



Challenges Of Non-Oil Financial Sustainability In The Algerian Economy During The Period (2000-2022)

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ABSTRACT

This study aims to analyse the essential elements of the non-oil financial sustainability index in Algeria and to identify the main challenges of public finance sustainability, especially in light of the current economic reality, which is still dominated by the rentier character. We used the descriptive analytical approach to describe the study variables, collect and analyse the data related to each variable, and arrive at the results.

We found that all values of the non-oil financial sustainability index in Algeria are negative throughout the study period, which indicates that public expenditure exceeds non-oil revenues and that oil revenues are the main driver of all components of gross domestic product through public expenditure. Therefore, targeting the non-oil financial sustainability index through the growth of investment expenditure at the expense of operating expenditure is a necessary and certain proposal to ensure the economic and financial stability of Algeria.

Keywords: Non-oil financial sustainability; Sources of budget financing; Public debt; Algeria.

Introduction

The successive oil market shocks, especially since the second half of 2014, have led to deep imbalances in Algeria's financial and monetary balances, where government revenues have fallen by more than 50%, while public spending has continued at a very high pace, resulting in an unprecedented budget deficit, which has been covered since 2006 by withdrawals from the Revenue Regulation Fund. However, after the balance of this fund was exhausted before the end of the first quarter of 2017, and with continued high public spending and continued volatility in the oil market, the danger has increased. This points to the possibility of a persistent deficit in the state budget.

This has led Algeria to adopt an unconventional financing pattern, where the treasury is allowed to borrow from the central bank, and the public treasury has been able to finance the state's financial activities through the issuance of currency since 2017, instead of looking for the real reasons for the inability of traditional sources to cover public spending. However, at the beginning of 2020, the Governor of the Central Bank of Algeria confirmed that the issuance of currency to finance the state budget has effectively been stopped, and in light of the spread of the emerging corona virus and the sharp decline in fuel prices on international markets, the main challenge has become the extent to which the basic sources of financing the state budget in Algeria can be sustainable in line with the current economic conditions.

The financial sustainability of countries heavily dependent on oil exports to finance their public revenues, such as the case of Algeria, is described as lacking the ability to control their overall financial variables. This is because these countries' revenue sources depend on uncertain and rapidly changing external demand. Therefore, they have to seek what is known as "non-oil financial sustainability" by trying to finance their budgets outside oil sources in order to be able to meet their financial obligations.

Research problem:

Based on the issues raised above, the main research question emerges:

What are the main challenges of non-oil financial sustainability in the Algerian economy during the period (2000-2022)?

Objectives and methodology:

We aim to identify the main challenges that may hinder the achievement of non-oil financial sustainability for the general state budget in Algeria, in light of the global economic situation, which has experienced fluctuations and instability in the prices of goods and services, especially strategic ones such as oil and gas. We rely on the descriptive analytical approach by defining the concepts related to the research elements and the statistical approach by collecting, classifying and analysing data to reach the results.

Structure of the study:

In order to cover the different aspects of the topic, the research is divided into three main parts:

- * Financial sustainability: its dimensions and components;
- * Sources of financing the public budget in Algeria and the main challenges to its sustainability;
- * Analysis of the evolution of the public debt indicator in Algeria as the main indicator of financial sustainability (2000-2022);
- * Analysis of the evolution of the non-oil financial sustainability indicator of the Algerian economy (2004-2022).

1- Financial sustainability: Its Dimensions and Elements

The term “public financial sustainability” refers to the state in which the government can ensure the continuity of its spending policy in the long term without risking bankruptcy (Jildan, 2013). It is also defined as the government’s ability to meet its current and future obligations without making radical changes to its financial policy (Samakha, 2015, p. 79). It also expresses the avoidance of excessive borrowing to continue current or planned spending policies in the economic plan.

Some have linked financial sustainability to the principles of the intertemporal budget constraint (WILCOX), which considers a sustainable financial policy as one that achieves a balance between public debt and deficits to ensure the permanent fulfilment of the budget constraint (Wilcox, 1989, pp. 292-293). JONDEAU and HORNE expressed it as the ability of the government to achieve solvency, to ensure the repayment of its debts and to keep them at an acceptable level that financial policy can bear (Jondeau, 1992, pp. 1-2).

Financial sustainability requires that the general budget deficit does not accumulate, so that the government does not have to restructure and prioritise spending and deficit financing mechanisms in the future to finance its debt burden. Some believe that the way in which the government is increasing the primary surplus is not very suitable in the short or long term to cover its current debt. The meaning of financial sustainability is that the government continues its spending and public revenue policies in the long term without excessive public borrowing, with the aim of achieving the desired growth (Basha, 2018, p. 563).

