



MEFMI

Macroeconomic and Financial Management
Institute of Eastern and Southern Africa

Assessing Gains from Natural Resources in the MEFMI Region



Focusing on Foreign Direct Investment
(1995-2013)

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LIST OF ACRONYMS

ACP	African, Caribbean and Pacific
AGOA	African Growth and Opportunity Act
AMV	Africa Mining Vision
AU	African Union
CSR	Corporate Social Responsibility
COMESA	Common Market for Eastern and Southern Africa
DBSA	Development Bank of South Africa
DFID	Department for International Development EIA Environmental Impact Assessment
EIR	Extractive Industries Review
EPZ	Export Processing Zones
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IMF	International Monetary Fund
MDGs	Millennium Development Goal
MEFMI	Macroeconomic and Financial Management Institute of Eastern and Southern Africa
NRR	Natural Resources Rich Countries
R&D	Research and Development
SSA	Sub-Saharan Africa
SWF	Sovereign Wealth Fund
WB	World Bank
UNCTAD	United Nations Congress on Trade and Development

EXECUTIVE SUMMARY

Natural resources have been the engine of economic growth and transformation in the 19th and the first half of the 20th century. The most notable cases include Australia (*gold, coal, natural gas and iron ore*) and Norway (*petroleum*). Of late, countries such as the United Arab Emirates, Qatar and Kuwait are using revenue from their natural resource wealth (petroleum) to build inter-generational equity, modernization of infrastructure, construction of mega tourist and commercial cities along with establishment of vibrant services sector and large scale foreign direct investment (FDI) across the world.

Massive extraction and new discoveries of natural resources in countries such as Angola, Botswana, Kenya, Mozambique, Namibia, Tanzania, Uganda, Zambia and Zimbabwe bring new growth impetus in the MEFMI region to bolster its economies and reduce poverty which is still widespread. Nevertheless, literature indicates that in spite of the natural resources bonanza during the pre-global financial crisis period, ongoing extraction and discoveries of commercially viable natural resources such as petroleum, diamond, copper and gold, a number of MEFMI's resource rich countries are still poor (*Frankel 2010, Africa Economic Outlook Report 2013 and Africa Progress Report 2013*). This paradox of plenty poses a question if the natural resource curse is prevalent in the MEFMI region.

This publication, is based on an empirical study and country experiences to assess how gains from natural resources in general, and FDI in particular, that have contributed in the improved economic growth, per capita income and government revenue in the MEFMI region. The natural resource curse puzzle, which focuses on why massive investment in mineral resources in some countries has not been effectively translated into wealth that gravitates to sustained economic growth and development, is empirically examined whether it exists. The potential channels and transmission mechanisms underlying this paradox of plenty are also explored.

This intensive assessment is expected to inform policy makers and ensure that MEFMI resource rich countries do not fall prey to the natural resource curse, but through strong institutions, the resource rents are used to promote socio-economic development. It further provides theoretical and empirical foundation, and supportive policy recommendations for aiding MEFMI member countries with tools for effectively harnessing the developmental impact of natural resources in their countries.

Based on countries' experiences and empirical findings which drew on previous work on growth and natural resources, starting with Solow (1974) to recent Neoclassical studies (Sachs and Warner (1995/1997); Sala-i-Martin

and Subramanian (2003); Isham, Woolcock, Pritchett, and Busby (2003); Eric Neumayer (2004); and Beatrice Farkas (2012). The analysis in this book rules out the prevalence of natural resource curse in the MEFMI region and that FDI in the natural resources sector plays a critical role in regional development. Below are some of the observed findings which support the conclusion:

- *Natural resources abundance was revealed to have significant positive long-term effect on the growth rate of real GDP and per capita income.* Over the last 19 years since 1995, natural resources abundance had positive impact on real GDP and per capita income growth in the MEFMI region. This suggests non-existence of any serious crowding-out effect of non-natural resource productive sectors due to expanding natural resources sector in the region. It further reflects some level of income trickle-down effects and welfare positive gains attributable to natural resources rent.
- *Long-term increasing trend of trade competitiveness.* International trade competitiveness (terms of trade) registered an increasing trend for the last eleven (11) years since 2002. This reflects, among other things, effective management of the real exchange rate amidst booms in global commodity prices and that the region has been safeguarded from adverse effects attributable to huge inflows from natural resources export proceeds.
- *Natural resource sector has been growing together with other sectors.* Non-natural resource sectors have been solid and recently (since 2009) been growing together with the natural resources sector. This finding, which was based on a sectoral analysis of contribution to total Government revenue, indicated that on average, the non-natural resources sectors have contributed over 50% of the total Government revenue in the MEFMI natural resources rich (NRR) countries for the period 1995 to 2013, while the natural resources sector contributed 41%. This pattern suggests the existence of spill-over effects of the natural resource sector into other sectors.
- *Natural resources sector contributed to financial sector development.* FDI which is mainly on natural resources sectors was found to have a positive link with financial sector development. This could, among others, be through increased FDI capital stock and accumulated retained earnings. With the reduced cost of borrowing and easy access to financial services, this may result in welfare gains and sectoral diversification through transfer of natural resources capital accumulation into other productive firms, and Small and Medium Enterprises (SMEs).
- *Countries in the MEFMI region were found to be mindful on natural resources potential and share the common strategy to enhance the contribution of*

natural resources to national development. These were manifested by a number of observed initiatives which include the following:

- a) *Establishment of stabilization and sovereign wealth funds (SWF¹) in Angola, Botswana and Zimbabwe.* The funds are intended to save for future generations and for macroeconomic stabilization.
- b) *Implementation of new acts in mining (Mozambique and Kenya).* New laws are enforced to ensure sustainable management of natural resources.
- c) *New model of production sharing agreement (Tanzania).* The model is expected to enhance government take from the extractive sector.
- d) *Beneficiation of diamond trading company (Botswana).* This enhances employment and receipts from the diamond industry.
- e) *Policies to develop downstream industries (Namibia).* These promote value addition and employment in the extractive sector.
- f) *Policies to enhance economic diversification and natural resources spillovers into other sectors and infrastructure development.* These were evidenced in most MEFMI countries, especially in Kenya through the two mega infrastructural projects that have been initiated by the Government namely; the Standard Gauge Railway (SGR) and the Lamu Port and Lamu Southern Sudan-Ethiopia Transport Corridor (LAPSSET) Infrastructural Project which will connect Kenya, Uganda, Rwanda, South Sudan and Ethiopia; in Zambia through copper industry; and natural gas in Tanzania.
- g) *Natural resources skills development programmes.* These include the scholarships on petroleum and geosciences at Masters level by the Norwegian Government to Angola and Tanzania.

Notwithstanding prudent natural resources management policies and interventions, a number of symptoms were diagnosed which may, in the long-run, push the region into a curse if they remain unaddressed. These include the observation that savings and investment are inversely related with natural resources abundance and inadequate investment in human capital. The region

¹A SWF is a fund owned by the state that is invested for future generations in various financial assets (such as shares, fixed income instruments and properties). It started in the 1950s when the Kuwait Investment Authority fund was established to invest excess oil income. In addition to other smaller funds, major funds include Abu Dhabi's Investment Authority and Norway's Government Pension Fund which were established in 1976, and 1990 respectively (SWF Institute: <http://www.swfinstitute.org/fund-rankings>).

has started paying the cost as a result of inadequate measures to address some of these critical local conditions for investment in the extractive sector. The study found negative FDI impact to GDP growth; this is in spite of massive incentive packages extended to foreign investors for years.

To address these potential loopholes for natural resources curse and enhance gains, the following recommendations are proposed:

- i. *Enhancing absorptive capacity of FDI inflows.* The region needs to strengthen its absorptive capacity entailing institutional, human capital development and technological conditions,
- ii. *Widening financial inclusion.* Positive link between FDI and financial sector development calls for policies to reduce cost of borrowing and promote access to financial services. This will facilitate transfer of FDI capital accumulation into other productive firms and SMEs,
- iii. *Economic diversifications.* Pursue policies in favor of economic diversification towards manufacturing and services sectors, which accelerate learning by doing and guarantees economic development that is sustainable,
- iv. *Deal with tax evasion and capital flight.* This entails effective tax policies to monitor and curb tax leakages such as transfer pricing and high debt/equity ratio so as to reduce tax liability. This will, among other things, involve putting in place, effective regulations to counter exploitive conduct of some FDI, and
- v. *Prudent policies.* Continue implementing prudent macroeconomic policies to guard against excessive real exchange rate volatility during booms and bust.

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SECTION ONE: INTRODUCTION

1.1. Background

Analysis in this book is based on empirical study and country experiences gathered through field visits and deliberations compiled in various MEFMI workshops and seminars. It responds to requests from MEFMI member states on appropriate policies to manage and optimize benefits from the natural resources (*Reports on MEFMI Retreat of Heads of Departments Responsible for Foreign Private Capital (FPC) Monitoring held in 2012 and 2014, respectively*). It is also in line with MEFMI's strategic focus on emerging issues of critical macroeconomic policy importance to the region.

The ground work of this publication benefited immensely from the Natural Resources Management Discussion Forum organized by MEFMI and the Norwegian Embassy in Harare, Zimbabwe on 28 May 2013 and the first hand experience from the Norway study tour conducted from 19 to 24 October 2014. It further capitalized on valuable inputs gathered during the Joint MEFMI/IMF Course on Natural Resources held in Nairobi, Kenya from 5 to 18 September 2013. Some fund counselors in this course reviewed the study proposal.

1.2. Purpose

The underlying thrust of this publication is to assess how gains from natural resources in general and FDI in natural resources in particular, have contributed to economic growth, per capita income and revenue generation in the MEFMI region. The natural resource curse puzzle which focuses on why massive investments in mineral resources in some countries has not been effectively translated into wealth that gravitates to sustained economic growth and development is empirically examined to prove it exists. The potential channels and transmission mechanism underlying this paradox of plenty is explored.

1.3. Statement of the Problem

The economic history of the last two centuries shows that during the nineteenth century and the first half of the twentieth century, several countries underwent development experiences in which natural resources seem to have been the engine of economic growth. The most notable cases include Australia and Norway (Wright 1990; and Blomstrom and Meller 1990). This suggests the need

to examine if resource rich MEFMI countries could improve their economic performance and tackle poverty which is wide spread using natural resources.

A number of countries in the MEFMI region have significantly huge deposits of commercially viable natural resources that are attracting FDI in extractive sectors. In spite of these FDI inflows into natural resources, there is strong conviction that resource rich MEFMI countries have perennially failed to induce and turn around such investments and contribute to poverty reduction and economic transformation. It is prudent, therefore, to examine the validity of these observations and empirically test the spill-over effect of FDI in natural resources to ascertain the root cause of the problem.

1.4. Justification

A number of countries in the MEFMI region have recently made discoveries of commercially viable resources, namely Lesotho, Kenya, Mozambique, Uganda, Tanzania and Zimbabwe. In tandem with increased foreign investment activities, it is prudent to start conceptualising mechanisms of breaking the potentially damaging repercussions of the natural resources curse. It therefore becomes critical to explore this paradox, with a view of informing policy and ensuring that these countries do not fall prey to the natural resource curse, but rather, through strong institutions, build capacity to ensure that member countries use the mining sector and its resource rents to promote socio-economic development. This publication therefore provides a theoretical and empirical foundation, and supportive policy recommendations for aiding MEFMI member countries with tools for effectively harnessing the developmental impact of natural resources in their countries.

