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Nigeria: No longer an oil state?

Sarah Burns & Olly Owen

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Summary of findings

- While there is much speculation about Nigeria's probably post-oil future, it is in fact already a present reality: **In 2015, for the first time since 1971, Nigeria's public finances had already earned more from non-oil sources than from oil revenues. *The transformation to a post-oil future is already in the past.***
- The transformation has come from both a rise in non-oil tax collection and a decline in oil prices and thus revenues.
- In the latest year for which figures are available, Nigeria's Federal Government relied on oil income for **47% of its revenues**, far from the figures often quoted.
- According to available data, Nigeria's Federal Government collects 5.53% of GDP in revenue, while if the taxes collected by State governments are included, the figure rises to 6.27%. As state governments are the primary collectors of important forms of tax including property taxes and personal income taxes (PIT) we suggest that **the most accurate statement of Nigeria's tax to GDP ratio is 6.27%**. Yet even this is an *underestimation* as figures are not available for several important revenue sources.
- **2.63% of GDP** consists of direct revenues from the oil and gas industry, and **3.64% of GDP** from non-oil revenue streams. **Thus non-oil sources already contribute more than half of government revenues.**¹
- Revenue collection efforts have seen a big rise in non-oil taxes in nominal terms; however much of this gain has been wiped out by currency depreciation and inflation, meaning that **non-oil taxes have held more or less constant in real terms while oil revenues declined.**
- While Nigeria's political economy seems to have reached a tipping-point away from oil, **core institutions and policies continue to lag behind** as they remain structured around assumptions that oil is central. Fiscal policies, spending, distribution, accountability, political practice and even the nature of federalism are all built around a model of centrally redistributed oil money. But this is going

¹ In 2016, the latest year for which figures are available.

to be less and less the norm so the institutions will need to readjust to the reality.

Introduction and methodology

This research was begun in frustration at the paucity of data available on critical issues centring on Nigeria's real level of fiscal reliance on oil, usually assumed to be overwhelming; and on the inexactness of estimations of the ratio of tax to GDP, usually said to be one of the lowest in the world. We know that Nigeria has a diverse economy encompassing agriculture, services, trade, transport, industry and other sectors, but that government finances remain very closely tied primarily to oil revenues. Many scholars (one of the current co-authors included) have uncritically quoted estimations of Nigeria's oil-reliance at 85% of government revenues and similar estimations are found throughout frequently-quoted foundational literature on Nigeria. However it is not clear to what extent, if any, this is based on fresh calculations or simply on the quoting of figures constantly recycled between sources.

Equally, Nigeria's level of tax to GDP is often lambasted as one of the world's lowest, and a key issue for reform efforts. Yet the actual level quoted has varied between sources. Total revenue to GDP for 2016 is variously given as 5.3% (IMF)²; as 6% (Minister of Finance Kemi Adeosun)³; and total non-oil revenue as a ratio of GDP as 3.25% in 2017 (IMF)⁴, 4.6% (Oyedele/PWC)⁵ In this situation the figure chosen seems often to derive more from the authority of the person or institution quoting it than any clarity as to the sources and method. Moreover, Nigeria is a Federal nation in which the powers to tax are shared between Federal (i.e. national), State and Local Governments. Broadly speaking, the most important aspect is that the Federal government collects oil revenues such as royalties, petroleum profits tax, revenue from crude sales, and so forth. On the non-oil side, the Federal Government collects corporate incomes taxes while States are entitled to personal income taxes. Yet none of the calculations above can shed light on what proportions of this tax-to-GDP or overall take are contributed by which level. Even the recent IMF study (ibid.) refers only to a proxy category called 'SLG

² February 2018 Country Report: [NIGERIA SELECTED ISSUES; IMF Africa department](#).

³ <https://www.thisdaylive.com/index.php/2017/04/23/adeosun-nigerias-tax-to-gdp-ratio-among-lowest-in-the-world/> accessed August 7, 2017.

⁴ March 2018: 2018 ARTICLE IV CONSULTATION—PRESS RELEASE; STAFF REPORT; AND STATEMENT BY THE EXECUTIVE DIRECTOR FOR NIGERIA, Country Report No. 18/63.

⁵ Taiwo Oyedele/PWC, <http://www.pwc.com/ng/en/publications/gross-domestic-product-does-size-really-matter.html> accessed August 7, 2017.

independent revenue' without any detailed data to support it.⁶ So there are huge gaps in the information which is essential for anyone seeking to correctly analyse Nigeria's fiscal political economy and prospects. Therefore we set out to calculate the levels of these more accurately, and made some surprising discoveries.

