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Economic Justice in the Arab Region

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Abstract

I. Introduction & Motivation

Economic growth has been in the center of attention of policymakers for quite some time. It has been considered an indicator of success of a regime to the extent that it has become an ultimate objective by itself. This direction is dangerous since it diverges attention from the prime purpose of economic growth that is to improve the welfare of the society. In this context, the concept of economic justice is very critical as it refocuses the aim of economic system and economic policies toward people's welfare. The core of justice is dual: equal opportunities and fair distribution of benefits.

The concept of economic justice is very relevant to the Arab region. In fact, it can be argued that weak economic justice contributed to the eruption of the Arab Spring in 2011 in Tunisia and Egypt. Prior to 2011, both Egypt and Tunisia enjoyed high economic growth supported by upbeat fundamentals. These strong fundamentals made both countries weather well the woes of the global financial crisis. International agencies such as the World Bank (WB) and the International Monetary Fund (IMF) praised the conduct of economic policies in Egypt and Tunisia signaling their positive economic growth. Still, some voices in both countries alerted to the issue of inclusivity of growth. Despite this high growth, large segments of the population did not witness significant improvement in their well-beings and some were made strictly worse off. Notions such as "trickle-down effect" started to emerge responding to this serious phenomenon and warning about it. The weak governance regarding voice and accountability in the Arab countries have belittled this problem in the eyes of policymakers as they were contended with strong macroeconomic performance and the vote of confidence echoed in various WB and IMF reports. Nevertheless, rampant unemployment especially among the youth reaching 30% and 42% in 2011 in Egypt and Tunisia respectively, stagnant poverty and rising inequality prior to 2011 made large segments of the population have serious grievances (Achy, 2011; El-Khawas, 2012; Ghanem, 2014). These grievances were associated with the core pillars of economic justice.

It is safe to argue that economic justice does not contradict economic efficiency. For example, a country which suffers from economic injustice may suffer from widespread youth unemployment or a portion of labor that are engaging in jobs below their qualifications and skills. In this case making the country more <u>just</u> economically would raise output and growth and place the economy is a strictly better equilibrium (Pareto optimal). In addition, poverty, a major problem in many Arab countries, could be drastically reduced by improving economic justice. Economic justice would increase wages especially for the poor.

Economic justice does not reflect only on the economic front. Economic justice is associated with more fundamental concepts such as fairness, equality in opportunities, and utilitarianism. These concepts are particularly important for the region which is usually criticized on the ground of low justice and weak governance. Improving economic justice then would not only lead to higher equilibrium but also this equilibrium would be more just and more inclusive.

The 2030 Agenda is a transformative plan to push countries toward sustainable development. Given its three dimensions: economic, social and environmental, the Agenda puts the welfare and the wellbeing of the individual in the center of attention. Consequently, a high level of economic growth which does not take into consideration economic justice dimension is not consistent with the 2030 Agenda; it leaves marginalized segments of the population suffering from poverty and low level of human capital. This implies that prioritizing economic justice is a key catalyst and impetus to achieve the Sustainable Development Goals (SDGs).

This study attempts, for the first time, to gauge the level of economic justice in the Arab region. More specifically, building on a conceptual framework defining the elements of economic justice, the study

proceeds by adopting a statistical framework to construct a composite index of economic justice in the region. After undergoing a series of robustness checks, this composite justice index is then compared to other relevant indices such as Human Development Index, Global Competitiveness Index, and the Index of Economic Freedom to understand better the complex relationships between economic justice from one side and human development, competitiveness and freedom from the other side.

The paper is divided into five sections. The second section introduces the conceptual framework of the economic justice index. Section three presents the statistical framework. Section four discusses the results and compares the economic justice index to other relevant indices. The last section concludes and presents policy implications and recommendations.

II. Conceptual Framework

2.1. Defining Justice

Justice as a concept has been a subject of discussion for many centuries, yet it has often been concerned mostly with describing the "utopic" society and in creating a set of laws that would create one. For example, the earliest recorded theory of justice was described by Plato in the Republic in classical Greece (circa 380 BC), in which justice is discussed and the character dialogue describes some characteristics of the perfectly just society, a "utopia" in the literal sense. Further, Aristotle is regarded as the first author to distinguish between justice and equity. This distinction was found in many other religions, for example Islamic law, distinguished between "Adala" and "Insaf". The former is justice and the latter is equity (Intini, 2015). According to DESA (2006), there are three major areas of priorities when it comes to equity and equality. These areas are the equality of rights, equality of opportunity and equity of living conditions for all individuals. The three areas were interpreted by DESA as follows:

- Equality of rights: The concept implies the elimination of all forms of discrimination and respect for the fundamental freedoms and civil and political rights of all individuals
- Equality of opportunities, points to stable social, economic, cultural and political conditions that enable all individuals to fulfil their potential and contribute to the economy and to society. Policies focusing on health, education and housing are traditionally seen as particularly important for ensuring equality of opportunities
- Equity in living conditions for all individuals: This concept is understood to reflect a contextually determined "acceptable" range of inequalities in income, wealth and other aspects of life in the society."

Recently, Amartya Sen (2011) attempted to explain justice in a comparative sense rather than the transcendental, emphasizing the need for logical reasoning and subsequently allowing for pragmatic decision making in policy. Sen's essential goal was to allow for a more practical theory that is not involved with searching for the "perfect" (transcendental) system of justice, which he proclaims a futile endeavor, but instead would be relevant in policy work through comparative reasoning and assessment and seeing how a policy would advance or hinder justice in a society. In the context of international politics, Sen says that due to the vast cultural and historical differences it becomes less and less possible to agree on a single concept for a "perfectly just" society that would conform to their limitations. When discussing the role of international entities, such as the United Nations acting the role of arbitrators, Sen suggests that the cultural distance allows for objectivity away from biases and parochial interests, yet a common core set of values should be agreed upon to avoid any issues caused by cultural distance.

2.2. Defining Economic Justice

According to UN-DESA, economic justice as part of social justice is defined as the "existence of opportunities for meaningful work and employment and the dispensation of fair rewards for the productive activities of individuals, is an aspect of social justice, and is treated as one integral concept in order to avoid to "legitimize the dichotomization of the economic and social spheres" (DESA, p. 14). Further, the commitment of the United Nations to promote peaceful and healthy relations among countries based on respect, equal rights and self-determination of people was clear. Article 55 of chapter IX of the Charter of the United Nations, presented clearly the UN's attitude toward its commitment to promote the following:

a. higher standards of living, full employment, and conditions of economic and social progress and development;
b. solutions of international economic, social, health, and related problems; and international cultural and educational cooperation; and
c. universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion.

Aside from the UN attempts of defining justice economic justice as a concept is considered recent. Adler and Kelso (1958) defined economic justice as composed of complementary principles. First participatory justice is defined as allowing individuals the right to participate with their own inputs (such as their own labor or physical capital) including the right to own property. Next distributive justice is concerned with rewarding each person according to his contribution of inputs measured by the value determined in the free market. Adler and Kelso, considered that the exchange of goods depends on subjective opinions, and does not depend on the value of the labor used to produce it (i.e. the "labor theory of value" advocated by Marx is considered false). Macpherson, in his "The Rise and Fall of Economic Justice" (1985), describes how the concept of economic justice only arose when production started dissociating from political and social relations. Before this dissociation, one's place in production had been based on his social class and status, and the relations of production were entirely political. In practical terms, economic justice aims to allow individuals the opportunities with which they can attain a decent and fulfilling life; therefore, economic justice relies on the building of economic institutions that can maintain a set of moral principles.

2.3. Economic Justice in the regional context

According to Gallup polls "life satisfaction survey question," almost 50 percent of the Arab populations are not satisfied with their lives. Recently, the urge to create a justice index in the Arab world became pressing and indispensable. Lately, the Arab region has been suffering from severe injustice in many countries in conflict and heightened levels of economic downturns in vulnerable and stable countries.

The surge of injustice in the region, solicits us to question the available tools utilized to measure justice in the past decades. History revealed that previous attempts in the region failed to measure among economic agents the level of equality of opportunity agents, equity of living conditions and equality of rights in a precise way. For example, countries such as Libya, Bahrain, and Tunisia made significant gains in their HDI scores

between 2005 and 2010; however, the level of dissatisfaction and the feel of dishonor led to major repercussions in Tunisia and Bahrain and a protracted civil war in Libya (ECRI, 2013).

Aside from the imposed humanitarian challenges, the Arab region needs to cope with socioeconomic challenges such as high unemployment particularly among the youth, income discrepancies, geographic inequalities, economic exclusion, lack of social benefits and infrastructures. Those challenges should be addressed simultaneously, without overlooking the role of political uncertainty in affecting the economic performances since political turbulence increases volatility in economic growth, reduces investments, restricts tourism and reduces exports. Poor economic performance associated with corruption and weak institutions raises many questions related to modality of economic distribution especially due to the concentration of major dividends generated from economic activities in the hands of small segment of the population.

In light of all the issues raised above, up to this point, the international community failed to set a well-defined means of justice measurement leaving these issues floating in a vicious cycle. For example, if we link justice to currently available indices, one can claim that indices such as the Human Development Index (HDI), World Governance Indicators (WGIs), Multidimensional Poverty Index (MPI), and many others, measure different aspects of justice in the region, while each one of these indices solely captures a specific area of potential measurement. Further, such indices are based on different methodologies, theoretical background, calculation, and most importantly, the core objective of the aforementioned indices is not Economic Justice.

2.4. Discussion of Indicators

The concept of Economic Justice is of normative nature, whose measurement depends on the philosophical and empirical setting on which the index is based. The literature on this topic, at the macroeconomic level, contains qualitative analyses but is still unexplored quantitatively. The Economic Justice Index is created to quantify economic justice in Arab countries, from a policymaking perspective. In this context, economic justice refers to the basic *inputs* that prevent the violation of a person's, as well as a society's, economic rights that revolve around exchanging goods and services, entering contracts and earning a living. It is inspired by several ideas the literature defined and were deemed to affect economic justice. The index consists of five dimensions: Competitive environment, enabling environment for private sector, red tape and regulations, financial sector and monetary policy.

The above dimensions, or pillars, are composed of smaller constituents, called indicators and summarized in Table 1. The rationale behind choosing the components of those dimensions is briefly introduced with reference to the literature, in the next sub-sections.

2.4.1. Contract Enforcement:

Contract enforcement at a lower cost provided by the state is considered as an essential pillar for economic development as it facilitates exchange between economic agents, hence increasing welfare. Douglas North (North D. , 1990) argued that the development of contract enforcement lowers contract cost and increase trade volume and profits among merchants. Therefore, as markets gets more complex, they require effective and efficient contract enforcement away from personal and social alternatives to attain further development and decrease uncertainty. This will provide an equal opportunity for economic agents to participate in markets and incentivize new innovative firms to participate. In our analysis, we use the contract enforcement indicator to measure the cost and efficiency of judicial systems in resolving commercial disputes.

2.4.2. Perception of standard of living for entrepreneurs:

Usually entrepreneurs come up with innovative business ideas that create employment opportunities (mainly in the formal sector) and increase productivity through the adoption of newer technologies. Improving the entrepreneurial environment through strengthening institutions (such as rule of law), labor market accessibility and flexibility, financial markets, and infrastructure accessibility, could increase domestic and foreign direct investments and provide employment opportunity and diffusion of technology. To measure the standard of living of entrepreneurs, we use Gallup Polls analytics to see whether the city or area where an economic agent reside is a good place for entrepreneurs to form new businesses. Most definitions of economic justice stress the role of opportunities in creating a dignified and productive life. Entrepreneurship create economic opportunities for individuals as it advances human development through increase employment opportunity and subsequently household welfare.

2.4.3. Getting credit:

Getting Credit promotes the equal rights of borrowers and lenders to secure a financial transaction and mutually report credit information to a credit registry that archives all borrowing and lending transactions. We use the Getting Credit indicator to measure two important aspects, the strength of the reporting system and the effectiveness of collateral and bankruptcy laws to facilitate lending. The scope and accessibility of information could reduce the coordination failure between borrowers and lenders and could exclude people that are unlikely of being credit worthy, especially those who are bankrupt or in high level of debt compared to their income (Finlay, 2010). The disclosure and accessibility of information could determine the likelihood of an individual to get credit and the probability of default based on the information provided. At the same time people will be aware of the variation in the price of capital (rate to borrowers versus rates to lenders). The second aspect of the indicator measures if collaterals and bankruptcy laws protect the rights of both parties and facilitate the lending transaction. Both aspects provide the opportunity for people to borrow and lend with clear rights and obligations.

2.4.4. Starting a business:

According to the Ease of Doing Business index, "Starting a business" indicator measures the time, cost, and the number of procedures to get a local limited liability company up and running. The indicator categorizes all stages new business owners pass through to attain the requirements of starting a commercial or industrial business. Since entrepreneurship creates economic opportunities for individuals therefore, the lower the time, the number of steps and the cost to finish a given procedure the better the entrepreneurial environment in a given country. According to Kritikos (2014), administrative and activation constraints for new businesses has to be low to reduce additional cost Usually, companies in business-friendly countries are registered in one day, especially in states having state of the art e-business/government services for standard businesses.