1.5. Contextual Analysis

1.5.1. Natural Resources Potential in Africa and MEFMI Region

Africa is projected to expand its metal and mineral production by 78% between 2010 and 2017 compared to only 30% in South America and Asia (*US Geological Survey Updates* -www.usgs.gov). Four out of ten diamond producing countries in the world are from the MEFMI region, namely Angola, Botswana, Namibia and Zimbabwe. More than 150,000 metric tonnes of platinum have recently been discovered in the Southern African countries, including countries in the

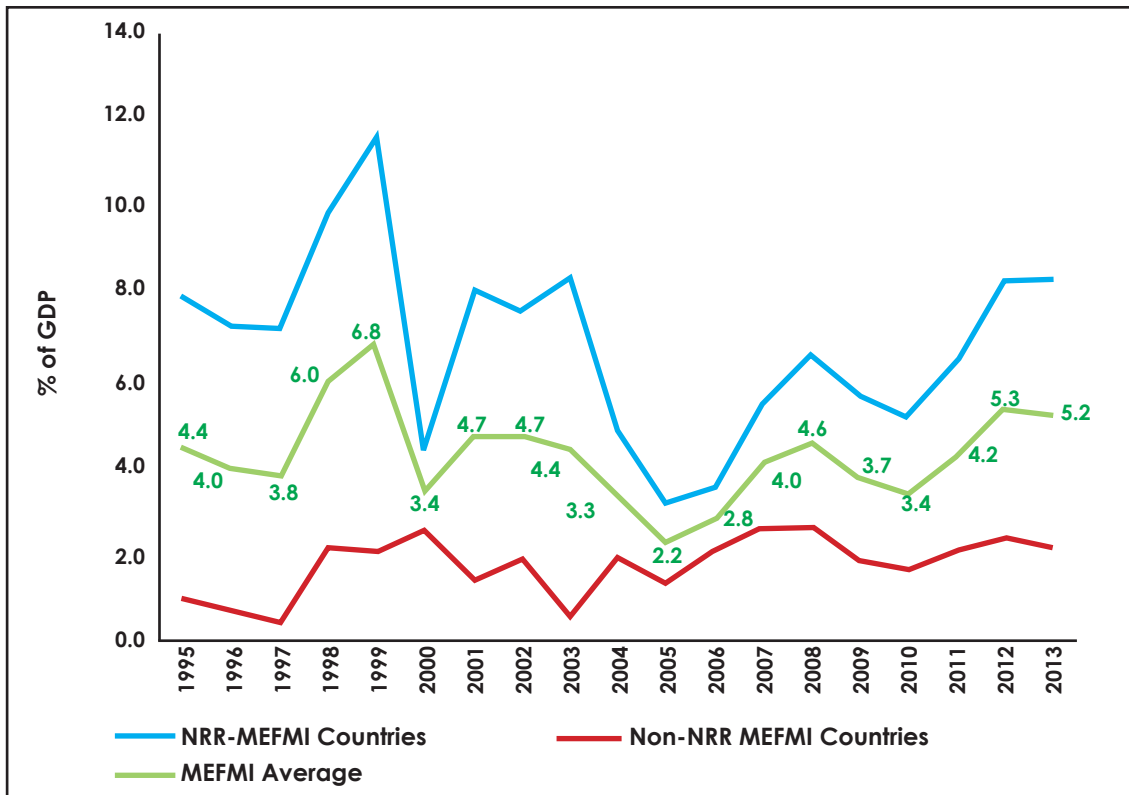
MEFMI² region such as Zimbabwe. The MEFMI region has emerged as one of the world's natural resources rich zone, with huge deposits of natural gas following discoveries in Mozambique and Tanzania; and oil in Uganda and Kenya. It is estimated that recoverable natural gas reserves in Mozambique are 85 trillion cubic feet (Tcf) and in Tanzania 18 Tcf, with another 100 Tcf projected to be found in two countries; 80 Tcf in Mozambique and 20 Tcf in Tanzania (*The Oxford Institute for Energy Studies Publication, 2013*).

Consequently, the huge natural resources endowment in Africa, and the MEFMI region in particular, coupled with improved macroeconomic policies, institutional development and political stability have resulted in a surge in FDIs in the extractive sector. Trends indicate that, albeit adverse effects of the global financial crises in 2009 through 2010, overall gross FDI flows to the MEFMI region more than doubled in 2013 to 5.2% of GDP compared to 2.2% of GDP in 2005 (**Chart 1**). The levels even stood higher at 6.8% before the global crises in 2009.

Natural resources rich countries that were the main recipients of FDI, on average, recorded over 5% of GDP over the last 19 years since 1995, while Non-NRR accounted for less than 3% of GDP over the same period. This affirms that the bulk of FDI to the region goes to the extractive sector.

²Angola, Botswana, Burundi, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

**Chart 1: Gross FDI Flows to the MEFMI Region (% of GDP):
NRR versus Non-NRR**

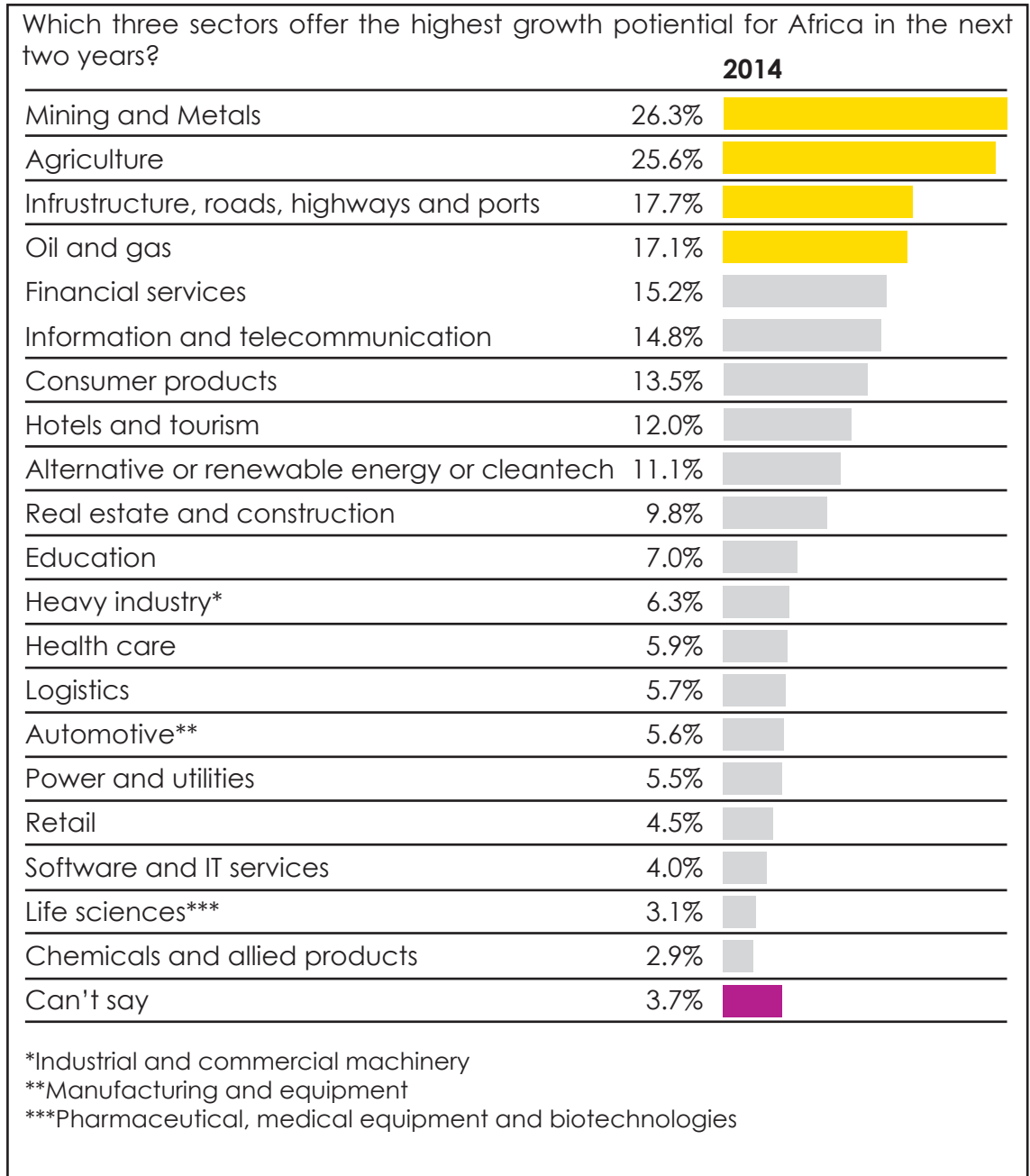


Source: Countries Data, World Bank and United Nations Congress on Trade and Development (UNCTAD) Databases.

According to Ernst and Young (EY)'s³ Africa Attractiveness Survey Report 2014, FDI driven extractive sector (mining and metals) was projected by survey respondents to offer the highest growth potential in Africa for the period of 2014 and 2015 (**Chart 2**).

³EY's attractiveness surveys are widely recognized in the region and the world over. The surveys are designed to help businesses to make investment decisions and governments to remove barriers to future growth. A two-step methodology analyses both the reality and perception of FDI in the respective country or region. Findings are based on the views of representative panels of international and local opinion leaders and decision-makers.

Chart 2: Ernst and Young (EY)'s Africa Attractiveness Survey 2014

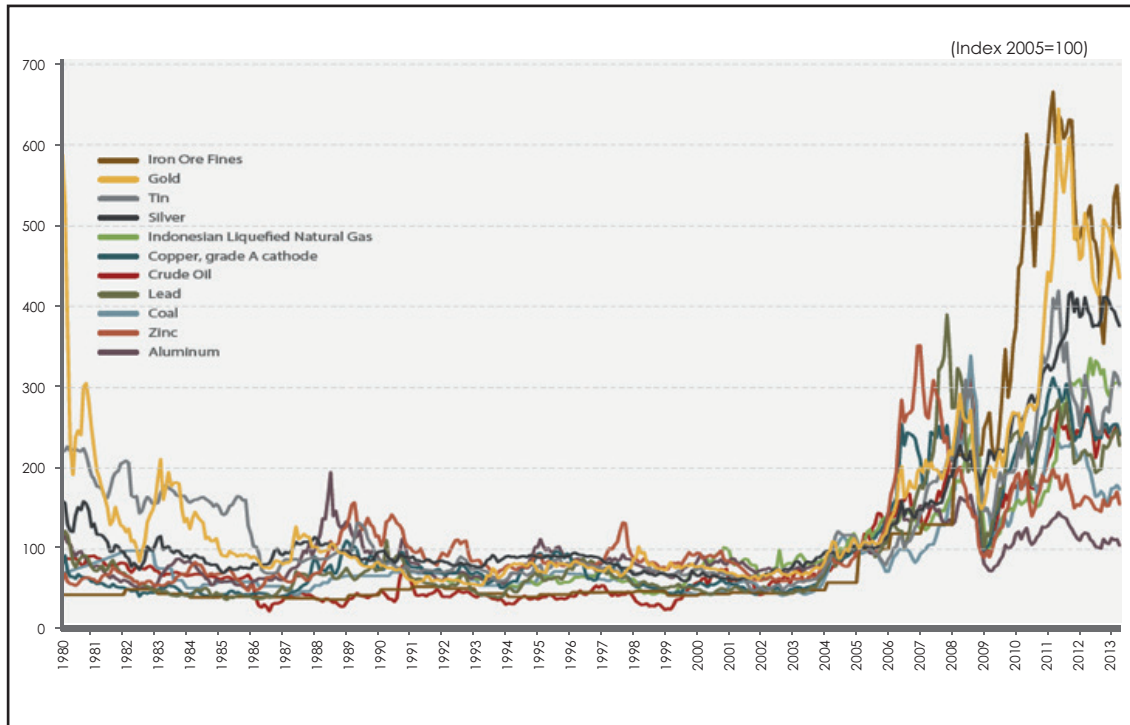


Source: EY's 2014 Africa Attractiveness Survey (total respondents: 503)

The ongoing discoveries of mineral wealth is therefore anticipated to continue being a major driver of FDI into the region and economic growth. Additionally,

improved prospects for corporate profits in the mining sector and the growing global demand, driven by increased industrialization in countries such as China, Brazil, India, Russia and South Africa, commonly known as the BRICS is equally anticipated to propel FDI growth in the region. **Chart 3** shows growth in demand for minerals.

