Abstract: The hydrocarbon impact on an oil economy has been tackled by many economists over the years and demonstrates that oil and gas revenues have many benefits if the countries have utilised them successfully. However, many of these countries have found out that these windfalls, based on exhaustible (non-renewable) resources, become more a curse than a blessing particularly in the developing countries, which have suffered from a poor institutional system, and this is of great interest to some economists. In addition many researchers have found that there is a relationship between resources and rent seeking, particularly when the country depends heavily on these resources and is perceived as lacking in political maturity. Several fiscal policies have been adopted by resource exporting countries mainly for addressing the negative adverse of the so called resource curse, among those policies, diversification seems to be the most important on dealing with the dependence of such economies on the export of their resources. This paper deals with the economic diversification and fiscal policy orientation in Algeria. It contains the novel suggestions for diversification rules applied in Algerian economy.

Keywords: Oil-exporter countries, Diversification, Fiscal policy, Oil fund, Governance, Algeria.

JEL Classification: H11, H27, H30.

Introduction

The resource curse refers to the paradox that countries and regions with an abundance of natural resources, specifically point-source non-renewable resources like minerals and hydrocarbons, tend to have less economic growth and worse development outcomes than countries with fewer natural resources. This is hypothesized to happen for many different reasons, including a decline in the competitiveness of other economic sectors (caused by appreciation of a real exchange rate as resource revenues enter an economy), volatility of revenues from the natural resource sector due to the exposure to global commodity market swings, government mismanagement of resources, or weak, ineffectual, unstable or corrupt institutions (possibly due to the easily diverted actual or anticipated revenue stream from extractive activities).

The economic diversification is perceived as the way of curing the natural resource rich-countries from the paradox of plenty, for that reason, the following part will analyse the concept of economic diversification strategy.

The aim of this paper is to propose a road map for the implementation of public incomes diversification in Algeria in order to remove the dependence of fiscal policy on the petrodollar.
1 The theoretical background

1.1 The economic diversification

Economic diversification is generally taken as the process in which a growing range economic output is produced. It can also refer to the diversification of markets for exports or the diversification of income sources away from domestic economic activities. [15]

In petroleum- dependent economies, diversification is persuading as a process of converting limited and non-renewable oil and gas resources into sustainable development and prosperity. [1]

Economic diversification means heavily reducing dependence on the oil and gas sector by developing a non-oil economy, non-oil exports and non-oil revenues.

The resource-dependant economies are heavily relied on a single source of income and extremely vulnerable to the instability and volatility of global oil market. Therefore, “dependence” would be a better antonym of diversification, consequently the best and easier way to quantify metric would consist on a combination of the share of petroleum in export earnings (percentage of export oil and gas earning by all export) and fiscal revenues (percentage of oil earning by all revenues), in addition to the value-added of oil sector to the total GDP.

The strategy of economic diversification need an economic and politic environment which can help to insure the process summarized it in the following point:

- **Macroeconomic stability** - one key element of diversification policy is therefore prudent macroeconomic management over the resource cycle, to help stabilize the economic setting for the non-resource traded sectors, which represent a difficult mission, in one side, according to inability to predict the future prices, and in the other side the high volatility of resource prices, particularly for oil, where the coefficient of variation is close to 0.7. [4]

- **Constitution of human capital**: sustained attention to quality education on a broad basis to close the gap must be a key component of diversification policy (Ortega, Gregorio 2007 in [4]) find that, larger is the stock of human capital, more is positive the marginal effect of natural resources abundance on growth. Norway and Australia has successfully used their natural resources to further developmental outcomes because of them high and growing levels of human capital.

