Some Reflections on Indonesia and the Resource Curse

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For ANU ACDE seminar presentation, April 12, 2022

Resource abundance, blessing or curse?

Sachs-Warner: the paradox of an inverse relationship between resource abundance and socio-economic performance, especially in developing countries.

And the related Dutch Disease literature.

Empirical evidence? See Figures 1 & 2.

Important to study the exceptions to this generalization.

Indonesia is one of them. This paper explores why and how.

With tropical, middle-income resource-rich countries, Brazil, Malaysia, Nigeria, as comparators.

Figure 1. Export of Natural Resources and Real GDP Growth (1970 to 1989)

Notes: only countries with natural resource exports >0% of GDP are included.
The slope for the whole sample is -0.0364

Figure 2. Export of Natural Resources and Real GDP Growth (2000 to 2019)

Notes: only countries with natural resource exports >0% of GDP are included.
The slope for the whole sample is 0.0085, and the slope excluding Turkmenistan, Tajikistan, and
PNG is -0.0124.

To further understand the issue, the 'bust' episodes are the most important.

Garnaut: 'The test of the "resource curse" is how a country responds to the end of a boom.'

Note also the varieties of booms (and resource abundance), and their economic, social and political economy implications.

Including Indonesia's two very different booms (Pasaribu 2019).

1970's: mainly oil, centralized, authoritarian government, technocrats mostly in control.

2000's: coal, palm oil, gas, geographically dispersed, decentralized, democratic governance; many more political actors.

Outline

1. The Resource Curse: An Overview

2. The Evidence: (1) Resource Booms

3. The Evidence: (2) Outcomes
Economic Growth
Macroeconomic and Crisis Management
Trade Policy
Distributional Impacts
Institutional Effects

4. Summing Up

2. The Resource Curse: An Overview

Various definitions, common one is at least 20% of merchandise exports and/or fiscal revenue from non-renewable natural resources. Some definitions include resource-based products in general.

Noting also that the DD literature in particular often refers to any sudden and large increase in foreign exchange earnings. Eg, remittances, aid, etc.

Booms vary greatly in their scale and intensity, with policy implications.

Note differences between, and implications of, a single-commodity mining boom and a broad-based agricultural boom.

The resource curse literature evolved out of the earlier DD literature (Corden, Corden and Neary), with its emphasis on RER appreciation, and a three-sector model (booming sector, other tradables, non-tradables).

2. The Resource Curse: An Overview (cont)

Key conjectures to explain 'resource curse' outcomes:

(i) Macroeconomic crises, over-borrowing myopia, rising structural fiscal deficits, low quality investments during the boom. Debt service crisis occurs when commodity prices decline, reserves depleted, etc.

(ii) Rising trade protectionism, to 'protect' the non-booming tradables, enlarged state enterprise sector, rising economic nationalism.

(iii) Uneven distributional impacts, in absence of equitable fiscal measures, rents accrue unevenly, to the politically connected, concentrated owners of resources, geographic (and sometimes ethnic) concentrations. Further exacerbated by cuts to social expenditures in the post-boom crisis episodes.

(iv) Institutional deterioration and corrosion, in societies with weak institutions, as large windfall gains corrupt governance and undermine institutions. In some cases resulting in or inflaming existing conflicts.

2. The Resource Curse: An Overview (cont)

A huge empirical literature examining these and other issues.

One of the earliest was Gelb and Associates (1988), which included 8 developing country case studies, including Indonesia:

Indonesia 'was the only country in the sample to implement a determined policy of expenditure reduction and exchange rate realignment before the fading of the second oil boom.'

'More than any other exporter, Indonesia directed a high proportion of its development spending to rural areas for irrigation works, roads, schools …'

Also a central feature of Collier's 'Bottom Billion' formulation, mainly focused on Africa: "The heart of the resource curse is that it makes democracy malfunction."

2. The Evidence: (1) Resource Booms

Is Indonesia a resource-rich economy? Yes, though only moderately so (Table 1).

How large have the resource booms been? Employing World Bank estimates of the value of resource rents relative to GDP (Figure 3).

Inevitably, some arbitrary definitions. Eg, case of palm oil, relevant for Indonesia.

Key takeaways:

1. The major boom for Indonesia was in the 1970s, much larger than second boom.

2. The volatility of the rents, both upside and downside. Hence the 1980s 'lost decade' for many commodity exporters.

3. Comparisons (Figure 4): Nigerian rents very large and volatile; Brazil and Malaysia less volatile, reflecting more diversified export bases.