1.1. Dimensions of financial sustainability: Financial sustainability has two dimensions (Qandouz, 2019, p. 20):

Solvency: The ability of the government to meet its financial obligations, which is achieved when current and future expenditures are less than current and future revenues.

Liquidity: The existence of readily available financial resources to meet financial obligations as they fall due. A distinction can be made between financial capacity and financial sustainability, as financial sustainability cannot be achieved without financial capacity. Financial capacity relates to the short term (a tactical objective), while financial sustainability relates to the long term (a strategic objective). Achieving financial sustainability means repeatedly achieving financial capacity. Financial capacity or financial sustainability can be expressed in terms of the other, as financial capacity is short-term financial sustainability and financial sustainability is long-term financial capacity (Qandouz, 2019, p. 20).

1.2 Elements of financial sustainability: Financial sustainability includes the following elements (Samakha, 2015):

Continuity of government expenditure and revenue in the long run;

Avoidance of excessive government borrowing;

The government’s ability to continue to service its debt;

Achieving the desired growth.

2. Sources of financing the general state budget in Algeria and the main challenges to its sustainability:

The ability to sustain budget financing is generally linked to two factors. The first is the extent to which oil prices recover on the international markets, while the second is the extent to which the new economic growth model succeeds in diversifying the sources of national income, substituting regular taxation for oil-related taxation, and the government's ability to rationalise the state's expenditure policy.

The real financial situation of the State is currently characterised by (Algerian Government Action Plan, 2020)

- Weak budget and treasury balances, due in turn to the decline in tax revenues;
- Decline in oil taxation, with revenues falling from DZD 4,054 billion in 2012 to DZD 2,669 billion in 2019, and then increasing from 2020 to 2023;
- Low level of regular taxation, which will barely cover the operating budget, especially after 2020;
- Diminished financial capacity of the state in the face of growing domestic demand, both in terms of investment and consumption;
- State intervention in favour of failing public institutions;
- Lack of clear indicators of the implicit costs to the budget of the financial stimulus measures granted.

2.1 Regular taxation as the main source of financing public expenditure and its current challenges:

As part of the budgetary reform and modernisation of its systems, the Algerian Ministry of Finance issued what is known as the Medium-Term Expenditure Framework (CDMT). The Ministry sees it as a tool for medium-term programming, planning and budgeting, with the aim of

- Strengthen the sustainability of public policies by confirming the consistency of future budgetary effects with all the financial resources of the State and the macroeconomic framework.
- Develop the effectiveness of budgetary resources by strengthening the link between sectoral strategies and the annual budget.
- Enable managers to budget for more than one year, while ensuring coordination between the different components of the budget.
- Improve the conditions for the preparation of the Finance Act and strengthen the effectiveness of the trade-offs between sectors.

The growing risks of not being able to continue financing public expenditure, especially operating expenditure (which is necessary to continue the basic functions of the state), require a broadening of the base of regular taxation, as well as the need to work on reducing the tax burden to its optimal level. In addition, many taxes and duties, especially those related to customs, need to be reviewed in order to curb imports, which have taken on a serious upward trend, leading to an unprecedented deficit in the trade balance.

Table (1) shows the evolution of Algeria's tax revenue over the period (2000-2022).

Year	Budget Revenues (Billion DZD)	Petroleum Tax (Billion DZD)	Percentage of Petroleum Tax from Total Revenues	Regular Tax (Billion DZD)	Non-Tax Revenues
2000	1578.1	1213.2	76.87	349.5	15.4
2001	1505.5	1001.4	66.51	398.2	90.3
2002	1603.2	1007.9	62.86	483	112.4
2003	1974.4	1350.0	68.37	524.9	99.4
2004	2229.7	1570.7	70.44	580.4	72.1
2005	3082.5	2352.7	76.32	640.3	83.8
2006	3639.8	2799.0	76.90	720.8	119.7
2007	3687.8	2796.8	75.83	766.8	116.2
2008	5190.5	4088.5	78.76	965.2	136.3
2009	3676.0	2412.7	65.63	1146.6	115.8
2010	4379.6	2905	66.33	1298	189.8
2011	5790.1	3979.7	68.73	1527.1	283.3
2012	6339.3	4184.3	66.01	1908.6	246.4
2013	5957.5	3678.1	61.73	2031	248.4
2014	5738.4	3388.4	59.04	2091.4	258.5
2015	5103.1	2373.5	46.51	2354.7	374.9
2016	4747.4	1682.5	35.44	2722.6	342.3
2017	5563.5	2200.1	39.03	4303.5	400
2018	6714.2	2776.1	41.35	3033.1	905
2019	6507.9	2668.5	41.70	3793.4	600
2020	6289.7	1921.6	34.98	4089.3	833
2021	6597.5	2609.2	39.5	3981.9	1219.9
2022	9467.3	5657.7	59.8	3809.6	866.4

Source: Bank of Algeria annual reports 2003, 2006, 2010, 2013, 2015, 2018, 2020, 2022. Finance laws 2016; 2017; 2018; 2019; 2020; 2021; 2022.

