

Taxation and Capital Flight in Cameroon

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BY

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Abstract

This article presents a new facet of the relationship between natural resources and capital flight. The objective of the study is to analyse the role played by regulations on natural resource exploitation in the level of capital flight in Cameroon. This objective allows us to explore the impact of tax reforms on the level of capital flight and, consequently, on the volume of rent derived from natural resource exploitation. An analysis of the historical evolution of Cameroon's tax system and capital flight between 1985 and 2008 has highlighted a series of reforms to the tax system (oil and forestry) that took place in Cameroon in 1999. The synthetic control method developed by Alberto Abadie was used to examine the impact of these reforms on the level of capital flight in Cameroon. The main finding was that improvements to the tax regime for natural resource exploitation led to a substantial average decline in the level of capital flight from the country. In view of this finding, we suggest that the Cameroonian government place particular emphasis on the application of the current tax regime and explore the avenues for optimisation proposed in the rest of the study.

Keywords: *capital flight, natural resources, tax regime, synthetic control*

1. Introduction

Achieving sustainable development is one of the major goals of all nations around the world and, clearly, the ideal to which developing countries aspire. To achieve this goal, nations around the world, and in Africa in particular, must invest in key sectors such as basic infrastructure (roads, railways, and ports, power stations, water supply services); food security (agriculture, rural development); adaptation to climate change and mitigation of its effects; and health and education. Such investments require significant financial resources, which in most cases far exceed the internal resources available to States.

Cameroon is a perfect example of this. A Central African country with a population of around 25 million and an area of 475,650 km², Cameroon is classified as a lower-middle-income country. However, since gaining independence in 1960, the country has faced growing financing needs, mainly due to its choice of an infrastructure-based development policy, compounded by commodity price shocks and a large external debt burden. Indeed, the World Bank estimates that the country's overall annual investment requirement averages \$476.8 million, or a total of \$9,536 million over 20 years. To be ranked among the emerging countries by 2035, the country's investment rate should reach 30% of GDP by that date (Nkwatch, 2016). However, the huge financing gap facing the country contrasts with its considerable endowment of natural resources.

In fact, the country is considered the eighth largest oil producer in sub-Saharan Africa. The country also has a wide range of natural resources, including timber, bauxite, iron, cobalt, nickel, manganese, diamonds and natural gas. However, timber and oil currently account for at least 90% of the revenue derived from the exploitation of natural resources (UNCTAD, 2021). More specifically, Cameroon recorded an average annual revenue of \$1.01 billion between 1970 and 2000 (WB, 2021). From 2000 to 2018, this revenue rose to an average of \$2.10 billion. This represents a total of \$40.4 billion over the last 20 years (WB, 2021). This revenue represents a considerable sum, significantly higher than the World Bank's estimated financing needs. It is therefore difficult to explain the huge financing gap facing the country, given that it also benefits from financial support such as official development assistance and debt relief.

However, the scale of the financing gap makes sense when one considers that the country's abundant natural resources contrast with high capital flight. Cameroon is considered the 10th country in sub-Saharan Africa with the highest level of capital flight (Boyce and Ndikumana, 2012). From 1970 to 2000, the country recorded an average capital flight of \$1.28 billion. This figure rose to an average of \$1.35 billion over the last decade, representing a cumulative loss of \$57.1 billion since the 1970s. Capital flight is therefore a phenomenon of considerable magnitude that has persisted in Cameroon for decades.

A considerable body of literature has been produced on the causes and origins of capital flight. Authors have focused on external debt (Boyce, 1992; Ndikumana and Boyce, 2003; Choong et al., 2010); investment and taxes (Pastor, 1989; Ajayi, 2012; Lawal et al., 2017); inflation and exchange rates (Cuddington, 1986; Kazue, 2013); foreign direct investment (Kant, 1996; Gbadebo and Mohammed, 2014; Ndikumana and Sarr, 2016); transaction fraud (Mpenya et al., 2016), terrorism (Efobi and Asongu, 2016); political risk, political structure, democracy or corruption (Cheung and Qian, 2010; Brada et al., 2011; Liew et al., 2016; Gunter, 2017); financial liberalisation and interest rates (Yalta and Yalta, 2012; Brada and Vuksic, 2013; Kunieda et al., 2014).

In our view, the controversies raised in countries rich in natural resources that are working to attract capital while facing high capital flight call for reflection on the existence of a direct relationship between natural resources and capital flight. This reflection has been the focus of a small number of recent studies (Ljungberg and Friedl, 2014; Kwaramba et al., 2015). Almost all of these studies are limited to an econometric analysis of the causality or impact of a natural resource indicator on capital flight. Unlike these studies, this study seeks to identify the factors or mechanisms through which natural resources determine capital flight. Such identification has the advantage of refining policy implications for better decision-making.

The issue addressed in this study is set in the context of natural resources. More specifically, we postulate that regulations governing the exploitation of natural resources are a key determinant of capital flight. In almost all countries, the constitution grants the state ownership and management of natural resources. The exploration of extractive resources is very costly and sometimes unsuccessful. Similarly, the exploitation of natural resources in general requires significant investment and a level of technology that most developing countries, such as Cameroon, do not have. They therefore call on foreign multinationals specialising in the exploitation of natural resources. This exploitation is governed by a set of fiscal policies that play an important role in determining the level of rent derived from natural resources. We also argue that the legislation governing resource exploitation is an important channel through which natural resources fuel capital flight. Consequently, improving this legislation would lead to a reduction in capital flight on the one hand and an increase in income from natural resource exploitation on the other.

This assumption is based on a number of observations. Countries such as Cameroon, which require the services of foreign multinationals, face a dilemma. They must find a way to maximise revenue from the exploitation of their natural resources while creating an attractive environment for foreign investors in the sector. Given the level of dependence of countries on revenues from natural resources, some of them tend to ease their tax regime in order to attract as much FDI as possible. In doing so, they reduce their profit margin while creating a framework conducive to capital flight. Conversely, extreme tightening of the tax regime is limited by the states' approximate technical knowledge and a possible crowding-out effect on all FDI in the sector. It therefore appears essential for each country to define the degree of rigidity of its tax regime according to its specific characteristics (level of dependence on resources, volume of natural resources, level of technological knowledge, etc.).

Taking into account the heterogeneity of tax regimes between countries and the need for precision in terms of involvement policy, the study focuses on one country. Cameroon was chosen because it presents almost all of the controversies highlighted above. In addition to meeting the above criteria, the country has undergone a relatively concentrated period of major changes to the regime governing the exploitation of natural resources.

Formally, the objective of this study is to analyse the role of the tax regime for natural resource exploitation on the level of capital flight.

Based on this overall objective, we formulate the following hypotheses:

- *Natural resources determine the level of capital flight from Cameroon;*

- *Optimising Cameroon's tax regime would reduce the level of capital flight from the country.*

To test these hypotheses empirically, we adopt the synthetic control method. Developed and formalised by Abadie and Gardeazabal (2003) and Abadie et al. (2010), then further developed by Abadie et al. (2015) and Abadie (2021), this quasi-experimental technique makes it possible to highlight the effect of a policy or event on a variable of interest within a small number of aggregated units (city, region or country). This method has been used, among other things, to assess the economic effects of conflict and terrorism (Abadie and Gardeazabal 2003; Bilgel and Karahasan 2017); the effect of California's anti-smoking programme on tobacco consumption (Abadie et al, 2010); the long-term economic impact of a natural disaster (Coffman and Noy 2012); the economic impact of German reunification in 1990 (Abadie, Diamond and Hainmueller 2015); and the local economic impact of the presence of military personnel (Zou, 2018). Among the studies reviewed, we note that the study by Boiciuc and Ortan (2020) is most similar to our analysis. They use the synthetic control method to assess the effect of fiscal policy on Romania's GDP. Considering, on the one hand, the absence of a rigorous database on the quality of countries' tax systems and, on the other hand, the specific nature of the

measures implemented by Cameroon over the period under review, the synthetic control method seems the most appropriate for highlighting the capacity of the tax system to reduce the level of capital flight while improving the volume of rent derived from the exploitation of natural resources.

The rest of this study is organised into seven sections. Section 2 reviews the literature on the determinants of capital flight. Section 3 highlights the extent of capital flight in Cameroon. Section 4 traces the emergence and evolution of capital flight to explain its extent and persistence. Section 5 examines the main oil and forestry reforms of the Cameroonian tax system. Sections 6 and 7 present the methodological framework of the study and the results of the analysis, respectively. Section 8 serves as a conclusion, followed by suggestions and recommendations.

2. Literature review

A significant body of literature has been produced on capital flight. Most of this literature focuses on analysing the determinants of the phenomenon. Other work is divided between constructing a unit of measurement for capital flight and analysing its effects on certain macroeconomic variables. For the sake of brevity, only the review of the determinants of capital flight will be discussed in this section.

Several variables have been highlighted to explain capital flight. These include external debt, institutional factors, natural resources, FDI, and financial liberalisation.

2.1. Debt:

Concerning debt, Cuddington (1986) analyses the determinants of capital flight in a panel of four Latin American countries (Argentina, Mexico, Uruguay, and Venezuela). The author shows that domestic inflation, exchange rate overvaluation, public debt diversion, and past capital flight are the factors that significantly influence capital flight.

A few years later, Boyce (1992) analysed the relationship between capital flight and the level of external debt in the Philippines over the period from 1962 to 1986. The author concluded that there is a bidirectional causal link between capital flight and the level of debt. Thus, while external debt is a determining factor in capital flight in the Philippines, capital flight had a significant and positive impact on the country's debt level during the period studied. According to the author, we are therefore witnessing circular movements of the same capital via a financial revolving door.

Following the same logic, Ndikumana and Boyce (2003) analyse the determinants of capital flight in 30 SSA countries from 1970 to 1996. The results show that external debt is the main determinant of capital flight from SSA countries over the period studied. More specifically, for every \$100 borrowed, an average of \$80 leaves the country in the form of capital flight in the same year. The results also show that capital flight is a self-perpetuating phenomenon that is negatively linked to the growth differential between SSA countries and OECD countries. Furthermore, the authors emphasise that this phenomenon can be mitigated by improving governance, promoting growth, and financial development.

More recently, Liew et al. (2016) analysed the determinants of capital flight in Malaysia over the period 1975 to 2013. The authors focused on macroeconomic variables such as external debt, political risk, FDI, and the financial market. They conclude that only political risk is positively correlated with capital flight, while the link with other variables (external debt, FDI, and financial market) is negative. In other words, an increase in Malaysia's political risk leads to an increase in capital flight.

