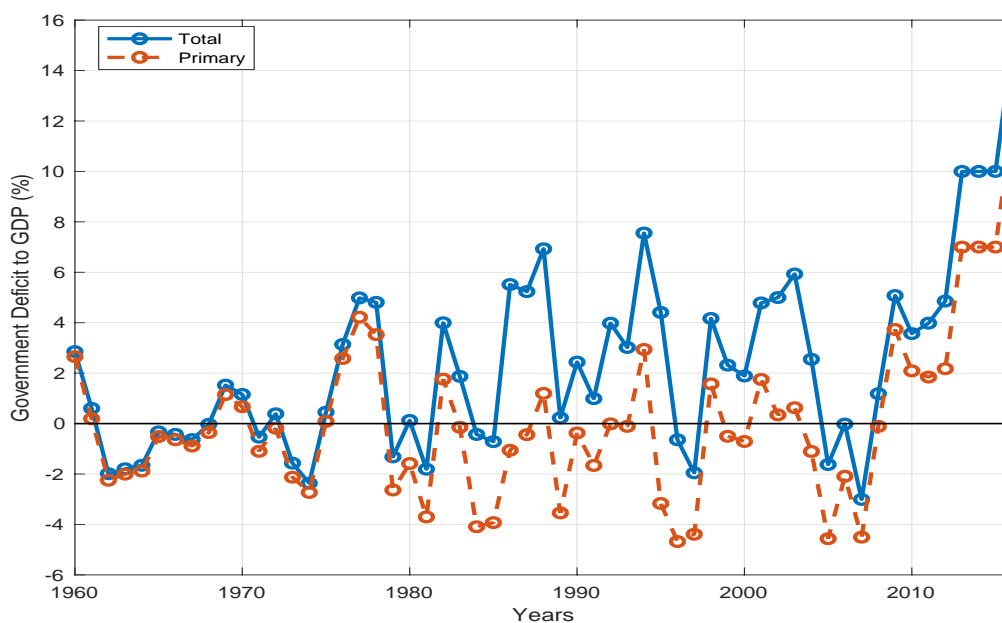
Notes: Positive numbers represent a deficit and negative numbers a surplus. The primary deficit is the deficit minus the interest payments of public debt. Total deficit for 2013-2016 are estimates.

the financing needs which paradoxically usually occur during periods of oil revenue booms. During the entire time period between 1960 to 2016, seigniorage is the source of funds that accounts for most of the financing needs while increases in internal and external public debt account for an important portion during some periods.

This paper is broadly related to the literature analyzing the growth experience of Venezuela such as Hausmann (2003), Bello et al. (2011), and Agnani and Iza (2011), although the present analysis focuses on the fiscal and monetary outcomes rather than growth specifically.[1] Da Costa and Olivo (2008) study monetary policy in the context of oil economies with an application to Venezuela. The paper is also broadly related to the literature on the resource

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[1]For a thorough discussion of the economic environment during the period of study see Hausmann and Rodríguez (2014) and the references therein.

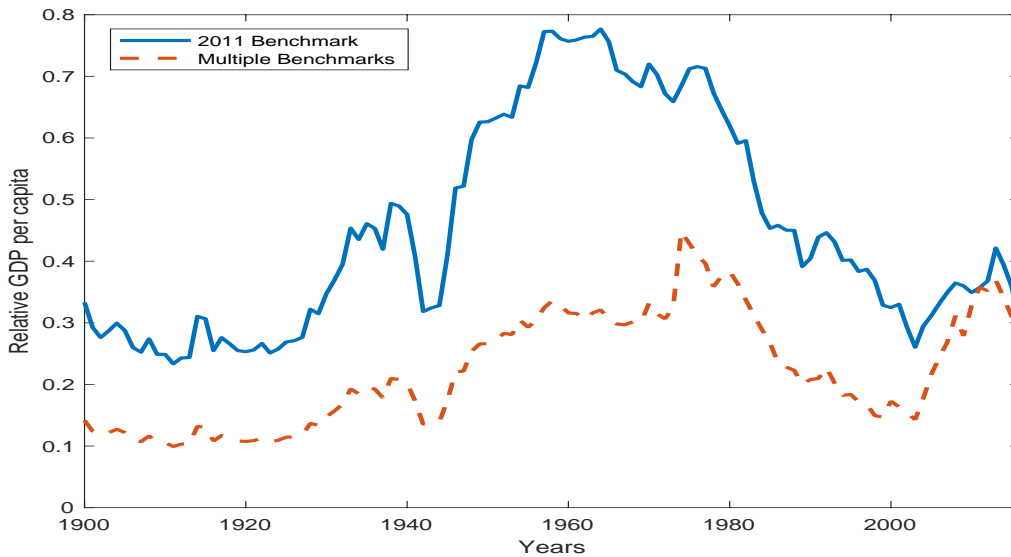curse, e.g. Manzano and Rigobon (2001) and Hausmann and Rigobon (2003).

The paper is organized as follows. In the next section, I present a background of the macroeconomic history of the Venezuelan economy. Section 3 performs the analysis from the accounting framework. I conclude in section 4.

2   Economic Background

I discuss the evolution of the main macroeconomic variables of the Venezuelan economy during the period 1960-2016. I start with a brief historical description. See also Bello et al. (2011) for a detailed description of Venezuela's economic policies during this time period.

Historical Perspective   Venezuela represents one of the most interesting growth experiences of Latin America. From the early 20th century, Venezuela has experienced both a rapid and sustained period of income growth as well as a prolonged period of economic decline. To put these experiences in perspective, Figure 4 documents the time path of real GDP per capita in Venezuela relative to that of the United States from 1900 to 2016. The series are from the Maddison Project Database, version 2018, which represent an update of the well-known historical data in Maddison (2010), see Bolt et al. (2018). As in Maddison (2010), the main series are constructed by taking GDP per capita from the latest round of international prices—in this case the 2011 ICP benchmark—and extrapolating across years using constant-price GDP per capita growth in each country from national accounts. As a

Figure 4: Venezuela Real GDP per Capita (relative to USA)

result, the time path of relative income reflects closely the actual growth process of Venezuela relative to the United States. However, the implied level of relative income depends heavily on which set of international prices is used to aggregate output and, as a consequence, relative income levels can vary substantially with different benchmark prices. For this reason, the new version of the Maddison data includes series of real GDP per capita that take into account multiple rounds of international prices and while is meant to more accurately reflect differences in income at a point in time, it does not reflect well the process of growth in each country. Figure 4 reports GDP per capita in Venezuela relative to the United States for both the 2011 benchmark prices (solid line) as well as the multiple benchmark (dashed line).

From 1900 to 1920, GDP per capita oscillated around 30 percent of that of the United States, but since then increased substantially to almost 80 percent in the late 1950's. Starting around 1960, relative income per capita declined systematically to levels around 30 percent nowadays. Many observers associate the decline of the Venezuelan economy with the first oil price shock in 1974, whereas from this perspective of relative income growth the decline started much earlier. Note that using the multiple benchmarks of the ICP, relative income levels in Venezuela were much lower, around 10 percent between 1900 and 1940, rising to 40 percent in the late 80s to later decline to levels between 15 and 30 percent. While the focus of the present study is to document and analyze the history of monetary and fiscal outcomes in Venezuela from 1960 to 2016, it is important to keep in mind the potential relationship between the events, policies, and institutional features that could have partly determined the economic performance of the Venezuelan economy in the more recent past.

As discussed in Figure 1 in the introduction, the growth of real GDP per capita shows periods of positive performance as well as periods of strong volatility and decline. In describing the specific monetary and fiscal outcomes below, it is useful to keep in mind the following three broad periods in the Venezuelan economy. First, from 1960 to 1977, real GDP per capita increased by 2.3 percent annually and it as a period of relative macroeconomic stability with negligible or low fiscal deficits, low inflation, and although debt was rising towards the end of the period, it was still relatively low. As I discuss below, this relative macroeconomic stability hides strong changes occurring with oil production around the nationalization of the industry and with revenues from oil that may have set the stage for worsening outcomes in later years. Second, from 1978 to 1998 where real GDP per capita declined by about

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one percent annually and where the economy went through substantial instability, a cycle period of rising debt and inflation mitigated towards the end of the period. Third, from 1999 to 2016 where real GDP per capita declined by 0.8 percent annually, is a period of strong political and economic instability, with episodes of strong decline in economic activity while at the same time facing a large and sustained oil-price boom. An interesting natural question that arises is what happened around 1977 to determine the fundamental change in relative macroeconomic stability. More research on this topic may be required but the undercurrent from the analysis below hints at the important fall in oil production starting around 1970 associated with discussions of nationalization that were partially hidden in the macroeconomic accounts through large increases in real oil prices during the time. In fact, the failure of real oil prices to continue their previous growth appears to have triggered an important reduction in government spending and fiscal deficits that may have put a break in the growth of economic activity.

Growth, Volatility, and Oil The overall process of per-capita income growth between 1960 and 2016 documented in the introduction in Figure 1 has associated with it a noticeable change in the volatility of economic activity. I use the Hodrick-Prescott filter on the series for real GDP per capita to separate trend and cycle.[2] I calculate that starting around 1974, economic fluctuations, defined as the difference between actual and trended real GDP, show a substantial increase. Between 1960 and 1974, the standard deviation of de-trended real GDP per capita was 2.1 percent and increased to 6.8 percent for the period 1975 to 2016.[3]

[2]I use $\lambda = 100$ for annual series, see Hodrick and Prescott (1997).

