International Journal of
Advanced Research in Accounting, Economics and Business Perspectives
p-ISSN: 2636-6894 | e-ISSN: 2636-6886

IJARAEBP
Vol. 7, No. 2
September, 2023

Rent, Income, and Trade: Does Trade Mitigate the Negative Effects of Oil Rents on Economic Growth in Oil-Exporting Countries?

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Article DOI: 10.48028/iiprds/ijaraebp.v7.i2.08

Abstract

The present study investigates the relationship among oil rent, trade openness, and economic growth, and assesses the potential moderating role of trade openness in mitigating the adverse impacts of oil rents on economic growth. Dynamic panel data analyses were conducted on a sample of oil-producing countries spanning the period from 1990 to 2020. The study accounted for both cross-sectional fixed and time fixed effects. The findings of our study indicate that the presence of oil rent has an adverse impact on the growth of the economy. However, the degree of trade openness plays a moderating role in this relationship, resulting in increased rates of economic growth. The findings indicate that trade liberalization can function as a mechanism to diversify economies from dependence on oil rents and foster sustainable economic growth. The results of our study hold significant implications for policymakers in oil-producing nations who aim to attain sustainable economic growth and advancement.

Keywords: *Oil rents, Trade, Real per capita GDP and Dynamic panel data*

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Background to the Study

Recently, there has been an increasing desire in determining what effect natural resource endowment on the growth of the economy. It is widely accepted that natural resources play a significant role in fostering economic growth and development within an economy. The paradox commonly referred to as the resource curse hypothesis has garnered significant attention in academic literature. The aforementioned hypothesis states that economies with abundant natural resources exhibit a comparatively sluggish pace of economic growth and weaker institutional frameworks when compared with economies that possess fewer natural resources (Auty, 1993; Sachs & Warner, 1995; Van der Ploeg, 2011). As an illustration, countries that possess abundant oil reserves, namely Venezuela, Nigeria, and the Republic of the Congo, exhibit lower levels of real GDP per capita when compared with certain countries that lack natural resources, including Singapore, South Korea, and Hong Kong. The paradox in question has been the subject of scholarly investigation, with various factors being identified in the literature as potential explanations. These factors include Dutch disease, inadequate institutional quality, political rent-seeking, volatility in commodity prices, and a dearth of diversification. Nevertheless, there are various other factors that have yet to be investigated.

The oil sector is a major contributor to natural resource wealth and has been at the center of the resource curse debate. The oil sector has historically been associated with boom-and-bust cycles that are characterized by high volatility in oil prices, fluctuations in economic activity, and instability in government revenues. The volatility of oil prices is a major concern for oil-exporting countries, as it can result in significant fluctuations in government revenues. Moreover, the dependence on oil exports can create a "rentier state" that is highly reliant on oil revenues, which can undermine efforts to diversify the economy and promote sustainable growth.

The implementation of trade openness policies has been suggested as a potential remedy for the resource curse. Policies promoting trade openness can facilitate the entry of resource-rich nations into global markets, resulting in increased product prices and higher income levels, ultimately leading to a growth in real GDP per capita. Furthermore, these policies facilitate the utilization of sophisticated technologies by countries endowed with abundant resources, leading to enhanced efficiency in the extraction of natural resources. This, in turn, enables the production of intermediate and final goods from primary goods, thereby generating increased profits. According to Pedersen (2000), trade openness has the potential to modernize the economy by enhancing the development of related sectors such as transportation systems and roads. Additionally, Braun and Raddatz (2008) suggest that financial sectors can also benefit from trade openness. Furthermore, Dutt (2009) argues that bureaucratic systems can be improved through trade openness.

According to the findings of Arezki and Van der Ploeg (2011), economies that exhibit greater levels of trade openness tend to experience a less pronounced manifestation of the resource curse phenomenon. This phenomenon is characterized by a sluggish pace of economic growth in countries that possess abundant natural resources, which is often attributed to the mismanagement of these resources. Sachs and Warner's (1995) research suggests that

economic growth can be enhanced by trade openness, which can help alleviate the negative effects of the resource curse. The majority of research on this subject has utilized cross-sectional growth models, which involve regressing the average growth rate observed over the past few decades against a measure of resource abundance and various control variables.

