

Impact of Corruption on Nigeria's Economy





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Executive summary

Corruption is a pressing issue in Nigeria. President Muhammadu Buhari launched an anti-corruption drive after taking office in May, 2015. Corruption affects public finances, business investment as well as standard of living. Recent corruption scandals have highlighted the large sums that have been stolen and/or misappropriated. But little has been done to explore the dynamic effects of corruption that affect the long run capacity of the country to achieve its potential. Channels through which this may occur include:

- Lower governance effectiveness, especially through smaller tax base and inefficient government expenditure. PwC studies estimate Nigeria's tax revenues at 8% of GDP, which is the lowest for comparison countries
- Weak investment, especially FDI, as it's harder to predict and do business
- Lower human capital as fewer people, especially the poor, are unable to access healthcare and education

In this report we formulate the ways in which corruption impacts the Nigerian economy over time and estimate the impact of corruption on Nigerian GDP, using empirical literature and PwC analysis. We estimate the 'foregone output' in Nigeria since the onset of democracy in 1999 and the 'output opportunity' to be gained by 2030, from reducing corruption to comparison countries that are also rich in natural resources. The countries we have used for comparison are: Ghana, Colombia and Malaysia.

Our results show that corruption in Nigeria could cost up to 37% of GDP by 2030 if it's not dealt with immediately. This cost is equated to around \$1,000 per person in 2014 and nearly \$2,000 per person by 2030. The boost in average income that we estimate, given the current per capita income, can significantly improve the lives of many in Nigeria.

We believe this work provides robust evidence and impetus for reducing corruption in Nigeria.



Introduction

In this paper, we estimate the negative impact of corruption in Nigeria

President Muhammadu Buhari launched an anti-corruption drive after taking office in May, 2015. This comes after a series of high profile corruption scandals in Nigeria that have highlighted the sheer size of the corruption problem.

In this paper, we explore the negative impact of corruption on Nigeria's GDP.¹

To do this, we:

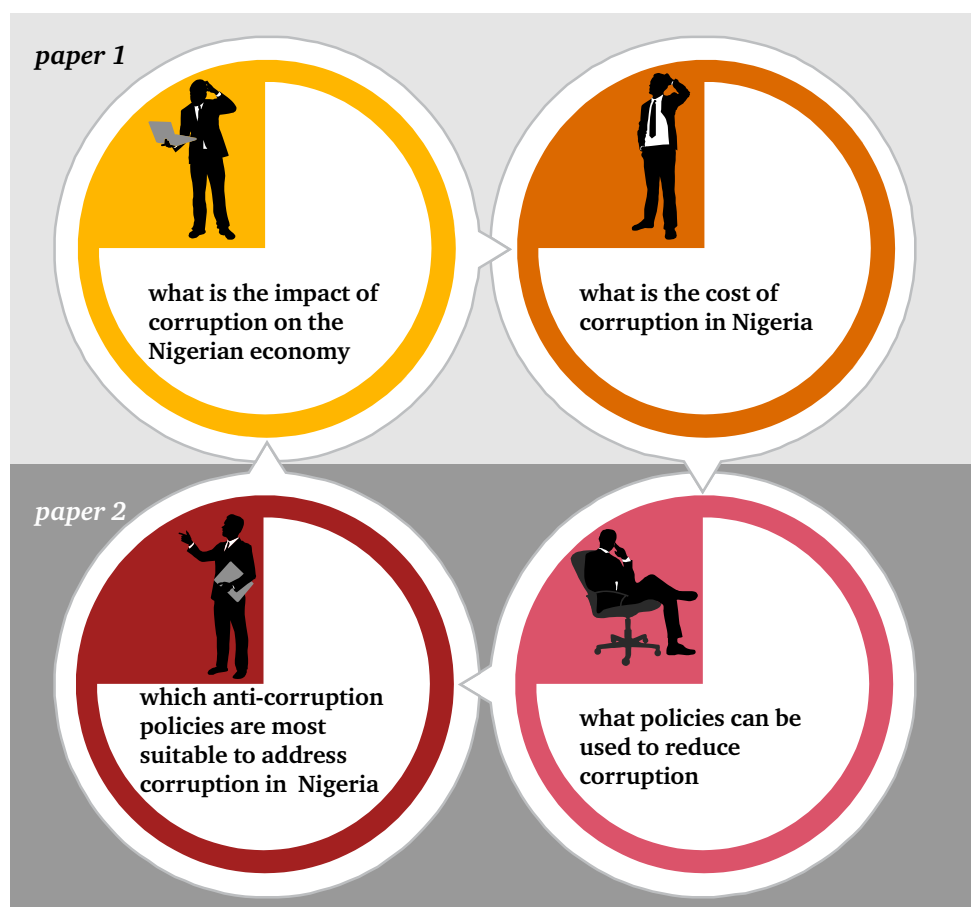
- first, analyse how corruption affects the economy over time;

- second, estimate the 'foregone output' in Nigeria by simulating lower corruption in the past 15 years; and
- third, estimate the output that Nigeria can achieve by simulating lower corruption in the next 15 years.

The lower corruption scenarios are simulated based on the corruption levels of benchmark countries.

In the next paper, we will explore how anti-corruption policies affect corrupt behaviours and which policies are likely to have the biggest impact in Nigeria.

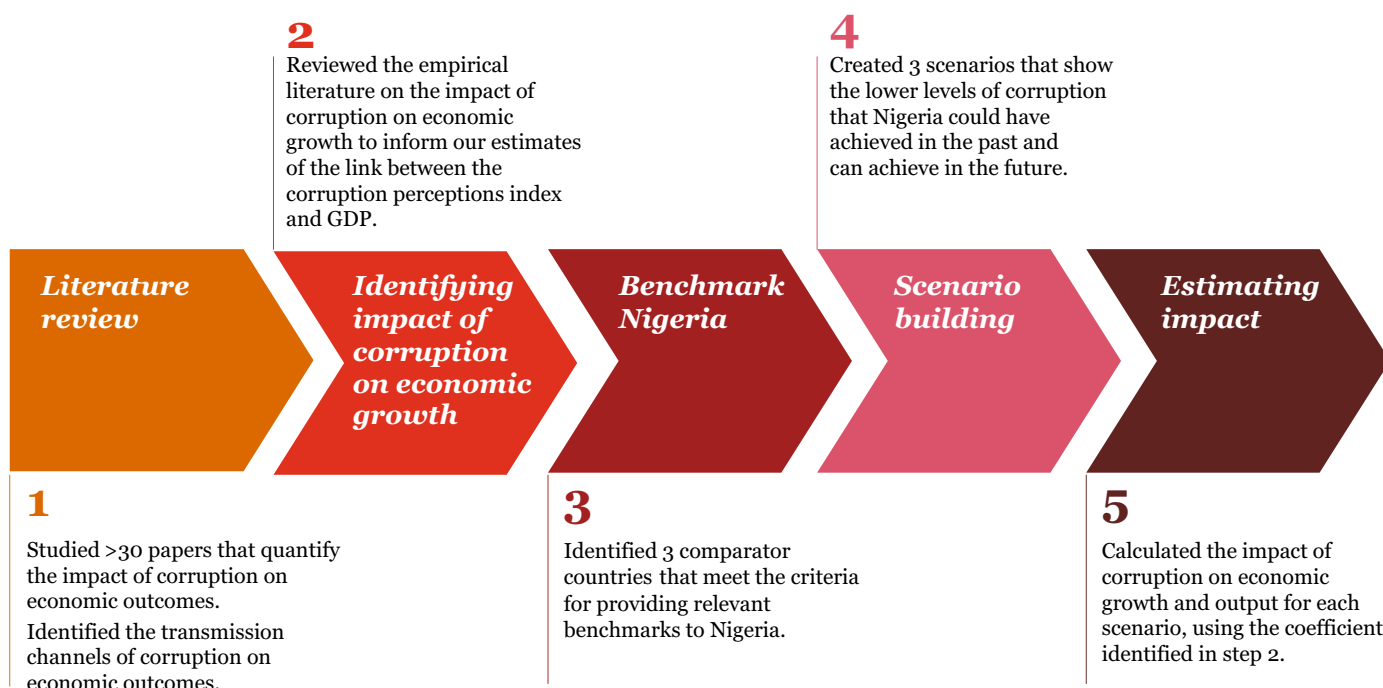
Over a series of papers, we address the following questions:



¹ Referred to as 'economic cost of corruption' or 'cost of corruption' for simplicity.