[3]Note oil represents about 20 percent of GDP and almost none of the fluctuations in aggregate GDP are accounted for by fluctuations in economic activity in the oil sector. The transmission mechanism seems to

To put these fluctuations in GDP in perspective recall that the typical business cycle in the United States amounts to a standard deviation of filtered log real GDP of slightly more than 1 percent for yearly series. Hence, economic fluctuations are orders of magnitude larger in Venezuela than in the United States, specially for the period starting in 1974.

Three major changes provide context for the economic performance of Venezuela. First, the discovery of oil reserves in the early 1910s promoted a strong process of structural transformation whereby economic activity reallocated from agricultural and rural areas to the oil industry and urban areas. For instance, the share of agriculture in GDP declined from more than 30 percent in 1920 to less than 5 percent nowadays, whereas the share of oil production in GDP sharply increased from almost zero in the 1920s to around 35 percent in 1930, oscillating around that level between 1930 and 1970, and then declining to levels around 20 percent during the process of nationalization of the oil industry in the early 1970s. Second, the nationalization of the oil industry, that formally took place in 1976, generated an important change in the operation and efficiency of the oil company. To illustrate this process, Figure 5 reports the production of crude oil in Venezuela (right axis) and labor productivity as barrels of oil per worker (left axis). There is a strong and systematic increase in oil production and productivity since 1920 until about 1970. The growth process of the oil industry is broken precisely around the time when discussions of nationalization took place in the late 1960 and early 1970. For instance, in the decade between 1960 and 1970, oil production increased by 30 percent and labor productivity increased by 125 percent, whereas in the decade between 1970 and 1980, oil production declined by 41 percent and labor

be an ill-suited fiscal policy as I discuss below.

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Figure 5: Crude Oil Production and Labor Productivity
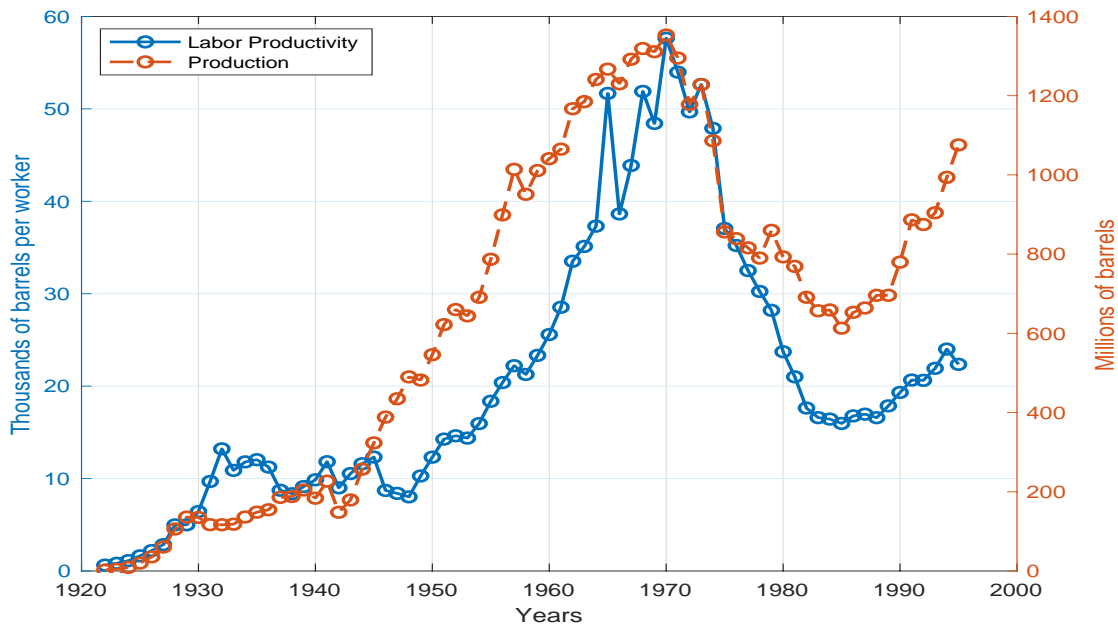
Notes: Production of crude oil is in millions of barrels. Labor productivity is the production of crude oil relative to employment in the oil sector. Source Baptista (1997).

productivity declined by 59 percent. The decline in economic activity associated with the nationalization process is substantial, crude oil production declined by 60 percent between 1970 to the mid 1980s.

Third, as Venezuela became a fundamentally oil economy—weakened by nationalization of the industry—it also became exposed to fluctuations in commodity prices. Crude oil prices were fairly stable until about 1974, around USD 2 per barrel, see Figure 6. Since then crude oil prices have fluctuated tremendously, reaching almost USD 60 in 1974 in real terms and USD 110 by 1980, then dropping to USD 20 in 1998, then up again to USD 100 in 2008, and then down by 2016 to lower than USD 40.[4]

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[4]It is interesting to note that ever since 1974 there have been several attempts to institutionalize macroeconomic stabilization funds in Venezuela with no success. This contrasts sharply with the success of Norway in dealing with the oil price booms. An important context may be that Norway was a much richer economy

Figure 6: Crude Oil Price
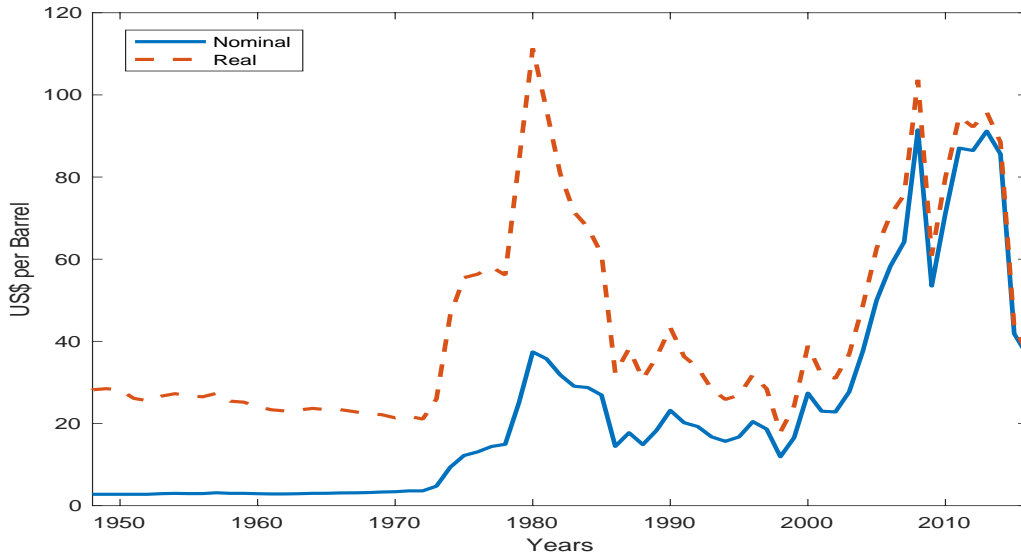
Notes: The price of oil is expressed in U.S.$ per barrel. Nominal refers to current prices, whereas Real refers to the price deflated by the U.S. Consumer Price Index (CPI). The data is from https://inflationdata.com/Inflation/Inflation_Rate/Historical_Oil_Prices_Table.asp.

There is a tight association between oil prices and real economic activity, documented in Figure 7. But the transmission of oil price shocks to economic activity is not through fluctuations in the oil industry as discussed earlier, instead it is through fiscal policy broadly defined. By law, the oil industry must supply all revenues in foreign currency to the Central Bank in exchange of domestic currency, and taxes are imposed on the industry that leave minimal margins for investment in the sector.

Fiscal Accounts   To illustrate the importance of oil revenues in the public finances of Venezuela, Figure 8 documents the ratio of government revenues to GDP from 1960 to 2012.[5]   The figure also shows the oil and non-oil components of government revenue. In

when it discovered oil in the 1970s.

[5]Notice that detailed fiscal data in Venezuela has not been published since 2012 and hence the series for government revenues and expenditures stop in 2012. Data for the total government deficit are estimates

Figure 7: Real GDP per Capita and the Oil Price
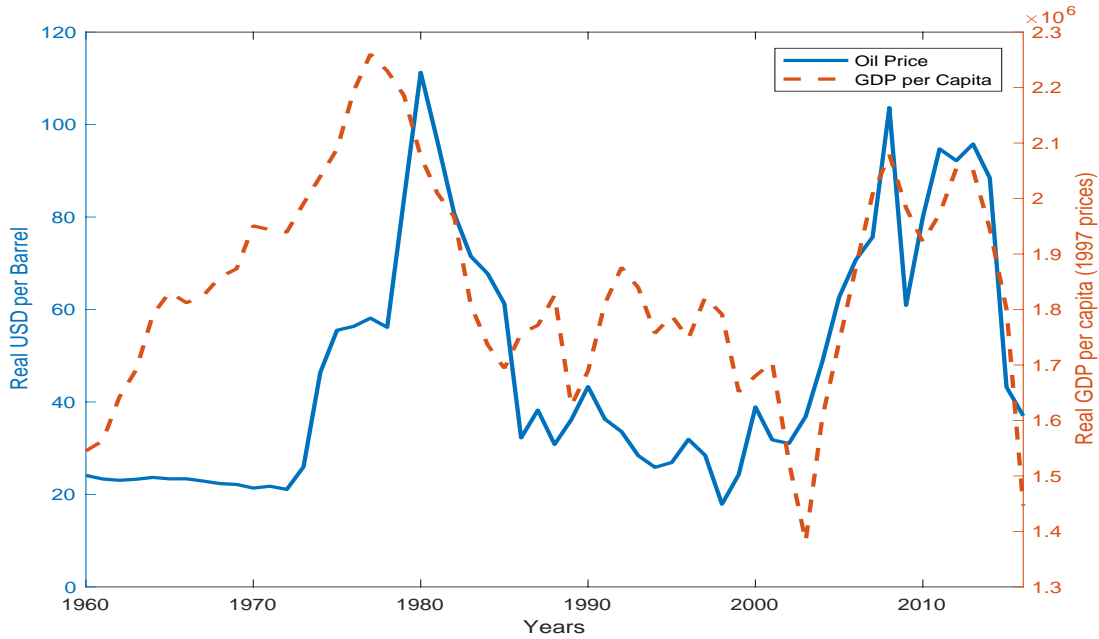
Notes: Real GDP per capital is in constant 1997 prices. The oil price is deflated by the CPI in the United States.

the 1960s government revenues were about 16 percent of GDP, but in 1974 as a result of the first big oil-price shock, revenues increased to more than 30 percent of GDP, and have oscillated around 25 percent since then, with positive and negative variations of more than 10 percentage points in a given year. On average oil represents around 60 percent of total government revenues. Figure 9 illustrates how oil revenues are related to government expenditures. Again, we see a substantial jump in government expenditures in 1974 and substantial fluctuations since then. Contrary to many other economies where government expenditures appear countercyclical, in Venezuela government expenditures are pro-cyclical.

from the IMF and other institutions. The primary deficit is estimated from the total deficit minus interest payments of public debt which is available for the entire period.

