2017

Natural Resources, Institutions, and Poverty: The Case of the MENA Region

Abdulrhman M. Alamoudi

Eastern Illinois University

This research is a product of the graduate program in Economics at Eastern Illinois University. Find out more about the program.

Recommended Citation

The Graduate School

EASTERN ILLINOIS UNIVERSITY

Thesis Maintenance and Reproduction Certificate

FOR: Graduate Candidates Completing Theses in Partial Fulfillment of the Degree
        Graduate Faculty Advisors Directing the Theses

RE: Preservation, Reproduction, and Distribution of Thesis Research

Preserving, reproducing, and distributing thesis research is an important part of Booth Library's responsibility to provide access to scholarship. In order to further this goal, Booth Library makes all graduate theses completed as part of a degree program at Eastern Illinois University available for personal study, research, and other not-for-profit educational purposes. Under 17 U.S.C. § 108, the library may reproduce and distribute a copy without infringing on copyright; however, professional courtesy dictates that permission be requested from the author before doing so.

Your signatures affirm the following:
- The graduate candidate is the author of this thesis.
- The graduate candidate retains the copyright and intellectual property rights associated with the original research, creative activity, and intellectual or artistic content of the thesis.
- The graduate candidate certifies her/his compliance with federal copyright law (Title 17 of the U. S. Code) and her/his right to authorize reproduction and distribution of all copyrighted materials included in this thesis.
- The graduate candidate in consultation with the faculty advisor grants Booth Library the non-exclusive, perpetual right to make copies of the thesis freely and publicly available without restriction, by means of any current or successive technology, including by not limited to photocopying, microfilm, digitization, or internet.
- The graduate candidate acknowledges that by depositing her/his thesis with Booth Library, her/his work is available for viewing by the public and may be borrowed through the library's circulation and interlibrary loan departments, or accessed electronically.
- The graduate candidate waives the confidentiality provisions of the Family Educational Rights and Privacy Act (FERPA) (20 U. S. C. § 1232g; 34 CFR Part 99) with respect to the contents of the thesis and with respect to information concerning authorship of the thesis, including name and status as a student at Eastern Illinois University.

I have conferred with my graduate faculty advisor. My signature below indicates that I have read and agree with the above statements, and hereby give my permission to allow Booth Library to reproduce and distribute my thesis. My adviser's signature indicates concurrence to reproduce and distribute the thesis.

Graduate Candidate Signature   Faculty Adviser Signature

Printed Name   Printed Name

Master in Economics   5 - 2 - 17
Graduate Degree Program   Date

Please submit in duplicate.

Natural Resources, Institutions, and Poverty:

The Case of the MENA Region

(TITLE)

BY

Abdulrhman M Alamoudi

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Master of Economics

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

2017

YEAR

I HEREBY RECOMMEND THAT THIS THESIS BE ACCEPTED AS FULFILLING
THIS PART OF THE GRADUATE DEGREE CITED ABOVE

4/27/17

| THESIS COMMITTEE CHAIR | DATE | DEPARTMENT/SCHOOL CHAIR OR CHAIR'S DESIGNEE | DATE |

4/27/17

| THESIS COMMITTEE MEMBER | DATE | THESIS COMMITTEE MEMBER | DATE |

4/27/17

| THESIS COMMITTEE MEMBER | DATE | THESIS COMMITTEE MEMBER | DATE |

Natural Resources, Institutions, and Poverty:
The Case of the MENA Region

Abstract

While several Middle East and North Africa countries have a huge endowment of natural resources such as oil and natural gas, poverty indicators, as expressed by well-being indicators and headcount, are no better in these countries than others that are relatively poor in natural resources. For instance, oil rich countries, such as Syria and Sudan, have a lower life expectancy and school enrollment than poor-resources countries like Lebanon and Israel. This study thereby, investigates the cross-country differences of poverty response to changes in natural resources wealth. The paper utilizes a panel data model for the period from 1985 to 2014 based on five-year intervals. The measurement of poverty consists of five different indicators, which are the human development index, three well-being indicators and poverty headcount. Results indicate that natural resources abundance does not directly impact the well-being of the people. The results are consistent with the growth-resources literature that links natural resources abundance to slow economic growth. That is, the presence of natural resources within developing countries exacerbates the risk of political instability, corruption, and poor governance, which we further examine in the second model.

Acknowledgements

<div dir="rtl">وَقُل رَّبِّ زِدْنِي عِلْمًا</div>

"And say, my Lord, increase me in knowledge". (Taha, 114).

All praises to Almighty Allah and most gratitude to him.

I would like to express my deepest gratitude to my supervisor, Dr. Ahmed S Abou-Zaid, for his useful guidance, insightful comments, and considerable encouragements to complete this thesis. I wish to express my special thanks to my major professor, Dr. Mukti Upadhyay for all the wonderful lessons that he has taught me during the last 2 years of my education. I would also like to express my appreciation to Dr. Teshome Abebe for the willingness to be a member in the committee and review my paper.

I would like to express my indebtedness to my parents for their love, continued support, and their supplication especially to my mother Shaikh Aisha. The deepest thanks are expressed to my wife Shaima and my son Abdulelah for their endless confidence, encouragement, and patience.

Table of Contents

'

List of Figures and Tables

1. Introduction

The Middle East and North Africa (MENA) region holds a very enormous ratio of the world's definite oil and natural gas. It accounts for a major proportion of world petroleum output and exports. The region is also abundant of other natural resources wealth such as gold and phosphors. Owning plenty of natural resources wealth, the region's countries shall enjoy a high levels of GDP per capita, standard of living, and wellbeing indicators in terms of health care and schooling. However, some countries show a sign of the existence of the natural resources curse, not allowing them to largely benefit from their wealth. For instance, while Syria, Yemen, Sudan and Iraq are endowed with plenty of natural resources, they still suffer from high infant mortality and low life expectancy. Sudan for example, has 46% of its population living below poverty line and has the lowest life expectancy across MENA region. On the other hand, several region's countries namely Saudi Arabia, Qatar, UAE and Oman, have a higher GDP per capita as well as higher living standards. This raises a crucial question "why the first group suffer and later is not?

Natural resources raise the income to several economies. Historically, several countries that are considered abundant of natural resources such as Gulf Cooperation Council (GCC) countries have grown rapidly and achieved high standards of living, while others have experienced civil war, instability, and extended poverty. Natural resources could play an essential role in the economy if the country has quality institution such as, political stability, low corruption, high civil and political liberty. Political stability has been observed by economists as an essential tool to economic performance. MENA region is below the world median in international's corruption index. It is below other regions in transparency, voice and accountability, and control of corruption (World Bank

Governance,09). The mechanisms for handling corruption is mostly low over the region. Also, governance over patronage is predominant whether by tribal, family, sectarian, or others. This prevents the most eligible from holding positions based on merit, undermining organizations as a whole (Azim and et al. 2014). Different economic aspects of the corruption issue remain unexamined. Particularly, the determinants of poverty and its effect on corruption through cannels have so far received little attention.

The link between a flow of natural resources and well-being is extremely intricate, and, before making any overall statement regard whether natural resources rents are a curse or a mercy, economists ought to expend more time considering the mechanisms over which natural resources might support or reduce economic development. Institution s' quality have a featured function for determining human development parts of the society. MENA region is found to show higher volatility in its performance (Makdisi et al. 2006), fundamentally due to the majority of its member countries' reliance on oil (Bhattacharyya and Blake, 2010) and the relative impairment of its governance characteristic compared with other parts of the world (Guetat, 2006). According to IMF, some countries namely Syria, Yemen, Iraq and Libya have been witnessing violence, human suffering and extermination. Consequently, these conflicts have affected the physical and economic for this area (IMF, 16). Moreover, the middle east keeps a large ratio of the world's proven oil reserves. Yet, they are unstable politically, such as, Algeria, Iraq, Syria, Sudan, Libya, and Yemen have been getting a score less than 10 % since 2010 (World Bank Governance,09). As well as, they have the lowest ratio in controlling corruption between MENA countries in 2014.

The most important question that this study is seeking to cover: does natural resources play a fundamental role in poverty alleviation in case of MENA countries which has a high rate of corruption by examining further the interrelationships between these three factors to earn a better understanding of the determinants of poverty alleviation in MENA countries. Thus, the main objectives of this paper are:(a) to investigate and analyze and the effect of natural resources in the MENA region on key societal development factor, namely poverty in this region and (b) investigate the effect of some important control variables that play a substantial function in determining poverty, for instance, per capita income, inequality, investments, and other variables. Therefore, understanding the effects of poverty leads to the discovery of a policy that controls the wellbeing of whole countries. To achieve the objectives of the research topic, this paper will be presented in five sections. The first section consists of introduction, literature review and theoretical part of this study. The second part contains data and methodology. Section three presents the relationship between poverty and other variables. The results and the conclusion will be presented in section four and five respectively.

2. Literature Review

There have been many studies on the effects of poverty, political stability, and natural resources in society and on the economy. Based on information gathered from existing studies, an endeavor is made here to review the existing literature. Firstly, there are many studies that investigate the link between natural resources and human development. Federico (2005) used the human development index (HDI), as well as other wellbeing indexes such as life expectancy and infant mortality for 114 countries in 2000. The results indicate that human development has had a significant negative impact on natural resources. Similar results have been found by Lee (2014). This impacts the ability and planning of country institutions to promote higher standards of well-being. The advantages of natural resources might boost the capability of a country, but will also have harmful impacts on the status of human development. Without prompting to utilize its prospective capability to encourage better HDI, countries tend to stay in poverty. Moreover, governments with relatively less institutional quality that depend on exports of metals and fuel have negative effects on HDI, whilst the worth of subsoil assets influences it significantly. Generally, natural resources tend to be positively linked to well-being in governments with relatively lower institutional quality (Mehlum et al., 2006); however, they do not play an important role in countries with relatively good institutions. On the other hand, some studies such as Pineda and Rodríguez (2010), show that natural resources have a positive and significant impact on HDI.

Some studies concentrate on analyzing the relationship between natural resources and its impact on economic growth and inequality. An excessive reliance on natural resources, perhaps a ceteris paribus assumption, suppresses the development of efficient

capital markets, as suggested by Gylfason and Zoega (2003), who used a sample of 85 countries representing developing and developed countries. Moreover, Sachs and Warner (1997), and Ding and Field (2005) differentiated between a natural resource reliance and abundance of natural resource, and suggested that the impacts of natural resources on growth have become insignificant. Gylfason and Zoega (2002) proposed that natural capital intensity reduces growth directly and indirectly by increasing inequality. Also, their result was confirmed by Buccellato and Alessandrini (2009), who suggested that economies endowed with natural resources have grown more slowly than other economies. The abundance of natural resources might boost disparity in income distribution. On the other side, Bravo-Ortega, and Gregorio (2001) and Lee et al. (2014) found that natural resources had a positive impact on growth, and that influence is only relevant in countries with low levels of human capital. Arezki and Ploeg (2007) proposed that natural resources might activate better in countries that are more liberalized to trade, whilst Ploeg (2007) indicated that natural resources work better in countries that have an advanced financial market.

Van der Ploeg (2010) focused on studying the relationship between natural resources and the types of quality of institutions, with results indicating that economies with a great proportion of resource exports in GNP have low growth records and high variance in income, particularly if the control of corruption is poor. In this regard, Bhattacharyya (2010) conclude that revenue from natural resources boosts corruption only when the quality of government institutions is low. Therefore, countries with natural resource abundance tend to be disrupted due to the curse of natural resources, which encourages governments to attract rent-seeking. However, countries such as Australia and Norway,

which are considered rich with natural resource, have better-quality institutions with democratic. Moreover, natural resources have no influence on the governmental system when they are present in democracies. On the other hand, Caselli and Tesei (2014), and Jensen and Wantchekon (2000) suggest that rich countries with natural resources will have experience in autocracies. Historically, when a country has plenty of natural resources, it will have a higher level of consumption as well as worse governmental performance.

In terms of political variables and their effect on economic growth, inequality and human development, Aisen and Jose Veiga (2011) found that political stability boosts economic growth. Their result also indicates that, in the long run, output will decrease due to political instability. Such instability leads to support of the economy in the short term; however, it creates corruption in the long run (Karim et al., 2014). Inequality in income and land distribution are also negatively linked with subsequent growth (Alesina and Rodrik, 1994). One study sampling 33 Asian countries investigated the relationship between bureaucratic and political stability, with results indicating a negative relationship between these two factors (Azim et al., 2014).

Regarding the relationship between political and economic factors and their effect on human development, some studies indicate that gross capita formation and law and order play an essential role in human development; however, Azim et al. (2014) suggest that control of corruption is an insignificant value. In terms of the direction between economic growth and human development, Ramirez et al. (1998) note that there is a robust correlation between these factors, and also that government spending on well-being programs play an essential role in strengthening the link between growth and HDI. It has a negative relationship with net official aid, fertility rate and infant mortality in Sub-Saharan Africa.

There are some important variables that alleviate poverty, such as access to water and supporting the private sector financially. Large amounts of corruption lead to an increase in poverty (Abebe and Quaicoe, 2014). Assadzadeh and Pourqoly (2013) found that inflow foreign direct investment (FDI) with appropriate government indicators like rule of law will lead to a decrease in poverty in the Middle East and North Africa (MENA) region. Moreover, investing in infrastructure has a strong impact on poverty reduction.

To investigate the link between economic and other important factors related to politics, environment, and social factors with their impact on non-income poverty, some studies have found that Higher GDP per capita will lead to an improvement in average life expectancy. Also, an increase in health expenditure was observed with high rate of life expectancy (Mahumud et al., 2013). Also, Moser and Ichida (2001), who extended Mahumud's model by adding quality of growth represented by the Gini coefficient, civil conflicts and civil and institutional freedom, found that these factors play an important role in explaining the variability of poverty across Africa. Moreover, Ali and Ahmad (2014) confirm that food production and quality of primary schools have a statistically significant on life expectancy in Sultanate Oman, but inflation has a negative and insignificant relationship with life expectancy. However, improving income per capita will boost the economy of India by increasing growth, while well-being indicators remain unchanged (Khodabakhshi, 2011).

Regarding the link between income and its determinants on poverty, a study by Chen & Ravallion (2008) confirms that high growth in populous countries like China and India has contributed much to the fall of absolute poverty worldwide from 1981-2005. Also, growth driven by labor-intensive sectors such as agriculture, construction, and

manufacturing, is associated with greater reductions in poverty in 55 developing countries (Loayza & Raddatz, 2010). Further, Dahlquist (2013) indicates that economic growth does indeed reduce destitution. However, when there is chronic poverty, economic growth is not an effective policy compared with investing in well-being. This result was supported by Garbis Iradian (2005), who found that income inequality has a negative effect on economic growth, and that higher income per capita is linked with poverty alleviation, with economic growth leading to income inequality, and a subsequent increase in poverty. Moreover, poverty would decrease through development which affects growth (Upadhyay and Fanta, 2008; Ncube et al., 2013). On the other hand, one study found that growth in per capita income does not significantly reduce poverty.

Thus, we can summarize the literature reviews into three types. The first concentrates on natural resources or windfalls and their impact on economic growth, poverty income and well-being indices; for instance, life expectancy, schooling enrollment, and human development. The second focuses on political economy or stability and its influence on economic growth, human development, and poverty income. Lastly, poverty and its determinants are analyzed. The first group uses headcount index (poverty income) and its impacts on per capita income, inequality, and other important variables. The second approach employs the HDI or well-being indices such as infant mortality and life expectancy as a measure of poverty. Considering that well-being indices as non-income poverty, but HDI is a combination of income and non-income indicators. Our goal is to investigate the relationship between natural resources and institutions through its impact on poverty. Also, we have attempted to answer the following question: Why is oil a curse in some countries and a blessing in others?

3. Theoretical part

3.1 Natural resources in the MENA region.

The World Bank defines natural resources as being "all 'gifts of nature'- air, land, water, forests, wildlife, topsoil, and minerals - used by people for production or for direct consumption, [and] can be either renewable or nonrenewable". Natural resources play a major role in the world's economy and influence world stability. The MENA region covers a surface area of over 15 million square kilometers, and contains over 340 million people. It represents approximately 6 percent of the world's population. This region is one of the wealthiest in the world in terms of natural resources. It covers more than 60 % of proven oil reserves in the world, with most of them being located in the GCC region. Economists suggest that this dependence may be detrimental for growth prospects and job creation in the MENA countries, thereby limiting the scope of economic diversification. The idea that a country's resource riches are often a curse, rather than a blessing, has spawned many studies. This phenomenon has been shown to retard development through the so-called "Dutch disease" effects: commodity price volatility, policy errors, conflict and weak institutions (Collier and Hoeffler 2004 and 2005; Mehlum et al. 2006). Table 1 shows the natural resources as a % of GDP and control of corruption in 2014 in some countries of the region. It indicates that Kuwait, Saudi Arabia, and Iraq have a lot of natural resources, which implies that their GDP is reliant on natural resources.

3.2 The quality of institutions and natural resources in the MENA region.

The various development results associated with natural resource abundance are often explained as resulting from differences in institutional quality. Oil-reliant countries are distinguished by the heterogeneity of their economic performance. It indicates that institutions are the most effective factor to explain growth differences between oil-dependent economies. Recent studies suggest that oil resource dependence on economic growth becomes positive as the quality of institutions improves. Large amounts of natural resources can reduce incentives for domestic accountability. Natural resources as a source of revenue parallels other "non-gained" revenue sources, particularly foreign aid. When the flow of revenue is influenced by institutions' performance, there is little incentive to enhance country capacity. When revenues do not rely on the fees or taxes raised from citizens and firms, there is less incentive for a country to be accountable to them. Large amounts of natural resources and the way these resources are programmed, may contribute directly to the weakening of the institutions of the country and attrition capacity. Meanwhile, large amounts of natural resources can generate incentives that make solving the issue of distributing the revenue problematic.