- **Institutions and good governance**: an abundant literature suggests that natural resources have a negative impact on growth performance among countries with low institutions quality, some of this literature considers that bad quality of institutions is the root of diverging growth paths of a successful and less successful resource-rich countries. The democratic character of institutions is not the only issue but the existence of control institutions can create a kind of “balance of power”, because competition for natural resources rents can make the democracies malfunction. [3]

Resource economies with strong institutions will have a wider range of potential options for diversification than those where institutions are weak, Gelb and Turner had established a conclusion following them study, that nine African oil-exporters with an average
GDP/head of USD 979 scored the lowest average on governance indicators\textsuperscript{12}. In contrast, a set of eleven low income non-oil African countries, with average GDP/head of only USD 300, that had grown relatively rapidly over the previous decade scored around three times higher. [5]

1.2 Fiscal policy in oil exporting countries

Fiscal policy in oil exporting countries (OEC) faces a number of specific challenges, these challenges mainly stem from the fact that oil revenues, which constitute the bulk of government revenues are exhaustible (non-renewable), volatile, uncertain and largely originate from external demand. In particular, as oil revenues, are large and in the most countries accrue to governments, so the fiscal policy choices have a significant impact on economic performance (economic growth, inflation and current account balance).

Focusing on fiscal policy is justified also by the fact that in OEC’s, the scope for curbing inflationary pressure as a natural effect of expansionary policy through monetary policy being constrained on the view of prevailing fixed exchange rate pegs or tightly managed floats, fiscal policy has been the main macroeconomic tool available to control inflation.

Government in OEC’s in other side, were facing various pressures to increase spending, they have been confronted with the choice of saving the windfall revenues resulting from high oil prices or increasing expenditure on physical and social infrastructure. In the short run this choices has a cyclical implication. It also relates to the long term fiscal challenges, as the implications for intergenerational resource allocation and fiscal sustainability depend on the expected returns from accumulated financial assets versus returns from public capital expenditure.

According to the fiscal objectives explained before, the governments in OEC’s have adopted three main instruments:

1. **Conservative oil price assumptions in the budget**: consists in the evaluation by the government of the future oil prices and establishing the state budget according to the evaluated price, overestimation/underestimation, flowed/compensated from the oil fund;

2. **Oil stabilization and saving funds**: executives of most OEC’s have set up oil stabilization and/or saving funds which manage part of the country’s foreign assets and usually invest them more aggressively than central bank invest traditional foreign exchange reserves. The establishment of these funds is mainly driven by fiscal policy considerations, some funds are managed directly by the existing fiscal authorities and operate inside the budget framework without any earmarking of revenues, and they are often termed as virtual or informal funds. While, formal funds are managed by special appointed boards (fixed council) and operate theoretically, partly or wholly outside the government budget. The revenues of formal funds are earmarked for special purpose, in some case they contribute to enhance the effectiveness of fiscal policy by de-linking budget expenditure from revenue volatility; the formal funds are directly connected to the level of institutional capacity of the country to manage it effectively. [14]

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\textsuperscript{12} Governance indicators calculate the capacity of governments to effectively formulate and implement sound policies and the respect of citizens and the state for the institutions that govern economic and social interaction among them, the main indicators adopted by the World Bank are (i) voices and accountability, (ii) political stability and absence of violence (iii) regulatory quality (iv) rule of low (v) control of corruption.
3. Fiscal convergence criterion: a large part of economic literature provides theoretical and empirical evidence about “deficit bias” mostly about industrialized countries much less about countries dependent from export commodities. Fiscal rules can be seen in the former as particularly useful for guiding fiscal policy and as tool which can help to contain the deficit bias of governments by limiting their discretion with regard to specific parameters of fiscal policy. Fiscal rules can be quantitative i.e. provide numerical benchmarks for one or more key parameters of fiscal policy with the aim of limiting political discretion or procedural by improving budgetary institutions and their management.

2 Algerian oil exporting economy description

The first major discovery of oil in Algeria was made in 1957. Gas production began in 1961. While the country has the eleventh largest oil reserves in the world, it is particularly rich in condensates and natural gas. [10] Algeria possesses the world’s fifth largest proven natural gas reserves. By the late 1990s, natural gas constituted 70 % of Algeria’s recoverable hydrocarbon reserves, and crude oil 30 %. Until the mid-1970s, massive redistribution, made possible through the availability of oil revenues. Oil has been discovered in 1957, and by the end of 1960s it became the principal source of export income for the government.