2.2. The institutional environment:

Without downplaying the importance of debt, some authors emphasise the institutional environment. It is in this sense that Asongu (2014) analyses the convergence of capital flight levels of 33 SSA countries

over the period 1980 to 2010. The results show that countries with low levels of capital flight tend to catch up with countries with higher levels of flight. Following a time horizon that the author sets at between 6 and 13 years, it would therefore be possible for the countries in the sample to harmonise their policies to combat capital flight. Furthermore, the author emphasises that oil abundance and the existence of conflicts are the main factors driving convergence.

Gunter (2017) analyses the role of corruption and the family effect on the link between capital flight and growth in the case of China (over the period from 1984 to 2014). The results show, on the one hand, that capital movement control policies have virtually no effect on the level of capital flight from China. On the other hand, the results highlight corruption, the migration facilitation process, and transaction costs as the main factors determining capital flight from the country.

Asongu and Odhiamba (2019) study the role played by governance in the impact of capital flight on industrialisation in Africa. The estimate is based on a sample of 36 African countries observed from 1970 to 2010. Following the analysis of a dynamic model using the GMM method, the results show that governance does not significantly mitigate the negative effect of capital flight on industrialisation in the 36 African countries studied.

In the same vein, Yapatake and Njong (2020) analyse the role of political crisis and diamond exports on the level of capital flight in the CAR. Using an autoregressive model and a sample covering the period from 1970 to 2010, the authors show that political crisis and diamond exports have a significant negative effect on capital flight. They propose reducing corruption and promoting transparency as a remedy.

2.3.Natural resources:

A few fairly recent studies have looked at the role of natural resources as a determinant of capital flight. Demachi (2014) analysed the extent and determinants of capital flight in a panel of 21 natural resource-rich developing countries over the period 1990 to 2011. The econometric analysis reveals a link between capital flight and natural resources, such that an increase in income from natural resources leads to an increase in the level of capital flight. However, flight remains particularly explained by new debt flows.

In the same year, Ljungberg and Friedl (2014) studied the effect of natural resource abundance on the level of capital flight. They showed that there is a positive and significant relationship between natural resource rents and capital flight. This could explain the phenomenon of the natural resource curse encountered in most resource-rich countries.

Also in 2014, Aresky et al. (2014) analysed the relationship between natural resources and the share of capital flight due to tax evasion by multinational firms. More specifically, the authors analyse the role played by thin capitalisation policy in the effect of mineral resource discovery on tax revenue mobilisation on the one hand, and financial market development on the other. The study covers a sample of 117 countries over the period 1970 to 2012. The analysis shows that the introduction of thin capitalisation rules (limiting firms' external debt in order to limit tax evasion) and the discovery of mineral resources have a positive effect on tax revenue mobilisation and financial market development.

A year later, Kwaramba et al. (2016) examined the relationship between capital flight, natural resources and institutional quality in Zimbabwe over the period 1995 to 2013. After highlighting the importance of billing errors on the volume of capital flight, the study shows, on the one hand, that the quality of institutions has a negative impact on capital flight. On the other hand, natural resources have a positive impact on the level of capital flight.

Furthermore, a recent study by Ndikumana and Sarr (2019) examines the relationship between FDI and capital flight, with a particular focus on the role played by natural resources. To do this, the authors base their analysis on a panel of 30 African countries over the period from 1970 to 2015. Three main findings emerge: first, there is a positive and significant relationship between FDI and capital flight; second, natural resource endowment

(mainly in the case of oil) is associated with capital flight and strongly linked to FDI stock; finally, the quality of institutions does not mitigate this link; it does not limit the contribution of FDI and natural resources to capital flight.

2.4. Financial liberalisation:

A significant body of literature has examined financial liberalisation as a determinant of capital flight. Brada and Vuksic (2013) studied capital flight from 10 European countries between 1996 and 2009. The study shows that capital flight from economies is mainly influenced by financial liberalisation and interest rates. While financial liberalisation fuels capital flight, domestic credit expansion helps to limit its extent. Ndiaye and Siri (2016) analyse the drivers of capital flight in Burkina Faso. The authors initially conduct a qualitative analysis that identifies exchange control regulations and the flexibility of the tax system as explanatory factors for capital flight. The econometric analysis subsequently carried out using double least squares over the period 1970 to 2012 corroborates the results of the qualitative analysis. The analysis by Pyun and An (2016) on a sample of 58 countries from 2001 to 2013 is consistent with this framework. The authors show that globalisation and financial integration have had a significant impact on the level of capital flight in the countries in the sample.

Finally, far from providing an exhaustive list of studies that have analysed the determinants of capital flight, we summarise them through the conclusions of Ajayi (2012), who identifies three main theoretical explanations for capital flight. The first stipulates that the main cause of capital flight is the presence of better investment alternatives outside the country in question. The second theory, known as the over-indebtedness theory, argues that high levels of debt undermine the credibility of the national economy and effectively encourage investors to transfer their capital abroad. The third theory posits that capital flight is due to high taxes in the national economy.

However, aside from natural resources, the above determinants struggle to fully explain the scale of capital flight in Cameroon. While the literature on natural resources provides a starting point for understanding this phenomenon, it fails to clearly identify the underlying mechanisms and suffers from several methodological limitations. Therefore, our study is relevant because it attempts to address this issue by highlighting the fiscal regime governing the exploitation of natural resources as one of the main channels through which these resources drive capital flight.

3. Extent of capital flight in Cameroon

The definition of capital flight used in this study is quite distinct from that of illicit financial flows, which covers a broader set of phenomena. It is the definition described and implemented by Ndikumana and Boyce (2019), which incorporates, in addition to the basic residual approach (capital flight represents the difference between the change in external borrowing and net FDI flows on the one hand, and the current account balance and the accumulation of reserves), adjustments to take into account fraudulent invoicing and exchange rate fluctuations.

3.1. Evolution of the phenomenon

The data from the previous definition of capital flight is available on the official website (Political Economy Research Institute, 2021) and covers the period from 1970 to 2018. According to this measure, capital flight is considered to be the residual balance of the balance of payments. It is therefore normally due to slight discrepancies between the various data sources available and should in fact be insignificant. However, in the case of Cameroon, this residual represents a significant portion of the country's wealth. As illustrated in the figure below, the evolution of capital flight in Cameroon can be divided into three phases. From 1970 to 1987, there was strong growth in the phenomenon. It is important to note that this period corresponds to an increase in financial inflows such as external debt, FDI and official development assistance. From 1988 to

2004, capital flight declined considerably before picking up again until today, sometimes reaching astronomical sums (6.15 billion dollars in 2008). The reasons for this trend will be discussed in more detail in the following sections. Overall, the trend of capital flight since the country's independence in 1960 has continued to grow.

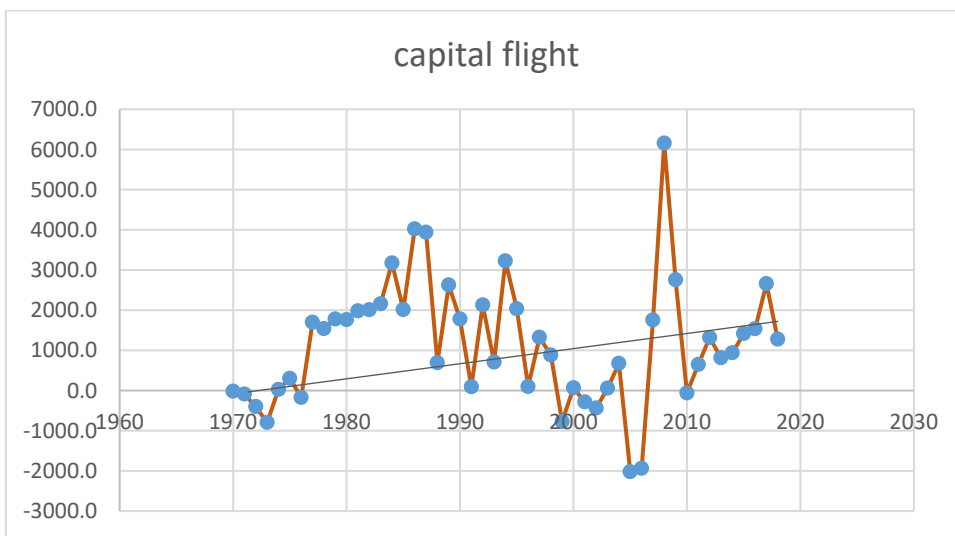


Figure 1: Capital flight from 1970 to 2018

Source: Data from peri.umass.edu

Figure 2 shows the average level of capital flight over the last five decades. From 1980 to 1989, the average annual volume of capital flight was \$2.43 billion. Although there was a significant decline in the 1990s, there was a clear resurgence in the 2000s. This resurgence is reflected in the increase from an average of \$0.68 billion between 2000 and 2009 to \$1.17 billion between 2010 and 2018.

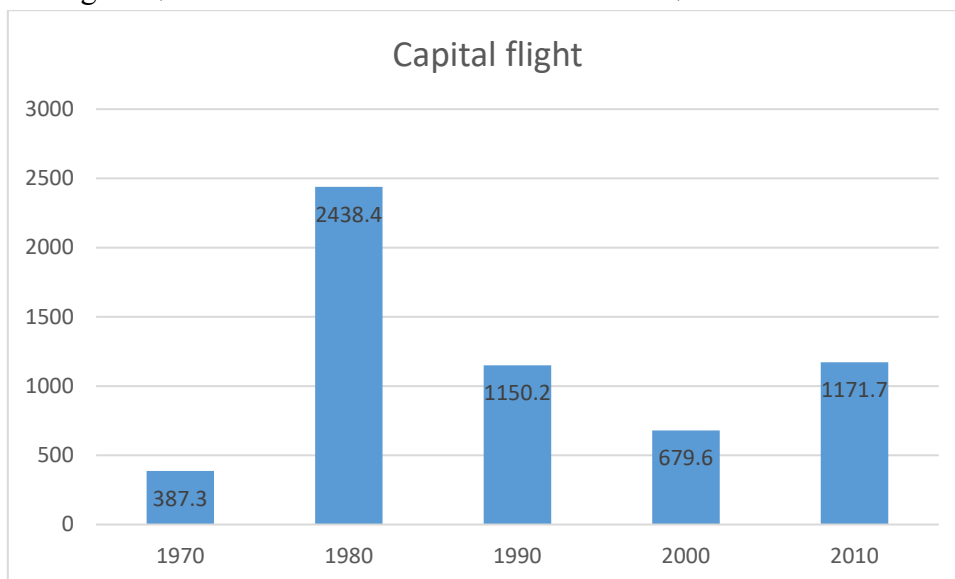


Figure 2: Level of capital flight over the last five decades

Source: Data from peri.umass.edu

A few authors have looked into capital flight in Cameroon, identifying a bunch of factors that could explain how big and persistent it is. For Mpenya et al (2016), capital flight in Cameroon is fuelled by natural resources and, more specifically, false commercial invoicing. Gankou et al (2016) analyse the "financial revolving door" hypothesis in Cameroon. The authors conclude that oil revenues are the main determinant of capital flight in Cameroon, followed by financial inflows (debt, official development assistance). Wujung and Mbella (2016) conduct an impact analysis of capital flight on Cameroon's economic development. Ultimately, we can draw three main explanatory factors for capital flight from the literature: false commercial invoicing, rent and external debt.

