2023-07

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10.1016/j.resourpol.2023.103741
Resources Policy
Elsevier BV

Resources Policy 84 (2023) 103741

Contents lists available at ScienceDirect

Resources Policy

journal homepage: www.elsevier.com/locate/resourpol

Natural resource curse: A literature survey and comparative assessment of regional groupings of oil-rich countries

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ARTICLE INFO

JEL classification:
O13
O47
O43
Q33
I00
040

Keywords:
Natural resource curse
Dutch disease
Institutions
Human capital
Financial development
Economic growth

ABSTRACT

This paper provides an extensive review of the rapidly growing literature on the resource curse phenomenon, whereby natural resources-rich countries experience lower levels of economic growth and development than countries with fewer natural resources. The various theoretical explanations for the phenomenon, alongside a survey of the empirical literature, are critically discussed. Generally, the literature results are found to be mixed and no consensus is reached. This might be attributed to different time periods, data used, proxy for the natural resource variables selected and the estimation approach employed. The practical part of this paper applies a descriptive analysis to compare economic performance among sub-regional groupings of oil-rich developed and developing countries. Our results indicated that oil-rich developing countries have underperformed in several development outcomes particularly in Middle East and North African (MENA) and Sub-Sahara African (SSA) countries. The paper also provides some suggested policies to convert the resources curse into a blessing, in particular for these countries.

1. Introduction

Logically, natural resources are supposed to benefit economic growth and development by creating productive investments, generating foreign currencies, attracting foreign direct investment, creating jobs, alleviating poverty, and promoting economic diversification (Rostow, 1959; Smith and Stewart, 1963; Watkins, 1963; Nurkse, 1966; Ricardo, 1971; Auty and Mikesell, 1998; Auty, 2001a; Stevens, 2003; Roy et al., 2013; Badeeb et al., 2017). Historically, natural resources have played a very important role in increasing economic growth in developed countries, for example, in the United States, Australia, Canada and Scandinavian countries (Stevens, 2003). However, there is some extensive empirical evidence clearly showing that natural resources, in fact, hinder economic growth and development (Corden and Neary, 1982; Sachs and Warner, 1995; Gylfason, 2001; Mehlum et al., 2006a; Beck, 2011). This puzzle has been referred to as the *natural resource curse* phenomenon, which is attributed to several factors: Dutch disease, lower institutional quality, limited investment in human capital development, and a slower pace of financial development. Such factors are discussed extensively from the theoretical and empirical perspective in the next few sections.

Several studies have surveyed and assessed the growing literature of the resource curse phenomenon (Rosser, 2006; Van Der Ploeg, 2011; Frankel, 2012; Roy et al., 2013; Badeeb et al., 2017; Papyrakis, 2017; Vahabi, 2017; Adams et al., 2019; Savoia and Sen, 2021; Mien and Goujon, 2022). However, most of these studies have repetitively focused on Dutch disease and institutions as theoretical explanations for the phenomenon. This paper seeks to expand previous studies by surveying a more broader range of explanations for the phenomenon (Dutch disease, institutions, human capital, and financial development) and for different types of natural resources (oil, gas, forest, coal, and mineral) as well as geographic areas (MENA, SSA, Latin America, Asian and Pacific, and global). It also attempts to add some more recent studies, which have been overlooked by them. Moreover, this paper differs from previous ones by conducting a comparative assessment of economic growth and provides several indicators of development outcomes (manufacturing sector, institutions, human capital, and so forth) across world regional groupings of oil-rich developed and developing countries. More specifically, we introduce some basic statistical facts about those indicators, using a comparative approach. This helps to capture

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https://doi.org/10.1016/j.resourpol.2023.103741
Received 15 January 2023; Received in revised form 19 May 2023; Accepted 19 May 2023
Available online 11 June 2023

and assess similarities and differences of those indicators across world regions, and also explain which regions are severely affected by the curse. It further suggests some policies to escape the phenomenon. We attempt to address the following questions:

1. What are the impacts of natural resources on economic growth?
2. What are the key explanations for the natural resource curse phenomenon?
3. How do economic growth and other development indicators differ within regional groupings in oil-rich developed and developing countries?
4. How could the phenomenon be reversed?

The rest of the paper is organized as follows. Section 2 reviews resource curse and economic growth. Theoretical explanations and an empirical review of the resource curse are presented in section 3. Section 4 presents a comparative analysis of regional groupings of oil-rich developed and developing countries. The last section contains the conclusion and some recommendations.

2. Resource curse and economic growth

Gelb (1988) was the first author to examine the impact of oil rents on the economy in his book *Oil Windfalls: Blessing or Curse*. Gelb used descriptive statistics in the analysis and showed that mineral economies deteriorate severely in the efficiency of their domestic investment over the boom period 1971–1983 than non-mineral economics. Following Gelb (1988), Auty and Warhurst (1993) assessed the industrial policy performances in these countries. They stated that mineral economies are characterised by enclave tendencies, leading to the volatility of mineral revenues. They also found that mineral-rich countries appear to accumulate low revenues because foreign-owned mining companies send their revenues abroad.

Inspired by the above mentioned studies and debates, Sachs and Warner (1995) showed a negative relationship between natural resources abundance and economic growth in a sample of 97 countries between 1970 and 1990. They employed several indicators of natural resource variables, including primary product exports share in GDP, mineral production share in GDP, primary exports in total exports, and land area per person. The dependent variable of their growth model was GDP per capita growth. Their empirical results showed that all natural resource variables have a negative impact on economic growth, confirming the resource curse theory. It also suggest that primary product exports' share in GDP has an insignificant impact on saving rates, human capital accumulation, and domestic investment. Primary product exports' share in GDP also reduces exports of the manufacturing sector, providing strong evidence of the Dutch disease theory. Their results further revealed that natural resource increases the level of corruption, reduces bureaucratic quality, weakens the rule of law, and increase the risk of repudiation of contracts by governments, leading to poor institutional quality.

Sachs and Warner argued that, first, although their outcomes use highly aggregated data, they were conclusive. Second, natural resources-rich countries should further open up to trade in order to sustain economic growth. Third, natural resources abundance may be good for consumption, even if it might hurt economic growth. Fourth, government policies to diversify the economy might entail direct welfare costs of their own, which can be larger than the advantage of shifting away from natural resource industries.

Since then, several studies have followed the seminal work of Sachs and Warner (1995), to examine the resource curse hypothesis by assessing the direct impact of natural resources abundance on economic growth (Philippot, 2010a; Cavalcanti et al., 2011; Fan et al., 2012; Yaduma et al., 2013; Apergis and Payne, 2014; Smith, 2015; Kim and Lin, 2017; Arin and Braunfels, 2018; Henry, 2019; Nawaz et al., 2019; Yang et al., 2019; Matallah, 2020; Belaid et al., 2021; Ofori and Grechyna, 2021; Malik and Masood, 2022). The findings of these empirical studies are summarised in Table 1. A general conclusion from these studies is that results are indeed mixed across different countries' characteristics, different dataset, and alternative estimation approaches.

3. Explanations for the resource curse

There is clear evidence of the resource curse from Sachs and Warner's (1995) study. This raised the question: Why do some countries suffer from the resource curse? As indicated previously, several explanations for the resource curse have been provided. Among these are: (i) the Dutch disease theory, (ii) lower institutional quality, (iii) less investment in human capital, and (v) poor financial development. This section provides a critical theoretical and empirical review of these explanations and in their relation to the resource curse.

3.1. Dutch disease and resource curse

The 'Dutch disease' is cited as a possible cause of the 'resource curse' (Sachs and Warner, 1995; Stevens and Dietsche, 2008; Frankel, 2012; Badeeb et al., 2017). The term 'Dutch disease' refers to a situation, in which the natural resource (e.g. oil) boom sector leads to an appreciation of the exchange rate, crowds out the manufacturing sector, and adversely affects the economy. The concept originates in the November 1977 issue of The Economist, where it was used to describe the contraction in The Netherlands' manufacturing sector owing to the discovery of natural gas fields in 1956. Corden and Neary (1982) and Corden (1984) argued that the Dutch disease results from the resource movement and spending effects following from a natural resource boom. They referred to these two effects respectively as 'direct de-industrialisation' and 'indirect deindustrialisation', leading to poor growth in the economy as a whole. The implication of these two effects is that resources and output will increase in the oil boom sector, but fall in what they refer to as the lagging (manufacturing and agricultural) sector, with an indeterminate change in the non-tradable (service) sector. This highlights the significance of the Dutch disease, given the key role that manufacturing, and to some extent, agricultural expansion, plays in economic growth and development.

Wijnbergen (1984), Matsuyama (1992), and Torvik (2001) also suggested that the Dutch disease might negatively affect economic growth in the long-run due to a delay of learning-by-doing in the competitive manufacturing sector, which is considered as key for growth. Krugman (1987) concluded that Dutch disease is subject to the size and duration of the oil boom. They also argued that Dutch disease effect can be long-term or large enough; otherwise, it will be a short-term phenomenon. Cherif (2013) proposed a Dutch disease model connecting the austerity of the crowding out of the manufacturing sector with the productivity gap in relation to the trading partner (developing and developed) countries. They concluded that problem of the Dutch disease seems to widen productivity gap continuously and causes a vicious circle. More recently, Bahar and Santos (2018) also developed a theoretical framework of the Dutch disease, suggesting that an oil boom increases local expenditure, which puts pressure on wages. This negatively affects the competitiveness and volume of exports of the manufacturing sector, particularly in the labour-intensive sector.

In contrast, Bjørnland and Thorsrud (2016) indicated that one of the assumptions of Corden and Neary's (1982) core model is that productivity is exogenous to the model. However, efficient utilisation of the oil sector might have a large production spill-over effect on other sectors of the economy in some countries. For instance, the oil sector frequently requires technical solutions to improve offshore oil drilling. This might create positive knowledge externalities to support other sectors. If these sectors trade with the oil boom sector in the economy, then learning-by-doing spill-overs in the overall economy are expected. In this scenario, the implications of the Dutch disease would not be evident, and natural resources may in fact be a blessing rather than a curse.

Table 1
Summary of empirical studies on the direct impact of natural resources abundance on economic growth.

Author (s)	Year	Sample period	Country/Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
Philippot	2010a	1990–2003	28 transition countries	Per capita GDP growth	Rents for all natural resources, rents from oil and natural gas, rents from ten mining products, rents from point resources, and rents from diffuse resources.	Panel data, random effect	All measurements of the natural resource variables have a significant positive impact on economic growth except for diffuse resources, rejecting the natural resources curse phenomenon.
Cavalcanti et al.	2011	1980–2006	53 oil developed and developing countries	GDP per capita	Oil production per capita, oil rents per capita, oil reserve per capita, and oil prices.	Panel data, CCEMG[a] and FMOLS [b]	All oil resource variables significantly enhanced economic growth, refusing the phenomenon.
Fan et al.	2012	1997–2005	206 major Chinese cities covering 26 provinces	Growth rate of GDP per capita	Average fraction of workers in the mining industry compared to the total population.	Panel data, functional coefficient regression model.	Natural resource abundance in a city has a positive diffusion effect on the economic growth of neighbouring cities within the same province at the city level, but not at prefectural level. These results are against the phenomenon.
Yaduma et al.	2013	1980–2007	49 oil-producing countries including 13 OECD countries.	Real GDP, genuine income, per capita genuine income, and per capita GDP.	Oil rents as a share of GDP, and per capita oil reserve.	Panel data, GMM[c]	Oil resource variables have a significant negative impact on economic growth irrespective of the indicator considered in the non-OECD countries, confirming the phenomenon. In contrast, they have a significant positive impact in OECD countries, rejecting the phenomenon.
Apergis and Payne	2014	1970–2011	10 MENA countries	Real GDP per capita	Oil reserve per capita	Panel data, time varying cointegration	Oil reserve has a significant negative impact on economic growth until 2003, confirming the phenomenon. Conversely, it was found to enhance economic growth after 2003, rejecting it.
Smith	2015	1950–2007	17 developed and developing countries	GDP per capita	Natural resources discovery	Panel data, fixed effect	Natural resource discovery has a significant positive impact on economic growth, rejecting the phenomenon. More specifically, the impact is concentrated within developing countries.
Arin and Braunfels	2018	1970–2014	91 developed and developing countries	Average annual growth rate of GDP per capita	Oil rents as a share of GDP	Panel data, Bayesian model averaging techniques and an updated cross-country data.	Oil rents have a significant positive impact on economic growth, refusing the phenomenon.
Kim and Lin	2018	1990–2012	40 natural resource-rich developing countries	Per capita income	Primary exports in GDP and natural resource rents as a share of GDP.	Panel data, CCEMG and AMG[d]	Naturel resources abundance significantly reduced per capita income, supporting the phenomenon.
Henry	2019	1970–2014	21 SSA countries rich in natural resources.	Real GDP per capita	Total natural resources as a rent share of GDP.	Panel data, FMOLS, DOLS[e], and error correction.	Total natural resources rent significantly decreased economic growth, confirming the phenomenon.
Nawaz et al.	2019	1993–2018	10 South Asian countries	Real GDP growth	Natural resource depletion, energy depletion, and mineral depletion.	Panel data, AMG	Their outcomes indicated that natural resource depletion, energy depletion, and mineral depletion slow GDP growth in these countries, confirming the phenomenon.
Yang et al.	2019	1998–2016	22 SSA countries rich in natural resources	GDP per capita	Per capita natural resource rents.	Panel data, fixed effect with Driscoll-Kraay standard error, instrumental variable two stage least square (IV-2SLS), and GMM-system.	Natural resource rents have a significant positive impact on economic growth. Such result contradicts the argument of the resource curse.
Matallah	2020	1996–2018	10 MENA countries	GDP per capita growth	Oil rents as a share of GDP	Panel data, fixed and random effects as well as GMM	Oil rents are significantly and positively associated with higher GDP per capita growth, refusing the phenomenon.
Tiba and Frikha	2020	1990–2013	22 African countries	GDP per capita	Resources intensity (average of oil rents, natural gas rents, coal	Panel data, FMOLS and DOLS	Resources intensity adversely affect economic growth,

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Table 1 (*continued*)

Author (s)	Year	Sample period	Country/Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
					rents, mineral rents, and forest rents).		providing strong evidence of the phenomenon.
Belaid et al.	2021	2000–2017	37 oil developed and developing countries	GDP per capita growth	Oil rents as a share of GDP	Panel data, PVAR[f] and PGIRFs[g]	Oil rents are a blessing for economic growth, contradicting the phenomenon. However, when countries are categorised according to the status of their political leader, whether the chief of state is a military officer or not, then the results affirm the phenomenon.
Sharma and Pal	2021	1996–2015	111 developed and developing countries	GDP per capita and percentage growth rate of GDP.	Total natural resources rent percentage of GDP, ores and metals exports percentage of merchandise exports, agricultural raw materials exports percentage of merchandise exports, and fuel exports percentage of merchandise exports.	Panel data, CS-ARDL[h], CS-DL[i], and CCEMG	Outcomes of the CCEMG estimation approach support the phenomenon. CS-ARDL and CS-DL estimation approaches also support the phenomenon in the short-run while provided weak evidence in the long-run.
Ofori and Grechyna	2021	1990–2017	43 SSA countries	GDP per capita growth	Natural resource rents, oil rents, gas rents, and forest rents as a share of GDP.	Panel data, fixed effect, random effect, and GMM.	Natural resource rents, oil rents, and gas rents significantly decreased GDP per capita growth, supporting the phenomenon. In contrast, they found that forest rents significantly enhanced growth of GDP per capita, contradicting it.
Malik and Masood	2022	1970–2016	19 West Asian and North African countries	Real per capita GDP growth	Fuel exports in total merchandise exports	Cross-country ordinary least squares (OLS) and two-stage least squares (2SLS).	Fuel exports as a percentage of total merchandise export have a significant negative impact on real per capita GDP growth, confirming the phenomenon.
Yilanci et al.	2022	2000–2018	7 developed and developing countries	GDP per capita	Value of the cobalt mine production.	Panel data, AMG	Cobalt is a curse for Democratic Republic of Congo while it is a blessing for Canada, Cuba, and Russia.