From the nationalization of the hydrocarbon sectors Algeria has experimented several strategies of diversification by investing the hydrocarbon revenues to others sectors as in agriculture and industry unfortunately unsuccessful. Actually, the hydrocarbon sector remains the principal industry of Algeria’s economy; the hydrocarbon sector makes up approximately 48 % of total GDP, 79 % of total government revenues and 98 % of total export. [1] See Fig. 1.

Fig. 1: Algeria’s Dependence of Hydrocarbon (1962-2008)

Whereas, the share of hydrocarbon export revenues was saved in exchange reserves; in oil stabilization fund officially called “Fond De Régulation des Recettes” (FRR) or used to reduce drastically the external and internal debt. Indeed, the present fund permitted first to reimburse as domestic as external debt by anticipation after negotiation respectively with the Paris Club (states) and London Club (banks). The Fig. 2 below shows the use of oil windfalls to reimburse external debt and the growth of exchange reserves which reinforced the external position of Algerian economy.
Fig. 2: Soaring receipts from hydrocarbon exports have boosted the external position in Algeria

Source: own compilation according to data from IMF, OPEP.

The excellent macroeconomic position of Algeria ranked by the World Economic Forum (2010) as the 5th country in term of macroeconomic stability, this performance is mitigated by other competitive factors related to the lack of infrastructures, innovation and sophistication. Areas of particular concern are the perceived poor functioning of goods, labour and financial markets as highlighted in the following figure (Fig. 3).

Fig. 3: Algeria Competitiveness Strengths and Weaknesses in 2010


The former figure demonstrates also a relative weakness in the human capital and failure in Institutional level. The Analysis of the level of human capital in Algeria shows that although the high spending and investments in the sectors of education and health, the result still mitigated (see the report of United Nations development Program, Human development Index: Algeria, 2010).

The level of good governance has a negative trend in Algeria, mainly due to the weakness of institutional level, especially the Parliament comparing to the executive, which enables the parliament to play a role of “balance of power”, this situation can be explained by Algerian political history in one side, in the other side it can be explained by the quasi-non-existence of tax system excluding the Algerian citizens from the public debate, the weakness of taxation system is perceived as the consumption of oil windfalls through
reduced taxation (see the table below), this weakens demand for representation and democratic accountability.

**Tab. 2: The share of non-oil taxes**13 on total revenues in Algeria actual and projections

<table>
<thead>
<tr>
<th>Actual (% of total revenues)</th>
<th>Projection (% of total revenues)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>2007</td>
</tr>
<tr>
<td>19.80</td>
<td>20.79</td>
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Available on [<www.imf.org>](http://www.imf.org)

Weakness of taxation system apply the lack of transparency, especially the openness of public budgets, the last report of open budget index (2010) evaluated 1/100 for Algeria (see Open Budget Report, Algeria, 2010).

3 Algerian fiscal policy and its diversification

3.1 Rationale fiscal policy of Algeria

The deficit on infrastructure makes the Algerian executive expanse the public investment by spending the hydrocarbon windfalls in different sectors. Unfortunately the public investments don’t have the positive impact (see the annexe of the occasional paper No. 104 of European Central Bank, page 20).

Although this argumentations, the fiscal policy in Algeria knew since the last decade some sophistication comparing to the anterior periods, mainly based on the introduction of conservative oil price assumption as a fiscal rule and the establishment of the oil fund; the following organizational chart summarized as well receipt flows to and from the oil Fund with connection to the government budget.