3.2. False commercial invoicing

This involves comparing the value of imports and exports declared by the Cameroonian authorities with those of its main trading partners. The gap represents a leak that escapes conventional balance of payments accounting. The study by Ndikumana and Boyce (2019) shows that countries rich in natural resources tend to under-invoice exports of their primary products. As pointed out by Mpenya et al (2016), IMF data show a discrepancy between the date of registration in Cameroon and that of registration by the main trading partners. It is therefore more convenient to use COMTRADE data in the analysis of fraudulent invoicing in Cameroon.

Unlike Mpenya et al (2016), we calculate the under-invoicing of a given country's exports by subtracting the total amount of exports declared by Cameroon from the total amount of imports from Cameroon declared by the trading partner. This is because both declarations are valued in dollars.

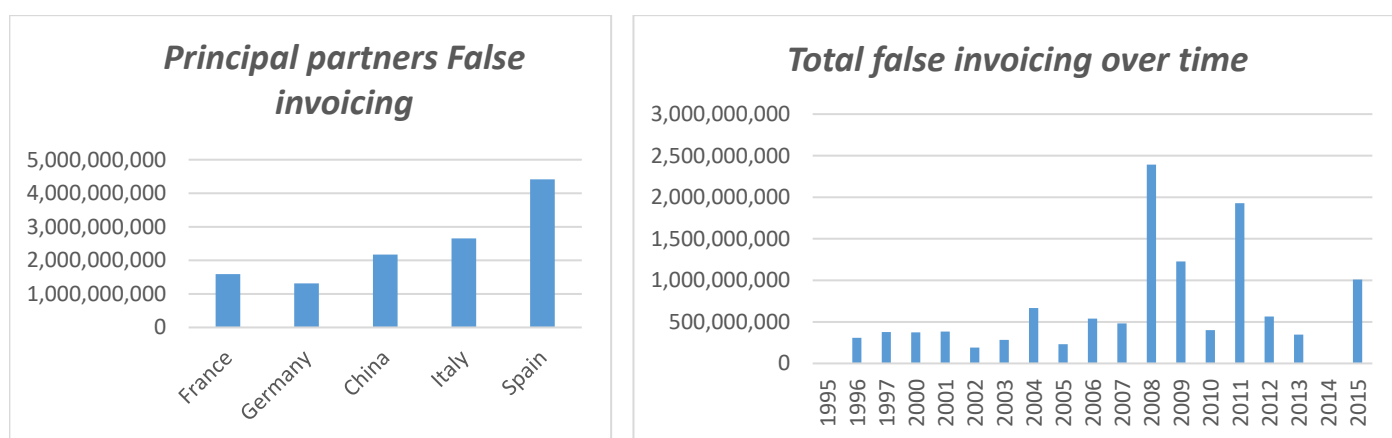


Figure 3: False export invoices

Source: Calculations based on COMTRADE data

Figure 3 above shows the evolution of capital flight due to false invoicing by Cameroon's five main partners from 1995 to 2015. The years 1998 and 1999 have been deliberately omitted due to the absence of data reported by Cameroon for those two years.

However, there is significant under-invoicing of exports from Cameroon. For example, over the 19 years observed, Italy and Spain recorded under-invoicing of exports worth \$2.65 billion and \$4.52 billion respectively. In total, false invoicing of exports by the five partners presented here amounted to nearly \$12 billion over 19 years. This represents an astronomical loss for the country.

False invoicing on imports is not as significant as on exports. However, it is far from negligible. Furthermore, the lack of data on imports from certain countries explains why the table above is not exhaustive. For example, between 1995 and 2016, imports from Germany and the Netherlands were over-invoiced by \$547.54 million and \$64.32 million respectively (Comtrade, 2021). In 10 years, Cameroon recorded over-invoicing of imports from China in the order of \$207.69 million.

It is important to note that these anomalies can be partially explained by other factors such as recording errors, confusion between partners during registration, the transit of goods between several countries, and many others. However, this can only partially explain the significant discrepancies observed. The most plausible explanation remains capital flight, which raises several questions for the authorities about this growing phenomenon, which is limiting the sources of financing that Cameroon so desperately needs.

3.3. Capital flight, rent, and external debt

This subsection focuses on highlighting the evolution of capital flight in relation to the two main causes raised in the literature, namely external debt and rent derived from the exploitation of natural resources.

Following Cameroon's independence in 1960, the country embarked on a government-centred development policy with the establishment of costly development infrastructure. This justified recourse to external financial flows in general and external debt in particular. As shown in the graph below, Cameroon's debt (long-term public debt guaranteed by the state and unsecured private debt) grew steadily from 1970 to 1995, reaching a stock of approximately \$10.66 billion at the beginning of the 2000s. This period also corresponds to an increase in capital flight. Subsequently, there was virtually no change in the debt stock, followed by a considerable fall due to the 2008 financial crisis, the impact of which lasted until 2011. During this period, capital flight followed a downward trend that continued until the end of the crisis and the resumption of borrowing.

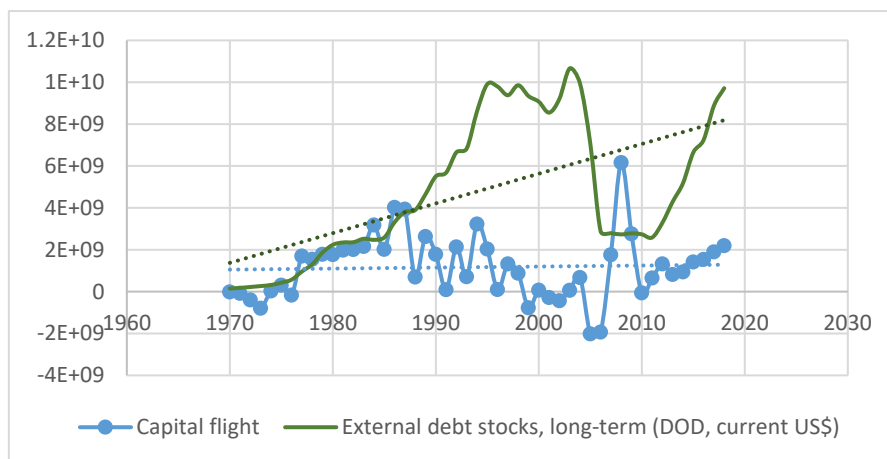


Figure 4: Capital flight vs external debt
Source: PERI and World Bank data (2021)

Despite the similarities highlighted above in terms of debt and capital flight, there is nevertheless a significant disparity in the trends of the two variables. On the other hand, the evolution of income from natural resource exploitation (more specifically, forestry and oil) seems to mirror the trend in capital flight. Indeed, as shown in Figure 5, there appears to be a strong correlation between capital flight and income from natural resource exploitation (the data have been reduced to the same scale for a better basis of comparison). This confirms the findings of almost all studies that have analysed this relationship. However, since 1998, there has been a clear disparity in the evolution of the two variables.

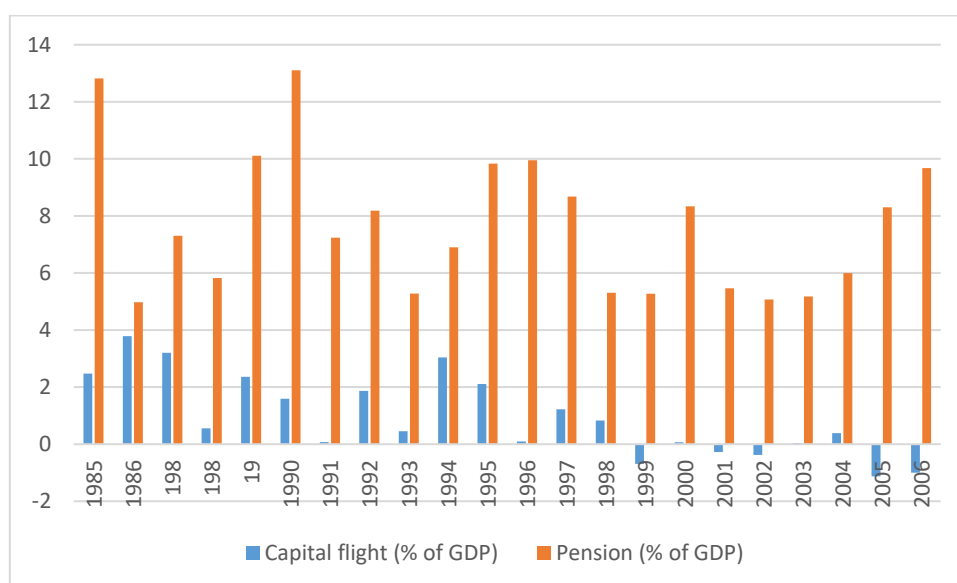


Figure 5: Capital flight vs. rent
Source: PERI and World Bank data (2021)

The aim of this study is therefore not to present a new econometric analysis of the issue. Rather, it seeks to question the role of oil and forestry tax reforms in explaining the controversial trend presented above.

4. The origins of capital flight in Cameroon: colonisation

Before the arrival of the first Europeans, Cameroon was a fragmented area divided into chiefdoms, with populations living mainly from subsistence agriculture and hunting. At that time, it is reasonable to assume that there was no capital flight. However, from the early years of independence in 1960, the country already experienced considerable capital flight. The obvious conclusion would be that the origin of capital flight in Cameroon is closely linked to its colonisation. The aim of this section is therefore to highlight the colonial factors that can be considered as the basis for contemporary capital flight.