Table 1. Comparative Natural Resource Endowments, 2020

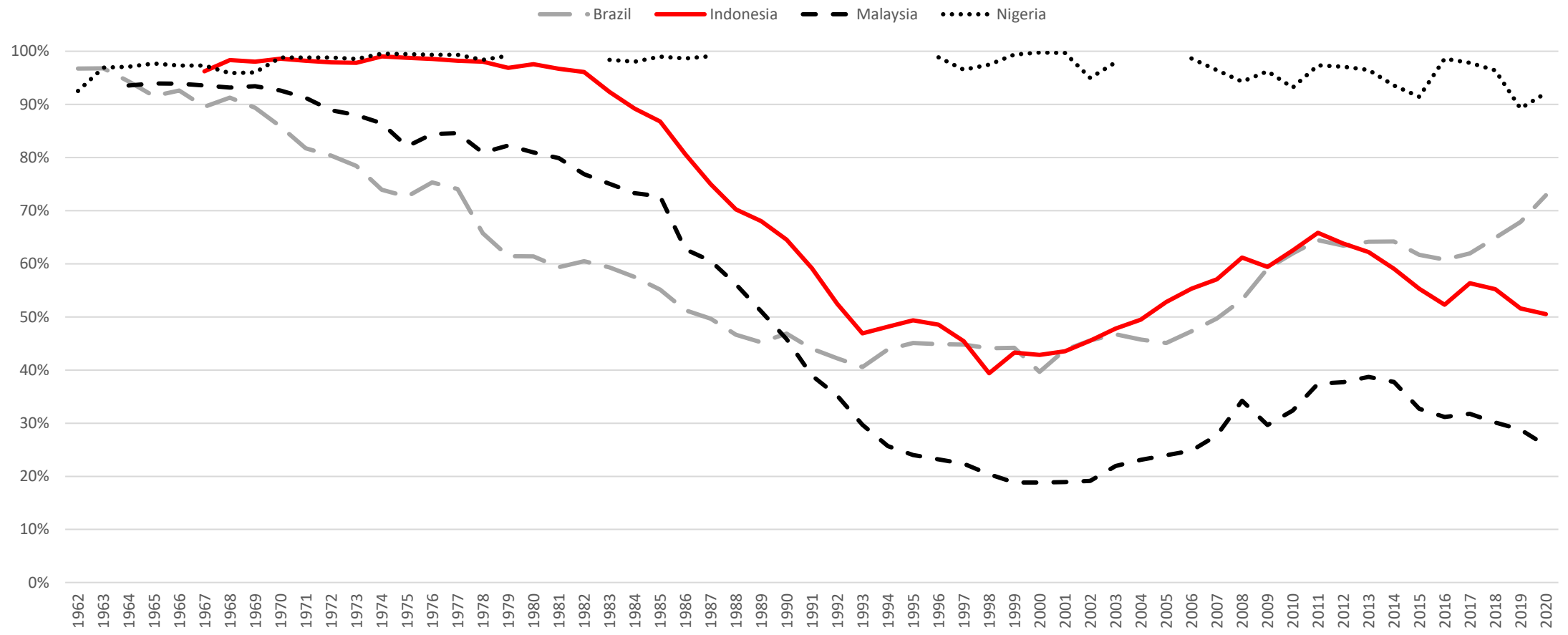|	Population Density	Resource Intensity	
	/sq km	$'000	
Indonesia	**143**	**555**	
Brazil	25	**170**	
Malaysia	**98**	**1020**	
Nigeria	**223**	**468**	
Australia	3	173	
Note: resource intensity refers to GDP/sq km			

Figure 3. Total Natural Resource Rents
(% of GDP)
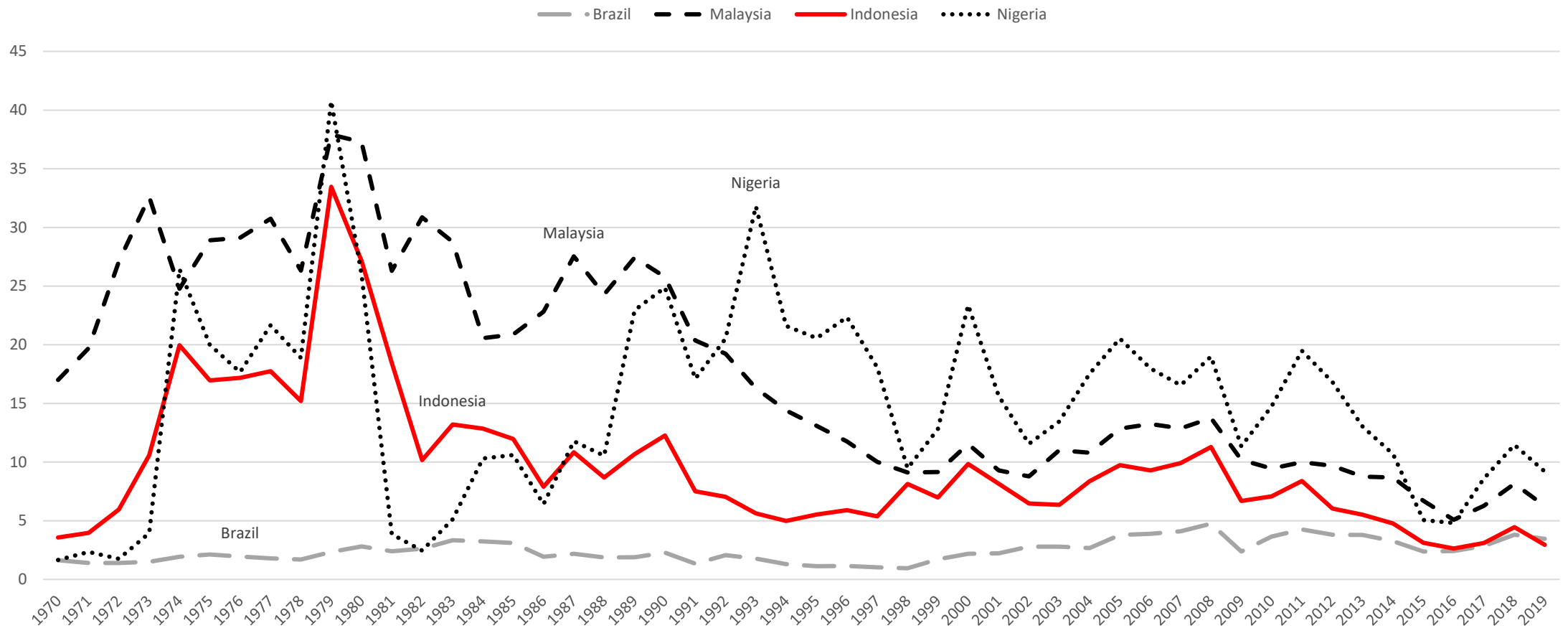
Source: World Development Indicators, World Bank (2021)

Figure 4. Natural resource exports as percentage of total exports

Source: UN Comtrade (2021)
Natural Resources: SITC1 0 (Food and live animals),1 (Beverages and Tobacco), 2 (Crude materials, inedible, except fuels),
3 (Mineral fuels, lubricants, and related materials – includes coal and oil), 4 (Animal and vegetable oils and fats – includes palm oil), 68 (Non-ferrous metals)

2. The Evidence: (1) Resource Booms (cont)

Disaggregating Indonesian resource booms over time (Figure 5): oil dominant in the first boom; all five contributed in the second boom, led by coal.

So, smaller, more diffused, geographically dispersed rents in the democratic era, with important political economy implications.

International shocks and domestic policy adjustment:

1. Terms of trade (Figure 6): Countries more oil-dependent usually have the greatest shocks, especially Nigeria, where volatility the norm, also Indonesia to a lesser extent, more so in the first boom.

2. The first line of adjustment: back to DD theory, the RER, assuming boom proceeds aren't fully sterilized off-shore (Figure 7, using Bruegel estimates): These tend to track the ToT, but the volatility is exacerbated when macroeconomic management struggles to adjust to external shocks, through rising inflation and/or nominal exchange rate stickiness, as clearly is the case for Nigeria and Brazil.