The fund was established officially in 2001 by the initiative of the Minister of Finance [2], the main issues were to rebuild infrastructure destroyed by several years of terrorism and increasing the institutional control over the government spending. The World Bank report [13] confirms that exists in Algeria powerful groups which handicaps any transparency reform, wishing to retain them traditional power and influence over expenditure and are keen to preserve their autonomy. All this makes reforms implementation difficult and complex, the Bretton-Wood institution concludes that reforms will not bring any enduring change because some see an opportunity to regain control over the sector policy and tends to be defined by players who may perceive that the increase of transparency or streamlining of budget execution controls as a threat to their private interests.

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13 The non-oil taxes represent all taxes within those emanating from the extraction and commercialisation of minerals and hydrocarbons, it’s include in Algeria four subsystems: global revenue taxes (IRG), firm’s benefits taxes (IBS), professional activity’s taxes (TAP) and value added taxes (VAT).
Other may perceive increased transparency or streamlining of budget execution controls as a threat to their private interests. Some observations can be done:

a) The overview of the scheme shows the duplication of the Fiscal policy by the oil Fund; Annual budget (current and capital expenditure), Oil Fund by investing in infrastructure (current and capital expenditure).

b) Except the establishment of budget according to oil price assumption it doesn’t exist any other fiscal rule which constrain executive to spend oil revenue, instead focusing on non-oil deficit.

c) The figure demonstrates that oil revenues constitute the bulk of government budget, in the same time the oil windfalls are spent on current and capital expenditure, which gives the public investment a key role for diversifying economy, especially because Algeria focuses on capital accumulation instead on financial accumulation. The Algerian executive increased significantly the public investment in package officially named “five years program of public investment” (2001-2004: USD billion 6.9; 2005-2009 USD billion 150; 2010-2014: USD billion 286) mainly dedicated to improve infrastructure gap, by order of importance, the investments inflow to: social housing, public infrastructure, water equipment, youth and sport, rural development, high education, national education and finally health care, according to the same source, 4.5 % of total investments inflow to agriculture, 9.4 % for industry and 1.3 to enhance the creation of microenterprises.

Despite the ambitious feature of the investments, this can point the redistribution role of the state instead its efforts to make the economy more productive. In other words, the state continues to redistribute wealth and not create it. [8] In addition, clear rules do not exist and the executive seems respond to the stronger pressure than to a clear subsidies management.
The impact of public investment on the economy depends on its efficiency, i.e. its capacity to produce a unit of output using the lowest combination of inputs; with regards to “Keynesian perspective” any increase in aggregate demand -whether from consumption, export or investment- can elicit an increase in actual GDP, which will continue so long as investment keeps expanding. However, whereas all the investment positively affects potential GDP, its impact as a source of real growth depends on its efficiency. In Addition, quality also requires Cost-Benefit Analysis (CBA), that allow to optimize the use of resources could be misallocated and wasted rather than channelled to a sustained growth.

According to the points developed above, some recommendations are needed to conclude about what can be done to perform the Algerian economy by decreasing its reliance to the hydrocarbon windfalls in term of government revenues, its share on total GDP and export.

3.2 Proposal of road map for an economic Algerian diversification

According to the high level of oil revenue especially during the last decade and the huge bill of public investments, Algeria is in the crossroads between harnessed the opportunity to sustain long term economic and employment growth and continues social development or will be squandered through inefficiency, waste and corruption. With regards to the important points developed across this paper, we established a “Road Map” that we consider useful to underpin the Algerian economy and its independence from resource incomes to a sustainable one.

1. Algeria has an urgent need to build a clear diversification strategy as a long-run consideration to reduce its dependence to hydrocarbon revenues with regards to the risks of depletion (physic or technologic). The clauses of this strategy should be understood, accepted, adopted and should enjoy a high degree of consensus, for that reason, Algerian state should improve the degree of transparency as the main condition to attempt credibility of the public by:

- Reinforcement of institutions, particularly the Parliament by widening its responsibilities in term of financial control transaction in public administration (line ministries, Presidency, local Administration, public firms and agencies), this can be possible by the appointment of Auditing court president, who must be answerable; by the parliament submitting an annual report about financial transactions as stipulated in law. In other side, the deputies should be able to debate rationally the economic questions far from political considerations; they should also consider the importance of the public service, as for ministers and bureaucracy;

- Introduction of explicit and implicit transparency rules by opening them budget to the public, in this case the information systems must be improved by publishing the policies of each sector in its own and them evaluations, this information systems should be an integrated point of a larger public communication which includes free mass media and public debate in order to create a dynamicity around the main strategy.