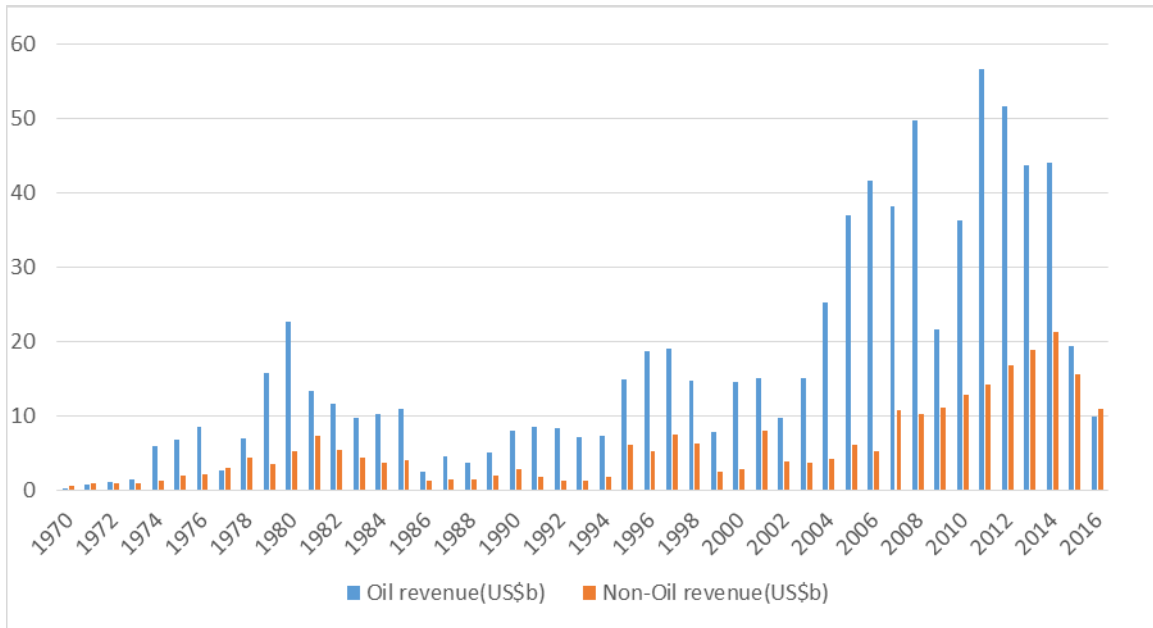
To ensure as much consistency as possible with other sources, we have used Nigerian government data throughout. The advances made in data compilation and dissemination by the Central Bank of Nigeria, the Nigeria Bureau of Statistics and the Joint Tax Board/Federal Inland Revenue Service, and the professionalism and willingness of those Federal Government bodies to collaborate with researchers are gratefully noted by the authors. The narrative is explained step by step with accompanying data graphics. To be transparent about methodology we include supplementary information and explanation as footnotes in order to facilitate the narrative flow, and full information on creating the real terms values is supplied in an extended endnote.

Step 1: Comparing the figures on oil and non-oil revenues

Data on Federal (national-level) oil and non-oil revenues are compiled by the Central Bank of Nigeria (CBN), Currently oil and non-oil tax revenue values by the CBN are presented in nominal terms and in the national official currency (Naira). The graph below⁷ takes this nominal data and translates it into dollar amounts as a crude means of adjusting for changes in the value of the Naira over time.

⁶ Repeated requests to the IMF for clarification as to how this figure was composed were unanswered, with one Fund representative (anonymised) suggesting either that it was a self-generated proxy figure or a simple mistake.

⁷ Bolarinwa/Owen, CBN data. First cited in Owen, O. 2018, 'Trust, taxation and representation' in LeVan (ed) *Oxford Handbook of Nigerian Politics*, Oxford: Oxford University Press.



We can see from the above that since 1971, the Federal Government of Nigeria has earned more from oil revenues than non-oil right up until 2016, marking a 45-year era of oil dominance. The clearest transition came in 2014, when a steady growth of non-oil revenues met a steep fall-off in global oil prices in that year. However, this picture is not particularly meaningful until we adjust it to take account of the value of the Naira in citizens' pockets over that period.

Step 2: Adjusting to real terms

In the time-frame that we are analysing, 2000 to present, inflation in Nigeria has been relatively high; 11 of those years have been in the double digits. The high rate of inflation in Nigeria is due to a combination of substantial economic growth and the pass-through effects of imported prices to domestic prices via high mark-ups. Thus, the value of the tax revenue must be adjusted to consumer prices to understand the true purchasing power of the government from those revenues.

Creating real values for the tax revenues requires a price index. The data for the oil and non-oil tax revenues is from the Central Bank of Nigeria and is expressed in billions of Naira. The data for Nigeria's Consumer Price Index (CPI) used is from the National

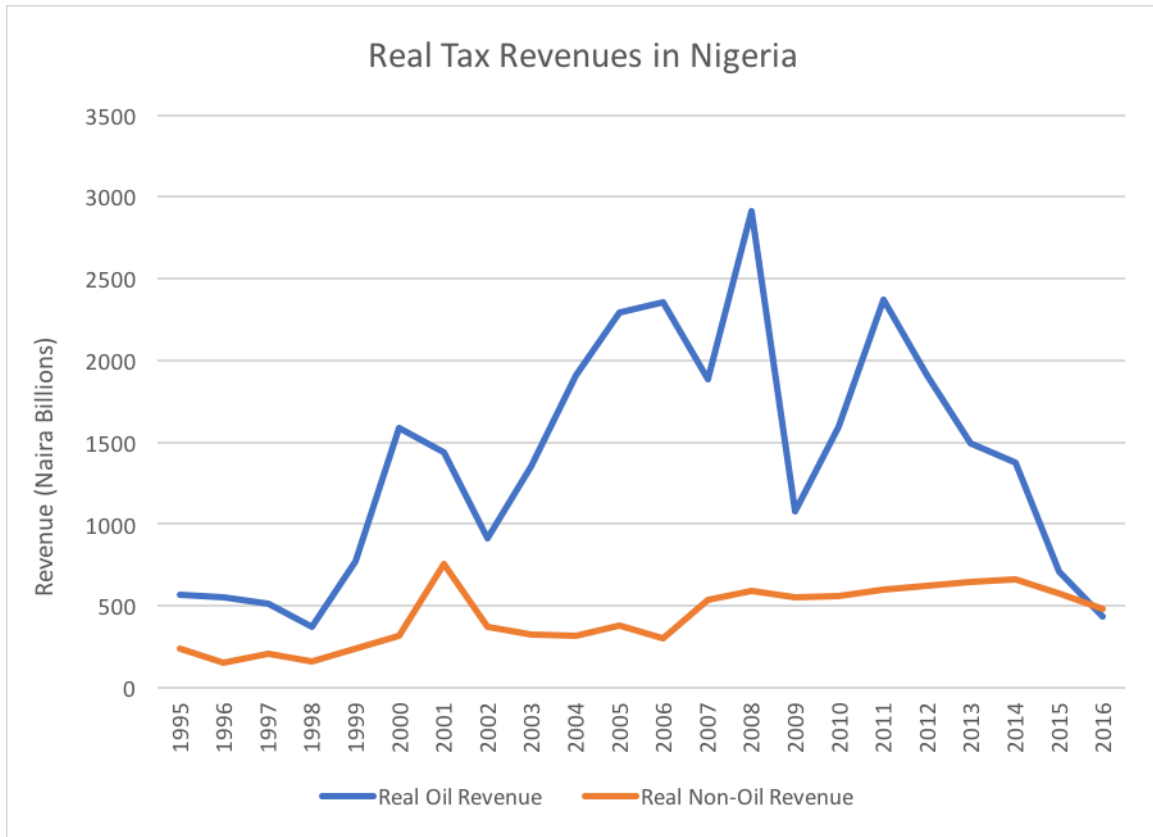
Bureau of Statistics (NBS) of Nigeria's all-items CPI, which measures a basket of 740 goods and services.⁸ More information is contained in the methodological endnote.