Scholars have posited that trade openness may serve as a potential means of alleviating the adverse impact of oil rents on economic growth. The adoption of trade liberalization policies can potentially yield benefits such as the expansion of export variety, the mitigation of dependence on petroleum exports, and the facilitation of knowledge transfer and spillovers. A notable research gap persists in the examination of the mediating function of trade openness within the discourse on the resource curse. This gap is particularly evident in the utilization of a comprehensive panel of oil-exporting nations and the incorporation of contemporary data. This research centers on the examination of oil as a natural resource due to its high tradability and consequential effects on inflation, employment, and output, as noted by Guo and Kliesen in 2005. Moreover, it has been argued that point-source resources such as oil are susceptible to rent-seeking behavior, which is a contributing factor to the phenomenon known as the resource curse (Isham et al., 2005; Boschini et al., 2007). The aim of this study is to analyze the correlation among oil rent, trade openness, and economic growth, and assess the potential moderating influence of trade openness on the adverse impacts of oil rents on economic growth.

Research Question and Objectives

The main research question of this study is: Does trade moderate the impact of oil rent on economic growth, and if so, under what conditions? To answer this research question, we have set the following objectives:

1. To examine the relationship between oil rent and economic growth, and to assess the evidence for the oil curse hypothesis, as opposed to resource curse hypothesis.
2. To investigate the moderating effect of trade openness on the relationship between oil rent and economic growth, and to explore the potential mechanisms underlying this effect.

This study hypothesizes that trade reduces the adverse effect of oil rent dependence among oil exporting countries. The rest of the paper is structured as follows: Section 2 presents a brief relevant literature review. Section 3 presents the study's methodology, which encompasses the description of the preliminary analyses, empirical strategy, and data. Section 4 present the preliminary and main study results. Section 5 presents the conclusion and policy recommendation.

Review of Related Literature

This section reviews relevant literature on this topic, including theoretical and empirical studies.

Oil Rents and Economic Growth

The relationship between the abundance of natural resources, specifically oil rents, and the growth of the economy has been extensively discussed in academic literature. As per the "resource curse" theory, nations that possess abundant natural resources, especially oil, are prone to encountering reduced economic growth rates, heightened levels of income inequality, and political instability (Sachs & Warner, 2001). The aforementioned hypothesis posits that the existence of natural resources, specifically petroleum, may result in economic mismanagement, corruption, and rent-seeking conduct, thereby impeding the progress of economic growth. Notwithstanding, certain academics contend that the hypothesis of resource curse oversimplifies the relationship between natural resources and the advancement of the economy. According to Stevens (2003), countries that possess abundant resources can achieve economic expansion by enacting measures that foster effective governance, economic diversification, and investment in human capital.

Trade Openness and Economic Growth

The positive relationship between economic growth and trade openness, defined as the degree of a country's involvement in global trade, has been extensively determined in the empirical literature. Romer (1990) posits that in accordance with the neoclassical growth model, trade openness has the potential to result in higher specialization, economies of scale, and improved productivity. Furthermore, the liberalization of trade can promote the exchange of technology, attract foreign investment, and foster the diffusion of knowledge and ideas (Barro & Sala-i-Martin, 1995). The existing body of empirical research has demonstrated a positive correlation between the degree of trade openness and the level of economic growth. Dollar and Kraay's (2004) research revealed that nations that adopted liberalized trade policies exhibited greater economic expansion in contrast to those that adhered to protectionist trade policies.

Oil Rents, Trade Openness, and Economic Growth

The ongoing discourse pertains to the relationship between oil rents, trade openness, and economic growth. Several scholarly investigations propose that the degree of trade liberalization may serve as a moderating factor in mitigating the adverse impacts of oil rents on the growth of an economy. Sachs and Warner's (1995) research revealed that the detrimental effects of natural resource abundance on economic growth were mitigated in nations that implemented more liberalized trade policies. The argument posits that the adoption of trade liberalization policies can facilitate the expansion of economic activities and mitigate the dependence on primary commodities, thereby engendering elevated levels of economic advancement.