[a] CCEMG refers to common correlated effect mean group.
[b] FMOLS denotes the fully modified ordinary least squares.
[c] GMM refers to general method of moment.
[d] AMG refers to augmented mean group.
[e] DOLS refers to dynamic ordinary least squares.
[f] PVAR is panel data vector autoregressive.
[g] PGIRFs refers to panel generalized impulse-response function.
[h] CS-ARDL refers to cross-sectional augmented autoregressive distributed lag.
[i] CS-DL is cross-sectional distributed lag.

Several other studies have attempted to assess the Dutch disease phenomenon (Kornonen and Juurikkala, 2007; Jahan-Parvar and Mohammadi, 2011; Al-Mulali and Che Sab, 2012; Cherif, 2013; Apergis et al., 2014; Smith, 2014; Omolade and Ngalawa, 2014; Amin and El-Sakka, 2016; Gasmi and Laourari, 2017; Abdlaziz et al., 2018; Bahar and Santos, 2018; Gündüz and Kustepeli, 2020; Alssadek and Benhin, 2021, 2022). We summarise the findings of these studies in Table 2. Overall results from these studies show strong evidence of the phenomenon.

3.2. Institutions and resource curse

Another explanation for the natural resource curse hypothesis is lower institutional quality. Previous studies on institutional quality and resources curse have been classified into two groups of studies. The first group suggest that natural resources directly deteriorate institutional quality. The second group of studies argue that the quality of institutions decides how income of natural resources are used.

Among the first group of studies, Isham et al. (2005) and Sala-i-Martin and Subramanian (2013) argued that natural resources prevented institutional improvement by delaying transition to democratic government, lessening political rights and civil liberties, and diminishing the rule of law, therefore leading to poor economic growth. Leite and Weidmann (1999) and Tornell and Lane (1999) model showed that natural resources might create a motivation for politicians to engage in non-economic activities such as rent-seeking and corruption. This leads to the provision of poor public goods, and sometimes bad quality of life. Isham et al. (2005) indicated that point resources, such as oil, mineral and fuel reduce institutional quality, in contrast to diffused resources, such as forest, rice and wheat. They suggested that point resources are under control of the government and therefore provide higher incentives for rent-seeking behaviours, corruption and hinder the effectiveness of other institutions, thereby negatively impacting growth.

Collier and Hoeffler (2005), Rosser (2006), and De Soysa and Neumayer (2007) pointed out that natural resources put countries at risk for the potential onset of civil war due to the greed of looting rebels and grievances about biased allocation of the wealth of natural resources, which deteriorates the quality of institutions. Furthermore, Ross (2004a, 2004b) distinguished the nature of the relationship between natural resources and violent conflict in three groups of studies. The first group suggested that oil and natural gas are associated with the onset of a civil war, mostly secessionist conflict (Lujala et al., 2005; Ross, 2006). The

Table 2
Summary of empirical studies on the Dutch disease theory.

Author (s)	Year	Sample period	Country/Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
Kornonen and Juurikkala	2007	1990–2003	9 OPEC[a] countries	Real exchange rate	Real oil price	Panel data, MG[b] and PMG[c]	The outcomes of their study showed a significant positive effect of the real oil price on the real exchange rate in the long-run, implying that oil price appreciates the real exchange rate. This confirms the spending effect of the Dutch disease theory.
Jahan-Parvar and Mohammadi	2011	1970–2007	14 oil-exporting developed and developing countries	Real exchange rate	Real oil price	Panel data, ARDL[d]	The real oil price appreciates the real exchange rate in the long-run, providing strong evidence of the spending effect of the Dutch disease theory.
Al-Mulali and Che Sab	2012	2000–2010	12 oil-rich developing countries	Real exchange rate	Real oil price	Panel data, random effect	The real oil price appreciates the real exchange rate, suggesting the spending effect of the Dutch disease theory.
Cherif	2013	1990–2005	38 developing and developed countries	Manufacturing output per worker and change in the technological gap.	Oil and mining with their average share of total exports.	Panel data, pooled OLS	Natural resource variables significantly reduced manufacturing output per worker and change in technology gap. These results confirm the resource movement effect of the Dutch disease theory.
Apergis et al.	2014	1970–2011	8 MENA countries	Agriculture sector as a share of GDP.	Oil rents as a share of GDP	Panel data, GMM	Oil rents cause a contraction in the agriculture sector, confirming the resource movement of the Dutch disease theory.
Smith	2014	(1974–1980) & (1981–1986)	100 countries including oil and non-oil rich	Manufacturing sector, exports of the agriculture sector, import of the agriculture sector, non-hydrocarbon commodities, and the real exchange rate.	Oil price	Panel data, fixed effect	Output, wages, productivity, and capital formation of the manufacturing sector are increased because of the oil boom. These outcomes are against the resource movement of the Dutch disease argument. Conversely, oil boom causes a decline in exports of the agriculture sector and non-hydrocarbon commodities in addition to a significant increase in all types of imports, confirming the Dutch disease effect. In addition, oil boom appreciates the real exchange rate, implying the spending effect of the Dutch disease theory.
Omolade and Ngalawa	2014	1970–2010	6 African oil-exporting countries	Growth of the manufacturing sector	Real oil revenues	Panel data, fixed effect and GMM	Oil revenues have an adverse effect on the manufacturing sector, indicating the resource movement effect of the Dutch disease theory.
Amin and El-Sakka	2016	1980–2012	GCC[e] countries	Exchange rate	Real oil price	Panel data, VEC	The authors showed that increases in the real oil prices caused an appreciation of the real exchange rate, implying a spending effect of the Dutch disease theory.
Gasmi and Laourari	2017	1960–2013	Algeria	Real effective exchange rate and manufacturing sector share of GDP.	Real oil price	Time series, ARDL	Oil boom significantly reduced output of the manufacturing sector, confirming the resource movement effect of the Dutch disease phenomenon. However, the real exchange rate significantly increased output of the manufacturing sector, contrasting the phenomenon. Such results are ambiguous, as oil boom and the real exchange rate show a different impact on output of the manufacturing sector, which is contrary to the Dutch disease argument.
Abdlaziz et al.	2018	1975–2015	15 oil-rich developing countries	Agriculture sector as a share of GDP	Oil prices	Panel data, FMOLS, DOLS, and PMG	They supported the Dutch disease theory after finding that oil prices

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Table 2 (*continued*)

Author (s)	Year	Sample period	Country/Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
							are associated with a reduction in the agriculture sector.
Bahar and Santos	2018	1984–2010	128 developed and developing countries	Herfindahl-Hirschman concentration index, Gini coefficient, Theil index, and non-resource product exported.	Natural resources % of exports and total exports.	Panel data, fixed effect	Natural resources have an adverse impact on the non-resource exports basket, confirming the resources movement effect of the Dutch disease theory.
Gündüz and Kustepeli	2020	1990–2015	34 OECD[f] countries	Manufacturing exports, high technology exports, medium-high technology exports, and low technology exports.	Natural resource rents as a share of GDP.	Panel data, fixed effect	Natural resource rents have an adverse effect on exports of the manufacturing sector and all its sub-sectors, which is consistent with the resource movement effect of the Dutch disease theory.
Alssadek and Benhin	2021	1970–2016	36 oil-rich developed and developing countries	Manufacturing sector, agriculture sector, service sector as a share of GDP, and the real exchange rate.	Oil revenue and oil production	Panel data, fixed effect with Driscoll-Kraay standard error.	Oil revenue and production cause an appreciation in the real exchange rate, confirming the spending effect of the Dutch disease. They also cause a fall in sectoral output, suggesting the resource movement effect of the Dutch disease theory.
Alssadek and Benhin	2022	1990–2016	39 oil-rich developed and developing countries	High technology exports and medium-high technology exports.	Oil revenue and oil production	Panel data, fixed effect with Driscoll-Kraay standard error.	Oil revenue and production cause a reduction in high technology exports and medium-high technology exports, confirming the resource movement effect of the Dutch disease theory.

[a] OPEC is organization of the petroleum exporting countries.
[b] MG refers to mean group.
[c] PMG is pooled mean group.
[d] ARDL refers to autoregressive distributed lag.
[e] GCC denotes Gulf cooperation council.
[f] OECD is organization for economic cooperation and development.

second group suggested that drugs, timber and gemstones could cause a lasting violent conflict (Snyder and Bhavnani, 2005). The last group indicated that agricultural goods are not associated with the onset of a civil war (De Soysa and Neumayer, 2007). The first two types of might result in the collapse of institutions, leading to the wealth of the natural resources being controlled by a few political elites. This allows them to use the revenue from the natural resources to pacify their political supporters, leading to an autocratic or oligarchy type of governments (Elbadawi and Soto, 2015). This leads to the resource curse problem, hampering economic growth and development.

Ross (2001) observed that oil wealth retarded democratic government in oil-rich countries in three different manners. First, oil-rich countries hold back human capital development and urbanisation, which play a very significant role in driving democratisation institutions. Second, they largely reduce taxation or even this might be non-existence so that the government can escape accountability to their society. Third, they increase spending on military and security, which might help them prevent their population from rallying to demand democratic transition. The findings of empirical studies on the direct relationship between natural resources on institutions are reported in Table 3. In most of these studies, natural resources are shown to deteriorate institutional quality, which adversely affects economic growth, and therefore the resource curse.

As noted before, the second group of studies argue that the quality of institutions decides how income of natural resources are used, and this might lead to the resource curse. Among these, the pioneering paper of Mehlum et al. (2006a) suggested that whether economic growth of natural resource economies can be a success or a failure, depends on the quality of institutions. Mehlum et al. (2006a) argued that natural resources decrease economic growth only in countries with grabber-friendly institutions (bad), while they increase economic growth only in countries with producer-friendly institutions (good). In addition, Mehlum et al. (2006b) concluded that key characteristics of producer-friendly institutions are inactive rent-seeking behaviour, higher quality bureaucracy, lower levels of corruption, secure property rights, higher levels of transparency and accountability, and small risk of government repudiation of contracts. Such institutions improve economic growth and overcome the resource curse problem. Conversely, grabber-friendly institutions are poor institutions; there is the absence of numerous of the above named features of institutions, hindering economic growth and therefore leading to the resource curse.

According to Robinson et al. (2006), high quality institutions are associated with higher levels of responsibility, rationality, accountability, and competition in public sector resources and less political leaders. Such quality institutions will use natural resources revenues more effectively, which contribute positively to economic growth. In contrast, with lower quality institutions, political leaders utilize natural resources revenues to influence outcomes of elections in order to stay longer in power. Similarity, Wiens (2014) claimed that the essence of institutional in natural resource economies is path dependent. That implies that in economies where institutional mechanisms to constrain the ruler's policy discretion are absent before a windfall of natural resources, resource revenues deteriorate any motivation to establish good quality institutions. In this scenario, democratic institutions and long-term economic growth are unlikely to arise in these economies. However, in economies where institutional mechanism to constrain a ruler's policy discretions are rooted before a windfall, they tend to invest natural resources income in several economic activities such as human capital and manufacturing sector and good institutions remain unharmed.

Other empirical studies on natural resources, institutions, and economic growth (Alexeev and Conrad, 2009; Bjorvatn et al., 2012; Mobarak and Karshenasan, 2012; Eregha and Mesagan, 2016; Antonakakis et al., 2017; Zallé, 2019; Epo and Nochi Faha, 2020; Hayat and

Table 3
Summary of empirical studies on the direct relationship between natural resources and institutions.

Author (s)	Year	Sample period	Country/Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
Ross	2001	1971–1997	113 developed and developing countries	Polity	Export value of mineral based fuels and the export value of non-fuels ores and metal exports as fraction of GDP.	Panel data, GLS[a]	Natural resources delay democracy, indicating the resource curse.
Collier and Hoeffler	2004	1960–1999	161 countries covering 79 civil wars.	War starts	Primary commodity exports to GDP.	Cross sectional data, fixed and random effects in addition to pooled logit.	Primary exports share in GDP have a significant positive effect on war starts. This confirms the presence of the resource curse hypothesis.
Bulte et al.	2005	1996–2003	96 developed and developing countries	Rule of law and government effectiveness.	Point resources (oil and gas) and diffuse resources (food and agriculture).	Panel data, pooled OLS	Point resources are negatively associated with institutions, indicating the existence of the resource curse. In contrast, the coefficients of diffuse resources are statistically insignificant.
Aslaksen	2007	1982–1997 & 1984–2007	149 developed and developing countries	Corruption index	Mineral rents, gas rents, energy rents, hard coal rents, oil rents per capita, and quantity of oil.	Panel data, pooled OLS and fixed effect.	All natural resource variables are associated with higher level of corruption, implying that natural resources are a curse.
De Soysa and Neumayer	2007	1970–2001	149 developed and developing countries included 69 civil war onset.	Civil war onset	Primary commodity exports share of GDP, oil exporter, energy rents share of GNI, and mineral rents share of GNI.	Panel data, pooled OLS	All natural resource variables do not predict civil war onset with a 1000 battle death. These results are against the natural resource curse hypothesis.
Brunnschweiler and Bulte	2008	1970–2000	60 resources rich developing and developed countries.	Rule of law and government effectiveness	Total natural capital per capita and subsoil assets per capita	Panel data, 2SLS and 3SLS	Natural resources abundance are positively associated with higher level of rule of law and government effectiveness, suggesting the refusal of the resource curse hypothesis.
Arezki and Brückner	2011	1992–2005	30 oil-exporting developing and developed countries	Corruption, political right, civil libraries, check and balance, polity, and civil conflict.	Oil rents	Panel data, fixed effect	Oil rents are associated with higher level of corruption and lower level of political right, supporting the argument of the resource curse. However, they improve the quality of civil liberties, refusing the argument. They also have no significant effect on check and balance, polity, and civil conflict.
De Rosa and Lootty	2012	1996–2010	110 developed and developing countries	Government effectiveness and competition in the local market.	Share of fuel exports % of merchandise exports	Panel data, pooled OLS, fixed effect, and system GMM	Share of fuel exports worsens government effectiveness and reduces competition in the local market, supporting the argument of the resource curse theory.
Anyanwu and Erhijakpor	2014	1975–2005	49 African countries	Democracy	Oil wealth per capita	Panel data, pooled OLS, fixed effect, and IV-2SLS	Oil wealth harms democracy, confirming resource curse theory.
Blanco et al.	2015	1975–2005	140 developed and developing countries	Corruption, bureaucratic quality, law and order, ethnic tension, external conflict, internal conflict, government stability, investment profile, socioeconomic conditions, polity IV, change in democracy, executive regulations, and executive constraints.	Oil rents per capita GDP	Panel data, 2SLS and GMM	Oil rents are significantly and negatively related to bureaucratic quality, socioeconomic conditions, ethnic tension, external conflict, internal conflict, government stability, and investment profile. These results support the existence of the resource curse. In contrast, they are significantly and positively related to changes in democracy, polity, regulations on executive recruitment, law and order, and constraints on executive power. These results

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Table 3 (*continued*)

Author (s)	Year	Sample period	Country/Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
							contrast the argument of the resource curse.
Mohtadi et al.	2017	1980–2010	172 countries, of which 95 have produced oil	Transparency	Oil revenues	Panel data, IV, ARDL, and CS-ARDL	Oil revenues are associated with less transparency, implying that oil revenues are a curse.
Asiamah et al.	2022	2005–2019	39 SSA countries	Control of corruption, rule of law, regulatory quality, governance effectiveness, voice and accountability, and political stability.	Total natural resource rents, mineral rents, natural gas rents, coal rents, and oil rents as a share of GDP.	Panel data, GMM	All natural resource variables significantly weaken all institutional indicators, which supports the existence of the resource curse.

