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Good governance: does it improve manufacturing export in resource-rich countries?

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Resource-rich countries experience a slow development rate in manufacturing sectors compared to countries with scarce resources. it has been a challenge to demystify the slow development in manufacturing sectors in those countries, therefore this study aimed to develop an efficient model to estimate the effects of good governance and natural resource rents on the performance of manufacturing export in countries endowed in natural resources. In this study world bank data for the year, 2000 to 2016 and the panel data model from 14 countries rich in natural resources were used alongside the six dependent variable indices including good governance, natural resource rents, real exchange rate, and gross domestic product (GDP). The results revealed that an increase in natural resources (NR), rule of low (RL), control of corruption (CC) as well as a reduction in inflation (INF) in countries under investigation will lead to increase in Manufacturing export. As well as an increase in Real Exchange Rate (RER) will lead to a reduction in the Manufacturing export of these countries. Hence demystify the slow development rate in manufacturing sectors in resource-rich countries.

Keywords: Good governance, Manufacturing export, Resource-rich countries

1. Introduction

The study has shown the most important component of the industrial sector that has the greatest opportunities for sustained growth, employment creation, and poverty reduction is the manufacturing sector (UNCTAD 2011). The vital role of manufacturing in the economic development process can be explained by various factors. The main source of innovation in modern economies attributed to manufacturing (Gault–Zhang 2010). The research and development activities of manufacturing sectors have been an important source of technological development in the economy (Shen–Dunn–Shen 2007). Manufacturing is important for innovation and technology diffusion and spill-over effects on other economic sectors. Manufacturing firms are important consumers of banking, transport, insurance, and communication services; they provide demand stimulus for the agricultural sector.

Studies have also shown the manufacturing can offer more opportunities for employment creation when compared with primary goods, the prices of manufactured goods are less volatile and the demand for manufactured goods increases with income, suggesting that manufacturers offer more opportunities for export market growth.

Despite the aforementioned benefits of manufacturing, so far resource-rich countries' manufacturing sector performance has been disappointing. This is due to insufficient information to decipher an increase in foreign currency incomes from a natural resource, in the presence of inefficient institutional framework and dysfunction of manufacturing sectors, rather increasing industrialization and

economic growth than being natural resources curse. Therefore this study aims to aim of this study was to develop an efficient model to estimate the effects of good governance and natural resource rents on the performance of manufacturing export in countries endowed in natural resources.

The rest of this paper is organized as follows in Section 2 we present the material and methods including the data descriptive statistics, statistical universe and period for model estimation and model estimation method Section 3 we present the results which include probability test, Fix And Random Effects Test; Correlation Analysis For Relationship Between the Model Variable; Cross-Section and Period Effects Test; Overal model Estimation of Institutional Good Governance Indexes. Section 4 discusses the results and finally, we give a conclusion.

2. Material and methods

2.1. Data Descriptive Statistics

In this study, we used the world bank dataset of 14 middle-income countries (Algeria, Azerbaijan, Angola, Chile, Iran, Kuwait, Uzbekistan, Malasia, Libya, Oman, Romania, Saudi Arabia, Turkmenistan, and Turkey). World Bank and international country risk guides (ICRG) are among the most important organization's statistics and indices of which are used in different papers and for studying institutions' effects. World Bank indices were first measured by Kaufmann, Kraay and Zoida-Lobaton (1999), and annually from 2002 to 2016. For general descriptive statistics and model estimation of the panel data we useStata (11.0) and Eviews (7.0) software was used to estimate the model. Table 1: Summarise the general descriptive statistics of the world bank panel data for the year 1998 to 2009.

Table 1 Annual data: 1998–2009

Variable	Std. dev	Mean	Min	Max	Source
ME	29.50	46.50	1.20	85.23	World Bank
I	0.50	–0.09	–1.17	0.80	World Bank
GDP	5.19	5.25	–14.70	34.50	World Bank
RE	1562.30	462.10	0.03	9945.08	World Bank
INF	11.20	8.18	–1.12	84.64	World Bank

Note: ME: Manufacturing Export; I: Institutional quality; GDP: Gross Domestic Product; RE: Real exchange rate ; INF: Inflation: N= 14; Observatios=137
Source: Author's calculation

2.2. The statistical universe and period for model estimation

In the current study statistical universe used for the model, estimation includes 14 resource-rich countries. The panel data related to six indices of good governance was for the period between 2000–2016. This was based on the in which the score ranging from –2.5 to 2.5 was considered for this study.