- Hardening of counter-corruption legislation and its strict application in the form of dissuasive punishment, which apply the “Rule of Law” by making Justice more independent.

2. Concerning the fiscal policy, Algeria should restrain the government to spend more oil windfalls by introducing fiscal rules, this consequently make the government focused
on non-oil growth. In this way, the monetary policy should be integrated to maintain a macroeconomic stability by given more liberty of action to the Bank of Algeria. It is noticeable that the Central Bank of Algeria has successfully absorbed liquidity caused by the huge public investments and maintains an acceptable inflation rate.

3. Concerning the FRR (Algerian oil fund) Algeria should continue to hedge oil revenues which enable its economy to be protected from the fluctuation caused by an unstable oil market. However and especially after the reimbursement by anticipation of the external and internal debt, the executive must be guided also by rules to don’t outflow fund to underpin the weak of its policies and a non-efficient investments. In this case, the fund must be institutionalized and under the control of Parliament as ultimate owner (inflows and outflows must be agreed by this institution);

4. Algerian government must develop a modern unemployment system as an automatic stabilizer smoothing the trend of the economy; employment can be enhanced through targeted labour market reform such as more flexible labour market regulations to enable enterprises to respond to markets signals, the role of the public sector will need to be reshaped from the purveyor jobs, to provider of sound physical and institutional infrastructures;

5. If the fiscal policy is the main tool which enable the executive to concrete the objectives of diversification strategy, the public investments are the transmission mechanism enabling the government to recycle its oil windfalls on sustainable wealth; as related before Algeria focuses more on capital accumulation (human capital as for housing, health care, education, or on infrastructure high ways, bridges, ports, airports, water equipment) instead developing sectors representing a new-value-added to economy. Despite the importance of infrastructure as a “growth gap” Algerian executive should allocates more credit to sustain private projects, indeed after deep evaluation of the return of those projects (using quantitative and qualitative methods and the cost-benefit analysis) the executive should be sure that in case of failing the outflows return to the fund, this can impacts positively by absorbing unemployment, and in the medium-term (because of taxes facilities) the new source of budget revenues can inflow in form of taxation;

Harwick in 1977 showed that investing all resource rents in others assets will yield sustainable development with non-exhaustible resources; this is the famous “rule of Harwick” which was defined by Solow (1986) as a rule of thumb for sustainable development. [6] In its public investment management part, the implementation of Harwick Rule must insure that resource rents are invested efficiently including physical investment. Applying the Harwick rule requires sound fiscal policy and public investment management, the good practice of public investments are:

- Consistency with development strategy (diversification),
- formal projects appraisal (evaluation) and independent review,
- integrated with budget cycle,
- effective project implementation and adjustment,
- integrated into government asset accounts,
- post-implementation assessment (estimation).
In Algeria some indications must be related considering the efficiency of public investments, there are summarized in the following points:

a) The restructuring of the national public investment system: An overhauled public investment system should move away from a “project by project” approach to a multiyear sectoral programming approach whereby projects are selected on the basis of sound sector strategies. In addition, investment projects must meet minimum standards and sound costing. Otherwise they should be not approved.

b) The new role of the CNED\(^{14}\) (Caisse Nationale d’Equipement pour le Développement): In support of the national public investment system, CNED should play a critical role in making sure that, sectoral priorities and minimum technical standards are respected for major projects.

c) The modernization of budgetary management: Algeria does poorly in international rankings of budgetary management. A vigorous process of reform is on-going, as important failures are yet to be addressed, some of them indirectly related to support public investment implementation such as new budgetary reclassification, a new organic budget law, a medium-term expenditure framework, a performance-based budgeting and an IT-based budget system.