Chart 3: Global Commodity Prices



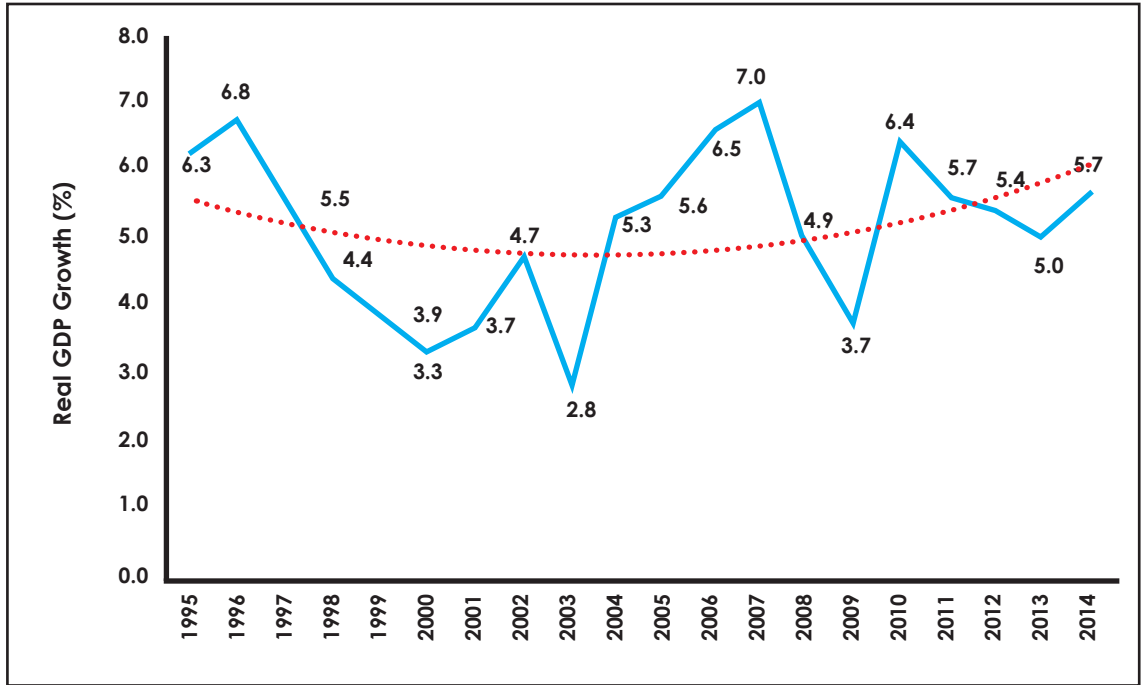
Source: World Economic Outlook October 2014.

1.6. Macroeconomic Developments in the MEFMI Region

Chart 4 below indicates development in real Gross Domestic Product (GDP) growth from 1995 to 2014 in the MEFMI region. Albeit the looming global market turmoil in industrialised countries and unfavourable geopolitical developments, including political instability in Somalia and Southern Sudan and the Ebola epidemic, average growth in the MEFMI region has remained above 5% for the last ten (10) years since 2004. The resilience in growth performance is, among other things, attributable to increased investment in natural resources extraction and exploration, particularly metals, oil, natural gas, as well as infrastructure development. Favourable external financial conditions, as well as reduced financial transactions cost have allowed access to Eurobonds by a number of

MEFMI countries. This international financing window is expected to further bolster regional economic growth.

Chart 4: Estimates of Real GDP Growth in MEFMI Countries



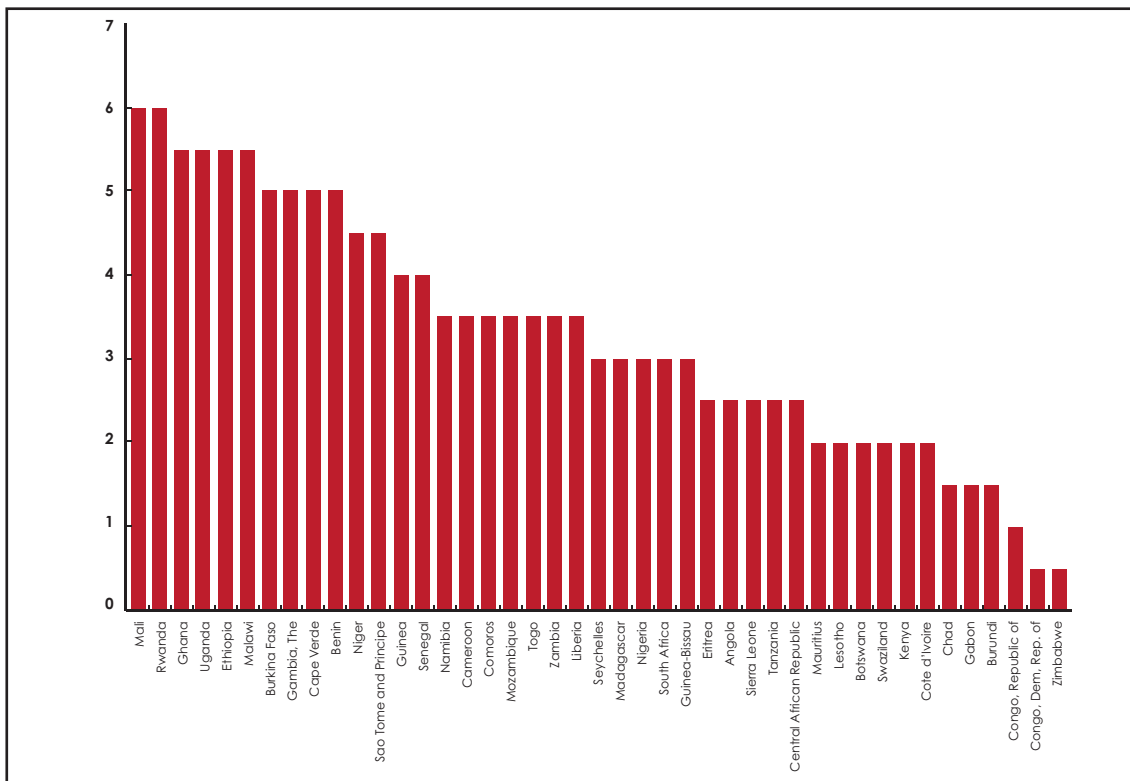
Sources: MEFMI Member Countries and IMF Database

SECTION TWO: LITERATURE REVIEW

2.1. Growing FDI in Natural Resources in the MEFMI Region: a Blessing or a Curse?

Literature indicates that in spite of proven abundant mineral and natural resources, a number of MEFMI resource rich countries have had to contend with the paradoxical paralysis of being rich and yet starved of economically emancipating growth and sustainable development (Frankel, 2010). This evidence is also provided by the Africa Economic Outlook Report (2013) which shows that by end 2012, Millennium Development Goals (MDGs) scores among resource rich countries were relatively low, ranging from 0 to 4 (**Chart 5**).

Chart 5: Millennium Development Goal (MDGs) Progress Score, 2012⁴



Source: World Bank, Africa Economic Outlook Report (2013).

⁴Note: MDG Progress Score is a summary measure of a country's rate of progress towards seven MDGs. Specifically, it is a sum across goals (whose theoretical values range from 0 to 7, maximum progress), and where each goal is assigned one of the three possible index values of 0, 0.5 and 1 based on actual progress against required achievement trajectories.

These findings, together with those on the similar subject matter (UNCTAD, 2002c:124), have raised a pertinent issue on why these massive investments in mineral resources have not been effectively translated into wealth that gravitates to sustained economic growth and development?

Whilst literature pre-supposes the potentially positive impact of natural resources wealth on a country's socio-economic landscape (Humphreys et al, 2011), such a development has eluded many natural resources rich countries, which have subsequently fared worse than countries with little or no natural resources (see *high score of above 5 MDG value by low resource countries such as Rwanda Chart 5*). This phenomenon, characterised by having plenty and yet so poor, is known as the paradox of plenty or natural resource curse⁵ (Auty, 1997). Although the natural resource curse is not considered bullet-proof (Sachs and Warner, 2001), empirical evidence has supported the curse hypothesis, thereby buttressing its efficacy (Collier and Goderis, 2007). Generally, literature seems to suggest that natural resources can be a curse or a blessing, and this largely depends on a country's ability to extract and translate mineral wealth into tangible and sustainable economic growth and transformation.

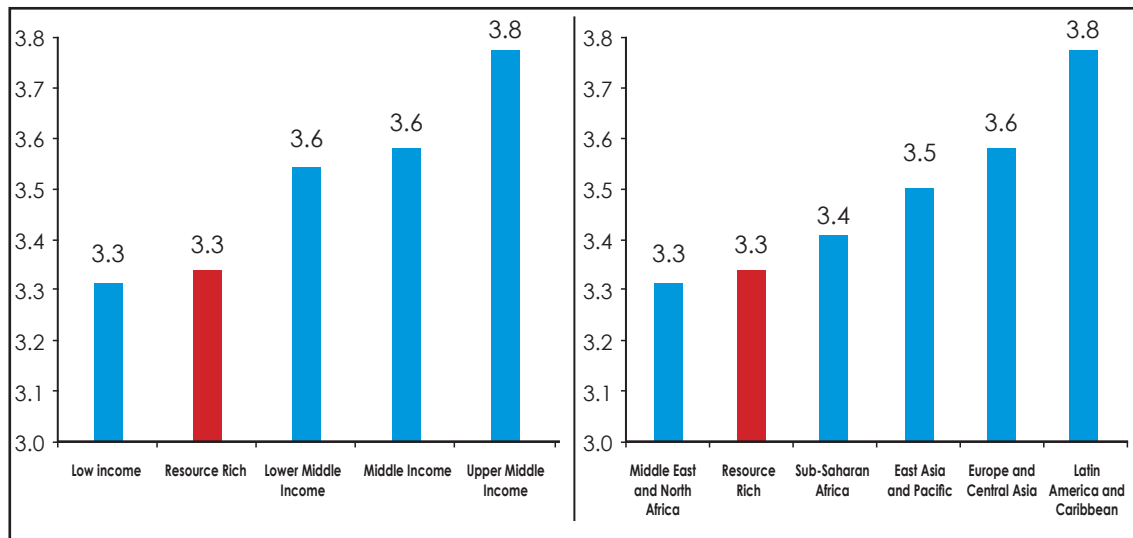
A number of questions therefore arise from the paradox. These relate to why some resource rich countries have failed to translate their mineral wealth into sustained economic growth and development while others have been successful. Other critical aspects revolve around the need to extrapolate the channels and transmission mechanisms underlying this paradox of plenty, and how resource rich countries can be configured to break the patterns of the curse.

Below are some of the responses gathered in various literature explaining the possible causes and channels of the curse.

- i. **Inefficiency in revenue mobilization.** This is pointed out by the World Bank's World Development Indicators 2011 report (**Chart 6**) as among major causes which deprive resource rich countries from realizing potential benefits from natural resources wealth. According to the indicators which look at the quality of tax system and administration, natural resource rich countries are below 3.5 of the 1-6 ranges of the World Bank's revenue mobilization efficiency index.

⁵The natural resource curse refers broadly to the tendency for resource rich countries to grow slower than others.

Chart 6. World Bank's Efficiency of Revenue Mobilization Index, 2011 (By Income Level and Geographic Region)



Source: World Bank's World Development Indicators 2011 and IMF Working Paper/15/4 (January 2014)

- ii. **Over dependence on natural resources and inadequate diversification of export commodities.** These are argued to adversely impact the Terms of Trade (TOT). According to literature, the elasticity of world demand of unprocessed natural resources with respect to world income are inelastic, relative to manufactured goods. That is, for every unit dollar increase in world income, the demand for unprocessed natural resources increases by less than one (1). Hence, in the long-run, over dependence on exports of such commodities may slowdown economic growth and would slip the region into a curse (Ivar Kolstad, 2014), (Aunt, 2001) and (Raul Prebisch, 1950).
- iii. **Dutch disease.** This has been a prominent and recurring theme in academic literature on natural resources management. It is considered as among potential channels of the natural resources curse, through loss of international competitiveness of the tradable sector (AfDB African Development Report, 2007). The loss in competitiveness is attributable to appreciation of the real exchange rate fuelled by excessive inflows of foreign exchange from natural resource exports. This revenue windfall may also trigger increase in spending which could eventually result into a rise in the demand for both tradable and non-tradable goods of the economy. While greater demand in tradable goods is met by higher imports, prices in non-tradables rises relative to tradables and consequently, resources shift from tradables to non-tradables.

iv. Weak institutions and administrative capacity. This culminates into inadequate capacity to reach better deals with investors and manage public finances and hence, misappropriation of natural resources wealth. Literature argues that, due to lack of institutional and administrative capacity, resource rich countries especially Sub-Saharan African Countries (SSA) waste substantial resources as they embark on transformation of natural resources wealth into productive human, physical and financial assets. Managerial and physical bottlenecks, weak technical expertise, and limited information often lead to poor selection and implementation of investment projects. Governance problems lead to waste and leakage of resources (Charlotte *et al*, 2013).