Figure 5. Composition of Indonesia's Natural Resource Rents (% of total rent)
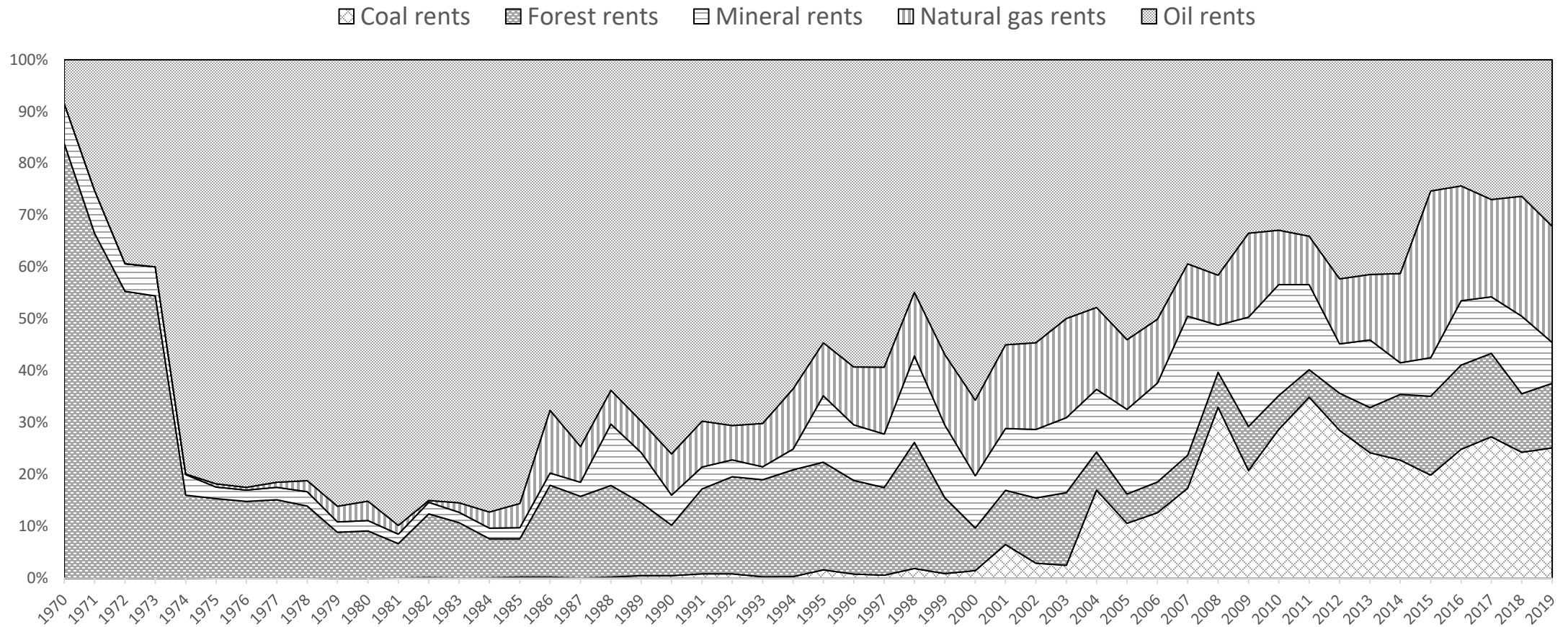
Source: World Development Indicator, World Bank (2021)