2.4.5. Efficiency of the tax administration:

Tax authorities usually collect taxes, tariffs and customs to finance government's expenditures, distributions and investment spending. This indicator measures specifically the efficiency of tax administration through tax collections of corporate taxes, income taxes (it excludes household with low income), and the practical ability of the administration to limit illegal transactions such as illicit capital flow, tax evasion and tax avoidance. According to Murphy and Nagel (2002) Government revenues collection and redistribution could be considered as a crucial tool to practice economic justice by any political system. However, it is hard to evaluate the optimality of a fiscal stance from a justice perspective ex ante. For example, justice theory could

not judge if a tax cut without looking at empirical evidences of the impact on employment, investments and most importantly the distribution of after tax income.

2.4.6. Financial Sector

The recent financial crisis led to one of the worst economic recessions in decades taking many by surprise. History revealed that scholars failed neither to deliver an early warning of the financial crisis nor anticipated the severity of the tailgating recession *ex ante*. This reduced the trust in financial markets and people's believe that authorities are capable to resolve the financial crisis. The exposed financial fragility lead to major injustice as it impacted major economic and social outcomes such as unemployment, poverty, inequality and the overall welfare of economic agents. These unjust consequences brought us to pioneer an index that measures the financial sector performance. To anticipate the financial rigidity in the Arab countries we propose indicators such as the banking system, financial freedom, reliability of financial institutions, banks assets to gdp, private credit to gdp and number of commercial banks.

The banking system:

The banking system is a financial institution that acts as an intermediary entity between borrowers and lenders. The banking system indicator by Bertelsman Transformation Index(BTI) measures if banks are complying with international regulations (such as maintain a minimum requirement of capital relative to the risk exposure) and if capital markets are open to domestic and foreign capital with sufficient resilience to cope with sudden capital flow reversals. Previously, we presented in our "Getting Credit Indicator" the importance of information disclosure by borrowers. Now, assessing the banking system provides an assessment of bank's compliance and resilience. Both indicators could provide a holistic picture of financial markets efficiency.

Financial Freedom:

Financial freedom requires financial institutions to be independent from government control. It is evident that state ownership of banks have an ambiguous impact on economic and financial development (Porta, Lopezde-Silanes, & Shleifer, 2002). Financial freedom away from state intervention enhances competition and increase access to credit markets. In a free market environment, financial channeling is market based where governments do not control credit allocation to sectors. In this setting banks are free to provide or extend credit, accept deposits and/or provide any financial services to individuals and companies. Further, financial freedom entitles banks to conduct international transactions with no control on financial capital flow. We use this indicator to measures the level of government intervention in the financial sector. It also measures the development of financial and capital markets, government influence on the allocation of credit and openness to foreign competition. The deep financialization[1] of economic activity increasingly connects people's life to financial markets. Therefore, financial freedom could reduce negative externalities resulting from state interventions and restrictions and increase efficiency.

Reliance on Financial Institutions:

The reliance on financial institutions indicator measures the ratio of bank deposits to broad money (m2). According to WDI, Bank deposits is total value of demand deposits, time deposits and saving deposits at commercial banks and other financial institutions. M2 is the sum of deposits in commercial (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements. Bank deposits measure the size and depth of the financial sector while m2 captures the

[1] Financialization is the process by which financial institutions, markets, etc., increase in size and influence.

degree of monetization. Therefore, the ratio of bank deposits to m2 measures to what extent people trust financial institutions as depositary institutions compared to longer term investments (such as savings accounts, time deposits and mutual funds).

Bank assets to GDP and Private credit by banks to GDP:

The World Bank measures bank assets as claims on domestic real nonfinancial sector which includes central, state and local governments, nonfinancial public enterprises and private sector. In other words, bank assets is a comprehensive measure of the size of credit to private sector, credit to government as well as bank assets other than credit. Bank assets to GDP measures the financial depth of the economy through weighing the size of financial markets to total output. According to King and Levine (1993) financial depth in a given country has a statistical correlation with economic growth and also linked to poverty reduction. As part of banks assets, private credit by banks to GDP refers to all financial resources issued to the private sector by deposit money banks. A higher value of the private credit by banks signals to the strength of the economy as it measures the performance of the private sector and its capability to develop.

Number of commercial bank branches:

In our analysis, we use the number of commercial bank per 100,000 adults as a proxy of financial services accessibility. Bringing financial services coverage to all regions is an eminent challenge especially in rural areas in developing countries. According to CGAP (2009) more financial outreach is better for borrowers and lenders and allows banks to be more responsive to people's requests to facilitate small business and development especially in rural areas.

2.4.7. Dealing with Construction Permits:

Our index, uses "Dealing with Construction Permits" as an indicator to measure the required number of procedures used by the majority of businesses to legally build a warehouse or any commercial facility, the time recorded in a calendar year to complete each procedure, and the cost recorded as a percentage of the warehouse value associated with each procedure. The more time, cost and red tapes to finalize a construction permit, the more the associated opportunity cost for business owners and employees especially in growing economies with high competition. In monetary terms, applied efficient regulations could save billions of dollars to business owners. Diniz and Ramalho (2015) estimated the cost of red tapes in 90 countries to be around $180 billion in 2012. Since the private sector employs 9 out of every 10 jobs (in formal and informal sectors) around the globe, any delays in setting up a new business could delay employment opportunities as well.

2.4.8. Regulatory Quality:

Market regulations are crucial in shaping the welfare of economies. It profiles the relationship between governments, people and businesses. The Regulatory Quality Indicator that we use captures the prevalence of unfriendly market policies. As an economic governance indicator, regulatory quality measures the ability of governments to formulate and implement sound policies and regulations that promote private sector development. According to the world governance indicators (WGI), Regulatory quality assess major regulatory practices in the private sector such as unfair competition, taxation and tariffs policies, monopoly and unti-trust laws, trade barriers, price controls, investment and financial freedom and other regulatory burdens. A higher score of Regulatory Quality hints to the ability of the state to create a conducive regulatory environment for private sector development.

2.4.9. Market-Based competition:

Economic justice cannot be achieved in inefficient markets. *Market-based competition* prohibits exclusionary behavior and promotes efficient markets. Non-competitive market structures produce wealth inequality. The goods and services can be of lower quality, narrower variety and higher prices. Additionally, restraints on competition can benefit certain groups over others, or over society's welfare as a whole, as these special interest groups lobby for their own advantage. Removing competition from the market causes concentration of economic powers to the detriment of society. *Market-based competition* prevents inefficient allocation and economic deadweight loss to both consumers and producers. The gain from using the scarce resources of the economy competitively, promotes individuals' welfare and equal treatment (Stucke, 2013). The index accounts for the *market-based competition* component as a numerical value scaled from 1 to 10. The highest score, 10, refers to markets that host rules promoting competition; while the lowest score 1 signifies the absence of competition in most segments of the economy.

2.4.10. Anti-monopoly policy:

The behavior of non-competitive entities can be extortionary and diminishing to economic justice, thus it must be regulated. Oligopolies and monopolies lead to inefficient resource allocation and are one of the very few exceptions where governments absolutely have to intervene (Ver Eecke, 2013). As these firms pursue their self-interest and maximize their profits, they tend to keep output below its socially efficient level and harm both buyers and sellers. They harm the former by increasing the prices of goods and services and the latter by limiting their ability to enter and participate in the market (Hahnel, 2005; Harris & Jorde, 1984). Among many reasons, monopolies form due to innovation and learning or due to natural barriers of entry (North D. , 1994; Stucke, 2013). In the first case, the right to benefit from one's innovation may lead to the formation of market exclusion as other market participants lag behind in acquiring new technologies. In the second case, the naturally high fixed cost of the sector prevents market competition. This is when anti-monopoly policies and regulation become indispensable for economic justice (Ver Eecke, 2013). The *anti-monopoly policy* component is also a numerical value scaled from 1 to 10; 10 being the presence of the most active anti-monopoly policies, while 1 being the absence of political measures to prevent monopolistic behavior.

2.4.11. Administered Prices:

Administered prices are prices set internally by firms or by regulatory bodies and do not respond to short-term variations in supply and demand (OECD, 1993), thus they do not reflect the economically just prices. Pursuing self-interest in competitive markets will produce efficient production levels and remove the need for administering prices. Competition diminishes bargaining power between consumers and producers and creates fairer outcomes (Ver Eecke, 2013). When regulatory bodies or firms set the price below equilibrium, the quantity demanded will increase above equilibrium quantity, while supply will not. Conversely, when prices are set above equilibrium level consumers will become reluctant to buy the products, while suppliers will overproduce them, potentially diverting resources from more efficient lines of production (Morton, 2001). Administered prices would result in deadweight loss and efficiency problems, thus diminishing economic fairness, as suppliers and consumers do not share the full potential of the exchange equally. *Administered prices* is a numerical variable scaled from 1 to 4. The smaller the portion of administered prices, the closer the score to 4.

2.4.12. Monetary policy:

Economic justice requires that an economic agent's long-term financial capital does not devalue as a consequence of monetary instability. Four components of the Economic Justice Index attempt to capture this concept: *monetary freedom*, *independence of central banks*, *anti-inflation and foreign exchange policy*, and *inflation standard deviation over 5 years*. As measures of currency stability and price freedom, these components translate the importance of storing the value of economic agents' accumulated financial capital.

As they face varying levels of inflation, monetary policy guarantees their right to exchange goods and services with reliable mediums of exchange.

The ideal model of a central bank requires it to be independent from the government, targeting a nominal anchor and stabilizing macroeconomic fluctuations. Economic cycles showed that central banks are exposed to a trade-off between an economy's operating capacity and a moderate rate of inflation. As a consequence, the monetary authority in accordance with the fiscal authority should cooperate to ensure that adequate levels of inflation and economic capacity are harmonized to attain economic justice. This necessitates that central banks retain their operational independence (Balls, Howat, & Stansbury, 2016). While there is no consensus on a specific monetary policy that will make the economy more just, there is wide support for low inflation levels and central bank independence (Index of Economic Freedom, 2017).

Monetary freedom is measure by a numerical scale from 0 to 100; 100 being the highest freedom level. Independence of central banks varies on a scale between 0 and 4; 0 reflects no independence, while 4 reflect strong independence. Anti-inflation and foreign exchange policy are measured on a scale between 1 and 10; 10 being the most persistent and appropriate policies, respectively. Finally, Inflation standard deviation over 5 years is a rate measured by the consumer price index.

2.4.13 External Sector:

Economic justice requires complete financial and goods markets; barriers to trade and to capital flows should be lessened and eliminated to achieve global market completeness. *Foreign trade risk* should be addressed with the purpose of integrating markets into one global market and to achieve equal treatment (Hockett, 2005) . This component includes two main sources of risk. The first one is positioned in the goods and services market and includes discriminatory tariffs and excessive protection. The second one references the financial markets and entails contagion risk, capital control risk, current account convertibility and capital account – as a measure of the ease of execution of financial transactions. The remaining element of foreign trade risk, trade embargo risk, can be applied to both markets. Foreign trade risk is measure on a scale from 0 to 4, with 0 being the lowest risk level, and 4 the highest.

The principles of the World Trade Organization state that countries should not discriminate among their trading partners and should discourage protectionism. Free international trade benefits producers and consumers. Through comparative advantage, trade liberalization improves productivity by increasing investment in technology, raising aggregate productivity and reallocating resources to the most efficient sectors. Moreover, knowledge spills over across borders, as firms learn by exporting and importing goods. Open trade is also linked to less corruption, more ease of doing business and financial deepening (WTO, Making Trade an Engine of Growth for All , 2017). As for consumers, the competition policy doctrine, inherently present in free trade principles, consists of admitting the largest number of competitors to local markets from the broadest range of sources. This minimizes the risk of a single or a cluster of firms dominating the market and offers a wide variety to consumers for low prices. This channel is in particular beneficial to lower-income households – and courtiers -, thus creating more fairness in the economy (WTO, Making Trade an Engine of Growth for All , 2017; UNCTAD, 2008).

The imposition of trade barriers, such as tariffs is associated with negative consequences. For example, while the tariffed industry may gain more local market share and host more jobs in the country imposing the tariff, research show that that this gain is offset by the jobs lost in the retail sector. Second, consumer surplus shrinks as consumers shift to an alternative source and pay higher prices to buy the same product that may also not be produced domestically. Finally, other industries may be harmed as the tariffed country retaliates (Hufbauer & Lowry, 2012). Capital controls also have destabilizing effects on the economy. Difficulties in bringing capital in, and taking capital out of a country discourages individuals from investing and distort resource allocation and economic stability. A restrictive business environment with weak *current account*

convertibility and *capital account* –as measured by this index- would drive investors away, reducing present and future growth potential and employment opportunities. As for contagion risk, governments hold the right to take prudential measures to mitigate the negative effects of financial crisis, and its resilience against worldwide shocks protects depositors and investors against financial markets' instability (WTO, Trading into the Future, 2001).

Table 1 – Retained Indicators

Pillar	Indicator	source
Competitive Environment	Market-based competition	BTI
	Administered prices	IPD
	Anti-monopoly policy	BTI
Enabling Environment for Private Sector	Contract enforcing (DTF)	Ease of Doing Business - WB
	Perception of standard of living for entrepreneurs	Gallup
	Likelihood of violent demonstrations	Global Peace Index
	Getting credit (DTF)	Ease of Doing Business - WB
	Foreign trade risk	EIU Operational Risk Model
Red Tape & Regulations	Dealing with construction permits (DTF)	Ease of Doing Business - WB
	Index of Regulatory Quality	WGI
	Starting a business (DTF)	Ease of Doing Business - WB
	Trading across borders (DTF)	Ease of Doing Business - WB
	Efficiency of the tax administration	IPD
Financial Sector	Banking system	BTI
	Financial freedom	Heritage - Index of Economic Freedom
	Reliance on financial institutions (Deposit rate=Deposit/M2)	WDI
	Banks' assets to GDP	GFDD
	Private credit by banks to GDP	GFDD
	Frequency of bank branches	GFDD
Monetary Policy	Independence of Central Banks	IPD
	Anti-inflation/forex policy	BTI
	Monetary freedom	Heritage - Index of Economic Freedom
	Inflation standard deviation over 5-years	WDI

2.4.14. Trading Across Borders:

Economic justice involves the procedure that shapes trade. Trade occurs justly when the process underlying it is timely and uncostly. *Trading across border* measures the cost and time to import and export goods and services and includes three components: domestic transport, border compliance and documentary compliance (Trading Across Borders Methodology, 2017). This indicator thus concerned with procedural justice, which is looks at the governance mechanism through which the transaction is made. A low score reflects an economy that lacks a large private sector cross-border trade.