2.3. Model Estimation Method

To examine the impact of the institutional quality indices on manufacturing export it is necessary to consider the effect of other price factors affecting manufacturing export as well. So in addition to good governance, variables of gross domestic product, inflation, and exchange rate are included in the model. Considering the theoretical bases and research background for estimating the extent of institutional quality on manufacturing export, the model used is:

$$ME_{it} = \beta_0 + \beta_1 NR_{it} + \beta_2 I_{it} + \beta_3 NR_{it} * I_{it} + \beta_4 REER_{it} + \beta_5 GDP_{it} + \beta_6 INF_{it} + u_{it}$$

Where $\mathbf{ME_{it}}$ manufacturing export (% of merchandise export); $\mathbf{NR_{it}}$is total natural resource rents(% of GDP); $\mathbf{I_{it}}$represents the six measures for institutional quality hence the interaction term of $NR_{it}$and $I_{it}$is included to examine the hypothesis of the natural resource curse ; $\mathbf{REER_{it}}$is real effective exchange rate; $\mathbf{GDP_{it}}$ and $\mathbf{INF_{it}}$

$\mathbf{REER_{it}}$is a real exchange rate defined as the nominal exchange rate included in the difference between inflation rates of countries and can be used as an index for competitiveness among countries (Kipici–Kesriyeli 2000).

$\mathbf{INF_{it}}$ is the inflation rate which is a continuous and sustainable increase in the general price level or continuous and sustainable decrease in monetary value (Makinen 2003).

GDP is a measure of market size.

$\mathbf{I_{it}}$ is a weighted average of six indices of governance: 1) voice and accountability 2) political stability and absence of violence 3) government effectiveness 4) regulatory quality 5) rule of law 6) control of corruption (Kazi–Shah 2008). To calculate the weighted average of good governance indices, the factor analysis method was used. The method was first proposed by Karl Pearson (1901) and Charles Spearman (1904) when measuring intelligence and is a statistical method for discovering the relations between variables contracting different autocorrelated variables in the model in smaller sizes (factors). SPSS (11.5) software was used for this study.

3. Results

3.1. Probability test

The conventional F-Limer test is used for selecting the appropriate approach (panel vs. Pooled).

Test 1 The results of choosing the appropriate approach

Test	CC	RL	RQ	GE	PS	VAA
F-Limer	30.56***	31.43***	29.91***	46.16***	30.77***	17.71***

Note: ***, ** and * denote significance at **1%**, **5%,** and **10%,** respectively**; CC:** Control of Corruption**; RL:** Rule of Law**; RQ:** Regulatory Quality**; GE:** Government Effectiveness**; PS:** Political Stability**; VAA:** Voice and Accountability

Source: Author's calculation

Based on the results of F-Limer, they are significant in all six measures of good governance indexes. Therefore, individual cross effects are significant. According to this test, for all the six models individual cross effects are significant.

3.2. Fix And Random Effects Test

The Hausman (1978) test is applied to choose between the fixed and the random-effects models for each of the six measures.

Test 2 Hasman test for selection of fix and random effects

Test	CC	RL	RQ	GE	PS	VAA
Hausman Coefficient	31.83***	10.88*	49.71***	37.45***	8.32	1.71

Note: ***, ** and * denote significance at **1%**, **5%,** and **10%,** respectively**; CC:** Control of Corruption**; RL:** Rule of Law**; RQ:** Regulatory Quality**; GE:** Government Effectiveness**; PS:** Political Stability**; VAA:** Voice and Accountability

Source: Author's calculation

Based on results, in the first four models, the Hausman test is significant and therefore its null hypothesis stating the model is random would be rejected, contrary to that, it is not significant in the last two models and therefore random effects would be the estimation approach for these two models.

3.3. Cross-Section and Period Effects Test

In this study, we further conducted the numerous tests to examine if the model can predict or adopt the cross-section or period effects or both of them to establish if the proposed estimation model is a one-way or two-way model. In this case, we consider the Breusch-Pagan test, F (chow), and LR test (Baltagi 2008) where F (chow) test was considered for model evaluation. The results of this analysis revealed had probability values were Zero in the three cases thus the null hypothesis on in each case hence effects on cross-sections (countries) and periods (years) or a two-way model are supported by zero probability all cases. Table 3 summarises the results for effects in cross-sections and periods.