[a] GLS refers to generalized least squares.

Rakshit, 2020; Shittu et al., 2022) seem to follow the seminal work of Mehlum et al. (2006a). The findings of these studies are summarised in Table 4. Overall results from these studies show there is no consensus neither on the existence nor the absence of the resource curse.

3.3. Human capital and resource curse

A further explanation for the resource curse hypothesis relates to human capital. Seminal work of Gylfason (2001) on resource curse and human capital observed that investment in human capital has been neglected in natural resources rich countries. This might be due to the wealth of natural resources 'blinding' them from building higher quality human capital for their societies. Talvi et al. (2018) argued that societies in these countries do not put pressure on the government to implement appropriate policies to develop human capital programs. This is because economic return of human capital is low compared to the natural resources sector. Additionally, they indicated that if international firms dominate the natural resource sector rather than government or local firms, improvement in human capital might not happen. This is because international firms often bring their own labour with skills and knowledge rather than training local ones, leading to poor growth in the economy.

Ross (2001) also argued that politicians in natural resources-rich countries have less motivation to provide higher quality public goods, such as healthcare and education, because they believe that government revenues are mostly obtained from exports of natural resources rather than from local taxes. According to Acemoglu and Robinson (2006), to remain longer in power, government of these countries might intentionally discourage investment in human capital technology, and institutions. Kronenberg (2004) argued that poor institutional quality is the main cause of lower labour skills in natural resources-rich countries. This causes an increase in corruption levels and ineffective rule of law, which decreases government spending on human capital and thus adversely affects economic growth. Cabrales and Hauk (2011) suggested that natural resources only contribute positively to human capital when there are good institutions, while they contribute negatively when there are bad institutions.

Gylfason and Zoega (2006) and Araji and Mohtadi (2018) highlighted that the volatility of natural resource prices causes uncertainties in government revenues. This reduces both public and private investment in human capital, hampering economic growth. Similarly, Behbudi et al. (2010) mentioned that the wealth of natural resources might cause a false sense of security when there is natural resources boom. Some countries increase their savings of natural resource revenues abroad in the sovereign wealth funds (SWFs) system. This decreases local demand, government investment in human capital and consumption in the short and medium runs, which might negatively affect human capital development programmes.

Gylfason (2001) and Shao and Yang (2014) pointed out that increases in prices in the natural resources sector (e.g., oil) lead the government to implement policies that increase production of the sector. Such policies lower the demand for high skilled labour, adversely affecting returns on education investment. The government might also be confident and optimistic about increasing its revenues in the future due to speculation in the natural resources boom, leading to disregard investment in human capital. Shao and Yang (2014) suggested that a reduction in the manufacturing sector because of the Dutch disease theory causes a fall in the demand for highly skilled labour, leading to lower investment in human capital and a slow spillover effect from technological progress, impeding economic growth. They further suggested that the Dutch disease increases the opportunity cost of obtaining education, which decreases the knowledge and innovation of labour.

Gelb (1988) also noted that mineral economies experience poor quality education and healthcare. This is due to ineffective policies from decision makers, who have not paid attention to both sectors. This might be attributed to easily obtaining financial resources from oil extraction. However, Ross (1999) argued that paying no attention to human capital does not indicate that education and health sectors have not increased in the countries rich in natural resources, but it indicates delays compared to countries with fewer natural resources.

More recently, the debate about the impact of the resources curse on human capital has been extended to include its impact on the spread and death from infectious diseases. De Soysa and Gizelis (2013) and Change (2020) argued that political leaders in natural resources-rich developing countries pay less attention to human capital investment. This is because they believe that human capital is key to democracy and development, which might threaten the rulers' grip on political power and therefore their on hold on the wealth from the natural resources sector (Auty, 2001b; Karl, 1997; Ross, 1999; Sachs and Warner, 2001; Torvik, 2002; Dietz et al., 2007). This has led to weak public action in fighting the spread and death from infection diseases and reduced ability of natural resources-rich countries to formulate and implement effective polices against the spread and death from infectious diseases. Natural resources-rich developing countries do not seem to spend appropriately on the health sector to tackle problems related to the sector, including infectious diseases and child mortality (De Soysa and Gizelis, 2013; Cockx and Francken, 2014; Wigley, 2017). This might be attributed to the poor institutional quality.

Numerous other studies in the literature have assessed the impact of natural resources on human capital development (Gylfason, 2001; Bulte et al., 2005; Stijns, 2006; Cotet and Tsui, 2009; Philippot, 2010b; Farzanegan, 2012; De Soysa and Gizelis, 2013; Cockx and Francken, 2014; Sterck, 2016; Wigley, 2017; Chang and Wei, 2019; Mosquera, 2022). Some of them have employed education as an indicator of human capital, while others have used the health indicators. Overall, no consensus has been reached. Some of these studies are summarised in Table 5.

3.4. Financial development and resource curse

A new explanation for the natural resource curse has been identified

Table 4
Summary of empirical studies on the impact of the interaction effect of natural resources and institutions on economic growth.

Author (s)	Year	Sample period	Country/Region	Dependent variable	Proxy for natural resource variable (independent)	Proxy for institutional quality variable (independent)	Methods	Main results
Mehlum et al.	2006a	1965–1990	78 developed and developing countries	Average growth rate of GDP per capita	Natural resources as a share of primary exports	Corruption, rule of law, bureaucratic quality, risk of expropriation and government repudiation of contracts.	Cross-sectional data, pooled OLS	Natural resources as a share of primary exports are negatively associated with economic growth, supporting the natural resource curse theory. However, the interaction term of natural resources and average quality of institutions increases economic growth only in developed countries, where institutional quality is sufficiently high. This indicates that countries with producer-friendly institutions do not experience the resource curse. Their results further showed that the interaction term decreases economic growth only in developing countries, where institutional quality is poor. This suggests that countries with grabber-friendly institutions do experience the resource curse.
Alexeev and Conrad	2009	1970–2000	82 developed and developing countries	GDP per capita	Hydrocarbon deposit per capita, oil production per capita, oil share of GDP, mining share of GDP, and mining output per capita.	Rule of law	Cross-sectional data, pooled OLS	All natural resource variables significantly enhanced economic growth. They argued that the resource curse hypothesis seems to be invalid. In contrast, the interaction effect showed a significant negative impact on economic growth, suggesting that poor institutional quality reduces the positive effect of natural resources on economic growth.
Bjorvatn et al.	2012	1992–2005	30 oil-rich developed and developing countries	GDP per capita	Real oil revenues	Political fractionalisation and polity	Panel data, OLS, fixed effect, random effect, IV, and GMM	Real oil revenues enhance GDP per capita, which contradict the argument of the resource curse phenomenon. When the real oil revenues are interacted with political fractionalisation and polity, the interaction effect variables have a significant negative impact on GDP per capita, implying that these countries experience grabber-friendly institutions
Mobarak and Karshenasan	2012	1996–2007	33 oil-exporting countries including, 22 developing and 11 developed	Real per capita GDP growth	Fuel exports % of merchandise exports	Voice and accountability, control of corruption, rule of law, and government effectiveness.	Panel data, GLS	Fuel exports are significantly and negatively related to lower economic growth in developed and developing countries, confirming the phenomenon of the resource curse. The coefficients of the interaction term of fuel exports and voice and accountability, control of corruption, and government effectiveness are negative and statistically significant in developing countries, worsening the phenomenon. In developed countries, however, the coefficients of the interaction term of fuel exports and each institutional quality indicators are positive and statistically significant, implying that institutional quality of the developed countries is high enough (producer-friendly), which tends to be very important in the effective management of natural resources and helps reduce the resource curse phenomenon.

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Table 4 (*continued*)

Author (s)	Year	Sample period	Country/Region	Dependent variable	Proxy for natural resource variable (independent)	Proxy for institutional quality variable (independent)	Methods	Main results
Eregha and Mesagan	2016	1996–2013	5 oil-rich African countries	GDP per capita growth	Oil exports per capita, net oil exports, and oil production per capita.	Control of corruption, government effectiveness, and voice and accountability.	Panel data, pooled, fixed and random effects.	Oil exports per capita have a significant negative effect on economic growth, confirming the oil curse. However, net oil exports and oil production per capita have a significant positive effect, contrasting with the oil curse. All the interaction term variables (oil and institutions) have a significant negative effect on economic growth. This suggests that institutions of these countries reduce the positive impact of net oil exports and oil production per capita on economic growth and are not able to save oil exports per capita from the oil curse.
Antonakakis et al.	2017	1980–2012	76 developed and developing countries	GDP per capita growth	Oil share of GDP, oil rents share of GDP, and oil revenues.	Polity and political right	Panel data, PVAR and PGIRFs	Oil positive shock enhances economic growth in developing, developed, higher income, democratic, autocratic, and oil-exporter countries, refuting the resource curse. When they introduced the interaction term of oil abundance variables and each measurement for institutional quality variables, the resource curse phenomenon is only observed in developing, net oil-exporters, and medium-high income countries.
Hassan et al.	2019	1984–2014	35 oil-exporting developing countries	GDP per capita	Oil rents as a share of GDP	Bureaucratic quality, corruption, law and order, democratic quality, and government stability.	Panel data, ARDL and GMM	Their results evinced the adverse effect of oil rents on economic growth, thereby confirming the resource curse. By contrast, the interaction term (oil rents and average institutional quality) had a positive impact on economic growth, mitigating the resource curse.
Zallé	2019	2000–2015	29 SSA countries	GDP per capita growth	Natural resource rents as a share of GDP	Government stability, corruption, ethnic tension, internal conflict, religious tension, socioeconomic condition, and democracy.	Panel data, ARDL	Natural resource rents significantly reduced GDP per capita growth, supporting the phenomenon but this was when the analysis controlled for government stability, corruption, and ethnic tension. However, when the analysis controlled for the risks of internal conflict, religious tension, and democratic freedom, natural resource rents favour GDP per capita growth, confirming the natural resource blessing. The outcomes of the interaction effect of natural resource rents with socioeconomic condition, religion tension, ethnic tension, and democracy show a statistically significant negative impact on GDP per capita growth, suggesting that grabber-friendly institutions hinder economic growth to sustain. In contrast, when the analysis interacted the natural resource rents with internal conflict and corruption, both the interaction effect variables are positively and significantly related to higher economic growth. This suggests that producer-friendly institutions alleviate the resource curse problem.
Epo and Nochi Faha	2020	1996–2016	44 African countries	GDP growth	Natural resource rents as a share of GDP and share of ores and metals exports in total merchandise exports.	Rule of law, regulatory quality, governance effectiveness, political stability, control of corruption, and voice and accountability.	System dynamic panel data instrumental variable	Their results showed an adverse effect of the natural resource rents on economic growth, confirming the phenomenon. However, the coefficients of the interaction effect of the

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Table 4 (*continued*)

Author (s)	Year	Sample period	Country/Region	Dependent variable	Proxy for natural resource variable (independent)	Proxy for institutional quality variable (independent)	Methods	Main results
								natural resource rents with control of corruption, rule of law, and voice and accountability are a positive and statistically significant, suggesting that producer-friendly institutions ease the natural resource curse problem. In addition, the coefficient of the percentage of ores and metals exports is statistically significant with a positive sign, rejecting phenomenon. When the percentage of ores and metals exports interacted with political stability and governance effectiveness, the interaction effect variables have a significant negative impact on economic growth. However, the interaction effect variable of the percentage of ores and metals exports with voice and accountability has a significant positive impact on economic growth.
Hayat and Rakshit	2020	1992–2016	117 developed and developing countries	GDP per capita growth	Natural resource exports and natural resource rents as a share of GDP.	Bureaucracy, corruption, democratic accountability, ethnic tension, external conflict, government stability, internal conflict, investment profile, law order, military in politics, and religious tension.	Panel data, GMM	Natural resource variables significantly increase GDP per capita growth, contrasting the resource curse hypothesis. The coefficients of the interaction term of the natural resource variables with corruption and democratic accountability are negative and statistically significant. These results suggest that presence of the resource curse, adversely affecting economic growth. In contrast, the interaction term of the natural resource variables with internal conflict, government stability, investment profile, and military in politics are positive and statistically significant. This means that some institutional indicators experience producer-friendly institutions, providing strong evidence of the natural resource blessing, enhancing economic growth.
Shittu et al.	2022	1990–2017	MENA countries	GDP per capita growth	Natural resource rents as a share of GDP.	Political risk services (PRS)	Panel data, PMG	Natural resource rents are positively and significantly associated with higher economic growth. Such a result confirms the presence of the natural resource blessing. The estimated results of the interaction effect of natural resource rents and institutions show a significant positive effect on economic growth, suggesting that producer-friendly institutions increase the natural resource blessing.

Table 5
Summary of empirical studies on the impact of natural resources on human capital.

Author (s)	Year	Sample period	Country/ Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
Gylfason	2001	1980–1997	90 developed and developing countries	Public expenditure on education relative to national income, expected years of schooling for girls, and gross secondary school enrolment.	Share of natural capital in national wealth.	Cross-sectional data, scatterplot approach	Natural capital has an adverse impact on all education variables, confirming the resource curse.
Bulte et al.	2005	1970–1991	100 developed and developing countries	Human development index, no water, life expectancy, and undernourished population.	Point resources (fuels and minerals) and diffuse resources (food and agricultural exports)	Panel data, pooled OLS	Natural resources (point and diffuse) worsen all indicators of human capital development, verifying the argument of the resource curse.
Stijns	2006	1970–1999	102 developed and developing countries	Life expectancy, education spending per capita, and reduction in female literacy.	Natural resource rents per capita	Cross-sectional and panel data including fixed and random effects, IV, and panel VAR.	Natural resource rents per capita promote all indicators of human capital, contrasting the argument of the resource curse.
Cotet and Tsui	2009	1930–2003	61 oil-rich developed and developing countries	Infant mortality rates and gain in longevity.	Oil discovery	Panel and a cross sectional data, pooled OLS, fixed effect, and GMM.	Oil discovery is positively associated with a better quality of life through reduction in infant mortality rates and gain in longevity. These results are against the argument of the resource curse.
Philippot	2010b	1990–2003	208 developed and developing countries	Average years of schooling for both genders, net secondary enrolment rate, adult literacy rate, life expectancy at birth, and public expenditure on education as a percent of aggregate expenditure.	Share of natural capital in national wealth, natural capital, subsoil wealth, green capital, subsoil wealth per capital, arable land per capita, primary export intensity, agricultural export intensity, mineral export intensity, share of mineral in export, resource rents intensity, and resource rents per capita.	Panel data, fixed effect	Natural resource rents and share of natural capital in national wealth have a significant negative impact on public spending on education and school enrolment at every level, but coefficients are not always significant. Point-resources (oil, mining products, and plantation crops) seem to be curse for human capital accumulation than the diffuse ones. Diffuse resources even tend to be related to higher secondary and tertiary school enrolment rates, contrasting the argument of the resource curse. Outcomes with natural capital and arable land per capita are also differing.
Farzanegan	2012	2004–2009	80 natural resources-rich developed and developing countries	Entrepreneurship	Oil rents, gas rents, coal rents, mineral rents, forest rents, and total natural resource rents as a share of GDP.	Panel data, fixed effect	Oil rents, coal rents, and total natural resource rents are significantly reduced entrepreneurship activities. These results support the argument of the resource curse. The coefficients of remaining natural resource variables are statistically insignificant.
De Soysa and Gizelis	2013	1990–2008	137 developed and developing countries	HIV[a]/AIDS[b] and TB[c]	Oil rents per capita	Panel data, pooled OLS and fixed effect	Oil rents per capita are associated with higher prevalence of HIV/AIDS and TB infectious diseases for all countries, indicating the resource curse phenomenon.
Cockx and Francken	2014	1995–2009	151 developed and developing countries	Public health expenditure	Share of natural capital in total national wealth and natural capital per capita.	Panel data, fixed effect	Their results showed the negative effect of natural resource variables on public health expenditure for all countries, confirming the resource curse.
Sterck	2016	1990–2008	137 developed and developing countries	HIV/AIDS and TB	Oil rents, natural resource rents, and oil wealth.	Panel data, pooled OLS, fixed effect, OLS with country and year fixed effect, and Newey-West standard-errors, OLS	He found no robust relationship between natural resources and the spread of HIV/AIDS, and TB infectious diseases.