Corruption and its impact on the economy

We have undertaken five steps to estimate Nigeria's cost of corruption



We examined over 30 studies to understand the way that corruption affects GDP in Nigeria

We examined 32 studies in total; 20% sponsored by International organisations including the OECD, IMF, DFID and Transparency International; 22% published by Nigerian Academics affiliated with Nigerian Universities; 16% published by other Academics across mediums such as journals, articles and PhD publications among others; as well as 3% in-house studies assessing the health of the Nigerian economy such as the World in 2050 publication (please see bibliography for further details). Seventy percent (70%) of the 32 studies quantitatively evaluated the impact of corruption on economic growth through regression techniques whilst also exploring the qualitative links between corruption and economic outcomes. Of these 22 papers, we selected 3 studies that explicitly accounted for endogeneity.²

Of the shortlisted 3 studies, we selected the IMF study “Does Mother Nature corrupt? Natural Resources, Corruption and Economic Growth” by Leite and Weidman (1999) to estimate impact of corruption on economic growth. We chose this study because:

- It controls for endogeneity using the two stage least squares econometric regression.
- It accounts for Nigeria specific confounding factors such as the prevalence of natural resources rents, which are generally associated with higher levels of corruption in the literature.
- The data set encompasses a large number of countries, including Nigeria, therefore making the results highly applicable to Nigeria as well as other similar benchmark countries.

² This means that the study is able to avoid overestimating the impact of corruption due to other factors that affect growth and are correlated with corruption.

After reviewing the literature, we chose the IMF study to estimate the impact of corruption on economic growth

The IMF study estimates that the impact of 1 point change in the corruption index ³ results in a 1.2 percentage point change in economic growth per annum.

We also use the study's methodology - calculating impact on growth when a country moves from its own rank to another country's rank on the corruption index.

The study shows the impact from corruption, irrespective of the following which may also impact the growth of the economy:

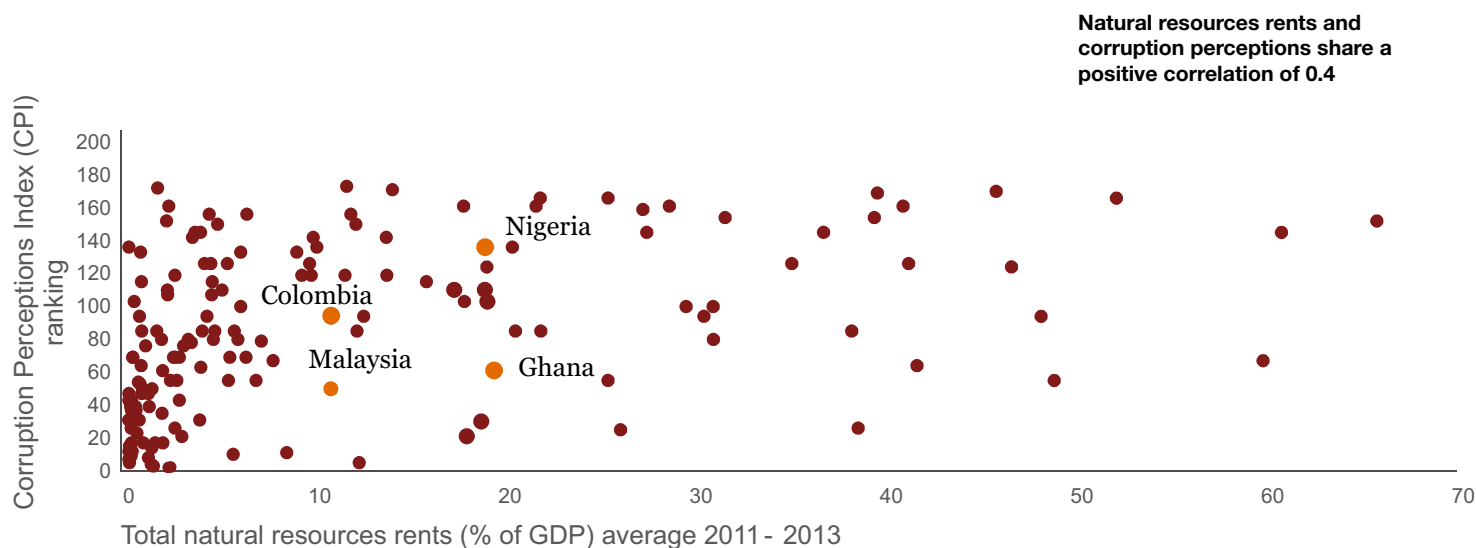
- Initial level of income in the economy
- Natural resources
- Level of trade openness over the period and change in terms

of trade over the period.

- Investment ratio to GDP average over the period
- Country-specific variability in commodity prices
- Geographic location i.e. Sub-Saharan Africa

We do not attempt to capture the impact of corruption on growth through the interaction of corruption with other issues that may dampen economic growth. Therefore, the impact on economic growth from a simulated decrease in corruption will not capture the impact on growth from other factors that independently affect growth. Such factors include: political stability and strength of public institutions among others.

Benchmarking to identify comparison countries for Nigeria



³ The IMF uses the International Country Risk Guide (ICRG) index as a measure of corruption. This index is made up of political, financial and economic risk assessments produced by International Reports. We use the Corruption Perceptions Index (CPI) by Transparency International, see slide 10 for more details. The ICRG and CPI are strongly correlated with correlation coefficients greater than 0.8, depending on the years in the sample. ICRG ranges from 0-6 and CPI ranges from 0-10. Therefore, we assume that a 1 point change in ICRG = 10/6th point change in the CPI.

To build scenarios for the change in corruption in Nigeria, we've selected countries that meet the following criteria:

- natural resources rents greater than 10% of GDP i.e. a resource rich country⁴
- have faced corruption problems and rank better than Nigeria on the Corruption Perceptions Index
- have implemented anti-corruption policies before and have improved corruption and macro-outcomes

Ghana, Colombia and Malaysia fulfil the criteria. To calculate the cost of corruption in Nigeria, we will simulate that Nigeria faced lower corruption and therefore higher growth between 1999 and 2014.

To simulate lower corruption levels in Nigeria, we show that between 1999 and 2014 Nigerian corruption was as low as:

- Scenario 1: Ghana's
- Scenario 2: Colombia's
- Scenario 3: Malaysia's

We use the Transparency International measure and definition of corruption

What is corruption?

Corruption is defined and perceived across a spectrum of illegal payments and transactions such as bribes, embezzlement, and money laundering among others. Since corruption is illegal, capturing the amount of corruption is not possible, by analysing the amounts of corruption payments that have proven to be so in court.

We use Transparency International's Corruption Perceptions Index (CPI) as a proxy for corruption. This dataset defines corruption as the 'abuse of public office for private gain'.

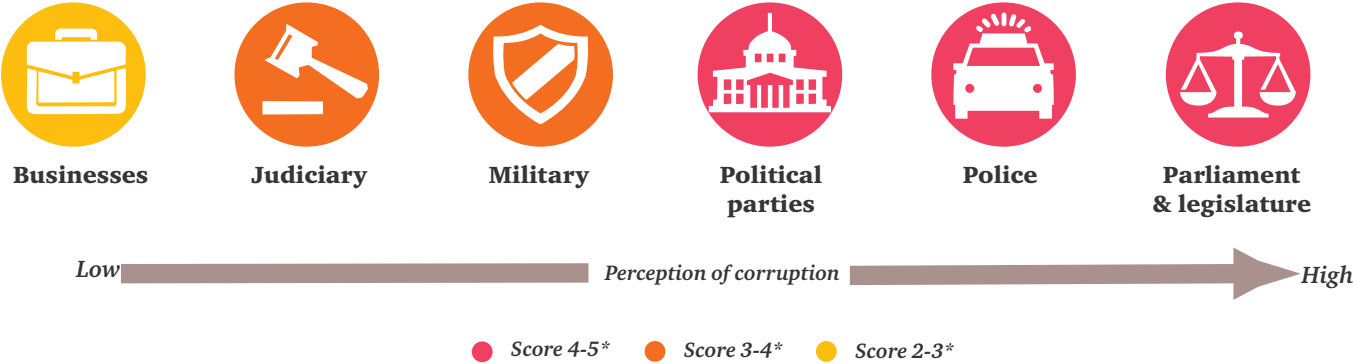
The index categorises corruption into three parts:

- Grand corruption: 'Acts committed at a high level of government that distort policies or the central functioning of the state, enabling leaders to benefit at the expense of the public good'
- Petty corruption: 'Everyday abuse of entrusted power by low- and mid-level public officials in their interactions with ordinary citizens... often trying to access basic public goods and services'
- Political corruption: 'Manipulation of policies, institutions and rules of procedure in the allocation of resources and financing by political decision makers, who abuse their position to sustain their power, status and wealth'



⁴ Various academic literature attribute the likelihood of high corruption to high levels of natural resources in a country.