4.1. Pre-colonial Cameroon and capital flight

Determining the exact origin of the Cameroonian people is complicated by the virtual absence of written history on the one hand, and on the other hand by the multiple migrations caused by wars or famine. Indeed, the Cameroon region has been the subject of numerous migratory movements. The settlement of the Fulani people is considered to be the main movement that led to the population of the far north of the country (Saibou and Adama, 2002). The Fulani were mainly cattle herders who arrived in Cameroon in ^{the 18th century} via the Lake Chad basin. Their superior organisation, religious zeal, and skills as horsemen enabled them to establish a state that lasted for nearly a century, until the arrival of the first Europeans. The rest of the country, particularly the highlands, was mainly occupied by the Bamileke, who had a fairly complex social organisation. The Fulani sought to convert the other inhabitants by force to their strict form of Islam. They conquered the Hausa kingdoms in northern Nigeria, but faced strong resistance from the Bamileke. Ultimately, the country fragmented into a multitude of small chiefdoms or kingdoms, which explains the proliferation of ethnic groups and traditions in the country today.

We can therefore easily conclude that before the arrival of the Europeans, capital flight was virtually non-existent in Cameroon. The inhabitants lived in small, scattered tribes and kingdoms under the authority of chiefs or kings, and their main sources of wealth were livestock farming, agriculture, and hunting. Traditional leaders controlled the land on behalf of their communities. Land was allocated to individuals by family heads according to their needs.

4.2. Colonial period and capital flight: colonisation in two stages

Colonisation cannot be considered a conventional relationship between states. On the contrary, it is the domination of an imperial state over a powerless and vulnerable society. Under these conditions, Cameroon was successively colonised by Germany and then simultaneously occupied by France and Great Britain. As previously mentioned, this subsection presents these two dimensions of Cameroonian colonisation, emphasising the factors that led to capital flight.

- German colonisation

Initially considered part of the informal British Empire, Cameroon was annexed by Germany. In July 1884, the Douala chiefs signed an official protectorate treaty with the Germans, which was ratified by the Berlin Conference. Lekane and Asuelime (2018) and the ICG of Conrad (2010) show that under German colonisation, Cameroon saw the precise demarcation of its borders, the establishment of an administrative governance structure, a monetary system, basic infrastructure, and commercial crop plantations (coffee, cocoa, palm oil, etc.).

In fact, the Germans distributed crop seeds such as coffee through local chiefs. But little by little, traditional subsistence farmers became producers of cash crops, subject to the whims of the international market and therefore of the importing colonial powers (Amougou-Awoumou, 2008). This production, mainly dictated by the needs of the colonial empire, led to the local population's dependence on income from agricultural exploitation. Such dependence of the Cameroonian population on income from exports, combined with the submission of Cameroonian leaders to the German authorities, created a climate conducive to capital flight. The Germans were under no obligation to register imports from Cameroon and could set the prices of cash crops as they saw fit. All of this may explain the high level of false invoicing recorded today.

More generally, the German administration was decentralised. Chiefs were used as law enforcement agents, tax collectors, and labour mobilisers. Furthermore, given the self-serving nature of colonisation in general, it seems clear that the ultimate goal of German colonisation was to solve the problem of raw materials and markets in Europe. In fact, almost all companies and tacit agreements with local chiefs and kings contributed to this ultimate goal. Driven by greed, local leaders exploited their privileged position with s to satisfy their own interests at the expense of the people (Lekane and Asuelime, 2018). This mainly led to betrayal and power struggles, but also and above all to corruption and embezzlement. All of these factors created a climate conducive to capital flight.

In conclusion, the Germans contributed significantly to laying the foundations of Cameroon's modern economy: roads, telecommunications, the port of Douala, railways, and agricultural development. However, they also laid the foundations for a climate conducive to capital flight, which would become apparent decades later. It would be misleading to talk about capital flight in the context of a country that had not yet gained independence. Furthermore, before completing its work, Germany suffered defeat at the end of the First World War. One of the consequences of Germany's defeat by the Allied powers was the change in Cameroon's status, which in 1916 came under the mandate of the League of Nations. The League divided the country between the French and British powers.

- *French and British colonisation*

Following the dissolution of the League of Nations, Cameroon fell under the trusteeship of the United Nations, which entrusted France and Great Britain with the administration and transition to independence of the former German colony. At that time, Cameroon was no longer a colony, but it was treated as such in every respect.

France took the lion's share, mainly due to Cameroon's geographical position relative to other French West African colonies and the British reluctance to devote additional resources to administering a new colony. The French administration was primarily focused on exploitation (Lekane and Asuelime, 2018). The UN entrusted Cameroon to the two colonial powers so that they could lead it to independence. However, given the geographical position and economic potential of the former German colony, France's main objective was quite different: to annex Cameroon to the other French colonies in the region. Given the limited number of settlers in the territory, the French administration relied on traditional governance to compel the population to participate in their assimilation programme (the gradual imposition of French practices and culture on the local populations). Indeed, as Atangana (2014) shows, the French were much more concerned with their colonial interests than with developing Cameroon into a viable and independent economic entity. Almost all French investment was devoted to building facilities for the export of agricultural and forestry products on the one hand, and the import of industrial products on the other. This contributed greatly to the extroversion of

the Cameroonian economy and, consequently, to the creation of a climate conducive to capital flight. In the same vein, France decided in 1946 to set up an overseas development plan through the FIDES (Investment Fund for the Economic and Social Development of Overseas Territories). This investment fund was made up of contributions from the French colonial empire and the colonies. Although the percentages differed with regard to the colonies' contributions, Johnson (1970) asserts that the latter contributed 45% of the total amount invested, or 3,225 billion francs for Cameroon at that time. The remaining capital was provided by France in the form of a loan bearing interest at 2%. Given the close relationship between capital flight and external debt highlighted by numerous studies, it would be legitimate to consider this "forced" loan as the starting point of Cameroon's external debt and one of the root causes of capital flight.

In Cameroon, this development plan targeted specific regions and focused mainly on upgrading outdated German infrastructure (Lekane and Asuelime, 2018). Almost the entire population living near these major construction sites abandoned agriculture and livestock farming to find work in construction and other activities related to the projects. However, the selective nature of this development programme d the neglected regions to launch protest movements. Furthermore, the programme did not involve any industrialisation or other similar approach that could provide permanent jobs. As a result, once construction was completed, the protest movements became widespread. Furthermore, the contribution of the colonial armies during the Second World War enabled the colonies to obtain certain concessions, such as access to Western education and, consequently, human and national rights. All these reasons justify, to varying degrees, the rise of a wave of protest that led to armed conflict between anti-colonial movements and the French colonial power in 1955. These political confrontations led France to grant independence to French Cameroon on 1 January 1960. However, through cooperation policies signed in 1958, France ensured that it retained influence over its former colonies. Cameroon was no exception. Grosser (1965) shows that the cooperation agreements that conditioned independence consisted of secret agreements covering virtually all areas (military, financial, cultural and administrative).

British Cameroon was subdivided into two parts (North Cameroon and South Cameroon), each consisting of two provinces and associated with two regions of Nigeria. Not considered a federal state of Nigeria, British Cameroon was neglected, leading to popular uprisings (Konings, 1999). Following the independence of French Cameroon, a referendum was held on 11 February 1961 to decide whether British Cameroon would become independent as an integral part of the Republic of Cameroon or as a state of the Nigerian Federation. Two of the four British provinces decided to join the Republic of Cameroon as a federated state. The merger of the French and British Cameroonian states did not take place until 12 years later, on 20 May 1972, which has since been celebrated as National Unity Day.

In short, given that colonial Cameroon did not have any sovereignty, it would be wrong to try to estimate capital flight in the conventional sense. Nevertheless, this subsection has highlighted colonial factors that created a climate conducive to capital flight, which began in the early years of Cameroon's independence.

4.3. Post-colonial period and capital flight

Following independence, Cameroon, like almost all former French colonies, faced a bleak colonial legacy: an uneducated population and an elite with no experience in governance (Dupraz, 2015). It was therefore the former prime minister during the final months of French occupation (Ahmadou Ahidjo) who took the helm of the country from 1960 to 1982, a period lasting 23 years. Using ethnic diversity as a pretext, President Ahidjo skilfully established a one-party state by absorbing several political parties and repressing his most vocal opponents (Markham and Fonjong, 2015). During the first decade of his reign, the colonial economic structure remained virtually unchanged. Agriculture accounted for most of the country's economic activity, GDP and exports. However, the relatively high price of timber and cash crops (coffee, cocoa, bananas), combined with the discovery of one of the first oil fields in 1970, enabled the country to generate

considerable revenue and thus stimulate growth (Eckert, 1996). From 1970 to 1984, the country experienced annual growth rates of around 10%, averaging 8%. This period was accompanied by an increase in government revenue and the standard of living of the population. This increase in revenue prompted the government to initiate numerous development policies and take an active role in economic life through the creation of parastatal enterprises (Markham and Fonjong, 2015). Around 150 parastatal enterprises were created in line with the approach established by the former colonial government. In other words, almost all of these companies were focused on the rentier economy (timber, oil, agriculture) and related activities dependent on external factors. Unfortunately, access to key positions in these companies was more a reward for loyalty to the regime than a reflection of the real skills required to fill these positions. Very quickly, several of these companies posted net losses and were granted subsidies rather than undergoing any restructuring. As a result, the flooding of the economy by heavily subsidised parastatal companies led to the eviction of the private sector, which was mainly made up of French foreign investors. The latter proceeded to repatriate their profits and, more generally, their capital on a massive scale. This only served to exacerbate capital flight. Furthermore, oil revenues were managed directly by the president in a black box with no accountability. Yet by the early 1980s, oil revenues already accounted for 65% of the country's exports. This was a considerable sum, subject to the president's discretion. All this goes a long way towards explaining the increase in capital flight recorded by the country between 1970 and 1985.

Furthermore, the resignation of President Ahidjo in 1982 and his replacement by Mr. Paul Biya did not improve the situation in the country. Indeed, contrary to all expectations, President Ahidjo resigned on 4 November 1982 for health reasons. He proposed Mr Paul Biya, who had been Prime Minister for seven years, as his replacement. The latter took office on 6 November 1982 and has remained in power ever since. However, this change did not improve the situation in the country. On the contrary, the civil service and semi-public enterprises, most of which were running deficits, were expanded further to reward supporters of the new regime. This led to the squandering of development funds and public revenues through corruption and embezzlement. It should be noted, however, that this strategy of retaining power was financed by the sale of agricultural products and revenues from oil and timber.

However, in the second half of the 1980s, there was a considerable decline in government revenue, mainly due to rising import prices and falling export prices for cash crops (coffee, cocoa) and oil. This decline, combined with the inefficiency of state-owned enterprises, led to a budget deficit for the Cameroonian government. This deficit was initially covered by contracting external debt (Mentan, 2003). However, the increase in the debt burden only served to fuel capital flight and other fruitless expenditure. This explains the almost parallel evolution of capital flight and external debt from 1970 to 1987. This unfortunate situation inevitably led the country into a crisis, manifested by the government's inability to pursue its development projects or even pay civil servants' salaries.