Nevertheless, some academics argue that the potential benefits of trade liberalization may not effectively counteract the adverse impacts of oil revenues on the growth of the economy. The study conducted by Arezki and Brückner (2012) demonstrated the durability of the inverse correlation between oil rents and economic growth, even after accounting for trade openness. The argument posits that the correlation between trade openness and economic diversification is not necessarily a causal one, and that in fact, trade openness may have the unintended consequence of exacerbating the negative impact of oil rents on economic growth. This is due to the potential for a decline in manufacturing and other non-oil sectors.

Methodology

This section outlines the empirical methodology employed to examine the objectives of the present investigation. The present investigation utilizes a panel model that integrates cross-sectional and period fixed effects to examine the impact of oil rents, trade, and their interaction term on Real per capita GDP. The principal rationale behind employing this model is to tackle the potential bias that could arise from latent factors that differ across nations and periods (such as geography, natural resources, political and cultural factors) that may impact worldwide productivity growth, resulting in a rise in output over time. In order to assess the durability of the estimations derived from the primary model, various panel model variations are employed, including pooled ordinary least squares (OLS), cross-sectional fixed effect model, cross-sectional random effect model, period fixed effect model, and period random effect model. The utilization of the period fixed effect model serves to eliminate the influence of country-invariant characteristics. However, the combined fixed effect model goes a step further by removing the impact of both time-invariant and cross-section invariant characteristics. This approach allows for a comprehensive evaluation of the overall effect of oil rent on economic growth. The primary combined model utilized in our study is estimated using the following functional form:

$$\begin{aligned}\Delta lnREGPC_{i,t} = {} & \alpha_{0i} + \alpha_{0t} + \alpha_1 \Delta lnREGPC_{i,t-1} + \alpha_2 lnOIL_{i,t} + \alpha_3 lnUNEMP_{i,t} \\ & + \alpha_4 lnFDI_{i,t} + \alpha_5 lnCAB_{i,t} + \alpha_6 lnMILITAR_{i,t} + \alpha_7 lnMORT_{i,t} \\ & + \alpha_8 lnTRADE_{i,t} + \alpha_9 lnTRADE_{i,t} * lnOIL_{i,t} + \mu_{i,t}\end{aligned} \qquad 1$$

Where Δ is the difference operator; $\Delta ln\text{REGPC}_{i,t}$ is the dependent variable and represents the change in log of Real per capita GDP; $ln\text{REGPC}_{i,t-1}$ is the first lag of the dependent variable; $lnOIL_{i,t}$ is the oil rent; $lnUNEMP_{i,t}$ is the unemployment rate; $lnFDI_{i,t}$ is the foreign direct investment; $lnCAB_{i,t}$ is the current account balance; $lnMILITAR_{i,t}$ is the military expenditure; $lnMORT_{i,t}$ is the infant mortality; and $lnTRADE_{i,t}$ is the trade openness variable. *ln* is the natural logarithm operator, The subscripts *i* and *t* denote country and year, respectively. $_{0i}$ and $_{0i}$ represent the unobserved time-invariant and country-invariant individual effects, and the idiosyncratic disturbance term is denoted by $_{i,t}$. Please refer to Table 1 for an in-depth description of the variables as well the summary statistics. By using a lag-dependent variable, we capture autocorrelation in the model. Furthermore, we include an interaction term in Equation (1), denoted by $\text{lnTRADE}_{i,t} * \text{lnOIL}_{i,t}$ to moderating effect of trade to reduce the oil curse or the negative effects of oil rents on economic growth.