Figure 8: Government Revenue to GDP
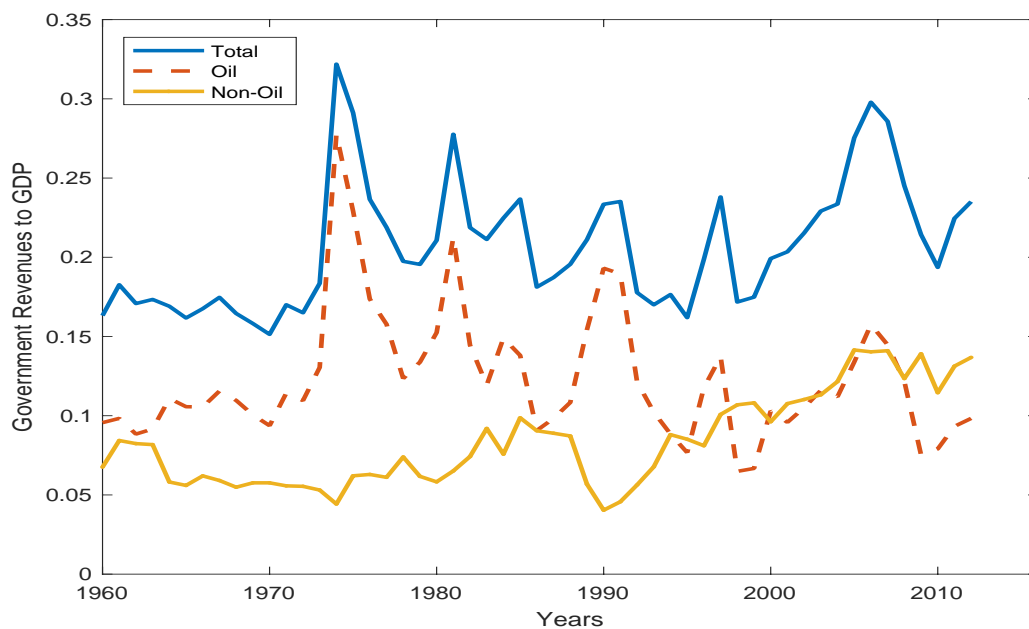
Notes: Revenues of the central government expressed as a percentage of GDP.

Figure 9: Government Expenditure to GDP
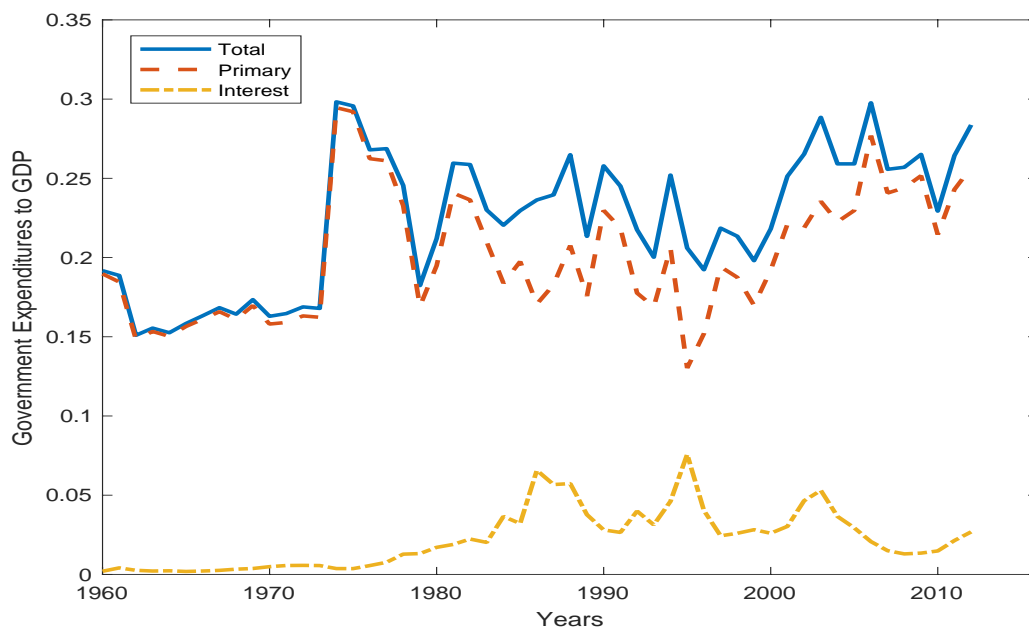
Notes: Expenditures of the central government expressed as a percentage of GDP. Primary expenditures exclude interest payments on public debt.

Public Debt   The larger income proceeds from oil generated a rapid increase in government expenditures and public expenditures more broadly defined. The public sector committed resources to large long-term expenditure projects such as the establishment of public enterprises in the mineral industry (aluminum, iron, steel, and coal). Heavy borrowing and the instability in oil revenues lead to a rapid rise in public debt. Figure 10 reports the nominal stock value of total public debt to GDP and the value of internal public debt as a proportion of GDP. Public debt includes the central government and public enterprises whose debt is guaranteed by the central government such as ALCASA, BAUXILUM, CADAFE, CAMETRO, EDELCA, among others. It does not include the oil company (PDVSA), the Central Bank (BCV), and other financial public enterprises. There is no indexed debt and no zero coupons, bonds pay coupons every semester. The public debt in Venezuela is classified in two forms, internal and external, essentially differing on whether the debt is denominated in local currency or in U.S. dollars. Traditionally, internal debt was contracted with domestic domestic residents and external debt with foreign residents, but this distinction has blurred over time as domestic residents have used external bonds as an instrument to bypass foreign exchange controls. I follow the fiscal budget convention of valuing the stock of external debt at the end of each year at the official exchange rate. But in this context, it is important to note that in some periods the wedge between the official and market exchange rates can be very large and, as a result, the ratio of debt to income can understate the real burden of the debt.

Figure 10 documents that between 1960 and mid 1970s, public debt was less than 10 percent of income and a large fraction of the total debt was internal debt. This characterization

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Figure 10: Public Debt to GDP Ratio (%)
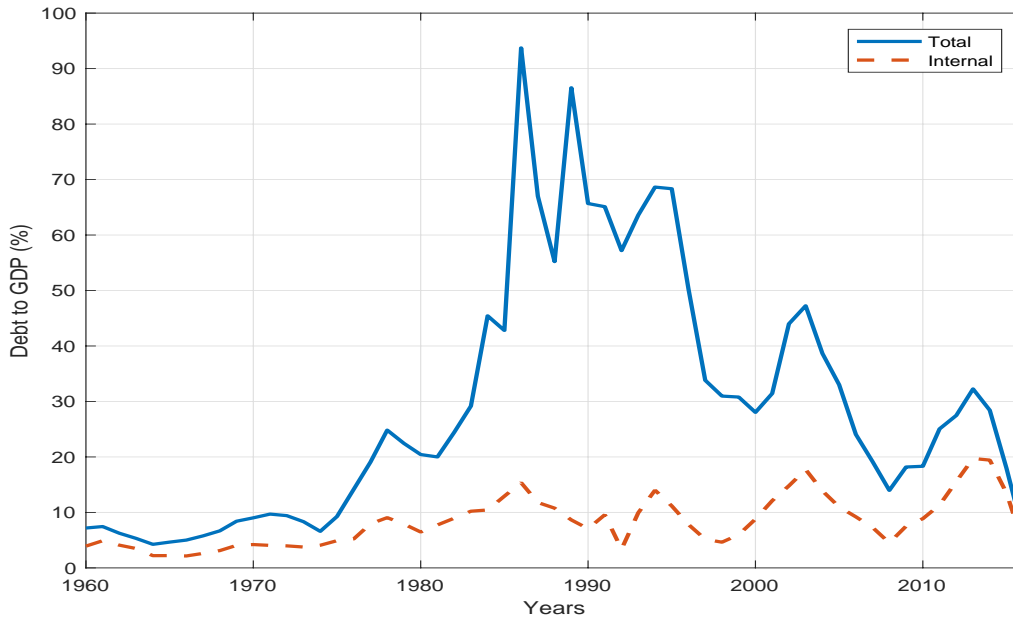
Notes: External debt is valued at the official exchange rate at the end of the period.