Table 3 Cross-Section and Period Effects Test Results

Test	Variable	Freedom	Probability
F CROSS	563.12	(13,110)	0.0000
Chi-squared test Cross	577.17	13	0.0000
F time	13.90	(9,110)	0.0000
Chi-squared time	104.05	9	0.0000
F TIME/CROSS	344.00	(22,110)	0.0000
Chi-squared TIME/CROSS	581.653136	22	0.0000

Source: Author's calculation

3.4. Correlation Analysis for Relationship Between the Model Variable

To establish the relationship between estimated model variables we used Pearson correlation method (single tail test at 95% confidence interval). The result were presented by non-mirror correlation matrix cofficients. According to the analysis there was positive and strong relationship between Institutional quality and Manufacturing Export (r=0.63; P-value = 0.05). Similarly there was positive relationship between the inflation and Manufacturing Export (r= 0.24; P-value = 0.05). Though there was positive and low relationship between the inflation natural resource rent (r=0.07; P-value = 0.05). From this analysis we establish that relationship between the I and GDP (r= –0.23; P-value = 0.05); GDP and INF (r= –0.04; P-value = 0.05); I and INF (r= –0.10 ; P-value = 0.05); GDP and ME (r= –0.28; P-value = 0.05). As well as ME and RE (r= –0.27; P-value = 0.05) had all negative correlation coefficient hence negative relationship. Supprisingly our analysis indicated there was no statistically significant relatiobship between the GDP and RE (r=0.00; P-value = 0.05). Table 4: Summarise the relationship between the estimated model variables.

Table 4 Relationship of estimated model variables

	I	**GDP**	**INF**	**ME**	**RE**
I	1				
GDP	–0.23	1			
INF	–0.10	–0.04	1		
ME	0.63	–0.28	0.24	1	
RE	–0.37	0.00	0.07	–0.27	1

Note: I: Institutional quality, **ME**: Manufacturing Export; **RE**: Resource rents; **GDP**: Gross Domestic Product; **INF**: Inflation. **Source:** Research calculations (Stata 11.0): Correlation cofficients values for weak (<0.5), moderate (0.5) and strong (>0.6). significant at 95% IC.
Source: Author's calculation

3.5. Over all model Estimation of Good Governance Indexes and Natural Resource Rents

In the current study, it was of interest to evaluate the overall model estimation of good governance indexes on manufacturing export of the investigated resource-rich countries. The results suggest that natural resource rents lead to a shrinking manufacturing export in all models. The results are in line with the finding of Rajan and Subramanian (2011) that used paned regressions at the industry level.
The results show that most of the good governance indexes have positive effect on the manufacturing export.

The interaction term between the institutional quality and the natural resource rents reveal the negative effects of natural resource rents and institutional quality variables on manufacturing export meaning that natural resource booms bring curse for these countries.

In this case, we evaluated the coefficient values of good governance indices at a critical value of 0.01, 0.05, and 0.10 (that is the confidence interval of 99%, 95%, and 90% respectively. The real exchange rate (RER), inflation (INF) had a significantly negative impact on the manufacturing export.

From the F-statistics test, we establish that Control of Corruption, Rule of Law, Regulatory Quality, Government Effectiveness, Voice and Accountability and Political Stability play significant roles to estimate manufacturing export. In summary, this analysis supports the hypothesis that an increase in natural resources (NR), rule of low (RL), control of corruption (CC) as well as a reduction in inflation (INF) in countries under investigation will lead to increase in Manufacturing export. As well as an increase in Real Exchange Rate (RER) will lead to a reduction in the Manufacturing in these countries. Table 5 summarises the results for the overall model estimation of institutional good governance indices concerning the manufacturing export of resource-rich countries.