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Table 5 (*continued*)

Author (s)	Year	Sample period	Country/ Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
						with aggregated data.	
Wigley	2017	1961–2011	167 developed and developing countries	Under-5 mortality	Oil income per capita	Panel data, fixed effect	Oil income per capita positively related to under-5 mortality, confirming the oil curse.
Chang and Wei	2019	2000–2014	107 developing and developed countries	Infection and death from malaria	Natural resource rents share of GDP and natural resources depletion.	Panel data, random effect	Natural resource rents and natural resource depletion are positively associated with higher infection and death from malaria, supporting the resource curse for all countries.
Mosquera	2022	1940–1980	Ecuador	College completion and skill employment	Oil prices	Descriptive statistic	Oil prices decreased college completion and increased lower skill employment. Such results confirm the oil curse.

[a] HIV refers to human immunodeficiency virus.
[b] AIDS refers to acquired immune deficiency syndrome.
[c] TB is tuberculosis.

in published literature is a slow the pace of financial development. First, Beck (2011) argued that the natural resources sector draws both skills and investment away from the financial sector, which reduce the demand for savings. Hence, the financial system might be less essential as growth relies less on the finance-intensive sector but more on investment in mining activities and public consumption. They suggested that countries rich in natural resources experience poor financial systems, as they provide fewer loans to those firms that utilize and explore natural resources. Therefore, these countries demonstrate supply constraints.

Second, as indicated in section 3.2, wealth of natural resources increases corruption and rent seeking activities, where quality of institutions is low (Leite and Weidmann, 1999; Baland and Francois, 2000; Atkinson and Hamilton, 2003; Bhattacharyya and Hodler, 2010). This adversely affects several economic outcomes including entrepreneurship, private investment, and economic growth (Mo, 2001; Ndikumana and Baliamoune-Lutz, 2008; Bologna and Ross, 2015), which are key determinants of financial development. Corruption causes moral hazards and adverse selection issues, which distort the lending-borrowing mechanism. This delays the growth of financial development. Rent seeking behaviour also reduces the credit demand of entrepreneurs and dampens entrepreneurs' access to financial services (Baland and Francois, 2000; Hattendorff, 2013). Therefore, the failure of entrepreneurs to access capital at lower cost will result in a reduction in the demand for financial services, which in turn hinders financial development (Kassouri et al., 2020). In addition, with poor contracting institutions in countries rich in natural resources, creditors might experience difficulties in enforcing contracts. Debtors may also have less motivation to repay debts, which causes the financial institutions to be uncertain regarding any borrowing, even with high liquidity (Bhattacharyya and Hodler, 2014).

Third, it is suggested that natural resources' abundance has an adverse impact on human capital development (see section 3.4), which may undermine the social capital of an economy i.e. its level of trust. As trust plays a particularly vital role in the reliability of financial contracts, financial development may diminish as well (Guiso et al., 2004; Yuxiang and Chen, 2011).

Fourth, as discussed in section 2.1, a natural resources boom (e.g. oil) leads to the Dutch disease problem by reducing the volume of trade via the movement factor of production from the tradable manufacturing sector to the oil boom and service sectors (Corden and Neary, 1982; Corden, 1984). This lowers productivity growth of the tradable manufacturing sector, which reduces firms' need for financial resources from the financial sector and causes less liberal financial development policies (Yuxiang and Chen, 2011). Similarly, trade openness plays a very significant role in promoting financial development by increasing demand for financial services (i.e. financial instruments to finance the increased demand and to hedge accompanying/inherited exchange rate exposure) stimulated by exports (David et al., 2014; Menyah et al., 2014). Therefore, the inefficient allocation of resources that reduce the tradable sector can also have an adverse impact on financial development indicators.

Finally, boom and bust in natural resource prices cause macroeconomic volatility, which weakens financial development by significantly and constantly increasing the quantum of uncertainty for investment decisions and consequently discouraging optimal growth and diversification of the economy (Van Der Ploeg and Poelhekke, 2009; Kurronen, 2012). Commodity price shocks also have an adverse impact on economic activity, which causes lower domestic credit and bank deposits (Bernanke, 1983; Kimball, 1989). We summarise the findings of some of the recent empirical studies on the impact of natural resources abundance on financial development in Table 6. Most of the literature reviewed in this section has evinced the presence of the resource curse impact on financial development.

3.5. Research gaps

Most of the above mentioned studies have paid less attention to a comparative analysis of the resource curse phenomenon. They have focused on natural resource-rich countries as a whole or on one specific group. This is a gap in the literature and future studies could fill this gap by assessing and comparing the resource curse at different developmental levels (developing versus developed) and regional groupings (MENA, Latin America, Asia and Pacific, Europe and North America and SSA). Such assessment may help to identify which groups of countries experience the resource curse or blessing. The regional-level analysis also considers the homogeneity of countries in terms of quality of institutions, language, and religion, thereby providing more precise and interesting findings. Such analysis further helps to carefully understand the differences among groups of countries, in addition to devising more focused policies to deal with the resource curse problem.

Several previous studies have also employed homogenous panel data approaches such as pooled (OLS), fixed and random effects in addition to IV and GMM in their analysis. However, such approaches are unable to deal with cross-sectional dependence, a mixed order of integration, cross country heterogeneity, and endogeneity problems, leading to biased estimates and spurious inferences (Chudik et al., 2016). Future studies could fill this gap by finding advance and an appropriate econometric approach to deal with these problems simultaneously and more

Table 6
Summary of empirical studies on the impact of natural resources on financial development.

Author (s)	Year	Sample period	Country/ Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
Beck	2011	1960–2007	153 developed and developing countries	Private credit, liquid liabilities, loan deposit ratio, stock market capitalization, stock market turnover, structure size, non deposit funding, cost income ratio, overhead costs, net interest margin, equity asset ratio, return on assets, and structure efficiency.	Natural resource exports and subsoil assets	Panel data, fixed effect	Natural resource exports significantly reduced private credit, stock market turnover, liquid liabilities, and cost income ratio. Subsoil assets have also a significant negative effect on private credit. These results support the argument of resource curse. In contrast, natural resource exports significantly increased stock market turnover, liquid assets, equality assets ratio, return on assets, and structure size, contrasting the argument of the resources curse.
Yuxiang and Chen	2011	1996–2010	China	Ratio of bank loans to GDP	Mineral production as a share of GDP	Panel data, GMM	They found a negative relationship between mineral resources and ratio of bank loans, confirming the resource curse.
Hooshmand et al.	2013	2002–2010	17 oil exporting developing countries	Private credit by deposit money banks and other financial institutions, M2, and the financial system deposits.	Oil rents as a share of GDP	Panel data, GMM	Oil rents have a significant negative effect on all financial institution indicators, confirming the oil curse.
Bhattacharyya and Hodler	2014	1970–2005	133 developed and developing countries	Private credit, M2, deposit money bank assets, bank deposits, financial system deposits, and stock market capitalization.	Natural resource rents as a share of GDP	Panel data, OLS, LIML[a], IV, and Arellano–Bond	Resource rents have an adverse effect on all financial development indicators in countries with bad political institutions, but this negative effect decreases in absolute value and ultimately disappears as the quality of political institutions improves.
Javadi et al.	2017	2006–2014	70 developed and developing countries	Availability of financial services, affordability of financial services, financing through local equity market, ease of access to loans, venture capital availability, restriction on capital flows, soundness of banks, regulation of securities exchanges and, legal rights index.	Oil rents as a share of GDP	Panel data, fixed effect	Their results show a negative and statistically significant relationship between oil rents and the quality of financial market in developing countries, but show a positive relationship in developed countries. These results suggested that oil rents are a curse for developing countries while a blessing for developed countries.
Dwumfour and Ntow-Gyamfi	2018	2000–2012	38 African countries	Financial stability and domestic credit to private sector as a share of GDP	Natural resource rents as a share of GDP	Panel data, GMM	Natural resource rents significantly reduced stability of the banking sector, suggesting a resource curse. But, they have a significant positive impact on domestic credit. This indicates that resource wealth increases the growth of the banking sector through the credit channel.
Shahbaz et al.	2019	1960–2016	USA	Real domestic credit to private sector per capita	Real natural resource abundance per capita	Time series, ARDL	Natural resources abundance contribute positively to financial development, contrasting the argument of the resource curse.
Asif et al.	2020	1975–2017	Pakistan	Domestic credit to private sector, broad money supply, and market capitalization as a share of GDP.	Coal rents, forest rents, natural gas rents, and oil rents as a share of GDP.	Time series, VAR	Forest rents and oil rents significantly increased financial development in Pakistan in the short-run, contrasting the argument of the resource curse. In contrast, coal rents, forest rents, natural gas rents, and oil rents significantly reduced domestic credit to private sector in the long-run, confirming the

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Table 6 (*continued*)

Author (s)	Year	Sample period	Country/ Region	Dependent variable	Proxy for natural resource variable (independent)	Methods	Main results
							resource curse. Other results showed that coal rents and oil rents have a significant negative impact on broad money supply whereas natural gas rents decrease market capitalization in the long-run. These outcomes validate the argument of the resource curse.
Kassouri et al.	2020	1984–2016	21 oil exporting developed and developing countries	Domestic credit, private credit, and bank deposit as share of GDP	Real oil prices	Panel data, threshold techniques	The real oil prices significantly reduced all financial development indicators, confirming the oil curse.
Dogan et al.	2020	1980–2017	8 developed and developing countries	Financial development index, financial institutional index, financial markets index, financial institutions depth index, financial institutions access index, financial institutions efficiency index, financial markets depth index, financial markets access, and financial markets efficiency index.	Natural resource rents as a share of GDP	Panel data, OLS and panel quantile regression	Natural resource rents have a significant negative effects on each of the nine indices, confirming the resource curse.
Hussain et al.	2020	1992–2016	BRIC (Brazil, Russia, China, and India) countries	Depth, access, and efficiency of financial institutions and markets.	Natural resource rents as a share of GDP and energy prices	Panel data, CS-ARDL and CCEMG	Natural resource rents are blessing for financial development while energy prices are curse.
Umar	2021	First quarter of 2001 to the fourth quarter of 2019	12 oil producing developing countries	Banking profit efficiency, credit infections, and default probabilities.	Oil rents as a share of GDP	Panel data, fixed effect	Their outcomes indicated that during the price boom periods, the banking efficiency worsens, credit infection deteriorates, and the probability of default increases. These findings provide strong evidence of the resource curse.
Ali	2022	First quarter of 2002 to the fourth quarter of 2018	Malaysia	Banking development, stock market development, and financial development.	Total natural resource rents as a share of GDP.	Times series, ARDL and DOLS	The total natural resource rents are curse for banking development, while are blessing for stock market and financial development.
Tang et al.	2022	1984–2018	10 South Asian countries	Depth, access, and efficiency of financial institutions and markets.	Total natural resource rents as a share of GDP.	Panel data, FMOLS, DOLS, and ARD	They validate financial resource curse hypothesis.

[a] LIML refers to fuller version of limited information maximum likelihood.

effectively.

4. Comparative overview of oil-rich countries

In this section, a comparative assessment is conducted between the regional groupings of oil-rich developed and developing countries (MENA, Latin America, Asia and Pacific, Europe and North America and SSA), by highlighting the differences and similarities among these countries in terms of economic growth and key indicators of development outcomes including wealth of oil resources, manufacturing sector, institutional quality, human capital, and financial development. These assessments help to support some of the conclusions from the review presented in section 3.

Fig. 1 shows that MENA countries have the highest level of dependency on oil rents as a share of GDP compared to other world regions. For example, the average dependency on oil rents during the period 1996–2018 in MENA was 23.999% of GDP compared to 17.263% in SSA, followed by Asia and Pacific with 6.354%, and Latin America and Europe and North America with an average share of 4.895% and 2.186%, respectively. It has been confirmed that the MENA region is one of the richest in the world in terms of oil resources. It holds more than

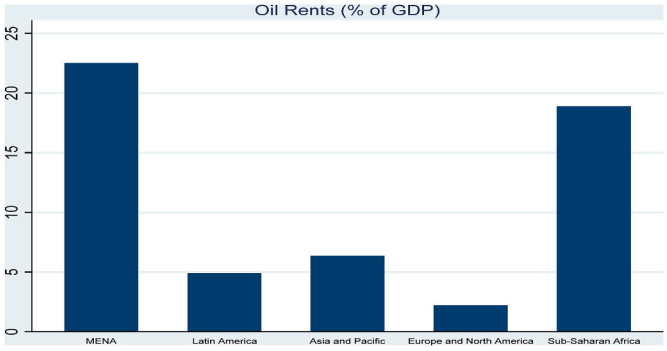

Fig. 1. Average oil rents[11] (% GDP) by region (1996–2018).
Source: Authors' estimates based on World Bank Indicators (WBI)

60% of the world's proven oil reserves, mostly located in the Gulf region (Marotta and de Melo, 2012; Majbouri, 2015; Matallah, 2020). Gamariel and Hove (2019), Adika (2020), and Katoka and Dostal (2022) also suggest that SSA countries also hold over 10% of global oil reserves.

Paradoxically, Fig. 2 appears to be going in differing directions. Average GDP per capita growth rate in richer regions (MENA and SSA) in oil resources seems to be very low. This indicates that the utilised wealth of the oil resources in both regions has been disappointing, and the growth rate of both economies can be said to be very poor, compared to other world regions. The reasons for this, and as argued in section 3, is that MENA countries experience poor economic polices including large government interventions, poor trade policies, ineffective mass subsidies, large government sector, and risky fiscal conditions (Davoodi and Abed, 2003; Sala-i-Martin and V Artadi, 2003; Yousef, 2004; Henry and Springborg, 2010). Makdisi et al. (2006) also posited that, in MENA countries, capital is less efficient, the adverse impact of external shocks is very high, and the resource curse problem is more noticeable. For SSA countries, Basedau (2005) argued that wealth of oil resources results in war, corruption, dictatorship, poverty, leading to poor economic growth.