changed dramatically after the first oil-price shock, and the debt to income ratio increased to almost 100 percent in the mid 80s. Most of the increase is accounted for by external debt. To illustrate the importance of the exchange rate in the valuation of external debt, note that in the mid 80s if the market exchange rate is used instead of the official rate, the debt to GDP ratio reaches more than 150 percent in 1986; and similarly, at the end of 2016, the wedge between the black-market exchange rate and the official rate is a factor of 320-fold, which implies that the debt to income ratio exceeds 600 percent using the market rate instead of the 6.3 percent under the official rate. Movements in the real exchange rate also play an important role in accounting for the variation in the debt ratio. Figure 11 shows the role of the movement in the real exchange rate in debt ratios by reporting the debt ratio using a constant 1960 real exchange rate. An important portion of the run-up in the 80s is

Figure 11: Public Debt to GDP Ratio (%)—Constant Real Exchange Rate
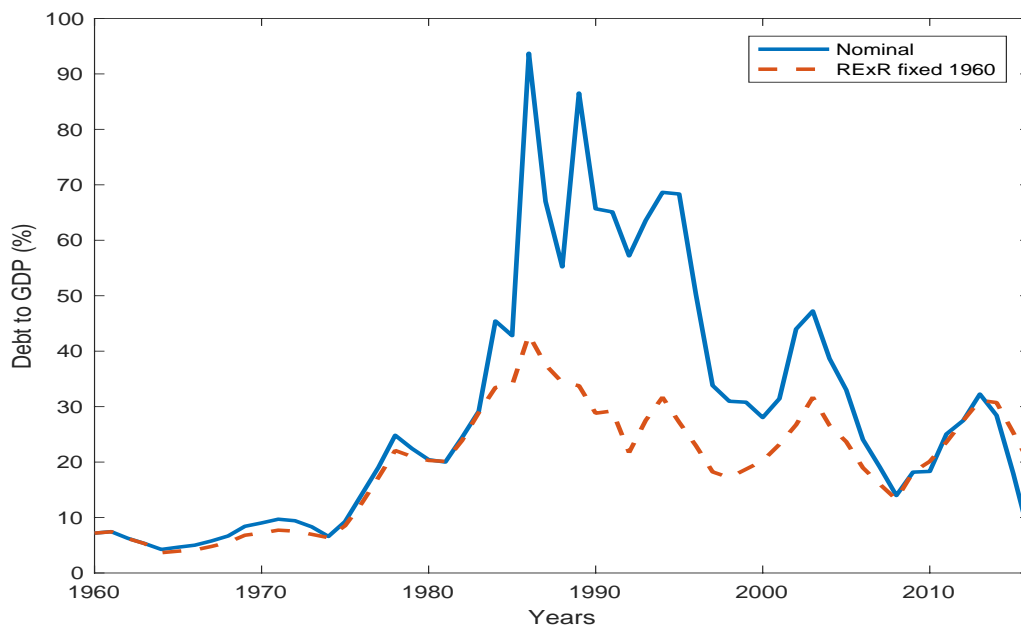
Notes: External debt is valued at the official exchange rate at the end of the period. Constant real exchange rate keeps the real exchange rate at the level in 1960.

associated with changes in the real exchange rate.

Just as with real GDP per capita, there is a close association between the increase in the external public debt and oil prices. Figure 12 documents the amount of external public debt in real U.S. prices of 1960 and real crude oil prices, with the substantial increases in oil prices in the mid 70s and 80s slightly preceding the sharp increase in real debt.

There is also a close association between the increase in public debt and international reserves. To put this link in context, Figure 13 documents the debt to GDP ratio net of international reserves. While the level of debt ratios is lower when taking international reserves into account, the increase in debt ratios between the mid 70s and mid 80s is almost as substantial when neglecting the increase in reserves during the period.

Figure 12: Real Public External Debt and Crude Oil Prices
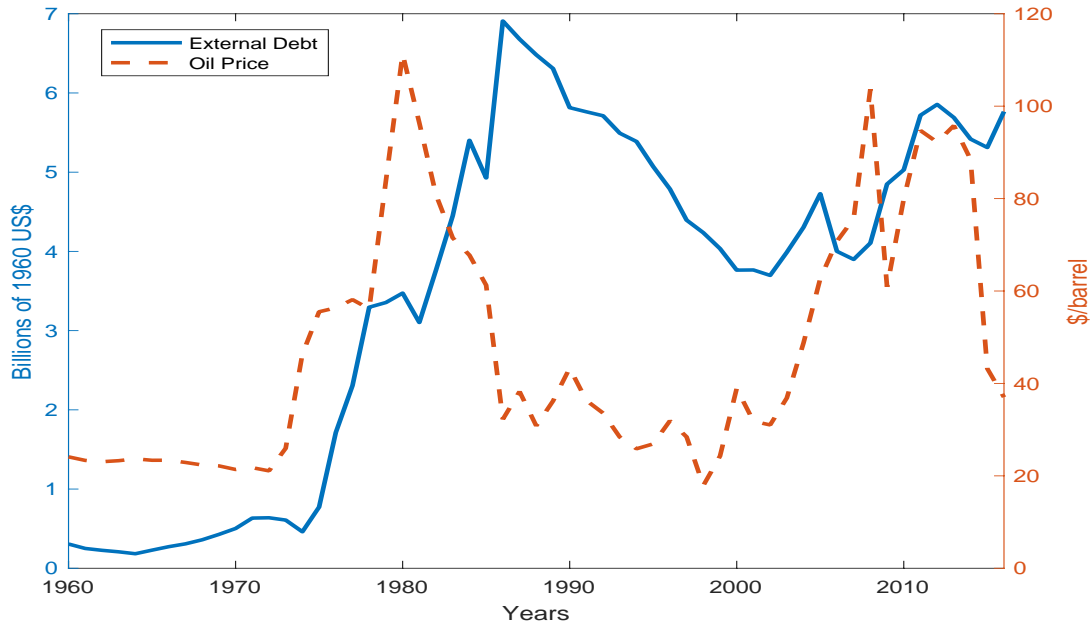
Notes: External debt is expressed in U.S.$ at constant prices of 1960. The crude oil price is also expressed in 1960 U.S.$ per barrel.

Figure 13: Public Debt to GDP Ratio (%)—Net of International Reserves
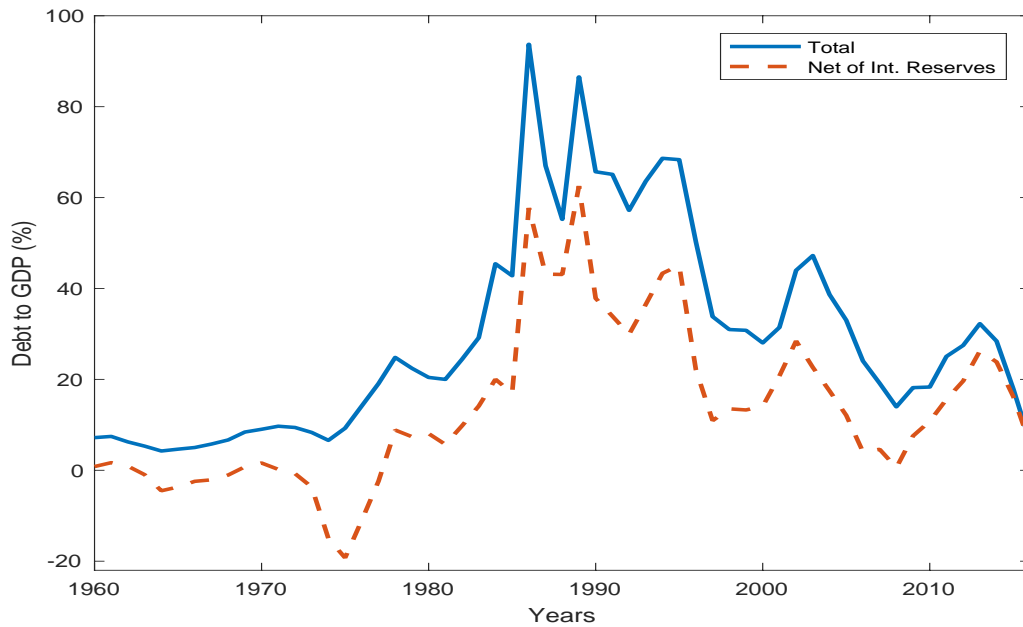
Notes: External debt is valued at the official exchange rate at the end of the period. Net of international reserves is internal debt plus external debt minus international reserves valued at official exchange rate.

In the 1960s and early 1970's external debt represented around 50 percent of international reserves, increasing to more than 100 percent in the 1980s. The external debt reached more than 2 times at the end of 1986 and more than 3.5 times by the end of 1988. This substantial run up in debt by the government affected government finances due to the heavy load that the payments of principal and to a lesser extent interest represented of the overall income. In particular, Figure 14 shows the amount of public debt service as a proportion of government revenue. Debt service includes all payments related to public debt, inclusive of principal, interest, and commissions. The service of the debt represented less than 5 percent of government revenues between 1960 and 1974, increasing systematically after 1974, reaching levels of 70 percent in 1986 and 90 percent in 1995. Similarly, Figure 14 also shows the burden of external debt service as a proportion of international reserves. The external debt service to international reserves level in 2016 is similar to that during the crises in 1989 involving a severe adjustment of the nominal exchange rate.