2.2. Natural Resources Prospects: Learning from Malaysia, Indonesia, Chile and UAE

The IMF staff released a book on “*Beyond the Curse: Policies to Harness the Power of Natural Resources*” (IMF, 2011). The publication lists four (4) countries (Malaysia, Indonesia, Chile and UAE) which were able to transform their economies from mineral dependence to other sectors through the FDI business model “sowing the oil to diversify the economy”.

- i. In **Malaysia**, the economy was diversified from being dependent on tin and rubber to agro-processing industries and heavy investment on transport, energy and communication sectors;
- ii. The case for **Indonesia** was a diversification from natural gas to wider primary sectors including modern commercial farming (such as rice and fishing) and massive production of fertilizer for domestic and export markets;
- iii. In **Chile**, it was a move from oil and copper to salmon and wine industries. Chile has gone an extra mile by establishing a Competitiveness and Innovation Fund in 2005 to support small and medium scale businesses; and
- iv. **United Arab Emirates**, transformed from oil to a business hub with the state of the art infrastructure, real estate and numerous world class service industries.

2.3. Initiatives to Improve Natural Resources Governance in Africa

It is evident that Africa is increasingly committed towards achieving good governance in natural resources management. According to Africa Progress Panel (Policy Paper, 2012), there are a number of governance related initiatives that African countries are pursuing. These include:

- a) **Africa Mining Vision (AMV⁶):** The adoption of the African Mining Vision by the AU in 2009 and of an accompanying Action Plan in December 2011, represent important steps towards beneficial and sustainable natural resource exploitation in Africa. A Mineral Development Centre is at an advanced stage of establishment at the AU/ECA. The Centre will guide implementation of the vision and plan.
- b) **The Extractive Industries Transparency Initiative (EITI):** 21 African countries are implementing the initiative, of which 18 are already deemed to comply with its standards. These include three MEFMI countries (Mozambique, Tanzania and Zambia) and 15 non-MEFMI SSA countries namely Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Democratic Republic of the Congo (DRC), Ghana, Guinea, Liberia, Mali, Mauritania, Niger, Nigeria, Republic of Congo, Sierra Leone and Togo. In addition, three (3) SSA countries are considered as candidate members which implement EITI, but not yet meet all of the requirements. These are Ethiopia, Madagascar and Senegal.
- c) **The recently passed Act by the United States Congress,** requiring US-listed companies to disclose their extractive industries payments by country and by project has strengthened the momentum created by the EITI. The EU is at a similar stage of introducing comparable rules for EU-domiciled companies. Mandatory disclosure requirements of this reach could transform the resource governance landscape in Africa.
- d) **The Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas:** This guidance, which has recently been developed by the OECD provides the first comprehensive set of government-backed recommendations to help companies respect human rights and avoid contributing to conflict through their mineral purchasing decisions and practices. In cooperation with partner countries of Africa's Great Lakes region, the World Bank and the United Nations, and the OECD are coordinating a project to ensure use of the Guidance and it's Supplement on tin, tantalum and tungsten by companies sourcing minerals from the region. Currently, 82 companies and industry associations have volunteered to take part in the project. In the second half of 2012, the OECD launched an implementation programme for the Supplement on Gold.

⁶Africa Mining Vision, advocates for "transparent, equitable and optimal exploitation of mineral resources" to achieve the envisaged "broad-based sustainable growth and socio-economic development"

- e) **The Natural Resource Charter (NRC)** is another initiative that has gained considerable traction. Drafted by an independent group of experts in economically sustainable resource extraction, the charter has been adopted by the AU Heads of State Steering Committee in 2011, endorsed by the African Development Bank (AfDB) and New Partnership for Africa's Development (NEPAD) in 2012. It is organized around 12 precepts (economic principles) of natural resource governance (**Box 1** and <http://naturalresourcecharter.org>).

Box 1: The Twelve Precepts of the NRC

1. Resource management should secure the greatest benefit for citizens through an inclusive and comprehensive national strategy, clear legal framework and competent institutions.
2. Resource governance requires decision makers to be accountable to an informed public.
3. The government should encourage efficient exploration and production operations, and allocate rights transparently.
4. Tax regimes and contractual terms should enable the government to realize the full value of its resources consistent with attracting necessary investment, and should be robust to changing circumstances.
5. The government should pursue opportunities for local benefits, and account for, mitigate and offset the environmental and social costs of resource extraction projects.
6. Nationally owned companies should be accountable, with well-defined mandates and an objective of commercial efficiency.
7. The government should invest revenues to achieve optimal and equitable outcomes, for current and future generations.
8. The government should smooth domestic spending of revenues to account for revenue volatility.
9. The government should use revenues as an opportunity to increase the efficiency of public spending at the national and sub-national levels.
10. The government should facilitate private sector investments to diversify the economy and to engage in the extractive industry.
11. Companies should commit to the highest environmental, social, and human rights standards, and to sustainable development.
12. Governments and international organizations should promote an upward harmonization of standards to support sustainable development.

Source: *Natural Resource Charter, Second Edition 2014* (<http://naturalresourcecharter.org>).

- f) **The Kimberley Process Certification Scheme** for rough diamonds, currently over ten (10) years old, is seeking to restore credibility and effectiveness of the diamond value chain.
- g) **The “Big Table” resolution in February 2007** under the auspices of the United Nations Economic Commission for Africa (UNECA) and the AfDB was on “Managing Africa’s Natural Resources for Growth and Poverty Reduction” (AU and UNECA, 2011).

SECTION THREE: METHODOLOGY

3.1 Introduction

Correlation and regression analysis are employed to examine four (4) key aspects: the presence of natural resource curse in 24 African countries including the 14 MEFMI member states; potential channels of the curse; and the effect of FDI on GDP growth and per capita income.

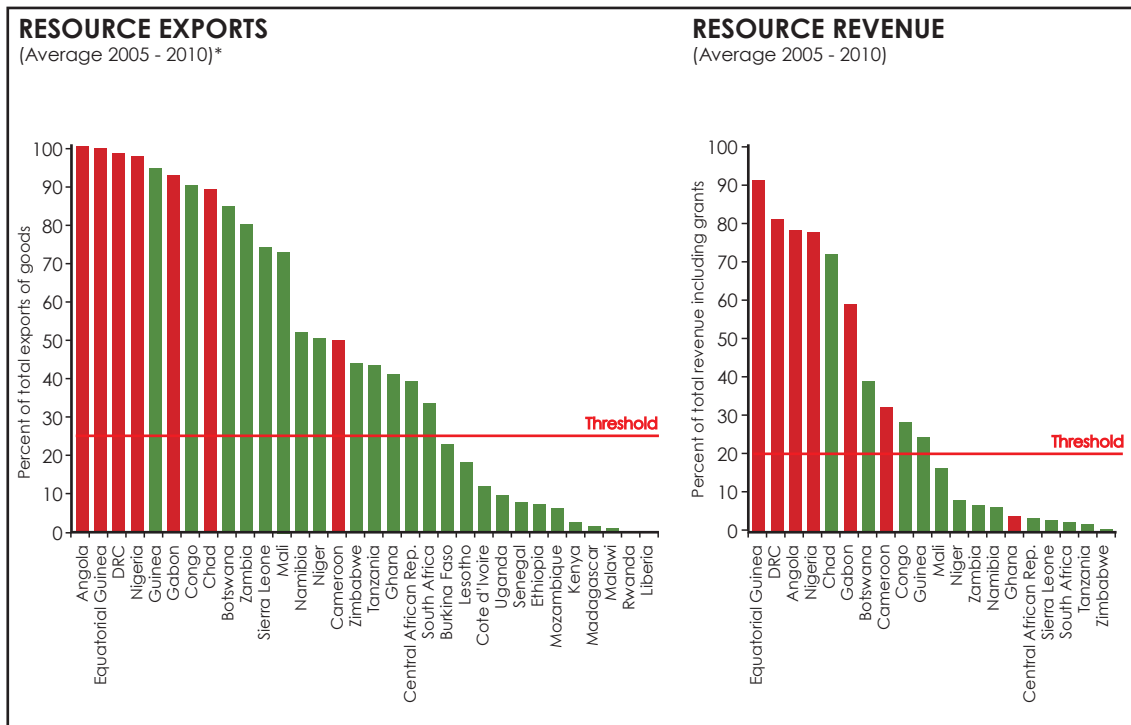
The empirical analysis is complemented by quantitative analysis and first-hand experiences in natural resources management compiled using deliberations from various MEFMI workshops, seminars and field visits to selected MEFMI countries in Southern and Eastern Africa namely; Botswana, Kenya, Namibia and Rwanda.

3.2 Data

Panel data consisting a cross-section of 24 countries, for a period of 19 years (1995-2013) is used. The large sample is necessary for effective estimation of cross-section regression models. Panel data is, among other things, used to account for countries' individual heterogeneity which could hardly be measured like cultural factors, difference in business practices across FDI companies and variables that change over time but not across countries or entities (such as national policies and regulations).

The four (4) countries visited and 24 countries for the sample were selected purposefully to ensure regional/geographical balance, natural resources intensity and economic size. The countries in the main sample comprised of 14 MEFMI member states and ten (10) non-MEFMI countries namely DRC, Ghana, Nigeria, Cameroon, Cote d'Ivoire, Ethiopia, Madagascar, Mali, Mauritius and Senegal. The sample encompassed NRR and Non-NRR countries for comparative analysis. NRR countries were selected based on the IMF thresholds provided in **Chart 7**; *i.e. countries with 25% or above of natural resources export revenue to total goods exports and 20% or above of natural resources revenue to total government revenue.*

Chart 7: NRR Countries in Africa and MEFMI Region Based on Export Revenue and Fiscal Dependence Criteria.



Source: IMF (2012), *Regional Economic Outlook – Sub-Saharan Africa and Africa Progress Report 2013*.

3.3 Model

Two regression equations are estimated using STATA to assess the prevalence of natural resources curse and impact of FDI on GDP and per capita income. Detailed description of the model is summarized in **Appendix 2**.

The two equations use ten variables, namely FDI, GDP growth, initial GDP per Capita (GDP_{95}), GDP per Capita Growth (GDPPC), Total Investment (INV), Human Capital (HCAP), Trade Openness (TRADE), Domestic Credit to Private Sector (DOMCRED), Share of Exports of Primary Products to GDP (RES) and Natural Resources Rent (RESO). Detailed summary of the variables is provided in **Appendix 1**.

Several data sources are used, namely the respective countries' data, IMF, World Bank, WTO and UNCTAD databases. Countries' data was compiled through field visits and official secondary sources. During the field visits, MEFMI team had broader exchanges with senior officials who availed valuable inputs to improve the study.

3.3.1 Assessment of Potential Curse in the MEFMI Region

The assessment on natural resources curse capitalized on previous work on growth and natural resources starting with Solow (1974) to recent Neoclassical studies (Sachs and Warner 1995/1997; Mikesell, 1997; Auty & Mikesell, 1998; Ross, 1999; Aunty, 2001; Manzano and Rigobon, 2001; Isham, Woolcock, Pritchett, and Busby, 2003; Sala-i-Martin & Subramanian, 2003); and Eric Neumayer 2004).

This literature contends that countries with natural resource curse tend to experience declining or stagnant GDP growth over time. These studies offer a diverse set of explanations for declining or stagnant growth including the prevalence of Dutch disease. Dutch disease refers to loss of international competitiveness and displacement of other domestic productive sectors due to, among other factors, appreciation of the real exchange rate attributable to inflows of natural resources export proceeds. The hypothesis underlying the Dutch disease and natural resources curse are simply elaborated in **Table 1 and Box 2**.

Table 1: Hypothesis Underlying the Natural Resource Curse and Dutch Disease

		NATURAL RESOURCE CURSE	
		NO	YES
DUTCH DISEASE	NO	<ul style="list-style-type: none"> Overall Growth in Real GDP and Per Capita Income Sectoral Diversifications 	<ul style="list-style-type: none"> Stagnant or Declining Growth Diversifications
	YES	<ul style="list-style-type: none"> Overall GDP Growth and Per Capita Income No or little Diversifications (crowding-out effect) 	<ul style="list-style-type: none"> Stagnant or Declining Growth No or little Diversifications

Source: Authors' Analysis

Box 2: Dutch Disease Scenario

In a typical Dutch disease scenario, inflows of foreign currency from mineral exports and increased domestic aggregate demand push up the prices of non-tradable goods and services. This leads to falling competitiveness among domestic firms in two ways:

1. Imported goods become relatively cheaper, thereby displacing the market for domestic producers, and
2. Domestic goods targeting international export markets become less competitive due to appreciation of the real exchange rate.