2.4.15. Likelihood of Violent Demonstrations:

Violent demonstrations reflect a collective feeling of dissatisfaction that is primarily a consequence of government mismanagement, lack of trust and perceived injustice. The escalation in these demonstrations is linked to the incapacity of the government to handle the protesters and to communicate with them. Social unrest is a form of systemic risk, whose effects ripples onto several arenas such as the economy. More violent demonstrations are associated with poorer business environments and weaker well-being measures (Global

Peace Index, 2015). In addition to the direct costs incurred such as losses to property, infrastructure and human lives - which further deepen economic injustice- these demonstrations reflect the poor quality of institutions that are unable to resolve economic injustice. All of these factors reflect an unsound business environment and an unjust economic system (Renn, Jovanovic, & Schrö, 2011; Global Peace Index, 2015). The *likelihood of violent demonstrations* is scaled from 1 to 5, with 5 being the highest level of threat.

III. Statistical Framework

While developing the conceptual framework, the main components of Economic Justice (EJ) were identified. Available information for the Arab world is collected to form a complete dataset relevant to EJ. A considerable amount of data was available from reliable national and international sources (Table 2 – list of sources, p.14). the data is used to build the EJ composite index. Practical guidelines have been developed by research centers, international agencies and consultancy firms to provide some international standards in the field of composite indicators.

The diagram in Figure 1 represents the adopted procedural framework. It represents an adapted version from the original framework found in the auditing report (Saisana & Philippas, 2013) of the Gender Inequality Index, produced by the Joint Research Center[2] (JRC) of the European Commission.

3.1. The Dataset

The data harvesting resulted in a large number of indicators that fit under the dimensions of EJ. A total of 110 indicators, relevant to the concept of Economic Justice, were collected, from 17 renowned sources. However, none provided data for all 22 Arab countries. A list of indicators, their definition and source is presented in the annexes (ANNEX 1 – Originally Considered Indicators).

However, those numerous indicators suggest a necessary reduction in the dimension of the database, so data can be used efficiently. In other words, this suggests coming up with a composite indicator for EJ, that summarizes the information provided by the indicators in a statistically significant way.

[2] JRC audited famous indices such as: **Global Innovation Index** – Johnson Cornell University, INSEAD and WIPO, **Gender Equality Index** – European Institute for Gender Equality, **EU Regional Human Development Index –** Directorate General Regional and Urban Policy of the European Commission, **Europe 2020 Regional Index** – Directorate General Regional and Urban Policy of the European Commission, **Index for Risk Management (INFORM) –** 17 partners of International agencies listed here , **Sustainable Society Index** – Sustainable Society Foundation, **Global Talent Competitiveness Index** – INSEAD, **Rule of Law Index –** World Justice Project, etc.

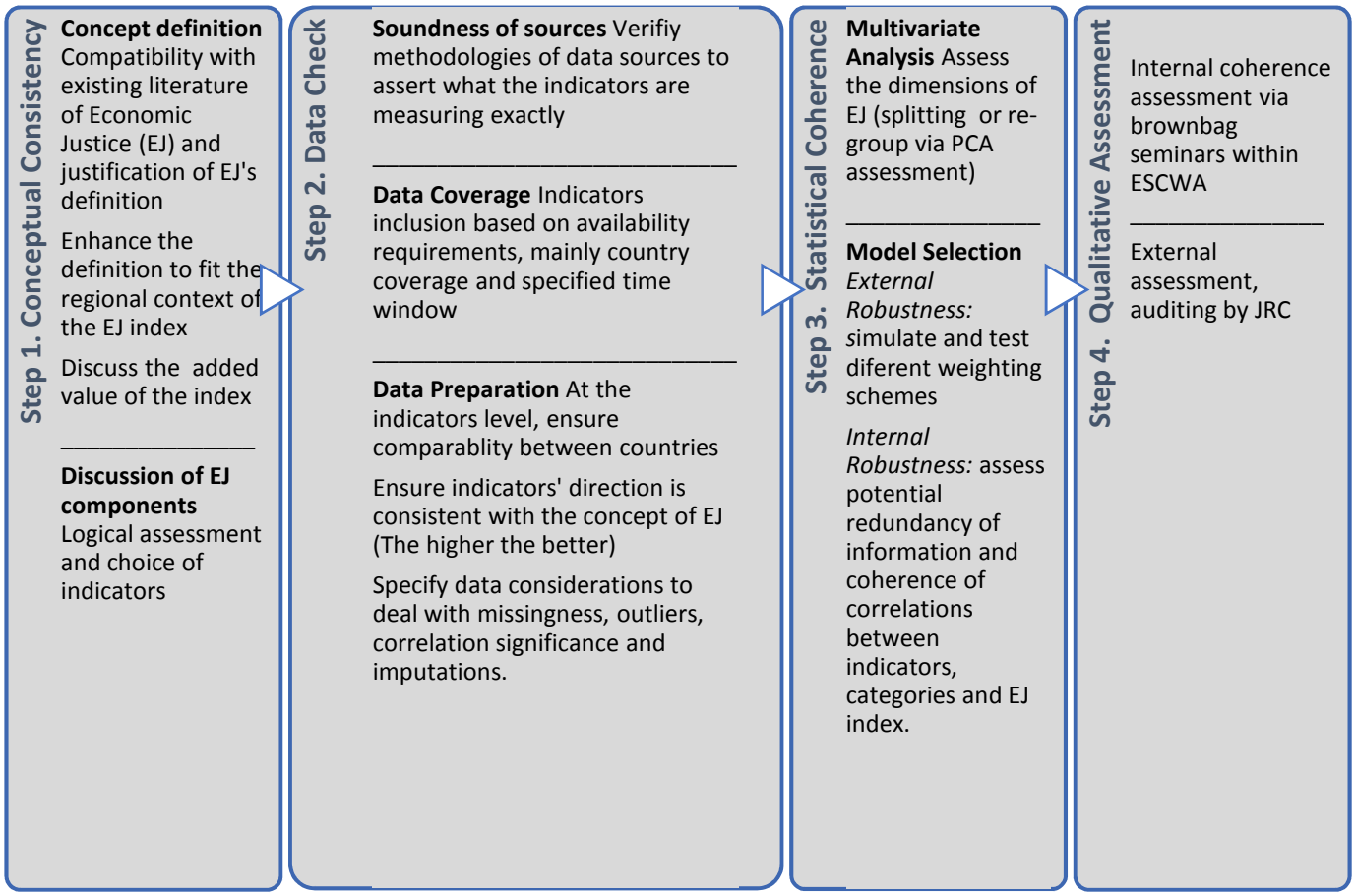

Figure 1 – Framework

This process guarantees an objective procedure for developing a robust EJ Index and is applied across the predefined conceptual dimensions of EJ.

3.1.1. Soundness of Sources

> *"In terms of data availability, a 'constant awareness of the sources and interpretation of data' is required* (McGranahan, 1972, p. 3)*"*
>
> (Booysen, 2002)

A significant time spent on revising the methodologies used by the data sources verified the soundness of the measurement, the scale interpretation and their temporal comparability[3]. When the underlying measurement methodology is judged sound[4] for this study, an indicator is qualified for inclusion in the database. In addition, the reported figures with their interpretation were revised meticulously. For some sources, the process involves going back to the raw data and recompile[5] them. In other sources, some years had to be rescaled to align the figures from year to year and make them comparable. Some sources were contacted for methodology verification, or data correction.

Table 2 – list of sources

[3] Temporal comparability is considered if a dynamic index is to be developed

[4] Clear and consistent methodologies, without logical fallacies.

[5] That was mainly the case with the Institutional Profile Database (IPD), to insure comparability through time. IPD changed the formulation of questions, the number of sub-variables and scales, repeatedly, over time. So indicators that can be steadily measured through time were chosen.

Directly Accessed Source	Directly Accessed Source
BTI	IFAD
Doing Business - WB	IPD
EIU Operational Risk Model	OECD
Enterprise Surveys - WB	Open Budget Index
Gallup	UNCTAD
GFDD	WDI
Global Integrity Report	WEF - Global Competitiveness Index
Global Peace Index	WGI
Heritage - Index of Economic Freedom	

3.1.2. Data Coverage

Originally, the data was collected over a window of 14 years (2000 to 2014).

Some countries have scarce data across indicators, while some indicators have scarce data across countries. To optimize the number of observations per country, a number of 'poor' indicators[6] were identified and then exclude. Since the intended index is static, the temporal window is reduced to 2012-2014, from which only latest observations were considered.

3.1.3. Data Preparation

At this stage, and prior to any analysis, the raw data has to be prepared and harmonized to be part of the EJ scores, coherently.

Correlation Significance

As specified in the framework, *pairwise correlations* are analyzed at the pillar level. This analysis shows whether indicators have their highest positive significant correlation within the conceptual pillar they have been assigned to. A correlation matrix is run at the pillar level, and significant correlations are reported. The test statistics is

$$T = r \cdot \sqrt{\frac{n-2}{1-r^2}} \sim t_{(n-2)} \ ,$$

where r is the correlation coefficient, and n is the number of cases (sample size). This statistic follows a t-distribution with $(\mathrm{n}-2)$ degrees of freedom. At a 5% significance level, the critical value is $t_{(0.05/2\ ,\ n-2)}$.

Accordingly, within each pillar:

1. Perfectly collinear[7] indicators are flagged.
2. Indicators that do not correlate significantly with any indictor in the pillar are flagged.
3. Indicators that correlate negatively to all other indicators are flagged.
4. Indicators that do not correlate with any indicator within the same pillar, but correlate with indicators in another pillar are flagged.
5. Indicators that have higher[8] correlations in another pillar are flagged.
6. Indicators that correlate positively to some indicators and negatively to others within the same pillar are flagged.

As a general guideline, for each indicator, the highest correlation coefficient should be within the same pillar (Athanasoglou, Weziak-Bialowolska, & Saisana, 2014). Assigned treatments are presented in Table 3. Flags 1, 2 and 3 are treated by reassessing directions and/or dropping indicators. Flags 4 and 5 will be

[6] in terms of data availability

[7] correlation coefficient = 1

[8] Higher correlation, positive and statistically significant

treated by moving indicators to better pillars if they fit conceptually, else by dropping them. Flag 6 will be treated during the multivariate analysis.

Imputation

There are several methods one can employ to deal with missing data. The most popular methods are: Listwise or Casewise Deletion, Pairwise Deletion, Mean Substitution, Median Substitution, Expert Opinion Adjustment, Imputation by Regression, Hot Deck Imputation, Expectation Maximization (EM) Algorithm, Raw Maximum Likelihood or Full Information Maximum Likelihood (FIML) Method, and finally the Multiple Imputations approach. For the current static approach, a simple imputation method for missing values[9] is employed. If the country has historical data on the missing indicator, then the historic value would imputed. Otherwise, the median of the indicator will be imputed, and that for Gulf and non-Gulf countries separately. In other words, if a missing value is that of a Gulf country the median of the Gulf-countries subgroup is imputed, else the imputed value will be the median of the non-gulf countries subgroup.

Table 3 – Flags and treatments for correlation inspection

	Flag	Solution	Correlation Inspection
1	**Collinear** indicators	**Merge** pillars and delete duplicate indicators	**Treatment in Part 1**
2	**No Significant correlations** with any other indicator within the same pillar	**Drop**	**Treatment in Part 1**
3	**Negative Correlations** with all indicators	If direction of scale is wrong, **correct it**; else, **drop** indicator.	**Treatment in Part 1**
4	**No Correlation** with any indicator **within** the same **pillar**, but correlates within the pillar	If the correlations fit our conceptual frame, **move** to another pillar; else, **drop**	**Treatment in Part 2**
5	Correlates with indicators in the same pillar, but correlates **higher** with indicators **in other pillars**	If the correlations with another pillar fit our conceptual frame, **move** to the other pillar; else, **keep**	**Treatment in Part 2**
6	Correlates positively to some indicators and negatively to others **(Mixed +/- Correlations)**	Wait for **PCA check**	**Treatment in Multivariate Analysis**

3.1.4. Multivariate Analysis

The rationale behind building a composite indicator is to condense all retained indicators into one score: the index. Since multiple variables are being considered, dealing with the data gives rise to a multivariate analysis. One aspect of this analysis is already used in course of inspecting correlations of the indicators.

In the literature, dimension reduction methods have been in existence for more than a century. Karl Pearson was the first to introduce the idea. After his famous memoire on regression lines, he made a clear distinction between a regression line and a best-fit-line. This linear dimension reduction proposition aimed at “representing a system of points in […] highly dimensioned space by the best-fitting straight line or plane” (Pearson, 1901).