Exchange Rate Venezuela has experienced several exchange rate systems, from long periods of fixed exchange rates—in some cases with multiple rates—to some periods of floating exchange rate. It has also experienced long periods with capital controls. A key feature of the exchange rate market in Venezuela in the last 4 decades is the fact that most of the supply of foreign currency is in the hands of the Central Bank since the state oil company is required by law to sell all receipts in foreign currency to the Central Bank in exchange for local currency. This implies that even in periods of exchange rate flexibility, there is substantial discretion in the hands of public officials to determine exchange rates. Figure 15

Figure 14: Debt Service Ratios
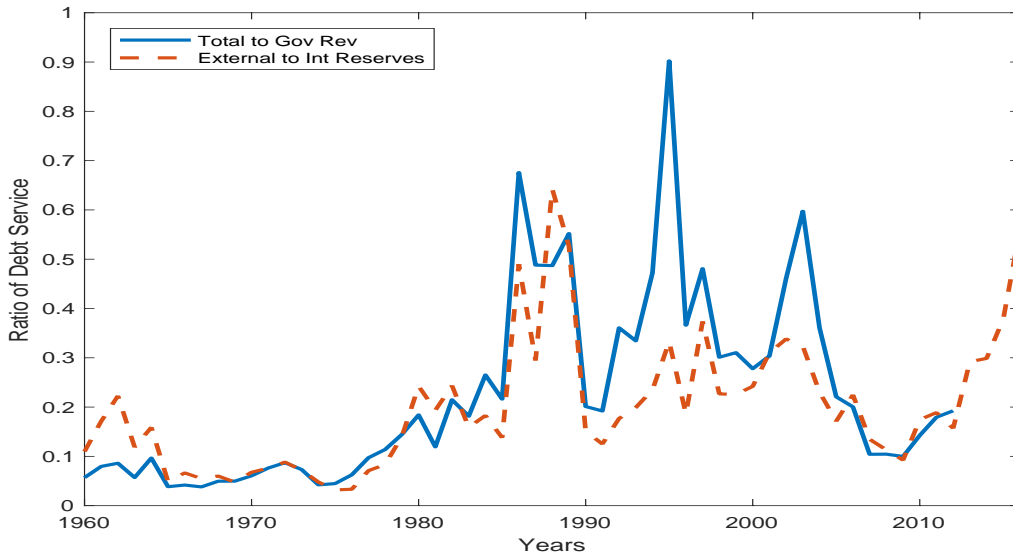
Notes: Debt service includes all payments related to internal and external public debt inclusive of principal, interest, and commissions. External debt service payments are valued at official exchange rates following the reporting of the interest payments in the government fiscal statistics. Total debt service is expressed relative to government revenues and external debt service is expressed relative to international reserves.

documents the lowest official nominal exchange rate at the end of the period between 1960 and 2016. This is the rate that prevails in fiscal accounts and in particular for the valuation of external debt and associated payments as well as for the conversion of foreign exchange revenues from oil exports. In some periods, this rate also prevails for imports of goods considered essential and the administration of this preferential rate has been an important source of corruption in the last 4 decades.

The two decades before 1960 represented a period of relative stability in foreign exchange for Venezuela with a unique and fixed exchange rate, as during this period capital flows were positive from many European immigrants and the cumulative increase in oil production. There were also positive capital flows from new oil concessions granted by the government due

Figure 15: Exchange Rate (Bs./US$)
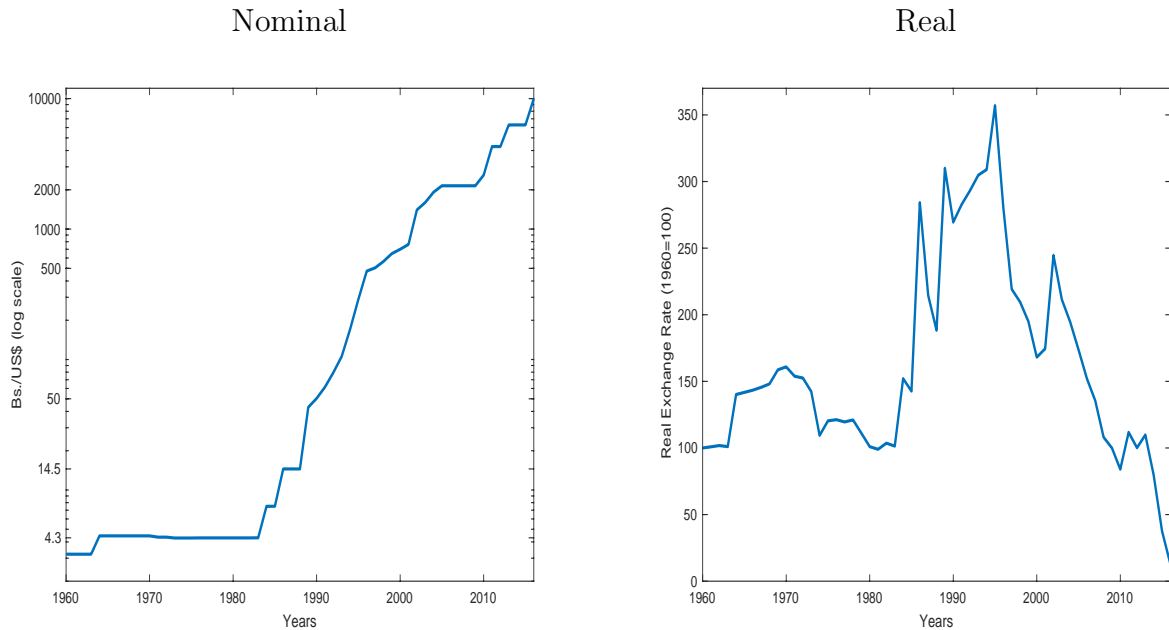
Nominal

Real

Notes: Official exchange rate in Bolivares per U.S. dollar. Exchange rate value at the end of the period. The real exchange rate is calculated as the nominal exchange rate times the price index in the U.S. relative to the price index in Venezuela and is normalized to 100 in 1960.

to the Suez canal crisis in 1956. But the re-opening of the Suez canal in 1958, the fall of the 10-year dictatorship, and uncertainty surrounded the new democratic government meant that capital flows reversed and in 1960, the government imposed the first capital controls, adopting a dual exchange rate. Pressure from negative capital flows meant that the government had to move the majority of imports to the higher exchange rate, effectively devaluating the currency. By 1964, the government abandoned capital controls by unifying the exchange rate at a higher rate of 4.45 Bolivares per U.S. dollar. From this point until February of 1983 there was a fixed exchange rate system with a single rate against the U.S. dollar. This rate changed marginally from 4.5 to 4.25 to 4.3 Bolivares per U.S. dollar at different times. In February of 1983, what it is now called "Viernes negro", the government was forced to recognize the misalignment in exchange rate valuation and devalued the exchange rate to

7.5 Bs./USD. The government maintained the fixed exchange rate system but established capital controls and multiple rates with some activities remaining at the rate of 4.3 Bs./USD.

From February 1989 to September of 1992 a floating exchange rate system was established. This period deserves special attention since at least from the official statistics 1989 looks like a dismal year: strong depreciation of the currency, high inflation, and economic contraction. A new government took office at this time and paradoxically this is the period where Venezuela had the most coherent economic policies in recent history. A key limitation in the implementation of the economic policies was that the government inherited essentially a broken economy from the previous government: liquid international reserves were essentially nil compared to the large short-term obligations due in that year and large deficits in fiscal and current accounts. This left no room for the new government to implement a more gradual adjustment in the severe mis-alignment of exchange rate. Similarly there were little manoeuvring in the adjustment of prices that were repressed for many years. In order to provide some viability to the program, Venezuela signed an agreement with the International Monetary Fund and in February 1990 signed a Brady plan. The Brady plan provided a restructuring of the debt, reducing the external debt by almost 30 percent, extending the maturity of the debt, and reducing the interest payments.

From 1994 to 2003, several systems were tried, multiple exchange rates with capital controls, exchange rate bands, but in February of 2003 a fixed exchange rate system with a single rate was established. Strict capital controls were also established. The rate was changed from time to time. An important even during this period was a banking crisis that started in January of 1994 and extended to 1996. There is debate about the origins of the crisis, but

political turmoil from two military coups in 1992, the eventual impeachment of the president in 1993, and a transition government with a newly elected government in 1994, provide a background for the events that unfolded. There was a loss of confidence in the banking system and a lack of coherent plant from the new government generated a remarkable drop in the demand for money and capital flight pressures which eventually lead to more than 17 failed financial institutions (representing 60 percent of assets of financial institutions and 50 percent of deposits). Conservative estimates put the total cost of bailouts at 10 percent of GDP, but more careful estimates put this figure at 20 percent of GDP, see for instance García et al. (1998).

In the last few years, multiple rates have been established, as well as different administrative units, all involved in corruption scandals in the allocation of foreign currency at preferential rates. The misalignment of the official exchange rate and the "black market" rate has been so large, reaching factor differences of more than 100 times between the market rate and the official rate—that the assignment of preferential dollars has been a contentious issue in Venezuela for more than a decade.