NBS CPI data presented is monthly averages, so the first step is to develop annual averages for the price index. The next step to convert the values is to determine the base year where the index is put at 100. The base year that NBS uses is 2009. However, for tax revenues, 2009 may not be the best base year to explain this story. We choose to make the base year 2000 for two reasons. Firstly, it is the year when nominal non-oil revenues start to increase and where the story on tax revenues really begins to take shape.

Secondly, significant policy and constitutional changes affecting taxation and revenue were made in Nigeria after the transition to an elected government in 1999, making that a better point to begin the comparison.

Once CPI was transformed to use 2000 as a base year, then we converted to real values. The graph below shows the resulting real tax revenue values for Nigeria.

⁸ The NBS maintains an all-items CPI, a food CPI and core CPI (all items excluding food and energy). Since the Nigerian economy is dominated by both the agriculture and energy sector, it is important to include those prices in the price index that is used.



Analysing this graph, we can see that compared to the nominal tax values above, once the price index is included, the real values have a much less predominant upward trend between 1995 and 2016. Although there is a slight upward trend in the non-oil tax revenues, the line is almost flat.⁹ In other words, despite increased tax effort by FIRS and others, the gains were neutralised by negative factors including inflation, but also likely effects of currency movements and recession. Oil revenues earned in dollars not only fell, but the dollars converted to ever-more Naira as the currency depreciated.

Further, non-oil tax revenue moves similarly with the commodity price booms – most noticeably in 2001-2002, and to a more muted extent in 2005 and 2007-2008, transitioning to a near-stationary (overall flat) trend.

In real terms, Federal-level oil revenues narrowly exceeded non-oil tax revenues in 2015 (N713 billion oil revenue or 4.02% of GDP and N574 billion or 3.23% of GDP in non-oil), and oil was lower (N433 billion) than non-oil (which reached N480 billion) in 2016, making this the first year since 1971 that Nigeria’s Federal Government was more fiscally reliant on non-oil revenue than oil; a point which may mark a historic tipping

⁹ Modelling would need to be used to determine whether this is a statistically significant upward trend.

point bookending the era of Nigeria as the paradigmatic example of a hydrocarbon state.

However, in real terms, this is not necessarily due to a large increase in non-oil tax revenues over the years. Instead, it is because of a small increase in real non-oil tax revenues and a substantial decrease in real oil tax revenues, due in large part to a contraction of global prices.¹⁰

Also interesting is that converting the nominal revenues into real values also takes away some of the correlation between oil and non-oil revenues. This may imply that non-oil revenues are no longer as highly dependent on oil revenues as they once were – that for many important sectors, Nigeria’s economy is becoming slowly but progressively more detached from the fortunes of the oil sector. This could be because of supply-chain effect, consumer confidence/wealth effect, or other reasons. However, a statistical model would have to be developed to determine significance in this hypothesis.¹ Such a model would need to account for the extent to which various sectors of Nigeria’s economy were differently linked to the oil sector via government spending, especially as some sectors are heavily informalised. We might expect a sector like construction to be more closely linked to the fortunes of the oil economy than, for instance, manufacturing.