Table 5 Model Estimation Of Institutional Good Governance Indexes on Manufacturing Export

Coefficients	I	II	III	IV	**V**	**VI**
NR	–0.03 (0.0046)	–0.02 (0.006)	–0.06*** (0.007)	–0.05*** (0.008)	–0.07* (0.004)	–0.02* (0.005)
Good Governance Indexes:						
CC	0.57* (1.398)					
RL		5.51*** (0.767)				
RQ			0.77*** (0.675)			
PS				2.43*** (0.206)		
GE					1.52*** (0.695)	
VAA						1.86*** (0.438)
Interaction terms:						
NR*CC	–0.12* (0.0109)					
NR*RL		–0.03*** (0.001)				
NR*RQ			–0.05*** (0.002)			
NR*PS				–0.03*** (0.005)		
NR*GE					–0.05*** (0.002)	
NR*VAA						–0.22 (2.44)
RER	–0.06*** (0.006)	–0.06*** (0.004)	–0.057*** (0.007)	–0.05*** (0.005)	–0.03*** (0.003)	–0.06*** (0.005)
GDP	0.02*** (0.234)	0.01*** (0.246)	0.03*** (0.298)	0.02*** (0.225)	0.09*** (0.165)	0.04*** (2.294)
INF	–0.005*** (0.008)	–0.02*** (0.006)	–0.00*** (0.0067)	–0.01*** (0.008)	–0.02*** (0.004)	–0.00*** (0.008)
F. stat	30.46***	27.86***	25.69***	23.12***	28.40***	22.95***

Note: *, ** and *** denote significance at **1%**, **5%,** and **10%,** respectively**; CC:** Control of Corruption**; RL:** Rule of Law**; RQ:** Regulatory Quality**; GE:** Government Effectiveness**; PS:** Political Stability**; VAA:** Voice and Accountability; **NR:** Natural resource**; RER:** Real Exchange Rates**; GDP:** Gross Domestic Product**: INF**: Inflation

Note: standard errors are reported in paranthesis

Source: Author's calculation

4. Discussion

The ultimate goal of this study was to decipher mechanisms the rentier states and rent-seeking weaken the manufacturing sector in resource-abundance countries. Studies have shown that the institutional framework is a driving factor though it deviates from production and increases the transaction costs, hence deterrent. Therefore, the institutional framework that improves rent-seeking encourages scarce resources of entrepreneurship to exit productive activities and enter unproductive ones. This is importantly complicated in oil-exporting countries, due to the rent of oil exports. Studies have shown that rent-seeking activities gain priority over the more productive ones by existing ambiguous property rights, poor law enforcement, and corruption prevents consumer awareness hence creating market uncertainty contract enforcement, and raising exchange costs.

Douglass et al. 1991 demonstrated that property rights insecurity illustrate its effects in the shape of dominant behavioral patterns in three dimensions, i.e. the firms will move toward production activities which need little capital, short-term contract, and are small in scale. This implies that firms become very small in size, and organizations' capacities shaped in this framework will be too limited and little.
The abundance of natural resources raises real exchange rates and reduces industrial goods exports, and results in the reallocation of scarce capital and labor inputs from the production of manufactured and exportable final goods to the natural resource extraction industries. This leads to an increase in the production costs of other non-resource-based sectors.

From our analysis, we establish that rising exchange rates caused by the injection of oil export revenues, will increase the money supply and liquidity and ultimately will lead to increased demand and higher commodity prices. To strike a balance excess demand, there will be an increase in imports of basic consumer commodities such as agricultural and manufactured goods. Such an increase will shift factors of production of non-tradeable and less competitive sectors as well as reduce the competitiveness of domestic producers due to the higher production costs and product prices resulting from high inflation rates. Finally, international trade deficits will negatively affect the external sector of the economy. Further, the import of tradable goods (agricultural and manufactured) will reduce their prices relative to those non-tradable goods (construction and services), and lead to the labor force and capital moving toward the production of these lower value-added outputs (Bravo-Ortega–De Gregorio 2005).

5. Conclusions

In this study, we have presented the impact of good governance indices and natural resource rent on manufacturing export in resource-rich countries. Our results demonstrated that an increase in natural resources (NR), a good rule of low (RL), control of corruption (CC) as well as reduction in inflation (INF) in countries under investigation will lead to increase in Manufacturing export. As well as an increase in Real Exchange Rate (RER) will lead to a reduction in the Manufacturing export of

middle-income countries. Model estimation established that increase manufacturing export, non-economic, and non-price factors should be considered in addition to price factors. Hence price inflations have a less significant impact on the exports thus the investigated countries must consider institutional good governance indices such as control of corruption, rule of law, political stability, and managing the windfall revenue from natural resources to overcome the cursing effects of these resources. Thus this profile will provide effective institutional good governance indices to be adopted by middle-income countries.

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