Budget revenues peaked in 2018 at a value of almost DZD 6,714.2 billion, and total revenues are related to petroleum tax revenues.

From the beginning of the millennium until 2013, the petroleum tax accounted for about 65% of budget revenues, after which it experienced a downward trend due to the decline in oil prices, reaching 59% in 2022. Decline in the contribution of tax revenues to total revenues throughout the period.

The contribution of non-tax revenues to total revenues is insignificant, as their value is around 5% during the study period.

From the above, it can be seen that the contribution of regular taxes to total revenues was weak and below an acceptable level. Therefore, the objective of the tax system reforms, which is to replace the petroleum tax with the regular tax, is still out of reach and the following challenges can be highlighted:

- The proliferation of deductions and exemptions to encourage investment and exports;
- Low productivity in the agricultural sector and low capacity utilisation in the industrial sector;
- Widespread tax evasion and fraud and the expansion of the informal economy, with the dominance of hydrocarbons in the structure of the national economy.

Table (2) Algeria's tax gap over the period 2000-2020

Years	2000	2002	2004	2006	2008	2011	2013	2014
Tax Gap	0.20	0.24	0.21	0.20	0.29	0.29	0.24	0.28
Years	2015	2016	2017	2018	2019	2020	2021	
Tax Gap	0.30	0.28	0.20	0.28	0.3	0.4	0.38	

Source: Bank of Algeria

2.2 The Regulation Fund as the main source of public expenditure financing and its current challenges:

This fund was established by the Supplementary Finance Law of 27 June 2000, Law No. 2000-2, which provides for the opening of account No. 103-302, entitled "Regulation Fund", in the Public Treasury's accounts, and for the following to be recorded in this account:

In the revenue section:

- Excess tax revenue resulting from a higher level of fuel prices than anticipated in the Finance Act.
- Any other revenue relating to the operation of the Fund.

In the expenditure section:

- Regulation of expenditure and budget balance, as determined by the annual Finance Act, and reduction of public debt.
- Reduction of the public debt.
- The Minister of Finance is the principal authorising officer for this account.

Since 2006, Algeria has relied on the balances of the Regulation Fund to finance its budget deficits, following the amendments introduced in the 2006 **Supplementary** Finance Law (Financ, 2006), which allowed the use of its balances. This is illustrated in the figure below.

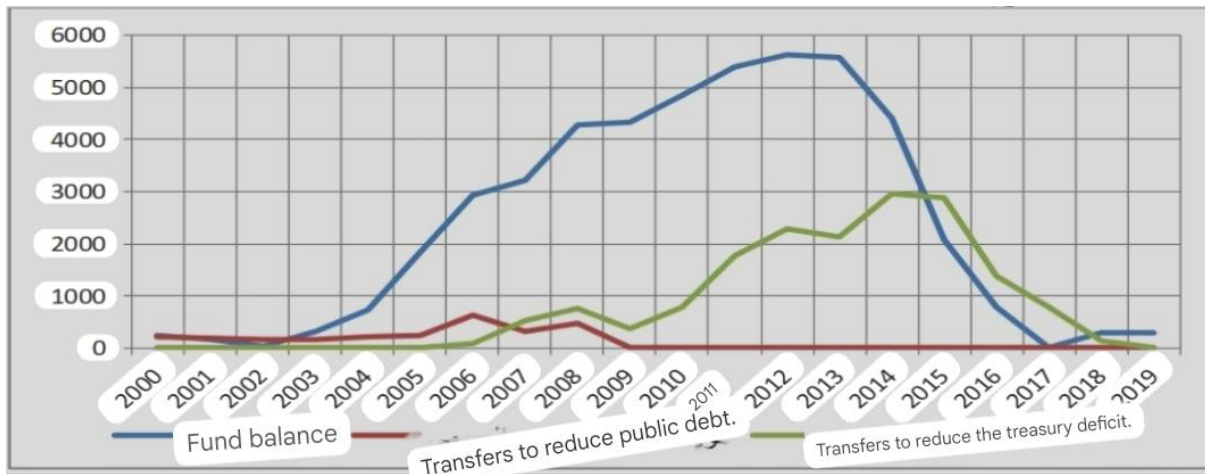


Figure (1) Evolution of the use of the balances of the Regulation Fund to finance the budget deficit and reduce public debt.