[9]Percentage of missingness in final dataset is 1.92%

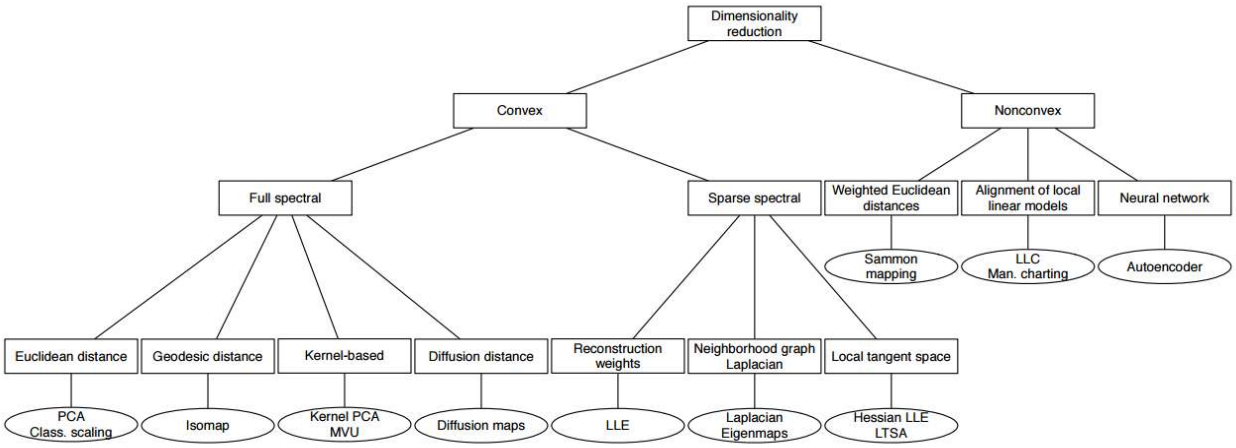

Figure 2 – Taxonomy of dimensionality reduction techniques. Source: (Maaten, Postma, & Herik, 2009)

Shortly after, Charles Spearman published his seminal paper on factor analysis (Spearman, 1904). Today, different methods are spread across statistics, computer science and engineering literature aiming at embedding big datasets in lower dimensional "best-fits", that are either linear or non-linear. Reviews by Carreira-Perpiñán (1997), Fodor (2002), Mateen et al. (2009), Burges (2010), Arunasakthi and KamatchiPriya (2014), and Sorzano et al. (2014) have exhibited a spectrum of methods (Figure 2) dealing with dimension reduction from both linear and non-linear perspectives. Linear methods include Canonical Correlation Analysis, Principal Component Analysis (PCA), Factor Analysis (FA), Linear Discriminant Analysis, and Projection Pursuit, while non-linear methods include probabilistic PCA (Lawrence, 2005) and machine learning, among others[10].

For the purpose of this study, a confirmatory PCA is employed to verify that the conception of pillars is statistically coherent. A pillar is confirmed to be satisfactory if indicators load on only one factor, and all loadings have positive signs. The final objective of this section is to have the indicators loading on one main factor per pillar. Confirmatory PCA results are summarized in Table 4.

Table 4 – Confirmatory PCA

Name of Pillar	Components	Indicators	Rho
Competitive Environment	1	3	0.6135
Enabling Environment for Private Sector	1	5	0.684
Red Tape & Regulations	1	5	0.6111
Financial Sector	1	*6*	*0.7414*
Monetary Policy	1	*4*	*0.6998*

3.2. Computing the Index

This index is a powerful tool to monitor the evolution of Arab countries in EJ. A desired feature of this measurement is to be an objective index. So far, all maneuvers of data were objective. Subjectivity, however,

[10] **Non Linear Methods:** probabilistic PCA, Kernel PCA, multi-dimensional scaling, independent component analysis, cluster analysis, Isomap, Maximum Variance Unfolding, diffusion maps, Locally Linear Embedding, Laplacian Eigenmaps, Hessian LLE, Local Tangent Space Analysis, Sammon mapping, multilayer autoencoders, Locally Linear Coordination, manifold charting, decision trees, random forests, Support Vector Machine, artificial neural networks, etc.

is introduced at different stages of building indices. For example, it can be present in the preliminary selection of indicators (although justified conceptually) or simply present in the choice of computational methods.

> *"Subjectivity is introduced in composite indicators through the choices made to compute them. To remove this subjectivity," one may adopt "the principle of multi-modelling (Saisana and Saltelli, 2011). This means that instead of relying on a single model, a set of potential indices are computed in order to select the one that best measures" the desired concept. "This is the one that is most robust. An Index is said to be robust when changing assumptions do not significantly affect its ability to measure the concept of interest."*
>
> (European Institute for Gender Equality, 2013)

For building the EJ Index, a selection of methods is employed. All of them share the same principle of dimension reduction where the EJ index is the essence of the 5 pillars and their relevant indicators (see: Table 5 below).

Table 5 – the EJ composition

Economic Justice	Competitive Environment	Market-based competition
		Administered prices
		Anti-monopoly policy
	Enabling Environment for Private Sector	Contract enforcing (DTF)
		Perception of standard of living for entrepreneurs
		Likelihood of violent demonstrations
		Getting credit (DTF)
		Foreign trade risk
	Red Tape & Regulations	Dealing with construction permits (DTF)
		Index of Regulatory Quality
		Starting a business (DTF)
		Trading across borders (DTF)
		Efficiency of the tax administration
	Financial Sector	Banking system
		Financial freedom
		Reliance on financial institutions (Deposit rate=Deposit/M2)
		Banks' assets to GDP
		Private credit by banks to GDP
		Frequency of bank branches
	Monetary Policy	Independence of Central Banks
		Anti-inflation/forex policy
		Monetary freedom
		Inflation standard deviation over 5-years

At first, scores are computed at the pillar level by aggregating the scores of indicators within each pillar. For example, the score of a country on Competitive Environment will be a summary of its scores on each of the three indicators: 'market-based competition', 'Administered Prices', 'Anti-monopoly policy'. Each indicator is assigned a weight, depending on the model used, as explained below.

Similarly, the pillars' scores are aggregated to form the final EJ score. Each pillar is assigned a weight. The different methods assign different weights to the retained indicators, consequently they will produce different scores for the same country.

It should be clear to the reader that assigning weights, whether for indicators or for pillars, would necessarily affect the final scores and might very well affect the ranking. Since the choice of weights is controversial, one should study the effect of different methods producing different weights, and analyze the robustness of the ranking.

3.2.1. Models based on Simple and Weighted Averages

A simple set of models is a linear combination of indicators X_{ijc} that form the score S_{jc}, for pillar *j* and country *c*. The latter scores are weighted and summed to form the EJ score.

$$c = number\ of\ countries = 1, \dots, 17$$

$$j = number\ of\ pillars = 1, \dots, 5$$

$$i = number\ of\ indicators\ in\ pillar\ 'j' = 1, \dots, I_j$$

$$I_j = maximum\ number\ of\ indicators\ in\ pillar\ 'j';\ it\ varies\ from\ 3\ to\ 6$$

The model is written as follows:

$$S_{jc} = \sum_{i=1}^{I_j} \beta_{ij} . X_{ijc} \qquad \text{(A)}$$

$$EJ_c = \sum_{j=1}^{5} \alpha_j . S_{jc} \qquad \text{(B)}$$

Where $\sum_{i=1}^{I_j} \beta_{ij} = 1$ and $\sum_{j=1}^{5} \alpha_j = 1$. If the weights β are equal, the model is called a simple average model, otherwise it is a weighted average.

Since indicators' direction is positively correlated to the concept of economic justice, the higher the obtained scores, the better the EJ situation is.

3.2.2. Models based Factor Analysis

This family of models will be applied at the indicators level only.

In this section, three variants of dimension reduction methods for latent variables are considered: Principal factor (PF), Iterated principal factor (IPF), and Principal component (PCF). The three methods are readily available in STATA.

> " **pf** specifies that the principal-factor method be used to analyze the correlation matrix. The factor loadings, sometimes called the factor patterns, are computed using the squared multiple correlations as estimates of the communality. pf is the default.
>
> **pcf** specifies that the principal-component factor method be used to analyze the correlation matrix. The communalities are assumed to be 1.
>
> **ipf** specifies that the iterated principal-factor method be used to analyze the correlation matrix. This re-estimates the communalities iteratively."
>
> ***STATA Multivariate Statistics Reference manual, Release 12***

The analysis starts at the pillar level and the first factor is retained to compute the scores per country, across pillars. The country score according to the first factor is a linear combination of the indicators included in the analysis, and therefore can be interpreted as the index score for each country. The coefficients employed in this linear combination are the loadings generated throughout each method (PF loadings, IPF loadings, and PCF loadings).

To describe briefly what factor analysis does, consider a standardized data matrix X of dimension $(N \times p)$. Each column of X denotes N observations of a given variable. In this sample N denotes the countries and p denotes the variables in each pillar. A principal component analysis means that each observed variable is explained by a set of p common factors, F. The principal components are by construction an orthonormal linear transformation of X. Notationally,

$$X = F \cdot L'$$
$$F = X \cdot S$$

where

- L is a $(p \times p)$ matrix of factor loadings. Each row of L gives the weights assigned by each variable to the p factors. So the correlation of variables and factors is given by these loadings.
- S is a $(p \times p)$ matrix of scoring coefficients. Column i of S denotes the weights assigned by i-th factor to p variables. Therefore, the first factor score of country "i" is given by ${X'}_i S_1$ where S_1 is the first column of matrix S.

Singular value decomposition of a data matrix X gives the following:

$$X = U\sqrt{DV'}$$
$$= F\sqrt{D'} = FL'$$

where U is a left singular vectors; V is a right singular vectors. D is diagonal matrix of eigen values and each column of V is the corresponding eigen vector of the data covariance matrix $X'X$. Both U and V are orthonormal. The factor, thus computed, is also othonormal i.e. $Var(F) = U'U = I$. Note, the above implies $Loadings = L = eigenvector * \sqrt{eigenvalue}$

Denoting the data correlation matrix, $var(X)$ as $\sum$, the total variation in data is given by

$$\sum = VDV' = [Eigen\ Value\ Decomposition]$$
$$Trace(\sum) = trace(VDV') = trace(DVV') = trace(D)$$

Thus the i^{th} principal component explains $\frac{d_i}{\sum_{i=1}^{N}} D_{ii}$ proportion of total variance.

Principal factor analysis differs from principal component analysis in that

$$X = F.L' + e$$

where e is normal error term.

Similar to Simple and Weighted Average models, the higher the score, the better the economic justice situation.

3.2.3. Scores, Bounds and Benchmarks

Once the coefficients are determined, the standardized values of the indicators are loaded with the coefficients and aggregated. The same scheme is applied for the minimum and maximum values of each indicator, to bound the index. The bounds are used in the min-max formula to rescale the EJ Index from 0 to 100, where zero and 100 are the lowest and the highest hypothetical values possible, respectively.

$$0 \leq EJI = \frac{EJ - min}{max - min} \times 100 \leq 100$$

In addition, data was collected for OECD countries, and the same computation procedures were applied to get the OECD average score. This figure will be used as a benchmark, other than the theoretical maximum.

3.3. Model Selection

3.3.1. Sources of uncertainty

Different experts could have different views about the importance of each indicator, and each pillar, with respect to the others. In addition, they will be concerned about the way pillars are amassed, as each method will yield different results. The arguable points are the sources of uncertainly that should be considered for robustness tests (as discussed in the following section).

The different models and the different sources of uncertainty, suggested in Table 6, show that there is no ONE correct way of producing the index scores when building a composite indicator.

One identity of a good index is robustness. Robustness check is a way to measure the confidence of the formulated index scores and ranks.

For robustness check, two levels are considered: external and internal robustness.

To assess the robustness of an index, all possible combination of uncertain options should be tested, and the best model is to be chosen. If all models give the same ranks, then whichever model is chosen is a good model, and the results will be robust; results are not sensitive to changes in the sources of uncertainty. However, in practice models produce different ranks for countries, so the best model is the one that minimizes the distance between those ranks, and that is among all tested models. This is called external robustness.

Table 6 – Sources of Uncertainty

Source of uncertainty	Options to study
Importance of Indicators	Simple average, where all indicators have the same positive weights, adding up to 1.
	Weighted average, where indicators have random positive weights (beta) whose sum is always equal to 1.
	Correlation based dimension reduction methods such as PCA, FA, etc. weights are associated to the degree of correlation between the variables.
Importance of Pillars	The weight associated to each pillar determines its importance to the index. A range of positive weights (alpha) will be applied, including equal weights, whose sum is always equal to 1.

In addition to the external robustness as compared to other models, the best model should be coherent and should possess internal robustness as well. This is reflected in the internal correlations as will be shown below.

A robust model that is complex to build, thus to analyze, is not beneficial for practitioners and policy makers. The simpler the robust model the better it is.

3.3.2. External Robustness (uncertainty)

For the five pillars of the EJ Index, external robustness is tested by comparing the results of a range of weighted average models, including the 3 factor models and the simple average.