The Global Corruption Barometer:** People's perceptions on Nigeria vary by institutions



****The Global Corruption Barometer** is a representative survey of more than 114,000 households in 107 countries. We use the **Corruption Perceptions Index** for our analysis as it is more commonly used in literature, making it easier for comparison and sensitivity analysis.

The Corruption Perceptions Index measures perceptions rather than amounts of corruption each year

Interpreting the Corruption Perceptions Index (CPI)

The index measures the perception of corruption across big and small businesses, rich and poor citizens, country experts, local media and international organisations. These scores are amalgamated across surveys and standardised across countries every year so that the scores range from 0 to 10.

The index is based on perceptions and does not reflect the actual amounts of

corruption in countries. Unlike amounts of corruption, perceptions are subjective and may change drastically due to media attention and sudden expositions of corruption.

The index predominantly focusses on corruption from the perspective of business welfare in general. Therefore, it lacks in-depth information about where or which type of corruption is dominant.

Perceptions are measured for:

- Accountability of the government to the public
- Success of the judicial system to prosecute
- Ease of access of information to the public
- Transparency of government actions, particularly spending
- The extent to which bribes are paid for favours
- The independence of government branches
- The strength of the country's institutional framework in managing corruption

Experts interviewed range from:

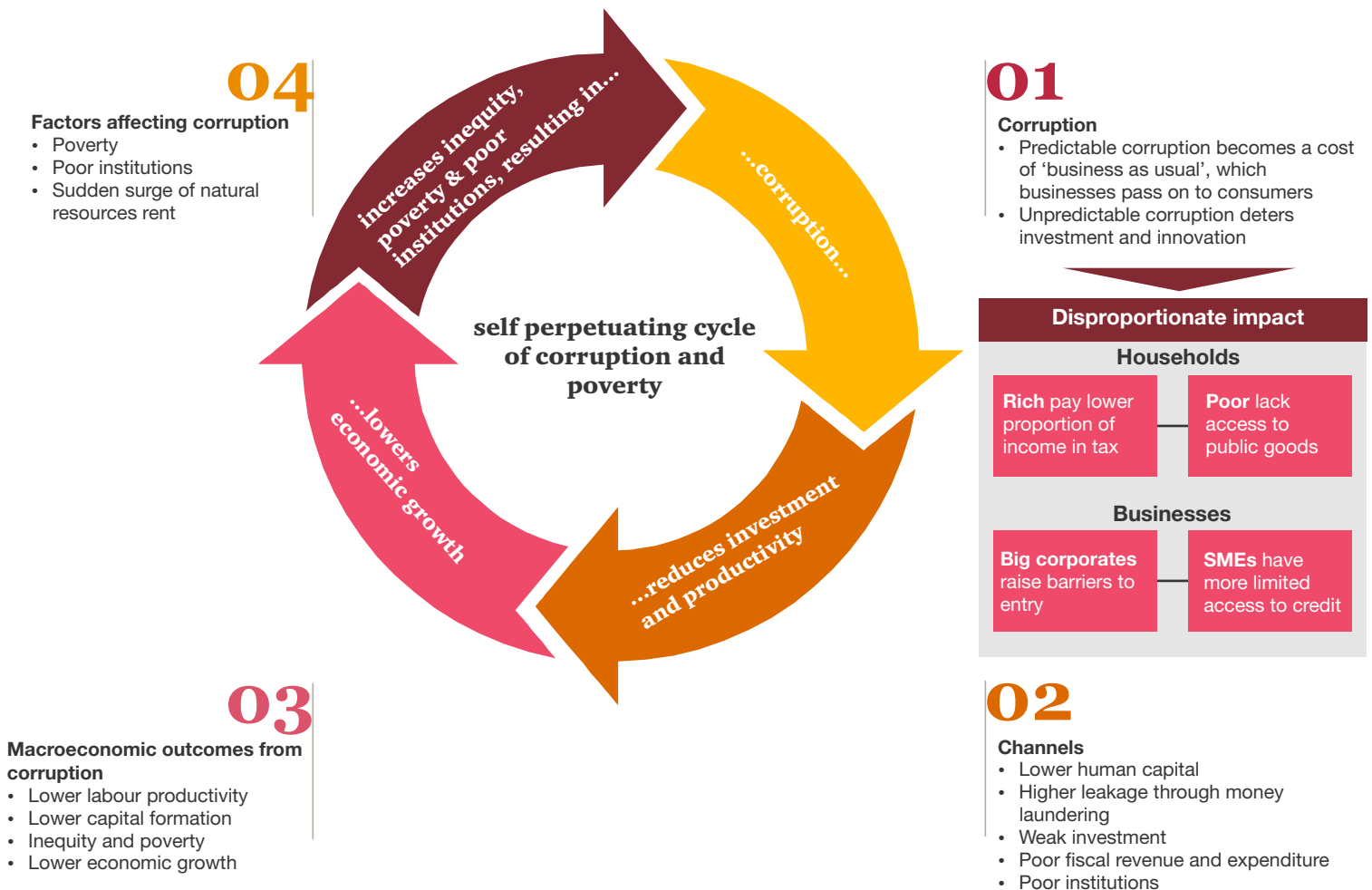
- Global and local experts
- Multilateral lending institutions
- International organisations
- Local newspapers and magazines
- Country specialists who draw on opinions of in-country freelancers, clients and others
- Survey of business leaders who represent cross-section of nation's corporate community
- Local and foreign enterprises

Interviewees come from the following institutions at both the national-level and local level:

- Police and military
- Executive, legislative and judiciary
- Taxation, customs and licensing bodies
- Inspection bodies

Corruption has a dynamic impact, which is felt more by poorer households and smaller firms

The dynamic effect: corruption has a long run negative impact on growth, primarily through reduction in human capital and investment



Countries with higher corruption are associated with lower tax revenue and expenditure as a % of GDP

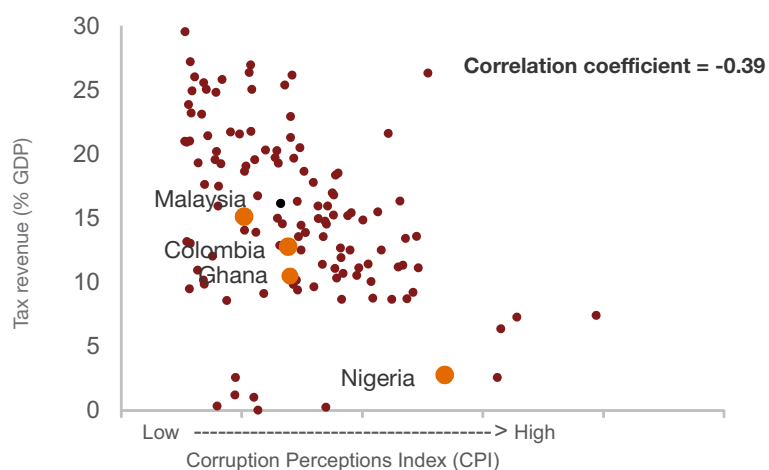
Corruption is associated with poor public finance management and provision of public goods

- Corruption encourages tax avoidance, resulting in a lower tax base for government revenue collection. PwC studies estimate Nigeria's tax revenues at 8% of GDP, which is the lowest for comparison countries.
- Corruption allows for government expenditure in vested interest rather than public interest.
- Therefore, resulting in a lack of provision for public goods such as infrastructure for businesses; and education and healthcare for households.

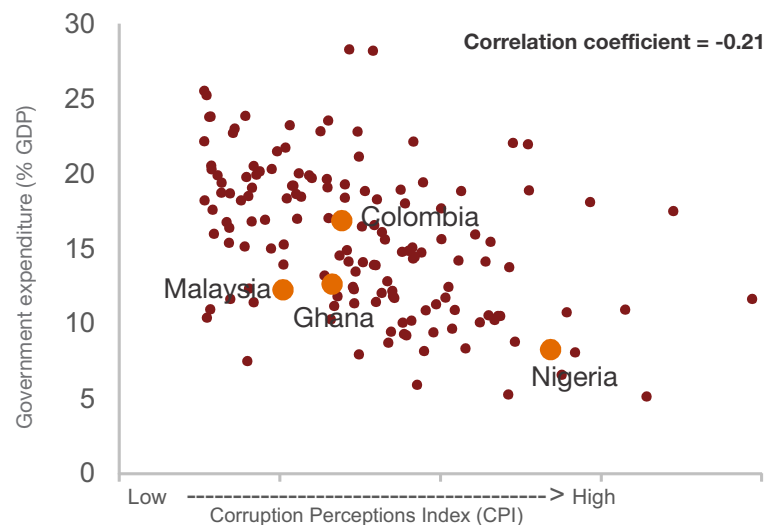
Corruption is associated with erosion of talent in public institutions and therefore, government effectiveness

- Corruption encourages hiring based on nepotism, cronyism and patronage, not merit. Therefore, reducing the quality of the public institutions.
- There is unnecessary bureaucracy, creating further opportunities for bribes.
- Therefore, enforcement of contracts and property rights is weak.