Similar demand-side pressures can arise during the earlier construction phases of a large mining project.

A parallel supply-side effect (the “resource movement” effect) can also emerge if and when skilled labour and other scarce resources are withdrawn from import-competing or other exporting activities.

Dutch disease is a particular threat to agriculture-based export industries, where the profit margins are low, so that even a small increase in production costs can make domestic producers uncompetitive on international markets.

Source: International Council on Mining and Metals-ICMM (October 2014 and 2006)

Given the above background, **Equation 1** is formulated to assess prevalence of curse by testing the effect of natural resource abundance (export of primary products as a % of GDP and natural resources rent) to real GDP and per capita GDP growth rates.

$$GROWTH_{it} = \beta_0 + \beta_1 \ln GDP_{i1995} + \beta_2 RESOURCES_{it} + \beta_3 CONTROLS_{it} + e_{it} \quad (1)$$

Notes:

- **GROWTH**_{*i* 1995-2013} = represents annual average growth rates in real GDP and per capita GDP across selected countries from 1995-2013,
- **IGDP**₁₉₉₅ = represents log of initial/baseline GDP per capita (in 1995) across selected countries,
- **RESOURCES** = stands for natural resource abundance and intensity measured using two proxies; *natural resources rent (RESO)* and *share of exports of primary products to GDP (RES)*. The study follows Sachs and Warner (1995/1997) and

uses the share of exports of primary products to GDP as a measure of resource abundance. Primary products constitute agricultural products, energy and minerals resources. Energy consists of oil, gas and coal, whereas minerals encompass bauxite, copper, diamond, iron ore, lead, nickel, phosphate rock, tin, zinc, gold and silver. Studies have shown that a large share of export of primary products to GDP is ostracized because prices of primary products are highly volatile and this has growth deterring effects (Housmann and Rigobon (2003), Blattam, Hwang and Williamson (2007), and Pollehekke and van der Ploeg (2007)). Natural resources rent (RESO) are used as proxy for natural resources intensity in order to ascertain the effects of natural resources rent.

- **CONTROLS** = is the vector of factors determining GDP growth namely; human capital (secondary school enrollment rate (HCAP)), financial development (private sector credit as a % of GDP (DOMCRED)), total investment (INV) and trade openness (log of exports plus imports as a share of GDP (TRADE)). Trade openness is also used to measure a country's restrictiveness of trade policies. Ploeg (2007) observed that the severity of resource curse is less for countries with less restrictive trade policies,
- i = stands for vector of countries,
- t = specify time period from 1995 to 2013, and
- e_{it} = represents error term.

Further to assessing the effect of natural resource intensity and abundance to economic growth, the following variables are examined to complement the findings to be derived from **Equation 1**:

- i. *The trend in international trade competitiveness among MEFMI countries (terms of trade of tradeable sectors between NRR and Non-NRR countries).* According to Prebisch et al (1950), Gelb and Associates (1988), Sachs and Warner (2001), the terms of trade is supposed to decline overtime among NRR countries, partly due to appreciation of the real exchange rate in the wake of a resource boom. In his study titled 'Does the "Resource Curse" hold for Growth in Genuine Income as Well?', Eric (2004) explains the resource curse through, among others, the long-term declining trends in terms of trade of natural resource exporters.
- ii. *Correlation between natural resources abundance/intensity (RES/RESO) and savings.* According to Gylfason et al. (2002) and Atkinson et al. (2003), a country with symptoms of natural resource curse experience negative correlation between natural resource abundance and savings rates.

3.3.2 Assessing FDI Spill-Overs

Further to understanding potential natural resource curse, FDI spill-overs are examined by testing the impact of FDI on value addition (growth rate of GDP) and growth in per capita income using the model originated by Farkas (2012), which augments Equation 2 by including a variable on share of FDI to GDP.

$$GROWTH_{it} = a_0 + a_1 IGDP_{1995i} + a_2 CONTROLS_{it} + a_3 FDI_{it} + e_{it} \quad (2)$$

Notes:

CONTROLS include the natural resource abundance/intensity variables (i.e. primary exports as % of GDP and natural resources rent). The priori expectation is that FDI would have a positive relationship with GDP and per capita income growth rates.

Further assessment on FDI spill-overs is undertaken through:

- i. Analysis on FDI contribution to Government revenue (share of natural resources rent to total GDP) in NRR and Non-NRR countries, and
- ii. Correlation analysis between FDI and various growth determinants.

3.4 Limitation

Access to comprehensive and company level data across MEFMI countries has been more limited than was originally envisaged at proposal stage. To overcome this challenge, countries data was complemented with secondary aggregate data from various sources namely the IMF, World Bank, WTO and UNCTAD databases.

SECTION FOUR: FINDINGS AND POLICY IMPLICATIONS

4.1. Introduction

This section presents key findings on correlation and regression analysis. It further validates the results in correlation and regression analysis with various quantitative analysis and MEFMI countries experiences. Detailed summary statistics is provided in **Appendix 1**.

4.2. Correlation Analysis

To check for multicollineality, correlation analysis was run across the variables used in the study. The results in **Tables 2, 3, 4 and 5** show mild multicollineality as evidenced by weak correlation of the explanatory variables. These are tolerable levels, given the number of observations of 418; hence it allows one to ascertain the individual role of each predictor on the dependent variable. Correlation coefficients are presented and compared in scenarios excluding GDPPC and RESO versus excluding GDP and RES.

Further to testing for multicollineality, the correlation analysis was used to carry out preliminary diagnostic analysis on prevalence of natural resources curse, potential channels and FDI spillovers by looking at relationships of some variables. Correlations for eight variables were observed under this test:

- i. **Natural resource abundance and human capital development.** In both samples (Full and MEFMI), the correlation for these two variables turned out negative; -0.1 for full sample and -0.09 for MEFMI countries (Tables 2 and 4). This implies resources abundance in the region is associated with low investment on human capital. Unless this pattern is reversed, may cause natural resources curse in the long run.

Table 2: Full Sample (Excluding GDPPC and RESO)

	FDI	GDP	GDP95	INV	RES	HCAP	DOMCRED	ITRADE
FDI	1.00							
GDP	0.02	1.00						
GDP95	-0.01	-0.03	1.00					
INV	0.57	0.08	0.01	1.00				
RES	0.13	0.15	-0.03	-0.21	1.00			
HCAP	-0.10	-0.24	-0.10	-0.03	-0.10	1.00		
DOMCRED	-0.02	-0.08	-0.04	0.16	-0.11	0.63	1.00	
ITRADE	0.42	0.13	0.00	0.31	0.37	-0.07	0.15	1.00

Table 3: Full Sample (Excluding GDP and RES)

	FDI	GDP	GDP95	INV	RESO	HCAP	DOMCRED	ITRADE
FDI	1							
GDPPC	0.06	1						
GDP95	-0.01	-0.03	1					
INV	0.57	0.13	0.01	1				
RESO	0.10	0.18	0.004	-0.15	1			
HCAP	-0.10	-0.12	-0.10	-0.03	-0.18	1		
DOMCRED	-0.02	0.05	-0.04	0.16	-0.36	0.63	1	
ITRADE	0.42	0.18	0.004	0.31	-0.04	-0.06	0.14	1

Table 4: MEFMI Countries (Excluding GDPPC and RESO)

	FDI	GDP	GDP95	INV	RES	HCAP	DOMCRED	ITRADE
FDI	1							
GDP	-0.02	1.00						
GDP95	0.03	0.01	1.00					
INV	0.62	-0.01	0.08	1.00				
RES	0.12	0.15	-0.03	-0.30	1.00			
HCAP	-0.17	-0.38	-0.08	-0.14	-0.09	1.00		
DOMCRED	0.01	-0.22	-0.03	0.08	-0.12	0.54	1.00	
ITRADE	0.43	0.13	0.01	0.29	0.36	-0.24	0.08	1.00

Table 5: MEFMI Countries (Excluding GDP and RES)

	FDI	GDP	GDP95	INV	RESO	HCAP	DOMCRED	ITRADE
FDI	1.00							
GDPPC	0.04	1.00						
GDP95	0.03	0.00	1.00					
INV	0.62	0.06	0.08	1.00				
RESO	0.08	0.25	0.001	-0.17	1.00			
HCAP	-0.16	-0.31	-0.08	-0.14	-0.15	1.00		
DOMCRED	0.01	-0.11	-0.02	0.08	-0.36	0.53	1.00	
ITRADE	0.43	0.21	0.01	0.29	0.0003	-0.24	0.08	1.00

- ii. **Natural resources rent and human capital development.** The study further examined correlation between natural resources rent and human capital development. The outcomes corroborate with (i) above; -0.18 for the full sample and -0.15 for MEFMI countries (Tables 3 and 5). This implies that an increase in natural resources rent reduces private and public incentives to accumulate human capital. This disincentive could be explained by the high level of non-wage income such as dividends, social spending, low taxes and corruption. This pattern is contrary to regions which successfully managed their natural resources wealth such as Scandinavian/Nordic countries (Bravo-Ortega, J. De Gregorio and D. Paraguay 2005, MEFMI Report 2014). Unless this pattern in the region is reversed, it will slow down economic growth and translate into natural resources curse.
- iii. **Natural resources rent and investment.** Correlation for these two variables was -0.15 in full sample and -0.17 in MEFMI countries (Tables 3 and 5). Similar findings were found between total resources abundance and investment (Tables 2 and 4). The inverse relationship between investment (*gross fixed capital formation*) and natural resources intensity reflects mild diminishing returns to labor and capital which take its course as natural resources are non-renewable. This may also mean prevalence of the mild Dutch disease associated with appreciation of the real exchange rate, resulting into reduced international competitiveness. Unless these channels are managed, it can impede economic growth in the long-run and may result in serious natural resources curse.
- iv. **Natural resources rent and savings.** Correlation analysis between savings and natural resources intensity for full sample and MEFMI countries was -0.02 and -0.12, respectively. These findings, though modest, suggest that revenues from natural resources extraction are inadequately translated into savings. Generally, findings in (iii) and (iv) contradict with the best practices to manage natural resources, that in order for resource endowments to be sustainable as

well as have a positive effect on economic growth, they need to be saved or invested rather than consumed (Auty, 2007), (Humphreys, Sachs, & Stiglitz, 2007) and (Torvik, 2007).

- v. **Natural resources rent and financial sector development (domestic credit to private sector).** Correlations for natural resources rent and financial sector development was found to be -0.36 for both full sample and MEFMI countries (Tables 3 and 5). This implies that the actual amount of funds routed into the private sector (*to be spent for investment and growth*) diminish as natural resources rent increases. This finding corroborates with the finding in summary statistics (**Appendix 1**), which shows relatively low average credit to private sector for the region of 18% of GDP, far below the average threshold of 60% of GDP for developing countries and over 200% for developed countries. These findings, though mild, affirm that the financial system in the region is not developed enough to channel the returns from natural resources revenue into other highly productive sector, long-run drivers of economic growth.
- vi. **FDI and GDP growth.** Correlation of FDI and GDP growth for MEFMI countries was negative 0.02. The negative relationship may be attributable to a number of factors including FDI crowd-out effect of some domestic productive sectors with significant contribution to GDP. As observed in (i) and (ii), competition for limited human capital may crowd-out weak domestic sectors, which cannot afford to offer competitive wages.
- vii. **FDI and human capital development.** The findings show that the two variables are inversely related, implying that FDI activities in the region may be capital intensive and/or largely depend on foreign workers. This is not an ideal situation as for the FDI (at plant level) to diffuse new technologies and skills into the host country require a critical mass of developed human capital.
- viii. **FDI and Financial Sector Development.** Assessment in the MEFMI region shows that FDI inflows and financial sector development are positively correlated (0.01). This could be through increased FDI capital stock and accumulated retained earnings. With reduced cost of borrowing and ease of access to financial services, this may result into welfare gains and sectoral diversifications through transfer of natural resources proceeds into other productive firms and SMEs.

4.3. Regression and Other Quantitative Analysis

Regression analysis⁷ is employed to ascertain statistical significance of some of the findings observed in the summary statistics in **Appendix 1** and correlation analysis in **Sub-section 4.2**. It further tests the effect of natural resource abundance on economic growth in general and per capita income.