In order to obtain an additional loan, the Cameroonian government turned to the IMF and agreed to follow the Structural Adjustment Programme (SAP) imposed by the latter. This programme was mainly aimed at rebalancing the state budget by reducing expenditure: privatisation or closure of loss-making parastatal enterprises, cuts in civil servants' salaries, abolition of agricultural subsidies, but also and above all, the introduction of tax reforms in both the forestry and oil sectors.

In conclusion, this section has shed light on the origins of the tax reforms that we consider to be a key determinant of the level of capital flight. Having noted the absence of capital flight before the arrival of the first Europeans, this section has analysed the role of each dimension of Cameroon's colonisation in the level of capital flight. In each of these dimensions, the role played by the rentier economy was clear. The objective of the next section is therefore to shed light on the clauses governing the exploitation of rentier products and their potential impact on the level of capital flight.

5. Analysis of the evolution of the Cameroonian tax system

In general, the taxation of multinational companies by developing countries represents a major challenge. Nevertheless, there are generally two main approaches to tax regimes applicable to companies involved in the exploitation of natural resources: the contractual system (concessions, production sharing, and services) and the taxation/royalties system. Some countries combine the two systems, while others, such as Cameroon, have undergone profound changes to their systems over the years. The aim of this section is therefore to present the evolution of Cameroon's tax system in the context of natural resources. The analysis will focus on oil and timber, which alone account for 90% of the revenue derived from the exploitation of natural resources.

5.1. Evolution of the oil tax regime

The regulation of oil exploitation began as soon as independence was achieved. From independence to the 1990s, a series of improvised laws regulated the exploitation of this resource. However, the increasing volume of discoveries, combined with the country's less-than-rosy economic situation, led to increasingly rigorous formalisation of the standards relating to hydrocarbon exploitation.

i) From independence to the 1990s

The French Petroleum Office began the first oil explorations in Cameroon in 1952, before independence. The first discovery and therefore the actual exploitation of oil took place in 1976 by Elf-Serepca, a subsidiary of the French company Elf-Aquitaine. Throughout this period, Law No. 60/82 of 31 December 1960 regulated oil and mining operations. This law was very similar to the mining code established under French colonisation and was considered Cameroon's first oil code. This law already laid down the terms and conditions for the exploration, exploitation, and transport of hydrocarbons. Commercial production began in 1980. In addition to Elf, Shell/Pecten, and Total joined the sector. After this initial discovery, oil production in Cameroon increased steadily, reaching a peak of 185,000 barrels per day in 1986. Between independence and the end of the 1990s, there were three minor adjustments to the previous code:

- In 1964, Law No. 64/LF/3 replaced the 1960 law, with the main innovation being the definition of a mandatory concession framework for the exploitation of resources. In effect, any commercial exploitation of hydrocarbons could only take place after obtaining, by decree, a 25-year renewable exploitation concession. Under this provision, the extractive company could dispose of all the resources extracted under the concession as it saw fit.
- Following the reunification of the country, Law No. 78/14 of 29 December 1978 revised the 1964 law. This law differs mainly from the previous one in that it is based on international law to restore to the State the exclusive ownership of any deposits discovered on its territory. Exploitation is therefore carried out through licences, which effectively enable the State to participate in exploitation.
- Following the creation by decree in 1980 of the Société Nationale des Hydrocarbures du Cameroun (SNH), Law No. 82/020 of 26 November 1982 supplemented the above-mentioned laws. According to this provision, any discovery of hydrocarbons must be reported within three months, failing which the rights to the discovery will be forfeited.

Overall, Ndi (1992) shows that until the early 1990s, the legal framework summarising the legal provisions presented above was based on a contractual approach, consisting exclusively at that time of association contracts and concession contracts, mainly in the form of establishment agreements. Despite the creation of the SNH, the state's participation in extractive activities at that time was extremely limited. It is important to note that all these agreements are the least advantageous for the state, as in addition to legal advantages, they offer significant autonomy to extractive industries. The latter can easily engage in capital flight by

underestimating their daily production or overestimating exploration and production costs. In addition, these agreements ensured the extractive industries' free movement of capital and full repatriation of their profits.

However, in the second half of the 1980s, there was a considerable decline in government revenues, mainly due to rising import prices and falling export prices for natural resources. The decline in resources, combined with the unsustainability of external debt and high budgetary expenditure, led the country to join the structural adjustment programme proposed by the IMF and the World Bank. Under the impetus of the World Bank, a major reform of the tax system was undertaken in 1999. The main objectives of this tax reform were to increase oil revenues, broaden the tax base, eliminate certain tax advantages and strengthen administrative transparency.

ii) The 1999 reform

The extractive industry is mainly governed by the Petroleum Code established in 1999 and Decree No. 2000/465 on petroleum regulation. This legislation focuses on the following points:

- Extractive industries are subject to corporate income tax at a rate ranging from 38.5% to 50%. The rate within this range is negotiated between the State and the extractive company. In addition, the State levies 15% of the income paid to individuals or legal entities, employees or subcontractors of extractive companies.
- Extractive companies that still have a concession contract must pay a monthly royalty equivalent to the amount specified in the concession contract.
- The Cameroonian government reserves the right to enter into a production or service sharing agreement with any company wishing to exploit Cameroonian oil. This is an agreement between the extractive company and the government (or through the SNH) that defines the terms for sharing any oil discoveries made by the company in a predetermined region.
- In addition, the reforms provide for a signing bonus, the amount of which is negotiated between the extractive company and the Cameroonian government, and an annual surface rental tax. This tax is set each year by the country's finance law.

This reform is the latest of its kind to date, as there have been no further significant changes to the tax policy relating to the exploitation of extractive resources. However, it is worth noting the enactment of Laws No. 2004/18 and No. 2004/19, which aim to involve decentralised territorial authorities more closely in the collection of compulsory levies.

Despite these improvements, it is important to note that certain clauses could be improved to enable the country to benefit fully from its natural resources. Ghebremusse (2014) shows that Cameroon's tax regime is not compatible with its level of reserves, its level of development in the extractive industry, and its financial situation. Indeed, given the limited nature of the country's oil reserves, corporate tax and royalties should not be negotiable. The country should set a rate in order to benefit as much as possible from its remaining oil reserves. Also, due to the decline in reserves, the tax regime could include measures to support diversification, which in turn would lead to a real reduction in capital flight. The regime could further increase the state's direct participation through the SNH by taking significant stakes in extractive companies and prioritising the signing of production-sharing agreements over concessions.

5.2. Changes in forestry taxation

Before colonisation, forestry was initially governed by the "status law", which gave unquestionable decision-making power to the heads of the various clans. The very first forestry legislation came in the form of a general decree introduced in 1946 under French and British colonisation. The British issued a similar ordinance in the

same year. These laws were mainly aimed at taking land and forest ownership away from the indigenous populations and giving it to the colonial powers. Following independence, forestry legislation remained modelled on that of the colonial period, with the main change being Law No. 74/01 of 6 July 1974, implementing the ordinance of 22 May 1973, which made the state the manager of all forests. This law followed the reunification of the country, with the main implications being the definition of the national forest domain and the terms and conditions for forest exploitation. Thus, exploitation could take place after a company obtained a licence or a felling permit in return for the payment of an approval fee. The maximum area covered by exploitation titles in the country was set at 250,000 hectares. This law also provided for the payment of a municipal fee to decentralised local authorities. All forestry-related rights (taxes, royalties) were collected by the Ministry of Agriculture through the Water and Forestry Administration. However, as in Yon 2007, studies show that collection has not been effective. This is because a considerable number of companies are believed to have operated for several years without paying their taxes. The total loss is estimated at an average of one billion dollars per year.

In view of the limitations of the 1974 forestry legislation, tax losses and the destruction of the country's forestry potential, the Cameroonian government introduced new legislation in 1981. The law of 27 November 1981 repealed the previous law, but differed from it in only a few respects. Firstly, it marked the introduction of a management plan, which made it possible, among other things, to distinguish between state-owned forests and public community forests. Subsequently, the maximum concession area was reduced from 250,000 hectares to 20,000 hectares. Finally, in addition to establishing specifications for logging operations, this law introduced new financial burdens, such as a land tax and a forest development contribution. At the same time, the municipal fee was abolished. Despite these changes, deforestation and forest degradation continued to increase. The weakness of the forest tax collection system led the World Bank to demand a comprehensive reform of the forestry regime as part of the Structural Adjustment Programme (SAP). As previously mentioned, this programme was a response to the crisis that the country experienced in the 1990s. By way of illustration, Cameroon's external debt in 1998 stood at \$9.6 billion, or 110% of its gross domestic product, and debt servicing amounted to \$660 million, or 27% of export earnings.

As a result, in 1994, under the supervision of the World Bank, Cameroon launched a forestry reform programme that was considered at the time to be the first of its kind in Central Africa. This involved a detailed revision of the previous 1981 law, with profound changes in the allocation of forest concessions and the management of taxes. Promulgated on 20 January 1994 and implemented a few years later, Law No. 94/01 subjected the Cameroonian forestry sector to two types of taxation: general taxation (corporate tax, customs duties, VAT) and specific taxation applicable mainly to the forestry sector. Specifically, the main innovations of this law can be summarised as follows:

- Concessions and the sale of timber have been reformed to ensure the sustainability of national forest resources. Concessions cover a maximum area of 200,000, -hectares, at a minimum price of 1,500 CFA francs per hectare, and are granted for a renewable period of 15 years. The sale of timber is limited to 2,500 hectares for a one-year exploitation period, renewable twice.
- A felling tax and an export tax on logs have been introduced. The former is calculated at a rate of 2.5% of the total volume harvested. The latter applies to the volume exported and is calculated at a rate of 17.5%.
- Also on the volume exported, a surtax on log exports has been introduced, depending on the type of wood.
- Furthermore, this new legislation cancels the tax based on the volume of timber harvested and the special free zone regime enjoyed by several companies.

Ultimately, the implementation of the 1994 Forest Law has succeeded in significantly increasing the Cameroonian government's revenue. By way of illustration, Carret (1998) shows that tax revenues from logging increased by 14 billion CFA francs in 1994 and then by 24 billion in 1997. Following the introduction of the minimum price system for concessions, almost all concessions granted by the government received bids four times higher than the minimum price.

This section has shed light on the fiscal changes associated with natural resource exploitation. Almost all of the most significant reforms were grouped at the end of the 1990s. An analysis should therefore be carried out to empirically test all of the facts observed.