Countries with higher corruption are associated with lower tax revenue



Countries with higher corruption are associated with lower tax revenue



Corruption is associated with lower investment; and higher prices and barriers to entry for businesses

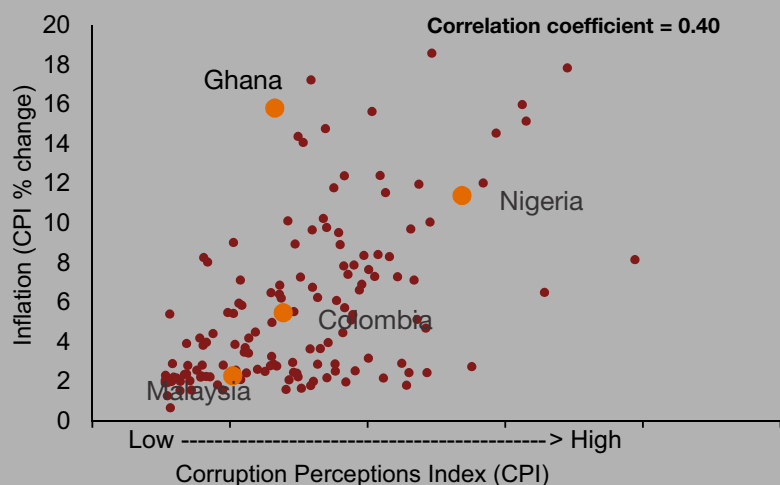
Corruption is associated with an increase in barriers to doing business

- Big companies are able to access public goods by leveraging their balance sheets. These include stable electricity and water pipes among others.
- Smaller firms cannot afford these and rely on the government for provision but corruption weakens public fund management and public goods provision. Therefore, it makes it more difficult for SMEs to compete.

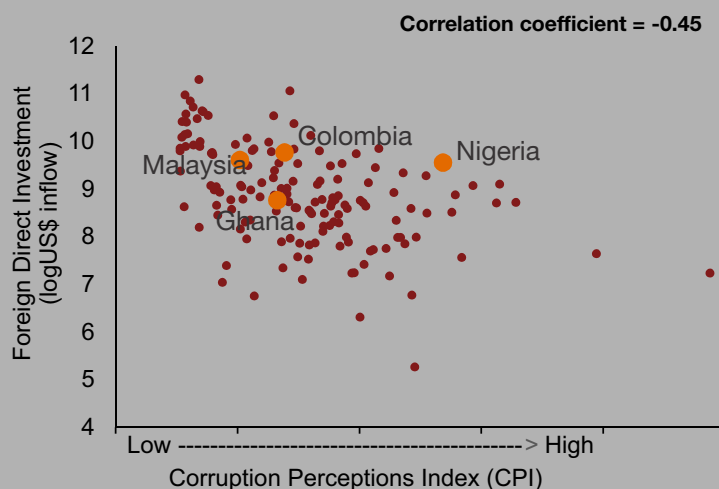
Corruption is associated with lower property rights and investment, especially FDI

- Corruption threatens property rights, discouraging investment that requires high capital expenditure as businesses are unwilling to place high capital at risk.
- Corruption is associated with lower technological transfers as foreign companies are unable to protect intellectual property.

Countries with higher corruption are associated with higher prices

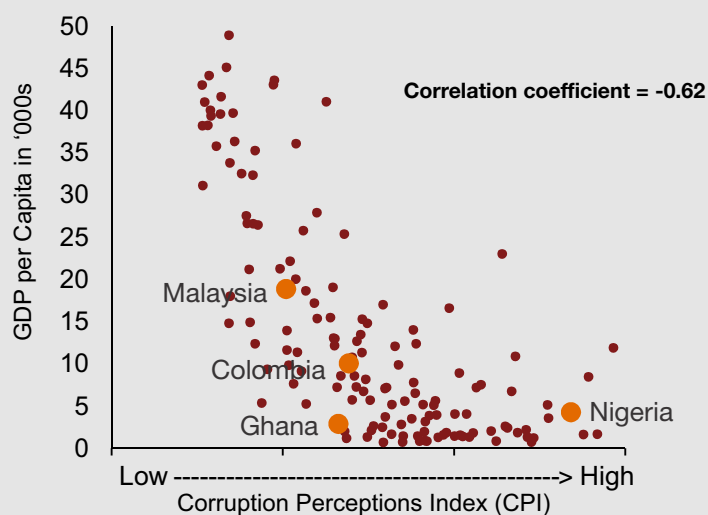


Countries with higher corruption are associated with lower investment

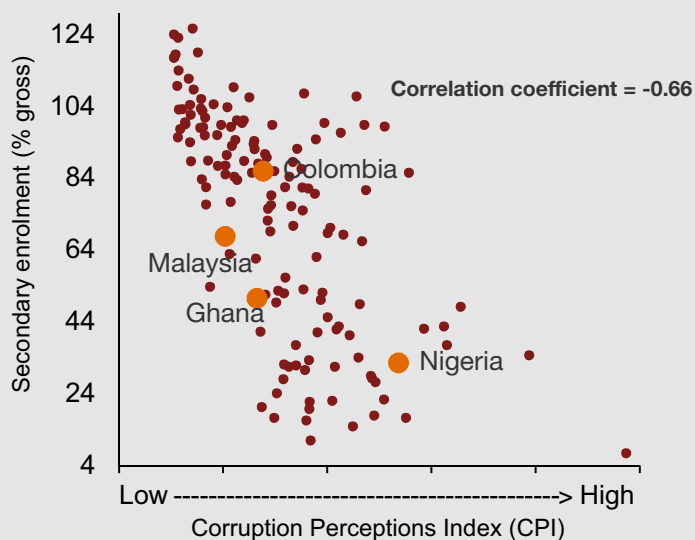


Corruption is associated with lower average standard of living, education levels and greater inequality

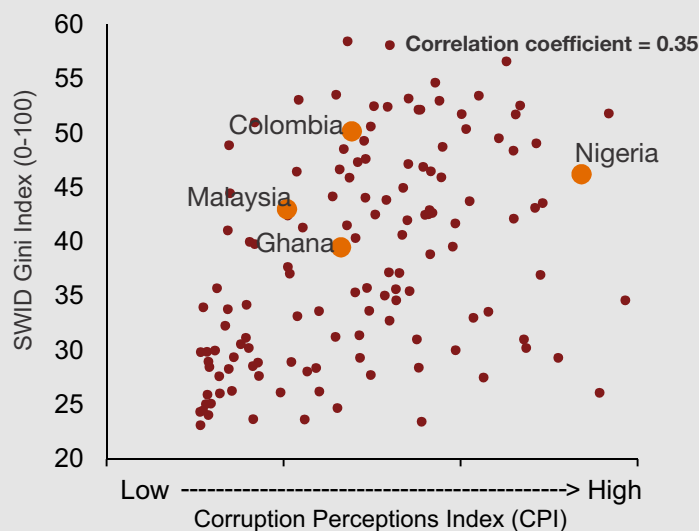
Countries with higher corruption are associated with lower income per capita and standard of living



Countries with higher corruption are associated with lower education levels



Countries with higher corruption are associated with higher income inequality



Methodology for creating scenarios

We created three scenarios to simulate the ‘foregone output’ and the ‘output opportunity’ for Nigeria

We estimate the ‘foregone output’ in Nigeria since the onset of democracy in 1999 up to 2014 and the ‘output opportunity’ to be gained by 2030.

We do this based on 3 scenarios that simulate; Nigeria catches up with Ghanaian, Colombian and Malaysian Corruption Perceptions Index scores respectively, within five years of introducing anti-corruption policies, and gains from these lower levels of corruption for ten years.

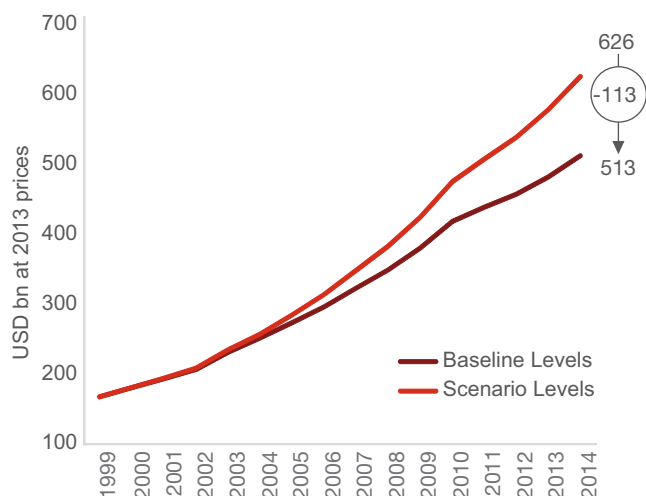
The cost of corruption estimation is based on the dampening effects of corruption on Nigerian GDP from using the IMF paper calculations. Our simulations have a twofold effect on Nigeria’s corruption perceptions index scores and GDP:

- a. A gradual increase in the Nigerian CPI score over 5 years so that the Nigerian CPI score is equal to that of the comparison country’s by year 5. During this time period, Nigerian GDP slowly gains from gradual improvements in CPI.
- b. An average increase in Nigerian CPI by the average annual difference between Nigeria and the comparison country’s CPI scores between year 5 and year 15. During this time period, Nigerian GDP gains from an average annual enhancement due to lower corruption.