Table 1 Natural resources and control of corruption in 2014

Country	Natural resources*	Control of Corruption**
Iraq	41.45	5.76
Libya	36.83	1.44
Qatar	28.21	82.69
Saudi Arabia	41.12	35.23
Iran	29.76	34.61
Kuwait	54.51	50
Oman	30.11	62.98
Bahrain	19.90	64.42
Egypt	8.52	32.21
Lebanon	.005	13.46
Yemen	15.63	1.92
Morocco	2.70	50.48
Algeria	23.09	31.73
Israel	0.32	76.44

* Natural resources measured as a percentage of GDP.
 ** Control of corruption as a percentile rank with 0 is the worst.

3.3 How might natural resources affect institution?

The debate over the impact of natural resources on poverty enters a new stage when economists consider the institutions as the most significant factor in distinguishing the positive and negative effect of natural resource abundance. High levels of natural resources have the potential to enhance government institutions, however they can also work against institutions' performance. High levels of natural resources channeled to institutions with clear development agendas can be used to enhance the standard of living of people through decreasing poverty and stimulating growth. In the MENA region, Egypt and GCC countries are a good example of this. It can release the binding constraint of low income for countries committed to human development. Poverty reduction and economic growth through natural resources, in turn, can also create new revenue for supporting betterment in institutions. Yet, high levels of natural resources may also block institutions in two approaches. First, the way large amounts of natural resources are delivered can weaken government performance rather than build them. High levels of natural resources can generate incentives that make it more difficult to overcome the collective action issue involved in building a more effective natural resource system. Thus, when government institutions are weak then resource rents are less likely to have a positive effect on poverty and growth.

4. The model and Data

4.1 Model Specification

This paper utilizes the complications arising from a direct and possibly indirect influence of natural resources, political stability, and control of corruption as well as several other control variables on its level of poverty. The panel model allows us to control for the country-specific effects arising from factors that cannot be directly measured. Therefore, we estimate the models by using generalized least squares that adjusts for heteroscedasticity across countries. Thus, the general specifications of the structural equation model used in this study are:

Poverty = ƒ (Natural Resources, Control of Corruption, Political Stability, X)

(1)

Poverty variable represents the human development index, as well as other well-being indices which consist of life expectancy, school enrollment and infant mortality, and the index of headcount poverty. The economic and control variables were described in the section of variable description. By combining countries' unobservable individual effects, we can express the linear models that we are going to estimate as follows:

ln (Pov) $_{it}$ **= α** $_{it}$ **+ β1 ln(NR)** $_{it}$ **+ β2 (Coc)** $_{it}$ **+ β3 (Stab)** $_{it}$ **+ β4 ln(Res*Coc)** $_{it}$ **+ β5 (X)** $_{it}$ **+ Ɛ** $_{it}$

(2)

where Pov represents five indicators that determine poverty in monetary way, as well as the non-income approach, NR is total natural resources as % of GDP, Coc is the control of corruption, Stab is the political stability and absence of violence/terrorism, x is a set of other control variables, Ɛ $_i$ is the residual disturbances and t is the time subscript.

4.2 Data Description.

This paper utilizes a panel data in which country periods are the units of observation. The data for this research has been collected from different sources, namely, World Bank, United Nations Development Reports, Freedom House, Worldwide Governance Indicators, and IMF. Therefore, this study analyzes the effect on natural resources and other control variables on poverty in multidimensional ways, particularly the impact of natural resources, control of corruption, political stability and some essential control variables. The data set covers the period from 1985 to 2014 MENA countries. Also, our data set in this study leads to a balanced panel in all cases except in the case of headcount poverty due to the absence of some data. The research seeks to identify the impact of economic and political factors on its impact on poverty across five time periods.

HDI is the human development index is a composite statistic of life expectancy, education, and per capita income indicators. Therefore, the HDI is the geometric mean of the three-dimensional indices and represents a multidimensional approach to the measurement of poverty.

Life expectancy is the life expectancy at birth (years) in the logarithmic form.

IMRs is the Infant Mortality Rate per 1000 live births in its logarithmic form.

School enrollment is the total gross primary enrollment in the logarithmic form. Life expectancy, IMRs, and School enrollment represent non-income poverty.

Poverty headcount the concept of poverty used in this study is the headcount index defined as the percentage of the population living below the national poverty lines.

National estimates are based on population-weighted subgroup estimates from household surveys.

Natural resources are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents.

Political stability is the percentile rank that indicates the country's rank among all the countries covered by the aggregate indicator, with 0 corresponding to the lowest rank, and 100 to the highest rank. Percentile ranks have been adjusted to correct for changes over time in the composition of the countries covered by the (Worldwide Governance Indicators).

Control of corruption is the percentile rank that indicates the country's rank among all countries covered by the aggregate indicator, with 0 corresponding to the lowest rank, and 100 to the highest rank (Worldwide Governance Indicators).

GDP per capita is the gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products the data are in constant 2010 U.S. dollars

Gross capital formation is measuring the gross fixed capital formation in billions of United States Dollars. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.

FDI is the net inflows of investment to acquire a lasting management in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital,

reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments as a percentage of GDP.

Openness of the economy is measured as growth rate as share of export plus import in GDP.

Health expenditure is the sum of public and private health expenditure. It covers the provision of health services (preventive and curative), family planning activities, nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation.

Inequality is measured by the Gini index which is the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus, a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality (World Bank).

Inflation is measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals (World Bank).

Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship in growth rate (World Bank).

Freedom index is measured on a scale that goes from 2 to 14 with 2 being the most free, and it sums of political rights and civil liberties whose values have been combined from the Freedom House.

4.3 Descriptive statistics

Table 2 Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
HDI	126	.6842963	.1261751	.331	.894
School Enrollment	126	100.4211	12.80708	61.97542	130.9847
Life Expectancy	126	71.11492	5.313277	55.51446	82.15366
Poverty Headcount	19	21.88947	10.17764	5.5	46.5
IMRs	126	26.40648	18.50929	3.2	88.7
GDP per Capita	126	12795.49	16841.63	769.0366	74227.03
Inequality	46	37.5563	4.169747	28.6	46.1
Gross Capital	126	23.21866	7.850288	2.854411	45.60688
Natural Resources	126	23.77659	19.9436	.0030017	69.28757
Political Stability	126	31.07653	23.24073	0.01	88.15166
FDI	126	2.315469	3.31364	-4.319668	15.76406
Trade	126	76.84617	33.84848	.0209992	210.161
Inflation	126	13.28997	39.54152	-3.846154	387.3109
Population Growth	126	2.692219	1.972454	-2.888301	13.38216
Health Expenditure	126	5.014028	2.145943	2.092677	13.06279
Freedom Index	126	11.09259	2.59596	3	14
Control of Corruption	126	43.32612	25.39489	1.442308	91.42857
Conflict Dummy	126	.7619048	.427618	0	1

The first row shows that on average total human development rate is nearly .69 in all MENA countries. In addition, the lowest rate is 0.33 (Sudan,1990) and highest is about 0.90 (Israel,2014). The standard deviation is nearly .12. The second-row show that on average the percentage of the population of official primary education age is about 100.4%. Moreover, the lowest is 62% (Sudan,1985) and the highest is more than 130% (Lebanon,2000), while standard deviation is nearly 12.8. The Third row illustrates on average the number of years a newborn infant would live is nearly 71.11. Also, the lowest is 55.5 (Sudan,1990) and highest is more than 82 (Israel,2014). The standard deviation is nearly 5.3. On average headcount poverty is approximately 23%. Also, the lowest is 5.5 % (Algeria,2010) and the highest is more than 46% (Sudan,2010). The mean of infant mortality rate is about 26.4% in MENA countries. Moreover, the lowest is about 3.2 (Israel,2014), whilst the highest is approximately 89

(Yemen,1985). The sixth row clarifies that on average per capita income is about 12795$. The highest is 74227$ (Qatar, 2014) and the lowest is about 769$ (Sudan,1990). The mean value of gross capital formation is about 23.2 as a percentage of GDP. Moreover, the highest is approximately 45.60 (Algeria,2014), while the lowest is about 2.85 (Syria,2014) due to the conflict war. The eighth row presents that on average total natural resources as a percentage of GDP is almost 23.77 in all MENA countries. In addition, the lowest rate is 0.003 (Israel,2000) and highest is about 69.28 (Iraq,2000). The standard deviation is nearly 19.94.

The following indicates the mean of political stability which is about 31.07%. Moreover, the lowest is 0.01% (Syria,2014) and the highest is more than 88% (Qatar,2010), while standard deviation is nearly 23.24. The tenth row illustrates on average the foreign direct investment is nearly 2.36. Also, the lowest is -4.31 (Bahrin,1990) and highest is more than 15% (Jordn,2005). The standard deviation is nearly 3.3. The next row indicates that, on average, the trade openness is approximately 77%. Also, the lowest is .02% (Iraq,1995) and the highest is more than 210% (Bahrain,1990). The mean of inflation rate is about 13% in MENA countries. Moreover, the lowest is about -3.8 (Syria,2000), whilst the highest is approximately 387 (Iraq,1995) which considers a hyperinflation. The mean of population growth rate is about 2.69%. Besides, the lowest is negative -2.88% (Syria,2014) and the highest is nearly 13.06% (Qatar,2010) and standard deviation is more than 1.9. The mean of total health expenditure rate is about 5.01% in MENA countries. Moreover, the lowest is about 2.09%(Qatar,2010), whilst the highest is approximately 13.02% (Lebanon,1990). The following row represents the mean of freedom index is nearly 11.09. Moreover, the lowest is about 3 (Israel,2014), whilst the highest is approximately 14 for most of MENA countries. Noticing that the highest is the worst. The last row clarifies that on average control of corruption is about 43.32%. The highest is 91%(Qatar, 2010) and the lowest is about 1.44 (Libya,2014).

5. Relationship between variables

5.1 Relationship between poverty and natural resources

There are many empirical studies which support the key role that natural resources play in human development (Federico, 2007) and (Daniele, 2011). Other studies analyze the interaction between natural resources and institutional variables, and find that natural resources tend to be significantly correlated to HDI in countries with a comparatively lower institutional quality (Mehlum et al. 2006). However, they do not play a significant role in countries with comparatively better institutions. Increasing per capita income through natural resources, as suggested by Ncube and Hausken (2013), may lead to a short-term resource windfall and an enhancement in welfare, especially via increases in income. Therefore, in the case of MENA countries, natural resources could play a fundamental role for determining life expectancy, infant mortality, and school enrollment through better institutionals. Also, it has been found in several countries, for instance gulf countries, that depending on natural resources increases their GDP (Ncube and Hausken, 2013) and (UNDP report, 2013). There some researchers who distinguish between income and wellbeing by claiming that they are weekly correlated so that increases income growth does not lead to ever-happier individuals. On the other side, high income allows people in modern societies to spend it in essentials to enjoy minimum standard of life and wellbeing that is considered acceptable in the society. Another important point that is sometime increasing income per capita will not affect their standard of living if the society is lacking from infrastructure, access to school and healthcare.

5.2 Relationship between poverty and government indicators

Political stability and control of corruption have a prominent role to play through determining other human developmental aspects of society. Efficient states can promote and stimulate all people to be actively participating in developmental activities (Ullah et al. 2014). Furthermore, there are plenty of empirical studies confirming that high levels of corruption will lead to a decrease in human development (Abebe and Quaicoe, 2014). Also, corruption has a bigger impact on health outcomes in poorer, developing nations than in richer, developed ones (Neil Nadpara, 2015). Therefore, control of corruption will enhance primary school enrollment (Reinikka and Svensson, 2005).

Political stability in a country boosts the amount of foreign investment which in turn increases human development (Assadzadeh and Pourqoly, 2013). However, another study asserts that government stability and bureaucratic quality are negatively and significantly linked with human development (Azim et al., 2014). Life expectancy has been found to have insignificant effects on political instability TianQi Xu(2011). Furthermore, Nadpara (2015) found that government stability is not significant to explain the change in life expectancy and infant mortality. The number of poor people would increase, as suggested by Brian and Gupta, with political instability, and corruption causes or worsens poverty, which leads to an increase in conflict, which in turn leads to the stunting of development (Brian Vincent, 2009). Some countries in the MENA region, namely Sudan, Yemen, Iraq, Syria, and Libya have unstable security situations, violence and corrupt practices. Thus, having weak government indicators would prevent the economy from obtaining a benefit from their natural resources.

5.3 Relationship between poverty and control variables

The key to sustained poverty reduction is economic growth, as is widely agreed by economists and development practitioners. The high correlation between per capita income and the overall HDI is quite apparent because HDI is a composite statistic of life expectancy, education, and income per capita indicator (UNDP). Moreover, increasing per capita income tends to show how that change impacts the quantity demanded of a good or service. For instance, when an individual's income increases, that person demands more goods and services, thus increasing consumption. Also, Daniele (2011) indicates that per capita variable is highly significant to determine HDI. Another study by Khodabakhshi (2011) confirms the relation between these two indices in India and found them positively correlated. Moreover, there are studies confirming that per capita income is an essential factor for determining non-income poverty, and the growing in per capita income will lead to improvement of life expectancy and schooling enrollment, as well as decreasing infant mortality (Upadhyay and Srivastava, 2013; Moser and Ichida, 2001). Also, they suggest that the connection between income per capita and life expectancy weakens after reaching a specific level, and indicates that people born in rich countries, on average, can expect to live longer than those born in poor countries. Further, many empirical studies confirm that enhancing per capita growth would decrease poverty (Upadhyay and Fanta, 2008; Garbis Iradian, 2005; Ncube and Hausken, 2013; Matilda Dahlquist, 2013; Dollar & Kraay, 2002; Chen & Ravallion, 2008; Cheema and Sial, 2012).

Investment goals are to invest in fixed assets such as hospitals and schooling. Therefore, increasing gross capita formation will stimulate HDI, as well as well-being indicators. Moreover, Ncube and Hausken suggested that an increase in gross capital

formation and income will reduce poverty income. Some countries in the MENA region, namely Yemen and Sudan, have a higher infant mortality due to lack of hospitals. As a result, gross capital formation would be more effective in poverty alleviation.

FDI could be an important variable in determining poverty and most studies confirm a significant relationship between FDI and HDI (Assadzadeh and Pourqoly, 2013; Cem Tintin, 2012). Another study (Abebe and Quaicoe, 2014) confirms that FDI inflow was not statistically significant in explaining the HDI in the case of Sub-Sharan Africa. Also, the effect of FDI in poverty reduction could be indirect through income, as Herzer and Nagel (2012) indicate that the effect of FDI on population health is nonlinear depending on the level of income. FDI plays an important role in the case of MENA countries, especially in the case of natural resource abundant countries. Inflows of FDI have a positive and significant impact on the poverty reduction Tran Hung (2005).

While there is a lot of empirical support for the argument that trade liberalization and openness stimulate long-run growth the case has surely not yet been fully proven. There is no evidence, however, that they are harmful to growth (Winters,2004). Some studies like (Asongu, 2012), suggested that trade globalization improves human development (consistent with the neoliberal theory). Also, (Ncube and Hausken, 2013) confirm that the more the economy is free in term of international trade, the less the poverty headcount is. Moreover, access to education will be better off if the country has a high rate of trade openness, but it will increase the infant mortality, (Moser and Ichida ,2001). Health is an important contributor to people's ability to be productive and to accumulate the knowledge and skills they want to be productive, recognized as human capital. Thus, increasing the expenditure on health will lead to enhance the human development index as it suggested

by (Razmi,2012). Furthermore, the growing in health expenditure will have a positive consequence on life expectancy, schooling enrollment and decreasing infant mortality (Moser and Ichida ,2001; Mahumud et al.,2013). However, Deshpande et al., (2010) suggested that there is no significant correlation between healthcare spending and life expectancy in developing countries, but it does exist in developed countries and that because the quality of expenditure that impacts healthcare. Hence, an increasing in health expenditure will reduce poverty in case of MENA region.

Poverty and inequality are intrinsically linked and many economists argue that income inequality is among the most urgent current problems nowadays. Also, Sakir confirm that income inequality plays a negative role on human development in any country irrespective of its HDI level (Sakir,2014). Most of studies confirm that increasing inequality will lower life expectancy and growing the infant mortality Moser and Ichida (2001) and James Y. Nazroo (2015). The relationship between headcount poverty and inequality in income distribution is strong in the case of MENA countries as confirmed by (Ncube and Hausken, 2013; Upadhyay and Fanta, 2008; Cheema and Sial,2012). As a result, inequality would fuel poverty in case of MENA countries.

Although there are many other factors that might cause poverty, inflation is considered as an effective factor in determining the poverty. Therefore, increasing inflation at reasonable point could stimulate health expectancy, schooling enrollment to go up and lowering infant mortality through income per capita Lee and Gueye (2015). Elizabeth T. Powers (1995) confirm that an increasing in inflation rate would result in declining poverty income. Others found inflation insignificant relationship with life expectancy Ali and Ahmad (2014). However, (Shahidur Talukdar ,2012; Ncube and Hausken, 2013) suggested

that inflation in general is positively correlated with poverty. In case of MENA countries, an increase in price level would stimulate GDP through investment, so that will reduce income poverty.