Next, we provide preliminary analysis that support the empirical strategy employed in this study. First we conduct a cross-sectional dependence test (Friedman, 1937; Pesaran, 2004) to investigate whether there is any correlation among the error terms across countries. This is important because the presence of cross-sectional dependence violates the assumption of independence of observations, which can lead to biased estimates and unreliable inference (Emenekwe & Emodi, 2022). We employ the Pesaran's (2004) and Friedman's (1937) cross-dependency tests because our sample is as characterized by *small-T* and *large-N* panel data (De Hoyos & Sarafidis, 2006). Additionally, we provide the Spearman's rank correlation coefficient

for the model variables and perform panel unit root tests to examine whether the variables are stationary over time and across countries. Non-stationarity can cause spurious regression and undermine the validity of the results.

Results and discussions

This section presents the preliminary results and empirical results of key estimation techniques used in this study.

Preliminary Results

Descriptive and Summary Statistics

The variables of this study are presented in Table 1, along with their corresponding descriptive and summary statistics. In accordance with established literature (Emenekwe & Emodi, 2022), the variables have been transformed into natural logarithmic (ln) forms to facilitate the calculation of elasticities. With the exception of the unemployment rate, all data utilized in this study were sourced from the World Bank's World Development Indicators (WB-WDI) database. The data pertaining to the rate of unemployment was procured from the World Economic Outlook (WEO) database of the International Monetary Fund (IMF). The study's sample encompasses the time frame spanning from 1980 to 2021 and consists of 92 countries that were selected based on the adequacy of data available during the specified years. The dataset utilized in our analysis consists of unbalanced panel data, comprising a total of 2,697 observations.

Table 1: Descriptive Statistics

Variable	Description	Source	Mean	S. D.	Min	Max
lnREGPC$_{i,t}$	Real GDP per capita (in constant 2015 US dollars)	WB-WDI	9.113	1.162	6.217	11.63
lnOIL$_{i,t}$	Oil rents (% of GDP)	WB-WDI	0.515	0.863	0.000	4.081
lnUNEMP$_{i,t}$	Unemployment rate (% of total labour force)	IMF-WEO	2.162	.544	0.025	3.674
lnFDI$_{i,t}$	Foreign direct investment, net outflows (% of GDP)	WB-WDI	0.582	1.015	-4.938	5.708
lnCAB$_{i,t}$	Current account balance (% of GDP)	WB-WDI	-0.538	1.607	-3.802	3.838
lnMILITAR$_{i,t}$	Military expense (% of GDP)	WB-WDI	1.046	0.433	0.133	3.49
LnMORT$_{i,t}$	Mortality rate, infant (per 1000 live births)	WB-WDI	2.411	0.923	0.531	4.785
lnTRADE$_{i,t}$	Trade openness (% of GDP)	WB-WDI	4.311	0.578	0.564	6.083

Note: Number of observations is 2,697. WB -WDI is an acronym for the World Bank 's World Development Indicators Database, while IMF -WEO is an acronym for the International Monetary Fund's World Economic Outlook Database. Variables are estimated in their natural logarithm forms.

Table 2 reports the Spearman's rank correlation coefficients among eight model variables. The Spearman's rho coefficient for the correlation between trade and real per capita GDP is weakly positive (0.066), indicating that trade openness and economic growth have a positive but weak relationship. In contrast, the coefficient for the correlation between oil rent and real per capita GDP is weakly negative (-0.099), indicating that oil rents and economic growth have a negative but weak relationship. Additionally, the table reveals a highly negative correlation between real

per capita GDP and mortality with a coefficient of -0.824, indicating that economic growth is highly negatively correlated with mortality rates. The correlation between real per capita GDP and unemployment is also negative (-0.305), indicating that economic growth is negatively related to unemployment rates. Additionally, the table indicates a positive correlation coefficient (0.524) between foreign direct investment and real per capita GDP, and a positive correlation coefficient (0.392) between current account balance and real per capita GDP.