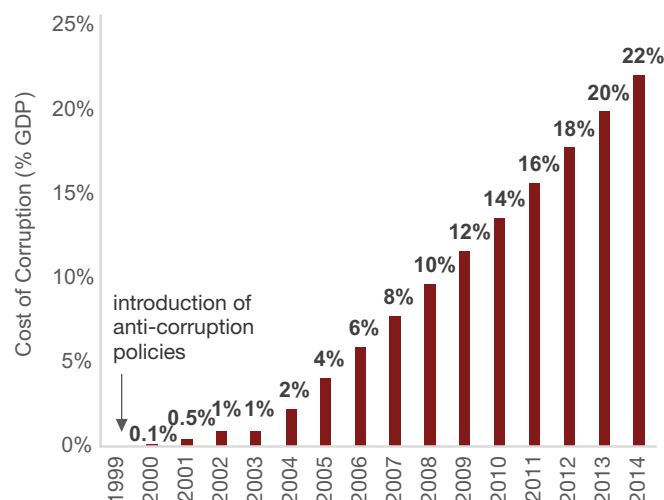
See pages 18 - 20 for further explanation and illustrations of each scenario.

Results demonstrating the economic cost of corruption in Nigeria - Scenario 1 (Ghana)

Nigeria's 2014 GDP could have been USD 113 bn higher if it had reduced corruption to Ghana's levels



Nigeria's GDP could have been 22% higher in 2014 if it had reduced corruption to Ghana's levels

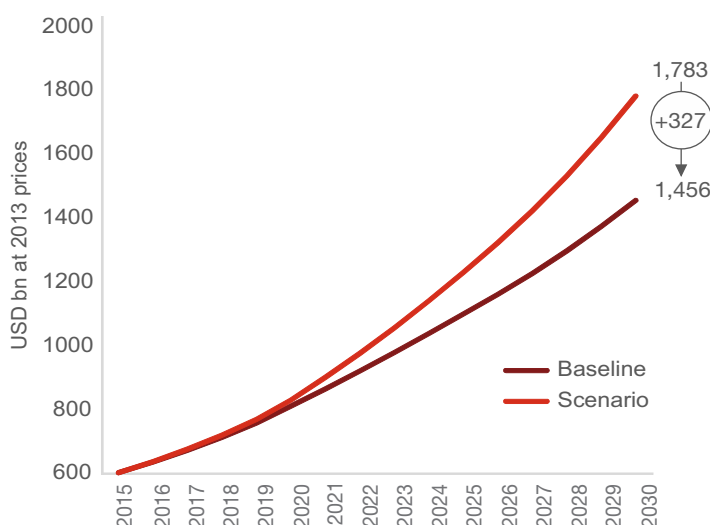


Losses from corruption per person, USD

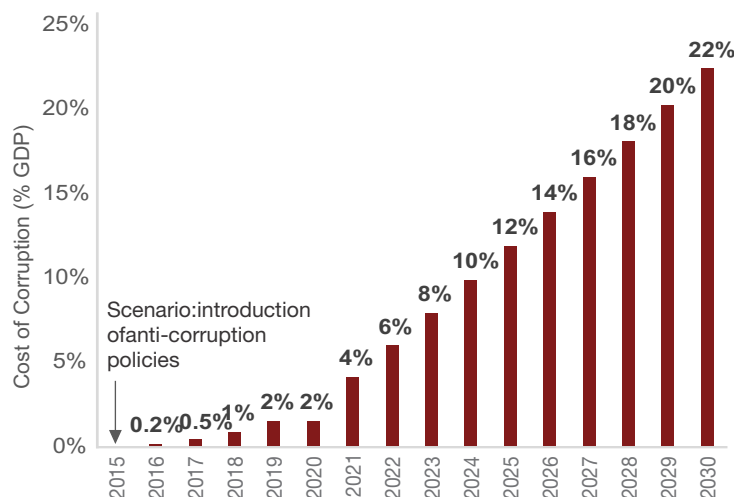
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
2	7	15	27	42	81	125	174	229	291	364	428	494	567	651

We use average Naira to USD exchange rate over the 15 year period between 1999 - 2014 to convert corruption losses and GDP. This is to avoid skewing results from currency fluctuations.

Nigeria's 2030 GDP can be USD 327 bn higher if it reduces corruption to Ghana's levels



Nigeria's 2030 GDP can be 22% higher if it reduces corruption to Ghana's levels



Losses from corruption per person, USD

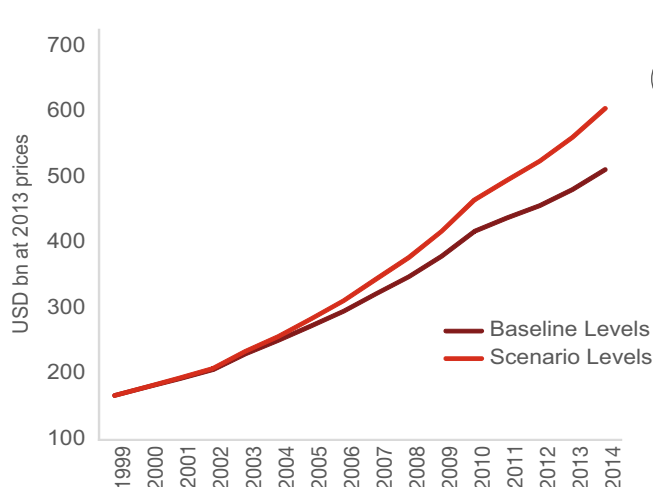
2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
5	16	34	58	91	170	257	350	450	558	671	793	924	1065	1217

For projecting Nigerian GDP, we use the PwC World in 2050 macroeconomic model.

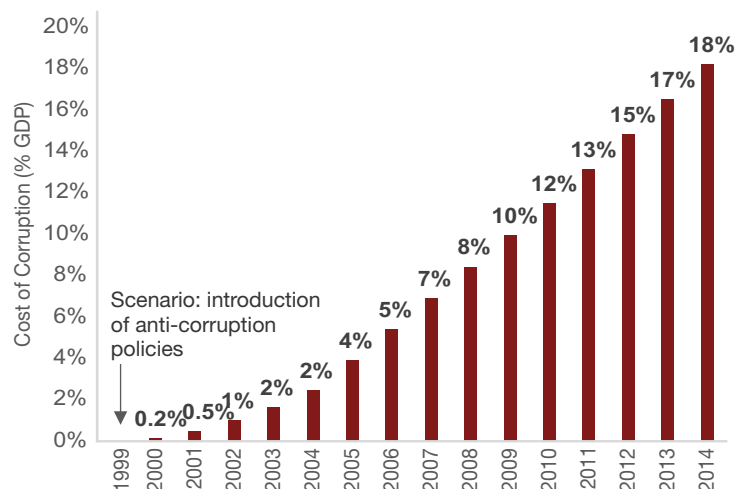
For projecting Nigerian population growth, we use IMF forecasts and PwC analysis.