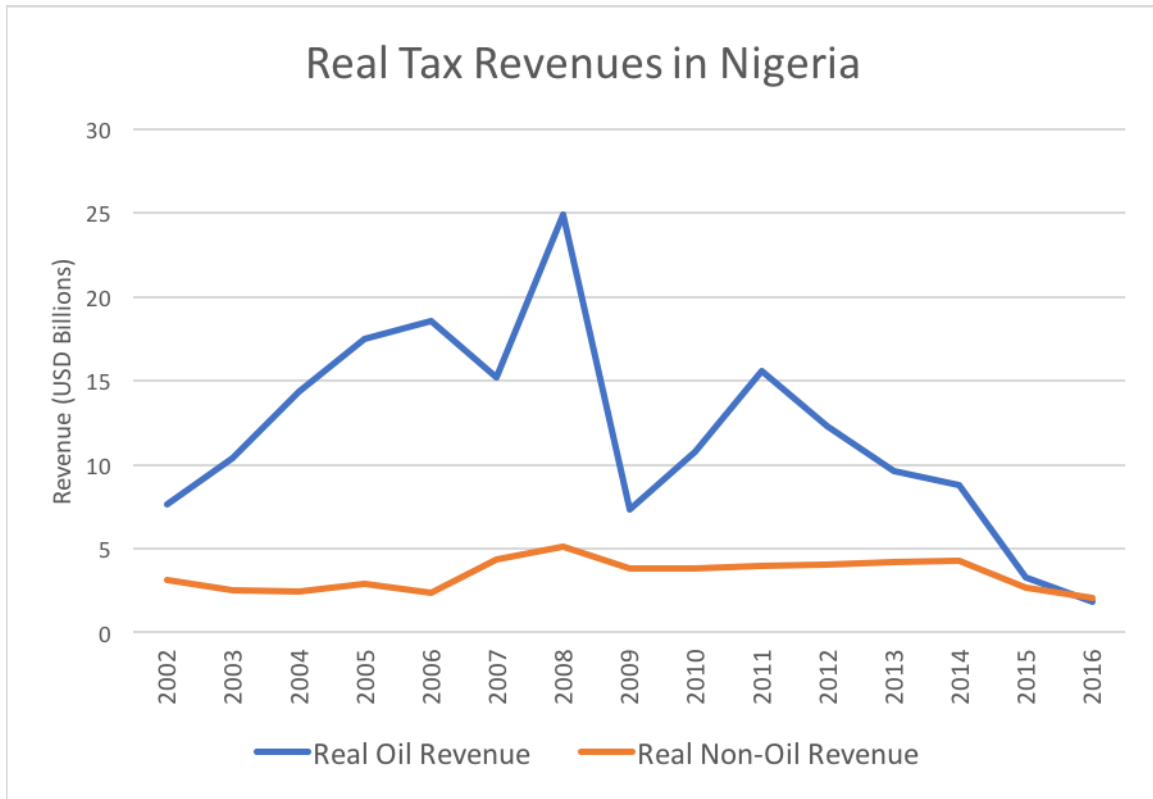
Step 3: In Dollar terms

To put this in a global context, it is worth converting this revenue performance into US dollar terms. Nigeria has at times had multiple different exchange rates for the Naira. It is evident that in Nigeria and many other countries with more than one exchange rate, that the official rate is used for the current account (exports, imports, etc.) and the parallel is used for the capital account (business, investment etc.). However, Nigeria also has an exchange rate specifically for commodities, which includes exports and imports of oil. Thus, converting the oil tax revenue using the parallel exchange rate and converting non-oil tax revenues using a mixture of parallel and official exchange rates is the more accurate way to determine their true value in USD.

However, there is limited data on the parallel exchange rate at which currency is bought and sold in the street economy in Nigeria. This rate was relatively consistent and undeviating until approximately 2014. However, post-2014, this rate becomes more

¹⁰ The issue of large-scale corruption in the oil sector has also been raised as a possible reason why revenues were lost over this historical period.

volatile and unpredictable until policy changes focussed on Bureaux de Change bring it back into closer alignment with the official rate in 2016. This means that without accurate data of the street-level exchange rate, it is difficult to convert to USD properly. However, the graph below uses the official exchange rate to convert into USD. This exchange rate data was from the Central Bank of Nigeria and is an annual average of the selling rate and buying rate. It is crucial to note that this exchange rate does not include any of the parallel exchange rates.



Step 3: Federal government tax as a share of GDP

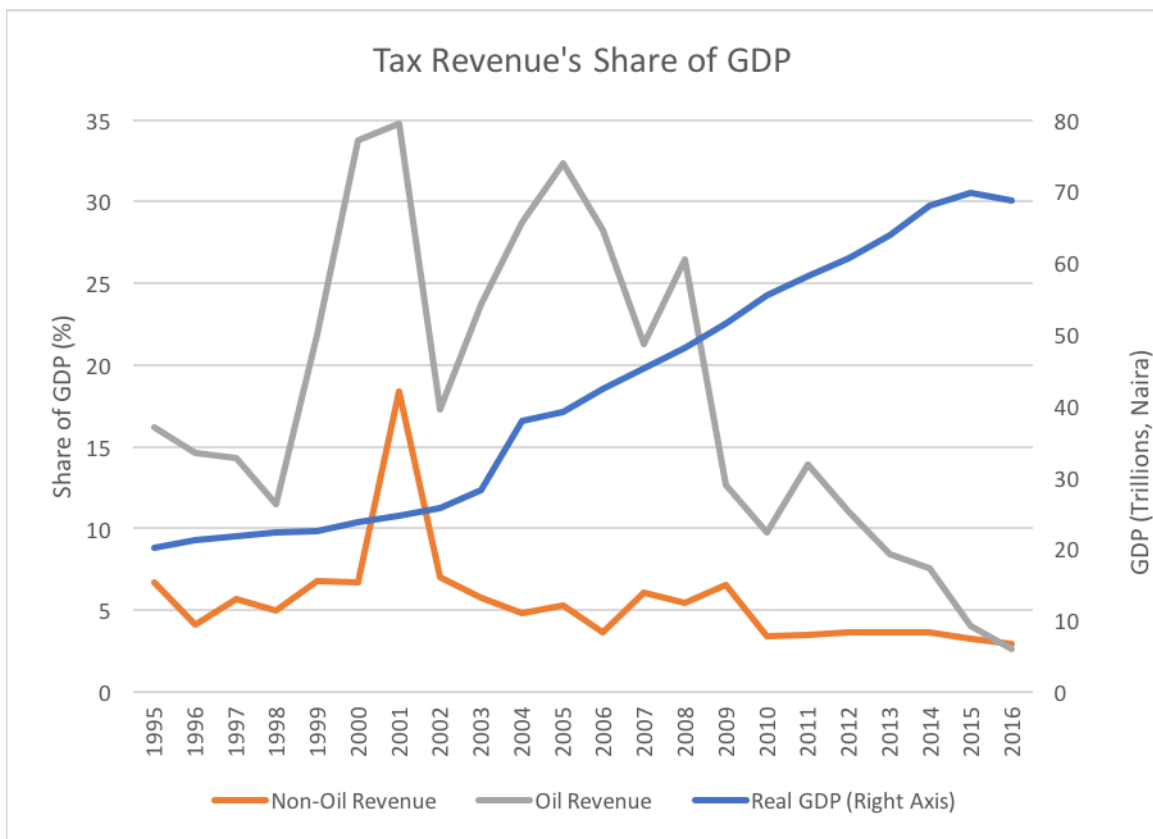
Using tax revenues as a share of GDP helps to determine the amount of tax revenues collected compared to the growth of the economy. However, it is important to continue using real terms (including inflation) in this calculation. Both GDP and tax revenues are in Naira in order to stay consistent and to not have any exchange rate discrepancies (explained below in Section 2.0). The data for both current and constant GDP in Naira is from the World Bank Open Data source¹¹. There is no need to keep revenues and GDP in real terms when calculating the share of tax revenue to GDP because CPI cancels out in

