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A Review of Natural Resource Management: Modern Trajectories of Abundance, Dependence and Capability

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Abstract

The present paper is a review of political economy on empirical evidence related to natural resource rent and consequential economic prosperity where resource-rich countries reluctantly depend on their respective resource rents and capitals. With the modern growing relevance of natural resource abundance, dependence and capabilities toward regional economic prosperity, many resource-rich countries experience less rapid growth than the resource-poor countries. The impacts of resource rents towards their respective regional economy are the issue of severe concerns. As a result, this paper critically examined the nexus of natural resource abundance, dependence, and capabilities in relation to their respective regional economic prosperity relative to other regions of the world. The analysis shows that it is common for natural resource rents to mob out physical and human development, thereby slowing down economic growth. However, across resource-rich countries, heavy dependence on natural resources influences resource dependence and can subsequently impair saving and direct investment through slowing human capital growth and development. This study argued that benchmarking rents on the basis of capabilities should be precedence instead of focusing on natural resource abundance and dependence. The study also affirmed the assessments of natural resource rents gap, weaknesses and competitive advantages in the global economic arena.

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Introduction

A resource is commonly characterized as an object, item or skills which benefit are driven from. It can be a natural resource, financial resource, human resource, technological resource, organizational resource, etc. Its benefits can be easily transferred to other sections within a country, categorically neglecting the key human development aspects; such as education and healthcare sector (Lucas, 1988). A natural resource can be raw material, mineral, water, land, etc., and its conversion into a financial resource is less certain and more difficult, especially toward rationale use of the benefits for development (Lucas, 1988). The contemporary valuation of natural resources management is important for regional economic development and prosperity. A nation with efficient knowledge of natural resource management is an example of broad economic prosperity, while countries that depend on natural resource rents are an example of countries with narrow developmental perspective (Lam and Wantchekon, 2003).

A natural resource based-economy facilitates the economic prosperity of a nation through the rational expansion of their respective industrials scope and resource market. It is a common axiom that a nation with abundant resources has greater potentials for economic prosperity (Romer, 2012). Moreover, it is also commonly anticipated that most countries who depend on natural resource rent for development with experience slower prosperity largely due to mismanagement of the resource rent and capitals (Lam and Wantchekon, 2003). However, narrow natural resource-based economies were commonly anticipated to have limited economic prosperity around the world (Romer, 2012). Since the modern evaluation of natural resources, allied development is mainly through assessment of the national level of advancement and economic prosperity relative to other countries around the world.

During the 1990s, the notion of allied-natural resource rents is

the principal basis for growth and development for the various country of the world (Shao and Yang, 2014). Most of the developing countries relied primarily on natural resource rents and capital which band together into what is known as the resource-based view of growth and development. The understanding of the resource-based view of economic prosperity is paramount with current developmental needs and priorities. The present study reviewed the modern natural resource management through critically examining resource rent and the impacts of respective resource on abundance, dependency as well as capabilities on the economic prosperity of a region.

Notion of Natural Resource Rent

A natural resource is naturally endowed objects derived from the environment. Natural resources are essentials for human survival and development which are mainly used to satisfy societal needs and wants. In our contemporary societies, every man-made product in the economy is to some degree composed of natural resources. Natural resources are classified in several ways, i.e. source of its origin, state of development as well as it renewability. For instance, a natural resource can be mineral, water, land, etc. However, a resource, in general, is an ordinary input into the production process, such as a physical object, financial strength, human population, technological capabilities, etc. Resources of any kind are essential for any form of development.

There are constant global debates regarding different forms of natural resources at all level. Several discussions are centred on issues of increased scarcity (resource depletion) (Leite and Weidmann, 1999), resource management and conservation (Bauer and Quiroz, 2013) and the exportation of natural resources as a basis for many economies (especially developed nations) (Gylfason, Herbertsson and Zoega, 1999) among others. The vast majority of natural resources are exhaustible which means they are available in a limited quantity and can be used up if they are not managed correctly (Stevens and Dietsche, 2008). Natural resource economics experts aimed to study resource in order to prevent depletion. This is, as a result, the rate of the resource's time of exhaustion is greater than the resources recycles/recovery time. Though, natural resource utilization is regulated through the use of taxes and permits (Stevens and Dietsche, 2008). However, most government and individual states have succeeded in determining how natural resources can be used, monitored, and how the status of these resources can effectively be maintained. Moreover, natural resource is not only an economic tool but must be prioritized as an indispensable tool for all forms of development.