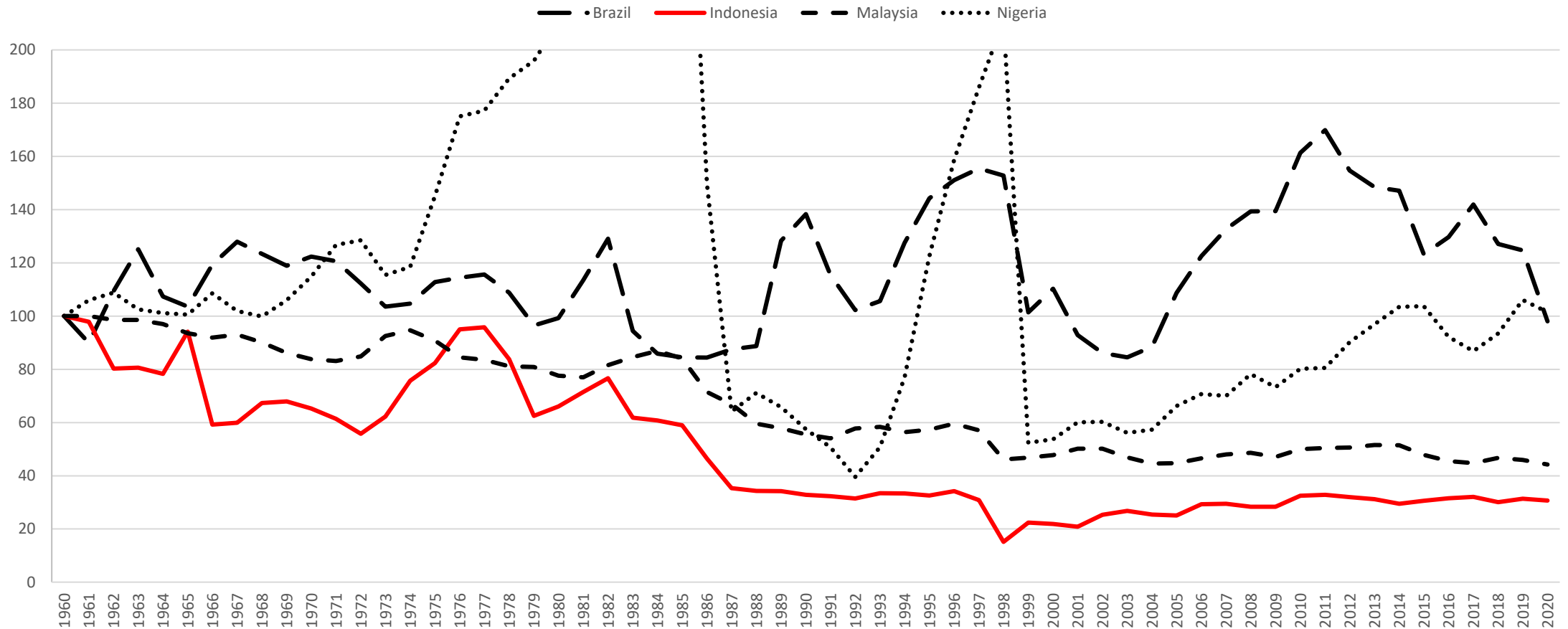# Figure 6. Terms of Trade (2000=100)
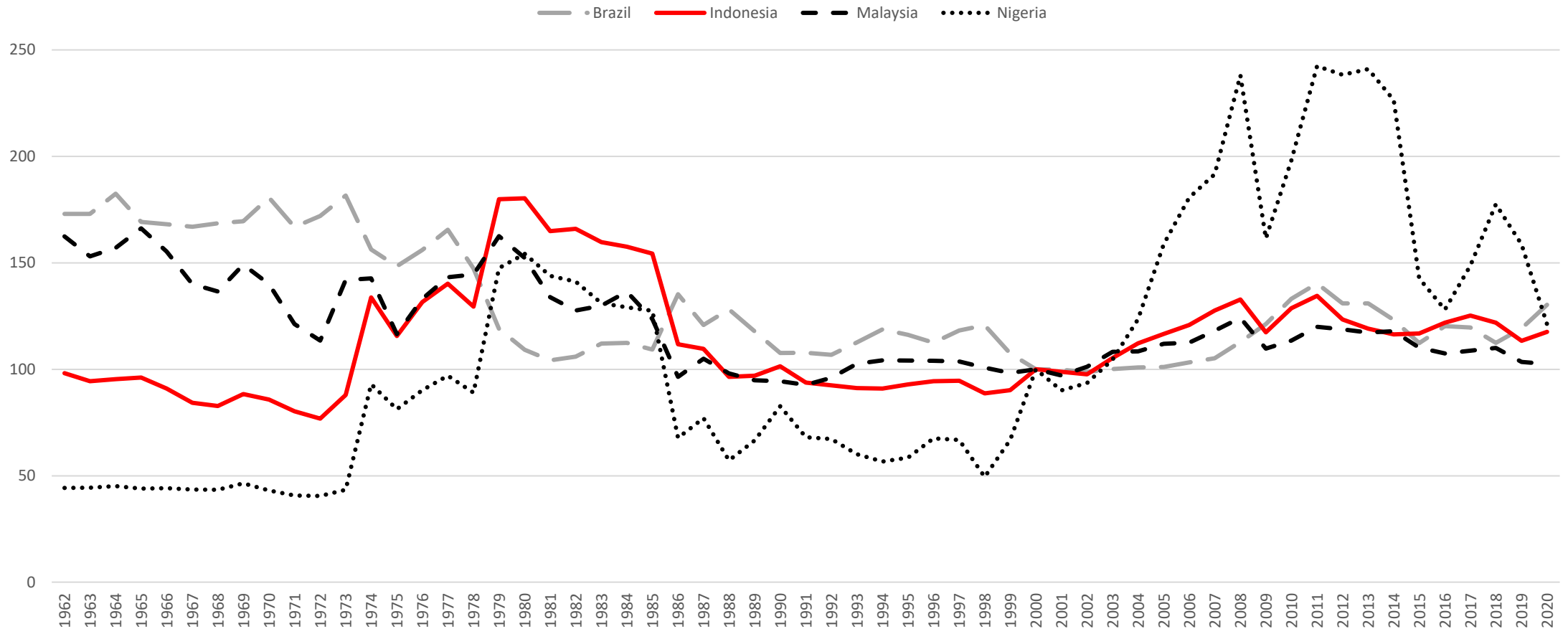
Notes: index weighted by net exports to total merchandise trade, rolling weights.
Source: IMF (2021)

Figure 7. Real Effective Exchange Rates
(CPI-based, 65 partner countries, 1960 = 100)

Source: Bruegel database (2021)
Notes: The Y axis is capped at 200 to exclude outlier levels for Nigeria. Nigeria REER reached a peak of 373 in 1984 and 211 in 1998.

3. The Evidence: (2) Outcomes

a) Economic Growth

Consistent with Figures 1 & 2, Indonesia is a strong performer (Malaysia too) (Table 2). Especially compared to Nigeria, but also Brazil (a 'BRIC' economy). This was particularly evident in the 1980s, when Indonesia was one of the few developing country commodity exporters to sustain growth.

b) Macroeconomic and Crisis Management

Indonesia has avoided a major crisis related to natural resource volatility.

Inflation (Figure 8): Indonesia has been moderately inflation-averse since the late 1960s. Unlike Brazil, Nigeria to some extent.

Exchange rates: Refer back to Figure 7; Indonesia has had three exchange rate regimes since 1970, has generally avoided severe exchange rate misalignment.

(Noting also extensive literature on the technicalities of RER measurement.)

Table 2. GDP per Capita Growth Rate
(constant 2015 US$)

Average GDP per capita growth rate (constant 2015 US$)

Year	Brazil	Indonesia	Malaysia	Nigeria
1960-65	1.6%	-0.7%	3.6%	2.3%
1965-70	5.0%	3.0%	3.5%	2.1%
1970-75	7.7%	4.2%	5.5%	3.0%
1975-80	4.2%	5.3%	5.8%	0.9%
1980-85	-1.2%	2.4%	2.6%	-7.9%
1985-90	0.3%	4.3%	3.8%	2.1%
1990-95	1.4%	5.4%	6.7%	-2.3%
1995-00	0.6%	-0.7%	2.2%	0.5%
2000-05	1.6%	3.3%	2.6%	6.1%
2005-10	3.4%	4.3%	2.5%	4.3%
2010-15	0.3%	4.1%	3.8%	2.3%
2015-19	-0.5%	3.9%	3.4%	-1.8%

Standard deviation of GDP per capita growth

Year	Brazil	Indonesia	Malaysia	Nigeria
1960-69	0.034	0.035	0.013	0.099
1970-79	0.034	0.010	0.031	0.089
1980-89	0.047	0.024	0.033	0.069
1990-99	0.026	0.063	0.051	0.039
2000-09	0.021	0.008	0.029	0.029
2010-19	0.032	0.005	0.008	0.029