The models were simulated according to a range of positive weights described in section 3.3.1 (Sources of uncertainty), satisfying the constraints $\sum_{i=1}^{I_j} \beta_{ij} = 1$ and $\sum_{j=1}^{6} \alpha_j = 1$. Weights must be positive, as indicators' direction was designed to be the higher the score, the more just the economic situation is. This means that an indicator's weights should not drag the overall score down, when the indicator gets higher. To limit the number of possible weights combinations, a jump of 0.1 was adopted. The number of simulated models by pillar, is presented in the table below:

Table 7 – Simulated Models Summary

Pillar *(j)*	**Number of indicators**	**Number of possible weights combinations** *(M_j)*
Competitive Environment	3	36 weighted average models + 1 simple average + 3 Factor models
Enabling Environment for Private Sector	5	125 weighted average models + 1 simple average + 3 Factor models
Red Tape & Regulations	5	125 weighted average models + 1 simple average + 3 Factor models
Financial Sector	6	126 weighted average models + 1 simple average + 3 Factor models
Monetary Policy	4	84 weighted average models + 1 simple average + 3 Factor models
Total models		**516 simulated models**

3.3.2.1. Indicators Aggregation Uncertainty

A first assessment of the models aggregates the indicators within each pillar. The assessment consists of taking the difference of ranks between each model and all other models, then plot the distribution. Best models must show the highest peaks at zero, meaning that the ranks do not vary between 'r' and other models, except rarely. Soon picking the model based on visual selection becomes subjective. The need of a more objective measure arises.

A second assessment is to compute the standardized Euclidian differences (Ed) for all models, then select the model with the smallest Ed.

For each of the 5 pillars, we have simulated *'Mj'* models. In total, we have $M = \sum_{j=1}^{5} M_j = 516$ models. In the j[th] pillar, the Ed for model *'m'* is the square root of the sum of squared differences of ranks *(r)* between that model and all the other models, across all countries *'c' (c=1,…,17)*. And that is for all *'r'*. Its expression is presented in the following formula :

$$Ed_m^j = \sqrt{\sum_{\substack{i=1 \\ i \neq m}}^{M_j} \sum_{c=1}^{17} (r_{mc} - r_{jc})^2} \qquad (1)$$

A summary of the Euclidian Differences for the best three models, by pillar, can be found in Table 12, ANNEX 2 – Euclidian Differences. Each pillar showed a different preference of models; 2 pillars showed that Weighted Averages minimize the Euclidian difference, 2 showed that simple average models are more robust and finally only 1 method showed that the PCF model is the best choice. Overall, the choice should fall between the weighted average models and the simple average models. However, uncertainty has an unexplored source yet which makes the robustness analysis incomplete. The aggregation at the pillar level certainly affects the final ranking.

Boxplots of the best models are presented in ANNEX 3 – Boxplots of best 3 models per pillar (p.56), to compare the dispersion between the scores of the best models and the dispersion of their ranks. As expected, and for each pillar, the best three models show identical boxplots for ranks, while they show differences and outliers for raw scores.

3.3.2.2. Pillars Aggregation Uncertainty

Best models are selected not only considering indicators' weights uncertainty, but also the importance of the weights by pillar as a constituent of the overall index. A similar simulation is conducted, where pillars' scores are positively weighted under the constraint that weights must add up to one.

Euclidian distances are computed for each set of weights, in comparison to the other sets, across countries.

Models of the same type are aggregated with a range of weights, assigned to each of the 5 pillars. For each set of models, WA, SA and PCF, 126 aggregated models were generated, to sum up to 378 simulated models.

As noticed in Table 13, ANNEX 2 – Euclidian Differences. the top 2 models have the same minimum Euclidian Distance, and they are both an aggregation of the Weighted Average model, with slightly different weights. While the worse fit models were three different cases, each derived from a set of models: A PCF model, then a Simple Average model, then a weighted average model. The three models provided the most unlikely ranking of countries. The two best models provide the same ranking for countries. The choice between the best two models is bound by the ease of interpretation to the users. So, the model that assigns equal weights to all pillars is considered as it is more intuitive for analysis. Accordingly, the final scheme of the robust index is presented in the table below.

Table 8 – Final model with robust coefficients

Economic Justice	Competitive Environment	.2	Market-based competition	.4
			Administered prices	.3
			Anti-monopoly policy	.3
	Enabling Environment for Private Sector	.2	Contract enforcing (DTF)	.2
			Perception of standard of living for entrepreneurs	.2
			Likelihood of violent demonstrations	.1
			Getting credit (DTF)	.2
			Foreign trade risk	.3
	Red Tape & Regulations	.2	Dealing with construction permits (DTF)	.2
			Starting a business (DTF)	.2
			Trading across borders (DTF)	.3
			Efficiency of the tax administration	.2
			Index of Regulatory Quality 284b	.1
	Financial Sector	.2	Banking system	.3
			Financial freedom	.2
			Reliance on financial institutions (Deposit rate=Deposit/M2)	.1
			Banks' assets to GDP	.1
			Private credit by banks to GDP	.2
			Frequency of bank branches	.1
	Monetary Policy	.2	Independence of Central Banks	.2
			Anti-inflation/forex policy	.3
			Monetary freedom	.2
			Inflation standard deviation over 5-years	.3

3.3.3. *Internal Robustness (correlations)*

For the internal robustness verification, the correlation matrix is presented between the EJ Index and its pillars, hoping for significant positive correlations across the matrix, and hoping that the highest correlations of the indicators are within their conceptual pillars (see ANNEX 4 – Correlation Matrix, p.60).

All pillars of EJ are significantly correlated with the Index, with a confidence level beyond 95%, as shown in Table 9.

Table 9 – Correlation between the EJ Index and its categories

				Competitive Environment	Enabling Environment for Private Sector	Red Tape & Regulations	Financial Sector	Monetary Policy
Aggregate EJ Index	Pearson Correlation			0.893	0.881	0.846	0.895	0.879
	Bootstrap	*Bias*		*-0.00005*	*-0.0186*	*0.000733*	*0.005792*	*-0.00989*
		Std. Error		*0.037*	*0.078*	*0.055*	*0.035*	*0.072*
		95% CI	Lower	0.805	0.654	0.722	0.818	0.689
			Upper	0.955	0.956	0.937	0.956	0.966

As for internal consistency, the correlation matrix in ANNEX 4 – Correlation Matrix shows the significant coherence of the index, where all indicators are positively correlated to the EJ Index and to its pillars, and they are correlated the most to their own pillar.

IV. EJ Index Results

4.1. Heat Map and figures

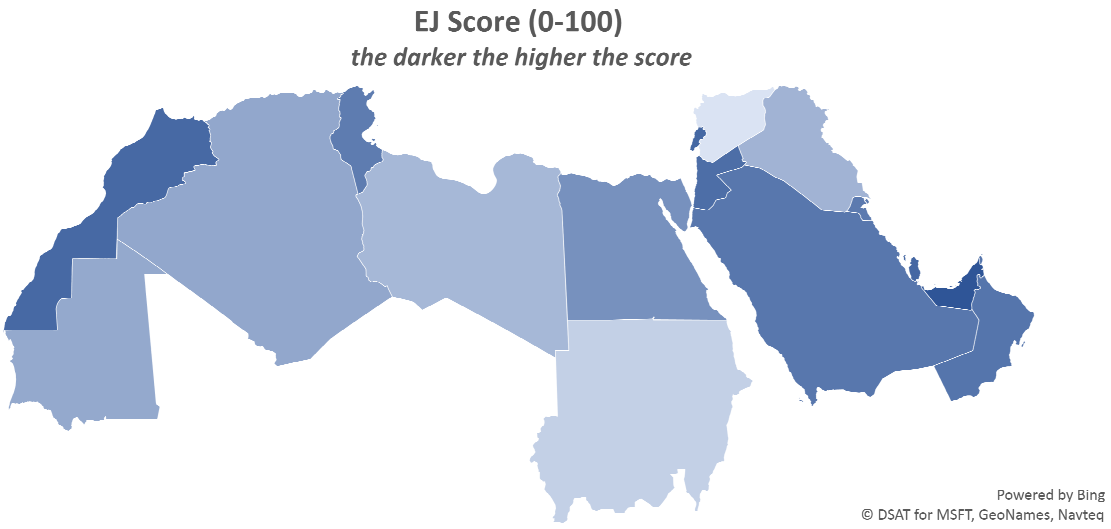

Figure 3 – Heat Map of the EJ Index

The index ranks countries between 0-100, with 100 being the highest attainable value. Scaling countries based on our EJ index shows that six countries scored below 50 points while 11 countries scored above it (see: Table 10). The heat map in Figure 3 depicts the performance of the Arab countries in terms of Economic Justice, where the lighter the color the less just the economic situation is. Accordingly, Syria has scored the lowest preceded by Sudan while the United Arab Emirates (UAE) scored the highest. Based on the dimensions utilized to build up the index, the low scores for Syria and Sudan are not surprising. The conflict in Syria wiped

out decades of development and limited the ability of existing institution for forward improvement. Political instability reduced the ability of the state to have an enabling environment for private sectors to exist, shrank the newly expanded banking sector and limited the governments capability to reduce inflation and formulate policy that could advance private sector development.

It is worth noting that the quality of Economic Justice in most Arab countries is lower than most developed countries in the world, however, some Arab states experienced major improvements. For example, in the Financial Sector pillar, Lebanon (80), Bahrain (75) and Jordan (68), perform better than the average of OECD countries (66). While in the "Red Tape and Regulation" pillar, the United Arab Emirates (81) performed beyond the OECD average (82), and in the "Competitive Environment" pillar, Bahrain (71) scored as good as the OECD average. Nevertheless, the highest scoring Arab country in the overall EJ index (UAE) scored below the OECD average with a difference of 5%.

For all pillars, the Arab mean and median split the data with consistent similarity, except for the "Monetary Policy" pillar, where some countries fall between the mean and the median. Countries such as Iraq, Oman , Qatar and KSA, score below the median, so they score less than 50% of the present countries. In addition, they score above the mean, which indicates a left skewed distribution where the mean got affected with low scores, significantly distant from the average.

Table 10 – EJ Index scores by pillar

weights	***0.2***	***0.2***	***0.2***	***0.2***	***0.2***	
Country	Competitive Environment	Enabling Environment for Private Sector	Red Tape & Regulations	Financial Sector	Monetary Policy	**EJ %**
Algeria	26	50	62	32	65	**49%**
Bahrain	**71**	55	74	**75**	77	**70%**
Egypt	45	45	68	46	68	**55%**
Iraq	36	43	42	24	74	**45%**
Jordan	53	49	71	**68**	84	**65%**
Kuwait	51	57	58	61	78	**62%**
Lebanon	61	55	64	**80**	77	**67%**
Libya	34	43	47	30	60	**44%**
Mauritania	20	48	56	39	69	**48%**
Morocco	50	57	77	64	81	**67%**
Oman	43	60	73	58	75	**63%**
Qatar	59	65	74	58	75	**67%**
Saudi Arabia	43	67	74	50	70	**62%**
Sudan	31	31	53	26	41	**37%**
Syria	15	23	51	28	37	**32%**
Tunisia	47	55	73	50	76	**61%**
UAE	70	64	**87**	58	81	**72%**
OECD Average	71	77	82	66	86	**77%**
Arab Average	44	51	65	50	70	57
Arab Median	45	55	68	50	75	62
CV	36%	23%	19%	35%	19%	21%

A detailed presentation of radars, by country is presented in ANNEX 5 – Results by country.

4.2. Results by Pillars and Groups of Countries

As mentioned earlier, the EJ index is computed based on the five sub-indices, relevant to each of the five pillars of Economic Justice: Competitive Environment, Enabling Environment for Private Sector, Red Tape & Regulations, Financial Sector, Monetary Policy. In terms of comparative variation of the EJ index, some pillars show more dispersion in scores while others were more concentrated. For example, the "Competitive Environment" and "Financial Sector" dimensions show the most disparity among Arab states, with coefficients of variation of 36% and 35% respectively (see: Table 10). In addition, the differences between the Arab averages and the OECD averages were around 16 percentage points for all pillars except for Competitive Environment and Enabling Environment for Private Sector, where the magnitude of differences increased to 27 and 26 percentage points respectively.

Below, we explain the obtained results by each dimension with reference to the countries in the EJ index.

4.2.1. Competitive Environment Pillar

The Competitive Environment dimension measures the efficiency of the private sector through measuring the economic participative power, monopolistic power, privileges and exclusiveness to specific economic agents, informal sector and price controls. Economic justice in the Arab world requires the march toward more efficient policies that enhance market-based competition, healthier strategies for administered prices to better target the vulnerable and poor, and more efficient anti-monopoly policies. there is a positive relationship between the "Competitive Environment" pillar and the EJ Index, with a significant correlation coefficient of 0.893 (see: Table 9, p.24). Qatar, the UAE and Bahrain, all high-income countries with high levels of economic justice, have competitiveness levels comparable to the OECD average of 71%. On the other end of the spectrum, Syria and Mauritania, both lower middle-income countries with below average levels of economic justice, demonstrate a very low level of competitiveness at 15% and 20% respectively. Some high-income level are Saudi Arabia and Oman are expected to perform better in the Competitive Environment pillar. These two countries have relatively high levels of economic justice yet fall short on the competitive environment front; this affirms that the areas where Saudi Arabia and Oman need to exert some effort are in fostering a competitive environment as their scores in the other pillars, especially Red Tape and Regulations, are close to the OECD average.

4.2.2. Enabling Environment for Private Sector Pillar

This pillar measures areas related to contract enforcing, perception of entrepreneurs' standard of living, likelihood of violent demonstrations, getting credit, and foreign trade risk. The linear association between this pillar and EJ Index is strong and positive (0.881, see: Table 9, p.24).