Table 2: Spearman's rank correlation coefficients

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) *ln*REGPC$_{i,t}$	1.000							
(2) *ln*OIL$_{i,t}$	-0.099	1.000						
(3) *ln*UNEMP$_{i,t}$	-0.305	-0.137	1.000					
(4) *ln*FDI$_{i,t}$	0.524	-0.029	-0.196	1.000				
(5) *ln*CAB$_{i,t}$	0.392	0.117	-0.304	0.271	1.000			
(6) *ln*MILITAR$_{i,t}$	-0.012	0.227	0.027	-0.032	0.035	1.000		
(7) *Ln*MORT$_{i,t}$	-0.824	0.205	0.199	-0.527	-0.283	0.090	1.000	
(8) *ln*TRADE$_{i,t}$	0.066	-0.300	-0.146	0.164	0.029	-0.285	-0.303	1.000

Table 3 presents results of a cross-sectional dependence test that examines the null hypothesis of cross-sectional independence. The Pesaran's test statistic is -1.343 with a p-value of 0.179, while the Friedman's test statistic is 22.631 with a p-value of 0.254. Since the p-values for both tests are greater than the significance level of 0.05, we fail to reject the null hypothesis of cross-sectional independence. This suggests that the variables in the dataset are not cross-sectionally related to each other and can be treated as independent variables for further analysis.

Table 3: Cross-sectional dependence

Null Hypothesis: H_0: Cross-sectional independence		
Cross-sectional independence test	**Statistics**	***p*-value**
Pesaran's test	-1.343	0.179
Friedman's test	22.631	0.254

Since we find no evidence of cross-sectional dependence, we do not conduct a second-generation unit root test. Rather, we conduct two first-generation tests, namely: Im, Pesaran, and Shin (IPS) —(Im et al., 2003) test and Levin, Lin, and Chu (LLC) (Levin et al., 2002) test. Table 4 presents the results of the unit root test for the variables included in the analysis. The IPS and LLC tests are used to determine whether the variables are stationary at levels or first differences. If the *p*-value is less than 0.05, the null hypothesis of a unit root is rejected, indicating that the variable is stationary. Based on the table, *ln*OIL$_{i,t}$, *ln*UNEMP$_{i,t}$, *ln*FDI$_{i,t}$, *ln*CAB$_{i,t}$, *ln*MILITAR$_{i,t}$, and *ln*TRADE$_{i,t}$ are stationary at levels (I(0)). The log of Real per capita GDP had a p-value greater than 0.05 in the case of IPS W-statistic, suggesting non-stationarity. We address this issue by taking the first difference of this series to make it stationary.

Table 4: Unit root test

	IPS unit root test		LLC unit root test		
	At level	1st difference	At level	1st difference	
	Statistic	Statistic	Statistic	Statistic	Decision
lnREGPC$_{i,t}$	-0.647	-12.896***	-9.868***	-5.305***	I(1)
lnOIL$_{i,t}$	-5.846***		-6.688***		I(0)
lnUNEMP$_{i,t}$	-7.082***		-6.153***		I(0)
lnFDI$_{i,t}$	-9.714***		-6.401***		I(0)
lnCAB$_{i,t}$	-7.326***		-4.941***		I(0)
lnMILITAR$_{i,t}$	-4.482***		-7.011***		I(0)
LnMORT$_{i,t}$	-0.001	-7.674***	-9.773***		I(1)
lnTRADE$_{i,t}$	-2.118**		-4.794***		I(0)

Note: I(0) implies that the respective variable's series is stationary at levels or integrated of order zero. I(1) implies that the respective variable's series is stationary at first difference. *** and ** indicate statistical significance at 1% and 5%, respectively.

Main Results

The findings of the various regression models examining the association between Real per capita GDP and its determinants are displayed in Table 5. The primary focus of our study is the integrated model presented in Column 1. This model incorporates both cross-sectional and period fixed effects and aims to investigate the correlation between Real per capita GDP and several independent variables. The Real per capita GDP, which is the dependent variable, exhibits a significant positive correlation with its own lagged value. The findings indicate that there exists a statistically significant negative impact (-0.028) of Oil rents on Real per capita GDP, indicating that a reliance on oil rents may have detrimental consequences on the growth of the economy. The findings indicate that a marginal rise of 1% in oil rent is linked to a reduction of roughly 0.03% in the Real per capita GDP. The observed inverse correlation between the increase in real GDP per capita and oil rent serves as empirical support for the phenomenon known as the oil curse. This discovery aligns with analogous research in the academic literature "—(Majumder et al., 2020).