There has been considerable debate over the relationships between population growth and poverty. Population growth perhaps has either a negative or an ambiguous effect on economic development (La Torre, 2007; Furuoka and Munir, 2011) confirm that population growth has a significant impact on countries with a high level of human development. However, increasing population growth could have a negative impact on countries with a low level of human development. Turan (2009) suggests a weak positive relationship between life expectancy and labor force participation for females, but no relationship among males. Moreover, Ali and Ahmad (2014) found that population growth has a negative and significant relationship with life expectancy in the Sultanate of Oman. This is considered a reason for expansion in poverty in MENA countries because overpopulation is not desirable by decision-makers (Ncube and Hausken, 2013; UNDP report, 2013). Furthermore, increasing population growth rate in MENA countries will have a negative impact on non-monetary indicators because they do not participate in determining GDP by activating other sectors and relying on their natural resources. The last important control variable is the freedom index, and we have chosen this variable because most MENA countries are suffering from having freedom, which is the sum of political rights and civil liberties. Moser and Ichida (2001) suggest that institutional freedom plays an important role in explaining the variability of poverty across Africa. Also, they indicate that the decreasing in freedom index in Sub-Sharan Africa affects life

expectancy negatively, increases the rate of infant mortality, but enhances school enrollment.

6. Empirical Results

6.1 Analyzing the HDI estimation.

This section provides the estimates of different specifications of equation (2) based on the dependent variable. Table (1) reports the results of the impact of natural resources and other control variables on human development index (HDI). We use different specifications in Table 1 in order to avoid the issue of multiclonality. The results indicate that GDP per capita, investment and health expenditure have a positive significant relationship with the HDI index. The results suggest that a high level of GDP per capita, investment and health expenditure contribute to enhanced well-being in MENA countries. That is, a higher GDP per capita is translated into a higher income per person and thus a higher level of expenditures on food, shelter, healthcare, and education. Governments in countries with high levels of income have the luxury to spend more on various social programs and key public services. Moreover, gross capital formation (GCF), which includes investments in health and education, as well as other social factors, is considered as a pattern of planned human resource development. More specifically, health expenditure is also a significant component in improving HDI among countries or over time. Figure 1 confirms that there is a significant relationship between HDI and GDP per capita in MENA countries. Most importantly, natural resources are found to be insignificant in all specifications and samples. An increase in natural resources in some countries over time is not translated into higher HDI. Figure 2 shows that some countries in MENA, namely Jordan, Lebanon and Israel, have a higher HDI in the sample even though they had less than 1% of total natural resources. On the other side, countries like Yemen, Iraq and Sudan have plenty of natural resources, but their HDI is extremely lower than countries with no

natural resources. Evidence from literature reports a linkage between natural resources and slow economic growth rate. Figure 3 provides extra evidence on the relationship between natural resources and economic growth; for instance, despite an increase in natural resources from 26.4 in 2007 to 29.50 in 2008, growth rate declined from 6.8 in 2007 to reach 3.8 in 2008. Since per capita income is a component of HDI, the results indicate that natural resources are insignificant in affecting income.

These results are consistent with the argument of the United Nations that higher levels of human development are crucial in the fight against corruption. The interaction term that represents the combined effects of control of corruption and natural resource abundance shows a positive effect throughout the model, meaning that when corruption is well controlled, then a percent increase in total natural resources will lead to a 0.008 small upward movement of HDI in MENA countries. The implication is that democratic countries have better institutions and are therefore less likely to be cursed by natural resources. The main idea in recent work is that the effect of natural resources on HDI is heavily dependent on the performance of institutions. If the institutions provide valid protection of property rights and are suitable to productive and entrepreneurial activities, natural resources are likely to benefit the economy by being a source of revenue that influences human development in the long run.

A negative and significant coefficient for the Gini index for human development states that greater inequality is associated with lower HDI in the MENA region. Thus, income inequality is very harmful for the purpose of attaining higher and sustained human development in the MENA region. Based on the outcomes that population growth is showing a negative relationship with HDI in all samples. Therefore, an increase in

population growth in MENA countries due to higher fertility rate in this region will lower human development because overpopulation in MENA countries requires more schools and hospitals to meet such increase. The results of the estimations considering inflation rate reveal that this variable is not relevant to explain HDI, although signs of this variable are correct. In addition, we find that conflict and low levels of civil and institutional freedom have a significant negative effect on HDI. So, conflict and the lack of civil and institutional freedom would diminish the rate of human development index (HDI).

Table 3 HDI Estimation

Independent	1	2	3	4	5
Constant	-.257 (.066) ***	-0.363 (.220) ***	-.210 (.060) ***	-.162 (.067) **	-.184 (.066) ***
Ln (GDP per capita)	.083 (.005) ***	.036 (.008) ***	.082 (.005) ***	.079 (.006) ***	.060 (.007) ***
Gross Capital Formation	.0015 (.006) **	.0033 (.0017) *	.018 (.006) ***	.017 (.006) **	.02 (.009) **
Natural Resources	.003 (.003)	.0006 (.0009)	.0007 (.0004)	.0006 (.0005)	.0006 (.0005)
FDI	.001 (.001)	.0006 (0.002)	.001 (.001)	.002 (.001)	.002 (.002)
Trade	.002 (.001)	.0004 (.0006)	.001 (.001)	.001 (.001)	.0004 (.0002)
Health Expenditure	.011 (.003) **	.011 (.004) *	.015 (.003) ***	.015 (.003) ***	.009 (.005) *
Ln (Inequality)		-.190 (.012) *			
Inflation	-.0002 (.0001)	-.001 (.001)	- .001 (.001)	-.008 (.01)	-.002 (.002)
Population	-0.007 (.002) **	-0.019 (.003) ***	-.006 (.003) **	-.006 (.002) **	-.0103 (.004) **
Political Stability	.0001 (.0003)	.003 (.001) **	.0003 (.0004)	.0156 (.007) **	.001 (.0005) *
Control of Corruption	.0151 (.008) *	.004 (.001) ***	.0026 (.0006)	.0019 (.0006) ***	.0004 (.0002) *
Freedom Index	-.009 (.002) ***	-.004 (.009)	-.004 (.004)	-.008 (.004)	-.006 (.003) **
Ln (Natural Resource* control of corruption)	.008 (.004) **	.0128 (.003) ***			
Ln (Natural Resource* Trade Openness)			.004 (.039)		
Ln (Natural Resource* GDP)				.003 (.004)	
Conflict Dummy					-.032 (.018) *
Observations	126	42	126	126	126
countries	18	12	18	18	18

Note: *** indicates the significance level at 1% significant level.

** indicates the significance level at 5% significant level.

* indicates the significance level at 10% significant level. and the parentheses contain the SEs.

6.2 Analyzing the Well-being estimation.

Results in table 2, 3, 4 represents the impact of our independent variables on life expectancy, infant mortality (IMRs), and school enrollment, respectively. The results indicate that GDP per capita and health expenditure are significant in all specification. Higher GDP per capita and health expenditure raise life expectancy, lower infant mortality and increase school enrolment in MENA region. It is not surprising that income has been identified as a very important factor for enhancement wellbeing indicators. Increasing income per capita is often associated with a greater demand for, and supply of, health care and it can create virtuous circles of prosperity and opportunity by improving incentives for parents to invest in their children's education through sending them to school. Moreover, the greater individual's income, the lower individual's likelihood of disease and early death. Higher income also implies better access to housing, education, health services and other items which tend to lead to improved health, lower rates of mortality and higher life expectancy. Figure 4 shows the scatter plot of per capita GDP and life expectancy in MENA countries. The role of health expenditure is stimulating the economy and it considers as sort of capital, thereby, spending on health can boost income and lead to overall enhancement in wellbeing, Mahumud (2013). In fact, health expenditure can affect wellbeing over its impact on human and physical capital accumulation. Since healthcare is a major component of human capital investment, rising national health expenditure would tend to raise labor productivity, quality of life and general welfare.

While domestic investment influences booth life expectancy and school enrolment but not infant mortality. Gross capital formation similar to an increase in physical capital stock of a nation with investment in social and economic infrastructures like building hospitals

and schools. Increased investment might stimulate economic growth (Bebczuk 2000). This approach is confirmed by Harrod (1939), Domar (1946) and Solow (1956). Therefore, gross capital information play an essential role directly to improve wellbeing through investing in infrastructure assets or indirectly by enhancing economic growth. Infant mortality is insignificant to change in domestic investment due to decline the most in the Middle East and North Africa region. There was great variation among initial child mortality levels in 1990 with the highest rate being that of Yemen (88 per 1000) and the lowest being that of Lebanon (26 per 1000). This is expected to be of special relevance to the MENA region because most countries had adopted a way of publicly financed and delivered provision of medical services by the 1960s and continued to fulfil this way into current times. Governments of MENA region play an even more central role in the vaccine issue by subsidizing it and taking responsibility for the distribution. The regression results clearly demonstrate that explanatory variable of foreign direct investment appears to be statistically insignificant to explain the change in well-being indicators in case of MENA region. That is majority of FDI in the region has gone into petroleum-related which will not enhance the improvement in wellbeing. Therefore, governments of MENA countries should organize and regulate the inflow of foreign direct investment in order to get a benefit from them through poverty alleviation.

Contrary to the belief that natural resources have an influence on wellbeing indicators, in MENA region, results suggest that a higher level of natural resources do not influence any of the welfare indicators. Life expectancy, IMRs and school enrollment are not related to natural resources wealth. Table 3 represents Life expectancy, IMRs, school enrollment and natural resources in some countries namely Lebanon, Israel, Yemen, and Sudan. It

shows the variation of wellbeing indictors among countries in MENA region. Although Lebanon and Israel have almost less than one percent of natural resources, they have the highest rate of wellbeing indicators. This is not consistent with Dutch disease theory which suggests that natural resources are equally unpleasant for wellbeing and development across countries and it creates disincentives for education by lowering human capital investment in resource rich countries (Gylfason, 2001). The result of natural resources suggests an impediment that made it insignificance to poverty reduction. Thus, we use interactions term which are per capita income, trade openness and control of corruption to discover which impediments that face natural resources. The results indicate that when natural resources interacted with higher trade openness and GDP per capita, wellbeing indicators would not respond to that. So, it is insignificant to explain the change in life expectancy, IMRs and school enrolment. However, when control of corruption is very high then countries would benefit from their natural resource to enhance well-being indicators. In another word, the more the country is corrupted, the less likely these countries benefit from its natural resources to affect standard of living.

Table 4 wellbeing indicators and natural resources in MENA region

country	IMRs	Life Expectancy	School Enrollment	Natural Resources
LBN	7.1	79.3731	104.73	0.00594
ISR	3.2	82.1537	104.176	0.32037
YEM	33.8	63.8182	97.488	15.6301
SDN	47.6	63.4585	70.4017	6.42833

Notice: Life expectancy measured by years, IMRs (per 1000) and natural resources as % of GDP.

Our study findings suggested that political stability play an essential role in enhancing the life expectancy and school enrolment so both coefficients are statically significant. The performance of political stability rate in Yemen, Sudan, Syria and Iraq seems to be

unpleasant because they are suffering from conflict wars and that one of many factors that affect wellbeing in such countries.

Figure 5 illustrates that high infant and child mortality tends to remain a problem throughout the Middle East especially for Yemen and Sudan countries, in 2014. Regarding school enrollment as it appears from figure 6 that regardless of abundant of natural resources, almost all countries have a high of gross primary school enrollment because MENA region has taken great step in education since 1980 and the expenditure on education reach about 5 present of GDP in 2004. Moreover, some countries namely Israel and Egypt by law the education is compulsory for all children from pre-primary school age until the tenth grade (Azulay,10). Inequality variable does not appear to have a significant impact on IMRs and school enrollment, but it is significant at 10 % in case of life expectancy. Thus, income inequality is not considered as an obstruction for the purpose of acquiring education and healthcare in the MENA region because most of these countries have free access to education and health sector. Based on the result that population growth seems to have a negative effect on well-being especially in schooling enrollment. Therefore, an increase in population growth in MENA countries due to higher fertility rate in this region will lower the number of primary students to enroll the school. That is agreed by the theory of more rapid population growth should be unpleasant for economic performance because with a larger population each worker will have less productive factors in case of MENA region. The result of the estimations show inflation is no longer statistically significant to explain the change in well-being indicators. In addition, we find that conflict and low levels of civil and institutional freedom significantly reduce life expectancy and increase the rate of infant mortality. Therefore, MENA countries'

experience with extensive conflict can be noticed nowadays which leads to government instability and low standard of living in such countries.

Table 5 Life expectancy estimation

Independent	1	2	3	4	5
Constant	3.868 (.055) ***	3.946 (.164) ***	3.883 (.058) ***	3.839 (.047) ***	3.951 (.154) ***
Ln GDP	.040 (.005) ***	.071 (.011) ***	.039 (.005) ***	.0405 (.004) ***	.0391 (.004) ***
Gross Capital Formation	.01 (.005) ***	.01 (.008) *	.01 (.005) ***	.013 (.004) ***	.082 (.032) **
Natural Resources	.0005 (.004)	.0006 (.0005)	.0006 (.0005)	.0002 (.0003)	.001 (.025)
FDI	-.0001 (.001)	-.002 (.001)	-.0003 (.0014)	-.001 (.001)	-.101 (.085)
Trade	.002 (.001)	.003 (.002)	.002 (.001)		.002 (.001)
Health Expenditure	.006 (.003) **	.025 (.009) ***	.006 (.003) *	.006 (.003) **	
Inequality		-.081 (.048) *			
Inflation	-.0005 (.001)		-.0001 (.0001)	-.0005 (.0011)	- .007 (.006)
Population	-.003 (.002)	-.009 (.004) **	-.004 (.002) **	-.004 (.0020) **	-.314 (.217)
Political Stability	.021 (.006) ***	.009 (.004) **	.024 (.005) ***	.024 (.005) ***	
Control of Corruption	.013 (.009)		.0009 (.0006)		.0008 (.0006)
Freedom Index	-.004 (.002) **		-.233 (.127) *		-.239 (.145) *
Ln (Natural Resource* control of corruption)		.005 (.003) *			
Ln (Natural Resource* Trade Openness)			-.003 (.003)		
(Natural Resource* GDP)				.003 (.002)	
Conflict Dummy					-2.16 (.824) ***
Observations	126	42	126	126	126
countries	18	12	18	18	18

Note: *** indicates the significance level at 1% significant level.
 ** indicates the significance level at 5% significant level.
 * indicates the significance level at 10% significant level. and the parentheses contain the SEs.

Table 6 Infant Mortality Estimation

Independent	1	2	3	4	5
Constant	3.868 (.0558) ***	7.928 (1.755) ***	7.105 (.419) ***	7.128 (.399) ***	6.840 (.627) ***
Ln GDP	-.326 (.046) ***	-.641 (.0938) ***	-.524 (.040) ***	-.516 (.042) ***	-.804 (.379) **
Gross Capital Formation	-.005 (.119)		-.003 (.003)	-.003 (.003)	-.036 (.136)
Natural Resources	-.060 (.077)	-.0005 (.044)	-.002 (.003)	-.003 (.003)	-.002 (.003)
FDI	-.438 (.313)	-.007 (.014)	-.014 (.011)	-.01 (.011)	-.003 (.017)
Trade	-.090 (.032) ***	-.003 (.001)		-.002 (.001)	-.122 (.041) ***
Health Expenditure		-.089 (.030) **	-.044 (.021) **	-.048 (.021) **	-.332 (.093) ***
Inequality		.162 (.435)			
Inflation	-.0004 (.0008)		-4.06e-0 (.001)	-.0002 (.008)	-.036 (.029)
Population	.021 (.017)	.046 (.025) *	.013 (.017)	.014 (.017)	.022 (.017)
Political Stability	-.027 (.021)		-.001 (.042)	-.005 (.42)	
Control of Corruption	-.0599 (.068)	-.003 (.003)	-.093 (.053) *	-.096 (.054) *	
Freedom Index	.048 (.020) **		.061 (.016) ***	.063 (.016) ***	
Ln (Natural Resource* control of corruption)		-.084 (.026) **			
Ln (Natural Resource* Trade Openness)			-.002 (.027)		
Ln (Natural Resource* GDP)				-.014 (.027)	
Conflict Dummy					6.233 (3.03) **
Observations	126	42	126	126	126
Countries	18	12	18	18	18

Note: *** indicates the significance level at 1% significant level.

    ** indicates the significance level at 5% significant level.

    * indicates the significance level at 10% significant level. and the parentheses contain the SEs.