It is not surprising to see that Syria would has a score of 23%, placing it at the bottom of the ranking. Syria suffered from an international embargo for more than a decade and a low level of banking sector development, which limited credit accessibility, especially that most lending facilities were limited to government owned entities. Recently, political instability reduced the private sector's ability to survive and impacted the overall institutional framework. What is surprising is that all Arab states, especially high income level countries, scored well below the OECD average (see: Table 10); at a maximum of 67%, Saudi Arabia was the most privileged, with a 10 percentage points difference from the OECD average (77).

4.2.3. Red Tape & Regulations Pillar

Red Tape and lengthy bureaucratic procedures inhibit the presence of an enabling business climate and reduce economic participation. Aside from other constraints, Red Tape usually increases the cost of transactions to both the private and public sectors, where small and medium enterprises entrepreneurs share the highest cost. This pillar appraises how costly and lengthy procedures to start any business could cost economic agents billions of dollars annually in many Arab countries. The red tape scores reveal that

Libya (47%), Sudan (53%) and Syria (51%) have the lowest performance scores while the best performance score was recorded for the UAE at 87%, outperforming the OECD average (82). Below the OECD average, Morocco scores 77%, and Bahrain, Qatar and KSA at 74% each. The strong performance in the GCC nations was due to the recent reform initiatives to improve the public administrative infrastructure especially in the UAE and Bahrain (such as the E-government and sponsorship requirements to start a business among others). Overall, the GCC countries enjoy a more efficient economic regulatory framework, especially when it comes to starting a business. Mauritania and Algeria score well on this pillar relative to other pillars. However their score is dragged down by the first pillar "Competitive Environment" principally as well as by the 2nd and 4th pillars "Enabling Environment for Private Sector" and "Financial Sector", respectively.

4.2.4. Financial Sector Pillar

Financial sector policies are considered integral to economic growth. Looking at the outcomes of the Financial Sector pillar, a positive relationship between this pillar and EJ Index is predominant, with a correlation coefficient of 0.895 (see: Table 9 above). On the one hand, Lebanon (80), Bahrain (75) and Jordan (68) outperformed the OECD average (66). This good performance is attributed to the availability of financial services, access to credit, financial freedom and financial sector credibility facing all the political and economic shocks especially in Lebanon and Bahrain. On the other hand, Iraq (24) performed the worst with followed by Sudan (26), Syria (28) and Libya (30).

4.2.5. Monetary Policy Pillar

Assigned targets of monetary policy include inflation, economic growth and employment. Having well defined targets for monetary authority should enhance macroeconomic stability, improve business climate and increase citizen's purchasing power. Any exchange rate geographical map shows that Arab countries have either a pegged or a crawling peg regime. Targeting exchange rate limits the role of central banks to act as stabilizers in the presence of aggregate shocks. However, anecdotal evidence revealed that due to recurrent geopolitical and economic instability in most Arab states, a pegged regime serves economic stability better, helping keeping prices at manageable levels. Countries such as Jordan, UAE, Iraq, Tunisia, Lebanon, Kuwait and Qatar obtain a high score in this pillar. None of the countries meet OECD levels at 86%, but Jordan (84%), Morocco (81%) and the UAE (81%) are not far behind, while countries such as Sudan (41%) and Syria (37%), experienced a relatively low score due to their political instability. For example, looking at Syria, the currency lost huge percentage of its value due to double digits inflation since the start of the conflict in 2011. Further, Sudan experienced major socioeconomic conditions and the secession of South Sudan. Iraq (74), Mauritania (69) Algeria (65) and Libya (60), all score high in this pillar relative to other pillars. Their overall EJ index score is dragged down due to their lack of competitiveness and their financial system fragility, mainly.

4.3. Overview of related indices

Many indices have tackled tangent components of EJ described in this paper. Indices such as the World Governance Indicators (WGI's), the Human Development Index (HDI), Global Competitiveness Index (GCI), and others (Table 11), are linked to a certain extent to economic justice. Nonetheless, each one of these indices solely captures a specific area of potential measurement. Further, such indices are based on different methodologies, theoretical background, calculation, and most importantly, the core objective of the aforementioned indices is not economic justice.

Table 11 – Available Indices Related to Justice

Index	Dimensions	Number of Arab Countries Covered	Issuer(s)
Worldwide Governance Indicator	Governance	22 /22	World Bank
Human Development Index	Health, Education, Standard of Living	21 /22	UNDP
Global Competitiveness Index	Institutions, infrastructure, stable macroeconomic framework, health and primary education, higher education and training, efficient goods markets, efficient labor markets, developed financial markets, technologies, market size (domestic and international), production processes, innovation	14/22	World Economic Forum
The Index of Economic Freedom	Rule of Law (property rights, government integrity, judicial effectiveness) Government Size (government spending, tax burden, fiscal health) Regulatory Efficiency (business freedom, labor freedom, monetary freedom) Open Markets (trade freedom, investment freedom, financial freedom)	16/22	The Heritage Foundation

4.4. Association between EJ Index and other Indices

In this section, we attempt to provide an analytical comparison between the EJ index and other indices. This comparison should reveal the added value of the EJ index in capturing dimensions unique to economic justice, uncovered by other indices. This comparison is based on a simple rational saying that if two indices measure the same phenomenon, they should have a strong linear association. This means that scores should be more or less aligned at the bisector line. Unlike the plots between EJ and its own pillars, it is expected in this section that countries deviate from the bisector, thus fall more frequently in the 2nd (top left) or 4th (bottom right) quadrants. On the other hand, a sound and just economic situation is expected to affect positively the scores of other indices measuring economic freedom, human development, global competitiveness and governance. Consequently, it is expected of the first quadrant (top right) to be populated with countries performing well in economic justice.

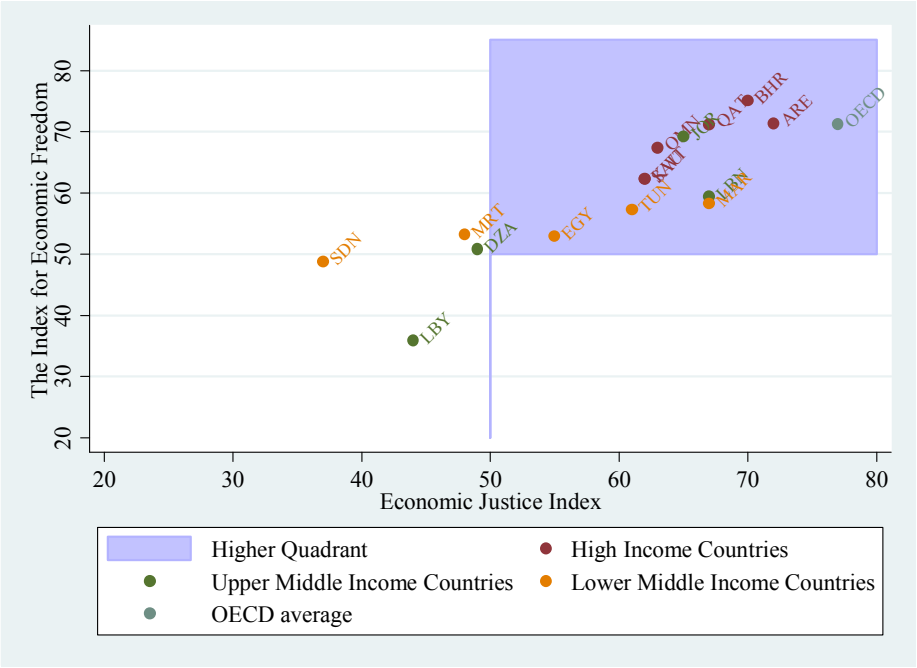

Figure 4 – Plot of the Index of Economic Freedom versus Economic Justice Index

4.4.1. The Index of Economic Freedom (IEF)

The fundamental principles that underlie this index are non-discrimination, empowerment of the individual and open competition, as described by the Heritage Foundation, the developers of IEF. The main economic freedoms measured are based on the rule of law, the size of the government, regulatory efficiency and market openness. With a score ranging from 0 to 100, the countries in this study show high discrepancy among each other, with scores ranging from as low as 35 to as high as 75. As expected, Figure 4 shows a strong positive relationship between the two indices. Most countries cluster in the first quadrant, with high income countries surrounding the OECD average as seen with the GCI. Libya and Sudan score low on both EFI and EJ Index. Algeria and Mauritania seem to score low on the economic justice index relative to their index of economic freedom. Mainly, this discrepancy stems from high fiscal freedom recorded under the EFI, which pulled-up the two countries' scores on EFI. Syria and Iraq are not included in the analysis due to data unavailability.

4.4.2. Human Development Index (HDI)

The human development index is a measure of life expectancy, education and per capita income and was devised with the purpose of shifting focus from GDP to people-centered indicators of development. As structured by the UNDP, the scale of HDI varies from 0 to 1, and the higher the score, the higher the level of human development. The relationship between HDI and EJ is horizontal with a cluster of high income level countries in the 1st quadrant scoring close to the OECD average of 0.88. This clustering becomes less obvious for upper-middle and lower-middle income level countries, as Algeria, Libya, Iraq, Mauritania, Syria and Sudan are scattered in 2nd quadrant of the graph in Figure 5. Specifically, Sudan and Mauritania fall on the boarders of the 3rd and 2nd quadrants, where the former scored the lowest HDI score at 0.47. Algeria shows a higher HDI level for its below average EJ score. This can be attributed to higher years of schooling and life expectancy, but stagnant income levels, which do not have an immediate or large impact on economic justice, especially with the prevalent political environment. . Finally, Syria, Iraq and Libya's HDI scores are high mainly due to good standing in terms of life expectancy at birth for Syria (which may have been

computed for periods before the war), and high gross national income per capita for Iraq and Libya.

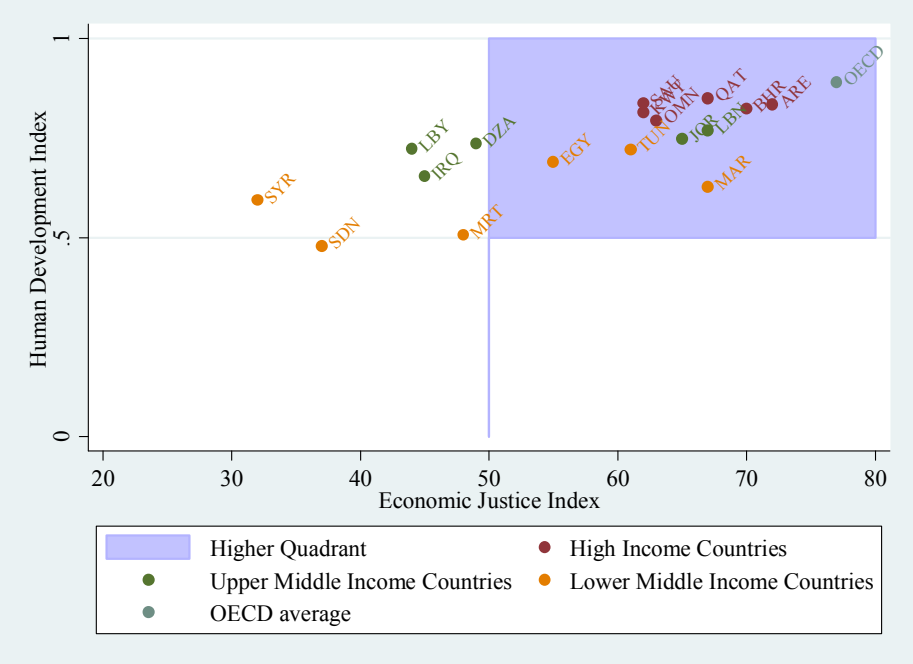

Figure 5 – Plot of Human Development Index versus Economic Justice Index

4.4.3. Global Competitiveness Index (GCI)

With a score from 1-7, 7 being the best, GCI ranks countries according to their set of institutions, policies and other factors that determine an economy's level of productivity and competitiveness, as designed by the World Economic Forum. The Arab countries' score range between 3 and 6. The graph plotting the GCI versus the EJ index in Figure 6 shows that most countries are clustered in the first quadrant, especially high-income countries. Notably, 4 out of 6 GCC countries score above the OECD average on the GCI, but are still lagging behind on the EJ Index, especially in terms of enabling of the private sector. Lebanon and Egypt suffer significant setbacks in macroeconomic policy stability and infrastructure provision, thus keeping their score in the fourth quadrant, below the corresponding expected GCI levels. Sudan and Iraq were excluded from the analysis due to data unavailability.