Total change of GDP per capita compared to base year

Year	Brazil	Indonesia	Malaysia	Nigeria
1970-2019	138%	476%	552%	40%
1990-2019	40%	161%	175%	58%

Source: Authors' calculation based on World Development Indicators, World Bank (2022)

Figure 8. Average Annual CPI Inflation Rate (%)

	1960-65	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95	1995-00	2000-05	2005-10	2010-2015	2015-2020
Brazil					146%	673%	737%	7%	9%	5%	7%	5%
Indonesia	123%	138%	19%	15%	10%	7%	9%	18%	9%	8%	6%	3%
Malaysia	0%	1%	7%	5%	5%	2%	4%	3%	2%	3%	2%	1%
Nigeria	3%	6%	14%	16%	15%	24%	47%	12%	16%	10%	10%	15%
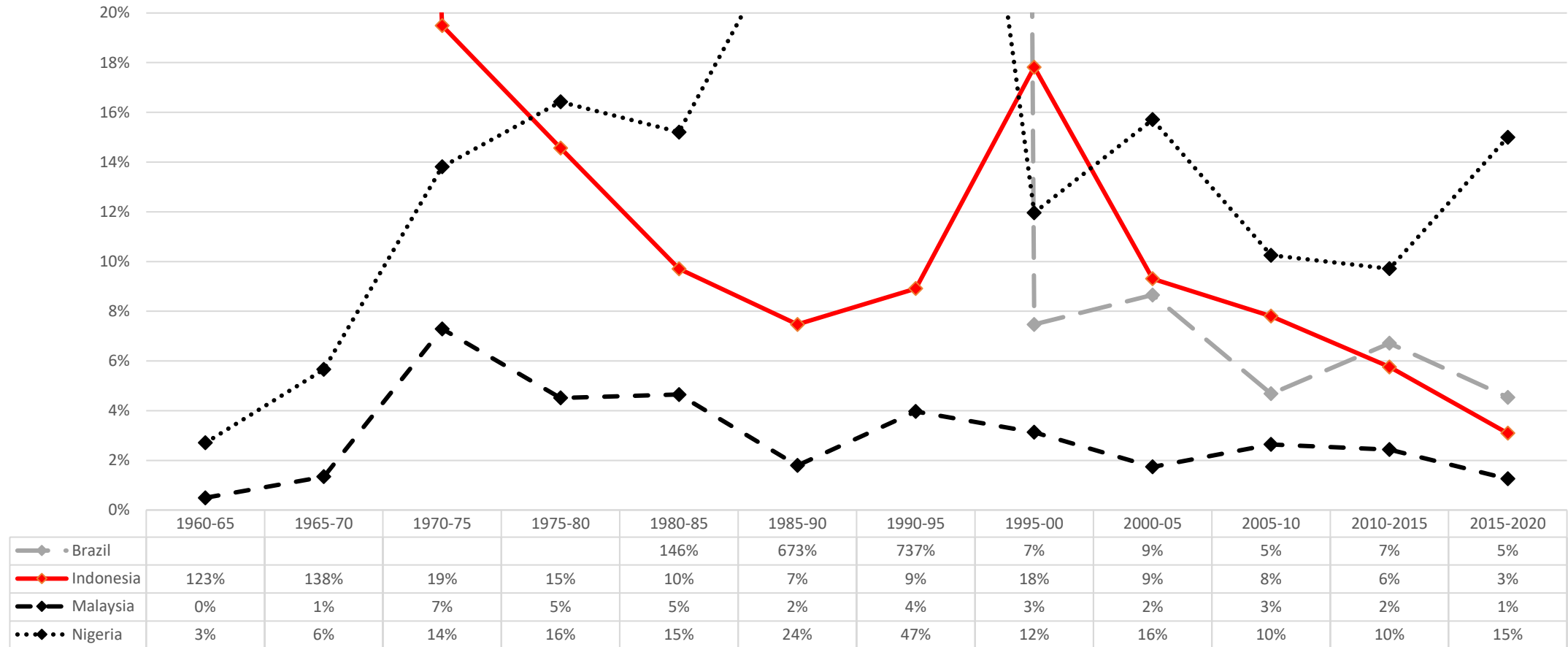
Source: World Development Indicator, World Bank (2022) and World Economic Outlook, IMF (2022)
Notes: The Y axis is capped at 20% to exclude outliers.

3. The Evidence: (2) Outcomes (cont)

Fiscal policy, investing the proceeds of a boom (more to come):

In the conduct of fiscal policy, proxied here by net public sector borrowings, Indonesia has generally been prudent and fiscal policy settings have generally been relatively stable (Figure 9), with one major exception, the 1997-98 AFC. Unlike Brazil and Nigeria (for different reasons); like Malaysia (but with differences).

Looking more closely at the Indonesian record (Figure 10), there is some evidence of moderate counter-cyclical fiscal policy in the democratic era.