Source: Algerian Ministry of Finance; Directorate of Policies and Forecasts, available on the website of the Algerian Ministry of Finance www.mf.gov.dz

The statistics show the extent of the Fund's interventions to cover the budget deficit. Our analysis shows that the Fund's interventions have increased significantly since 2006, from around 91.5 billion dinars in 2006 to around 2965 billion dinars at its peak in 2014 (an increase of around 53 times). This means that the budget deficit absorbed an average of almost 1800 billion dinars between 2006 and 2016, equivalent to 10% of Algeria's gross domestic product (GDP). This indicates that the Fund has played a crucial role in maintaining the State's financial balance, especially in recent years.

It is worth noting that the Revenue Regulation Fund, which depleted its reserves in February 2017, experienced a recovery with a positive balance after 2019, reaching its highest level at the end of 2022. According to the Bank of Algeria's estimates, the balance of the Revenue Regulation Fund was 2295.8 billion Algerian dinars, equivalent to \$17.18 billion, the highest level since 2012. At the end of September 2023, the fund's balance was estimated at around 2300 billion dinars, equivalent to \$17.09 billion. This recovery is due to the increase in hydrocarbon prices and the improvement in revenues and financial resources, which indicate a significant improvement in macroeconomic indicators, whether in terms of the trade balance, the balance of payments or the current account. The current challenge, however, is whether this trend can be sustained.

This challenge mainly concerns the mismatch between the oil tax surpluses allocated to the Fund and the extent to which its resources are used to address the budget deficit or pay off public debt.

As is well known, the budget is based on a reference price (\$37 per barrel from 2008 to 2016, then \$50 per barrel since 2017 and \$30 per barrel in the supplementary finance law of 2020). However, the equilibrium price for the budget is usually much higher, as shown in the table below:

Table (3) The budget reference price and the actual equilibrium price (2006-2023).

Price/ Years	2006	2008	2010	2012	2013	2014	2015	2016
Reference Budget Price (\$)	19	37	37	37	37	37	37	37
Equilibrium Price	20.5	51.7	55.4	80.1	85.6	86.4	91	85
Price/ Years	2017	2018	2019	2020	2021	2022	2023	
Reference Budget Price (\$)	50	50	50	30	40	60	60	
Equilibrium Price	82	90	106	90.4	135.2	149.2	149	

Source: Ministry of Finance, Directorate of Policies and Forecasts; www.mf.gov.dz,

- International Monetary Fund report.

The table illustrates the growing gap between the reference price, which forms the basis of the budget's expenditure policy, and the equilibrium price from year to year. This reflects, on the one hand, the size of the budget deficit and, on the other, the cautious policy of injecting funds into the real economy in view of its weak absorptive capacity.

The move towards rationalising public spending in Algeria has become one of the most important challenges to be addressed, given the unprecedented increase in public spending (Momeni, 2017, p. 117), especially in the context of the significant fall in oil prices on the financial markets. The state's financial balances will not be able to withstand this level of spending in the medium term, as the budget has experienced persistent deficits in recent years due to the growth of public spending in its various forms. Algeria can rationalise its expenditure by

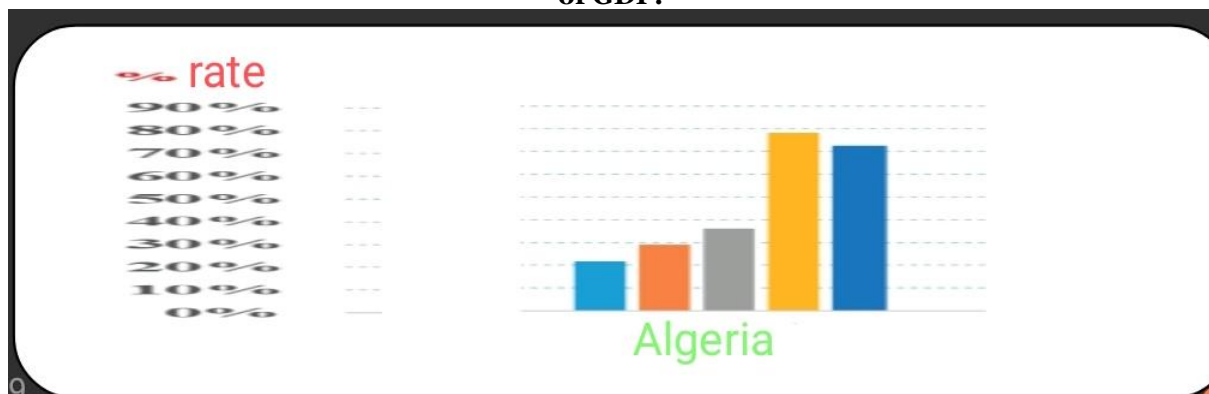
- Controlling public consumption and reviewing government support methods to ensure that it reaches those who deserve it.
- Eliminate waste and increase the efficiency and effectiveness of public spending;
- Diversify the national economy within the framework of the new economic model by focusing on the industrial and agricultural sectors and increasing their contribution to the composition of national output (currently the agricultural sector contributes about 9%, the industrial sector about 5%, while the hydrocarbon sector represents about 30% of the composition);
- Adopt a policy of avoiding unproductive expenditure and focus on the concept of maximising the benefits of public spending;
- Moving from the traditional budget model to performance and programme-based budgeting;
- Avoiding the costly policy of paying off the debts of public institutions and activating their privatisation programmes through the Algiers Stock Exchange;