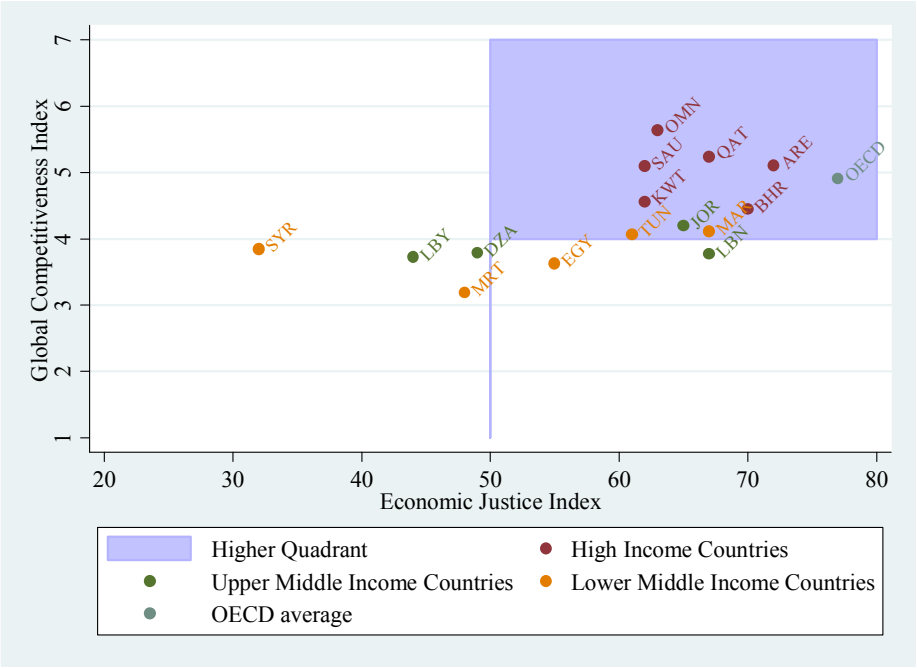

Figure 6 – Plot of Global Competitiveness Index versus Economic Justice Index

4.4.4. World Governance Indicators (WGI)

World governance indicators measure government effectiveness, regulatory quality, control for corruption, rule of law, political stability and absence of violence, and voice and accountability. The scores are developed by the World Bank and range from -2.5 to +2.5 . In general, Arab countries score poorly on the WGI, in effect the MENA region lags behind other economies, such as that of Europe, North America and Latin America. (Kamaly & El-Said, 2017). Needless to say, the economic justice index is multidimensional and goes beyond any of these standalone indices. For instance, "rule of law" under WGI can be compared to "Enabling Environment for Private Sector" under EJ index with reference to quality of contracts and likelihood of violent demonstrations; while "Regulatory efficiency" can be linked to "Red Tape & Regulations". Generally, countries under analysis are very dispersed in these dimensions. The recorded irregularities reflect strong weaknesses which states can focus on for their pursuit of economic justice.

Regulatory quality and government effectiveness indicators show approximately the same results (see Figure 7). First, all the countries lag behind the OECD average on the EJ axis, while on the "Government Effectiveness" axis Tunisia is an exception, where it surpassed the OECD average; some of the high income level countries such as Oman, Qatar and Bahrain came close to the OECD average.

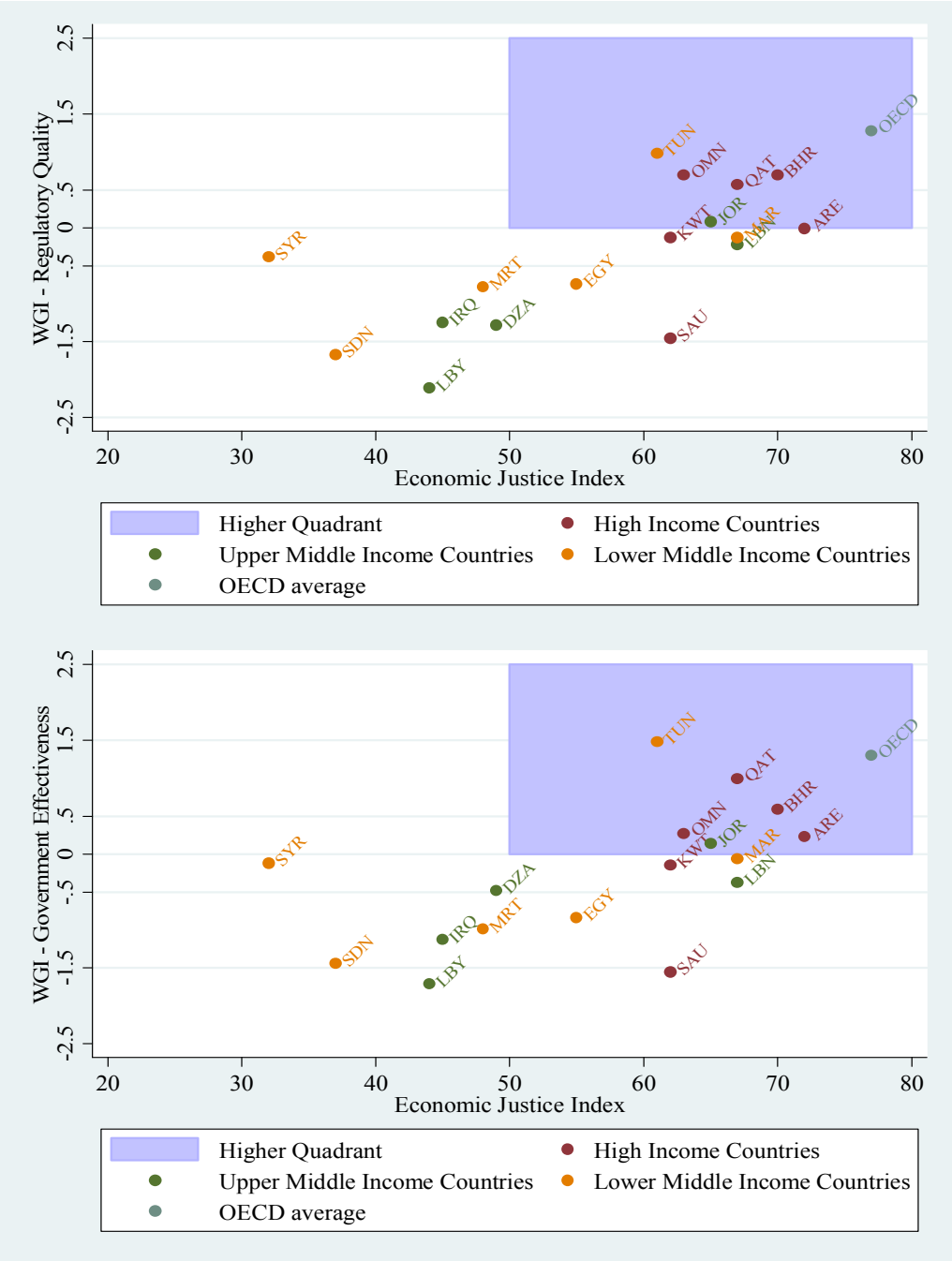

Figure 7 – Plot of Economic Justice Index versus WGI: Regulatory Quality and Government Effectiveness

Second, these graphs do not show a strong positive trend, nor do they show a pattern related to income levels. The main irregularities are captured by the data points of Egypt, Saudi Arabia, Kuwait, Morocco and Lebanon. These countries are an interesting combination of lower middle income, upper middle income and high income countries.

Control for corruption and rule of law are also consistent with the previous analysis (see: Figure 8). However, for the control for corruption, we observe Saudi Arabia joining its high income level peers in the first quadrant and Tunisia falling to the 4th. As for the rule of law, we see Kuwait joining its peers in the first quadrant. Control for corruption is the only measure under which Saudi Arabia performs well in the WGI.

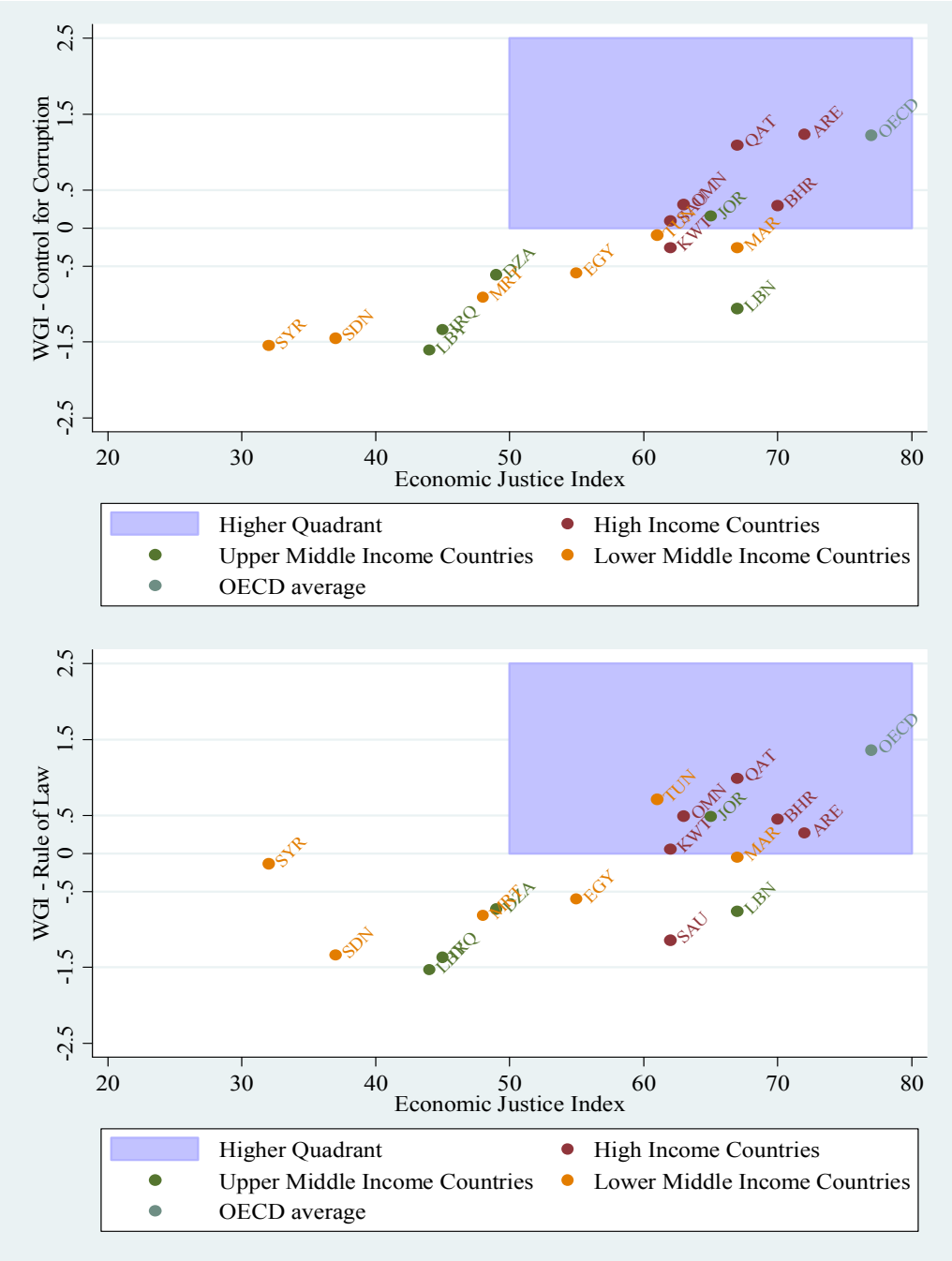

Figure 8 – Plot of Economic Justice Index versus WGI: Control for Corruption and Rule of Law

Its relatively high EJ Index scores under "Enabling Environment for Private Sector" and "Red Tape & Regulations" pillars can be attributed to perception of standard of living for entrepreneurs, foreign trade risk, and trading across borders (see: ANNEX 6 – Dataset : Indicators, Pillars, EJ Index, p.64). Lebanon and Morocco show resilience in the EJ Index due to their high scores in the three pillars: "Red Tape & Regulations", "Financial Sector" and "Monetary Policy". Egypt does perform relatively well on these scores, but to a lesser extent than Lebanon and Morocco.

Political stability and the absence of violence indicator is very scattered and does not follow a specific trend, nor income level patterns. Figure 9 shows that 7 out of 17 countries fall in the 4th quadrant, three of which are high income level countries including Bahrain and the UAE went below the bisector line.

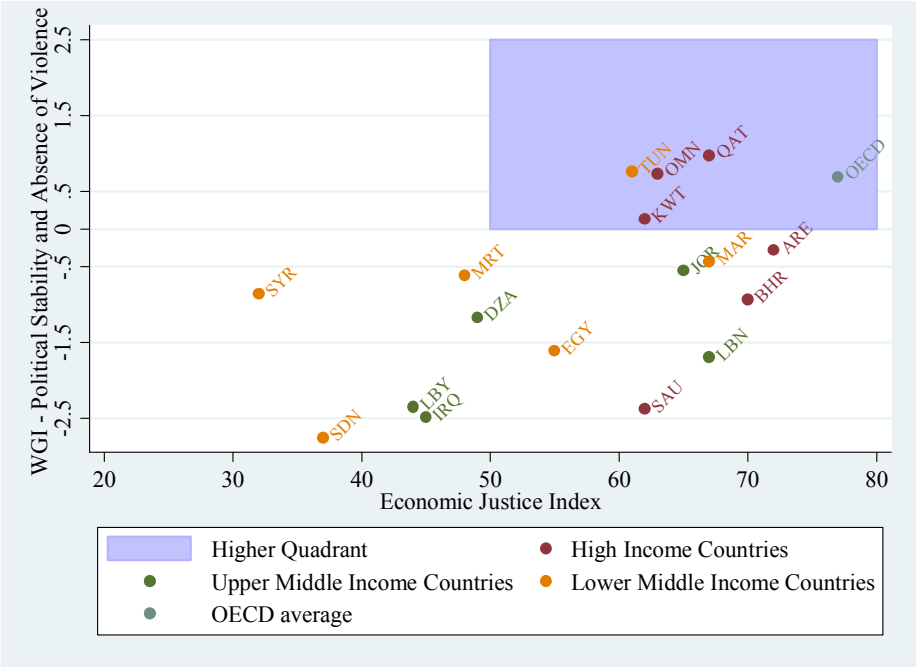

Figure 9 – Plot of Economic Justice Index versus WGI: Political Stability & Absence of Violence

Voice and accountability shows an even odder trend, with 11 countries falling in the 4th quadrant, leaving the OECD data point alone in the 1st quadrant and showing an alarming gap (see: Figure 10). These indicators do not show a positive nor a negative correlation. The ability of some countries to maintain fair levels of economic justice in the absence of political stability and accountability proves again the multidimensionality of this index. It is important to note that data on Syria cannot be taken with as precision as the other countries due to the ongoing Syrian civil war.