6. Methodological framework

This study implements the synthetic control method first introduced by Abadie and Gardeazabal (2003). Like all case study methods, the synthetic control method consists of evaluating the impact of a policy (or event) by comparing the unit treated with a control group that has not received any treatment. Thus, by weighting the control group, we obtain a counterfactual situation that presents the situation of the treated unit in the absence of treatment.

However, the choice of the synthetic control method over other similar methods is mainly justified by the following facts: this method limits extrapolations by improving the process of selecting the control group and the weights assigned to each control unit; unlike linear regression, this method offers clear transparency in the adjustment process; there is also a certain clarity in the construction of the counterfactual.

6.1. The synthetic control method

This presentation is mainly based on the work of Abadie *et al.* (2010) and Abadie (2021). The analysis assumes $j+1$ units (countries, regions), of which only the first has received treatment (policy). The remaining j units ($j = 2$ to $j+1$) that have not been treated are control units used to construct a counterfactual. That is, the situation of the treated unit in the absence of any treatment. Let Y_{it}^N be the result that would be observed for region i at time t in the absence of intervention, for units $i = 1, \dots, j + 1$ and periods $t = 1, \dots, T$. Let $T_{(0)}$ be the number of periods before the intervention ($T_{(0)} \leq T$). Let Y_{it}^I be the result that would be observed for unit i following the intervention in periods $T_{(0)} + 1$ to T , as it is assumed that the intervention has no effect on the result before implementation. The objective is therefore to estimate α , which represents the difference between the actual change in the variable of interest for the treated unit (Y_{it}^I) and its counterfactual change obtained from the control group (Y_{it}^N , $i = 2, \dots, j+1$).

$$\alpha_{it} = Y_{it}^I - Y_{it}^N$$

Let D_{it} be a dummy variable defined as follows:

$$D_{it} = \begin{cases} 1, & \text{si } i = 1 \text{ et } t > T_0 \\ 0, & \text{sinon} \end{cases}$$

$$\text{Thus, } Y_{it} = Y_{it}^N + \alpha_{it} D_{it}$$

Given that Y_{it}^I represents the observed value, to determine α , we simply need to determine Y_{it}^N . Thus, the counterfactual variable of interest is estimated using a factorial model comprising covariances (Z_i) of unobserved effects and transient shocks. The variables in the equation Y_{it}^N are then weighted by minimising

the difference between the pre-intervention evolution of the variable of interest in the treated unit and the pre-intervention evolution of its counterfactual. Furthermore, the coefficients must all be positive and their sum must be equal to 1. This gives the following equations:

$$\alpha_{1t} = Y_{1t}^I - Y_{1t}^N = Y_{1t} - Y_{1t}^N$$

$$Y_{1t}^N = \delta_t + \theta_t Z_i + \gamma_t \mu_i + \varepsilon_{it}$$

$$W = (w_2, w_3, \dots, w_{j+1}) \quad \text{with} \quad w_i \geq 0 \quad \text{and} \quad w_2 + w_3 + \dots + w_{j+1} = 1$$

For each synthetic control, the value of the variable of interest weighted by the associated coefficients is as follows:

$$\sum_{j=2}^{j+1} w_j Y_{jt} = \delta_t + \theta_t \sum_{j=2}^{j+1} w_j Z_j + \gamma_t \sum_{j=2}^{j+1} w_j \mu_j + \sum_{j=2}^{j+1} w_j \varepsilon_{jt}$$

According to Abadie et al (2010), there is an optimal combination $(w_2^*, \dots, w_{j+1}^*)$ such that:

$$\sum_{j=2}^{j+1} w_j^* Y_{jt} = Y_{1t} \quad \text{pour } t = 1 \text{ à } T_0$$

$$\text{et} \quad \sum_{j=2}^{j+1} w_j^* Z_j = Z_1$$

Thus, an efficient estimator of Y_{1t}^N is:

$$Y_{1t}^N \cong \sum_{j=2}^{j+1} w_j^* Y_{jt}$$

For $t = T_0 + 1, \dots, T$, α can be estimated as follows:

$$\hat{\alpha}_{1t} = Y_{1t} - \sum_{j=2}^{j+1} w_j^* Y_{jt}$$

Applying these coefficients yields results from the control site that can be approximated by observation of the treated unit. However, the ability to validate the counterfactual depends mainly on the similarity of the trajectories between the control group and the treated unit before the intervention, on the one hand, and on the robustness of the balance on the predictor, on the other hand. Consequently, the choice of the sample that constitutes the donor pool is of great importance.

6.2. Data and sample

The analysis is carried out using annual panel data. The sample consists of all countries in sub-Saharan Africa for the period 1985 to 2005. However, a considerable number of countries are excluded from the sample due to a lack of data on capital flight. These are mainly the CAR, , Mali, Niger, Senegal, Chad, Togo, Equatorial Guinea, Guinea (Bissau), Benin and Cape Verde.

With regard to the period covered by the study, it is important to note that forestry reforms were introduced in the second half of the 1990s. However, they were not effectively implemented until 1998, when oil reform was introduced. The two reforms were therefore simultaneously in force in 1999, the date we have chosen for this analysis. The lower limit of our period (1985) is explained by the crisis situation that prevailed in Cameroon before that date and by the enormous disparities that existed between the countries in the sample before the 1980s. The upper limit is set at 2005 because of the famine that struck Cameroon in 2008, the warning signs of which were evident several years earlier. Extending the study period could therefore skew

the results of the study, given the reasons mentioned above. Furthermore, a post-intervention period of six years is sufficient to assess the effect of such a policy.

The variable of interest is capital flight, for which data is sourced from the official website of the Political Economy Research Institute (PERI). This is a recent database, updated in 2021. The variable related to natural resources is represented by the rent derived from the exploitation of natural resources. It is extracted from the World Bank database. More specifically, it is the rent derived from the exploitation of oil and timber, expressed as a percentage of GDP. The table below summarises the labels and sources of all the variables used in this analysis.

Table 1: Data and sources

Variables	Abbreviations	Descriptions	Sources
<i>Capital flight</i>	<i>KF</i>	Capital flight expressed as a percentage of GDP	PERI
<i>Natural resources</i>	<i>O_f_rents</i>	Rent derived from oil and timber exploitation, expressed as a percentage of GDP	World Bank
<i>Quality of institutions</i>	<i>IQ</i>	The World Bank database does not have data for the period under review.	Polity 2
<i>Foreign direct investment</i>	<i>FDI</i>	Inward FDI flows, expressed as a percentage of GDP	World Bank
<i>Financial development</i>	<i>dvpt_fi1</i>	Credit granted to the private sector, expressed as a percentage of GDP	World Bank
<i>Inflation</i>	<i>infla1</i>	Annual change in inflation rate	World Bank
<i>External debt</i>	<i>debt</i>	Change in external debt as a percentage of GDP	World Bank
<i>Growth rate</i>	<i>GDPI</i>	Annual GDP growth rate	World Bank

Source: Author

The analysis of capital flight from Cameroon between 1985 and 2005, using the control variables presented above, yielded a number of results, which are presented in the following subsection.

7. Results and interpretations

As previously specified, the synthetic control method consists of comparing the unit treated with a control group that has not received any treatment. In this case, it involves comparing capital flight from Cameroon with the counterfactual flight that would have prevailed in the absence of the 1999 reforms. For a better understanding of the results, we will present, on the one hand, the result related to the comparison of trends and, on the other hand, the result related to the construction of the counterfactual.

7.1. Comparison of trends

Figure 6 below shows the average evolution of capital flight in Cameroon and in all the countries in the control group. Apart from 1988, 1996 and 1997, there is a large gap between capital flight in Cameroon and that in the control group. Capital flight in the control group remains higher than in Cameroon over the entire period studied. This might suggest that the group of countries chosen is not appropriate for this analysis. However, prior to the 1999 reforms, capital flight in Cameroon and the control group evolved almost synchronously. The two curves tend to rise or fall in the same year. However, after the reform, a clear disparity in the evolution of the two curves is already apparent.

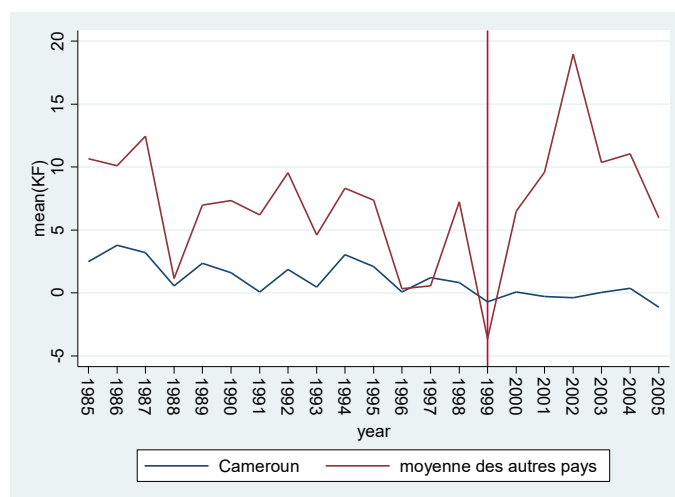


Figure 6: Capital flight trend: Cameroon vs. control group

By assigning optimal weighting coefficients to the different countries in the control group, the synthetic control method will first reproduce the evolution of capital flight from Cameroon before the reforms were implemented. It will then provide the evolution of capital flight that would have prevailed in Cameroon in the absence of reform. Finally, it will be possible to highlight the gap between the estimated capital flight and the observed capital flight. In line with this approach, Table 2 below shows the countries in the control group that had a non-zero weight in the estimation of the synthetic evolution of capital flight from Cameroon. These are the optimal coefficients that minimise the mean square error of the predicted capital flight from Cameroon over the pre-intervention period (1985-1999).

Table 2: Proportions of control units in the construction of the synthetic Cameroon

Country	Unit_Weight	Country	Unit_Weight
<i>Botswana</i>	0.019	<i>Malawi</i>	0.02
<i>Burkina Faso</i>	0.517	<i>Sierra Leone</i>	0
<i>Congo Rep</i>	0	<i>Uganda</i>	0
<i>Congo DRC</i>	0		
<i>Ethiopia</i>	0		
<i>Gabon</i>	0.315		

Source: Analysis software output

The data in the table show that capital flight from Cameroon prior to the 1999 reform is more closely mirrored by that from Burkina Faso, Gabon and the Republic of Congo. In contrast, capital flight from the control group countries not included in Table 2 (Kenya, Rwanda, Sudan, , etc.) is further removed from this reality. These countries have zero coefficients and are therefore not included in the synthetic flight estimate.