4.3.1. Natural Resources and Economic Growth: Assessing Potential Curse

a) Real GDP Growth: The study assessed the effect of natural resource abundance (primary exports as % of GDP) on real GDP growth. The purpose was to test whether natural resource abundance (agriculture, forestry, oil and minerals) stunts growth in the region with specific attention to MEFMI countries. The findings for both full sample and MEFMI indicate natural resource abundance is associated with positive effect on GDP growth. While the coefficient for natural resource abundance (RES) in full sample was insignificant, for the MEFMI region, it was statistically significant at 5% level; indicating that, a 1% increase in natural resource abundance increases real GDP in the MEFMI region by 0.1%. These findings, which are based on the Sachs and Warner (1995, 1997 and 2001) approach, rule out prevalence of natural resources curse in the MEFMI region (**Table 6**).

Table 6: Real GDP Growth and Natural Resource Abundance

Dependent Variable = Real GDP Growth		
Explanatory Variables:	Full Sample	MEFMI
GDP95	0.0800 (0.547)	0.761 (0.673)
INV	0.0158 (0.0261)	-0.00739 (0.0363)
ITRADE	1.111 (1.723)	-1.553 (1.527)
RES	0.0886 (0.0730)	0.104** (0.0447)
HCAP	0.0403 (0.0289)	0.0767** (0.0348)

⁷In order to avoid heteroscedasticity and the related bias problem, the study employed heteroscedasticity-robust standard errors.

Dependent Variable = Real GDP Growth		
Explanatory Variables:	Full Sample	MEFMI
DOMCRED	-0.0570 (0.0370)	-0.109* (0.0555)
Constant	-1.993 (6.619)	8.504 (5.673)
Observations	383	211
R-squared	0.048	0.066
Number of countries	22	12

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

b) Real GDP per Capita Growth: The study further examines the effect of natural resources rent-RESO (entailing tax revenue and royalties) on income. The findings in from both full sample and MEFMI indicate that natural resources rent is associated with positive effect on people income (GDP per capita). In the MEFMI region, where results are significant at 1% level, a 1% increase in natural resource rent increases per capita income by around 0.07%. This reflects some level of trickledown effects and welfare positive gains attributable to natural resources revenue in the MEFMI region.

Table 7: Real GDP per Capita Growth and Natural Resources Rent

Dependent Variable = Real GDP per Capita Growth		
Explanatory Variables:	Full Sample	MEFMI
GDP95	-0.189 (0.401)	-0.189 (0.763)
INV	0.0178 (0.0270)	0.00502 (0.0167)
ITRADE	1.491 (1.578)	0.488 (0.361)
RESO	0.124 (0.0845)	0.0657*** (0.0151)
HCAP	0.0352 (0.0359)	-0.0584*** (0.0213)
DOMCRED	-0.0413* (0.0236)	0.0470 (0.0307)

Dependent Variable = Real GDP per Capita Growth		
Explanatory Variables:	Full Sample	MEFMI
Constant	-6.033 (5.668)	1.103 (1.879)
Observations	383	211
Number of countries	22	12

Notes: Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

c) Assessing the Pattern of Terms of Trade (TOT) in the MEFMI Region: The study examines the TOT trend for two reasons:

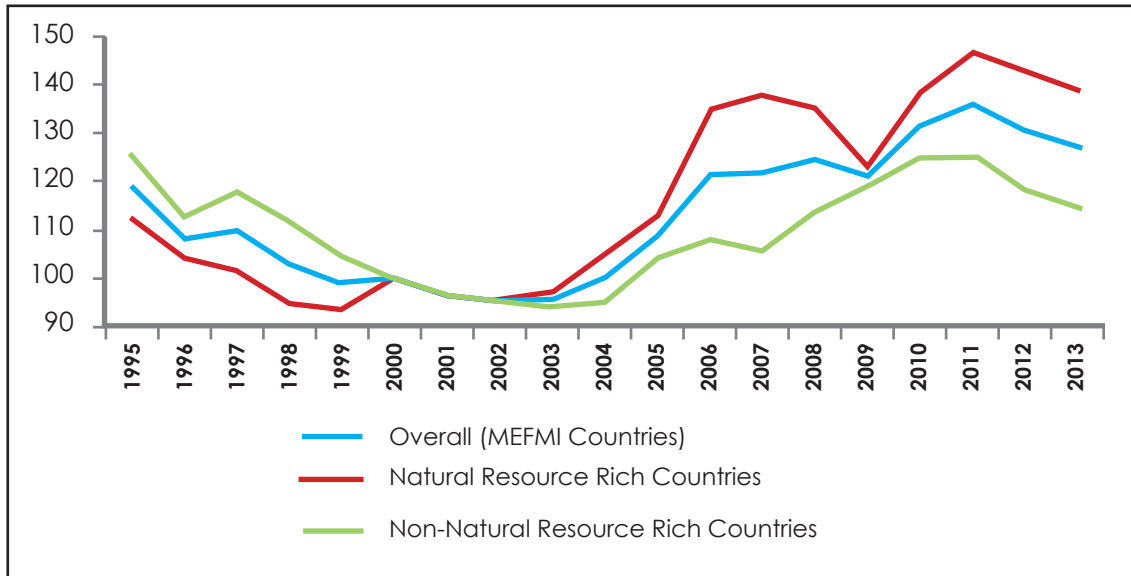
- i. To validate the findings which refute any significant incidence of a natural resource curse in the MEFMI region. In priori, long-run and persistent declining trend of TOT may mean existence of the Dutch disease, one of the important channels of a natural resources curse.
- ii. Literature argues that, over dependence on natural resources may deteriorate Terms of Trade TOT⁸ as the elasticity of world demand of unprocessed natural resources with respect to world income are inelastic, relative to manufactured goods. That is, for every unit dollar increase in world income, the demand for unprocessed natural resources increases by less than one. Hence, in the long-run, over dependence on exports of such commodities may slowdown economic growth and would slip the region into a curse (Ivar Kolstad 2014, Aunt 2001, Raul Prebisch 1950). **Chart 8** shows that MEFMI countries registered an overall increasing trend in TOT with some transitory fluctuations. 1995 to 2003 was marked with rapid deterioration in TOT, but the trend reversed sharply from 2004 to 2008. In 2008 and 2009, TOT deteriorated on account for adverse effects of global financial crisis but improved in 2010 and 2011. Recently, the region registered deteriorating TOT from 2012-2013. Instability in TOT is much evident among natural resource rich countries relative to non-resource rich countries, reflecting fluctuations in world market prices of minerals and oil.

This overall increasing trend in TOT affirms the study findings that the MEFMI region is not suffering from the Dutch disease and that the economies in

⁸TOT is the value of a country's exports relative to that of its imports. It is calculated by dividing the value of exports by the value of imports, then multiplying the result by 100. If a country's TOT is less than 100%, there is more capital going out to buy imports than there is coming in. This situation is referred to worsening TOT. If TOT is greater than 100% means the country is accumulating capital; more money is coming in from exports (improving TOT).

the region have achieved some level of export products diversification and macroeconomic policies have been effective in addressing adverse effects of natural resources price booms.

Chart 8: Overall Terms of Trade for MEFMI Countries, 1995-2013 (Index: 2000 =100)



Source: Authors Analysis Using World Bank Database

4.3.2. FDI and Growth Rates of GDP and Per Capita Income

This section examines the FDI impact at aggregate level (growth in GDP and per capita income), taking into account other determinants of economic performance. As indicated in the **Chart 1**, natural resources account for the largest share of FDI to the region, hence one can attribute FDI impacts in the region to natural resources.

Results from **Table 8 and 9**, for the full sample and MEFMI indicate that FDI inflows have negative effects on real GDP and per capita income growth rates. The finding on real GDP for the MEFMI region was robust at 1% level, implying that a 1% increase in FDI inflows reduces regional economic growth by 0.14%. This implies that the region is yet to fully benefit from the FDI inflows in natural resources which over the last six years since 2008 on average accounted for around 4% of GDP (**Chart 1**).

The negative effect of FDI inflows on GDP growth may be associated with a number of factors, which need to be explored in future researches.

- a) Inadequate human capital in host countries to absorb the knowledge and technologies brought by FDI. As pointed in **Section 4.3**, FDI in natural resources may also divert labour force from other productive sectors with significant contribution to growth; the situation becomes serious in host countries with a low critical mass of labour force. Correlation analysis in **Section 4.3** indicated natural resource rich countries' disinvestment in human capital development.
- b) Capital flights in form of transfer pricing and repatriation of proceeds.
- c) Stiff market competition attributable to giant multinational enterprises may crowd-out local firms which may have significant contribution to growth.
- d) FDI reversals especially during the global financial crisis in 2008 and 2009.

Table 8: Real GDP Growth and FDI

Dependent Variable = Real GDP Growth		
Explanatory Variables:	Full Sample	MEFMI
GDP95	0.0725 (0.521)	0.654 (0.662)
FDI	-0.143 (0.0938)	-0.143*** (0.0502)
INV	0.0759 (0.0554)	0.0696 (0.0447)
ITRADE	1.450 (1.515)	-0.736 (1.527)
RES	0.102 (0.0828)	0.107** (0.0439)
HCAP	0.0372 (0.0275)	0.0715** (0.0343)
DOMCRED	-0.0561 (0.0433)	-0.127** (0.0549)
Constant	-4.314 (5.910)	4.403 (5.753)
Observations	383	211
R-squared	0.076	0.104
Number of countries	22	12

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 9: Real GDP per Capita Growth and FDI

Dependent Variable = Real GDP per Capita Growth		
	Full Sample	MEFMI
GDP95	-0.212 (0.399)	-0.220 (0.769)
FDI	-0.0915 (0.0720)	-0.0869 (0.0559)
INV	0.0557 (0.0511)	0.0413 (0.0324)
ITRADE	1.817 (1.443)	0.679 (0.421)
RESO	0.125 (0.0784)	0.0735*** (0.0181)
HCAP	0.0330 (0.0349)	-0.0584** (0.0229)
DOMCRED	-0.0413 (0.0282)	0.0475 (0.0347)
Constant	-7.775 (5.248)	-0.232 (2.451)
Observations	383	211
Number of country	22	12

Notes: Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

e) Limited gains from natural resources investment may also be attributable to macroeconomic instability caused by volatile revenue due to unstable global prices of natural resources, particularly for oil, where the coefficient of variation is estimated at 0.7 (IMF 2011, Chart 4). Natural resource exporters have typically been unsuccessful in smoothing these volatilities. They tend to alternate periods of shorter booms, marked by appreciating real exchange rates, soaring prices in non-traded goods sectors (particularly real estate), and high but not spectacular growth rates of GDP, with prolonged slumps. Simulations show that such price cycles turn a potential natural resource windfall into actual loss (Gelb and Grasmann, 2010).

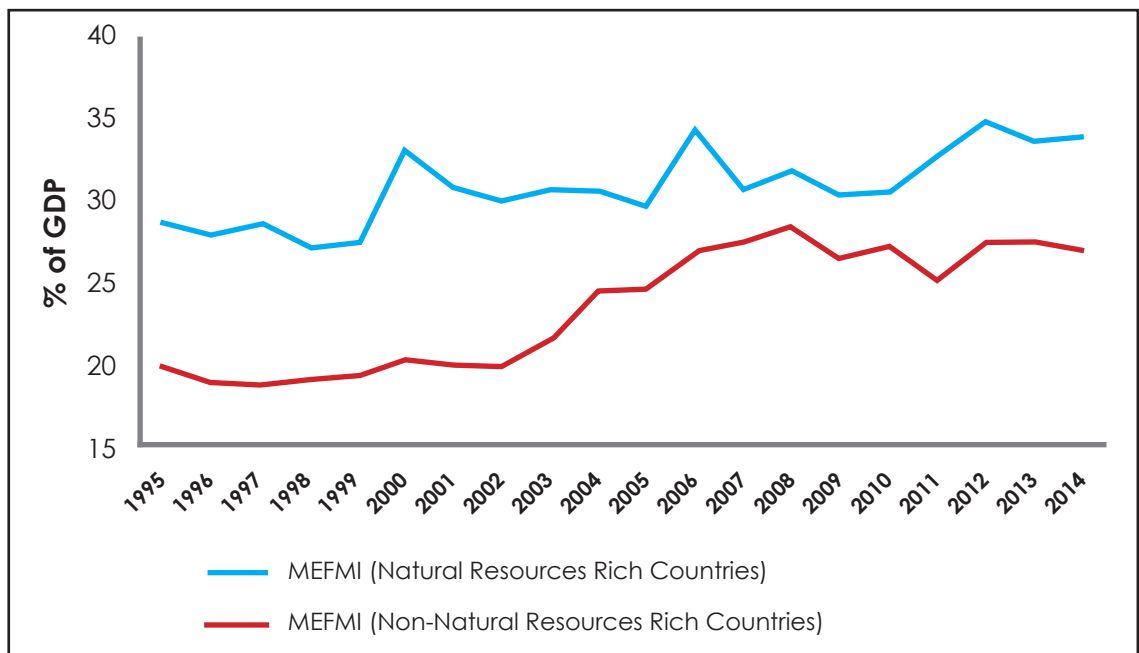
4.3.3. Other FDI Spill-Overs: Assessing FDI Contribution to Government Revenue

A host country can benefit from FDI through tax revenue, royalties, employment creation, interest and financing costs (payable to the lenders) and transfer of skills and technologies. These eventually impact on welfare development of the host country. In addition, foreign investors may have better access to global markets and this will impact on exports proceeds of the host country. Natural resources also generate multiple indirect benefits through the value generated by providers of mining sector inputs (i.e. procurement of goods and services). Due to data unavailability, this section examines contribution of FDI to Government Revenue.