Efficient public investment will impacts positively on human capital, an adequate infrastructure and the rising of potential sectors which represent a new-value added to the economy (agriculture, industry, tourism and other services) those potential sectors have to underpins the internal supply–decreasing the government import bill on food and commodities—first and in medium-term, regional and international supply, consequently this influence positively:

- Non-oil export: in this case, Algeria should consider several experiences such as in Indonesia or Malaysia. According to the World Bank, the potential sectors defined as a spillover for export diversification in Algeria are meat milk and fishing sector, other agro-industrial products and chemicals, steel and aluminium, metal product and shipbuilding [9];

- gradual increase of taxation: Algeria introduced a new tax reforms in 2003, we have already explain the impact of taxation as a sustainable fiscal revenues and as a tool for increasing accountability and good governance, in this way Algeria should improve it and observe the principles of good taxation such as (efficiency, understandable, equitability, benefit principle). The taxes should be agreed by Algerians as an alternative to oil revenues. From this point of view it is important to remain the necessity to build a strong tax administration as provided in Botswana, which enable the state to limit the high level of tax avoidance.

- User and other fees: Algerian should stop to act as a “providential state” instead “regulation state” and should introduce fees (user, administrative) to underpin

\(^{14}\) The CNED have as mission: 1. The efficiency of government expenses the evaluation of the public projects and their financial means diversification; 2. The management rationalization of equipment expenses by optimizing implementation’s costs; 3. Technical assistance for the public projects realization; 4. Advices the feasibility of the public projects at the economic, technical, social and financial levels. Public projects in Algeria are not controlled by the CNED when they are realized and the role of the CNED is not a decision maker but only advise maker. For more information see the Algerian official journal No 36 of the 6th June 2004.
the infrastructures and to finance public services, with regards to the principle of solidarity.

New non-oil export, gradual taxation, and fees may represent a new source of incomes to the government budget increasing real non-oil GDP and make less strong the reliance of the economy to hydrocarbon resources. In other words concrete a Diversified economy, the cycle can be repeated several times until attempting a respectable share of hydrocarbon on the national economy, then priorities should change to a financial accumulation (by investing abroad).

This cycle needs a good will of the executive surrounded by a large public consensus to the government action. The road to diversification may be long and difficult but we still trust that changes and reforms can be provided by the authorities.

**Conclusion**

The analysis provided shows that each diversification process must be surrounded by an adequate environment mainly concentrated on a good macroeconomic stability, constitution of human capital, high level of good governance, and the adoption of an efficient public spending. The latter condition underlines the importance of the fiscal policy as the main tool to deal with hydrocarbon windfalls, and the necessity to restrain governments on oil-exporter countries to spend efficiently oil and gas revenues. The efficiency of public spending apply the efficiency of public investments in projects which will underpin the creation of wealth instead it distribution.

The case study of Algeria established the real need to invest the oil revenues on infrastructure and social projects. However some empirical studies established the inefficiency of public investments in Algeria, mainly due to the lack of control institutions and the choice of projects which don’t have a value added returns to the economy.

In this way Algeria needs a several political and economic reforms; the political reforms consist on the reinforcement of the parliament as a control organ and the openness of public budgets for more transparency and accountability. Economic reforms include the establishment of a national strategy encouraging the diversification process, in order to decrease the reliance of it budget from natural resources export by the modernisation of the public finances, taxation system, and the public investments. The former should more focused on the private sector and sectors which can represent a new value added to the economy, those projects must be submitted to a strict evaluation and should include it positive impact by creating a new revenues to the government budget to insure first, a future fiscal sustainability, then in the long run oil revenues can be financially accumulated.

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**References**


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