For Latin American countries, average GDP per capita growth rate is lower than other sub-regional groupings of Asian and Pacific, and European and North American countries. Several possible factors might be attributed to the very low growth of GDP per capita in Latin American countries. These include corruption, autocratic governments, conflict, and violations of social and human rights (The Heinrich Böll Foundation Brussels's office, 2008; Ross, 2014). Remarkably, average GDP per capita growth in Asian and Pacific countries seems to be the highest among all regional groupings. This is primarily driven by industrialisation and, high levels of exports diversification occurring mostly in Indonesia, Malaysia, China, and Australia (Usui, 1997; Schandl, 2011; Ville and Wicken, 2013; Su et al., 2016; Gedikli, 2020).

With respect to average institutional quality, as shown below in Fig. 3, higher scores (positive) imply higher quality while lower scores (negative) imply lower quality. The figure illustrates that there is a clear significant difference between average of institutional quality in European and North American countries and other regional groupings of developing countries. While it was positive at 0.980 in European and North American countries, it was negative for all regional groupings of developing countries, at −0.967 for SSA countries, −0.359 for MENA, −0.375 for Latin American countries, and −0.085 for Asian and Pacific countries. Institutional quality may therefore explain the differing average GDP per capita growth rates (Fig. 2) in the respective regional groupings.

According to Fig. 3, SSA countries show the poorest institutional quality in comparison to other world regions. This might be due to high

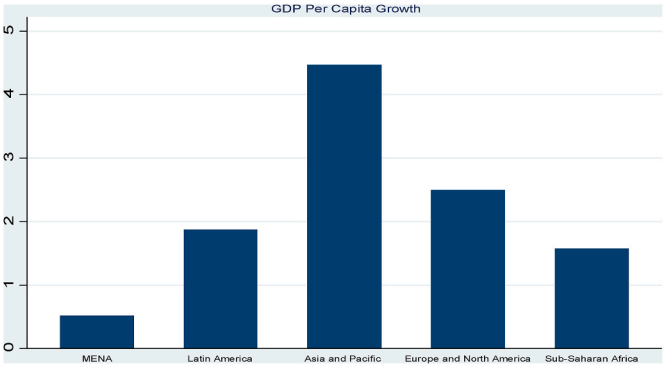

Fig. 2. Average GDP per capita growth rate (annual %) by region (1996–2018).
Source: Authors' estimates based on World Bank Indicators (WBI)

[1] Please see definition of the variable and country sample included in the analysis in Appendices A and B respectively. This applies to all variables used in the analysis in this study.

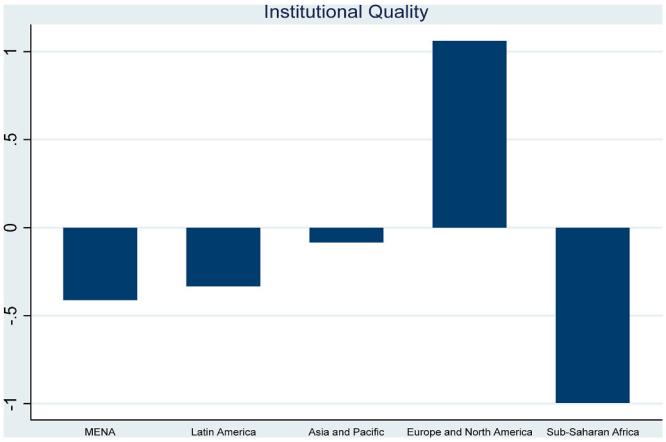

Fig. 3. Average institutional quality by region (1996–2018).
Source: Authors' estimates based on World Bank's World Governance Indicators (WGI)

levels of corruption, weak rule of law, increasing social unrest, periodic political instability, and the spillover effects of armed conflict (Sani et al., 2019). For MENA countries, the political system is characterised by authoritarian regimes, which has been impelled by the need to wield control over oil wealth (Yousef, 2004). This results in weak checks and balances, lack of scrutiny associated with parliamentary government, and absence of independency of judiciary, leading to poor quality of institutions for long historical periods (Costello et al., 2015).

In Latin American countries, Vianna and Mollick (2018) argued that quality of institutions is only deteriorated in oil-rich countries, which has caused black holes of economic reform (Naím and Lozada, 2001). It has also caused low returns of investment to society, distorted labour markets, led to reduction in overall productivity, hampered global competitiveness, and meant that these institutions easily fall victim to vested interests. Morlino et al. (2016) added that widespread corruption is the key problem in the region. In most Asian and Pacific countries, high institutional quality is unfortunately absent. They are mostly developed based on informal government networks and family relations (nepotism). Governmental role of transparency and accountability is not well effective. This results in large transactional costs and political and economic uncertainty. Institutional quality in European and North American countries is different from developing regions. As Mehlum et al. (2006a) suggested and discussed in section 3.2, institutional quality in developed countries is sufficiently high and characterised by producer-friendly institutions.

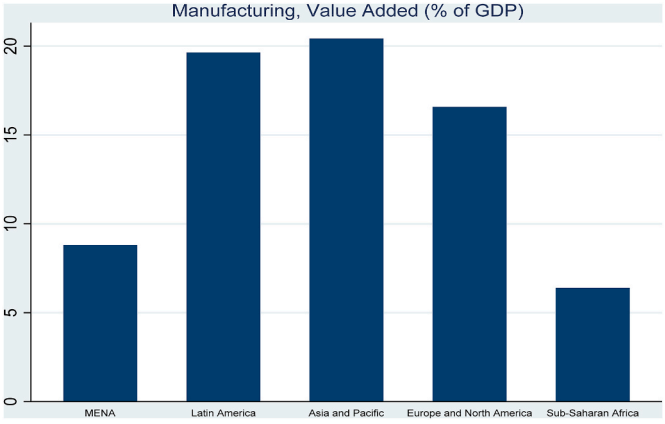

Fig. 4. Average manufacturing value added (% of GDP) by region (1970–2016).
Source: Authors' estimates based on World Bank Indicators (WBI)

Concerning the manufacturing sector, two considerable observations appear from Fig. 4. SSA and MENA countries show the lowest share of manufacturing sector to GDP ratio compared to other regions, with an average of 6.389% and 8.797%, respectively. Abundance of oil resources seems to hamper the economies of these countries to shift toward industrialisation, which is the key determinant for future growth and job creation. This suggests that these countries experience problem of the Dutch disease and therefore resource curse. Oyerinde (2019) suggested that lower institutional quality, in particular, corruption, is the key challenge that faces the manufacturing sector in SSA countries. Takahiro (2003) also identified several factors for poor performance in the manufacturing sector in SSA countries including inward-looking trade policy, low skilled labour and managers, poor protective industrial policy, and appreciation in the real exchange rate. For MENA countries, Strauss (2015) suggested that FDI has not paid attention to the manufacturing sector and, therefore, it has not driven export-led growth and technology diffusion. This might be due to political instability in some countries in the regions, which has led to lack of FDI in the manufacturing sector.

In contrast, Asian and Pacific countries show the highest share of manufacturing sector to GDP, with an average of 21.124%, compared to Latin American and European and North American countries, with an average of 19.308% and 16.569%, respectively. In Asian and Pacific countries, manufacturing is the vital centre of the ASEAN economic bloc and a key driver for growth and competitiveness, as they export heavily in electronics, aerospace, semiconductors, and packaged foods (Kuusinen et al., 2020). The economies of these countries have grown, and they have become world leaders in advanced manufacturing and innovation (Meyer et al., 2021). They also successfully promote export-led growth, labour intensive manufacturing, and invest significantly in smart factories, the industrial internet of things (IoT), advanced robotics, and cloud computing applications for manufacturing (O'Rourke and Williamson, 2017).

For Latin American countries, Poppe (2016) suggested that protection against imports of manufacturing goods was significantly high. Manufacturing goods are also subsidised, directly or through credits or tariffs on imported goods. Andes et al. (2013) posited that manufacturers in Latin American economies produce capital, intermediary technologies, and know-how to springboard emerging markets into more advanced manufacturing such as machinery, automobiles, and even biotechnology and nanotechnology. For European and North American countries, they exploit transformative opportunism from service. This accounts for an even larger share of economic growth – 75% on average (Gill, 2021). They also undergo deindustrialisation, gradually diminishing the number of manufacturing jobs as part of the usual pattern of structural change (Haraguchi et al., 2017).

Regarding health expenditures used to proxy human capital, SSA and MENA countries lag behind other regions in achieving higher expenditures on health (see Fig. 5), which is concentrated in European and North American countries, followed by Latin American and Asian and Pacific countries. Colombo and Morgan (2006) and Kanavos et al. (2019) reported that European and North American, and Latin American countries have increased their spending on the health sector very considerably due to several factors including advances in medical technologies, ageing population, rising public demand, and income growth. In Asian and Pacific countries however, the heath sectors face several challenges; for example, high out of pocket (OOP) health payments, reduction in external funding, decentralisation, poor engagement with the private sector, and urbanisation (Chu et al., 2019). Some countries in the region with higher income (Australia and New Zealand) face increasing pressure to address the financial sustainability of their health systems such as cost control measures and adoption of new medicines and technologies.

Poor expenditure on health in SSA countries might be attributed to several factors. These include slower economic growth, insufficient use of budgetary allocation to the health sector, mismanagement of oil

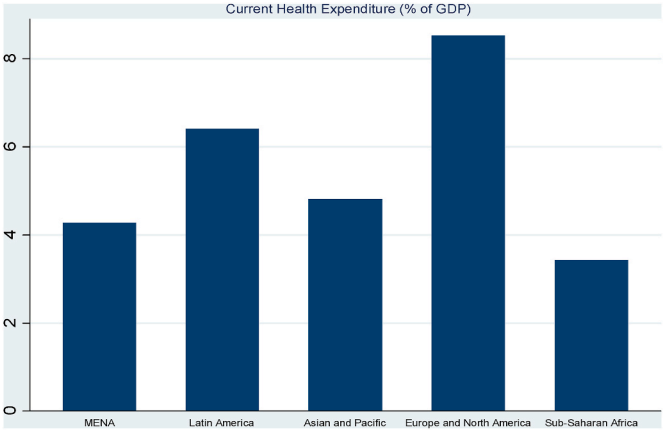

Fig. 5. Average current health expenditure (% of GDP) by region (2000–2018).
Source: Authors' estimates based on World Bank Indicators (WBI)

resources allocated to the sector, high cost of finance, civil wars, and conflicts (Bryan et al., 2010; Arthur and Oaikhenan, 2017; Chireshe and Ocran, 2020; Kiross et al., 2020; Oduyemi et al., 2021). Mcintyre et al. (2018) and Asante (2020) also posited that health-financing systems in SSA countries are characterised by lower government spending, underdeveloped insurance schemes, high OOP payments, and high dependence on external donor funding.

For MENA countries, Akala and El-Saharty (2006) and Lacheheb et al. (2014) suggested that outcomes of health expenditures are associated with poor institutional quality, which restricts private sector and non-governmental organisations from participating in healthcare expenditure. Both might play a very significant role in the health sector effectiveness. Yazbeck et al. (2017) stated that government expenditures on health in MENA countries are very low, which continues to translate into high levels of OOP expenses. This forces many people to either give up care or face impoverishment due to medical expenses.

We also use government expenditure on education as another proxy for human capital. Fig. 6 shows that European and North American economies have the highest expenditures on education relative to other regional groupings of oil-rich developing countries. These countries have allocated a significant amount of government funding to the education sector in order to increase output of educational institutions via: the impact on learning; educational access; participation and progress; improved learning environment, and the organization of schools (OECD, 2021).

MENA and Latin American countries have similar percentages of

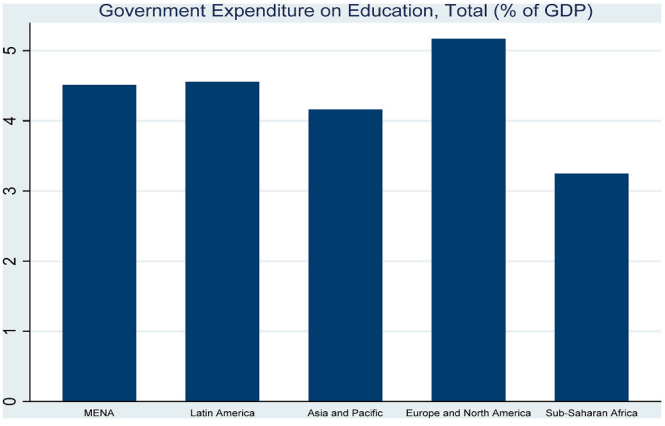

Fig. 6. Average government expenditure on education (% of GDP) by region (2000–2020).
Source: Authors' estimates based on World Bank Indicators (WBI)

government expenditures on education. Poor institutional quality of these countries provides motivations for corruption and rent seeking behaviour, which cause difficulty to collect revenues from taxes, and education and accumulated capital used in wasteful and counterproductive activities (Makdisi et al., 2006; Mayoral and Nabernegg, 2014). Maitra and Mukhopadhyay (2013) and Asongu and Odhiambo (2020) also suggested that lack of good governance, democracy, efficient institutions, and skilled manpower of Asian and Pacific and SSA countries make it extremely difficult to efficiently utilize resources to finance the education sector.

With respect to the financial development indictor, as shown in Fig. 7, European and North American countries show the highest growth of financial development compared to other sub-regional groupings of oil resource-rich developing countries. Amir and Gokmenoglu (2020) also confirmed that these countries are the most financially developed ones across the globe. They seem to perform much better than other regions/economies in terms of financial depth, access, and stability within their financial institutions and financial markets. They suggested that these countries benefit from higher institutional quality, which increases government efficiency, develops financial markets, and ameliorates the allocation of resources.

Asian and Pacific countries also perform much better than other sub-regional groupings of developing countries. They have made significant efforts to liberalise and expand the scope and depth of their financial systems since the 1990s, although there is a large heterogeneity across the countries regarding the timing of the reforms (Didier and Schmukler, 2014). These reforms include improvement in banks' access to savings and credit, financial transactions in general, capital markets' development, and elimination of regulation of interest rates, which has improved fiscal and external positions.

In the case Latin America, notwithstanding showing some improvements, financial systems remain weak compared to Asian and Pacific, and European and North American countries (Didier and Schmukler, 2014; Garcia-Herrero et al., 2019). Bank credits have deteriorated because of the debt crises and lending rates are very high. Consumer credit has risen, seemingly at the expense of firm financing. Private bond markets have increased in size but remain relatively small. Equity markets remain small, illiquid, and highly focused on large firms. Agnoli and Vilán (2008) also indicated that capital is controlled in the financial sector. Interest rate is managed by the government, which adversely affects the operation of financial institutions and the allocation of bank credits. Additional factors restricting the growth of deep financial markets could be the small size of Latin American economies, absence of risk diversification opportunities, existence of weak currencies, and the prevalence of systemic risk (Agnoli and Vilán, 2008).