- The need to focus on the private sector and enable it to contribute to the national economic process;
- Finding alternative sources of financing to the hydrocarbon sector by focusing on ordinary taxation, which should at least cover operating costs, which have absorbed more than 50% of public expenditure in recent years.

2.3 Government bonds:

Due to the inability of regular tax and fee revenues to cover public expenditures, and in order to ensure the financing needs of the budget at the best possible cost and with an acceptable level of risk, the Algerian government resorted in April 2017 to mobilising voluntary savings through the experience of bond loans at an interest rate of 5% for a maturity of three years and 5.75% for a maturity of five years. The period of issuance of bonds by the Treasury was six months, but the result did not achieve the desired objectives and did not provide more than 600 billion Algerian dinars.

Figure (2) shows the evolution of the issuance of government bonds in Algeria as a percentage of GDP.



Source: Nourane Youssef, “Strategies for Public Debt Management and Debt Market Development in Arab Countries”, Arab Monetary Fund, Abu Dhabi 2019, p.21.

Despite the importance of government bonds in financing public expenditure in the face of declining financial resources from the hydrocarbon sector, they have faced numerous difficulties and obstacles in Algeria. This is due in particular to the lack of an investment culture among households and businesses, as well as the weak media marketing of this technique in terms of the subscription process and its investment benefits, not to mention legal and religious concerns.

This poses a challenge for the appropriate institutional framework, by increasing access to the financial market and developing debt markets in both the primary and secondary segments. The aim is to deepen the government securities market and increase its liquidity, including Sharia-compliant financing instruments such as sovereign sukuk, project finance bonds or revenue bonds, and to diversify the investor base to accommodate the increased supply of debt instruments.

2.4 Islamic financial products:

Algeria is one of the few countries that have only recently opened the door to Islamic financial products, despite the urgent need to finance and reduce the budget deficit, exacerbated by successive oil shocks and economic vulnerability. Despite the advantages offered by these products, which provide unique solutions for mobilising savings and using them for development programmes, and which offer Islamic financial instruments as new channels in line with prevailing social beliefs, in addition to providing a reasonable return away from traditional interest rates, their risks are also lower compared to conventional debt instruments, as they are asset-backed.

These Sharia-compliant instruments can provide the government with appropriate solutions to recover the funds circulating outside the official financial system, which it has failed to attract despite previous measures. Through these Islamic financial instruments, the government can recover billions of dollars circulating in the parallel market or traded outside the official financial channels. This would help strengthen the gross domestic product, especially at this difficult time. It would also allow the government to reduce the pressure to turn to international lending institutions and to finance planned projects in local currency, which is better than delaying their launch, which would entail risks such as job losses.

The need to make use of the financial resources, estimated by experts at between 40 and 60 billion dollars, which are circulating outside the official framework, can prevent Algeria from resorting to the foreign market to borrow. To this end, the government could convert the interest-free bond loan into Sharia-compliant sovereign sukuk (Islamic bonds). This would be the actual launch of the Islamic financial transactions that the government has been preparing for some time (Fadil Ben Khaldi, 2019, p. 93).

We believe that it is better and more effective for Algeria to rely on Islamic financial instruments than to rely on bond loans, unconventional financing or foreign borrowing to finance the budget deficit or economic

projects. It is necessary to move towards the generalisation of Islamic banking, which has seen significant demand and success in Asian and European countries. The most prominent challenges in this direction are the establishment of a legislative, regulatory and institutional system, supporting infrastructure and qualified human resources to work in these institutions.

3. Analysis of the evolution of the public debt indicator in Algeria as the main indicator of financial sustainability:

The International Monetary Fund's methodology for defining financial sustainability is based on setting the ratio of public debt to gross domestic product (GDP) at a certain level, or a certain percentage of GDP that is targeted, so that financial reforms are formulated to help achieve this ratio. This is an assumption about the future under agreed policies for a given period, usually five years. In this case, the financial policy is considered sustainable because it has been able to stabilise or reduce the ratio of public debt to GDP (Mouash, 2020, p. 4). The ratio of public debt to GDP is one of the main indicators used by countries to assess the level of debt in relation to economic activity and the government's ability to repay it. This ratio varies from one country to another, depending on the resources available in each country. In some countries, the law does not allow this ratio to exceed 40%, while in the countries of the European Union, according to the Maastricht Treaty, it may not exceed 60%

3.1 The evolution of public debt as a percentage of GDP in Algeria:

Financial sustainability according to this indicator depends on the government's ability to ensure economic stability by maximising the benefits of the current generation in a way that is fair and preserves the benefits of the future generation (Yilmaz, 2007, p. 1). This indicator is one of the most important indicators used to measure the country's ability to meet its future obligations, and many indicators are usually used, some of which relate to domestic debt and others to external debt.