The findings of the model indicate that trade openness exerts a statistically significant positive impact, thereby corroborating the notion that trade can foster economic growth. The coefficient of the Trade openness*Oil rent interaction term is statistically positive, indicating that in nations with greater trade openness, the detrimental impact of oil rents on economic growth is comparatively less pronounced. The data indicates that there exists a significant negative correlation between military spending and Real per capita GDP, whereas a significant positive correlation is observed between Infant mortality rate and Real per capita GDP. The statistical analysis reveals that the variables of Unemployment rate, Foreign direct investment, and Current account balance do not exhibit significant impacts on the Real per capita GDP. The coefficient of determination, denoted by R-squared, has a value of 0.416, which suggests that the model accounts for 41.6% of the variability observed in Real per capita GDP.

Table 5: Regression results of the relationship between Real per capita GDP and its determinants for a sample of 92 countries for the period between 1980 and 2020.

Dependent variable: Real per capita GDP						
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Combined cross-section and period fixed model	Pooled OLS Model	Cross-section fixed effects model	Cross-section random effects model	Period fixed effects model	Period random effects model
*ln*REGPC$_{i,t}$	0.351***	0.436***	0.319***	0.436***	0.467***	0.467***
	(0.019)	(0.019)	(0.020)	(0.019)	(0.017)	(0.017)
*ln*OIL$_{i,t}$	-0.028**	-0.024***	-0.031**	-0.024***	-0.017**	-0.017**
	(0.012)	(0.008)	(0.014)	(0.008)	(0.007)	(0.007)
*ln*UNEMP$_{i,t}$	-0.002	0.001	-0.002	0.001	0.000	0.000
	(0.002)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)
*ln*FDI$_{i,t}$	-0.001	0.002***	0.002**	0.002***	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
*ln*CAB$_{i,t}$	-0.001	-0.001	-0.002**	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
*ln*MILITAR$_{i,t}$	-0.017***	-0.003*	-0.026***	-0.003*	-0.003**	-0.003**
	(0.004)	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)
*Ln*MORT$_{i,t}$	0.010**	0.005***	0.028***	0.005***	0.001*	0.001*
	(0.004)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
*ln*TRADE$_{i,t}$	0.014***	0.005***	0.028***	0.005***	0.003**	0.003**
	(0.004)	(0.002)	(0.005)	(0.002)	(0.001)	(0.001)
*ln*TRADE$_{i,t}$* *ln*OIL$_{i,t}$	0.007**	0.006***	0.008**	0.006***	0.004**	0.004**
	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Constant	-0.062**	-0.020**	-0.149***	-0.020**	-0.021**	-0.021**
	(0.025)	(0.009)	(0.024)	(0.009)	(0.010)	(0.010)
Year Fixed Effect	Yes				Yes	Yes
Observations	2,551	2,551	2,551	2,551	2,551	2,551
R-squared	0.416	0.212	0.184			
Num. of Countries	92	92	92	92	92	92

Note: Combined model in column 1 is the cross-section and period fixed model.

The results for the effects of oil rents, trade openness, and their interaction term are statistically significant (p = .01 or 0.05) and consistent with different time and country fixed effect and random effect models (see Columns 2 to 6). Next, we examine the Real per capita GDP impact of a marginal increase in oil rent. Marginal effect, a concept commonly used in regression analysis, explains how the dependent variable changes when a specific explanatory variable changes. It measures the instantaneous rate of change in the case of continuous variables. Following Majumder et al. (2020), we apply the following equation:

$$\frac{d(\Delta lnREGPC_{i,t})}{d(lnOIL_{i,t})} = -0.028 + 0.014\ (Trade\ openness) \qquad 2$$

The oil curse is weaker when the level of trade openness is higher. The coefficient of oil rent is –0.028, but when the interaction term's value is added, the value of the coefficient becomes smaller (–0.028 + –0.014 = –0.014 < –0.028). Statistically, we can observe that the resource curse decreases by 50% with the opening to trade. This finding is consistent with recent literature that investigate the moderating role of trade in resource curse context "—(Arezki & van der Ploeg, 2011; Majumder et al., 2020).