Scenario 2 (Colombia)

Nigeria's 2014 GDP could have been USD 93 bn higher if it had reduced corruption to Colombia's levels



Nigeria's 2014 GDP could have been 18% higher if it had reduced corruption to Colombia's levels

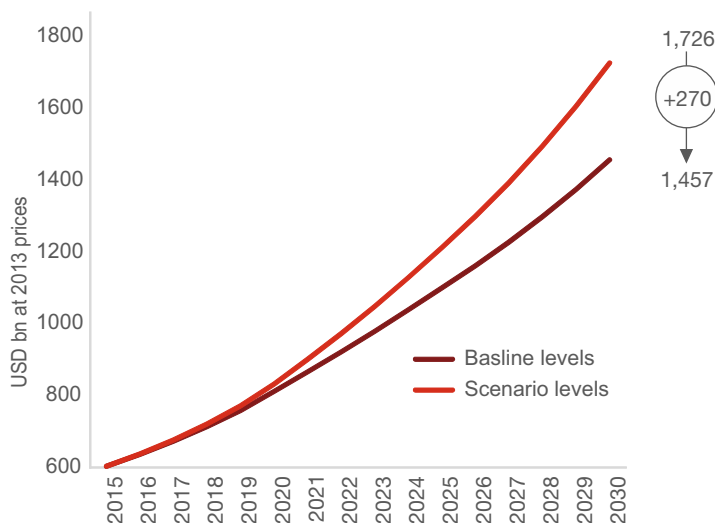


Losses from corruption per person, USD

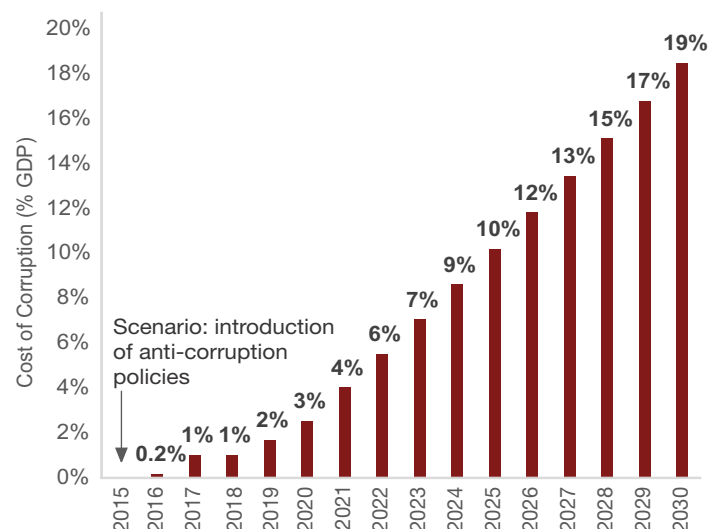
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
3	8	16	29	47	79	114	155	199	250	309	360	412	471	537

We use average Naira to USD exchange rate over the 15 year period between 1999 - 2014 to convert corruption losses and GDP. This is to avoid skewing results from currency fluctuations.

Nigeria's 2030 GDP can be USD 270 bn higher if it reduces corruption to Colombia's levels



Nigeria's 2030 GDP can be 19% higher if it reduces corruption to Colombia's levels



Losses from corruption per person, USD

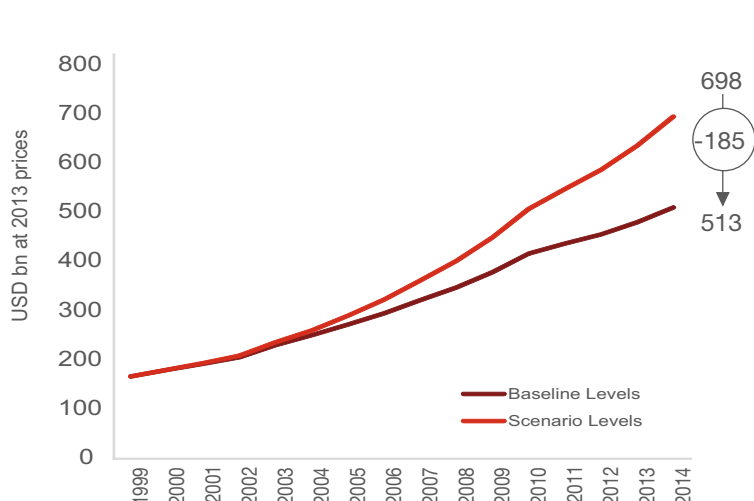
2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
6	18	37	64	100	165	236	311	392	479	570	667	772	884	1004

For projecting Nigerian GDP, we use the PwC World in 2050 macroeconomic model.

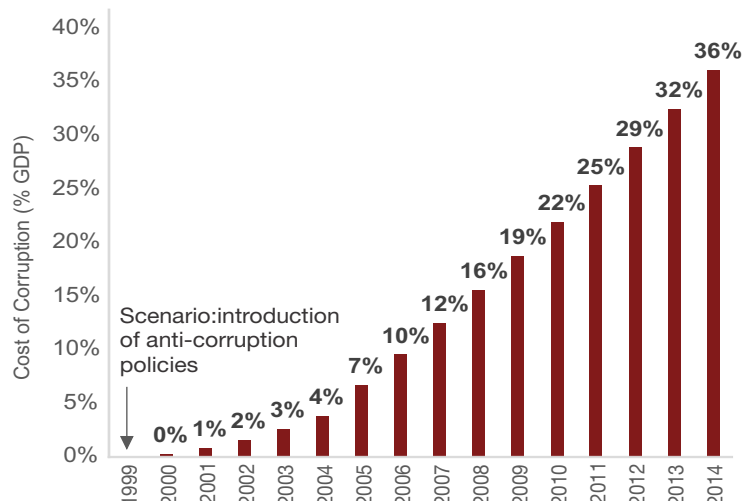
For projecting Nigerian population growth, we use IMF forecasts and PwC analysis.

Scenario 3 (Malaysia)

Nigeria's 2014 GDP could have been USD 185 bn higher if it had reduced corruption to Malaysia's levels



Nigeria's 2014 GDP could have been 36% higher if it had reduced corruption to Malaysia's levels

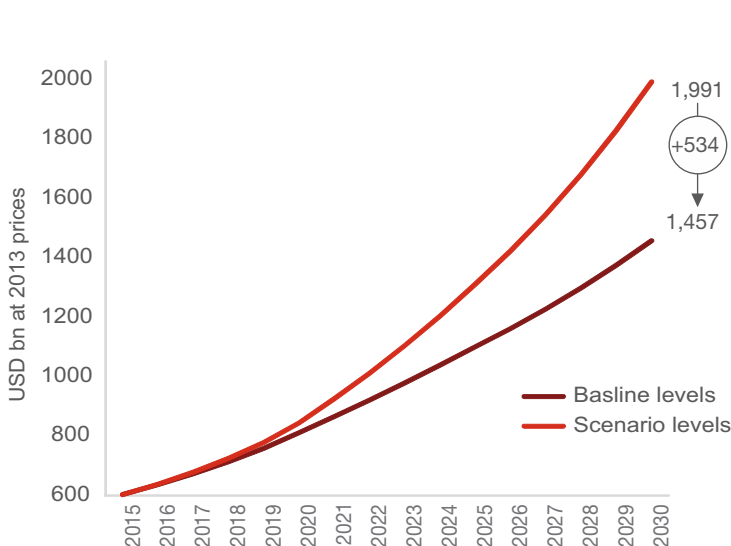


Losses from corruption per person, USD

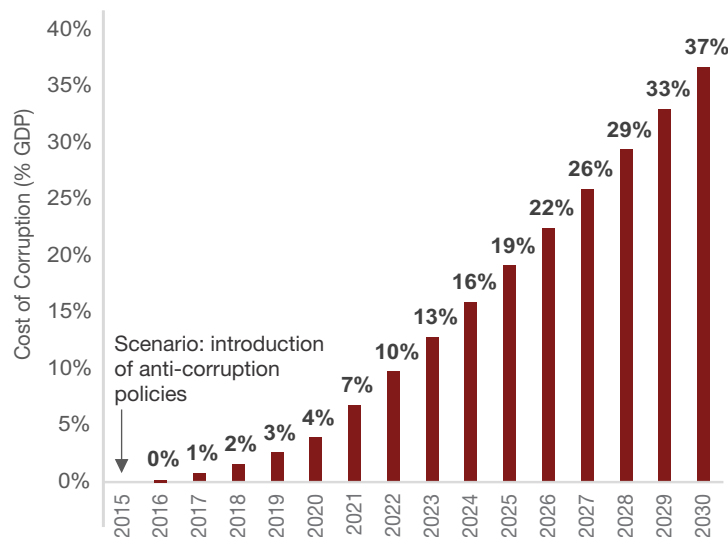
2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
4	12	25	45	73	133	202	281	368	468	586	692	800	923	1064

We use average Naira to USD exchange rate over the 15 year period between 1999 - 2014 to convert corruption losses and GDP. This is to avoid skewing results from currency fluctuations.