Table 7 School enrollment estimation

Independent	1	2	3	4	5
Constant	4.135 (.144) ***	3.769 (.564) ***	4.298 (.109) ***	4.307 (.104) ***	3.973 (.106) ***
Ln GDP	.054 (.015) ***	.112 (.030) ***	.026 (.009) ***	.020 (.009) **	
Gross Capital Formation	.002 (.001) *		.003 (.001) ***	.003 (.001) ***	.265 (.144) *
Natural Resources	-.007 (.011)	-.002 (.017)	-.001 (.007)	.006 (.07)	-.010 (.880)
FDI	.005 (.003)		.003 (.002)	.003 (.002)	.003 (.400)
Trade		.019 (.006) ***	.006 (.002) **	.006 (.002) ***	.082 (.044) *
Health Expenditure	.021 (.008) ***			.011 (.006) *	1.59 (.822) *
Inequality		-.03 (.163)			
Inflation	-.001 (.003)	-.001 (.14)	-.001 (.002)	-.002 (.002)	
Population	-.0123 (.0064) *	-.036 (.009) ***	-.012 (.004) **	-.011 (.004) ***	
Political Stability	.050 (.0168) ***	.003 (.001) **			.332 (.093) ***
Control of Corruption	.003 (.001) ***	.004 (.001) ***			
Freedom Index	-.019 (.006) ***				
Ln (Natural Resource* control of corruption)	.028 (.008) ***				
Ln (Natural Resource* Trade Openness)			.004 (.005)		
Ln (Natural Resource* GDP)				.005 (.005)	
Conflict Dummy					-2.269 (1.866)
Observations	126	42	126	126	126
countries	18	12	18	18	18

Note: *** indicates the significance level at 1% significant level.

** indicates the significance level at 5% significant level.

* indicates the significance level at 10% significant level. and the parentheses contain the SEs.

6.3 Analyzing the poverty headcount estimation.

Results in table 8 are for equation (2), where poverty headcount is the dependent variable. The results indicate that the growth of GDP per capita, as well as domestic investments play an essential in reducing the number of poverty headcount. As expected the higher the share of each person of GDP or the more domestic investments are associated with, the lower the number of poor people in the country. Income growth is widely claimed to diminish poverty. This study confirms that growth helps poverty alleviation. Higher investment by government and private sector have an important role in infrastructure and human resources development as well as in encouraging and supporting innovation and technological upgrading. Education is often an avenue to better employment and income opportunities for poor people. Figure 7 confirm that an inverse relationship between headcount poverty and per capita income in MENA countries. On the other hand, inequality and inflation raise the poverty headcount in MENA region. Inequality would have a positive impact on poverty because the epidemic of inequality has a true role in economic and financial crisis. Many economists regard growing inequality as one of the main leads to financial crashes. The International Monetary Fund has published evidence that inequality led to the huge debts behind the 2008 bank crisis (Ncube et al. ,2013). Poverty would increase if the adverse impact of an increase in inequality more than offsets the reduction in poverty associated with growth. Inflation tends to hit more the poorest in society and when the prices of essential goods or services increase, it becomes harder for the poor to be able to afford those goods and services. Thereby, purchasing power parity (PPP) for poor people would decline due to higher price level.

Despite the fact that natural resources did not influence HDI and other wellbeing indicators, it has a positive impact on lowering poverty headcount. This is true in our sample of countries at which most of resource rich economies have more available jobs and higher government expenditure, notably in social programs, compared to other MENA countries. Our results therefore show that the natural resources and derived revenues by the MENA countries have been beneficial in reducing poverty headcount. Natural resources would encourage economic development, because natural resources extend the production possibilities of an economy. Historically, natural resources have played a complete role in the development of currently wealthy, industrialized nations, including GCC group, DZA, Tunisia and Libya. The results also find evidence that control of corruption has a strong role in reducing poverty but when corruption is not controlled, then poverty headcount would increase. In another word when the country is controlled their corruption, the more likely a country benefit from their natural resources to decrease number of poor people. The impact of one percentage change in natural resources on poverty headcount would be about 21.0. The coefficient is very high due to the high range of control of corruption among countries and if we divide countries into two groups by control of corruption. The first group concentrates on those countries with low level of control of corruption while second group focus on countries with high level of control of corruption to check their impact on headcount ratio, then the result would be would be more accurate. As it shows from figure 8 that there is a negative correlation between control of corruption and poverty. The result of interaction term between natural resources and trade openness indicates that natural resources might activate better in countries that are more liberalized to trade. This suggests that MENA region need to be more liberalized in

trade in order to benefit from natural resources. Regarding the interaction term of natural resources and income per capita, which indicate the more a country is getting rich through natural resources, the more reduction of poverty headcount. That is, GDP per capita is supposed to be a channel to benefit from natural resources. It is surprising to find it significantly positive which suggests that natural resources would not benefit poor people through increasing per capita income. If the revenue of natural resources is controlled by specific groups in MENA region, and as we have already seen that most of governances over patronage is predominant by tribal, family, sectarian, that will suggest an increase in the rate of income inequality. It appears that political stability for all estimates are not an essential variable to reduce poverty headcount.

Table 8 poverty headcount estimation

Independent	1	2	3	4
Constant	1.881 (4.839)	-1.717 (5.735)	-5.868 (5.242)	-7.719 (7.485)
Ln GDP	-.619 (.191) ***	-.348 (.205) *	-.293 (.126) **	-.427 (.101) ***
Gross Capital Formation	-.041 (.012) ***	-.080 (.009) ***	-.045 (.009) ***	-.052 (.014) ***
Natural Resources	-.040 (.022) *	-.300 (.071) ***	-.032 (.013) **	
FDI	- .041 (.026)			-.007 (.038)
Trade	-.010 (.005) **			
Health Expenditure	-.074 (.115)	-.070 (.070)	-.081 (.094)	
Inequality	2.386 (1.032) ***		4.704 (1.139) ***	
Inflation	.0267 (.0096) ***	.063 (.014) ***	.027 (.009) ***	.028 (.010) ***
Population			.203 (.108) **	
Political Stability	.069 (.172)	.068 (.158)	.089 (.165)	.001 (.035)
Control of Corruption	-.7013 (.2612) ***	-.369 (.197) *	-.678 (.215) ***	
Freedom Index	.105 (.062) *		.137 (.066) **	.129 (.069) *
Ln (Natural Resource* control of corruption)	-.486 (.145) ***			
Ln (Natural Resource* Trade Openness)		-.003 (.004) ***		
Ln (Natural Resource* GDP)			.073 (.020) ***	
Conflict Dummy				.242 (.144) *
Observations	19	19	19	19
countries	9	9	9	9

Note: *** indicates the significance level at 1% significant level.

   ** indicates the significance level at 5% significant level.

   * indicates the significance level at 10% significant level. and the parentheses contain the SEs.

7. Conclusion

This study has investigated the impact of natural resources wealth on poverty and well-being in selected MENA countries. The paper utilizes five different indicators of poverty, which are, HDI, Schooling, life expectancy, infant mortality, and poverty head count. While the first four measure the non-income or well-being indicator, the last measures the income poverty.

Although the results indicate that natural resources wealth can help in lowering poverty, it has no impact on people's well-being in terms of education and health care. Many natural resources rich countries, namely Yemen, Sudan, Syria, Iraq, and Libya suffer from civil conflicts and high level of corruption, which seems to impede the role of natural resources. That is, the high the political stability and the quality of the institution, the more the country can benefit from its wealth of natural resources.

Moreover, while trade openness does not significantly influence the way the country can benefit from its natural resources in terms of well-being, it has favorable effects on poverty. That is, the freer the economy is in terms of international trade, the less the poverty headcount is. The country can benefit from its resources and translate that into more income to its people if it has more access to international trade.

References

Abebe,T. and Quaicoe,N.(2014). "Causes of poverty in Sub-Saharan Africa: A layered theory approach to Understanding Significant factors". *Journal of Economics and International Finance*, Vol. (6), pp.112-124.DOI:10.5897/JEIF2013.0564.

Acar, S. and Dogruel, F. (2010). "Sources of Inequality in Selected MENA countries." *University of Texas Inequality Project Working Paper*, pp.1-40.

Arezki, R., and Van Der Ploeg, F. (2007), 'Can the Natural Resource Curse be Turned into a Blessing? The Role of Trade Policies and Institutions', *IMF Working Paper* 07/55.

Adam, R. (2003) "Economic growth, inequality and poverty: findings from a new data set, Policy Research Working Paper WPS 2972, World Bank.

Ali, A. and Ahmad, K. (2014). "The Impact of Socio-Economic Factors on Life Expectancy in Sultanate of Oman: An Empirical Analysis*." Scholar at National College of Business Administration & Economics (NCBA&E), Lahore, Pakistan,* vol. 22. No. 2, pp. 1-7.

Adeyemi, P. A. and OGUNSOLA, A. J. (2016). "The Impact of Human Capital Development on Economic Growth in Nigeria: ARDL Approach." *IOSR Journal of Humanities and Social Science*, Vol. 21, (3). Pp.1-7 DOI: 10.9790/0837-2103040107.

Asongu, S. A. (2012). "Globalization and Africa: implications for human development." *African Governance and Development Institute,* pp.1-36.

Alesina, A. and Rodrick, (1994). "Distributive Politics and Economic Growth." *Quarterly Journal of Economics,* vol.109, (2), pp.465-490.

Aisen, A. and Veiga, F.J. (2011). "How Does Political Instability Affect Economic Growth.", *IMF Working Paper*, WP/05/28.

Assadzadeh, A and Pourqoly, J. (2013). "The Relationship between Foreign Direct Investment, Institutional Quality and Poverty: Case of MENA Countries." *Journal of Economics, Business and Management,* Vol. 1, No. 2, pp.1-5.

Buccellato, T., & Alessandrini, M. (2009). "Natural Resources: a Blessing or a Curse. The role of inequality". *Centre for Financial & Management Studies Discussion* Paper, 98.

Bucci, A. and D. La Torre. (2007). "Population and economic growth with human and physical capital investments". *Departmental Working Paper, Department of Economics, University of Milan.* No. 2007-45.

Bhattacharyya, S. and Hodler, R. (2010)." Natural resources, democracy and corruption." *European Economic Review,* pp. 1-14.

Bourdon, M. H., Le Mouël, C. and Ouest, M. V. (2007) "The relationship between trade openness and economic growth: Some new insights on the openness measurement issue." *Agrocampus-Oues, UMR 1302 SMART, Rennes, France pp.*1-27.

Bourguinon, F. (2003) The growth elasticity poverty reduction: explaining heterogeneity across countries and time periods, in *Inequality and Growth: Theory and Policy Implications* (Eds) T. Eicher and S. Turnovsky, MIT Press, Cambridge, MA.

Bravo-Ortega, C., and J. de Gregorio (2000), "The Relative Richness of the Poor: Natural Resources, Human Capital and Economic Growth," *Mimeo Ministry of Economics*, July 2000

Bhattacharyya, S.C., and A. Blake. 2010. "Analysis of oil export dependency of MENA countries: Drivers, trends and prospects." *Energy Policy* 38, no. 2: 1098-1107.

Caselli, F. and Tesei, A. 2011, ìResource Windfalls, Political Regimes, and Political Stability.îWorking Paper, Serie Documentos Cede, 2013-14.

Chen, S. and Ravallion, M. (2007)." Absolute Poverty Measures for the Developing World, 1981-2004."*Development Research Group, World Bank,* pp.1-24.

Chen, S. and Ravallion, M. "The Developing World is Poorer Than We Thought, But No Less Successful in The Fight Against Poverty." *Quarterly Journal of Economics*, pp.1-49.

Carneiro, F. and Arbache, J. (2003) Assessing the impacts of trade on poverty and inequality, *Applied Economics Letter*, 10, 989–94.

Collier, P. and A. Hoeffler. (2004). "Greed and grievance in civil war", *Oxford Economic Papers*, 56(4): 563-595.

Cheema, A. R. and Sial, M. H. (2012), "Poverty, Income Inequality, and Growth in Pakistan: A Pooled Regression Analysis", *The Lahore Journal of Economics*, Vol. 17, No. 2, Winter, pp. 137–157.

Ding, N. and B.C. Field, 2005. Natural resource abundance and economic growth. *Land Economics*, 81(4): 496-502.

Domar, E. D. (1946). Capital Expansion, Rate of Growth, and Employment, *Econometrica*, 14, 137-147.

Deacon, R. T., (2011)." The Political Economy of the Natural Resource Curse: A Survey of Theory and Evidence*." Foundations and Trends R in Microeconomics,* Vol. 7, (2). pp .1-25.

Davies, A. and Quinlivan, G.(2001). "A Panel Data Analysis of the Impact of Trade on Human Development." *World Economic Outlook: The Information Technology Revolution. International Monetary Fund, IMF Publication Services.*

Deshpande, N., Kumar A. and Ramaswami, R. (2010) "The Effect of National Healthcare Expenditure on Life Expectancy." *SMARTech Library* pp.1-28.

Dahlquist, M. (2013). "Does Economic Growth reduce Poverty*?" Educational Program Development and International Cooperation,* pp.1-48.

Daniele, V. (2011). "Natural resources and the "quality" of economic development*." The Journal of Development Studies,* vol. 47, (4), pp.545-573.

Deninger, K. and Squire, L. (1996) A new data set measuring income inequality, *World Bank Economic Review*, 10, 565–91.

Dollar, D. and Kraay, A. (2002) Growth is good for the poor, *Journal of Economic Growth*, 7, 195–225.

Ernesto, H. (2001). "Economic Growth and Poverty Reduction in Sub-Saharan Africa." *nternational Monetary Fund, pp .1-36.*

Elbadawi, I. and Makdisi, S., (2011), *Democracy in the Arab World: Explaining the Deficit*, Routledge.

Furuoka, F. and Munir, Q. (2011). "Population growth and standard of living: A threshold regression approach." *Economics Bulletin*, Vol. 31 No.1 pp. 844-859.

Foster, J. and Sze´kely, M. (2001) Is economic growth good for the poor: tracking low incomes using general means*, Inter-American Development Bank Research Department Working Paper* No. 453.

Fantaa, F. and Upadhyay,M. P. (2009). "Poverty reduction, economic growth and inequality in Africa." *Department of Economics, Applied Economics Letters.* pp.1-5.

Federico, V. (2007). "The Curse of Natural Resources and Human Development." *College of Arts and Sciences*, pp.1-51.

Guetat, I. 2006. "The effects of corruption on growth performance of the MENA countries." *Journal of Economics and Finance* 30, no. 2: 208-221.

Gylfason, T. and Zoega, G. (2002). "Inequality and Economic Growth: Do Natural Resources Matter?" *CES Working Paper* No. 712, pp.1-39.

Gupta, S., Devoid, H.,and Alonso,R. (1998). "Does Corruption Affect Income Inequality and Poverty." *International Monetary Fund*, pp. 1-41.

Gibson, J. (2000) "The impact of growth and distribution on Poverty in Papua New Guinea", *Applied Economics Letters*, 7, 605–7.

Gylfason, T. 2001. "Natural resources and economic growth: what is the connection?" *Center for Economic Studies & Ifo Institute for Economic Research Working Paper*, No. 530, Munich, Germany.

Hung, T. T.(2005) "Impacts of Foreign Direct Investment on Poverty Reduction in Vietnam." pp. 1-24.

Hanif, N., and Arshad, N. (2016)." Relationship between School Education and Economic Growth: SAARC Countries." *International Journal of Economics and Financial*, Vol. 6, (1), pp.1-7.

Husain, M. J. (2011). "The Preston-Curve and the Contribution of Health to Economic Well-Being: Evidence from the Micro-Data of Bangladesh," *Keele Management School Keele University.* pp.1-60.

Heltberg, R. (2002) "The growth elasticity of poverty, *unpublished paper*, Institute of Economics, University of Copenhagen.

Herzer, D. and Nagel, K. "How does FDI affect health?" *Helmut Schmidt University Hamburg, Department of Economics, Holstenhofweg 85, 22043 Hamburg, Germany*, pp.1-27.

Human Development Index (HDI). (2015). *Human Development,work for Human Development*. **http://hdr.undp.org**.

Ike J Iaku, B.V. (2009). "The Relationship between Poverty, Conflict and Development." *Journal of Sustainable Development*, Vol. 2, No.1, pp.1-14.

Iqbal, F., (2014), "The Reduction of Child Mortality in the Middle East and North Africa", *World Bank*, Washington D.C.

Isfahani, D.S. (2010). "Human Development in the Middle East and North Africa." *United Nations Development Programme Human Development Reports Research Paper,* pp.1-57.

Iradian, G. (2005) Inequality, poverty, and growth: cross country evidence, *IMF Working Paper*, WP/05/28.

Ikejiaku, B.V. (2009). "The Relationship between Poverty, Conflict and Development*." Journal of Sustainable Development,* vol.2, No.1, pp.1-14.

Jensen, N and Leonard, W. 2004, iResource Wealth and Political Regimes in Africa. *Comparative Political Studies* 37(7): 816-841

Khodabakhshi, A. (2011). "Relationship between GDP and Human Development Indices in India." *International Journal of Trade, Economics and Finance,* Vol. 2, No. 3, pp.1-3.

Loayza, N. and Raddatz, C. (2010). "The Composition of Growth Matters for Poverty Alleviation." Journal of Development Economics, 93: 137-151.

Lee, M. and Gueye, C.A. (2015). "Do Resource Windfalls Improve the Standard of Living in Sub-Saharan African Countries? Evidence from a Panel of Countries." *International Monetary Fund*, pp.1-38.

Lee1, K, J., Fariza2, Band Sharipova3, Z. (2015). "The Relationship between FDI, Diversification and Economic Growth in Natural Resource Oriented Countries: Case of Kazakhstan." *Journal of International Business and Economics*, Vol. 3, No. 2, pp. 51-62.

Mehlum, H., Moene, K. and Torvik, R. (2006), Institutions and the resource curse, *The Economic Journal*, vol.116, no.508, pp.1-20

Mihaela, N. D. (2015). "correlations between human development and economic growth." Faculty of Economic and Public Administration, Suceava, Romania. (1), pp.1-5.

Michaud, J. (2004). "A Dangerous Combination for your Retirement." *Inflation and life Expectancy*, pp.1-16.