Conclusion

The objective of this investigation was to reassess the paradox of the resource curse through an examination of the moderating influence of trade openness on the correlation between oil rents and economic growth. Various dynamic panel data models were employed to analyse data from 92 countries spanning the time period of 1980 to 2020. The findings of our study reveal a correlation between oil rent and real per capita GDP that is inverse in nature. This suggests that nations with substantial oil rents may encounter unfavourable impacts on their economic growth, which aligns with the notion of the oil curse. The results of our study indicate that a rise of 1% in oil rent is linked to a reduction of roughly 0.03% in actual per capita GDP. The observed inverse correlation between the increase in real GDP per capita and oil rent serves as substantiation for the existence of the oil curse. This discovery aligns with analogous research in the academic literature.

Conversely, our research reveals that the degree of trade openness exhibits a statistically significant and favourable impact on the growth of the economy, in line with the notion that trade can foster economic growth. Furthermore, our findings indicate that the adverse impact of oil rents on economic growth is comparatively mitigated in nations that exhibit greater trade openness. The aforementioned proposition suggests that the adoption of trade liberalization policies can serve as a viable strategy to alleviate the adverse effects of oil rents on a nation's economic growth, thereby enabling them to evade the detrimental consequences of the oil curse. The study reveals that there exists a statistically significant negative correlation between military spending and real per capita GDP, and a statistically significant positive correlation between infant mortality rate and the same. Nevertheless, it is worth noting that certain exogenous factors, such as the unemployment rate, foreign direct investment, and current account balance, do not exhibit any statistically significant impact on the actual per capita GDP.

These findings hold implications for the formulation of policies. The findings of this study suggest that policymakers in nations that heavily depend on oil rents as a means of economic growth may benefit from enhancing their degree of trade openness. This measure could potentially mitigate the adverse effects of oil rents on economic growth. The aforementioned objective could be attained by enacting policies that are designed to curtail trade barriers, engaging in negotiations with other nations to establish trade agreements, and broadening the

economic base to mitigate reliance on oil rents. Through the implementation of these policy measures, nations can mitigate their vulnerability to the adverse impacts of the oil curse and foster persistent economic development.

Drawing from the findings of this investigation, a number of recommendations for prospective research endeavours can be posited. Subsequent research endeavours may delve into the underlying mechanisms by which trade liberalization ameliorates the adverse impacts of oil rents on the growth of the economy. This may entail an examination of the distinct trade policies or institutions that enable trade and their interplay with oil rents. Subsequently, further investigation may be warranted to explore the potential impact of additional variables, such as political institutions or environmental policies, on the correlation between oil rents and economic growth. Subsequently, forthcoming research endeavours may delve into the plausible non-linear associations among oil rents, trade liberalization, and economic advancement. The potential correlation between oil rents and economic growth could potentially exhibit variability contingent upon the degree of trade openness or other variables. Linear models may not fully encapsulate such relationships. Subsequent research endeavours may concentrate on contrasting the impacts of oil rents on the advancement of the economy among diverse regions or cohorts of nations. The investigation may provide insight into the degree to which the adverse consequences of oil rents are accentuated in specific contexts or regions and may offer guidance for the development of measures designed to foster sustainable economic expansion in these locales.

In general, this research adds to the current body of knowledge by emphasizing the significance of trade liberalization in alleviating the resource curse phenomenon. It also demonstrates the moderating impact of trade openness in mitigating the adverse consequences of oil revenues on economic growth. Furthermore, it proposes recommendations for policymakers in resource-rich nations to alleviate the resource curse.

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