Observers of the evolution of Algeria's public debt note that it has been falling since the middle of the first decade of the new millennium, following the success of the policy of prepaying foreign debt. In recent years, however, it has started an upward trend, approaching 18% of gross domestic product in 2017, as a result of the growing increase in domestic public debt. In one of its scenarios, the International Monetary Fund expects the public debt to exceed 60% of GDP in 2022, as summarised in the table below:

Table (4) Key indicators of public debt sustainability in Algeria

Years/Indicators	Public debt as a percentage of GDP	External debt in US dollars	External debt as a percentage of gross domestic product (GDP)	External debt as a percentage of exports	Short-term debt as a percentage of total debt
2006	26.87	5.062	4	9.9	9.2
2008	8.82	4.841	3.5	7.2	21.1
2010	11.66	5.536	3.6	11.1	24.3
2012	9.9	3.654	2.5	6.9	21.7
2013	8.28	3.396	2.6	7.3	25.4
2014	8.79	3.735	2.7	8.2	36.2
2015	10.19	3.02	2.5	11.2	37.3
2016	12.2	3.17	4	12.1	38
2017	18.3	3.98	2.4	14	37
2018	19.3	4.006	2.1	13	41
2019	46.9	3.836	3	14	41
2020	53.1	3.449	2.3	13	41
2021	63.3	3.070	3.6	13.2	40
2022	63	3.036	3.7	13.07	41.6

Source: Bank of Algeria.

- Database of international banks available at <https://data.albankaldawli.org>,

- International Monetary Fund report www.imf.org

The above table shows that the public debt-to-GDP ratio declined from about 26% in 2006 to about 18% in 2017. Meanwhile, the external debt-to-GDP ratio did not exceed 3.3% on average over the period 2006-2016 and gradually declined year by year, reaching its lowest value of around 2.5% in 2015. This reflects Algeria's financial comfort and the ability of its internal resources to repay its debts during this period. Moreover,

short-term debt does not exceed 40% of total debt, which protects the Algerian economy from short-term repayment pressures. Debt service payments are included in the operating items of the budget. Moreover, Algeria's export earnings do not put much pressure on debt repayment, as the external debt-to-export ratio has declined, averaging 12% over the study period, especially in the context of growing foreign exchange reserves (\$61 billion in 2022). However, the total public debt ratio exceeded \$32 billion in 2016 and, as a percentage of gross domestic product (GDP), approached 20% in 2017, then more than doubled by more than 200% in 2022, significantly affected by falling oil prices. In the same context, IMF data showed imports of goods and services of \$42.0 billion against exports of \$31.23 billion, resulting in an expected trade deficit of \$10.77 billion. Algerian customs estimates projected a trade deficit of around \$10.6 billion in 2020, with a surplus from 2021, reaching \$18.1 billion in 2022, due to rising fuel prices and increased import discipline, as well as some growth in non-fuel exports. Conversely, the impact of COVID-19 revenue disruptions and mitigation measures widened the deficit range in 2020, despite efforts to prioritise expenditure realignment. The government must seek other financing alternatives to maintain the state's financial balances and move away from the debt cancellation policy that has cost the state tens of billions of dollars since the beginning of the third millennium. To achieve sustainable public debt, the government must ensure that public debt does not exceed 30% of GDP in the current circumstances.

We note that the 2021 Finance Act included many reforms aimed at encouraging the private sector and ensuring financial sustainability, building a strong and diversified economy based on several sectors rather than just one. These included tax exemptions to encourage domestic and foreign investment by exempting foreign investors from the mandatory partnership with a local party, except for the import of raw materials and goods for resale as is, and encouraging companies that export goods and services and provide foreign exchange, through a "permanent" exemption from personal income tax, and granting tax benefits to stimulate business incubators, encouraging companies to list their shares on the stock exchange by exempting them from corporate income tax for a period of five years, in addition to measures to promote capital formation and reduce imports. The reform also included measures to shift from general price and service subsidies to targeted support for vulnerable groups (Fund, 2021, p. 58).

Public revenue reforms: Stimulating domestic and foreign investment to increase tax revenues

Public expenditure reforms:

Budgetary governance (expenditure rationalisation policy).

Frame the import process with a set of laws.