Mody, A., and Kraay, A. (2004)." When Is Growth Pro-Poor? Cross-Country Evidence." *International Monetary Fund, pp.1-35.*

Mugerwa, S. K. and Suzman, M.(2015)."Leveraging natural resources to accelerate human development in Africa." *Delivering on the promise*, pp.1-44.

___Mahmud, R. A., Rawal, Lal.B., Hossain,G., Hossain R. , and Islam, N.(2013). "Impact of Life Expectancy on Economics Growth and Health Care Expenditures: A Case of Bangladesh." *Universal Journal of Public Health,* Vol.1, (4), pp. 1-7.

Makdisi, Samir, Zeki Fattah and Imed Limam. 2005. "Determinants of Growth in the MENA Countries," [this volume].

Nurudeen, A, Abd Karim, M.Z., and Aziz, M. I. (2014)." Corruption, Political Instability and Economic Development in the Economic Community of West African States (ECOWAS): Is There a Causal Relationship?" *School of Economics, Finance and Banking, University Utara Malaysia*, Vol. 9, (1), pp.1-16.

Nazroo, J. Y. (2015). "Addressing inequalities in healthy life expectancy." *Foresight, Government Office for Science,* pp.1-30.

Nadpara, N. (2015). "An Empirical Examination of the Effect of Corruption on Health Outcomes." *The College of New Jersey*, pp.1-32.

Ncube,M. Anyanwu, J., and Hausken, K. (2013). "Inequality, Economic Growth, and Poverty in the Middle East and North Africa (MENA*)." Working Papers are available online*, NO. 195, pp. 1-28.

Osiakwan,R. O. and Armah, S. E. (2013). "Clearing the Muddy Waters: An attempt to decompose the impacts of inflation on the Ghanaian economy and on the welfare of Ghanaian citizens in light of recent political rhetoric on inflation." *Journal of Economic Development, Management, IT, Finance and Marketing,*vol. 5,(2), pp.1-34.

Powers, E. T. (1995)."Growth and Poverty Revisited," Federal Reserve Bank of Cleveland, *Economic Commentary*, pp. 1-12.

Ploeg, F. van. (2010)." Natural Resources: Curse or Blessing?" *Journal of Economic Literature, pp. 1-71.*

Powers, E. (1995) "Inflation, Unemployment, and Poverty Revisited." *Economic Review, Federal Reserve Bank of Cleveland*, 2-13.

Piketty, T. (2014)." Measuring Top Incomes and inequality in the Middle East: Data Limitations and Illustration with the Case of Egypt." *Paris School of Economics*, pp.1-57.

Pineda, J. and Rodríguez, F. (2010). "Curse or Blessing? Natural Resources and Human Development." *United Nations Development Program Human Development Reports*, pp.1-36.

Reinikka, R. and Svensson, J. (2005). "Fighting corruption to Improve Schooling: Evidence From a newspaper Campaign in Uganda." *Journal of the European Economic Association,* Vol. 3, No. 2/3, pp. 259-267.

Ramirez, A., Ranis, G., and Stewart, F. (1998). "Working Paper Number 18 Economic Growth and Human Development." *QEH Working Paper Series - QEHWPS*18, pp.1-47.

Ravallion, M. (2005). "Inequality is Bad for the Poor." *Development Research Group, World Bank,* pp.1-50.

Ravallion, M. (2002) Externalities in rural development: evidence from China, World Bank Policy Research Working Paper No. 2879.

Rashidul A. M., Lal, B. R., Golam, H., Ripter, H., and Nurul, I. (2013)." Impact of Life Expectancy on Economics Growth and Health Care Expenditures: A Case of Bangladesh." *Universal Journal of Public Health*, pp.1-7.

Ravallion, M. (2004) Pro-poor growth: a primer, World Bank Policy Research Working Paper No. 3242.

Razmi, M. J. (2012). "Investigating the Effect of Government Health Expenditure on HDI in Iran." *Journal of Knowledge Management, Economics, and Information Technology*, (5), pp.1-13.

Sakir, S. (2014). "The Ninety-Nine Percent and the One Percent." *Research in Applied Economics,* Vol. 6, No. 3:10.5296/Rae. v6i3.5996.

Sachs, J.D, and Warner, A.M. (1995). "Natural Resource Abundance and Economic Growth." *National Bureau of Economic Research,* pp.1-54.

Solow, R. M. (1956). A Contribution to the Theory of Economic Growth. Quarterly*, Journal of Economics,* 70, 65-94.

Talukdar, S. R. (2012)." The Effect of Inflation on Poverty in Developing Countries: A panel Data Analysis." *Texas Tech University, A thesis in Economics for the Degree of MASTER of ARTS*.pp.1-86.

Turan, B. (2009). "Life Expectancy and Economic Development: Evidence from Micro Data." *University of Houston*, pp.1-40.

TianQi Xu, (2011). "The Determinants of Political Instability: A Regression Analysis." *This thesis is submitted in partial fulfillment of the requirements of the Research Honors Program in the Departments of Political Science & Economics,* pp.1-37.

Upadhyay, A. K., and Srivastava, S. (2012)." Association between Economic Growth and Infant Mortality: Evidence from 132 Demographic and Health Surveys from 36 Developing Countries*." International Institute for Population Sciences Mumbai,* pp.1-12.

UNDP (United Nations Development Programme). 2000, 2002, 2004, & 2006. *Human Development Reports, selected years.* Available from http://hdr.undp.org/en/reports/

Ullah, S., Azim, P., And Asghar, N. (2014). "Political Economy of Human Development An Empirical Investigation for Asian Countries." Pakistan Economic and Social Review, Vol.52, No.1,pp.75-97.

Winters, A., McCulloch, N. and McKay, A. (2004) Trade liberalization and poverty: the evidence so far, Journal of Economic Literature, 62, 72–115.

World Bank. 2014. World Development Indicators 2014. Available from http://www.worldbank.org/

Yambaye, N. (2015)." Poverty, Growth, and Inequality in Sub-Saharan Africa: Did the Walk Match the Talk under the PRSP Approach?" *International Monetary Fund,* pp.1-37.

Appendices

The following tables show the correlation matrix among the independent variables included in the models. It seems all models do not have serious collinearity problem.

Table 9: Correlation coefficient between the independent variables in HDI

	HDI	GDP	Inv	Res	Stab	FDI	Trad	Inf	Pop	Hex	Free	CC
HDI	1											
GDP	0.503	1										
Inv	0.178	0.0085	1									
Res	0.047	0.125	-0.161	1								
Stab	0.423	0.528	0.037	0.272	1							
FDI	0.128	-0.023	0.141	-0.497	-0.044	1						
Trad	0.493	0.300	0.083	-0.044	0.358	0.192	1					
Inf	-0.276	-0.097	-0.077	-0.009	-0.235	-0.083	-0.345	1				
Pop	0.170	0.486	0.089	0.047	0.333	0.156	0.243	-0.012	1			
Hex	0.050	-0.249	0.254	-0.728	-0.350	0.459	0.099	-0.031	-0.196	1		
Free	-0.307	-0.146	-0.181	0.552	0.029	-0.148	-0.228	0.179	-0.072	-0.383	1	
CC	0.579	0.488	0.148	-0.159	0.657	0.124	0.437	-0.292	0.246	0.008	-0.532	1

Table 10: Correlation coefficient between the independent variables in life expectancy

	LE	GDP	Inv	Res	Stab	FDI	Trade	Inf	Pop	Hex	Free	CC
LE	1											
GDP	0.411	1										
Inv	0.255	0.008	1									
Res	0.093	0.125	-0.161	1								
Stab	0.363	0.528	0.037	0.272	1							
FDI	0.151	-0.023	0.141	-0.497	-0.044	1						
Trade	0.485	0.300	0.083	-0.044	0.358	0.192	1					
Inf	-0.249	-0.097	-0.077	-0.009	-0.235	-0.083	-0.345	1				
Pop	0.127	0.486	0.089	0.047	0.333	0.156	0.243	-0.0129	1			
Hex	0.155	-0.249	0.254	-0.728	-0.350	0.459	0.099	-0.0312	-0.196	1		
Free	-0.407	-0.146	-0.181	0.552	0.029	-0.148	-0.228	0.1797	-0.072	-0.383	1	
CC	0.564	0.488	0.148	-0.159	0.657	0.124	0.437	-0.292	0.246	0.008	-0.532	1

Table 11: Correlation coefficient between the independent variables in infant mortality

	IMRs	GDP	Inv	Res	Stab	FDI	Trade	Inf	Pop	Hex	Free	CC
IMRs	1											
GDP	-0.496	1										
Inv	-0.045	0.008	1									
Res	-0.149	0.125	-0.161	1								
Stab	-0.300	0.528	0.037	0.272	1							
FDI	-0.133	-0.023	0.141	-0.497	-0.044	1						
Trade	-0.447	0.300	0.083	-0.044	0.358	0.192	1					
Inf	0.244	-0.097	-0.077	-0.009	-0.235	-0.083	-0.345	1				
Pop	-0.171	0.486	0.089	0.047	0.333	0.156	0.243	-0.012	1			
Hex	-0.066	-0.249	0.254	-0.728	-0.350	0.459	0.099	-0.031	-0.196	1		
Free	0.408	-0.146	-0.181	0.552	0.029	-0.148	-0.228	0.179	-0.072	-0.383	1	
CC	-0.542	0.488	0.148	-0.159	0.657	0.124	0.437	-0.292	0.246	0.008	-0.532	1

Table 12: Correlation coefficient between the independent variables in school enrollment

	Edu	GDP	Inv	Res	Stab	FDI	Trade	Inf	Pop	Hex	Free	CC
Edu	1											
GDP	0.086	1										
Inv	0.233	0.008	1									
Res	0.179	0.125	-0.161	1								
Stab	0.144	0.528	0.037	0.272	1							
FDI	0.090	-0.023	0.141	-0.497	-0.044	1						
Trade	0.380	0.300	0.083	-0.044	0.358	0.192	1					
Inf	-0.208	-0.097	-0.077	-0.009	-0.235	-0.083	-0.345	1				
Pop	-0.024	0.486	0.089	0.0473	0.333	0.156	0.243	-0.012	1			
Hex	0.156	-0.249	0.254	-0.728	-0.350	0.459	0.099	-0.031	-0.196	1		
Free	-0.157	-0.146	-0.181	0.552	0.029	-0.148	-0.228	0.179	-0.072	-0.383	1	
CC	0.145	0.488	0.148	-0.159	0.657	0.124	0.437	-0.292	0.246	0.008	-0.532	1

Table 13: Correlation coefficient between the independent variables in headcount poverty

	Pov	GDP	Inv	Res	Stab	FDI	Trade	Inf	Pop	Hex	Free	CC
Pov	1											
GDP	-0.548	1										
Inv	-0.447	0.323	1									
Res	0.140	0.086	-0.222	1								
Stab	-0.257	-0.077	0.172	-0.584	1							
FDI	-0.195	0.374	0.327	-0.362	0.210	1						
Trade	-0.229	0.598	0.304	0.129	0.003	0.518	1					
Inf	0.347	-0.141	-0.199	0.550	-0.559	-0.236	0.087	1				
Pop	0.028	0.166	-0.235	0.283	-0.375	0.334	0.384	0.198	1			
Hex	-0.111	0.315	0.274	-0.512	0.090	0.746	0.453	-0.252	0.400	1		
Free	0.537	-0.331	-0.287	0.151	-0.269	-0.226	-0.297	0.300	0.019	-0.027	1	
CC	-0.381	-0.007	0.298	-0.557	0.541	0.277	0.029	-0.500	-0.285	0.267	-0.376	1

Figure 1 Relationship between HDI and GDP per capita

coef = .07242106, se = .00705424, t = 10.27
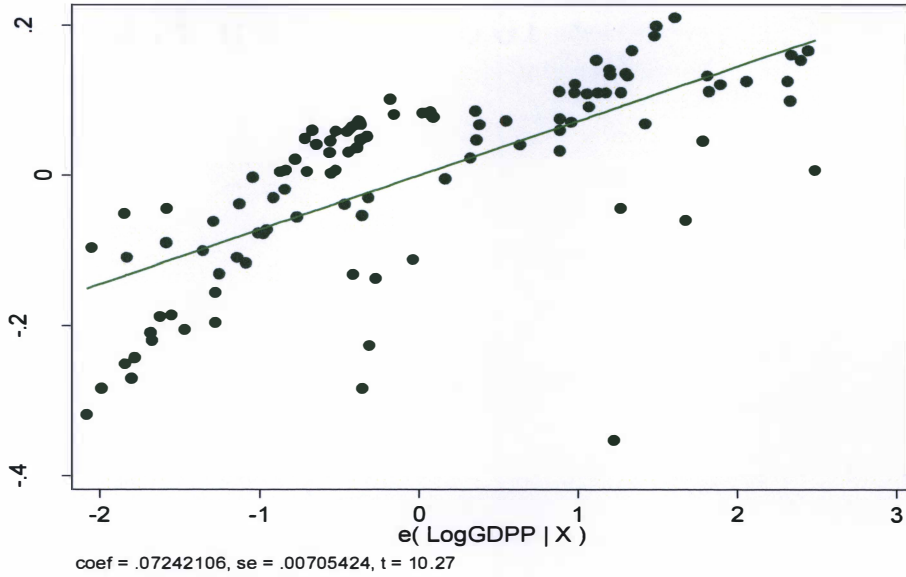
Figure 2 Total natural resources and HDI in some of MENA countries in 2014
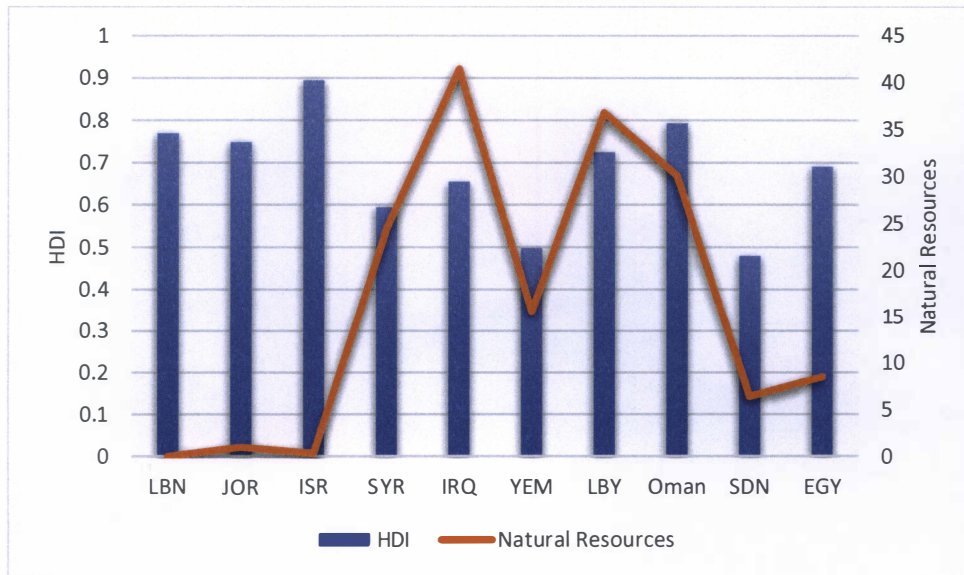
Figure 3 Total natural resources and growth rate in MENA countries in 2014
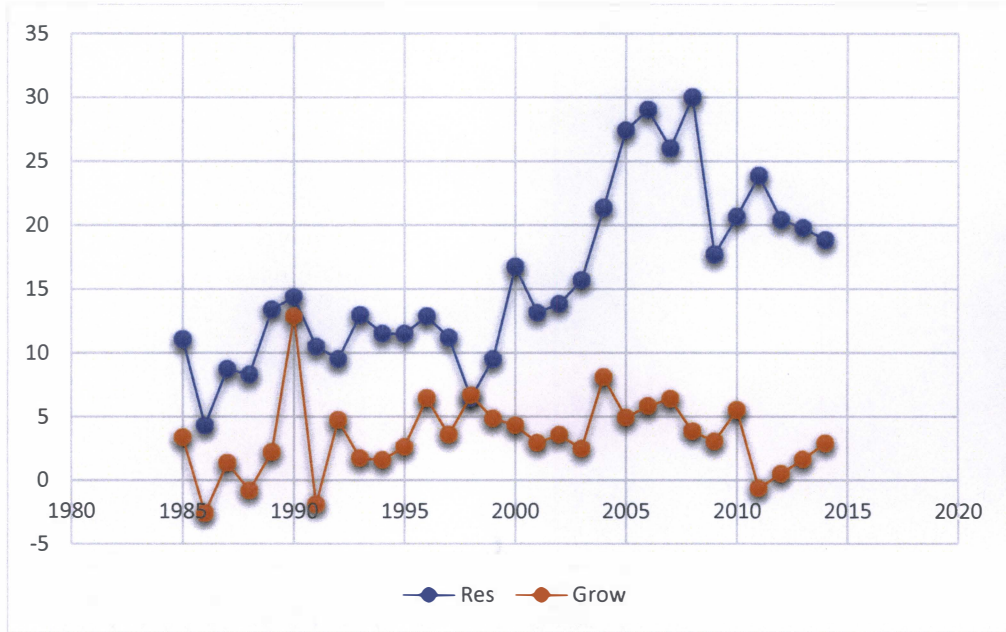
Figure 4 Relationship between life expectancy and GDP per capita
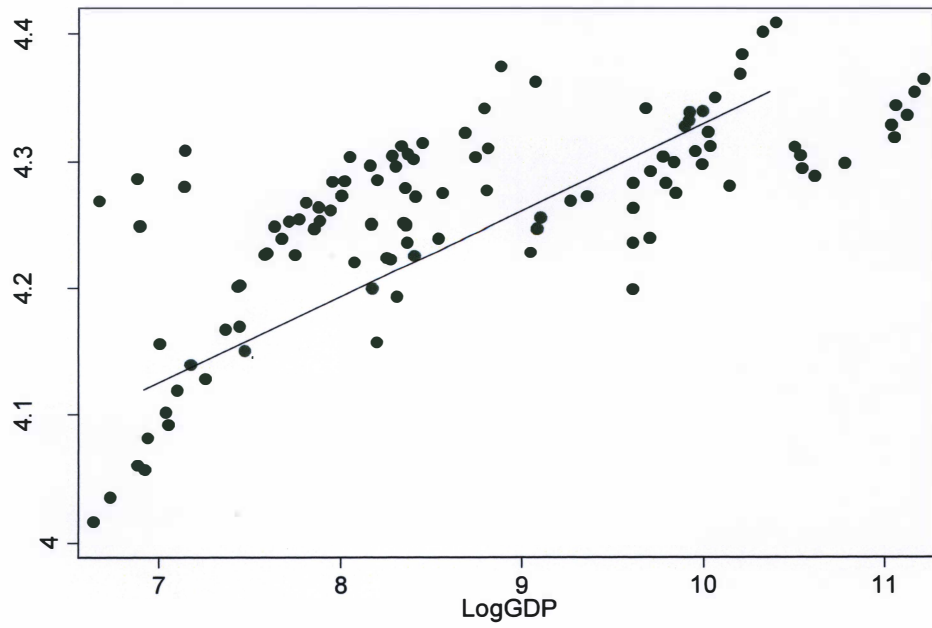
Figure 5 Infant mortality in MENA 2014
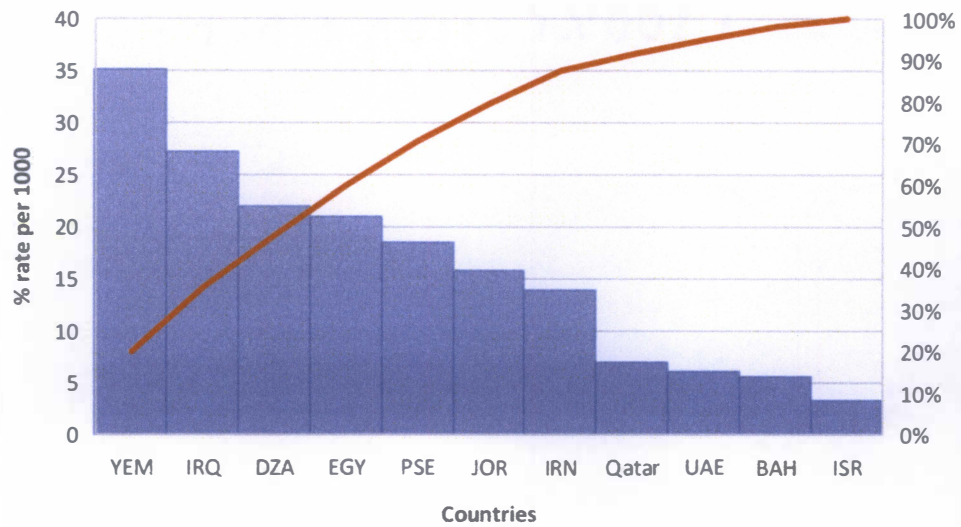
Figure 6 Life Expectancy, school enrolment and natural resources in 2014
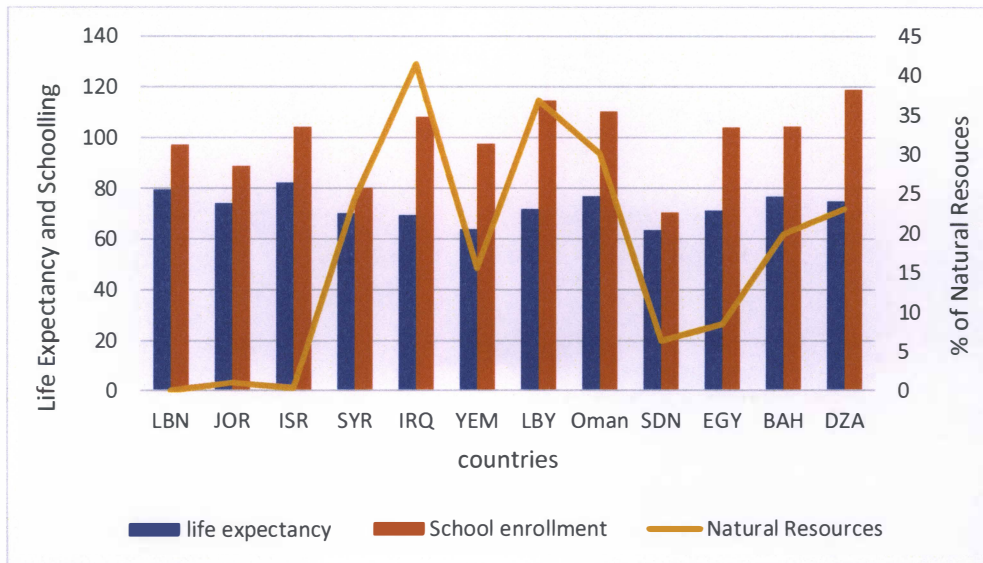
Figure 7 Relationship between headcount poverty and income