Money and Inflation   Figure 16 reports the yearly inflation rate and the yearly growth in the monetary base for the Venezuelan economy. It is important to note that in many respects the Venezuelan economy was during the sample period (and continues to be) a heavily regulated economy, including the implementation of price controls, specially for basic food and other essential products, interest rates, exchange rates, among many other prices. Specifically related to inflation, there have been many episodes where price controls

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Figure 16: Inflation and Money Growth (%)
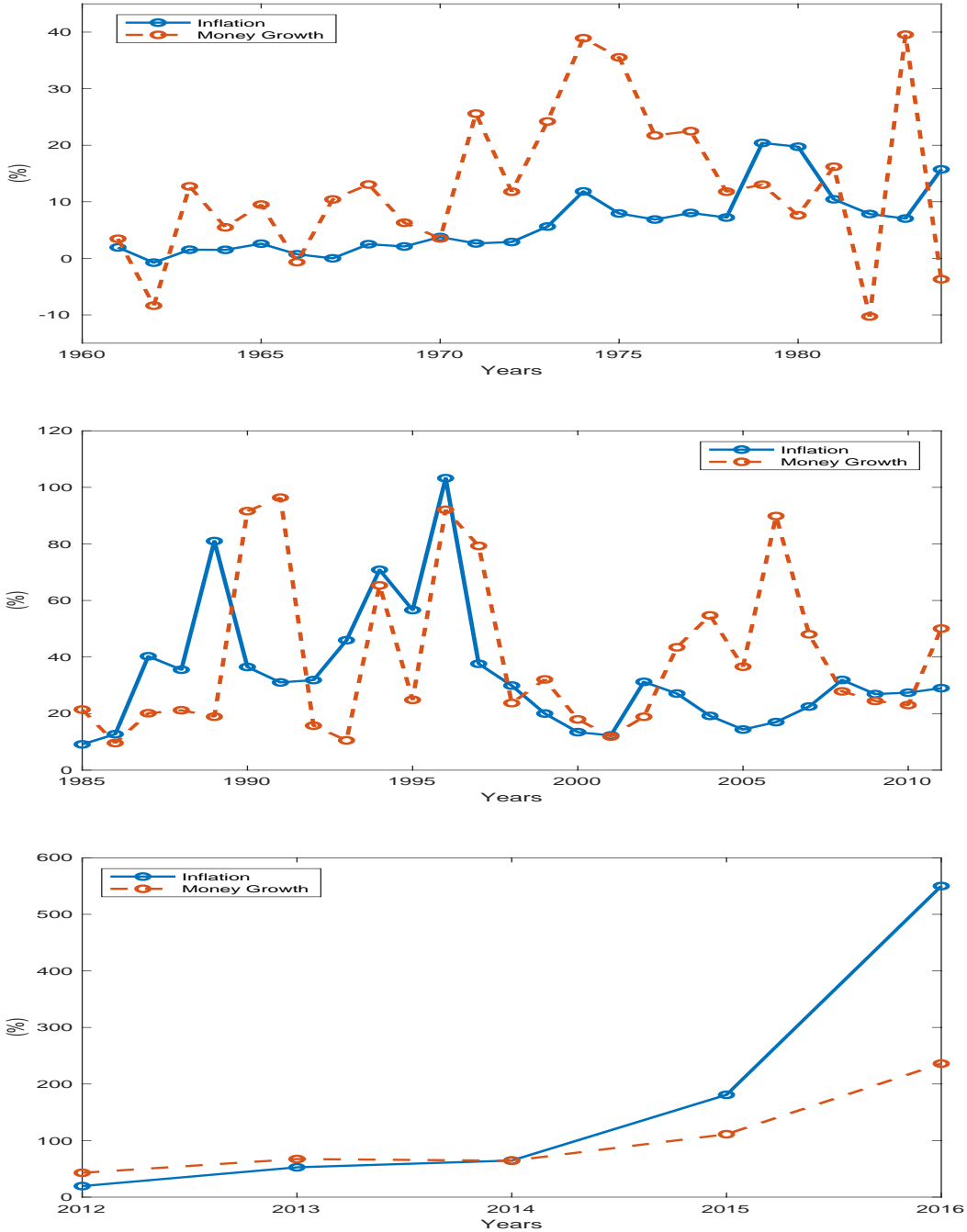
Notes: Inflation rate is the percentage change from the Consumer Price Index. Money growth is the percentage change in the Monetary Base.

originated severe shortages of essential food products in supermarkets. As a result, the spikes in inflation rates in some years have more to do with relaxation of price controls (repressed inflation) than to current monetary and fiscal policies.

There are two noticeable features of Figure 16. First, from 1960 to about 1984, the pattern of inflation resembles that of the United States, the country with which Venezuela has the highest share of imports and the country against which Venezuela has fixed its currency for long periods of time. Second, between 1985 and 1998 inflation has been persistently above 30 percent (in some years more than 100 percent); and between 1999 and 2010 inflation has been persistently below 30 percent (even below 20 percent in some years); but starting in 2012, inflation and money growth have been on a different scale, reaching more than 200 percent in 2016. Starting in 2012-13 and accelerating since then is a substantial process of money growth and inflation, reaching monthly rate changes of more than 20 percent by the end of 2016.

3 Analysis

3.1 The Budget Equation

Since there are two main classifications of debt for Venezuela, internal and external, I modify the consolidated budget equation in Chapter 2 to incorporate those two classes of debt. Indexed debt has not been used in Venezuela. The lack of data on the maturity structure of

debt prevents a disaggregated analysis. However, while in some periods short term debt was used, the majority of debt issuance was long term (more than a year). In addition, available data from the World Bank's World Debt Tables indicates that the average maturity of Venezuelan external debt was fairly constant at around 10 years.

As discussed in Chapter 2, the consolidated budget constraint can be written in terms of real GDP and in differences as follows:

$$
(\theta_t - \theta_{t-1}) + \xi_t(\theta_t^* - \theta_{t-1}^*) + (m_t - m_{t-1}) + m_{t-1}\left(1 - \frac{1}{g_t \pi_t}\right) =
$$
$$
d_t + t_t + \theta_{t-1}\left(\frac{R_{t-1}}{g_t \pi_t} - 1\right) + \theta_{t-1}^*\left(\frac{r_{t-1}^*}{g_t \pi_t^W} - 1\right), \tag{1}
$$

where θ is real internal debt to real GDP, θ^* is real external debt to real GDP, ξ is the real exchange rate calculated as $(E \cdot P^W)/P$, m is the ratio of monetary base to GDP, d and t are the primary deficit and transfers to GDP, π and π^W are the gross domestic and imported inflation, and g is the gross real GDP growth. The first four terms in the left hand side of equation (1) represent the sources of financing for the consolidated government: internal debt, external debt, seigniorage, and the inflation tax; whereas the four terms in the left hand side represent the obligations: the primary deficit, transfers, internal debt payments, and external debt payments.

Note that transfers t is an important component of the consolidated budget and represents more than just extraordinary transfers. Part of these transfers include discounted debt issuance or re-purchases that should be included in R and r. It also includes a wide array of transfers between the central government and the non-financial public sector. Lack of disag-

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Table 1: Accounting Results across Sub-periods

	1961-1974	1975-1986	1987-2005	2006-2016	1961-2016
Sources:					
(1) Internal debt	0.01	0.64	-0.04	-0.67	0.01
(2) External debt	-0.02	3.11	-1.73	-0.26	0.03
(3) Seigniorage	-0.04	0.13	-0.07	1.50	0.26
(4) Inflation tax	0.57	1.43	2.07	7.04	2.41
Total	0.53	5.31	0.23	7.61	2.71
Obligations:					
(1) Internal return	-0.17	-0.46	-1.14	-2.10	-0.90
(2) External return	-0.12	0.97	0.66	0.42	0.48
(3) Primary deficit	-0.91	-0.45	-0.86	3.61	0.03
(4) Transfers	1.71	5.25	1.57	5.68	3.10
Total	0.53	5.31	0.23	7.61	2.71

Notes: Numbers represent percentage points of items in equation (1).

gregated data prevents me from allocating these individual components into the appropriate terms in the budget equation. The approach that I follow is to calculate these transfers as a residual, essentially the residual that validates the budget equation every period.

3.2 Accounting Results

In each year, I compute the terms in equation (1). Table 1 reports averages of the sources and obligations across sub-periods and for the sample period between 1961 and 2016.

Sources of Financing For the entire period, average financing needs are 2.7 percentage points, but this magnitude changes dramatically across sub-periods. From 1961 to 1974, the financing needs were small, an average of 0.5 percentage points (p.p.) and all of these needs

were covered by the inflation tax. Note that on average seigniorage was slightly negative (-0.04) and that inflation was moderate despite substantial money growth (recall Figure 16). Strong positive growth in real GDP was also a factor. The period from 1975 to 1986 represents a major change in the financing needs, with an average of more than 5 p.p., with two thirds of these needs financed with external debt issuance. The inflation tax accounted for a much smaller proportion than in the previous period but nevertheless still accounted for more than 25 percent of the overall needs. In the period from 1987 to 2005, financing needs declined substantially on average relative to the previous period to 0.2 percentage points. However, there are important variations across years with increases of up to 9 p.p. in 2003 and decreases of -8 p.p. in 1992. The inflation tax represented the only positive source of financing on average in this period, more than 2 percentage points. The period between 2006 and 2016 represents a return to large amounts of financing needs on average, with 7.6 percentage points. Note that this period, as it was the case in 1975-86, is a period of a substantial and prolonged boom in oil prices. But differently from the earlier period, external debt is not an important source of financing, instead seigniorage and especially the inflation tax, are the sources accounting for all of the financing needs, with 1.5 and 7 percentage points respectively.

Figure 17 reports the time path in each year for each of the four terms on the left hand side of equation (1). Panel A and panel B report the change in internal and external debt ratios, whereas panels C and D report seignorage and the inflation tax. While external debt represents an important source of variation of funds in some periods, seigniorage and especially the inflation tax are the most important systematic sources of funds in the sample

period.