7.2. Comparison of actual and synthetic trends

Applying the above coefficients produces the table below, which shows the estimated coefficients of the actual evolution of capital flight for each variable compared to those of the control group. For almost all variables, there is a strong correlation between each estimated coefficient and its counterfactual. This justifies the choice of control variables.

Table 3: Estimated values of the analysis

	Treated	Synthetic	Error Gap
<i>KF(1992)</i>	1.870322	1.643643	.878802
<i>KF(1989)</i>	2.35894	2.444109	1.036104
<i>KF(1986)</i>	3.786658	3.662111	.967108
<i>o_f_rent</i>	8.185578	15.55302	1.900051
<i>IQ(1985(1)1995)</i>	-5.909091	-5.66	.957846
<i>debt(1997(1)1999)</i>	105.6858	91.47377	.865525
<i>FDI(1997(1)1999)</i>	.7755327	.2255306	.290807
<i>dvpt_fi1</i>	8.026299	7.070125	.880869
<i>infla</i>	3.568713	4.139778	1.160019

Source: Analysis software output

Figure 7 below highlights the comparative evolution between observed capital flight and synthetic capital flight constructed from the control group over the study period.

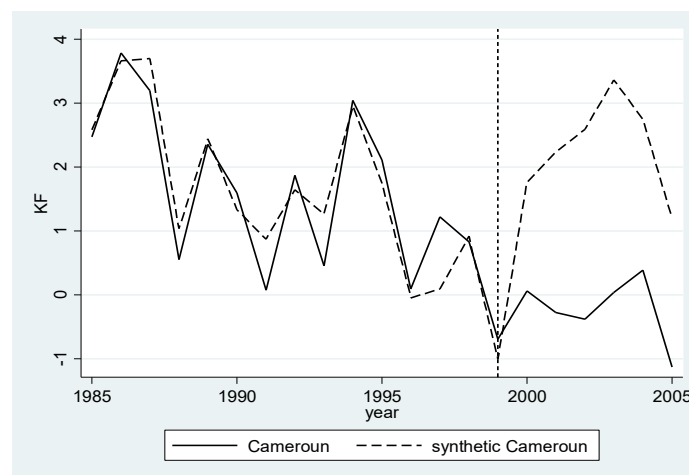


Figure 7: Observed and synthetic capital flight in Cameroon

Unlike the average capital flight of the control group, synthetic capital flight closely follows observed capital flight before the 1999 reform. It is therefore logical to conclude that this synthetic flight is an estimate of the level of capital flight that would have prevailed in the absence of the 1999 tax reforms. The estimated effect of the 1999 tax reforms on capital flight is therefore the difference between observed capital flight and synthetic flight over the period 1999 to 2005. However, from 1999 onwards, a considerable gap emerges between the two curves. While the observed flight remains low with a near-zero trend, the synthetic flight grows rapidly and the gap widens over the years. Figure 8 highlights the annual gap observed in the evolution of the two variables over the entire study period.

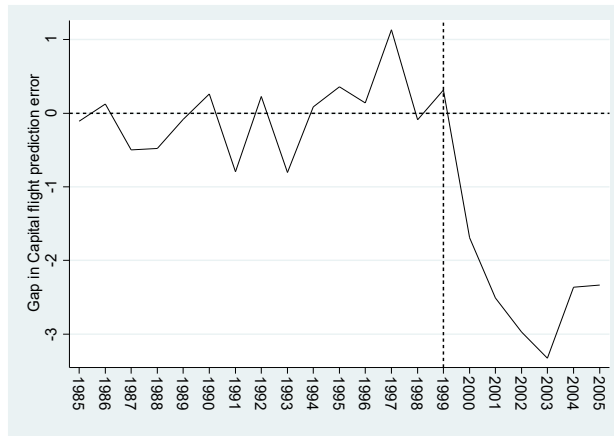


Figure 8: Gap between observed and synthetic leakage in Cameroon

The analysis in Figure 8 leads to the conclusion that the tax reforms implemented in 1999 had a negative effect on capital flight in Cameroon. Without these reforms, capital flight would have been higher than observed. In other words, following the implementation of natural resource tax reforms, capital flight fell by around 2% of GDP in 2000, 3.2% in 2003 and 2.2% in 2005. This corresponds to a decrease in capital flight of \$355.76 million, \$647.53 million and \$484.97 million, respectively. This represents a total of \$3.008 billion over five years. It should be noted, however, that this is an approximation, as the methodology used does not allow for an accurate estimate of the impact of the policy on the variable of interest.

Furthermore, the result seems counterintuitive, as it seems more plausible that reforms of this magnitude would lead to an increase in capital flight. However, the results obtained are consistent with the analysis of Tsowa (2017), which conducted a socio-historical study on administrative reforms in Cameroon. In concrete terms, the significance of the 1999 tax reforms shook the existing system by undermining the mechanisms that led to capital flight. Given the challenges and international organisations (IMF, WB) associated with these reforms, the introduction of new mechanisms leading to capital flight required a period during which capital flight was significantly reduced. This analysis is corroborated by Figure 9 below, obtained by extending the estimation period for Cameroon's counterfactual capital flight.

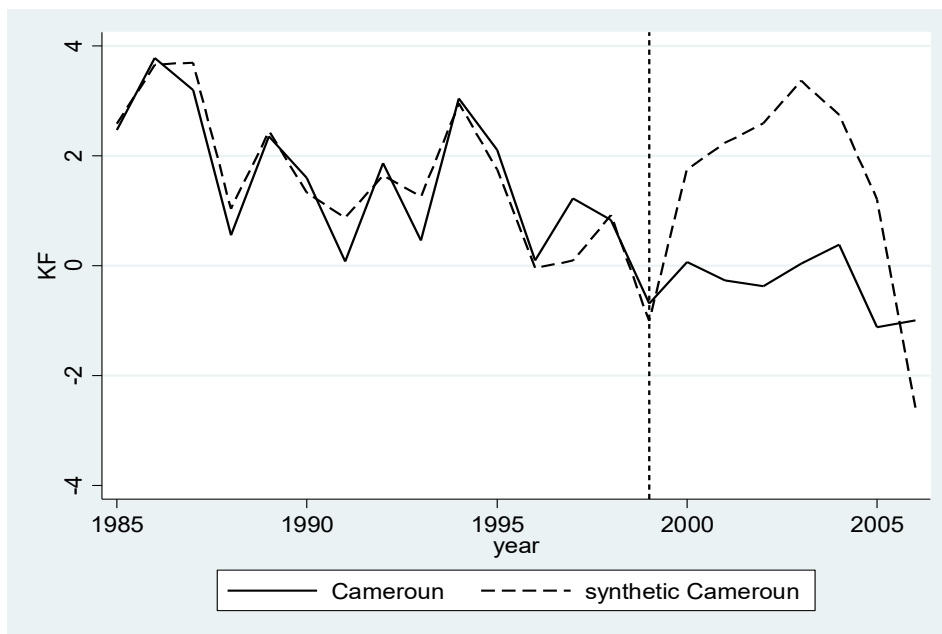


Figure 9: Long-term impact of the reform

As shown in the graph above, seven years after the introduction of tax reforms, the gap between the actual evolution of capital flight and the counterfactual evolution continues to narrow. This gap eventually disappears at the end of the seventh year. It therefore appears necessary for the Cameroonian government to ensure the consistent application of laws and reforms relating to the exploitation of natural resources. Furthermore, the reduction in the gap can also be explained by the food crisis that the country experienced between 2007 and 2008.

8. Robustness analysis

The objective of this analysis is to test the results obtained in the previous section to guarantee their accuracy. Our robustness analysis will focus mainly on two points: testing the date of the reform and constructing a placebo effect.

8.1. Testing the date of the reform

The gap observed since 1999 between the actual trend in capital flight and the counterfactual trend may be an illusion. More specifically, it may be a fictitious gap created by the software due to the specification of the existence of a policy on that date. In this case, the robustness analysis consists of assuming that the reforms related to the Cameroonian tax system took place on a different date in order to observe whether this change has an impact on the result.

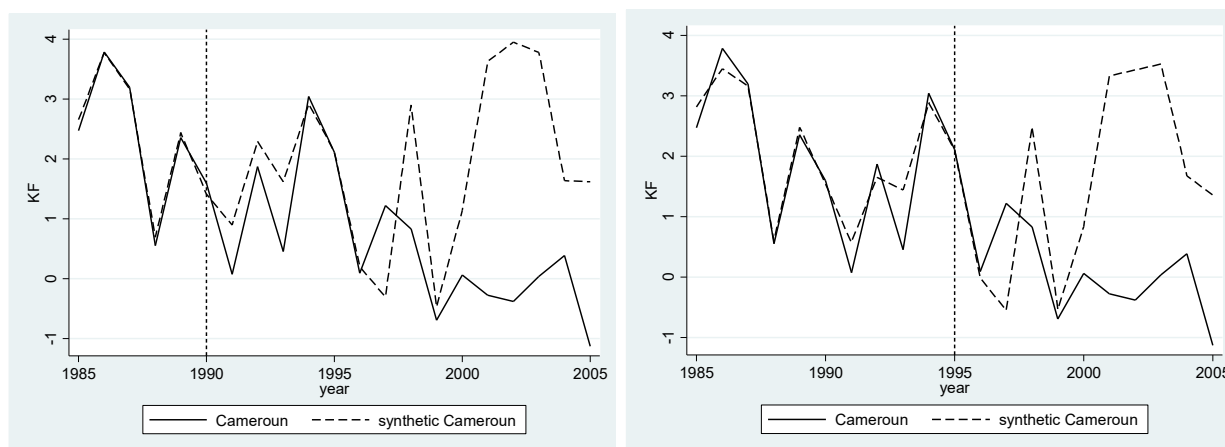


Figure 10: Choice of a date before the 1999 policy

As shown in Figure 10 above, choosing a date before the 1999 policy does not significantly impact the result obtained. The determination of the synthetic evolution is repeated under the same conditions, assuming successively that the tax reforms took place five years earlier (1995) and then ten years earlier (1990). These changes do not have a significant impact on the result obtained.