coef = -.6026505, se = .22267134, t = -2.71
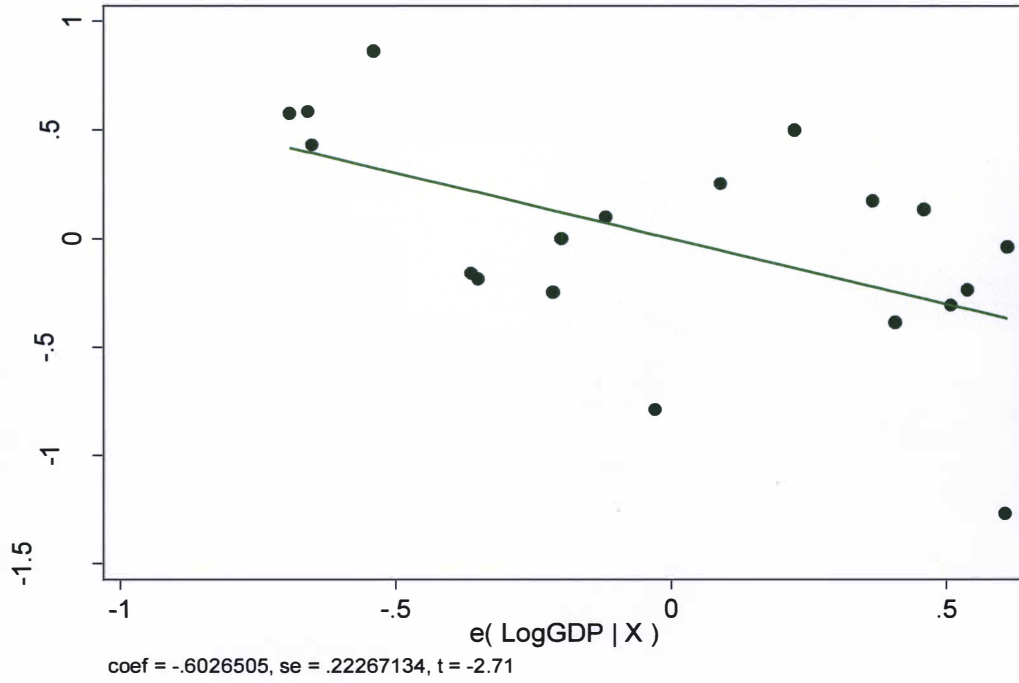
Figure 8 Fitted values between headcount poverty and control of corruption
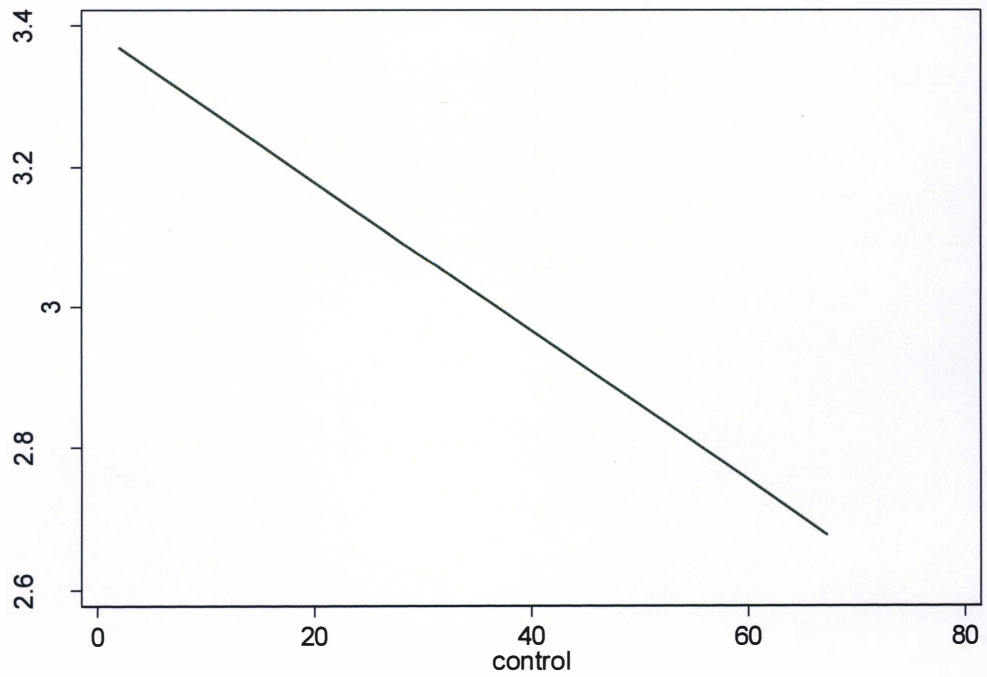
Figure 914 Life expectancy during the period 1990-2015

Series : Life expectancy at birth, total (years)
Source: World Development Indicators
Created on: 02/07/2017
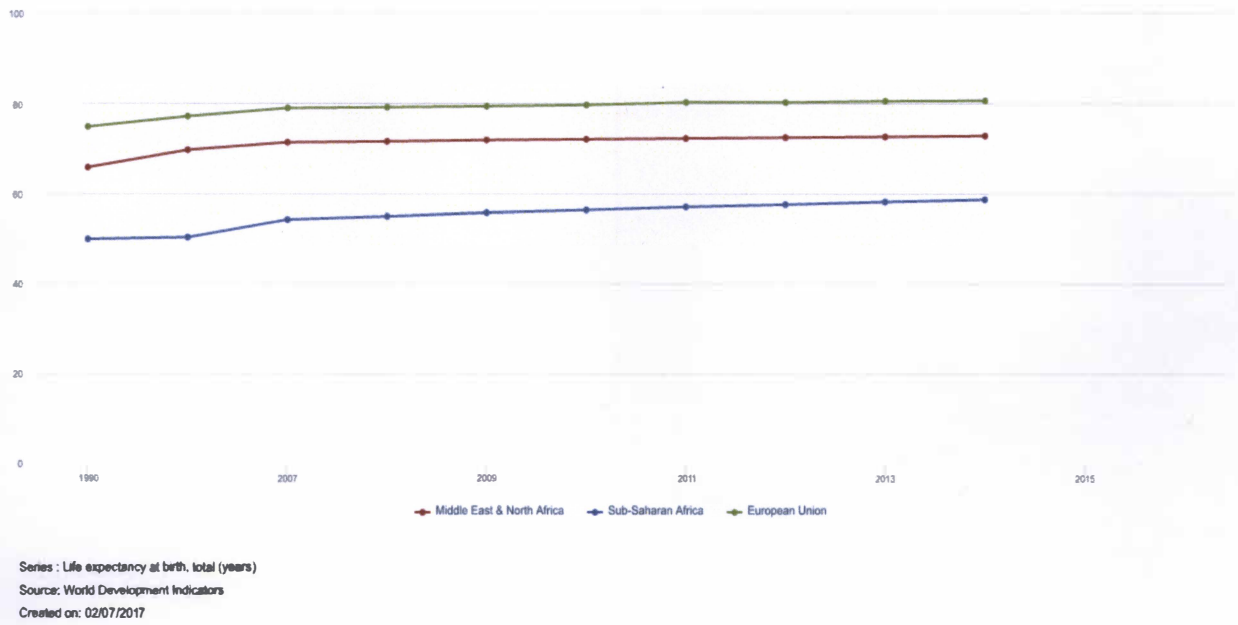
Figure 10 Infant mortality during 1990-2015

Series : Mortality rate, infant (per 1,000 live births)
Source: World Development Indicators
Created on: 02/07/2017
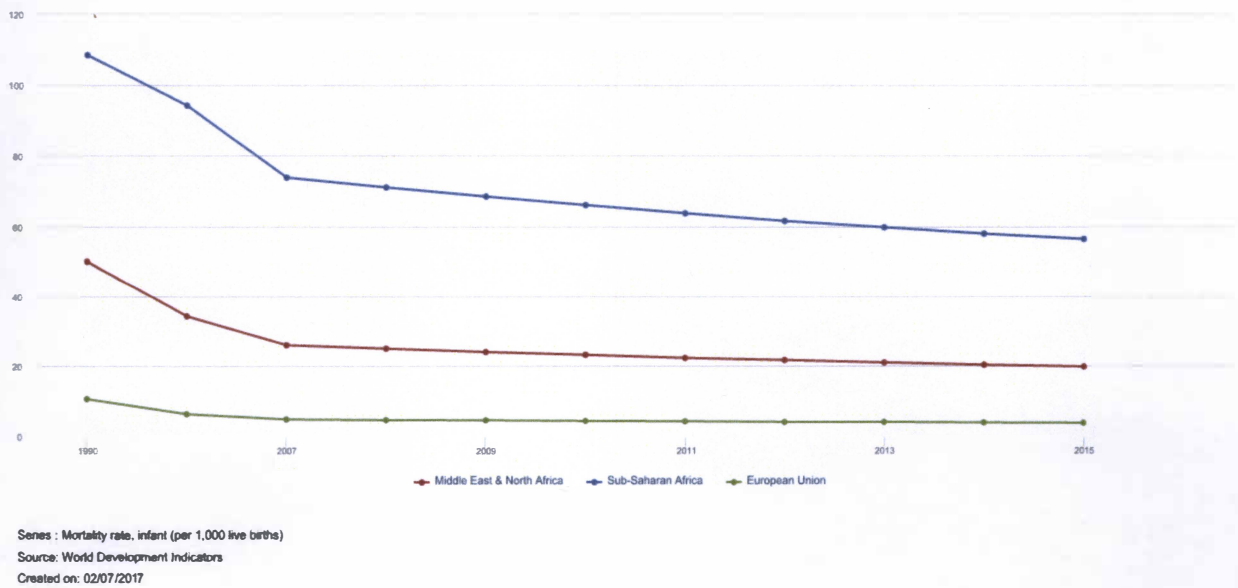
Figure 11 Primary school enrollment during 1990-2015
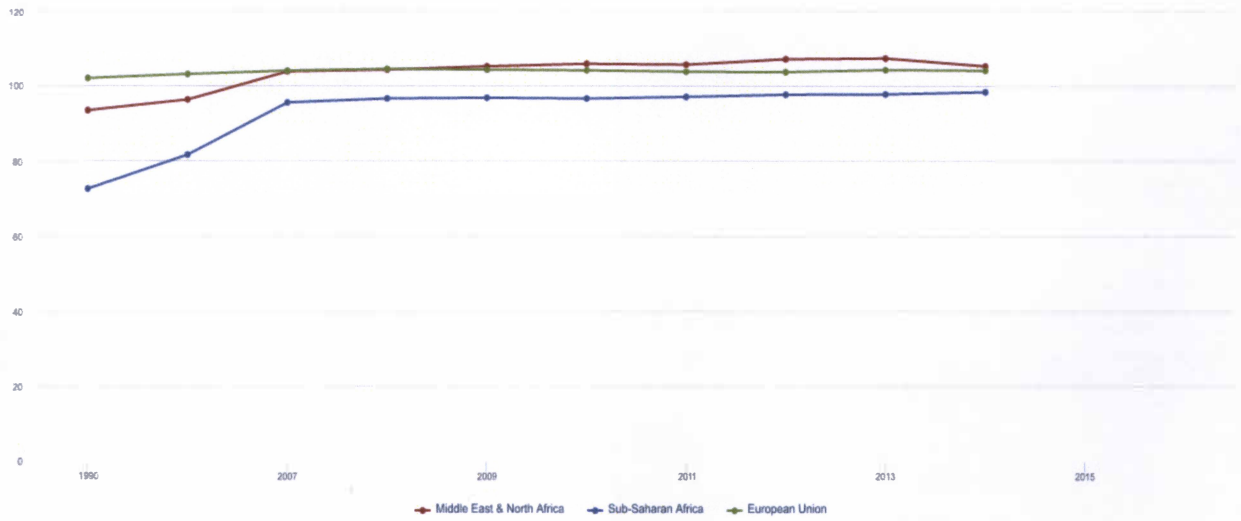
Series : Gross enrollment ratio, primary, both sexes (%)
Source: World Development Indicators
Created on: 02/07/2017