Modern Developmental Priorities

Development is never just an economic phenomenon but a multi-dimensional process that encompasses strategizing the entire social and economic system through improving the quality of human lives (Gylfason, 2001). Development is expected to act as a catalyst for raising people living levels (income, medical service, education, etc.), creation of conducive conditions for peoples' growth (political, social, and economic systems), and guarantee freedom of choice (goods and services).

Development as a Tool of Economic Growth

Development is mainly considered as too often "commodity output" as opposed to people is emphasized-measures of growth in GNP (Sarmidi, Law and Jafari, 2014).The persistence of a dual economy where the export sector contains a small number of workers but draws technology as opposed to the traditional sector where most people work and is dominated by inefficient technological capacity. The Development as a modernized tool emphasizes on the process of social change that is required to provide economic prosperity, political as well as social changes. Moreover, development is also considered as wealth and value-oriented tool that is based on providing the basic need and social justice (Gylfason, 2001).

Marx's Developmental Views

Marx's views emphasize on main modes of production whereby elements and activities necessary to produce and reproduce are valid materials life. He defines development as a tool with potentials of achieving lasting human satisfaction need in addition to the improvement of quality of life (Farhadi, Islam and Moslehi, 2015). The Marxist school of thought relied on cost-effective developmental processes that do not degrade the environment through the idea of "self-reliant development" with limited available natural resource. In this developmental view, the emphasis is centered on human issues like healthcare, technological know-how, clean water and shelter for all. This approach is bottom up that prioritized people participation, their spatial interaction as well as the growing importance of "decentralized decision making".

Nexus of Regional Basic Needs, Growth and Development

Developmental initiatives on the basis of basic need as well as the need for growth was largely tied to each other in our modern developmental approaches. Despite, being used interchangeably by various stakeholders, the duration of any oriented development is tied to their respective priorities. Development on the basis of basic needs is largely based on basic needs supply while growth-oriented development is based on human capital and income. Though, assigning specific duration of operation to any of these strategies can be seen impossible due to their non-operational existence in isolation anywhere in the world today. The basic needs approach in our contemporary developmental school of thoughts were considered as the most recent progress to the developmental school of thinking (Atkinson and Hamilton, 2003).Most the human basic needs take place outside the market system, therefore, cannot be attained, for instance, lean water, education, health, etc. This led to the emergence of the basic needs approach with a sole concentration on the direct supply of goods and services that would satisfy the needs of the poorest (Collier and Hoeffler, 2005).

On the other hand, the growth-oriented approach was mainly on issues like employment and poverty alleviation strategies broadly categorized as diverse entities (Farhadi, Islam and Moslehi, 2015). Since the modern sector is demanding for high-level skills from an average worker, the growth-oriented emphasis on intensive capital development. Consequently, these and the likes widen the gap between the urban and rural areas

through insufficient high skills employment (formal) and abundance of low skills employment (informal) in the rural areas while contrarily scenario is happening in the urban areas (James, 2015). Hence, rural informal employment is difficult to be measured, but this strategy promotes the anti-poverty approach. Moreover, the poverty alleviation strategy is the simple income per person, especially the small scale holders and public service for landless labourers. The basic needs approach was anticipated as a suitable strategy for poverty alleviation by governments (James, 2015).

Modern Theories of Growth and Development

The modern theories of growth and development are highly contested terms which were widely spread through across many disciplines, such as Economics, Geography, Public Administration, Sociology, Engineering, etc. The ever-changing development perspectives have over the years metamorphosed rapidly in order to accommodate the peoples changing perceptions, needs and the economies (Pritchett, 1997). Quest for solving various developmental problems have been overwhelmingly large and varied, especially with recent developmental advancements. During the last three decades, people have witnessed several streaming proposals for solving issues anticipated by the dominant western schools of thought (Marxism) through various prescriptions and analysis of underdevelopment scenarios, such as; the IMF approach for advanced economies, approach of development on the basis of national economy, and developmental approach on basis of basic needs availabilities (Pritchett, 1997).

The IMF Approach for Advanced Economies

The Internal Monetary fund (IMF) developed a model using terminologies of classifying various regional economies around the world. Several terminologies were used to classify various countries economic strength based on their rough developmental levels around the world. Though this classification of countries' economies differs across sources, sometimes the classification was regarded as judgmental (Pritchett, 1997). However, the use of the terminology like the "market" instead of "country" usually prioritized focus on the characteristics of the countries' resource capital markets as opposed to the overall economy (Pritchett, 1997). The classification of countries and their resource markets in decreasing order of economic growth or size of the capital market. Examples of this classification are the developed economies, newly industrialized countries, emerging markets, frontier markets, and the least developed countries (Pritchett, 1997).