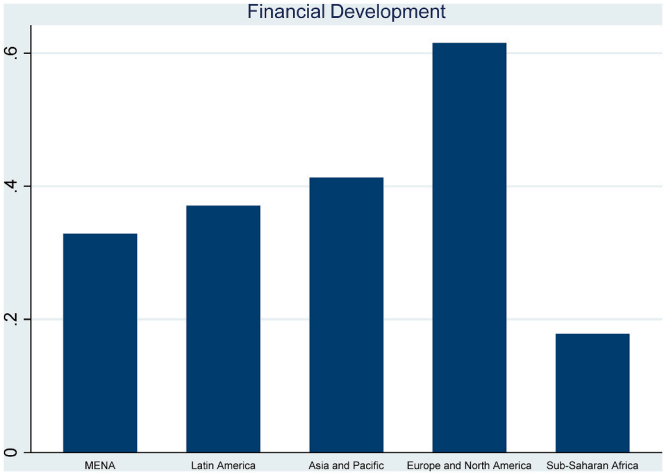

Fig. 7. Average financial development by region (1996–2018).
Source: Authors' estimates based on International Monetary Fund (IMF)

Concerning the MENA countries, even though they have shown the second worst performance of financial development among all regional groupings, most of these countries have executed economic reforms and undertaken structural adjustment in recent decades, which are helping to improve the financial sector, establish stock markets, and implement financial regulations (Naceur et al., 2008; Kar et al., 2011; Hamadi and Bassil, 2015; Boukhatem and Moussa, 2018; Houshaimi, 2020; Chebab et al., 2022). These initiatives have helped the MENA countries to integrate their economies into the world market and upgrade financial institutions. Naceur et al. (2008) indicated that these countries have also undergone a wave of liberalisation in the financial sector, helping to (i) reduce government interventions in the banking system, (ii) liberalise interest rates, and (iii) support market allocation of financial resources, increasing financial development and therefore contributing positively to economic growth (McKinnon, 1973; Shaw, 1973). In addition, they have lunched credit programmes, reduced and eliminated interest rates subsidies to priority sectors, and manage liquidity by using highly and actively reserve requirements, plus a more market-based allocation of refinancing.

SSA countries show the worst performance region in the world. It is suggested that financial intermediation has experienced financial repression, evident by low or negative real interest rates, high reserve requirements, fixed credit ceilings, directed credit allocation to priority sectors, heavy government ownership, and poor financial institutions (McKinnon, 1973; Shaw, 1973; An et al., 2021). The financial system is also ineffective, illiquid, small, and lacks diverse financial instruments and investment opportunities. The major challenges for financial system are government instability, high volatility in economic growth, macroeconomic uncertainty, liquidity constraints, weak trading and settlement structures, imperfect market information, poor institutional quality, narrow and illiquid capital markets, and lack of suitable supervision by regulatory authorities (Marone, 2003; Dahou et al., 2009; Kagochi et al., 2013).

In conclusion, and as detailed in the above analysis and discussion, it is possible to argue that oil resources-rich developing countries, especially, MENA and SSA have failed to achieve higher level of economic growth and development relative to developed countries even though they have enjoyed large surplus revenues from wealth of oil resources. This implies that these developing countries have been victims of the resource curse problem.

5. Conclusion

This paper critically reviewed the theoretical and empirical studies of the resource curse phenomenon, whereby countries rich in natural resources experience slower economic growth and development than countries with fewer natural resources. Four theoretical explanations have been identified for the resource curse. First, Dutch disease theory, which refers to appreciation of the exchange rate due to resources booming, leading to a decline in the manufacturing sector, which adversely affects the economy. Second, institutions, where the wealth from natural resources leads to poor institutional quality by increasing corruption, reducing the quality of rule of law, causing civil wars, and weakening democratic accountability. This has an adverse impact on economic growth and development, leading to the resource curse. Third, disregarding investment into human capital due to over-optimism about the wealth that might be received from the natural resources sector, which hinders the economy. Finally, poor investment in financial development. This might be attributed to the Dutch disease, lower institutional quality, and limited investment into human capital. The general conclusion from the empirical studies is that there are conflicting evidence on the presence of the resource curse, but this could be due to different proxies for natural resources, economic growth variables, or variables associated with economic growth (exchange rate, manufacturing sector, agriculture sector, institutions, human capital, and financial development), time span, and estimation approaches

undertaken.

The critical descriptive cross-regional analysis has shown that developing countries, particularly MENA and SSA have experienced weak economic growth and on several indicators of economic development. More specifically, they have lagged behind other developed countries in GDP per capita growth, manufacturing output, quality of institutions, human capital development, and financial development. It can be concluded that developing countries have failed to achieve sustainable economic growth and development despite the fact that they are rich in oil resources. This suggests that these countries have likely experienced the resource curse problem.

Our findings suggests that policymakers in oil-rich developing countries need to implement effective policies to reduce the resource curse problem. They need to sterilise capital inflow and invest some of oil income from abroad by founding sovereign wealth funds (SWFs). This would help to alleviate the spending effect channel of the Dutch disease by depreciating the domestic currency (Stevens et al., 2015). They also need to attract foreign direct investment in the competitive tradable sector (manufacturing) by reducing the cost of doing business and augmenting skills in labour, as well as promoting economic diversification by investing oil income in the tradable sector and providing credit to the private sector. Such policies will stimulate growth, accelerate exports of the competitive tradable sector and reduce dependency on the oil sector, contributing positively to economic growth and development. All of this averts the resource movement effect of the Dutch disease. In addition, policymakers of these countries should plan to improve the quality of institutions by reducing the level of corruption, controlling rent-seeking behaviour and improving the quality of government accountability and transparency. Such improvements will mean that natural resources have a positive impact on economic growth and therefore become a resource blessing. They should also increase investment in human capital through education, training and health. This increases growth of the financial sector and the efficiency and productivity of labour as well as improves the quality of the health and education sectors, enhancing economic growth and development.

Further research on the resource curse would help us to establish a greater degree of accuracy on this matter if we separate the data into development and regional levels as well as employ an appropriate econometric approach to solve several panel data problems: cross-sectional dependence, a mixed order of integration, cross country heterogeneity and endogeneity. Such problems are present in the analysis of most of the previous studies.

Author statement

Marwan Alssadek: Conceptualization, Methodology, Writing – original draft, Software, Data curation, Visualization, Formal analysis, Investigation. **James Benhin**: Supervision, Conceptualization, Methodology, Review & editing, Visualization.

Declaration of competing interest

None

Data availability

Data will be made available on request.

Appendix A

List of Variables Definition and Data Sources

Variables	Definitions	Sources
Oil rents (% of GDP)	Oil rents are the difference between the value of crude oil production at regional prices and total costs of production.	World Development Indicator (WDI)
GDP per capita growth	Annual GDP per capita growth rate based on constant local currency.	WDI
Institutional quality	An alternative measure of institutions, which is the average of the estimated value of six governance indicators: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, the rule of law, and control of corruption.	World Governance Indicators (WGI)
Manufacturing, value added (% of GDP)	Manufacturing share of GDP includes manufacture of food products, tobacco, chemicals, pharmaceuticals, medicinal chemical and botanical products, motor vehicles, trailers and semi-trailers, and furniture.	The United Nations Conference on Trade and Development (UNCTAD).
Current health expenditure (% of GDP)	Level of current health expenditure expressed as a percentage of GDP. Estimates of current health expenditures include healthcare goods and services consumed during each year. This indicator does not include capital health expenditures such as buildings, machinery, IT and stocks of vaccines for emergency or outbreaks.	WDI
Government expenditure on education, total (% of GDP)	General government expenditure on education (current, capital, and transfers) is expressed as a percentage of GDP. It includes expenditure funded by transfers from international sources to government.	WDI
Financial development	The overall index is constructed by component of three financial indices in terms of their (depth, access and efficiency). Financial depth includes (private sector credit to GDP, pension fund assets to GDP, mutual fund assets to GDP and insurance premiums and life and non-life to GDP). Financial access represents (bank branches per 100,000 adults and ATMs per 100,000 adults). Financial efficiency incudes (net interest margin, lending-deposits spread, non-interest income to total income, overhead costs to total assets, return on assets and return on equity).	International Monetary Fund (IMF)

Appendix B

List of Countries Included in the Sample of All Variables' Analyses Except for Manufacturing Sector

Europe and North America	MENA	Asia Pacific	Latin America	SSA
Canada	Algeria	Australia	Argentina	Angola
Denmark	Bahrain	Azerbaijan	Brazil	Cameroon
Hungary	Egypt	China	Bolivia	Cote d'Ivoire
Lithuania	Iran	India	Colombia	Democratic Republic of the Congo
Norway	Kuwait	Indonesia	Ecuador	Equatorial Guinea

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(*continued*)

Europe and North America	MENA	Asia Pacific	Latin America	SSA
Russia	Libya	Kazakhstan	Guatemala	Gabon
Romania	Oman	Malaysia	Mexico	Ghana
United Kingdom	Qatar	New Zealand	Peru	Nigeria
United States	Saudi Arabia	Thailand	Trinidad & Tobago	Republic of Congo
	Tunisia	Turkmenistan	Venezuela	
	United Arab Emeritus	Vietnam		
	Yemen			

Note: Libya, Yemen, Venezuela, and Equatorial Guinea are excluded from government expenditure on education analysis. This is due to availability of data.

List of Countries Included in the Sample of the Manufacturing Sector Analysis

Europe and North America	MENA	Asia Pacific	Latin America	SSA
Canada	Algeria	Australia	Argentina	Angola
Denmark	Egypt	Brunei	Brazil	Congo Republic
Italy	Iran	China	Colombia	Gabon
Norway	Iraq	India	Ecuador	Nigeria
United Kingdom	Kuwait	Indonesia	Mexico	
United Sates	Libya	Malaysia	Peru	
	Oman		Trinidad and Tobago	
	Qatar		Venezuela	
	Saudi Arabia			
	Syria			
	Tunisia			
	United Arab Emeritus			

Note: Due to unavailability of data for manufacturing sector, we use a different countries sample from other variables in the analysis.

References

Abdlaziz, R.A., Naseem, N.A.M., Slesman, L., 2018. Dutch disease effect of oil price on agriculture sector: evidence from panel cointegration of oil exporting countries. Int. J. Energy Econ. Pol. 8 (5), 241.

Acemoglu, D., Robinson, J.A., 2006. Economic backwardness in political perspective. Am. Polit. Sci. Rev. 100 (1), 115–131.

Adams, D., Adams, K., Ullah, S., Ullah, F., 2019. Globalisation, governance, accountability and the natural resource 'curse': implications for socio-economic growth of oil-rich developing countries. Resour. Pol. 61, 128–140.

Adika, G., 2020. Economic growth dynamics between resource-rich and resource-poor countries in Sub-Saharan Africa: the role of politics and institutions. Afr. Dev. Rev. 32 (3), 303–315.

Agnoli, M.Q., Vilán, D., 2008. Financing Trends in Latin America. Press and Communications CH 4002 Basel, Switzerland, p. 15.

Akala, F.A., El-Saharty, S., 2006. Public-health challenges in the Middle East and North Africa. Lancet 367 (9515), 961–964.

Alexeev, M., Conrad, R., 2009. The elusive curse of oil. Rev. Econ. Stat. 91 (3), 586–598.

Ali, A., Ramakrishnan, S., 2022. Financial development and natural resources. Is there a stock market resource curse? Resour. Pol. 75, 102457.

Alssadek, M., Benhin, J., 2021. Oil boom, exchange rate and sectoral output: an empirical analysis of Dutch disease in oil-rich countries. Resour. Pol. 74, 102362.

Alssadek, M., Benhin, J., 2022. Oil boom, manufacturing sub-sectors and Dutch disease in selected oil-rich countries. J. Develop. Area. 56 (3), 271–295.

Al-Mulali, U., Che Sab, C.N.B., 2012. Oil prices and the real exchange rate in oil-exporting countries. OPEC Energy Rev. 36 (4), 375–382.

Amin, Z.A., El-Sakka, M.I.T., 2016. Determining real exchange rate fluctuations in the oil based GCC economies. Asian Econ. Financ. Rev. 6 (7), 374.

Amir, A., Gokmenoglu, K.K., 2020. Analyzing the role of government efficiency on financial development for OECD countries. Rev. Econ. Perspect. 20 (4), 445–469.

An, H., Zou, Q., Kargbo, M., 2021. Impact of financial development on economic growth: evidence from sub-Saharan Africa. Aust. Econ. Pap. 60 (2), 226–260.

Andes, S., Ezell, S., Leal, J., 2013. An Alternative to Mercantilism: Manufacturing Extension Services in Latin American and Caribbean Countries. The Information Technology and Innovation Foundation (ITIF), Washington, DC.

Antonakakis, N., Cunado, J., Filis, G., De Gracia, F.P., 2017. Oil dependence, quality of political institutions and economic growth: a panel VAR approach. Resour. Pol. 53, 147–163.

Anyanwu, J.C., Erhijakpor, A.E., 2014. Does oil wealth affect democracy in Africa? Afr. Dev. Rev. 26 (1), 15–37.

Apergis, N., Payne, J.E., 2014. The oil curse, institutional quality, and growth in MENA countries: evidence from time-varying cointegration. Energy Econ. 46, 1–9.

Apergis, N., El-Montasser, G., Sekyere, E., Ajmi, A.N., Gupta, R., 2014. Dutch disease effect of oil rents on agriculture value added in Middle East and North African (MENA) countries. Energy Econ. 45, 485–490.

Araji, S.M., Mohtadi, H., 2018. Natural resources, incentives and human capital: reinterpreting the curse. Middle East Dev. J. 10 (1), 1–30.

Arezki, R., Brückner, M., 2011. Oil rents, corruption, and state stability: evidence from panel data regressions. Eur. Econ. Rev. 55 (7), 955–963.

Arin, K.P., Braunfels, E., 2018. The resource curse revisited: a Bayesian model averaging approach. Energy Econ. 70, 170–178.

Arthur, E., Oaikhenan, H.E., 2017. The effects of health expenditure on health outcomes in Sub-Saharan Africa (SSA). Afr. Dev. Rev. 29 (3), 524–536.

Asante, A., Wasike, W.S., Ataguba, J.E., 2020. Health financing in Sub-Saharan Africa: from analytical frameworks to empirical evaluation. Appl. Health Econ. Health Pol. 18 (6), 743–746.

Asiamah, O., Agyei, S.K., Bossman, A., Agyei, E.A., Asucam, J., Arku-Asare, M., 2022. Natural resource dependence and institutional quality: evidence from Sub-Saharan Africa. Resour. Pol. 79, 102967.

Asif, M., Khan, K.B., Anser, M.K., Nassani, A.A., Abro, M.M.Q., Zaman, K., 2020. Dynamic interaction between financial development and natural resources: evaluating the 'Resource curse' hypothesis. Resour. Pol. 65, 101566.

Aslaksen, S., 2007. Corruption and Oil: Evidence from Panel Data. Working Paper. Department of Economics. University of Oslo, Norway.

Asongu, S., Odhiambo, N.M., 2020. Financial access, governance and insurance sector development in Sub-Saharan Africa. J. Econ. Stud. 47 (4), 849–875.

Atkinson, G., Hamilton, K., 2003. Savings, growth and the resource curse hypothesis. World Dev. 31 (11), 1793–1807.

Auty, R.M., 2001a. The political economy of resource-driven growth. Eur. Econ. Rev. 45 (4–6), 839–846.

Auty, R.M. (Ed.), 2001b. Resource Abundance and Economic Development. Oxford University Press.

Auty, R.M., Mikesell, R.F., 1998. Sustainable Development in Mineral Economies. Clarendon Press.

Auty, R., Warhurst, A., 1993. Sustainable development in mineral exporting economies. Resour. Pol. 19 (1), 14–29.

Badeeb, R.A., Lean, H.H., Clark, J., 2017. The evolution of the natural resource curse thesis: a critical literature survey. Resour. Pol. 51, 123–134.

Bahar, D., Santos, M.A., 2018. One more resource curse: Dutch disease and export concentration. J. Dev. Econ. 132, 102–114.

Baland, J.M., Francois, P., 2000. Rent-seeking and resource booms. J. Dev. Econ. 61 (2), 527–542.