Figure 12 GDP per capita growth during 1990-2015
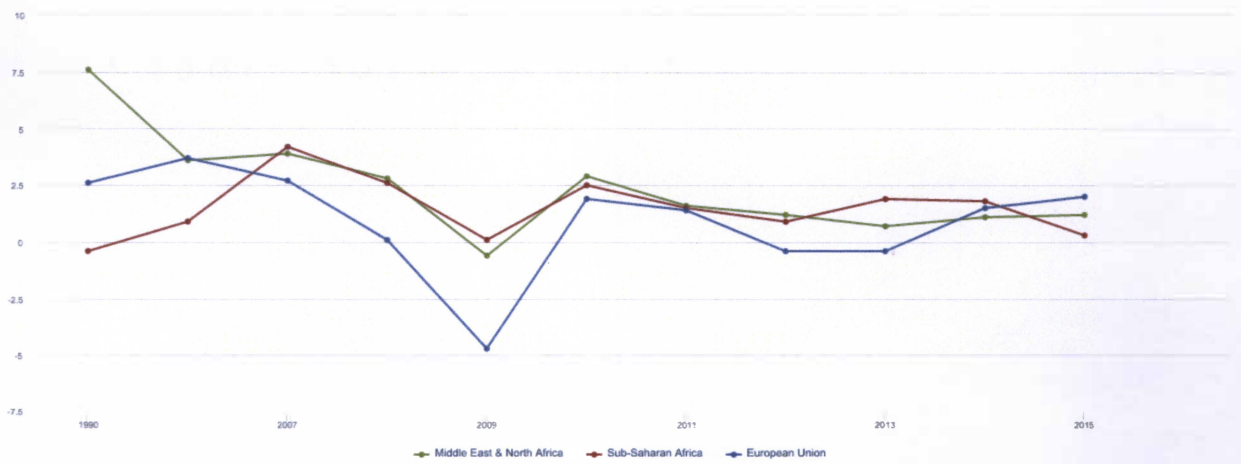
Series : GDP per capita growth (annual %)
Source: World Development Indicators
Created on: 02/07/2017

Figure 13 Gross capital formation during 1990-2015
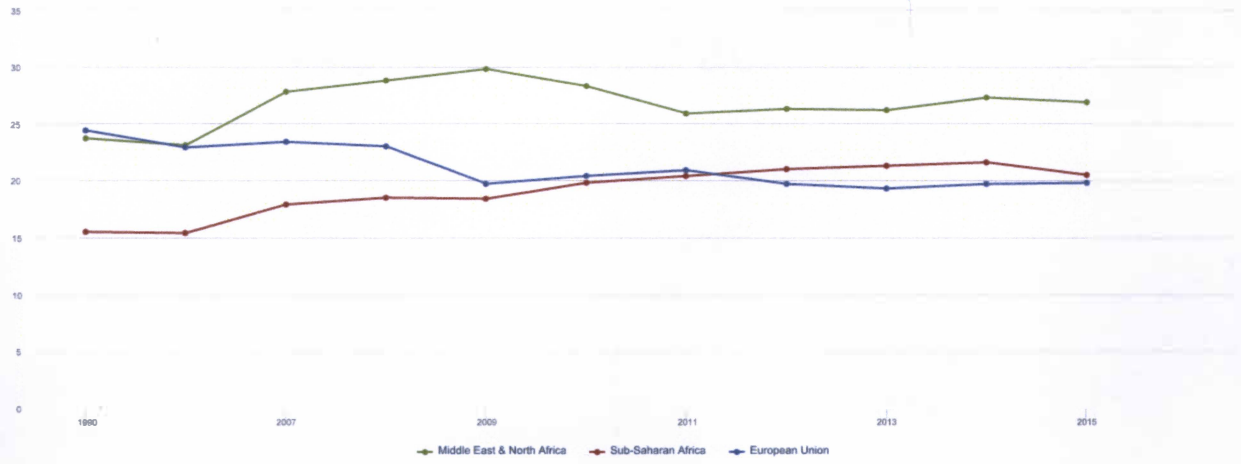
Figure 14 Total natural resources during 1990-2015
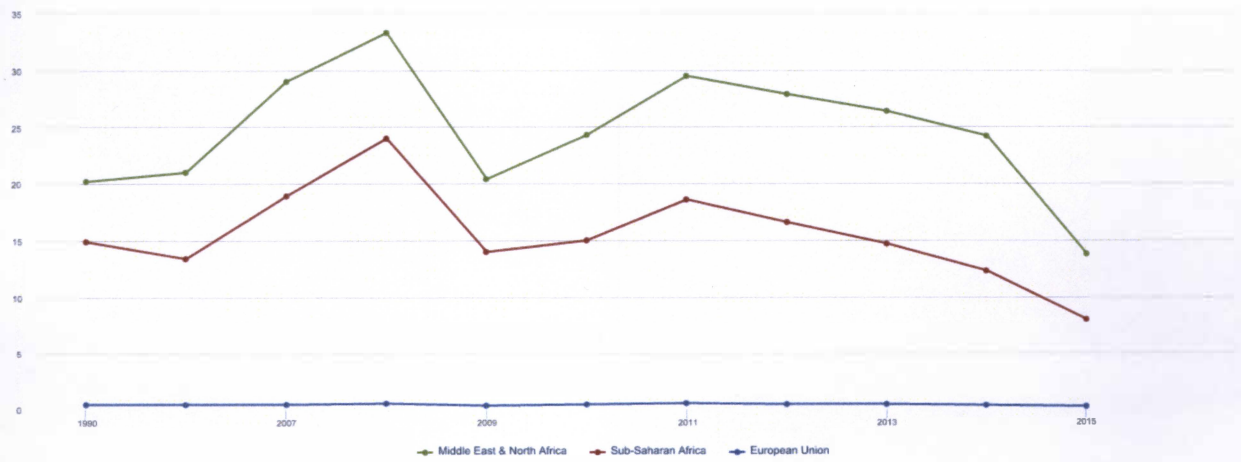
68

Figure 15 Trade as % of GDP during 1990-2015
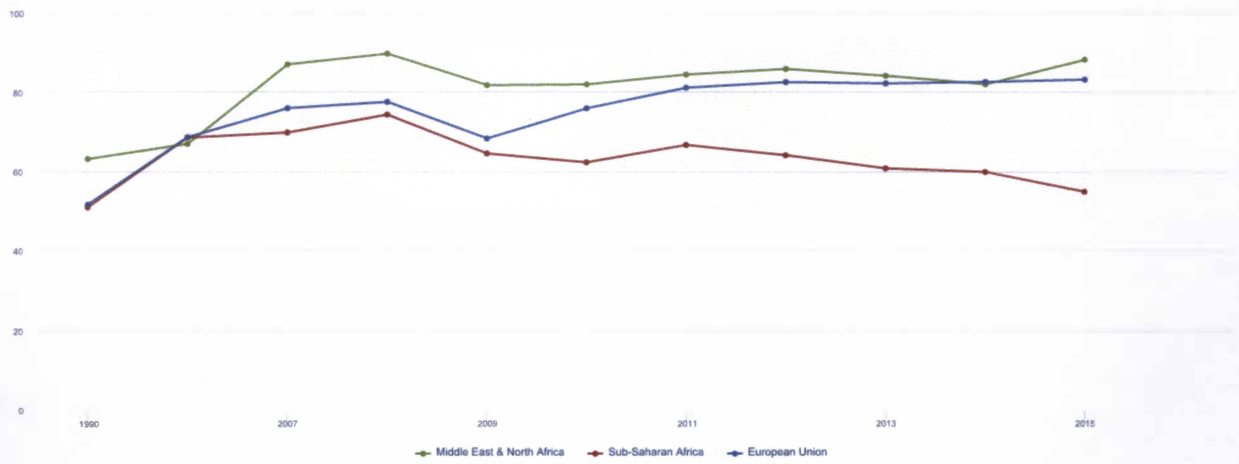
Series : Trade (% of GDP)
Source: World Development Indicators
Created on: 02/07/2017

Figure 16 Health expenditure during 1990-2014
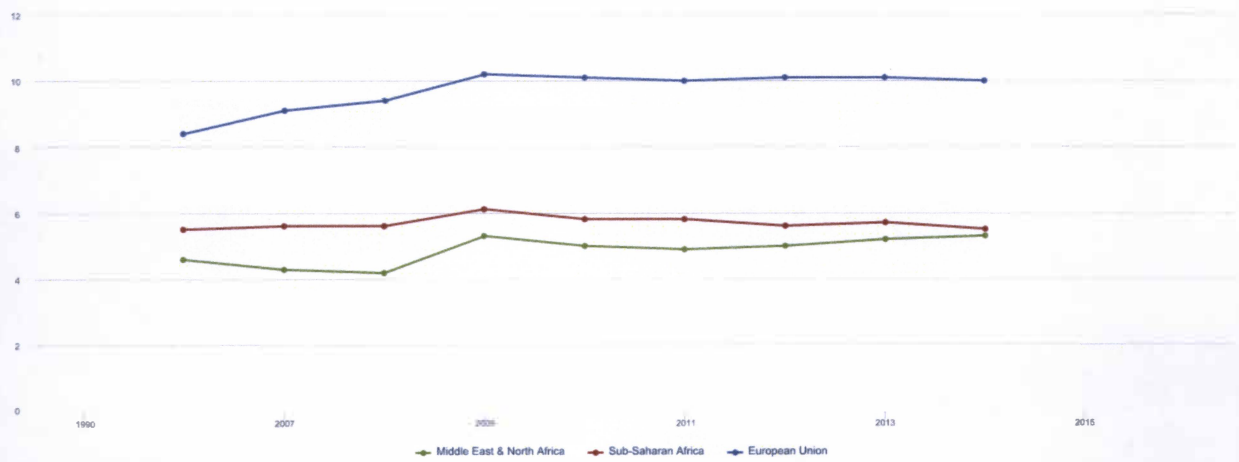
Series : Health expenditure, total (% of GDP)
Source: World Development Indicators
Created on: 02/07/2017

Figure 17 Inflation rate during 1990-2015
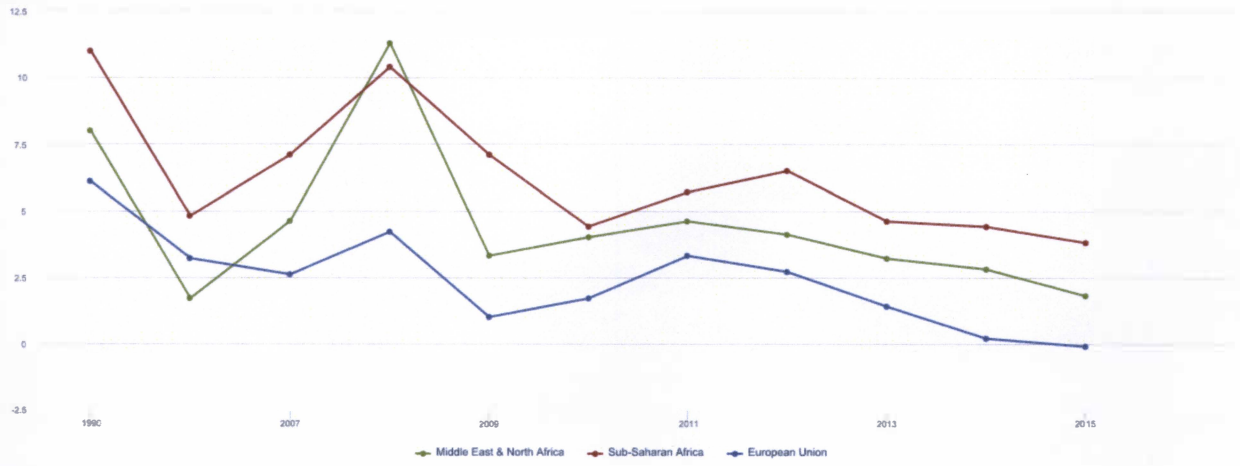
Series : Inflation, consumer prices (annual %)
Source: World Development Indicators
Created on: 02/07/2017

Figure 18 Population growth during 1990-2015
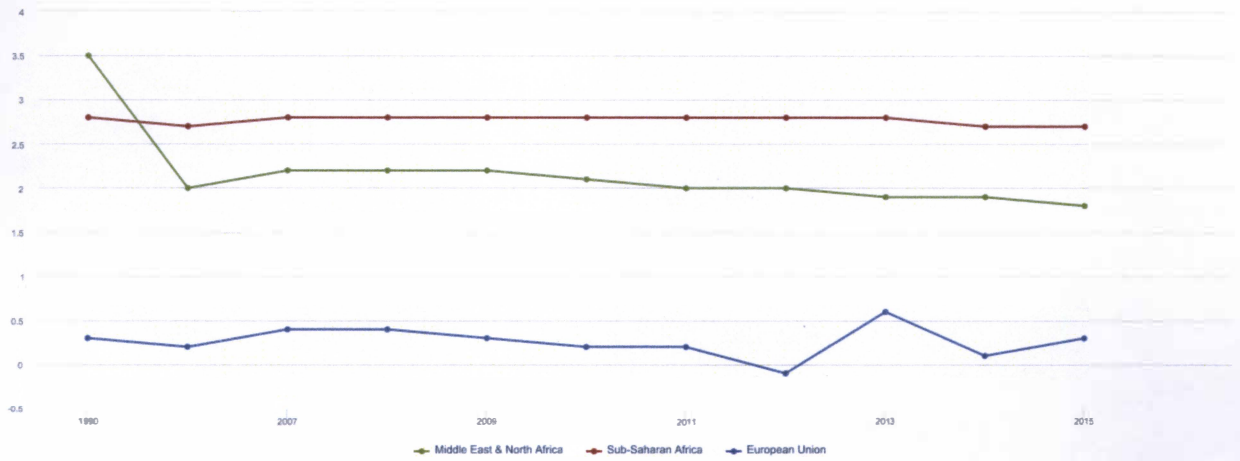
Series : Population growth (annual %)
Source: World Development Indicators
Created on: 02/07/2017

70

Figure 19 Relationship between HDI and control of corruption

coef = .00287889, se = .00039332, t = 7.32
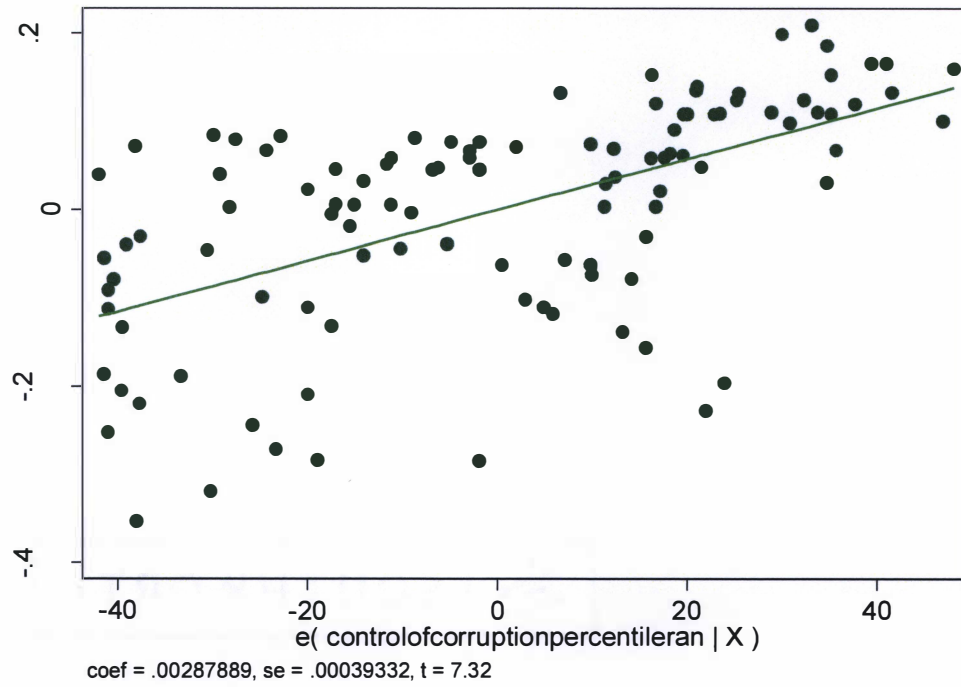
Figure 20 Preston Curve in 2012

n = 184

y = 6.0406ln(x) + 16.132
R² = 0.6455
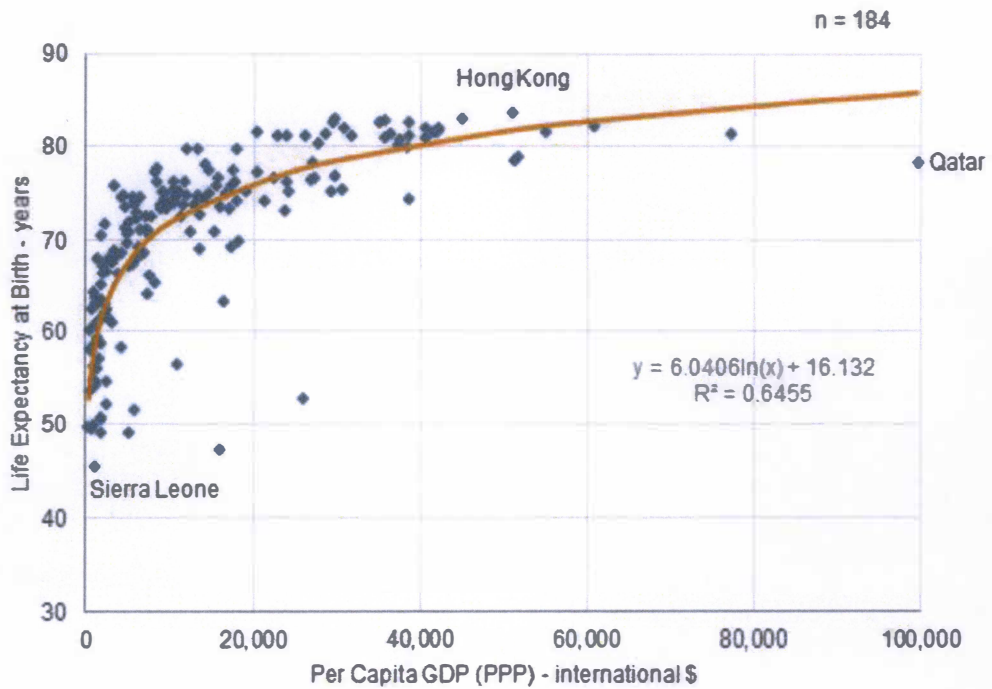
Source: Euro monitor International
Note: GDP is measured at purchasing power parity and reflects differences in price level between countries.