Smooth transition from general price and service subsidies to targeted support for vulnerable groups.

Reduce expenditure on importing luxury goods to meet government expenditure.

Introduce new customs measures to limit currency smuggling and preserve foreign exchange reserves.

Accelerate the digitisation of the trade and customs sector to make the import process transparent.

Reform public debt management:

Finding alternative sources of financing for the economy, such as the issuance of sukuk, and developing the stock and bond markets by reviving the Algerian stock exchange under new rules.

Develop and revitalise the bond market.

3. Analysis of the non-oil financial sustainability index of the Algerian economy (2004-2022):

The non-oil financial sustainability equation in rentier countries shows that non-oil revenues are the target to achieve financial sustainability by financing public expenditures. Otherwise, financial sustainability cannot be ensured by relying on uncertain oil revenues, as the oil sector's revenue sources depend on external demand and are therefore exposed to international economic and non-economic changes.

This approach is based on the construction of an index to measure non-oil financial sustainability, which is the difference between non-oil revenues and total government expenditure divided by non-oil GDP. It is important to note that the values of this indicator will certainly be negative due to the rentier nature that explains the growth of public expenditure, which grows directly and proportionally to the growth of oil revenues. With this study, we are aiming at the non-oil financial sustainability index over time, which is an objective in itself. This indicator can be expressed by the following equation:

$$FS_{N-0} = (R_{N-0} - G_S) / GDP_{N-0}$$

Given that:

FS_{N-0} : Index of non-oil financial sustainability.

R_{N-0} : Non-oil revenues.

G_S : Government expenditure.

GDP_{N-0} : Non-oil gross domestic product.

Table (5) Algeria's non-oil financial sustainability index (2004-2022)

Year	Ordinary Tax Revenues in Billion DZD (1)	Non-Tax Revenues Billion DZD (1)	Total Budget Expenditures Billion DZD (2)	Non-Oil Revenues Minus Government Expenditure (1-2=3) Billion DZD	Gross Domestic Product Excluding Hydrocarbons Sector (4) Billion DZD	Non-Oil Financial Sustainability (4/3= 5)
2004	580,4	72.1	1891.76	-1239,26	3 384,4	-2,7
2005	640.3	83.8	2052.03	-1327,93	3 716,7	-2,79
2006	720.8	119.7	2453.01	-1612,51	4 146,3	-2,57
2007	766.8	116.2	3108.56	-2225,56	4 786,6	-2,15
2008	965.2	136.3	4191.05	-3089,55	5 438,0	-1,76
2009	1146.6	115.8	4246.33	-2983,93	6 209,4	-2,08
2010	1298	189.8	4466.94	-2979,14	7 130,0	-2,39
2011	1527.1	283.3	5853.56	-4043,16	8491,5	-2,10
2012	1908.6	246.4	7058.17	-4903,17	9594,7	-1,95
2013	2031	248.4	6024.13	-3744,73	10440,0	-2,78
2014	2091.4	258.5	6995.76	-4645,86	11342,6	-2,44
2015	2354.7	374.9	7656.3	-4926,7	12224,7	-2,48
2016	2 482,2	846,8	7 297,5	-3968,5	13 093,4	-3,29
2017	2 630,0	1240,9	7 282,7	-3411,8	13 699,1	-4,01
2018	2 711,8	1 228,0	7 732,1	-3792,3	15 844,8	-4,17
2019	2 843,5	1 089,6	7 741,3	-3808,2	15 509,2	-4,07
2020	2 625,2	1 094,2	6 902,9	-3183,5	15 901,8	-4,99
2021	2 762,1	1 219,9	7 436,1	-3454,1	17 167,2	-4,97
2022	2 943,2	866,4	9 660,0	-5850,5	19 071,5	-3,25

Source: Bank of Algeria.

- Database of international banks available at <https://data.albankaldawli.org>,

- International Monetary Fund report [www. IMF.org](http://www.IMF.org)

In this study, we aim to cover public expenditure, or at least current operating expenditure, with non-oil revenues, as this type of expenditure is inflexible and does not respond to oil price fluctuations. Therefore, we try to link non-oil revenues to current operating expenditures and oil revenues to capital expenditures to ensure the sustainability of rentier countries, including Algeria.

We find a direct and reciprocal relationship between non-oil GDP and non-oil revenues, which is reflected in the non-oil financial sustainability equation. All sustainability indicators are negative, indicating that public spending exceeds non-oil revenues. An analysis of the components of expenditure, GDP and revenue shows the direct and indirect impact of oil revenues on these components. When non-oil revenues increase, it is not due to tax collection or growth in non-oil production, but rather to the fall in oil prices, which affects oil revenues and, through public spending, is the main driver of all GDP components.