Basedau, M., 2005. Context Matters-Rethinking the Resource Curse in Sub-saharan Africa. Working Papers Global and Area Studies No.1. German Overseas Institute (DÜI). Responsible Unit: Institute of African Affairs.

Beck, T., 2011. Finance and Oil: Is There a Resource Curse in Financial Development? European Banking Center Discussion Paper, 2011-004.

Behbudi, D., Mamipour, S., Karami, A., 2010. Natural resource abundance, human capital and economic growth in the petroleum exporting countries. J. Econ. Dev. 35 (3), 81.

Belaid, F., Dagher, L., Filis, G., 2021. Revisiting the resource curse in the MENA region. Resour. Pol. 73, 102225.

Bernanke, B.S., 1983. Irreversibility, uncertainty, and cyclical investment. Q. J. Econ. 98 (1), 85–106.

Bhattacharyya, S., Hodler, R., 2010. Natural resources, democracy and corruption. Eur. Econ. Rev. 54 (4), 608–621.

Bhattacharyya, S., Hodler, R., 2014. Do natural resource revenues hinder financial development? The role of political institutions. World Dev. 57, 101–113.

Bjørnland, H.C., Thorsrud, L.A., 2016. Boom or gloom? Examining the Dutch disease in two-speed economies. Econ. J. 126 (598), 2219–2256.
Bjorvatn, K., Farzanegan, M.R., Schneider, F., 2012. Resource curse and power balance: evidence from oil-rich countries. World Dev. 40 (7), 1308–1316.
Blanco, L.R., Nugent, J.B., O'Connor, K.J., 2015. Oil curse and institutional changes: which institutions are most vulnerable to the curse and under what circumstances? Contemp. Econ. Pol. 33 (2), 229–249.
Bologna, J., Ross, A., 2015. Corruption and entrepreneurship: evidence from Brazilian municipalities. Publ. Choice 165 (1), 59–77.
Boukhatem, J., Moussa, F.B., 2018. The effect of Islamic banks on GDP growth: some evidence from selected MENA countries. Borsa Istanbul Review 18 (3), 231–247.
Brunnschweiler, C.N., Bulte, E.H., 2008. The resource curse revisited and revised: a tale of paradoxes and red herrings. J. Environ. Econ. Manag. 55 (3), 248–264.
Bryan, L., Conway, M., Keesmaat, T., McKenna, S., Richardson, B., 2010. Strengthening Sub-Saharan Africa's health systems: a practical approach. McKinsey Q.
Bulte, E.H., Damania, R., Deacon, R.T., 2005. Resource intensity, institutions, and development. World Dev. 33 (7), 1029–1044.
Cabrales, A., Hauk, E., 2011. The quality of political institutions and the curse of natural resources. Econ. J. 121 (551), 58–88.
Cavalcanti, T.V.D.V., Mohaddes, K., Raissi, M., 2011. Growth, development and natural resources: new evidence using a heterogeneous panel analysis. Q. Rev. Econ. Finance 51 (4), 305–318.
Chang, W.Y., 2020. Democracy, natural resources, and infectious diseases: the case of Malaria, 1990–2016. Stud. Comp. Int. Dev. 55 (3), 354–380.
Chang, W.Y., Wei, D., 2019. Natural resources and infectious diseases: the case of malaria, 2000–2014. Soc. Sci. J. 56 (3), 324–336.
Chebab, D., Mazlan, N.S., Rabbani, M.R., Chin, L., Ogiri, A.I., 2022. The role of corruption in natural resource-financial development nexus: evidence from MENA Region. Inst. Econ. 1–29.
Cherif, R., 2013. The Dutch disease and the technological gap. J. Dev. Econ. 101, 248–255.
Chireshe, J., Ocran, M.K., 2020. Financial development and health care expenditure in sub Saharan Africa countries. Cogent Econ. Finance 8 (1), 1771878.
Chu, A., Kwon, S., Cowley, P., 2019. Health financing reforms for moving towards universal health coverage in the western pacific region. Health Syst. Reform 5 (1), 32–47.
Chudik, A., Mohaddes, K., Pesaran, M.H., Raissi, M., 2016. Long-run effects in large heterogeneous panel data models with cross-sectionally correlated errors. In: Essays in Honor of Aman Ullah, vol. 36. Emerald Group Publishing Limited, pp. 85–135.
Cockx, L., Francken, N., 2014. Extending the concept of the resource curse: natural resources and public spending on health. Ecol. Econ. 108, 136–149.
Collier, P., Hoeffler, A., 2004. Greed and grievance in civil war. Oxf. Econ. Pap. 56 (4), 563–595.
Collier, P., Hoeffler, A., 2005. Resource rents, governance, and conflict. J. Conflict Resolut. 49 (4), 625–633.
Colombo, F., Morgan, D., 2006. Evolution of health expenditure in OECD countries. Rev. Fr. Des. Aff. Soc. (6), 19–42.
Corden, W.M., 1984. Booming sector and Dutch disease economics: survey and consolidation. Oxf. Econ. Pap. 36 (3), 359–380.
Corden, W.M., Neary, J.P., 1982. Booming sector and de-industrialisation in a small open economy. Econ. J. 92 (368), 825–848.
Costello, M., Jenkins, J.C., Aly, H., 2015. Bread, justice, or opportunity? The determinants of the Arab awakening protests. World Dev. 67, 90–100.
Cotet, A., Tsui, K.K., 2009. Resource Curse or Malthusian Trap? Evidence from Oil Discoveries and Extractions. Clemson University.
Dahou, K., Omar, H.I., Pfister, M., 2009. Deepening African financial markets for growth and investment. In: In Ministerial and Expert Meeting of the NEPAD-OECD Africa Investment Initiative.
David, M.A., Mlachila, M.M., Moheeput, A., 2014. Does openness matter for financial development in Africa? Int. Monetary Fund. Working Paper Number 14/94.
Davoodi, M.H.R., Abed, M.G.T., 2003. Challenges of Growth and Globalization in the Middle East and North Africa. International Monetary Fund.
De Rosa, D., Lootty, M., 2012. Are Natural Resources Cursed? an Investigation of the Dynamic Effects of Resource Dependence on Institutional Quality. World Bank Policy Research Working Paper, p. 6151.
De Soysa, I., Gizelis, T.I., 2013. The natural resource curse and the spread of HIV/AIDS, 1990–2008. Soc. Sci. Med. 77, 90–96.
De Soysa, I., Neumayer, E., 2007. Resource wealth and the risk of civil war onset: results from a new dataset of natural resource rents, 1970—1999. Conflict Manag. Peace Sci. 24 (3), 201–218.
Didier, T., Levine, R., Schmukler, S.L., 2014. Capital Market Financing, Firm Growth, Firm Size Distribution (No. W20336). National Bureau of Economic Research.
Dietz, S., Neumayer, E., De Soysa, I., 2007. Corruption, the resource curse and genuine saving. Environ. Dev. Econ. 12 (1), 33–53.
Dogan, E., Altinoz, B., Tzeremes, P., 2020. The analysis of financial resource curse hypothesis for developed countries: evidence from asymmetric effects with quantile regression. Resour. Pol. 68, 101773.
Dwumfour, R.A., Ntow-Gyamfi, M., 2018. Natural resources, financial development and institutional quality in Africa: is there a resource curse? Resour. Pol. 59, 411–426.
Elbadawi, I.A., Soto, R., 2015. Resource rents, institutions, and violent civil conflicts. Defence Peace Econ. 26 (1), 89–113.
Epo, B.N., Nochi Faha, D.R., 2020. Natural resources, institutional quality, and economic growth: an African tale. Eur. J. Dev. Res. 32 (1), 99–128.
Eregha, P.B., Mesagan, E.P., 2016. Oil resource abundance, institutions and growth: evidence from oil producing African countries. J. Pol. Model. 38 (3), 603–619.
Fan, R., Fang, Y., Park, S.Y., 2012. Resource abundance and economic growth in China. China Econ. Rev. 23 (3), 704–719.
Farzanegan, M.R., 2012. Resource Wealth and Entrepreneurship: A Blessing or a Curse? (No. 24-2012). MAGKS Joint Discussion Paper Series in Economics.
Frankel, J.A., 2012. The Natural Resource Curse: A Survey of Diagnoses and Some Prescriptions. Commodity Price Volatility and Inclusive Growth in Low-Income Countries. *HKS* Faculty Research Working Paper Series, pp. 7–34.
Gamariel, G., Hove, S., 2019. Foreign direct investment and export competitiveness in Africa: investigating the channels. J. Afr. Trade 6 (1–2), 30–46.
Garcia-Herrero, A., Santillán, J., Gallego, S., Cuadro, L., Egea, C., 2019. Latin American financial development in perspective. In: Regional Integration in Europe and Latin America. Routledge, pp. 333–396.
Gasmi, F., Laourari, I., 2017. Has Algeria Suffered from the Dutch Disease?. Evidence from 1960–2013 Data. Toulouse School of Economics Working Paper, vol. 17.
Gedikli, A., 2020. An investigation of the reasons for the natural resource curse: selected country cases. Bus. Econ. Res. J. 11 (1), 15–31.
Gelb, A.H., 1988. Oil Windfalls: Blessing or Curse? Oxford university press.
Gill, N., 2021. At Your Service? Developing Economies Bet on Service Industries for Growth. World Bank Group.
Guiso, L., Sapienza, P., Zingales, L., 2004. The role of social capital in financial development. Am. Econ. Rev. 94 (3), 526–556.
Gündüz, Ş., Kuştepeli, Y.R., 2020. The impact of natural resource abundance on manufacturing exports from a technology intensity perspective. Ege Acad. Rev. 20 (3), 221–230.
Gylfason, T., 2001. Natural resources, education, and economic development. Eur. Econ. Rev. 45 (4–6), 847–859.
Gylfason, T., Zoega, G., 2006. Natural resources and economic growth: the role of investment. World Econ. 29 (8), 1091–1115.
Hamadi, H., Bassil, C., 2015. Financial development and economic growth in the MENA region. Comp. Econ. Stud. 57 (4), 598–622.
Haraguchi, N., Cheng, C.F.C., Smeets, E., 2017. The importance of manufacturing in economic development: has this changed? World Dev. 93, 293–315.
Hassan, A.S., Meyer, D.F., Kot, S., 2019. Effect of institutional quality and wealth from oil revenue on economic growth in oil-exporting developing countries. Sustainability 11 (13), 3635.
Hattendorff, C., 2013. The Natural Resource Curse Revisited: Is There a Financial Channel? Institute for East European Studies and School of Business and Economics, Freie Universität Berlin. Session: Economic Development and Technological Change, No. D10-V3.
Hayat, A., Rakshit, S., 2020. Natural Resources Curse or Blessing? Evidence from a Large Panel Dataset. Metropolitan University Prague, CZU Prague, 101704. MPRA Paper No.
Henry, A., 2019. Transmission channels of the resource curse in Africa: a time perspective. Econ. Modell. 82, 13–20.
Henry, C.M., Springborg, R., 2010. Globalization and the Politics of Development in the Middle East, vol. 1. Cambridge University Press.
Hooshmand, M., Hosseini, S.S.A., Rajabzadeh Moghani, N., 2013. Oil rents, institutions and financial development: case study of selected oil exporting countries. Res. J. Recent Sci. 2.
Houshaimi, M.J., 2020. Financial structure and economic growth: an empirical study in the MENA region. Manag. Stud. Econ. Syst. 5 (3/4), 137–151.
Hussain, M., Ye, Z., Usman, M., Mir, G.M., Usman, A., Rizvi, S.K.A., 2020. Re-investigation of the resource curse hypothesis: the role of political institutions and energy prices in BRIC countries. Resour. Pol. 69, 101833.
Isham, J., Woolcock, M., Pritchett, L., Busby, G., 2005. The varieties of resource experience: natural resource export structures and the political economy of economic growth. World Bank Econ. Rev. 19 (2), 141–174.
Jahan-Parvar, M.R., Mohammadi, H., 2011. Oil prices and real exchange rates in oil-exporting countries: a bounds testing approach. J. Develop. Area. 313–322.
Javadi, S., Motevaseli, M., Farsi, J.Y., 2017. Oil rent and financial environment: a cross-country examination. Int. J. Econ. Financ. Issues 7 (1), 298–302.
Kagochi, J.M., Nasser, O.M.A., Kebede, E., 2013. Does Financial Development Hold the Key to Economic Growth? the Case of Sub-saharan Africa. The Journal of Developing Areas, pp. 61–79.
Kanavos, P., Parkin, G.C., Kamphuis, B., Gill, J., 2019. Latin America Healthcare System Overview. A Comparative Analysis of Fiscal Space in Healthcare. London School of Economics and Political Science, London.
Kar, M., Nazlıoğlu, Ş., Ağır, H., 2011. Financial development and economic growth nexus in the MENA countries: bootstrap panel granger causality analysis. Econ. Modell. 28 (1–2), 685–693.
Karl, T.L., 1997. The Paradox of Plenty: Oil Booms and Petro-States, vol. 26. Univ of California Press.
Kassouri, Y., Altıntaş, H., Bilgili, F., 2020. An investigation of the financial resource curse hypothesis in oil-exporting countries: the threshold effect of democratic accountability. J. Multinatl. Financ. Manag. 56, 100639.
Katoka, B., Dostal, J.M., 2022. Natural resources, international commodity prices and economic performance in Sub-Saharan Africa (1990–2019). J. Afr. Econ. 31 (1), 53–74.
Kim, D.H., Lin, S.C., 2017. Human capital and natural resource dependence. Struct. Change Econ. Dynam. 40, 92–102.
Kim, D.H., Lin, S.C., 2018. The resource curse hypothesis: dynamic heterogeneous approach. Emerg. Mark. Finance Trade 54 (12), 2698–2717.
Kimball, M.S., 1989. Precautionary Saving in the Small and in the Large. National Bureau Economic Research. Working Paper No. 2848.