¹¹ <https://data.worldbank.org/indicator/NY.GDP.MKTP.CN?locations=NG&view=chart>

the calculation. The calculation used for share of GDP represented by Federal Government revenues only is the following:

$$(1) \text{ Share of GDP} = \left(\frac{\text{Nominal Tax Revenue}}{\text{Current GDP}} \right) * 100$$

The graph **below** shows that there is a similar pattern to the above using the share of GDP. Note that two things are shown on the same graph – growth in real GDP (units on right axis) and tax revenues as a share of that (units on left axis).



Note that the method for calculating Nigeria's GDP was re-based in April 2014 in line with standard methodologies which broaden the variety of economic activities captured. The new baseline year was taken as 2010, and the resulting calculation nearly doubled the estimate of Nigeria's 2014 output.¹² At the same time, the growth in output measured meant that the tax 'take' as a proportion became smaller.

Adding in the States

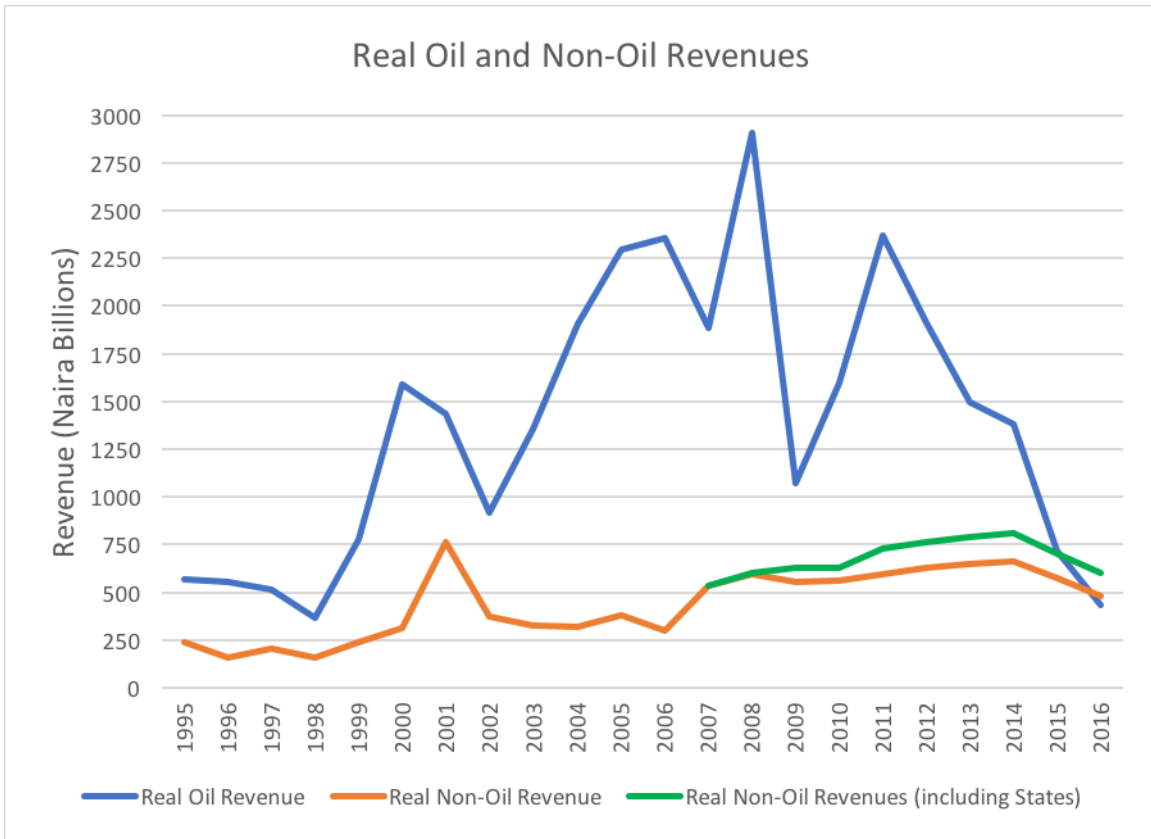
However, the calculations above are incomplete, because we know that Nigeria's 36 constituent States have the constitutional right to collect certain important categories of non-oil taxes, including personal income taxes (PIT) from citizens, and taxes on property (real-estate).¹³ So what would happen if we added them in?