Obligations I now analyze the elements accounting for the changes in financing needs. Overwhelmingly, real transfers t_t are the most important obligation accounting for all of the financing needs of the government. On average, they represent more than 3 percentage points, while the primary deficit was negligible on average. Across sub-periods, during the 1961 to 1974 period, 1.7 p.p. of transfers were compensated by a close to 1 p.p. of government surpluses and negative returns to debt of 0.3 p.p. to reduce the overall financing needs to only 0.5 p.p. (See again Table 1.) In the 1975 to 1986 period, the large financing needs of 5 p.p. points are accounted for by transfers (5.3 p.p.) and payments on external debt (1 p.p.) and partly mitigated by primary surpluses of the government (-0.5 p.p.) and negative real internal debt payments (-0.5 p.p.). During the 1987 to 2005 period, the much smaller financing needs are explained by smaller transfers (1.6 p.p. versus 5.3 p.p. in the previous period), primary surpluses (-0.86 p.p.), and roughly offsetting real returns on government debt. For the 2006-2016 period, the much larger financing needs of 7.6 p.p. are accounted for by transfers of 5.7 p.p. and primary deficits of 3.6 p.p., with real returns to debt mitigating the burden of obligations.

Figure 18 reports the time path of each of the terms on the right hand side of equation (1). Note how real returns on external debt are substantial burdens during the 1980s, 1990s, and early 2000s, with the Brady plan signed in 1990 providing an important relief in terms of real payments of external debt. Note also how primary deficits are not a systematic obligation component, with most periods being a surplus, a pattern that has clearly changed in the late

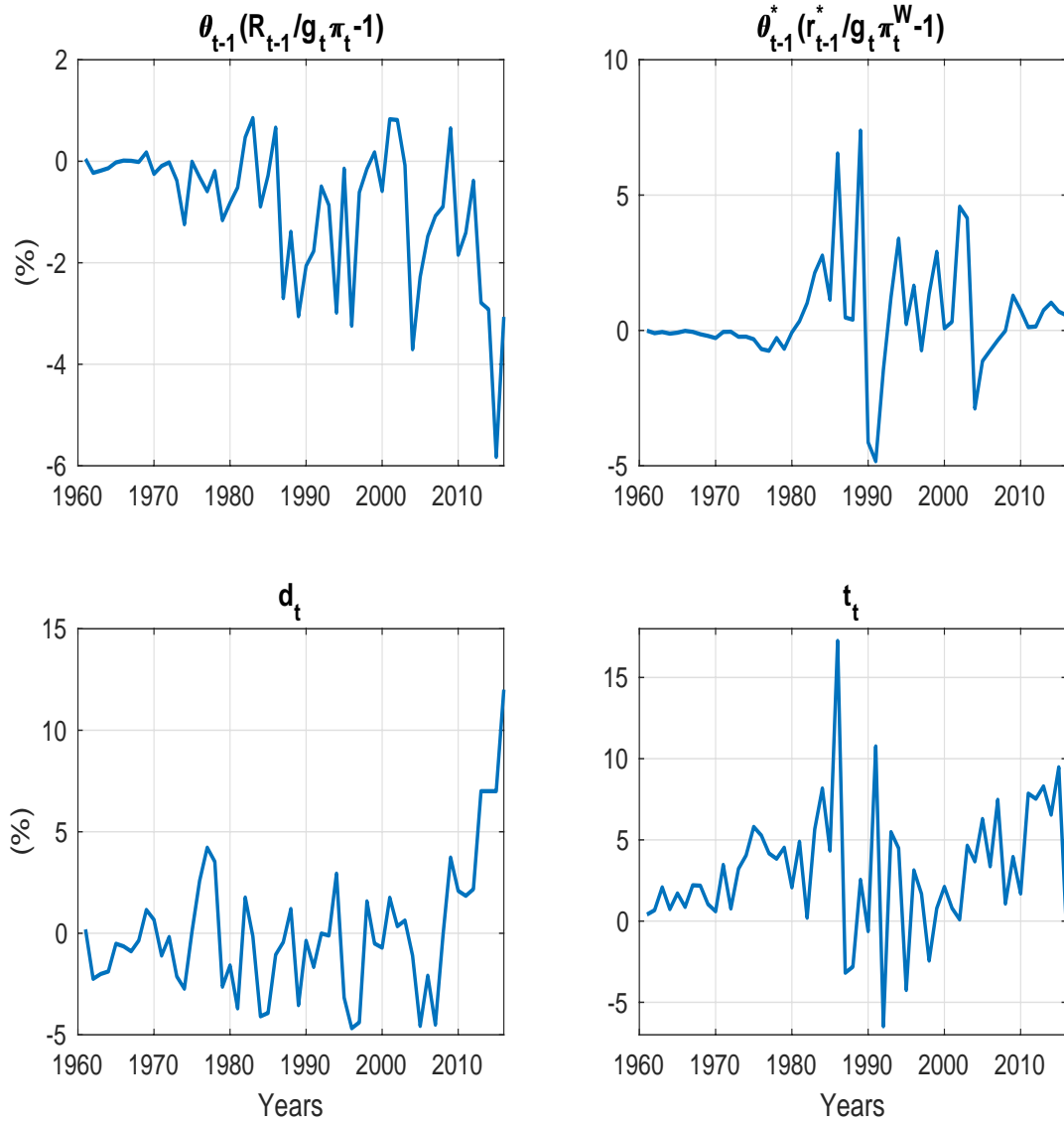Figure 17: Sources of Consolidated Government Funds
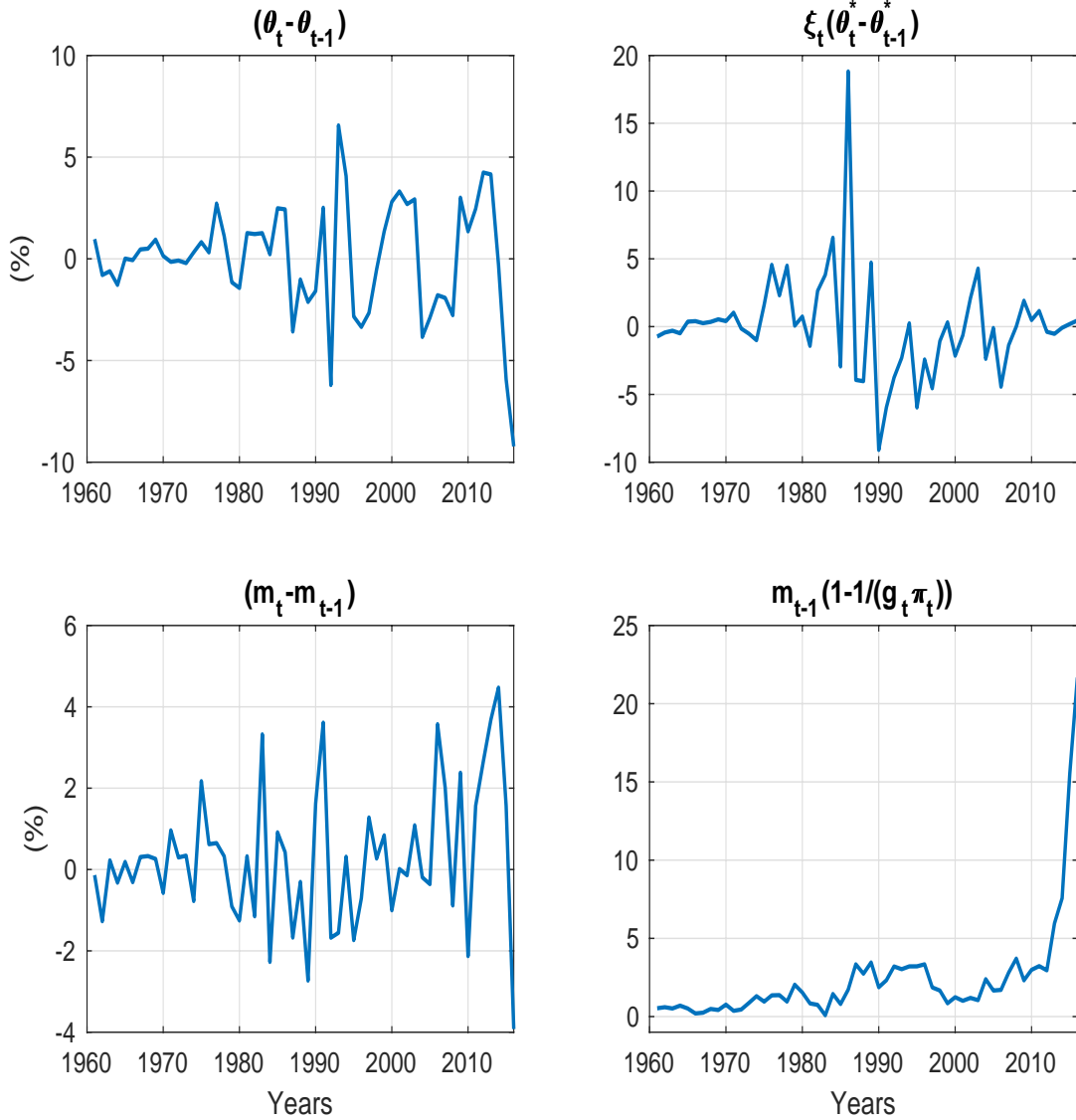
Notes: The figure documents each element of the left hand side in equation (1). Panel A is the period-by-period change in the ratio of real internal debt to real GDP ($\theta_t - \theta_{t-1}$). Panel B is the change in real external debt to real GDP using the real exchange rate $\xi_t(\theta_t^* - \theta_{t-1}^*)$. Panel C is seigniorage ($m_t - m_{t-1}$). Panel D is the inflation tax $m_{t-1}\left(1 - \frac{1}{g_t \pi_t}\right)$.

2000s until today, with primary deficits becoming a systematic and substantial component of overall obligations of the government. The figure also shows how real transfers are the large and systematic component accounting for most of the financing needs.