Therefore, targeting non-oil financial sustainability indicators by increasing capital expenditure at the expense of current operating expenditure to stimulate non-oil GDP growth, which finances non-oil revenues, is a necessary and viable proposal to ensure economic and financial stability.

It can be said that in rentier states in general, and in Algeria in particular, the relationship between the current account balance and government expenditure (the ratio of the current account surplus to public expenditure greater than one) is the basis of Algeria's economic dynamism. This is the best measure of financial sustainability, as oil exports are the main source of foreign exchange earnings. Government expenditure is therefore a function of the current account through the exchange rate, as the interest rate has a very weak impact on the demand for foreign currency, given the limited activity of the financial market and the reliance on the central bank to cover the budget deficit.

Following the evolution of the non-oil financial sustainability index and focusing on the most recent period, we find that in 2022 budget revenues increased by about 2,869.8 billion dinars compared to 2021, recording a total of 9,467.3 billion dinars at the end of 2022 compared to 6,597.5 billion dinars at the end of 2021, an

increase of 43.5%. This increase was 35.8% in 2021 and 14.6% in 2020, mainly due to an increase in hydrocarbon taxes. The ratio of hydrocarbon revenues to GDP increases in 2022 compared with 2021, reaching 34.2% in 2022 compared with 29.9% in 2021. On the other hand, the ratio of non-hydrocarbon revenues to GDP decreases in 2022 compared to 2021, from 18.0% in 2021 to 13.8% in 2022 and 20.2% in 2020.

Regarding public expenditure, after stabilising in 2017 and 2019 and declining by 10.8% in 2020, total budget expenditure increases by 7.62% in 2021. The ratio of total budget expenditure to GDP rises to 34.9% in 2022 from 33.7% in 2021. This increase in expenditure is mainly (94%) due to an increase in current expenditure of 38.2%, while the ratio of capital expenditure to total expenditure decreases to 21.6% in 2022 compared to 26.3% in 2021.

Based on these concise data for the last three years of the study (2018-2022), which are not significantly different from the other periods studied, all sustainability indicators show negative figures. This confirms that public expenditure exceeds non-oil revenues. The direct and indirect impact of oil revenues on these components is clear throughout the period. When non-oil revenues increase, it is not due to tax collection or growth in non-oil output, but rather to the fall in oil prices, which affects oil revenues. The latter is the main driver of all GDP components through public spending. This calls for a reassessment of Algeria's financial and economic situation in general.

Conclusion:

To ensure the improvement of Algeria's non-oil financial sustainability index, the state must have the political, legal and economic capacity to either limit the costs of the expenditure programmes adopted or keep them within certain rates, as well as to find new sources of revenue or increase current revenue rates. The weakness of the non-oil real sector and its reflection in the weakness of non-oil revenues, in addition to the high rates of rapid increase in the ratio of public debt to GDP, are among the most negative factors affecting the sustainability of Algeria's non-oil public finances.

The conclusions of this study are as follows:

-As a result of the exposure of the balance sheet in particular and the Algerian economy in general to crude oil prices, which are mainly linked to external factors controlling global oil markets, the main challenges to be overcome are the following.

-Since 2000, Algeria's financial balances have depended on the Revenue Adjustment Fund, but the resources of this fund have remained linked to the surplus of oil taxes, which makes its resources subject to fluctuations according to changes in fuel prices on the international markets.

-While the overall rate of external debt accumulation in Algeria has remained limited, domestic debt has increased, especially after the adoption of unconventional financing in 2017, and strengthening the Ministry of Finance's debt management capacity is an urgent priority given the growing financing needs of the economy.

-Achieving long-term non-oil financial sustainability requires protecting the budget from oil price fluctuations by financing the necessary expenditures for the continuity of government activities on the basis of sustainable resources, while facing many challenges, some of which are related to addressing imbalances in the general budget, diversifying financing sources and rationalising public spending, while others are related to the need to control public debt, especially domestic debt.

-The digitalisation of finance and digital technology in Algeria requires a reform agenda that addresses all areas of weakness. In addition, electronic payment systems and financial inclusion not only contribute to reducing the cost of revenue collection, but also allow the expansion of its base. They also facilitate the process of expenditure disbursement within a framework of transparency and discipline, significantly reducing the cost of programme implementation.

-Increasing the growth of non-oil revenues linked to economic activities, while finding stable sources of revenue in the medium and long term to finance development projects and expenditure with a social and economic dimension;

-Preparing a budget that is consistent between preserving the sustainability of public finances and the growth of the gross domestic product, through strategic spending aimed at exploiting available opportunities to strengthen the private sector and its role in achieving economic diversification and increasing its contribution to the gross domestic product to become the main driver of economic growth, by continuing efforts to improve the business environment and giving a greater role to small and medium-sized enterprises.

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