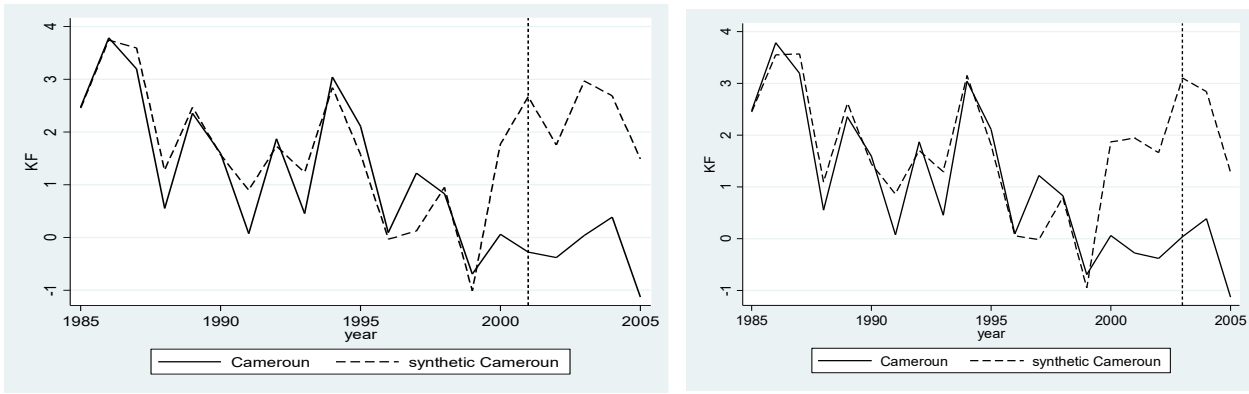


Figure 11: Choice of a date after the 1999 policy

Similarly, when we assume that the reforms took place after the 1999 reforms, we do not observe any real changes in the results of the previous section. In order not to alter the initial structure of the analysis, we consider in turn that the reforms took place in 2002 and then in 2004. The results obtained and presented in Figure 11 allow us to conclude that the gap observed since 1999 between actual capital flight and counterfactual capital flight is indeed due to the tax reforms.

8.2. Placebo effect

The objective of this subsection is to show that the results obtained are not due to a placebo effect. The placebo effect assumes that the results obtained are not due to the reforms adopted by Cameroon, but rather to the fact that Cameroon is specified as a country that has implemented reforms.

The test, therefore consists of replacing Cameroon with each country in the control group in turn (Figure 12). The test then identifies whether there are any countries in the control group that had a gap of almost zero before 1999 and a gap greater than that of Cameroon after the 1999 reform.

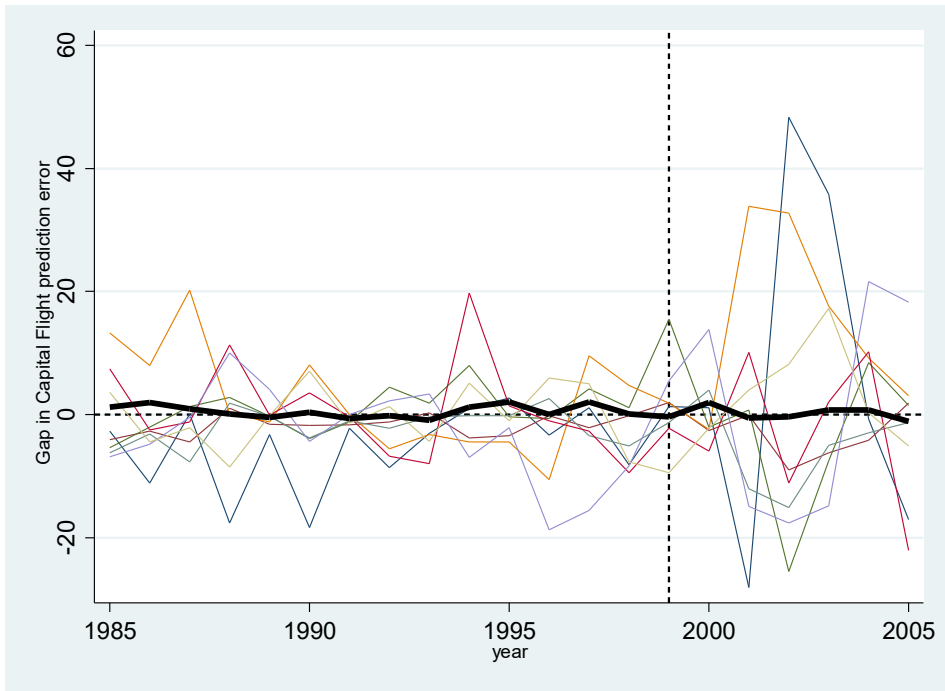


Figure 12: Placebo effect result

The analysis in Figure 12 allows us to remove countries whose gap was already significant before the 1999 reforms. This gives us Figure 13, which shows that the gap obtained for Cameroon, represented by the bold curve, is larger and more consistent than all the placebos.

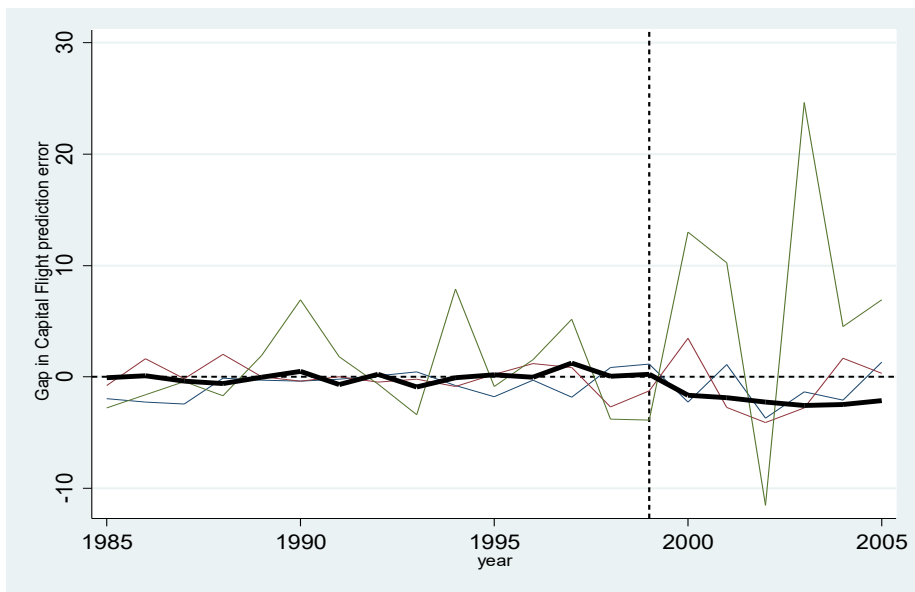


Figure 13: Corrected placebo effect result

This result is confirmed by the analysis of the pre-estimation and post-estimation error ratios shown in Figure 14 below.

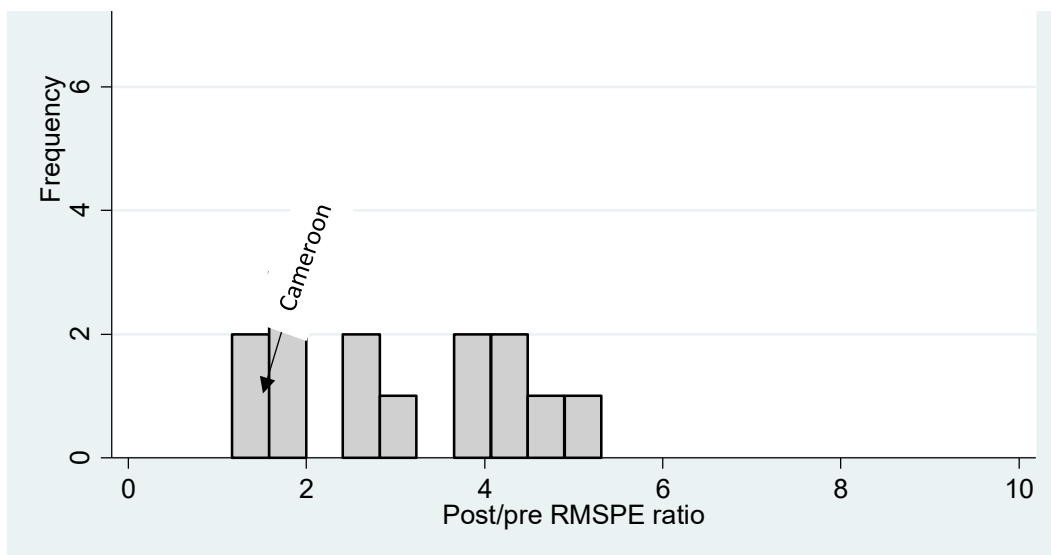


Figure 14: Significance of results

Indeed, Figure 14 shows that Cameroon has the lowest post/pre-intervention ratio. This allows us to determine the significance of the study's results. Following these two robustness analyses, we can conclude that capital flight from Cameroon was significantly affected by the 1999 tax reforms. These reforms considerably reduced the level of capital flight that would have prevailed at that time.

9. Conclusion and recommendation

Cameroon is a lower middle-income African country, one of whose major objectives is to achieve emergence by 2035. To this end, the country has considerable natural resources that could enable it to achieve its development goals. However, like most countries on the continent, Cameroon faces enormous financing needs, amplified by growing capital flight. Analysis of the comparative evolution of natural resources and capital flight shows a certain similarity in the evolution of the two variables. However, at the end of the 1990s, a disparity in the evolution of the two variables can be observed: while rents tend to increase, capital flight continues to decline. Analysis of the country's historical trajectory has revealed that this period corresponds to Cameroon's adoption of a series of major reforms to the tax regime governing the exploitation of natural resources (oil and timber). The main objective of this study is therefore to analyse the capacity of the tax system to reduce the level of capital flight while improving the volume of rent derived from natural resources.

The empirical method chosen to achieve this objective is synthetic control. This is an analytical method that highlights the impact of a policy on a variable of interest by comparing the observed change with that which would have occurred in the absence of the policy. This method was chosen mainly because of the lack of a rigorous database on the quality of the tax system. Analysis of the results shows that, as soon as the oil and forestry reforms were implemented in 1999, capital flight fell considerably. Between 1999 and 2005, there was a total decline of around \$3 billion. In the context of the Cameroonian economy, it can therefore be easily concluded that improving the tax regime linked to the exploitation of natural resources leads to a decline in capital flight, without adversely affecting the volume of revenue derived from the exploitation of these resources.

In view of this result, the Cameroonian government may wish to consider the following suggestions. First, particular emphasis should be placed on enforcing the existing tax regime so that it can produce the best possible results. Subsequently, we suggest extending such reforms to all of the country's rent resources. Finally, the existing tax regime can be optimised and updated to take into account new specificities, such as the current level of oil reserves or the recent increase in natural gas production.

However, obtaining a rigorous database on the quality of tax regulations would make it possible to refine this analysis using rigorous econometric tools. It would then be possible to obtain a precise, quantified estimate of the link between natural resource exploitation regulations and capital flight.

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