The tax that States collect are all categorised as non-oil tax revenues. This is because all oil tax revenues in Nigeria go to the federal government first. This includes the extra derivation which goes back to States from whose territory oil is extracted, who receive 13% of the value of their total production back through transfers from the federal government (i.e. included in their Federal Allocation). This means that their derivation revenue is already included within the national level tax revenue above. However, the non-oil taxes collected by states themselves have not been included in this data. Thus, in the graph below we include the state level non-oil taxes (green line).¹⁴

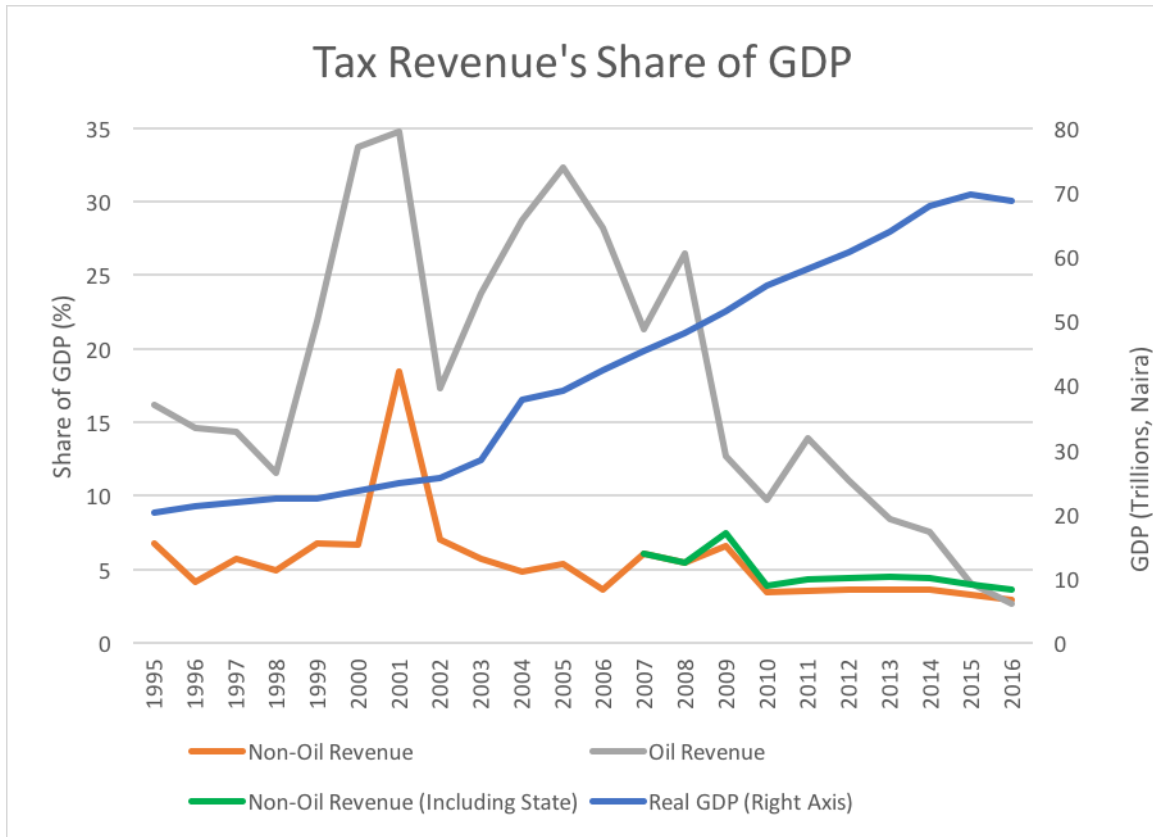
¹² Among other things, the revised figures showed that oil and gas was responsible for around 14% of GDP in that year, half what was previously estimated.

¹³ There is also revenue coming to States from sources such as service-user fees like the student fees paid to state-run higher education institutions. States usually include these in IGR figures.

¹⁴ In order to keep the two numbers consistent, the state non-oil taxes has used the same formula as Equation (1) to generate the real non-oil tax. The data for state level taxes is only available from 2007 and onwards.



Then, this is added to the national non-oil tax to receive a total of non-oil revenues accruing to government in Nigeria – making 602.19 billion Naira in 2016 while controlling for inflation. So in the graph, when adding the state non-oil taxes, there is an even clearer recent upwards trend in non-oil taxes compared to oil tax revenues. And further, instead of non-oil outstripping oil revenues in 2016, it turns out they did so even earlier, in 2015, when the Federal and State-level non-oil revenues combined reached 701.20 billion Naira in real terms.



Step 4: Interpreting the trend

We can now see that there is a large gap between what the figures suggest and estimations such as “Oil related receipts continue to dominate budget revenues (80% of total revenue in 2014)”¹⁵. While there is much speculation about Nigeria’s probably post-oil future, it is in fact already a present reality: In 2015, for the first time since 1971, Nigeria’s public finances earned more from non-oil sources than from oil revenues. This overtaking is confirmed in analysis from other sources, including the IMF (*ibid.*, 2018). However it is a reality which has yet to permeate public consciousness and policy debate. This transformation has come from both a rise in non-oil tax collection and a decline in oil prices and thus revenues. In the latest year for which figures are available, Nigeria’s Federal Government relied on oil income for 47% of its revenues, far from the figures often quoted. According to available data, Nigeria’s Federal Government collects 5.53% of GDP in revenue, while if the taxes collected by State governments are included, representing 0.73% of GDP, the figure rises to 6.27%. As