Nigeria's 2030 GDP can be USD 534 bn higher if it reduces corruption to Malaysia's levels



Nigeria's 2030 GDP can be 37% higher if it reduces corruption to Malaysia's levels



Losses from corruption per person, USD

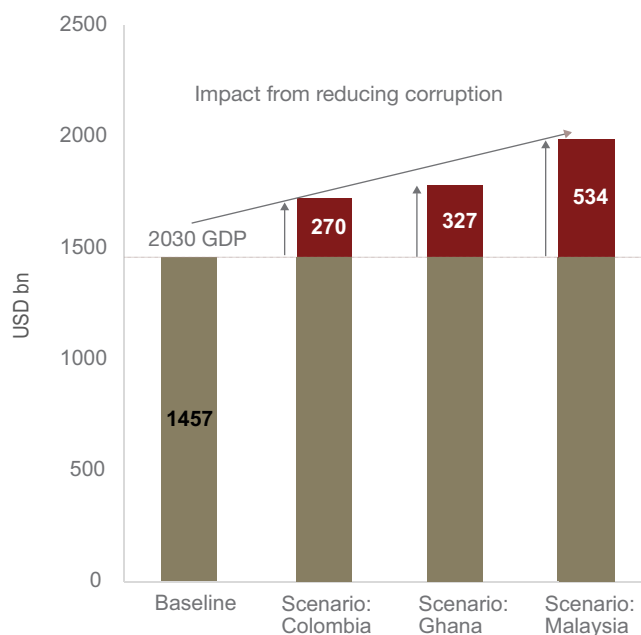
2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
9	28	57	99	156	280	416	564	725	898	1083	1283	1500	1735	1990

For projecting Nigerian GDP, we use the PwC World in 2050 macroeconomic model.
For projecting Nigerian population growth, we use IMF forecasts and PwC analysis.

If corruption is addressed, Nigeria's GDP could be USD 534 bn higher in 2030

The Graph below summarises the three scenarios

Nigeria's 2030 GDP can be up to USD 534 bn higher if it reduces corruption



We use average Naira to USD exchange rate over the 15 year period between 1999 - 2014 to convert corruption losses and GDP. This is to avoid skewing results from currency fluctuations.

For projecting Nigerian GDP, we use the PwC World in 2050 macroeconomic model.

Abbreviations

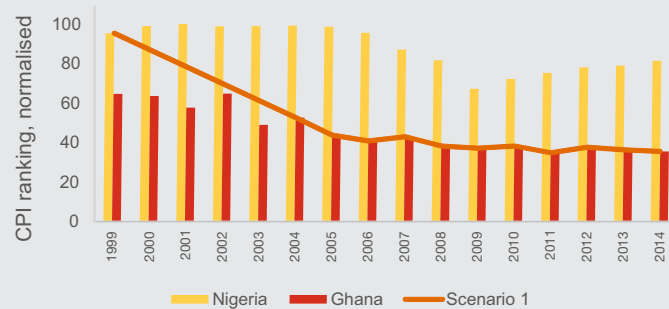
- CPI - Corruption Perceptions Index
- ICRG - International Country Risk Guide
- GDP - Gross Domestic Product
- IMF - International Monetary Fund
- IMF WEO - International Monetary Fund World Economic Outlook
- FDI - Foreign Direct Investment
- DFID - Department for International Development
- OECD - Organisation for Economic Co-operation and Development

Appendices

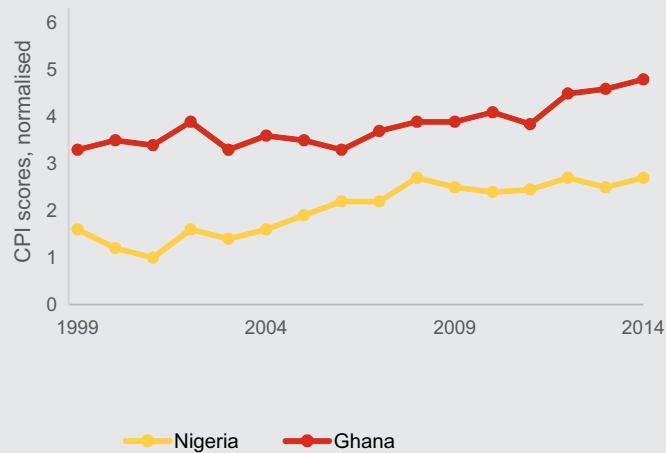
Scenarios used to simulate the cost of corruption in Nigeria

Scenario 1: Nigeria reduces corruption to Ghana's levels

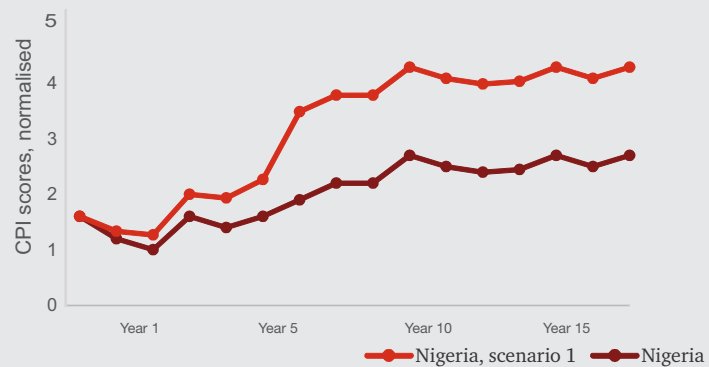
Nigeria reduces CPI ranking to 44 by 2004 and 35 by 2014



Nigeria baseline CPI scores and Ghana CPI scores



Nigeria reduces CPI ranking to 44 by 2004 and 35 by 2014



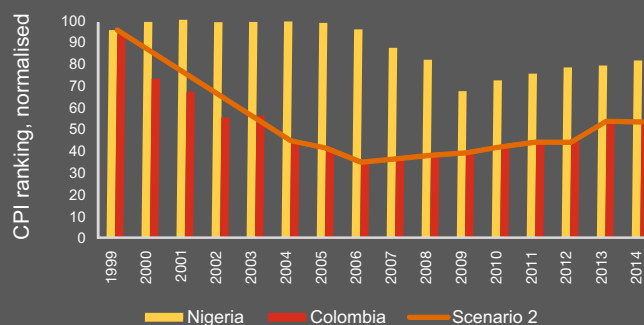
We estimated the foregone output due to corruption for Nigeria between 1999 and 2014 and between 2015 and 2030 based on the scenario that Nigeria catches up with Ghana's corruption levels within five years of introducing anti-corruption policies and gains from lower levels of corruption for ten years.

The cost of corruption estimation is based on the dampening effects of corruption on output in Nigeria from:

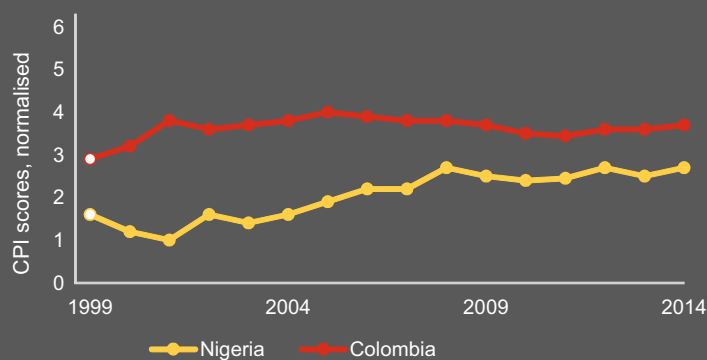
- A gradual increase in the Nigerian CPI score by 2 points over 5 years so that the Nigerian CPI score is equal to that of Ghana by year 5.
- An average increase in Nigerian CPI by 1.59 points per annum, which is the average annual difference between Nigeria and Ghana CPI scores between year 5 and year 15.

Scenario 2: Nigeria reduces corruption to Colombia's levels

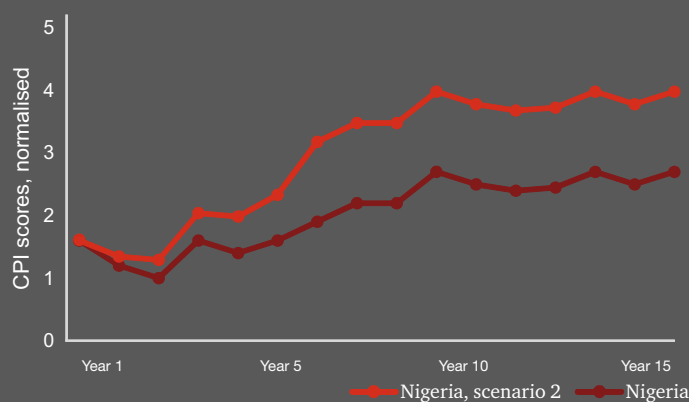
Nigeria reduces CPI ranking to 41 by 2004 and 54 by 2014



Nigeria baseline CPI scores and Colombia CPI scores



Nigeria CPI scenario scores



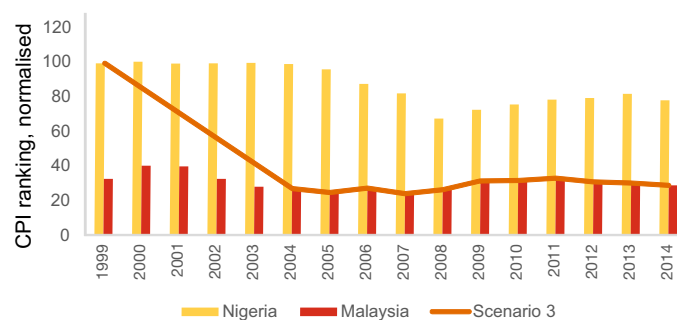
We estimated the foregone output due to corruption for Nigeria between 1999 and 2014 and between 2015 and 2030 based on the scenario that Nigeria catches up with Colombia's corruption levels within five years of introducing anti-corruption policies and gains from lower levels of corruption for ten years.