Though, some experts believed that the desire to "develop" is aligned with the traditional Western model of economic development which is mere European cultural view which a few countries deliberately choose not follow, for instance; Cuba and Bhutan (Frankel, 2010). Modernization theory as regarded as the dominant development theory of the late 19th and 20th centuries made the key contribution to the definition of the term "development"(Frankel, 2010). This argued that there is no single way to achieve "modernity" and "development"(Frankel, 2010). Hence, this view development was considered as controversial up till today; likewise, the concept of modernization still holds an important role in defining developmental initiatives.

The developed country was wrongly appointed for countries that lack continuing economic growth or development (James, 2015). This the view was highly challenged, and an alternate measurement model was suggested as a measurement of actual satisfaction of people and gross national happiness as opposed to how fiscally wealthy a country (Frankel, 2010). This the study observed that the concept of developed and developing countries was slowly replaced by less controversial terminologies to resource trade-based terminologies, for example, core country, semi-periphery country, and periphery country. Yet, these terminologies (developing and developed countries) are considered as old-fashioned but still widely used by experts (Frankel, 2010).

Development based on the National Economy

The classification of development on the basis of the national economy was largely dominated by the categorizing the level of development by level of human development. In this regard, the developing economies are commonly regarded as underdeveloped countries or less developed countries. This classification refers to this category as a country with low human development Index (HDI) and less industrially developed relative to other countries (Gylfason, 2006). The most common theoretical perspectives having an assorted point of reference to the developing nations is found in theories of liberation theology, decolonization, anti-imperialism, Marxism as well as the theory of political economy (Barma, Kaiser, Le, *et. al.*2012). The most common classification on the basis of the national economy is the World Bank classification of countries into four income groups based on their respective GNI per Capita. The following divisions are based on income ranges (2011 GNI per capita: US$):

	Range	***Divisions***
[a]	1,026 or less :	low-income countries
[b]	1,026 to 4,036	lower-middle income countries
[c]	4,036 to 12,476	upper-middle income countries
[d]	12,476 and above	high-income countries

This form classification of country's development is measured with statistical indexes, such as the life expectancy, income per capita (per person), the rate of literacy, Gross Domestic Product (GDP), etc. (Barma, Kaiser, Le, *et. al.*2012).However, the UN development of the Human Development Index (HDI) has provided multifaceted indicators of the above statistics to gauge the level of various national human developments where the data is available.

Development based on the Basic Needs Availability

The classification of development on the basis of needs availability was championed by the failure of existing developmental strategies. This classification based on the basic needs availability for development is called a 'utopia' (Arezki and Gylfason, 2011). This classification is one of the recent forums of logical reaction to the earlier development strategies. This classification was driven by failures in planned economic development to improve the living conditions of the people. Hence, this classification was the key rationale for the paradigm

shift in developmental studies (Arezki and Gylfason, 2011). The quest for of changing the existing strategy was largely championed by the process of dual synchronized growths of income and continuance of poverty (Brunnschweiler, 2008). This the classification proposed the most immediate solution to development by prioritizing states leading role in alleviating poverty and sustaining development (Brunnschweiler, 2008). The strategies of development may be divided into two main approaches; the basic needs and the growth-oriented approaches. Though both approaches can have limitations in common programs in them, the fundamental difference between them is explicitly defined.

Natural Resources: Abundance and Development

Natural resource abundance simply refers to a country's estimated finite endowment of minerals deposit, crude oil, subsoil wealth, water, etc (Brunnschweiler and Bulte, 2008). Resource dependence refers to the degree of country reliance on resource rent and revenues (Blanco and Grier, 2012). Moreover, the natural resource abundance tends to be measured by estimated natural resource capital per capita, in other words, it is to be measured by the ratio of natural resource exports to gross domestic product (GDP) (Blanco and Grier, 2012). Therefore, the estimation of a country's resource abundance is influenced by the respective resource prices. This study argued that a nation that is resourcefully abundant may not necessarily attract resource dependent if the respective nation diversifies its respective sources of income and production. Nevertheless, this study testified that resource dependence is a mere mechanism that can be eliminated with sound economic policies by capturing the country's exports and import compositions.

Resource Abundance Trajectories

This study anticipates various trajectories of countries with natural resource abundance under various social stability, economic stability, and technological advancement (technical know-how) in Table- 1.