4.3.3.1. FDI and Government Revenue: NRR versus Non-NRR Countries

FDI has direct effect on government revenue, which could be through tax and royalties. **Chart 9** depicts overall government revenue share to GDP in MEFMI NRR and Non-NRR countries. The relatively higher share of revenue to GDP in NRR countries over the last 20 years marks significant contribution of the natural resources investment.

Chart 9: Government Revenue (% of GDP): NRR versus Non-NRR Countries



Source: MEFMI Countries and IMF Database

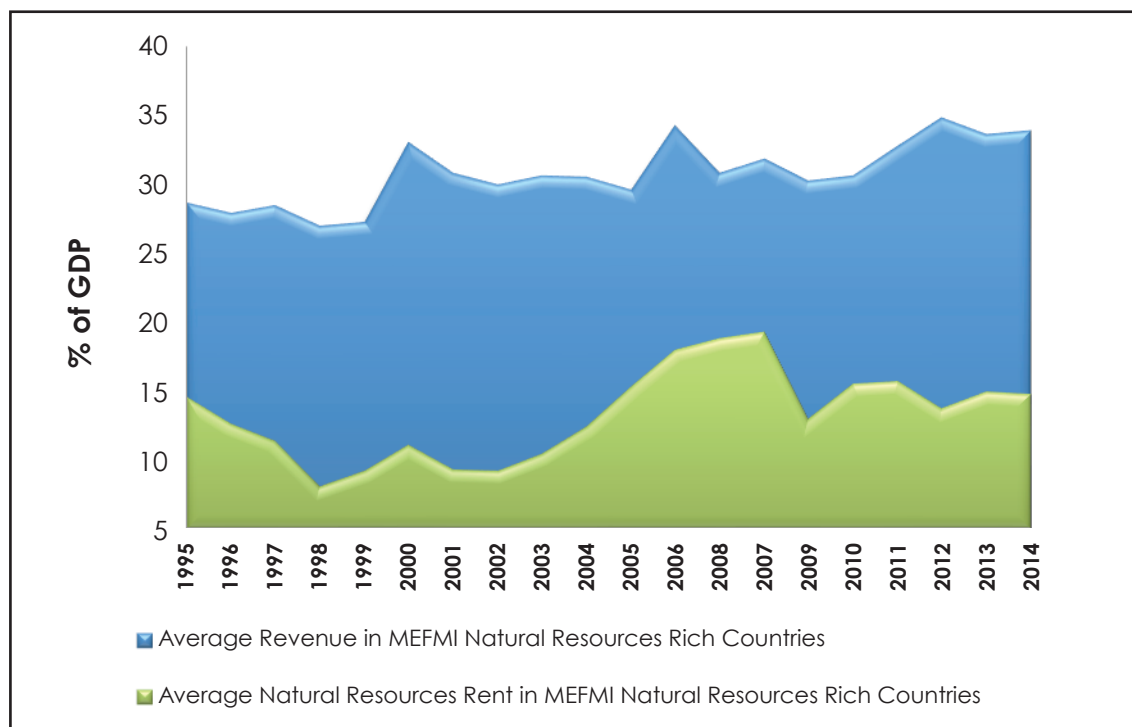
It is also worth noting that government revenue for Non-NRR MEFMI countries is increasingly catching-up to that of NRR (**Chart 9**). The persistent and rapid catching up is evident for the period 2002-2008, but the momentum was slowed down with the setting-in of the global financial crisis in 2009. This pattern reflects both NRR and Non-NRR sectors grow together and complement each other, suggesting some positive multiplier effects of the natural resources in the MEFMI region.

4.3.3.2. Resources Rent and Government Revenue: Focusing on NRR Countries

Chart 10 plots the share to GDP of Government revenue and natural resources rent in MEFMI NRR countries. It is observed that the two variables are positively correlated (estimated at 0.5). It is further revealed that, the average share to GDP of government revenue for the last 20 years was around 31%, while natural resources rent was 13% and other sectors 18%. This affirms that natural resources investment account for a significant portion of government revenue in NRR countries, and hence play the important role in financing Government budgets.

On the other hand, Non-NRR sectors are equally important in MEFMI NRR countries, financing the Government budgets to the tune of over 50% for the last 20 years since 1995. This sectoral diversity supports the conclusion in **Sub-section 4.3.1 (a)** which rules out existence of a serious Dutch disease and resource curse in the MEFMI region.

Chart 10: Shares to GDP of Government Revenue and Natural Resources Rent in MEFMI NRR Countries



Source: MEFMI Countries, IMF and World Bank Databases

4.4. Findings from Field Visits and Other MEFMI Deliberations

This section complements the quantitative findings in **Sub-section 4.2 and 4.3** with countries experiences gathered through field visits in selected countries and deliberations from various MEFMI workshops and seminars. It highlights on the latest developments and ongoing initiatives to enhance natural resources management.

Based on consultations with the senior officials visited during the field missions, countries in the region share the common understanding to use the natural resources to contribute to national development for generations. They are also, mindful that natural resources revenues are volatile in nature, hence some have put in place appropriate fiscal framework/rules and stabilization funds to contain the adverse effects of this volatility from being transmitted into the national budget. The mission further noted a number of ongoing initiatives to optimize gains from the natural resources and that countries are committed to fully integrate natural resources in their development plans.

Efforts to diversify the tax base in favour of critical public programs and safeguards against future exhaustibility of natural resources were also observed in some member states. These were, among other things, implemented along with building productive capacity which entailed scaling up spending on infrastructure and social sectors, taking into account inter-temporal fiscal sustainability. Generally, natural resources revenue is considered to have augmented fiscal space in many MEFMI NRR countries, creating the potential for public investment to be the engine of long-term growth, diversification and poverty reduction.

Box 3: Countries' Experiences

- a) Establishment of Stabilization and Sovereign Wealth Funds (SWF) in;
 - Angola (Fundo Soberano de Angola): established in 2012, worth around US\$5 billion, managed by Banco Nacional de Angola,
 - Botswana Pula Fund: established in 1994, worth around US\$6.9 billion, managed by Bank of Botswana,
 - Zimbabwe (at initial stages; SWF Act enacted and National Executing Committee formed. The Fund will be managed by the Reserve Bank of Zimbabwe),
 - Mozambique (at planning stages), and
 - Zambia (at planning stages).
- b) Fiscal rule in Botswana and Namibia to, among other things, manage savings in natural resources,
- c) New mining Acts in Kenya and Mozambique geared to optimize gains from natural resources,
- d) New model of Production Sharing Agreement in Tanzania to enhance Government take,
- e) Beneficiation by Diamond Trading Company in Botswana,
- f) Policies to promote downstream industries to enhance value addition and employment in Namibia,
- g) Policies and strategies to foster economic diversification and enhance spill-overs of the copper industry in Zambia and natural gas in Tanzania,
- h) The joint Angola/Tanzania/Norway scholarship on petroleum engineering and geosciences at Masters level, and
- i) Enhanced Rwanda Investment Code (2005) to optimize benefits of foreign investments in Rwanda.

4.4.1. Angola

Angola is the second-largest oil producer in Sub-Saharan Africa (SSA) and one of the biggest suppliers in the world to both the United States and China. According

to the IMF SSA Economic Outlook Report (2012), oil accounts for around 90% of government revenue excluding grants and 95% of total exports of goods. Production has steadily increased since 2003, and is expected to remain high for several years. Sonangol is Angola's national oil company established in 1976 to oversee petroleum and natural gas production. In 2012, Angola established a SWF (Fundo Soberano de Angola) which is managed by Banco Nacional de Angola (BNA).

To enhance skills on the petroleum industry, Angolan University of Agostinho Neto (Universidade Agostinho Neto-Angola) has since 2011 been collaborating with the University of Dar es Salaam (UDSM), specifically the Department of Chemical and Mining Engineering and the Norwegian University of Science and Technology (NTNU) of Norway under the ANTHEI (Angolan, Norwegian, Tanzanian Higher Education Initiative) project to train professionals for petroleum engineering and geosciences at Masters level.

4.4.2. Botswana

Botswana's minerals are an important component of the country's economic development, hankered by prudent management of natural resources based on good governance. Accordingly, a number of initiatives have been put in place to ensure that the country maximizes benefits from minerals, during and beyond their exploitation stages. Minerals, mainly diamonds, play an important role in the country's development, contributing a significant proportion to Government revenues; GDP; GDP per capita; and exports. In 2013, for instance, revenue from mining contributed over 30% of GDP and over 60% of total government revenue.

Some of the initiatives behind Botswana success include:

- i. The country has set up a **Diamond Trading Company (DTC)**, which is responsible for conducting auctions on the sale of all diamonds produced in the country and elsewhere in the world. This was initially based in London, United Kingdom;
- ii. A long-term investment portfolio, the **Pula Fund** (a Sovereign Wealth Fund) was established in 1994 with the aim of preserving part of the income from diamond exports for future generations. This has made it possible to provide more appropriate, longer-term investment considerations in the guidelines for its management;
- iii. Government is a **shareholder in the diamond mining company**, controlling a 50% stake. This allows Government to generate revenues from dividends as well as other statutory obligations such as taxes and royalties;

- iv. The Government has created policy structures that enhance **backward and forward linkages** between the mining sector and other sectors of the economy. A number of manufacturing companies, particularly diamond polishing, have benefited from this policy;
- v. The Government has a **comprehensive policy on mineral beneficiation** of rough diamonds, which is meant to enhance the value of the mineral. Diamonds were previously being exported in rough form and this earned limited export value;
- vi. **Corporate Social Responsibility (CSR)** is major activity in Botswana. Most companies have adopted various CSR strategies within their activities and financial reporting. CSR is voluntary and most companies have embraced it;
- vii. The country conducts comprehensive **Environmental Impact Assessment (EIA)** for all mining activities. EIAs provide guidelines on how surrounding communities benefit from such investment activities;
- viii. Most of these policies are enshrined in various **regulatory provisions** which the country has put in place; and
- ix. While these activities have been successful in harnessing the developmental impact of the mining sector in the country, the authorities contend that there is scope for additional measures to build on the successes achieved to this date.

4.4.3. Kenya

Discovery in 2012 of over 300 million barrels worth of oil reserves announced by Tullow Oil and Africa Oil, signal the strong potential for growth in the extractive sector in Kenya with the possibility to create thousands of jobs for local people, which would generate extensive revenue. The sector is currently contributing just 1% to Kenya's GDP, which amounts to less than 2% of total export revenues. It is now estimated, however, that the sector may grow to provide 10% of GDP (AfDB Information Centre for the Extractive Sector-ICES).

On 17th March 2014, new Mining Bill, 2014 was published on Kenya Gazette Supplement. The new Bill complements the Kenya Mining Act (1940) and is among others expected to improve management of natural resources for sustainable development.

Two mega infrastructural projects have been initiated by the Government to ease harnessing of natural resources namely; the Standard Gauge Railway (SGR) and

the Lamu Port and Lamu Southern Sudan-Ethiopia Transport Corridor (LAPSSET) Infrastructural Project which will connect Kenya, Uganda, Rwanda, South Sudan and Ethiopia.