c) Trade Policy

Mixed responses to resource cycle, including 'temporary protection' and increased 'economic nationalism', reflecting also countries' commercial policy histories.
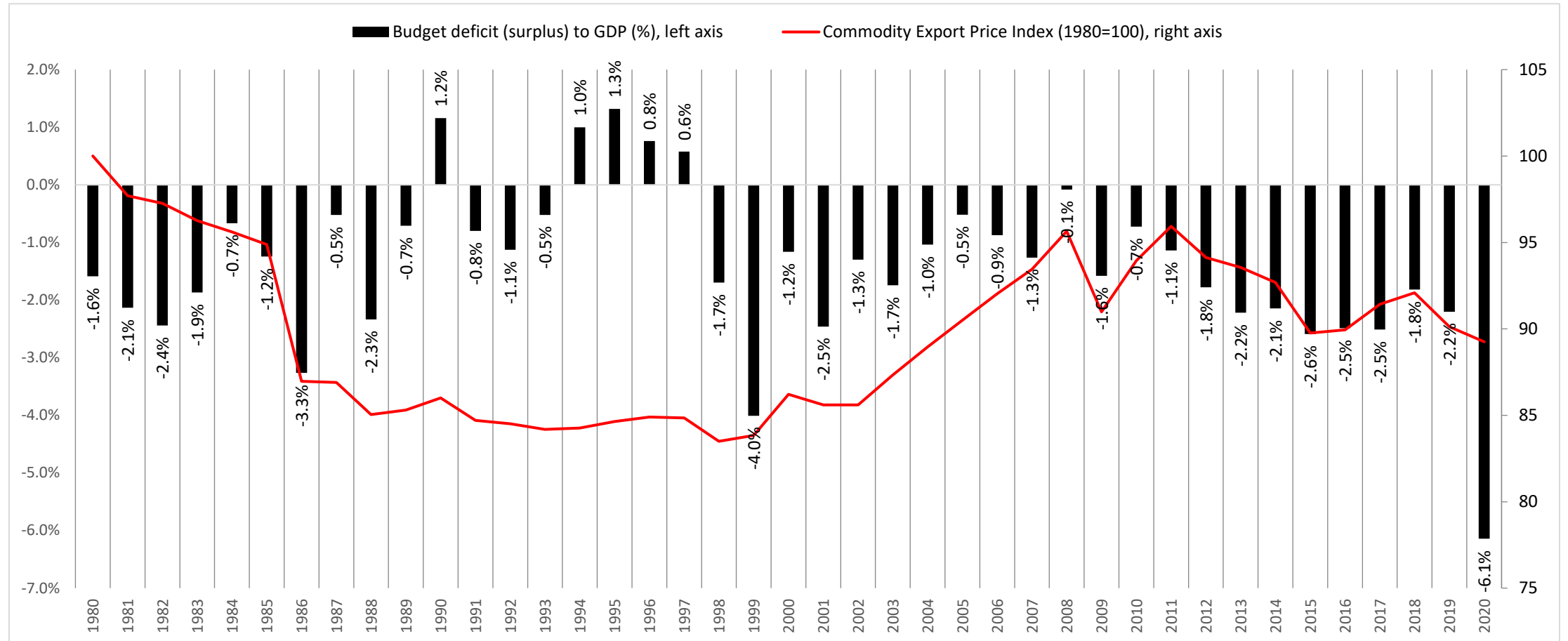
Unlike Brazil and Nigeria, Indonesia has been consistently (Sachs-Warner) 'open' since 1971, albeit with considerable swings in policy (Patunru et al, eds, 2018).

Figure 9. Government Net Lending/Borrowing
(as % of GDP)
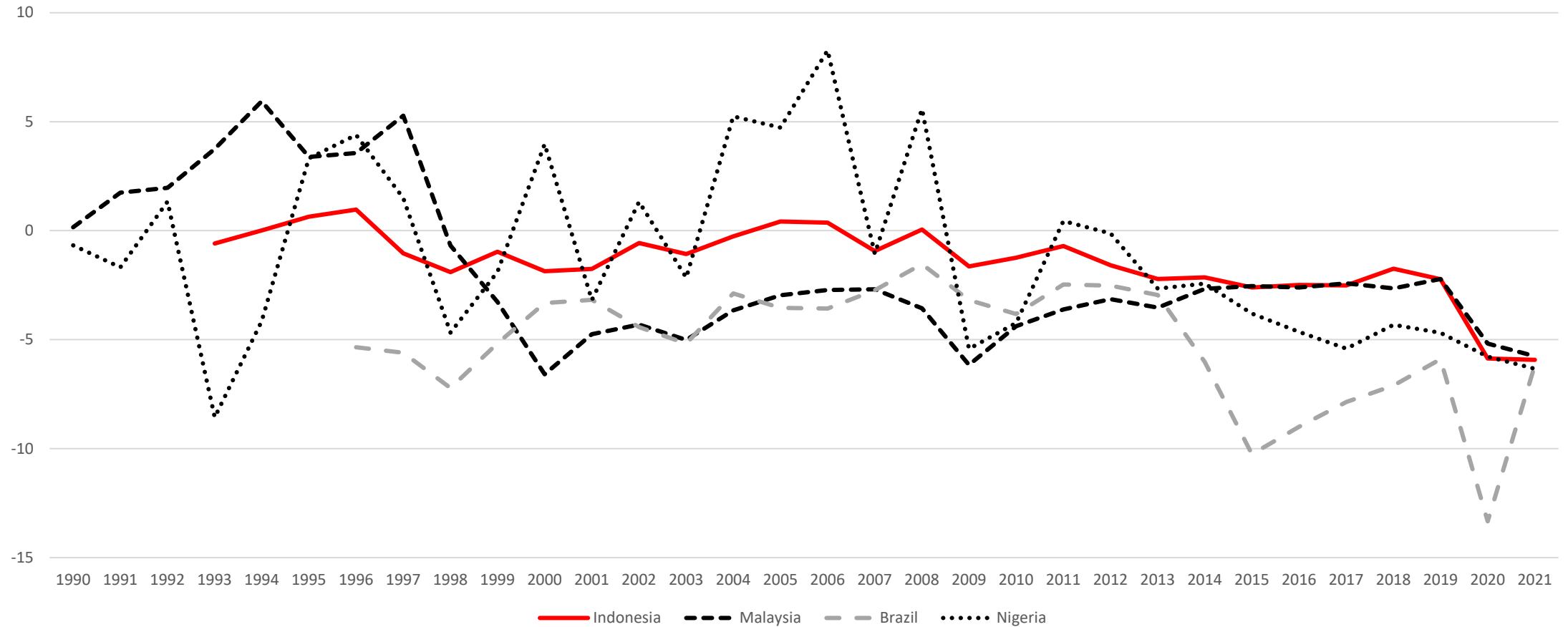
Indonesia — Malaysia — Brazil — Nigeria

Figure 10. Indonesian Fiscal Balances and Export Price Index, 1980-2020

Sources: Author's calculation based on Bank Indonesia (2022), Finance Ministry (2022), and IMF (2022)

Table 3. Trade openness: I. Sachs & Warner (1995)

YEAR	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
NIGERIA	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed
BRAZIL	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Open
INDONESIA	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open
MALAYSIA	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open	Open

Table 3. Trade Openness: II. Sachs-Warner (1995), updated by Wacziarg and Welch (2008) until 2001

Country	Year uninterrupted openness began
Brazil	1991
Indonesia	1970
Malaysia	1963
Nigeria	Closed

3. The Evidence: (2) Outcomes (cont)

<u>d) Distributional Impacts</u>

Many factors explain social outcomes. The links between these outcomes and resource abundance are tenuous.