Natural Resources: Dependence and Development

The IMF defines a country as resource-dependent if it's measured is greater than 25%, and countries whose merchandise export of fuel and mineral have exceeded 30 percent of their total exports at any time between 1965 and 1995. The IMF takes the average share over multiple years of a country's resource revenues over total revenues (Barma, Kaiser, Le, *et. Al.*2012). But a study by Steven and Dietsche (2008) found that resource-dependent of a country geographically is found in all regions of the world, however, resource dependence is most associated to countries within the Middle East and Africa. Moreover, another study conducted in African discovered that countries that largely relied on natural resources rents, their respective resource dependence ranges from a low of 4.9% in Cameroon (a resource-dependent country running out of natural resources) to a high of 86 percent in Equatorial Guinea (one of the newest oil producers) (Pegg, 2010). A a recent study conducted by Arezki & Nabil (2012) further confirms Karl's statement:

"Countries dependent on oil export revenue not only have performed worse than their non-resource-rich counterparts, they have performed for worse than they should have, giving their revenue streams"

Resource Dependence Trajectories

This study anticipates various trajectories of countries with natural resource dependence under various social stability, economic stability, and technological advancement (technical know-how) in Table -2. A recent study by confirmed empirically that resource abundance has a positive impact on economic growth, whereas resource dependence has a negative impact (Sachs and Warner, 1995). Depending on the country, the nature of resource abundance and economic structure can be surprising in Table -3.

Exceptional Natural Resources: Growth and Development

Lessons from history show that the exceptional cases of natural resource-based growth and development were partitioned into two basic categories as growth miracles and disaster (Romer, 2012). The a study conducted by Romer (2012) analyzed some key exceptional cases of natural resource-based growth and development around the world. The cases of growth miracle and disaster identified were all found to be contrary to all theories of growth and developmental around the world.

Scenarios of a Growth Miracle

The scenario of growth miracle is where a country's growth far exceeded the world's average growth rate. The growth miracle cases were developmental scenario mainly found in Asian countries. Countries with growth miracles were found to be developed without any composite return from natural resource rent and capital. These incidents were found to have far exceeded the World average rate of development over an extended period (Romer, 2012). However, these countries also have results that rapidly increased their respective income distribution as compared to other regions of the World. On the basis of income generation, an average income in the Newly Industrialized Nations (NICs) has grown at an annual mean rate of 5% (since the 1960s). Consequently, their average incomes relative to that of the United States have more than tripled when compared (Romer, 2012).

Scenarios of Growth Disaster

This is a scenario where a country's growth falls short of the world's average growth rate. There are two distinct groups of growth disasters; the first group is the failed industrial nation with potentials, whereas the second group is countries with stagnated growths for decades. Firstly, are countries with the credential of becoming an industrialized nation, but failed woefully on growth performance. This is a group of countries with growth disaster which includes countries like Argentina and many of sub-Saharan Africa countries. Argentina's average income in 1900 was only slightly behind those of the world's leaders, but its growth performance since then has been dismal (James, 2015). Argentina currently now stands in the middle of the world income distribution. Moreover, some sub-Saharan African countries like Ghana and Chad are unable to obtain any sustained growth of average income; therefore, they have remained extremely poor throughout their histories. Therefore, these countries thus far remained close to survival levels while average world income has been progressively increasing

(Gylfason, 2006).
Secondly, this is a group of countries with growth disaster that exhibit more complicated growth pattern. This group is sets of countries that their average income has not increased at all for more than three consecutive decades. Some great examples of these countries are Cote d'Ivoire and Mexico (Romer, 2012).[3] For instance, Cote d'Ivoire was anticipated as a growth model for Africa throughout 1970s, so far for more than three decades, its average income has not increased at all (Romer, 2012).[3] The recent Cote d'Ivoire average income is now far lower relative to that of the United States than it was during the 1960s (Gylfason, 2006).[17] Another prominent example is the case of Mexico, with an average growth rate that is very high from the 1950s to 1970s, but the growth rate was negative in most of the 1980s, and moderate rate with a severe interruption in the mid-1990s (Arezki and Gylfason, 2011).[19]Recently, the scenario of growth disaster can capture on the differentials on cross-country income which have been widening on average throughout the world.

Natural Resources: Competitive Advantages

Natural resource competitive advantage mirrors the value chain analysis approach which can be evaluated from several different perspectives. The most prevalent way of evaluating natural resource competitive advantage is by it respective resource functional capital and rent, human resources, research and development, etc. (Boyce and Emery, 2011) The present study affirmed the evaluation of natural resources rent on the basis of competitive advantages relative to other location or business unit as the ideal measure for realizing optimum resource rent. Hence, it was believed that when a functional perspective on the natural resource is taken, the need for suitable growth and development become paramount (Arezki and Brückner, 2011). Moreover, the present study understands that the contribution of every functional natural resource rent to growth and development needs to be addressed as a priority since some developmental functions can be more important than others.