¹⁵ PWC, March 2016: *Nigeria: Looking beyond Oil* <https://www.pwc.com/ng/en/assets/pdf/nigeria-looking-beyond-oil-report.pdf>

state governments are the primary collectors of important forms of tax including property taxes and personal income taxes (PIT) we suggest that **the most accurate statement of Nigeria's tax to GDP ratio is 6.27%**. Yet even this is an *underestimation* as figures are not available for several important revenue sources. **2.63%** of GDP consists of direct revenues from the oil and gas industry, and as all state revenues are classed as non-oil, **3.64% of GDP** (2.91% of Federal Government revenue, plus 0.73% from States) from non-oil revenue streams. Thus non-oil sources already contribute more than half of government revenues.¹⁶

Even this contains a margin of error in that we were unable to source consistent aggregate information on the revenues collected by the third tier of government, Nigeria's 774 Local Government Areas (LGAs), which have responsibility for a number of local taxes, licences and service fees, ranging from licences to close a street for a party, to slaughter slab licences, to (in some states) property rates. Indeed, we doubt that accurate measures of these revenues exist;¹⁷ but if they were compiled they would raise the ratio of government revenue to GDP still further.¹⁸ Equally, it is not clear without more sustained enquiry into the figures what effect revenue streams which are not officially called taxes but which work like taxes might also contribute to add to this at the Federal level; things like vehicle licencing fees, for instance. Equally without further research it is not clear what the Federal Capital Territory of Abuja contributes. In effect a '37th State' of Nigeria, it is a growing economic and population hub but one which is directly administered by Federal Government, and which has high potential revenue contribution to Federal non-oil tax figures, but which still lacks sufficient framework legislation to enable optimal tax collection.¹⁹

Revenue collection efforts have seen a big rise in non-oil taxes in nominal terms; however much of this gain has been wiped out by currency depreciation and inflation, meaning that non-oil taxes have held more or less constant in real terms while oil

¹⁶ In 2016, the latest year for which full figures were available at time of writing.

¹⁷ NBS has released data for this covering some years, but the fact that Nigeria's Economic Growth and Recovery Plan (EGRP) includes as an action point making sure that Local Governments regularly publish their tax receipts suggests that the current figures should not be considered fully accurate nor complete.

¹⁸ However on the other side of the equation, there are also fees, licences and fines paid direct to Federal MDAs such as the Federal Road Safety Commission which are not captured. Equally the degree to which Customs revenue was captured in Ministry of Finance revenues has varied in the past.

¹⁹ These sources are not captured in data which is used as the standard for composition analyses. See for example <https://www.pwc.com/ng/en/assets/pdf/tax-watch-june-2016.pdf> and <https://www.thisdaylive.com/index.php/2018/04/30/ftc-irs-projects-n146bn-igr-in-2018/> both accessed 25th July 2018.

revenues declined. This is the case with the trend up to 2017. It is interesting to speculate what 2017 to the present would look like. Revenue bodies like the FIRS have been putting in increased effort, has have certain states, but the continued low-performance of the non-oil economy even after recovering from recession, combined with an upturn again in oil prices might yet see another changeover.

So is Nigeria no longer an oil state? In the narrow sense that public finances have transitioned from oil-dominant to non-oil dominant, that is true. It is also a part of a story which has seen non-oil growth outstrip the rate of growth in the oil sector in a fluctuating but progressive upturn since around the turn of the century²⁰, a trend which became more marked with the 2014 exercise in GDP re-basing. So Nigeria is not just becoming, but has become, a post-oil economy. The transformation to a post-oil future is already in the past. The open question is what level of upturn in oil prices, and what level of downturn in revenue collection, would reverse this trend, or whether it is going to be entrenched as a permanent transition? Global demand for oil is highly unpredictable but some extreme 'de-carbonisation' scenarios envisage it taking a permanent downward trend in 10-15 years as new energy technologies take over in sectors like transport.

We suggest that a realistic future scenario could be of a Nigeria with a fiscal profile similar to a country like Mexico, where natural resources consistently represent between 1/2 and 1/3 of the revenue base, and that slowly trending downward over the long term, despite short-term fluctuations as oil prices and production rise and fall, with sectors as diverse as agriculture and media services making greater contributions to public revenues.²¹ This will provide new challenges for a change of mindset to produce policy instruments to manage this type of economy effectively. A central political-economic challenge will be to design policies which can accommodate the different developmental trajectories of a nation which spans affluent commercial cities and poor rural hinterlands, stimulating and reinvesting in growth while also subsidising regions on more gradual developmental trajectories, when a national pot of distributable resources is more closely related to 'earned' taxpayer income. This isn't just a north-south issue as it is sometimes stereotyped – thanks to the successive rounds of state creation and state borrowing, fiscal unsustainability is spread around Nigeria. Nigeria is really a patchwork of middle-income and very low-income areas, necessitating a clear

²⁰ See Economic Associates, 2005. '1999-2004 Economic Recovery in Nigeria', Prepared for the Federal Ministry of Information and National Orientation in Nigeria, to document non-oil sector recovery in Nigeria between 1999 and 2004.

²¹ An assessment of which sectors of the non-oil economy are respectively growing, stable or in decline is needed to complete this picture but lies outside the scope of this paper.

conversation about how Federal Government as a bridging mechanism not only arbitrates that inequality but designs policies which stimulate growth in all; such as prioritising the infrastructure which connects them. An incipient debate about VAT derivation both mirrors older debates around oil revenue derivation from oil-endowed regions, and signals the emergence of this new politics of revenue.²²

It also connects to wider questions of governance – taxing people stimulates their demands on government, so for instance if the economic engine of agriculture is to be harnessed, Nigerian governments at all levels will have to re-engage with the basic governance of the countryside after three decades of abandoning rural Nigerians to underdevelopment and a slow descent into insecurity. And it means understanding, more clearly than we currently do, how sectors such as transport, trade, construction, and non-material industries actually work to generate wealth in the Nigerian context.