The one clear conclusion is that headcount poverty has fallen rapidly in Indonesia since the late 1960s. Comparatively this is evident from the early 1980s using Povcal data (Figure 12). In the mid 1980s poverty was higher in Indonesia than Nigeria, but it is now much lower, and on track to overtake Brazil.

A result mainly of Indonesia's faster economic growth. In fact, inequality has risen significantly in the 21st century, though still well below Brazil (Figure 13).

Noting also the irony:

Mostly stable Gini during the first boom, under centralized, authoritarian rule.

A rising Gini during the second boom, of decentralized, democratic governance, with dispersed beneficiaries, and a rudimentary social safety net (Pasaribu 2019).

Figure 12. Poverty headcount ratio at $3.20 a day (2011 PPP) (% of population)
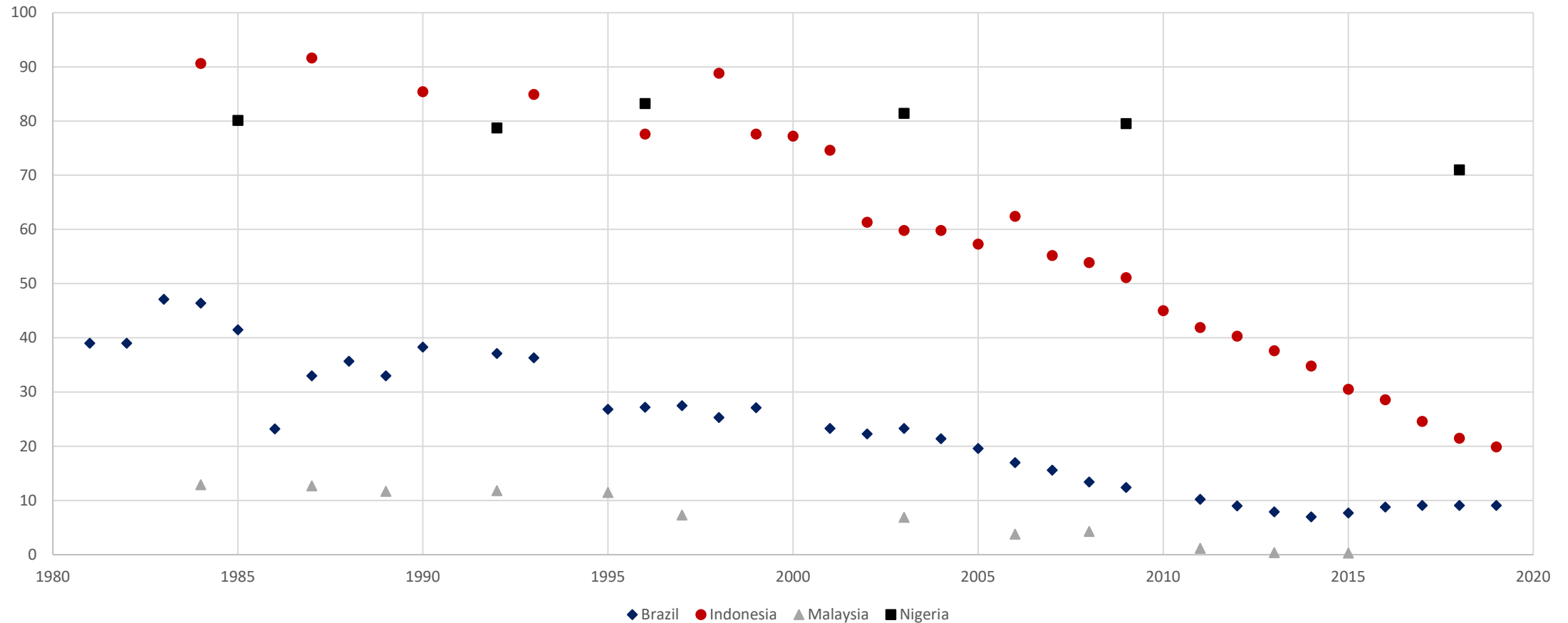
Source: Poverty and Equity Database, World Bank (2022)

Figure 13. Gini Index (World Bank estimate)
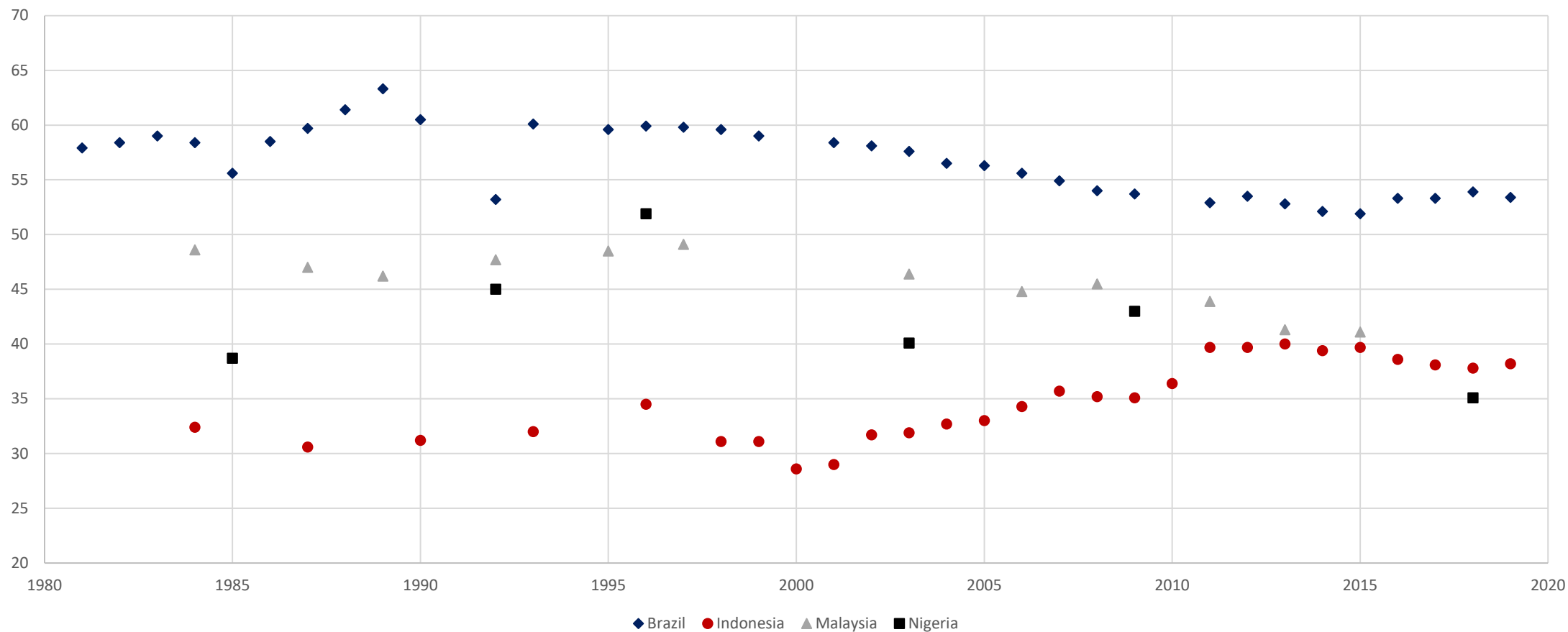
Source: Poverty and Equity Database, World Bank (2022)