Discussion   The last period, from 2006 to 2016 deserves special discussion. This is because the crisis that is unfolding is much more closely aligned with the typical crises in Latin America where the logic of the budget accounting in Chapter 2 holds, that is, the link between systematic government deficits, the eventual inability to finance those deficits, and subsequent seigniorage and inflation. This is also a period where distortions to economic activity have accumulated since the late 1990s and were drastically expanded during this period of time. There are several aspects of the economic environment that are worth mentioning. First, there is extreme intervention of the public sector in economic activity through expropriation of private enterprises and government intervention of good's distribution systems. Decline in private production and the failure of expropriated enterprises have exacerbated the dependance of the economy on imports. Second, this is a period of rising debt, both internal and external, with the internal debt becoming the majority of new debt as external sources of financing have become more limited towards the end of the period. Third, there is a decline in the transparency of debt statistics, as a substantial portion of new debt is not accounted in official statistics, for instance, loans in exchange of future oil (e.g. China) and newly rising debt of the state-owned oil company (PDVSA). Fourth, there was a partial reform of the Central Bank allowing for the discretionary use of foreign reserves. Fifth, there is a changing role of PDVSA's activities involving large transfers via Misiones and Fonden

Figure 18: Contributions to Consolidated Government Obligations

Notes: The figure documents each element of the right hand side in equation (1). Panel A is the period-by-period real interest payments of internal debt $\theta_{t-1}\left(\frac{R_{t-1}}{g_t \pi_t} - 1\right)$. Panel B is the real interest payments of external debt $\theta_{t-1}^*\left(\frac{r_{t-1}^*}{g_t \pi_t^W} - 1\right)$. Panel C is the real primary deficit to real GDP d_t. Panel D is the ratio of real transfers to real GDP t_t.

Figure 19: Primary Government Deficit and Transfers to GDP (%)
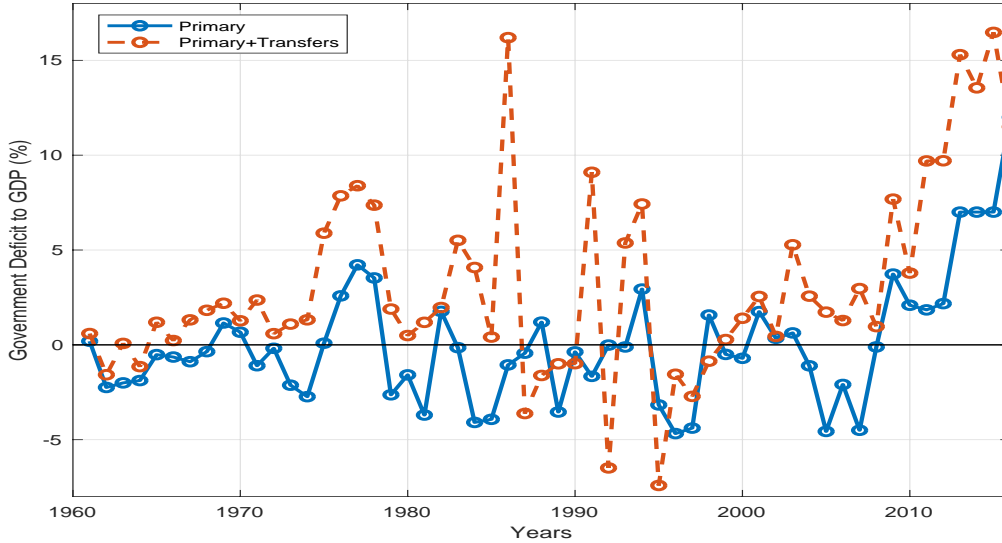
Notes: Positive numbers represent a deficit and negative numbers a surplus. The primary deficit is the total deficit minus the interest payments of public debt. Primary deficit for 2013-2016 are estimates. Transfers are the residual estimates from the accounting.

for social programs; in addition, the government intervention in the company's activities has meant shrinking production capacity and cash flows. As a consequence of these character-istics, and despite one of the largest oil-price booms in recent history, the government has found it harder to obtain new loans with mounting fiscal deficits, retorting to much more substantial seigniorage. This is a period also where real GDP per capita and labor produc-tivity are contracting, for example, real GDP per capita is essentially the same in 2013 as in 2007, and declined between 2013 to 2016 by 30 percent.

As discussed earlier (see Table 1), seigniorage and the inflation tax are the only two positive sources of financing during the 2006 to 2016 period. The much larger financing needs in this period—of 7.6 percentage points—are accounted mostly by the inflation tax. Primary deficits and transfers account for all the obligations. But in particular, note that unlike in

the other sub-periods, primary deficits represent a substantial 3.6 percentage points, more than 45 percent of the financing needs of the period. This changing role of primary deficits starting around the mid 2000s is illustrated in Figure 19, documenting the primary deficit and the primary deficit plus transfers as a proportion to GDP over time. Between 1961 and 2005, primary deficits are not a systematic component of the obligations of the government since in average represent -0.8 percentage points (a surplus). During this period of time, deficits are important in some short-lived periods in the late 1970s and around the 2000s. But the picture looks different in the mid 2000s where the government primary deficits have become systematic and large and are exacerbated including transfers. The strong financing needs generated during the 2006-2016 period and the restricted ability to borrow in domestic and international markets has implied that the government turned more systematically to seigniorage and inflation as the primary sources of financing.

Counterfactual Transfers Transfers are an important component of the government accounts and help account for much of the financing needs of the government. But as depicted in Figure 18, Panel D, there is a lot of volatility in the magnitude of transfers, making it difficult to appreciate the cumulative effect of transfers on the dynamics of debt. In order to assess the impact of transfers on total debt, I make a counterfactual simulation of debt assuming that transfers are zero during the entire period. I use the government budget equation (1) to solve for the amount of debt (or sovereign fund) that would result as a consequence of no transfers, assuming all the other variables are the same (seigniorage, inflation tax, returns to debt, and primary deficit). For this counterfactual simulation I

Figure 20: Cumulative Transfers and Counterfactual Debt
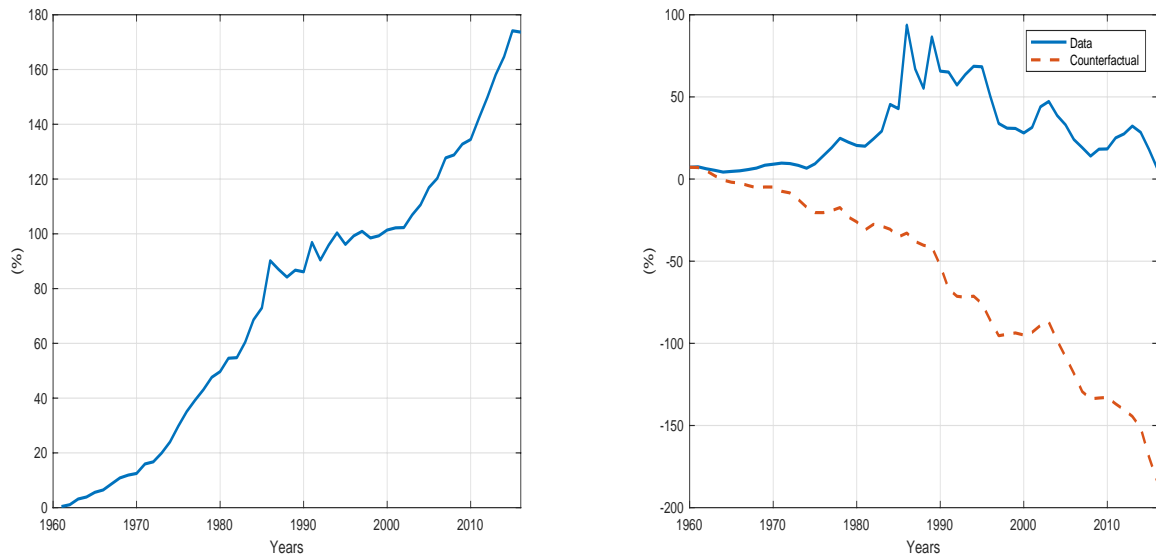
Notes: Panel A reports transfers accumulated over time. Panel B reports the debt to GDP ratio in the data (solid line) and in the counterfactual situation of no transfers from equation (1), other things equal (dashed line).

assume that the composition of debt between internal and external remains the same as in the actual data in each period. Figure 20, Panel A, reports the amount of cumulative real transfers as a fraction of GDP (the cumulative of t_t); whereas Panel B reports the debt to GDP ratio in the counterfactual and in the data. Because in Venezuela the needs of financing arise from large transfers in the late 1960s and early 1970s, without transfers, the debt would have quickly turned into positive assets representing more than 180 percent of GDP by 2016. This is because the cumulative effect of transfers is very large and rises quickly starting in the mid 1970s as documented in Figure 20, Panel A. This implies that debt quickly transforms into a positive sovereign fund of substantial size, as illustrated in Figure 20, Panel B, reaching 50 percent of GDP by 1990, 100 percent of GDP around 2000, and more than 180 percent of GDP in 2016, just short of the 200 percent sovereign wealth

fund of Norway as fraction of their GDP.

4   Conclusions

I documented the salient features of monetary and fiscal outcomes for the Venezuelan economy during the 1960 to 2016 period. Using the consolidated government-budget accounting framework of Chapter 2, I assessed the importance of fiscal balance, seigniorage, and growth in accounting for the evolution of debt ratios. I found that extraordinary transfers, mostly associated with unprofitable public enterprises, and not central government deficits, account for the increase in financing needs in the recent decades. The inflation tax has been a consistent source of financing needs, especially in the last 10 years, with increases in debt ratios being particularly important in some periods. Interestingly, debt exposure has increased in periods of oil-price booms.

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