However while Nigeria's economy seems to have reached a tipping-point away from oil, core institutions and policies continue to lag behind, as they remain structured around assumptions that oil is central. Most of the governmental institutions bear the marks of turn-of-the-century oil-fuelled distributive and developmental thinking. Central government and State Governments continue to relate through a Federalist arrangement which, while continually debated, remains for both levels essentially about the distribution of revenues from a central pot, while States continue to control those distributed to the third tier via a device known as the State Joint Local Government Account.²³ Legislative challenges to this situation remain unresolved although in May 2019 the Nigerian Financial Intelligence Unit (NFIU) issued a directive direct to banks, bypassing the State Governments, preventing them from authorising withdrawals before funds are passed to Local Governments. It remains to be seen to what extent this becomes an effective tool for ensuring LGA financial autonomy.²⁴ Equally, currency movements and the competitiveness of many economic sectors remain most heavily influenced by the remaining strong role of oil and the distortions and external shocks it produces.

²² See <https://punchng.com/redressing-injustice-in-vat-sharing/> (accessed 12th July 2019) for an editorial advocating VAT derivation in reflection of a proposal by Oluremi Tinubu, a Senator who is the spouse of the former Governor of Lagos State.

²³ See Okafor, J. 2010. Local government financial autonomy in Nigeria: The State Joint Local Government Account. *Commonwealth Journal of Local Governance*, Issue 6: July 2010

²⁴ <https://allafrica.com/stories/201905090033.html>
<https://www.legit.ng/1247443-nasarawa-complies-nfius-directive-local-govt-autonomy.html> and
<http://saharareporters.com/2019/07/09/sanwo-olu-government-accused-breaching-nfiu-guidelines-deducting-lga-funds-source> all accessed 12th July 2019.

Perhaps most importantly, capital formation and wealth accumulation across both the private and public sectors assumes the offstage presence of a huge and commercially attractive resource endowment which covers up underperformance, forgives a range of policy and implementation sins and allows 'non-earned' income streams to displace more methodical means of development. Political behaviour is patterned around rationales of access to national petroleum wealth, which informs access to resources, political geography and even the highly politicised ways in which social identity formation is driven by resource allocation considerations.²⁵ Even many of the calls for greater federalism have been framed in ways which embed distributive thinking. So planning for the future highlights a lag in which not only policies but institutions; not only plans but whole mindsets; will need to reorient in acceptance that Nigeria has already entered a post-oil present.

That means policymakers either taking positive decisions to reshape the instruments towards capturing new bases of growth and facing the new realities of an uneven distribution of revenue sources and spending needs; or to take the risk of evolving de-facto autonomy making Abuja less relevant to shaping Nigeria's development at the grassroots. But the biggest risk is of government at both Federal and State levels failing to capture these new revenue bases, foster their drivers and harness their gains by making public spending choices which add value, leading in the worst case scenario to a decline in GDP per capita and a return to indebtedness and poverty.

ⁱ Extended methodological endnote: Adjusting tax revenues to account for inflation

Data for Inflation: To create real values for the tax revenues, you need to use a price index for Nigeria. The data for the oil and non-oil tax revenues is from the Central Bank of Nigeria and is expressed in billions of Naira. The data for Nigeria's Consumer Price Index (CPI) used is from the National Bureau of Statistics (NBS) in Nigeria. We also examined the CPI data from the CBN but it was not as detailed. Further, both the World Bank and the IMF use the CPI data from the NBS for their own economic analysis. The consumer prices from the NBS include the all-items CPI, the food CPI and core CPI (all items excluding food and energy). Since the Nigerian economy is dominated by both the agriculture and energy sector, it is important to include those prices in the price index that is used.

Thus, we decided to use the overall CPI, which includes the following products: Food and non-alcoholic beverages; Alcoholic beverages, Tobacco and Kola; Clothing and footwear; Housing, water, electricity and gas; Furnishings, household equipment; Health; Transport; Communication; Recreation and Culture; Education; Restaurants and Hotels; Other miscellaneous goods and services.

²⁵ See Suberu, R.T. 2001. *Federalism and ethnic conflict in Nigeria*. Washington, D.C.: United States Institute of Peace Press.

In total, 740 goods and services are included in the all-items CPI and the NBS uses 10,534 informants across the country. When calculating the price index, the NBS puts a weight on each of the products included which captures the importance of each commodity (the Laspeyres formula).

Creating the Real Tax Revenue Values: The CPI data is presented as monthly averages, thus the first step is to develop annual averages for the price index. The next step to convert the values is to determine the base year for the price index, which is the year where the index is put at 100. The base year that NBS uses for the index is 2009. However, for tax revenues, 2009 may not be the best year to use as a base year to explain this story. We chose to make the base year 2000 for the following two reasons: (1) The year 2000 is when nominal non-oil revenues start to increase and where the story on tax revenues really begins to take shape. (2) Policy changes were made in Nigeria after the transition to elected government in 1999. These changes meant that Nigeria now had a constitution in place that gave States the right to personal income tax and other IGRs. Further, after this 1999 watershed, certain States began greater use of professionals to expand and enhance tax collection more effectively.

Once CPI was transformed to use 2000 as a base year, we converted to real values. The formula that is used to create the real tax revenues is the following:

$$(1) \quad \textit{Real Tax Revenue} = \frac{\textit{Nominal Tax Revenue}}{\left(\frac{\textit{CPI}}{100}\right)}$$