Kiross, G.T., Chojenta, C., Barker, D., Loxton, D., 2020. The effects of health expenditure on infant mortality in Sub-Saharan Africa: evidence from panel data analysis. Health Econ. Rev. 10 (1), 1–9.
Kornonen, L., Juurikkala, T., 2007. Equilibrium Exchange Rates in Oil-dependent Countries, vol. 8. BOFIT Discussion Papers (Bank of Finland. Institute for Economies in Transition).
Kronenberg, T., 2004. The curse of natural resources in the transition economies. Econ. Transit. 12 (3), 399–426.
Krugman, P., 1987. The narrow moving band, the Dutch disease, and the competitive consequences of Mrs. Thatcher: notes on trade in the presence of dynamic scale economies. J. Dev. Econ. 27 (1–2), 41–55.
Kurronen, S., 2012. Financial Sector in Resource-dependent Economies. Bank of Finland Institute for, Helsinki. Economies in Transition (BOFIT). Discussion Paper.
Kuusinen, M., Pierzynowski, K., Yuson, G., 2020. The Rise of the Southern Asian Tigers'. Elements for Success in Southeast Asia. Business Sweden Marcom and Digitalisation.
Lacheheb, M., Med Nor, N., Baloch, I., 2014. Health Expenditure, Education and Economic Growth in MENA Countries. Universiti Putra Malaysia. MPRA Paper No. 60388, Posted 05 Dec 2014 05:32 UTC.
Leite, M.C., Weidmann, J., 1999. Does Mother Nature Corrupt? Natural Resources, Corruption, and Economic Growth. International Monetary Fund.
Lujala, P., Gleditsch, N.P., Gilmore, E., 2005. A diamond curse? Civil war and a lootable resource. J. Conflict Resolut. 49 (4), 538–562.
Maitra, B., Mukhopadhyay, C.K., 2013. Public spending on education, health care and economic growth in selected countries of Asia and the Pacific. Asia Pac. Dev. J. 19 (2), 19–48.
Majbouri, M., 2015. Calculating the income counterfactual for oil producing countries of the MENA region. Resour. Pol. 44, 47–56.
Makdisi, S., Fattah, Z., Limam, I., 2006. Determinants of growth in the MENA countries. Contrib. Econ. Anal. 278, 31–60.
Malik, M.A., Masood, T., 2022. Analysing the impact of oil capital on economic growth in West Asia and North African countries. Int. J. Econ. Pol. Emerg. Econ. 16 (1), 107–120.
Marone, H.C., 2003. Small African Stock Markets: the Case of the Lusaka Stock Exchange. IMF Working Paper, WP/03/06.
Marotta, D., de Melo, J. (Eds.), 2012. Natural Resource Abundance, Growth, and Diversification in the Middle East and North Africa: the Effects of Natural Resources and the Role of Policies. World Bank Publications.
Matallah, S., 2020. Economic diversification in MENA oil exporters: understanding the role of governance. Resour. Pol. 66, 101602.
Matsuyama, K., 1992. Agricultural productivity, comparative advantage, and economic growth. J. Econ. Theor. 58 (2), 317–334.
Mayoral, F.M., Nabernegg, M., 2014. Determinants of social spending in Latin America. A dynamic panel data error-correction model analysis. In: XXI Encuentro Economía Pública. Universitat de Girona, p. 92.
McIntyre, D., Obse, A.G., Barasa, E.W., Ataguba, J.E., 2018. Challenges in financing universal health coverage in Sub-Saharan Africa. In: Oxford Research Encyclopedia of Economics and Finance.
McKinnon, R., 1973. Money and Capital in Economic Development. Brookings Institution, Washington, D.C.
Mehlum, H., Moene, K., Torvik, R., 2006a. Institutions and the resource curse. Econ. J. 116 (508), 1–20.
Mehlum, H., Moene, K., Torvik, R., 2006b. Cursed by resources or institutions? World Econ. 29 (8), 1117–1131.
Menyah, K., Nazlioglu, S., Wolde-Rufael, Y., 2014. Financial development, trade openness and economic growth in African countries: new insights from a panel causality approach. Econ. Modell. 37, 386–394.
Meyer, M., Tan, M., Vohra, R., McAdoo, M., Lim, M.L., 2021. How Asean Can Move up the Manufacturing Value Chain. Boston Consulting Group.
Mien, E., Goujon, M., 2022. 40 Years of Dutch disease literature: lessons for developing countries. Comp. Econ. Stud. 64 (3), 351–383.
Mo, P.H., 2001. Corruption and economic growth. J. Comp. Econ. 29 (1), 66–79.
Mobarak, A., Karshenasan, A., 2012. The impact of institutional quality on relation between resource abundance and economic growth. Iran. Econ. Rev. 16 (32), 95–110.
Mohtadi, H., Ross, M.L., Ruediger, S., Jarrett, U., 2017. Does Oil Hinder Transparency? University of Wisconsin and UCLA (Working Paper).
Morlino, L., Rial, J., Alcántara Sáez, M., Tommasoli, M., Zovatto, D., 2016. The Quality of Democracies in Latin America. International Institute for Democracy and Electoral Assistance: Democracy-Building and Conflict Management.
Mosquera, R., 2022. The long-term effect of resource booms on human capital. Lab. Econ. 74, 102090.
Naceur, S.B., Ghazouani, S., Omran, M., 2008. Does stock market liberalization spur financial and economic development in the MENA region? J. Comp. Econ. 36 (4), 673–693.
Naím, M., Lozada, C., 2001. Latin American Economies: the Good, the Bad, and the Ugly. Frost, Ellen L. and Richard L. Kugler. (2001). The Global century: Globalization and national security, 2. (Vol. II, pp. 875 - 894). Honolulu: University Press of the Pacific.
Nawaz, M.A., Azam, A., Bhatti, M.A., 2019. Natural resources depletion and economic growth: evidence from Asean countries. Pak. J. Econ. Stud. (PJES) 2 (2), 155–172.
Ndikumana, L., Baliamoune-Lutz, M., 2008. Corruption and Growth: Exploring the Investment Channel (No. 2008-08). University of Massachusetts Amherst, Department of Economics.
Nurkse, R., 1966. Problems of Capital Formation in Underdeveloped Countries. Oxford University Press.
O'Rourke, K.H., Williamson, J.G., 2017. The Spread of Modern Industry to the Periphery since 1871. Oxford University Press, p. 410.
Oduyemi, G.O., Owoeye, T., Adekoya, O.B., 2021. Health outcomes and the resource curse paradox: the experience of African oil-rich countries. Resour. Pol. 73, 102201.
OECD, 2021. Education at a glance 2021 from OECD. European Commission. Available at: https://ec.europa.eu/newsroom/rtd/items/725680/en#:~:text=Total%20public%20spending%20on%20primary,averages%2011%25%20across%20OECD%20countries.
Ofori, P.E., Grechyna, D., 2021. Remittances, natural resource rent and economic growth in Sub-Saharan Africa. Cogent Econ. Finance 9 (1), 1979305.
Omolade, A., Ngalawa, H., 2014. Oil revenue and manufacturing sector growth in Africa's oil-exporting countries. J. Econ. Financ. Stud. 7 (3), 925–944.
Oyerinde, A.A., 2019. Industrial sector growth, macroeconomic performance, and corruption in the sub Sahara Africa. Stud. Univ. Babes Bolyai-Oecon. 64 (2), 72–83.
Papyrakis, E., 2017. The resource curse-what have we learned from two decades of intensive research: introduction to the special issue. J. Dev. Stud. 53 (2), 175–185.
Philippot, L.M., 2010a. Natural resources and economic development in transition economies. In: In International Conference Environment and Natural Resources Management in Developing and Transition Economies. Clermont-Ferrand.
Philippot, L.M., 2010b. Are natural resources a curse for human capital accumulation. Nat. Non Technol. 2 (11), 665–666. Centre d'Etudes et de Recherches sur le Développement International (CERDi-CNRS).
Poppe, K., 2016. Resource abundance and its impact on Latin American economic growth. J. Behav. Econ. Finance Entrepr. Account. Transport 4 (3), 54–70.
Ricardo, D., 1971. Principles of Political Economy and Taxation. G. Bell and Sons, London (G. Bell and Sons).
Robinson, J.A., Torvik, R., Verdier, T., 2006. Political foundations of the resource curse. J. Dev. Econ. 79 (2), 447–468.
Ross, M.L., 1999. The political economy of the resource curse. World Polit. 51 (2), 297–322.
Ross, M.L., 2001. Does oil hinder democracy? World Polit. 53 (3), 325–361.
Ross, M.L., 2004a. What do we know about natural resources and civil war? J. Peace Res. 41 (3), 337–356.
Ross, M.L., 2004b. How do natural resources influence civil war? Evidence from thirteen cases. Int. Organ. 58 (1), 35–67.
Ross, M., 2006. Is democracy good for the poor? Am. J. Polit. Sci. 50 (4), 860–874.
Ross, M., 2014. Conflict and natural resources: is the Latin American and Caribbean Region different from the rest of the world? Transparent Govern. 109.
Rosser, A., 2006. The Political Economy of the Resource Curse: A Literature Survey. A Literature Survey'. Institute for Development Studies (IDS). University of Sussex Brighton BN1 9RE, UK. Working Paper 268.
Rostow, W.W., 1959. The stages of economic growth. Econ. Hist. Rev. 12 (1), 1–16.
Roy, B.C., Sarkar, S., Mandal, N.R., 2013. Natural resource abundance and economic performance—a literature review. Curr. Urban Stud. 1 (4), 148.
Sachs, J.D., Warner, A., 1995. Natural Resource Abundance and Economic Growth. National Bureau of Economic Research. No. w5398).
Sachs, J.D., Warner, A.M., 2001. The curse of natural resources. Eur. Econ. Rev. 45 (4–6), 827–838.
Sala-i-Martin, X., Subramanian, A., 2013. Addressing the natural resource curse: an illustration from Nigeria. J. Afr. Econ. 22 (4), 570–615.
Sala-i-Martin, X., V Artadi, E., 2003. Economic Growth and Investment in the Arab World. UPF Economics and Business Working Paper, 683.
Sani, A., Said, R., Ismail, N.W., Mazlan, N.S., 2019. Public debt, institutional quality and economic growth in Sub-Saharan Africa. Inst. Econ. 39–64.
Savoia, A., Sen, K., 2021. The political economy of the resource curse: a development perspective. Ann. Rev. Resour. Econ. 13, 203–223.
Schandl, H., 2011. Resource Efficiency: Economics and Outlook for Asia and the Pacific. United Nations Publications.
Shahbaz, M., Ahmed, K., Tiwari, A.K., Jiao, Z., 2019. Resource curse hypothesis and role of oil prices in USA. Resour. Pol. 64, 101514.
Shao, S., Yang, L., 2014. Natural resource dependence, human capital accumulation, and economic growth: a combined explanation for the resource curse and the resource blessing. Energy Pol. 74, 632–642.
Sharma, C., Pal, D., 2021. Revisiting resource curse puzzle: new evidence from heterogeneous panel analysis. Appl. Econ. 53 (8), 897–912.
Shaw, E.S., 1973. Financial Deepening in Economic Development. Oxford University Press, New York, NY.
Shittu, W.O., Musibau, H.O., Jimoh, S.O., 2022. The complementary roles of human capital and institutional quality on natural resource-FDI—economic growth Nexus in the MENA region. Environ. Dev. Sustain. 24 (6), 7936–7957.
Smith, B., 2014. Dutch Disease and the Oil and Boom and Bust (No. 133). Oxford centre for the analysis of resource rich economies, University of, Oxford.
Smith, B., 2015. The resource curse exorcised: evidence from a panel of countries. J. Dev. Econ. 116, 57–73.
Smith, A., Stewart, D., 1963. An Inquiry into the Nature and Causes of the Wealth of Nations. T. Nelson and Sons. Wiley Online Library.
Snyder, R., Bhavnani, R., 2005. Diamonds, blood, and taxes: a revenue-centered framework for explaining political order. J. Conflict Resolut. 49 (4), 563–597.
Sterck, O., 2016. Natural resources and the spread of HIV/AIDS: curse or blessing? Soc. Sci. Med. 150, 271–278.
Stevens, P., 2003. Resource impact: curse or blessing? A literature survey. J. Energy Lit. 9 (1), 3–42.
Stevens, P., Dietsche, E., 2008. Resource curse: an analysis of causes, experiences and possible ways forward. Energy Pol. 36 (1), 56–65.
Stevens, P., Lahn, G., Kooroshy, J., 2015. The Resource Curse Revisited. Chatham House for the Royal Institute of International Affairs.
Stijns, J.P., 2006. Natural resource abundance and human capital accumulation. World Dev. 34 (6), 1060–1083.

Strauss, J., 2015. Economic Challenges in the MENA Region. Middle Eastern Business Environment Cognella Academic Publishing.
Su, F., Wei, G., Tao, R., 2016. China and natural resource curse in developing countries: empirical evidence from a cross-country study. China World Econ. 24 (1), 18–40.
Takahiro, F., 2003. International competitiveness of manufacturing firms in Sub-Saharan Africa. Econ. Rev. 16 (6), 192–206.
Talvi, E., Serra, P., Birdsall, N., Pack, H., Solimano, A., Stallings, B., Gavin, M., Sabot, R. H., Lustig, N., Petrei, H., Edwards, S., 2018. Pathways to Growth: Comparing East Asia and Latin America. IDB Publications (Books).
Tang, C., Irfan, M., Razzaq, A., Dagar, V., 2022. Natural resources and financial development: role of business regulations in testing the resource-curse hypothesis in ASEAN countries. Resour. Pol. 76, 102612.
The Heinrich Böll Foundation Brussels's office, 2008. Resource curse in Latin America. The Euro-Latin American parliamentary assembly plenary session in Lima. Available at: https://eu.boell.org/en/2013/12/03/resource-curse-latin-america.
Tiba, S., Frikha, M., 2020. Africa is rich, Africans are poor! A blessing or curse: an application of cointegration techniques. J. Knowl. Econ. 11 (1), 114–139.
Tornell, A., Lane, P.R., 1999. The voracity effect. Am. Econ. Rev. 89 (1), 22–46.
Torvik, R., 2001. Learning by doing and the Dutch disease. Eur. Econ. Rev. 45 (2), 285–306.
Torvik, R., 2002. Natural resources, rent seeking and welfare. J. Dev. Econ. 67 (2), 455–470.
Umar, M., Ji, X., Mirza, N., Rahat, B., 2021. The impact of resource curse on banking efficiency: evidence from twelve oil producing countries. Resour. Pol. 72, 102080.
Usui, N., 1997. Dutch disease and policy adjustments to the oil boom: a comparative study of Indonesia and Mexico. Resour. Pol. 23 (4), 151–162.
Vahabi, M., 2017. A Critical Survey of the Resource Curse Literature through the Appropriability Lens. CEPN, UMR-CNRS 7234, Sorbonne Paris Cité. Université Paris 13.
Van Der Ploeg, F., 2011. Natural resources: curse or blessing? J. Econ. Lit. 49 (2), 366–420.
Van Der Ploeg, F., Poelhekke, S., 2009. Volatility and the natural resource curse. Oxf. Econ. Pap. 61 (4), 727–760.
Vianna, A.C., Mollick, A.V., 2018. Institutions: key variable for economic development in Latin America. J. Econ. Bus. 96, 42–58.
Ville, S., Wicken, O., 2013. The dynamics of resource-based economic development: evidence from Australia and Norway. Ind. Corp. Change 22 (5), 1341–1371.
Watkins, M.H., 1963. A staple theory of economic growth. Can. J. Econ. Polit. Sci. Revue Can. Econ. Sci. Polit. 29 (2), 141–158.
Wiens, D., 2014. Natural resources and institutional development. J. Theor. Polit. 26 (2), 197–221.
Wigley, S., 2017. The resource curse and child mortality, 1961–2011. Soc. Sci. Med. 176, 142–148.
Wijnbergen, S.V., 1984. The Dutch Disease': a disease after all? Econ. J. 94 (373), 41–55.
Yaduma, N., Kortelainen, M., Wossink, A., 2013. An Investigation of Oil Curse in OECD and Non-OECD Oil Exporting Economies Using Green Measures of Income. School of Social Sciences, University of Manchester.
Yang, S., Abdulahi, E., Haider, M.A., Khan, M.A., 2019. Revisiting the curse: resource rent and economic growth of Sub-Sahara African countries. Int. J. Econ. Financ. Issues 9 (1), 121.
Yazbeck, A.S., Rabie, T.S., Pande, A., 2017. Health sector reform in the Middle East and North Africa: prospects and experiences. Health Syst. Reform 3 (1), 1–6.
Yilanci, V., Turkmen, N.C., Shah, M.I., 2022. An empirical investigation of resource curse hypothesis for cobalt. Resour. Pol. 78, 102843.
Yousef, T.M., 2004. Development, growth and policy reform in the Middle East and North Africa since 1950. J. Econ. Perspect. 18 (3), 91–115.
Yuxiang, K., Chen, Z., 2011. Resource abundance and financial development: evidence from China. Resour. Pol. 36 (1), 72–79.
Zallé, O., 2019. Natural resources and economic growth in Africa: the role of institutional quality and human capital. Resour. Pol. 62, 616–624.