Rationale for Resource-based Approach

When the external environment is a subject to rapid changes, internal resources and capabilities offer a more secure basis for development than market focus, therefore, the natural resource becomes the primary source of profitability (Loayza, Teran and Rigolini, 2013). The effectual management of natural resource rent for development is the key to ensuring that all resources and capabilities are fully employed and exploited. Moreover, the selection of developmental strategy is paramount in a natural resource-based approach that aimed to exploits valuable resources and distinctive competencies, such as competitive advantages (Bulte, Damania, and Deacon, 2005).
The management of natural resource requires a critical assessment of competitive resource gaps to ensure that development is relevant for future endeavor. Now it is significant to evaluate the quality of competitive advantages and capabilities required of natural resource by the present and future desired development. Natural resource management analyses the prospective resource rent that focuses on the development, explicitly, the needs for improvement of activities that are weak and develop sustainable advantages and core competencies in critical development priorities. Therefore, the assessments of natural resource gaps and weaknesses using competitive advantages are critical to regional developmental priorities and competitiveness.

Conclusion

The present paper is empirical in nature that investigates the prospective routes in natural resource management when faced with issues of natural resource rents' abundance, dependence, and capabilities. This study begins with a review of observed evidence related to natural resource rent and consequential economic prosperity. Resource-rich countries reluctantly depend on their respective resource rents and capitals. This study understands that natural resource management can be evaluated in several ways, i.e. by breadth or types or tangibility, etc. Therefore, the need for identifying regional developmental priorities in terms of what is available and what is needed should be foremost.
The present study also argued that instead of focusing on natural resource abundance and dependence, the benchmarking of the resource rents on the basis of resource capability should be the precedence. Moreover, the benchmarking will enable various resource manager and experts to anticipate the resource capabilities and ultimate their respective competitive advantages through resource functional assessment and type evaluation. When assessing the resources, a useful approach is to develop a measure where capabilities entries are prioritized; for instance, the existing natural resource rent, projected resources rent, the gap between the existing rent and projected rent, and finally priority should be placed how the resource capability so that the gaps can be mitigated. Therefore, this study is in line with various studies that amplified the assessments of natural resource rents gap, weaknesses as well as their respective competitive advantages for regional development are critical for economic prosperity and competitiveness in the global economic arena.

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Table - 1: Natural Resource Abundance Trajectories

SN	Status	Social Stability	Economic Stability	Technological skills	Route
1	Resource abundance	Instability	Bad policies	Low	Disaster
2	Resource abundance	Instability	Good policies	High	Prosperity
3	Resource abundance	Stable	Bad policies	Low	Disaster
4	Resource abundance	Stable	Bad policies	High	Disaster
5	Resource abundance	Stable	Good policies	Low	Prosperity
6	Resource abundance	Stable	Good Policies	High	Prosperity

Source: Computed by Author

Table -2: Natural Resource Dependence Trajectories

SN	Status	Social Stability	Economic Stability	Technological Skills	Route
1	Resource dependence	Instability	Bad policies	Low	Disaster
2	Resource dependence	Instability	Good policies	High	Prosperity
3	Resource dependence	Stable	Bad policies	Low	Disaster
4	Resource dependence	Stable	Bad policies	High	Disaster
5	Resource dependence	Stable	Good policies	Low	Prosperity
6	Resource dependence	Stable	Good Policies	High	Prosperity

Source: Computed by Author

Table - 3: Trajectories of Resource Abundance and Dependence

SN	Country	Abundance Status	Dependency Status
1	Chad	Resource-poor	Resource dependence
2	OPEC countries	Resource-rich	Resource dependence
3	Jordan	Resource-poor	Resource free
4	USA	Resource-rich	Resource free

Source: Computed by Author from [7]

Table - 4: Prominent growth miracle frontiers

SN	Countries		Period
1	Japan		After World war II to around 1990
2	China		Starting around 1980
3	Newly industrialized Nations of East Asia	South Korea	Starting around 1960
		Taiwan	
		Singapore	
		Hong Kong	

Source: Computed by Author from[3]

Table - 5: Prominent Growth Disaster Frontiers (i)

SN	Country	Period
1	Argentina	Around 1900
2	Chad	Starting around 1970
3	Ghana	Starting around 1970

Source: Computed by Author from[3]

Table - 6: Prominent Growth Disaster Frontiers (ii)

SN	Country	Period
1	Mexico	Since 1950
2	Cote d'Ivoire	Since 1960
3	Kenya	Since 1960

Source: Computed by Author from[3]

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