Figure 21 HDI, Natural resources and control of corruption in 2014
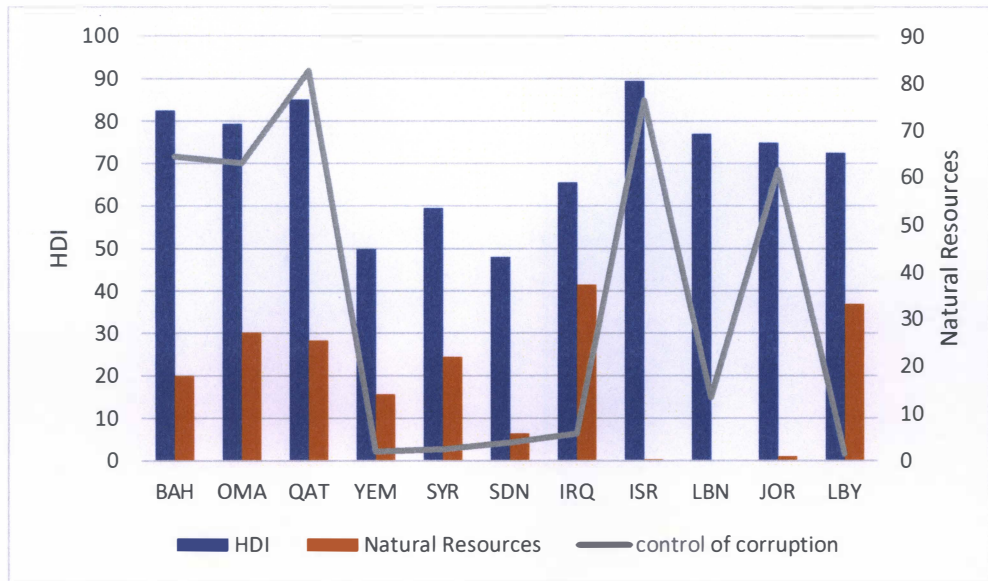
Figure 22 Life Expectancy, natural resources, and control of corruption in 2014
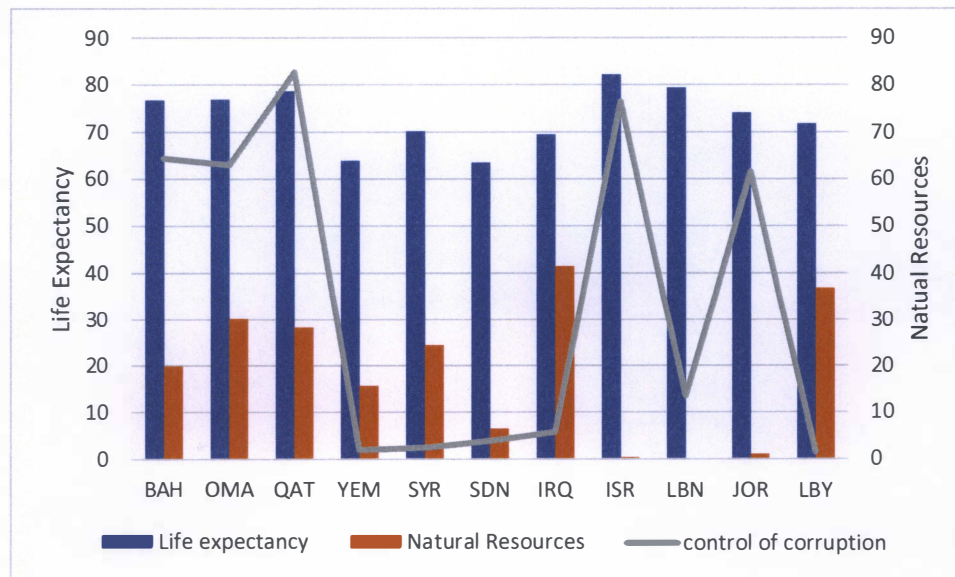
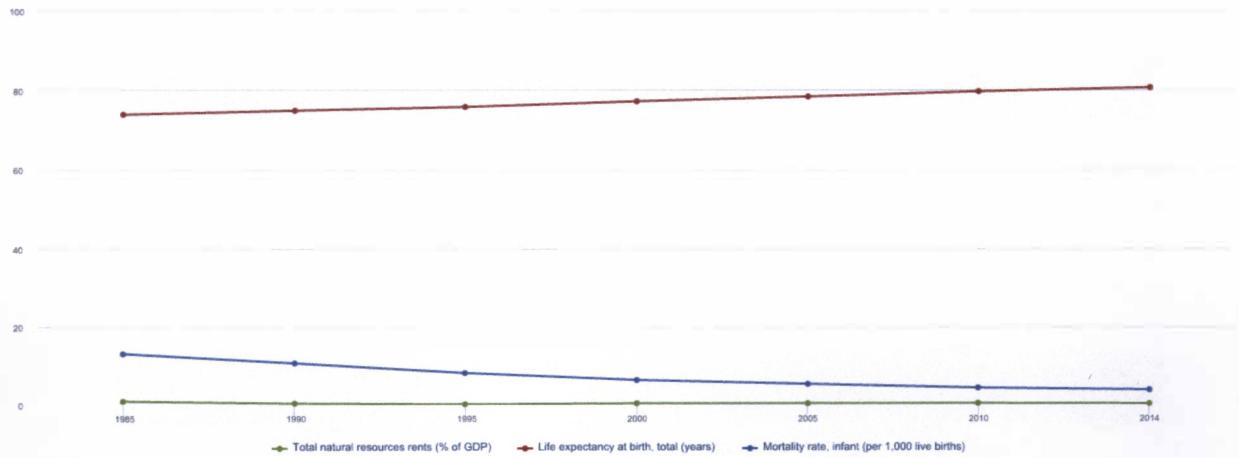**Figure 23 Relationship between school enrolment and GDP per capita**

coef = .03452786, se = .01036961, t = 3.33
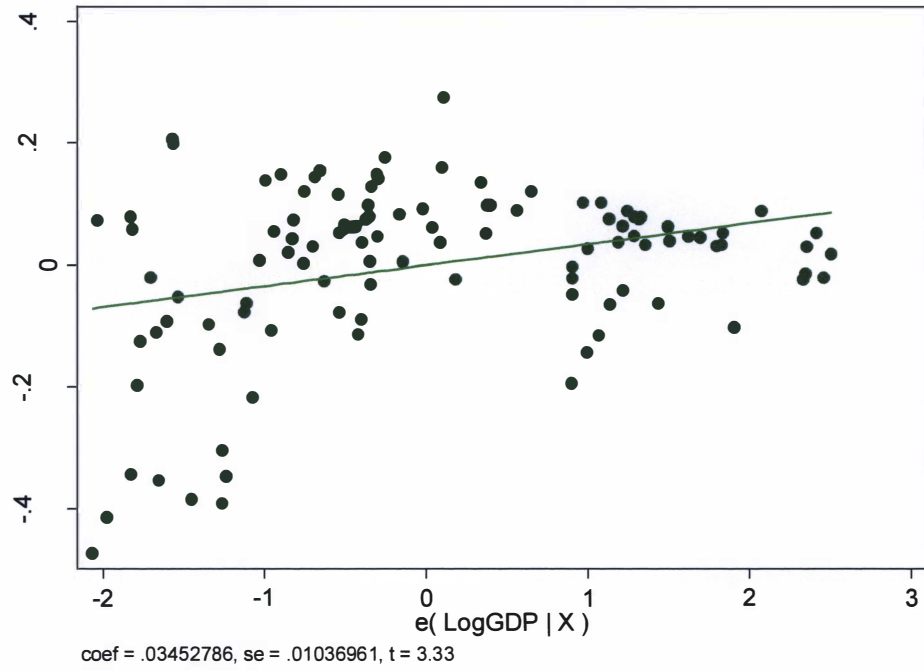
Figure 24 Life expectancy, infant mortality, and natural resources in EU

Total natural resources rents (% of GDP) — Life expectancy at birth, total (years) — Mortality rate, infant (per 1,000 live births)

Country : European Union
Source: World Development Indicators
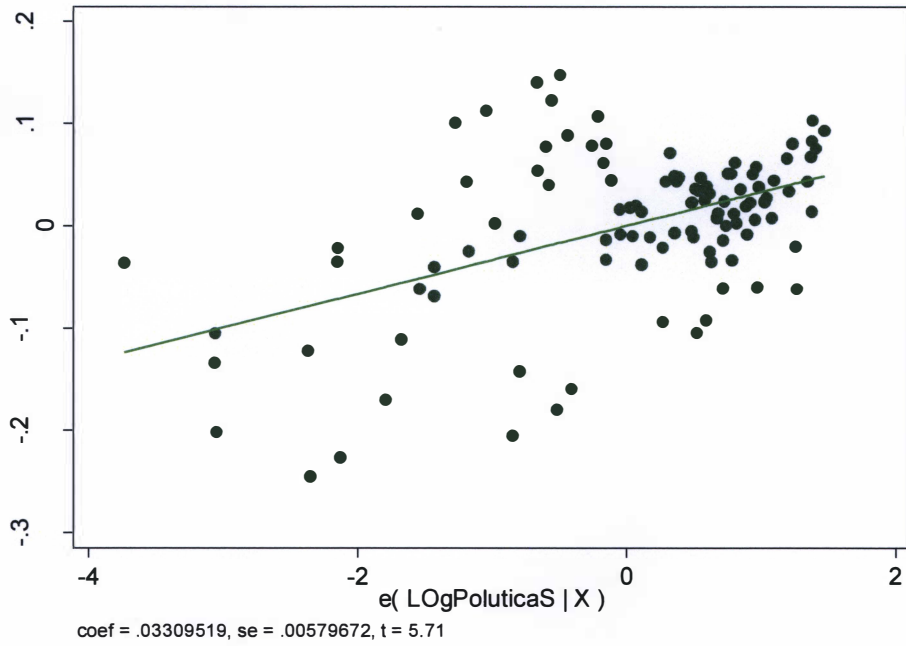Created on: 02/23/2017

Figure 25 Relationship between life expectancy and political stability

coef = .03309519, se = .00579672, t = 5.71

Figure 26 Relationship between school enrolment and politic stability

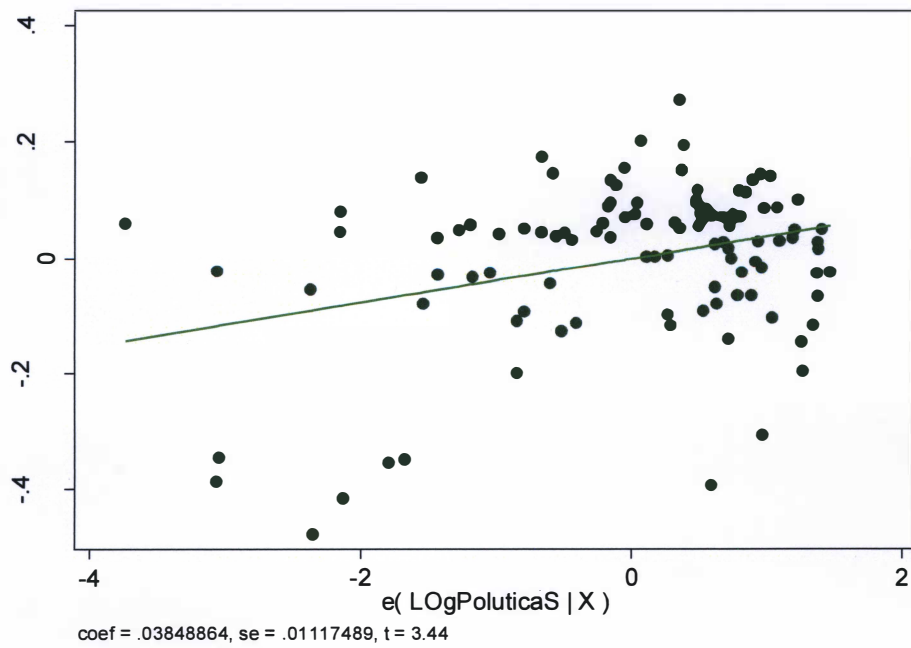coef = .03848864, se = .01117489, t = 3.44

Figure 27 Life expectancy, natural resources and political stability in 2014
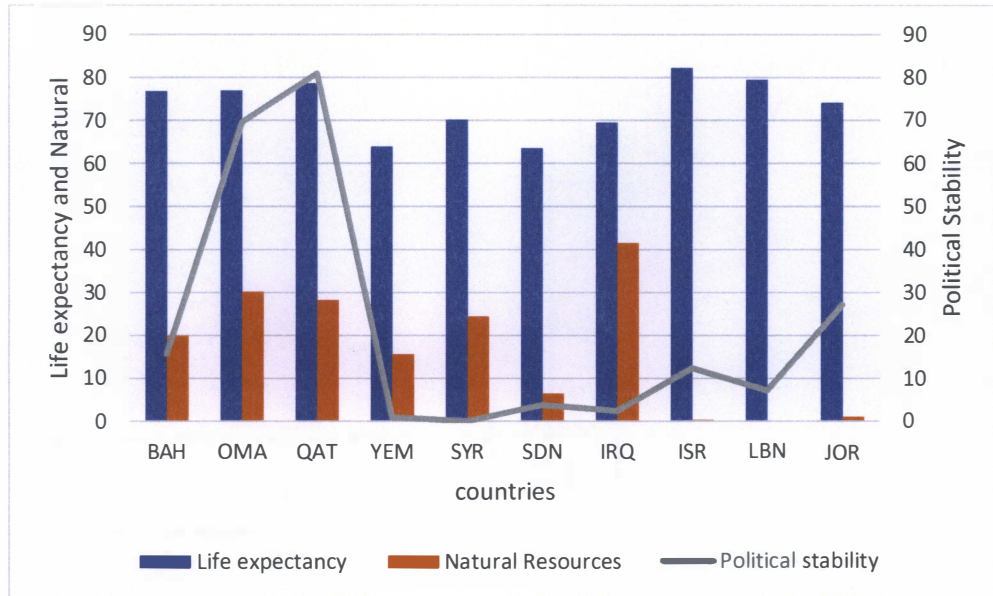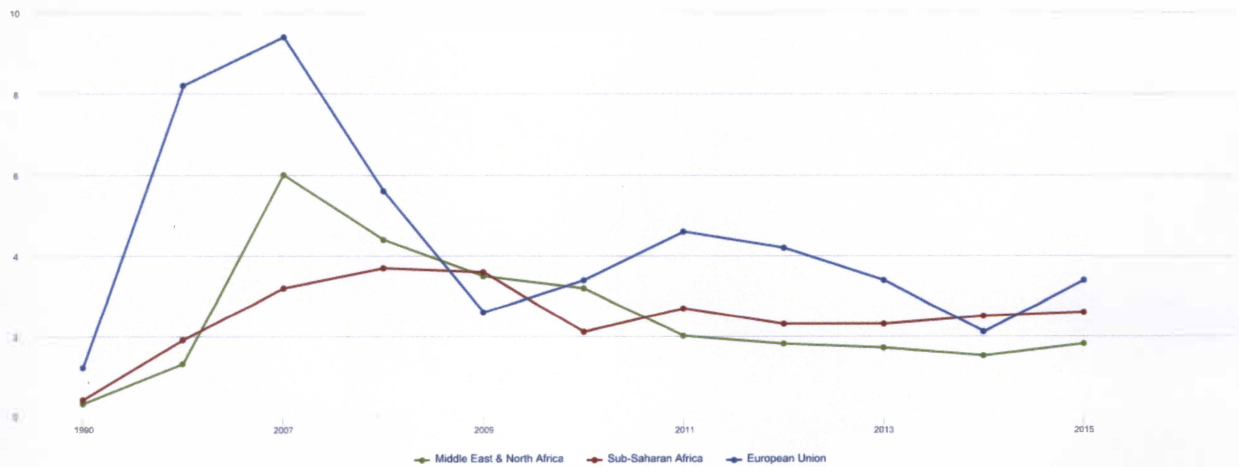

Figure 28 Foreign direct investment during 1990-2015

Series : Foreign direct investment, net inflows (% of GDP)
Source: World Development Indicators
Created on: 02/07/2017

Figure 29 Infant mortality and natural resources in 2014