The cost of corruption estimation is based on the dampening effects of corruption on output in Nigeria from:

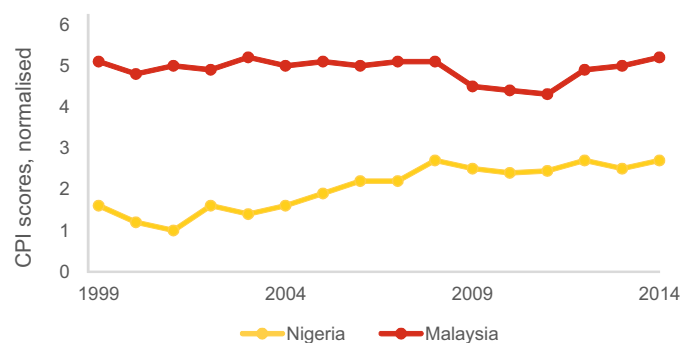
- A gradual increase in the Nigerian CPI score by 2.2 points over 5 years so that the Nigerian CPI score is equal to that of Colombia's by year 5.
- An average increase in Nigerian CPI by 1.28 points per annum, which is the average annual difference between Nigeria and Colombia CPI scores between year 5 and year 15.

Scenario 3: Nigeria reduces corruption to Malaysia's levels

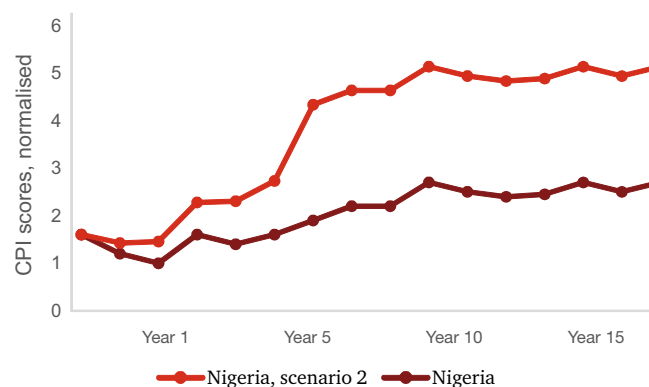
Nigeria reduces CPI ranking to 27 by 2004 and 29 by 2014



Nigeria baseline CPI scores and Malaysia CPI scores



Nigeria CPI scenario scores



We estimated the foregone output due to corruption for Nigeria between 1999 and 2014 and between 2015 and 2030 based on the scenario that Nigeria catches up with Malaysia's corruption levels within five years of introducing anti-corruption policies and gains from lower levels of corruption for ten years.

The cost of corruption estimation is based on the dampening effects of corruption on output in Nigeria from:

- A gradual increase in the Nigerian CPI score by 3.4 points over 5 years so that the Nigerian CPI score is equal to that of Malaysia's by year 5.
- An average increase in Nigerian CPI by 2.43 points per annum, which is the average annual difference between Nigeria and Malaysia CPI scores between year 5 and year 15.

Country case studies

Nigeria



Nigeria is a natural resources rich and populous country with high inequality and low foreign direct investment.

- GDP (current US\$) - \$568.5bn
- Total Population - 177.5mn
- Primary school enrolment (% gross) - 85%
- Poverty headcount ratio at national poverty lines (% pop.) - 46.0%
- Life expectancy at birth (years) - 52
- GNI per capita (current US\$) - \$2,970
- Exports (% GDP) - 16.1%
- FDI (% GDP) - 1.1%
- Gini coefficient - 43

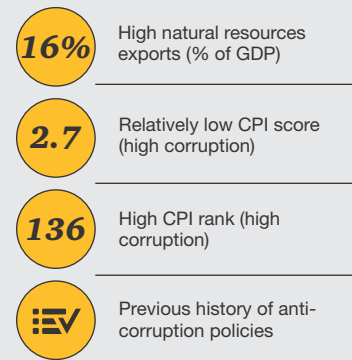
Nigeria has introduced policies to reduce corruption and crime, since the introduction of democracy in 1999. Examples include:

- The Money Laundering Act 1995
- 2000, President Olusegun Obasanjo inaugurated an anti-graft body, christened The Independent Corrupt Practices and Other Related Offences Commission (ICPC)
- Economic and Financial Crimes commission Establishment act (2004)
- The Money Laundering (Prohibition) act 2004

Sub-Saharan Africa



Criteria for scenario country selection:



Ghana



Ghana is a natural resources rich country that ranks better than Nigeria on the CPI and sees higher FDI.

- GDP (current US\$) - \$38.65bn
- Total Population - 26.79mn
- Primary school enrolment (% gross) - 107%
- Poverty headcount ratio at national poverty lines (% pop.) - 24.2%
- Life expectancy at birth (years) - 61
- GNI per capita (current US\$) - \$1,600
- Exports (% GDP) - 38.9%
- FDI (% GDP) - 6.6%
- Gini coefficient - 41

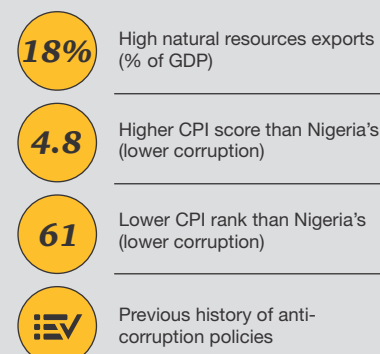
Ghana has implemented anti-corruption policies over the past 25 years, significantly reducing corruption. Examples of policies include:

- Commission on Human Rights and Administrative Justice (1992) investigated all instances of suspected corruption
- The Serious Fraud Office Act (1993) - a specialized agency to monitor, investigate and prosecute any offence involving serious financial or economic loss to the State
- The Ghana Anti-Corruption Coalition (1999)
- The anti-money laundering act 2008
- The Whistleblowers Act 2006

Sub-Saharan Africa



Criteria for scenario country selection:



Colombia



Colombia is a natural resources rich country that ranks better than Nigeria on the CPI and sees higher life expectancy at birth.

- GDP (current US\$) - \$377.7bn
- Total Population - 47.79mn
- Primary school enrolment (% gross) - 115%
- Poverty headcount ratio at national poverty lines (% pop.) - 30.6%
- Life expectancy at birth (years) - 74
- GNI per capita (current US\$) - \$7,970
- Exports (% GDP) - 16%
- FDI (% GDP) - 4.2%
- Gini coefficient - 50

Colombia drastically reduced corruption between 1999 and 2004, introducing anti corruption policies such as:

- 1998 ratified the Inter-American Convention Against Corruption
- Commitment to e-government in 2000 and 2001 allowing greater public access to information, government plans, legal frameworks and other services
- Anti-money laundering regulation: setting up of financial intelligence unit of Colombia 1999 and Committee for Coordination of Measures against Money Laundering 2004

Latin America & Caribbean



Criteria for scenario country selection:

- 10%** High natural resources exports (% of GDP)
- 3.7** Higher CPI score than Nigeria's (lower corruption)
- 94** Lower CPI rank than Nigeria's (lower corruption)
- ✓** Previous history of anti-corruption policies

Malaysia



Malaysia is a natural resources rich country that ranks higher on the CPI than Nigeria, and has better standard of living indicators:

- GDP (current US\$) - \$326.9bn
- Total Population - 29.90mn
- Primary school enrolment (% gross) - 101%
- Poverty headcount ratio at national poverty lines (% pop.) - 1.7%
- Life expectancy at birth (years) - 75
- GNI per capita (current US\$) - \$10,760
- Exports (% GDP) - 80%
- FDI (% GDP) - 4%
- Gini coefficient - 39

Malaysia has introduced anti-corruption policies within the last 5 years (2009-14). Examples of policies include:

- 2013 Prime Minister signed Election Integrity Pledge and website launched
- Malaysian Anti-Corruption Commission Act 2009 (MACCA)
- Financial Services Act and Islamic Financial Services Act 2013
- Whistle-blower Protection Act 2010 (WPA)
- Personal Data Protection Act 2010

Asia



Criteria for scenario country selection:

- 10%** High natural resources exports (% of GDP)
- 5.2** Higher CPI score than Nigeria's (lower corruption)
- 50** Lower CPI rank than Nigeria's (lower corruption)
- ✓** Previous history of anti-corruption policies

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