4.4.4. Mozambique

Mozambique stands to gain significant revenue from exploiting the economic and commercial potential of its natural gas and coal reserves. The country's offshore natural gas discoveries are among the largest finds in the world in over a decade, while its coal reserves are beginning to be exported to international markets. Government priorities are to optimize gains from its extractive resources and become a highly competitive player on the global energy scene.

To enhance gains from mineral resources, the Government of Mozambique put in place a New Mining Law (The Mining Law 20/2014 of 18 August 2014) on 22 August 2014, replacing the previous mining regime under the Mining Law 14/2002 of 26 June 2002. The New Mining Law was developed based on the Government's 2013 Policy and Strategy for Mineral Resources (Resolução No 89/2013 de 31 de Dezembro) which, although continuing to identify foreign investment as a key factor, makes it clear that creating benefits for Mozambican nationals is the primary goal of legislative reform. It is also designed to bring mining legislation in Mozambique in line with international best practice.

With technical assistance from the IMF and the World Bank, in 2007 Mozambique designed and adopted a mining and petroleum fiscal regime that introduce model contracts. Mozambique has further introduced a progressive taxation system in the hydrocarbon sector and introduced specific incentives for the mining and petroleum sectors, removing these activities from the scope of the more generous investment law.

4.4.5. Namibia

Namibia produces a relatively diverse mix of commodities with mining accounting for 11.5% of the country's GDP in 2012 and more than 50% of its foreign exchange earnings. Copper mining and smelting in wide scale accounted for 0.04% of global production in 2013. In 2012, Namibia was the 9th largest producer of diamonds globally, producing 1.63 million carats, accounting for 1% of global supply of 127.96 million carats. According to the World Nuclear Organisation, Namibia, hosts the 8th largest known recoverable resources of uranium as 262,000 tonnes or around 5% of global resources for 2011.

According to the 2012 Annual Report of the Chamber of Mines of Namibia, the mining industry accounts for a quarter of all fixed investments in the country, with

the sector investing about US\$380 million in 2012. The mining industry provided for 14,328 jobs in 2011/12 with 7,306 people holding permanent positions. The start-ups of the pipeline projects of Tschudi copper and the Otjikoto gold mines is projected to add a further 500 jobs. An additional 1,500 to 2,000 direct mining and smelting related jobs could be created in the next 5 years with the development of the Gergarub mine and expansion of the Tsumeb and Skorpion facilities.

The 2013 survey by a Canadian-based organisation, the Fraser Institute, ranked Namibia as the second most favourable investment destination for mining and exploration activities on the African continent. The World Bank 2014 Doing Business report, ranked Namibia 98th among 189 countries.

There is still potential to increase the value chain in Namibia's diamond industry through further beneficiation of cut and polished diamonds into jewellery. However, development of beneficiation industries would require considerable investment on human capital and infrastructure for diamond cutting and polishing. Public Private Partnership involving De Beers and Namdeb and the ongoing measures to strengthen Export Processing Zones (EPZs) on cutting and polishing diamond is ideal ways to enhance mining beneficiation.

4.4.6. Tanzania

Tanzania is known for its huge mineral deposits including gold, diamond, copper and coal. Recently, Tanzania has discovered huge deposits of natural gas along the coast of the Indian Ocean. The Government of Tanzania in collaboration with the British Multinational Oil Company (BG Group), Ophir Energy (based in London), Statoil from Norway and American Oil Company (ExxonMobil), has made several offshore natural gas discoveries since 2010, totaling 25 to 30 trillion cubic feet of recoverable gas resources.

To optimize gains from the petroleum industry and private sector participation, Tanzania enacted a new model of production sharing agreement (MPSA) in late 2013. The PSA 2013 incentivizes deep water exploration by reducing the royalty rate to 7.5% from 12.5%. It also tightens local content requirements to ensure reasonable benefits to the country (MPSA 2013).

According to the Tanzania Mineral Policy (2009), the mining sector is facing a number of challenges including low integration of the mining sector with other sectors of the economy; low contribution to GDP compared to the sector growth; slow development of small scale mining; low capacity (including human capital) of the Government to administer the sector; low level of value addition of minerals; and environmental degradation (Tanzania Mineral Policy 2009).

To address capacity gaps, Statoil, University of Dar es Salaam (UDSM) and the Norwegian University of Science and Technology (NTNU) of Norway are collaborating to train professionals in petroleum engineering and geosciences at Masters level. Already, three batches of a total of 28 Tanzanian students have been enrolled under the program since 2011.

4.4.7. Zambia

A recent rating by globally reputable World Economic Forum (WEF), rates Zambia (Africa largest copper producer) as among the fastest growing economies in Southern African Development Community (SADC) and Africa as whole. This rating is among others, on account of the country's prudent policies in managing its mineral resources (WEF Competitiveness Report 2013-2014).

According to the Africa Economic Outlook (2014), the expanding mining investment at Sentinel, Kinsanshi, Lumwana and Konkola (Deep and North) significantly drive other sectors, especially construction, transport and energy. Investment of the natural resource wealth into infrastructure is expected to stimulate tourism and agriculture. The mining sector also contributes significantly in job creation, accounting for about 10% of the formally employed. Zambia has continued to strengthen governance and democratic processes, with government institutions developing and reinforcing transparency and accountability efforts.

Changing external conditions, which entail declining copper prices and the tightening of international financial conditions, are likely to lead to higher borrowing costs and volatile portfolio inflows. Reliable and sufficient power supply poses another significant challenge to the mining sector, which consumes more than 50% of power supply. These growing risks are likely to lower FDI and growth in Zambia. Economic diversification and infrastructure development are therefore critical policy options for Zambia.

4.4.8. Zimbabwe

In Zimbabwe, the Senate on 23 September 2014, passed the *Sovereign Wealth Fund of Zimbabwe Bill (H.B. 6A, 2013)* that will see the establishment of a Zimbabwean SWF. The proposed SWF will be funded from mining royalties and mineral dividends in respect of gold, diamonds, coal, coal-bed methane gas, nickel, chrome, platinum and such other mineral that may be specified.

The Zimbabwe fund will support macroeconomic stabilisation, including long-term economic and social development objectives, and smoothen national income of Zimbabwe during times of commodity fluctuations.

SECTION FIVE: CONCLUSION AND POLICY RECOMMENDATIONS

The study on gains from natural resources based FDI is mounted at the opportune point in time when the MEFMI region is enjoying substantial amount of inflows for capital formation in the extractive sectors. It is also taking place during the period when there is a conviction and concern that the region is likely to slip into a natural resource curse, given persisting levels of poverty, limited sectoral diversification, beneficinations and labour tensions, in spite of huge lucrative mineral wealth.

Empirical findings rule out any incidence of natural resource curse in the MEFMI region as in the long run, real GDP has been growing together with investment in natural resources. These regression results are validated by analysis on regional terms of trade (TOT) which are found to be appreciating and resilient to booms and busts attributable to volatile commodity prices. The resilience in TOT reflects robust macroeconomic policies, especially in exchange rate management.

Some level of trickledown effects and welfare positive gains attributable to natural resources rent was also observed. In addition, FDI inflows were found to contribute significantly to governments' revenue and financial sector development, a critical input in poverty reduction if the revenue trickle-down to the poor is amplified. FDI inflows were also found to have positive correlation with credit to the private sector. With reduced cost of borrowing and ease of access to financial services, this may result into welfare gains and sectoral diversifications through transfer of natural resources proceeds and capital accumulation into other productive firms and SMEs.

Nevertheless, a number of symptoms were diagnosed, which may, in the long-run, push the region into a curse if they remain unaddressed. These include low savings, inadequate investment on human capital and underdeveloped financial sector. The region has started paying the cost as a result of inadequate measures to address these critical local conditions for investment. The study found negative FDI impact on GDP; this is in spite of massive incentive packages extended to foreign investors for years.

To reverse these potential loopholes for the natural resources curse, the following recommendations are proposed:

- a) It is concluded that the region needs to enhance its absorptive capacity entailing institutional reforms, human capital development and technological conditions. This will, among others, pave way for a more efficient resources allocation as well as the quality of new investment and sustain growth.

- b) Positive link between FDI and financial sector development calls for policies to reduce cost of borrowing and access to financial services to facilitate transfer of proceeds from FDI into other productive firms and SMEs.
- c) It was noted that close to 50% of revenue in natural resource rich countries come from the natural resources rent. This suggests a case for policies in favor of economic diversifications towards manufacturing and services sectors, which accelerate learning by doing and guarantees economic development that is sustainable.
- d) Need to continue implementing prudent macroeconomic policies to ensure effective exchange rate management to safeguard the region from adverse effects attributable to potential externally driven booms and busts. Unless these are contained, price cycles may turn potential natural resource windfall into an actual loss.
- e) Deal with tax evasion and capital flight; i.e. monitor and curb transfer pricing and high debt/equity ratio so as to reduce tax liability. This will, among others, involve putting in place effective regulations to counter exploitive conduct of some FDI.
- f) Strengthen oversight institutions, transparency and public scrutiny at every stage of the extractive industries value chain. Key elements of oil and mining contracts should be made public and public accounts need to be subjected to appropriate reviews.

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APPENDICES

Appendix 1: Summary Statistics

	Variables	Descriptions	Obs.	Mean	Std Dev.	Min	Max
1	GDP	Annual Average Growth Rate in Gross Domestic Product (%)	418	5.0	4.1	-12.4	24.5
2	FDI	Foreign Direct Investment (Sum of Equity Capital, Reinvestments and Other Types of Capital Measured as Inflows of FDI as % of GDP)	418	3.7	5.6	-6.0	43.6
3	IGDP95	Log of Initial (1995) GDP Per Capita	418	1.1	0.4	1.0	3.6
CONTROLS/GROWTH DETERMINANTS:							
4	INV	Total Investment as % of GDP	418	21.5	8.6	3.1	76.7
5	ITRADE	Trade Openness (Log of exports plus imports as % of GDP)	415	4.1	0.7	2.7	6.8
6	HCAP	Human Capital Development (Secondary School Enrollment Rate)	386	36.4	20.3	5.2	95.9
7	DOMCRED	Domestic Credit to Private Sector (% of GDP). Refers to financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment.	418	18.2	15.5	0.2	108.0
8	GDPPC	GDP Per Capita Growth (%)	418	2.5	4.2	-15.3	36.7
RESOURCES:							
9	RES	Natural Resource Abundance (Share of Exports of Primary Products in GDP)	418	18.0	18.1	0.0	88.3
10	RESO	Total Natural Resources Rent (% of GDP). Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.	418	12.3	13.0	0.0	71.6

Appendix 2: Description of the model used for analysing panel data regression equations

Fixed Effects (FE) and Random Effects (RE) models were employed to account for relationships between explanatory variables and the dependent variable in the panel data. In using FE the study assumes that something within a country may impact or bias the dependent variable so must be accounted for. Specifically, FE takes out any effect of time-invariant features (such as culture) to allow for assessment of the net effect of the explanatory on the dependent variable. This estimator thus controls for political factors, cultural factors, and institutional factors, among other omitted variables, that can all have an impact upon the relationship between dependent and explanatory variables and can be presumed to remain fairly consistent over time.

RE model assumed variation across entities is random and is uncorrelated with the explanatory variables in the model. The choice between FE and RE was guided by the Hausman test.

$$y_i = b_0 + b_1x_i + v_i + e_i \dots\dots\dots (1)$$

Where v_i and e_i represent the unobserved heterogeneity and idiosyncratic errors respectively. For simplicity, we denote the variances of the individual effects and idiosyncratic errors by s_v^2 and s_e^2 , respectively.

Null hypothesis: $[Cov(x_i, v_i) = 0]$ (Random effects model)

Alternative hypothesis: $[Cov(x_i, v_i) \neq 0]$ (Fixed effects model)

It is worth noting that, under the null hypothesis, both fixed effects and random effects estimators are consistent. The only difference is that, under the null hypothesis, random effects estimator is efficient while fixed effects model is inefficient. This implies that one could use either random effects or fixed effects under the null hypothesis. However, under the alternative hypothesis, the random effects estimator is inconsistent implying that the fixed effects estimator is better since it has both two attributes, it is consistent and efficient estimator.

In summary, failure to reject the null hypothesis means that either random effects or fixed effects estimator should be used; whereas rejection of the null hypothesis implies that the fixed effects estimator should be used.