# 3. The Evidence: (2) Outcomes (cont)

e) Institutional Effects

Similarly, difficult to provide definitive comparative evidence and clear lines of causality. Country narratives generally the most compelling (Collier etc for Nigeria).

We surveyed various comparative governance quality indicators over time.

The general composite picture to emerge is that portrayed in Figure 14, from Transparency International. A contested issue, but reported perceived corruption levels in Indonesia have mostly been declining after the AFC, including during the second boom, whereas no clear trend in the other three countries.

WGI etc shows a similar picture.

Figure 14. Corruption Perception Index
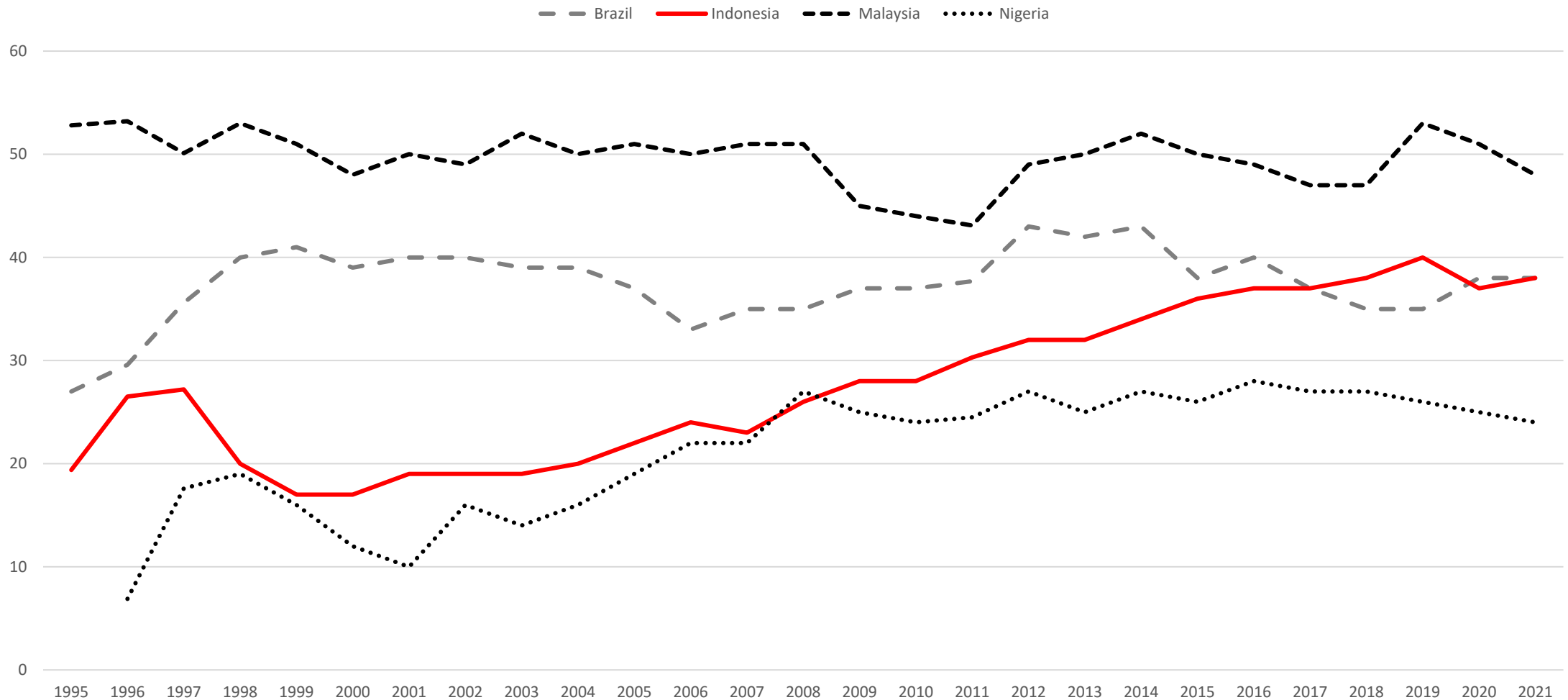
Source: Transparency International (2022), Data are only available from 1995. The method was changed in 2012 and the scale was changed from 1-10 to 1-100. A higher score indicates lower perceived corruption.

4. Summing Up

Three main conclusions:

<u>First</u>, Indonesia has managed its resource abundance *relatively* well. (Note here that we're abstracting from environmental management issues, many of which point in the opposite direction.)

Principally because of generally prudent macroeconomic management, and staying at least moderately open. Also considerable recycling of the proceeds of booms into infrastructure, rural development, especially in the first boom.

Aided by reasonably 'settled' polity and governance in both periods.

<u>Second</u>, Indonesia could have managed the booms better, including saving more of the proceeds, spending the proceeds more effectively, and better tax and regulatory arrangements.

<u>Third</u>, there are significant differences between the two boom episodes, emphasizing that there is no unique 'resource curse' story, even within countries.