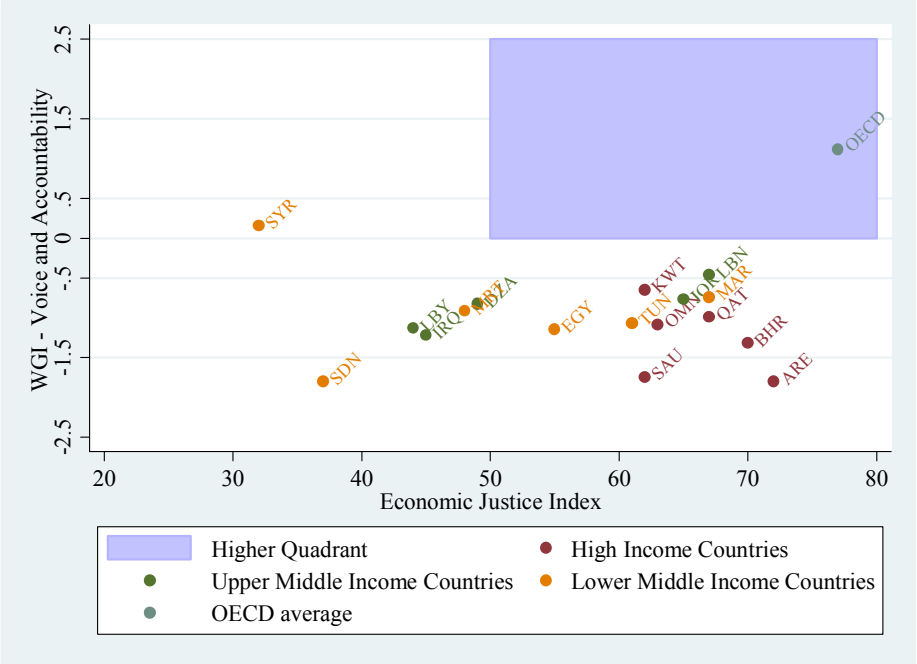

Figure 10 – Plot of Economic Justice Index versus WGI: Voice & Accountability

4.4.5. Gender Inequality Index (GII)

GII measures gender disparities in reproductive health, empowerment and economic status on a 0-1 scale. The wider the gap between men and women, the greater the loss to human development, and the higher

the score. For consistency purposes, the graph plotting GII versus EJ employs the flipped values of the GII, where the higher the score the less the inequality (see: Figure 11). This index is produces by UNDP as a part of the Human Development Report. Mostly, countries with lower gender gaps score higher on the economic justice index. The exceptions include Libya and Algeria, which score relatively high on keeping the gender gap narrow and still score low on the economic justice index due to the lack proper competition-fostering policies, as well as robust financial institutions. Qatar and Egypt are also exceptions that score high on economic justice, yet suffer on the gender inequality front. The labor force participation rate of females is significantly underrepresented in both Qatar and Egypt. Additionally, the latter suffers from high maternal mortality ratios.

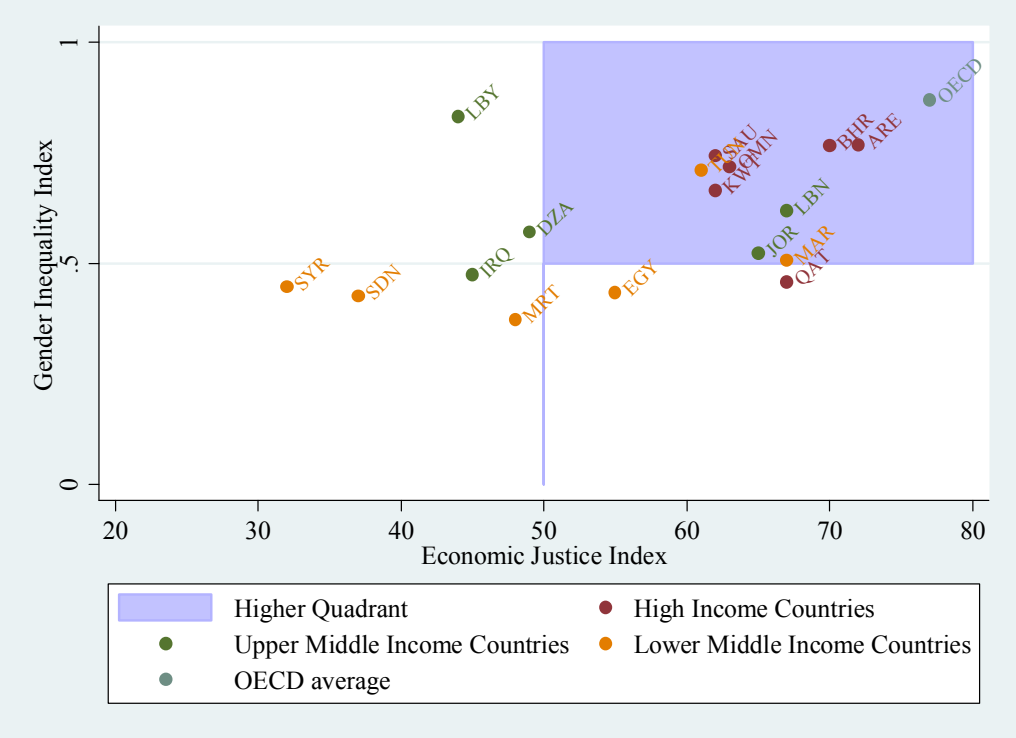

Figure 11 – Plot of Gender Inequality Index versus Economic Justice Index

4.4.6. Youth Employment

The indicator is retrieved from the World Development Indicators database, by the World Bank. The figures are based on ILO estimates of the percentage of youth unemployment. For consistency purposes, the indicator was reversed to get the percentage of youth employment instead. The graph in Figure 12 is coherent with the higher the better concept. Most countries (11 out of 17) lie in the first quadrant, suggesting that a country with a good economic justice standing is expected to have high levels of youth employment. In this quadrant, four Arab countries' youth employment outshines that of the OECD (83.06%), all of which are high-income level countries: Qatar (98.82%), Bahrain (94.86%), United Arab Emirates (88.51%) and Kuwait (85.54). Seven countries fall under the second quadrant: Syria, Sudan, Mauritania, Iraq, Libya and Algeria, and they represent a sample of middle-income countries that are facing conflicts and political unrest.

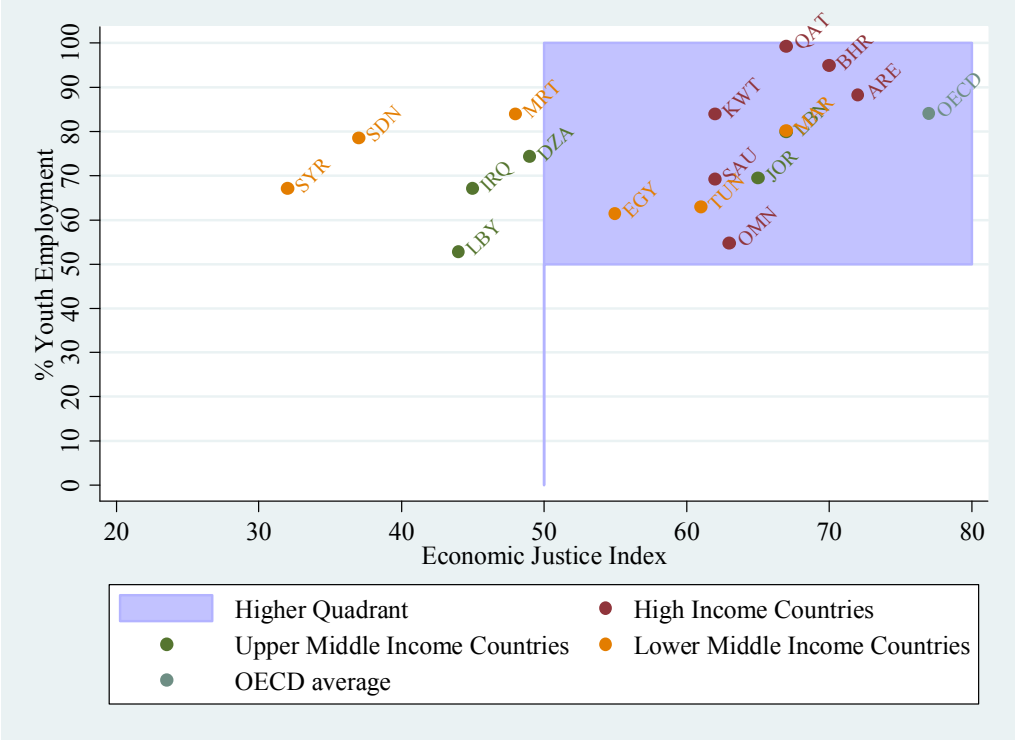

Figure 12 – Plot of Youth Employment versus Economic Justice Index

V. Conclusion and Recommendations

The eruption of Arab Spring in 2011 has revealed that reaching high level of economic growth is not a panacea. It was a surprise and an eye-opener that the outbreak of demands for change happened in Tunisia and Egypt, two countries which have witnessed significant economic growth and stability prior to 2011. Indeed, according to Gallop polls, almost 50 percent of the Arab populations are not satisfied with their lives. Policymakers in the region should not only content with basic macroeconomic indicators which cannot capture the level of equality of opportunity, equity of living conditions and equality of rights. These concepts are particularly important for the region which is usually criticized on the ground of low justice and weak governance. If Arab countries are serious about achieving the 2030 Agenda, they should regard economic growth not as an aim in itself but rather a tool to improve all citizens' wellbeing. In this context, the concept of economic justice is very critical as it refocuses the compass of economic system and economic policies toward people's welfare.

This paper attempts to draw the attention of the policymakers in the region to the centrality of economic justice in their march toward inclusive growth and sustainable development. This study aims, for the first time, to gauge the level of economic justice in the Arab region by building a conceptual framework defining the elements of economic justice, from a policymaking perspective. It then proceeds by adopting a carefully designed statistical framework to construct a composite index of economic justice for the Arab region. After undergoing a series of robustness checks, this composite justice index is then compared to other relevant indices such as Human Development Index, Global Competitiveness Index, and the Index of Economic Freedom to understand better the complex relationships between economic justice from one side and human development, competitiveness and freedom from the other side.

Besides its originality in creating an index for economic justice in the Arab region, the study reveals a number of interesting results. First, on average, economic justice is trailing behind more advanced countries (OECD) with a big margin (20% difference). The pillars which are lagging the most are the competitive environment and enabling environment for the private sector (27% and 26% difference respectively); whereas the pillars which are lagging the least are financial sector and monetary policy (16% difference each). Second, despite the mediocre average of the Arab countries in terms of economic justice, the index points to the significant discrepancies among them. For example, UAE is behind the OECD average of 77% by only 5%; whereas Syria and Sudan are trailing OECD average by a staggering difference of 45% and 40% respectively. Third, while the economic index of each Arab country falls below the average of OECD countries, a few countries have surpassed the OECD average in certain pillars: UAE in red tape and regulation pillar and Bahrain, Jordan and Lebanon in the financial sector pillar. Fourth, comparing the economic justice index with other global indices show that there is evidence of positive association between the economic justice index from one side and index of global freedom, human development index, global competitiveness index and youth employment from the other side; whereas governance indicators and gender inequality index have shown ambiguous relationship with the economic justice index. This result is expected since while our constructed economic justice index is related in general to some aspects of development and competitiveness and freedom; however, it carries additional information pertaining to the society's economic rights that revolve around exchanging goods and services, entering contracts and earning a living.

Finally, the policy implications of this index are numerous. Among the most important are the follwoing: First, it presents an evidence-based assessment of the stance of economic justice in the region with its corresponding pillars. This by itself is a groundbreaking analysis which puts in the forefront, for the first time, the performance of Arab countries in terms of economic justice and benchmarking it against more advanced countries. Second, it helps identifying the pillars for each Arab country that need further attention to improve the stance of economic justice which is critical to render development and growth

more inclusive and fair to all the society's segments. Third, this index could be used as input to a multiplicity of qualitative and quantitative analyses to understand better the challenges facing the Arab region and to design more rightful policies to eliminate injustice and grievances plaguing the Arab region and hampering its development. In order, to make use fully of this index, further research will be aimed to render the index dynamic and to expand it to include more countries.

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ANNEX 1 – Originally Considered Indicators

Indicators	Definition	Source
Market-based competition	To what level have the fundamentals of market-based competition developed?	BTI
Administered prices	Share of administered prices	IPD
Ease of market entry	It is the simple average of two variables: importance, in practice, of barriers to entry for new competitors in markets for goods and services (excluding the financial sector and beyond the narrow constraints of the market) (1) related to administration (red tape etc.), (2) related to the practices of already established competitors	IPD
Intensity of local competition	In your country, how intense is competition in the local markets?	WEF - Global Competitiveness Index
Extent of market dominance	In your country, how would you characterize corporate activity?	WEF - Global Competitiveness Index
Percent of firms competing against unregistered or informal firms	Does this establishment compete against unregistered or informal firms?	Enterprise Surveys - WB
Percent of firms identifying practices of competitors in the informal sector as a major constraint	Using the response options on the card; To what degree are Practices of Competitors in the Informal Sector an obstacle to the current operations of this establishment?	Enterprise Surveys - WB
Effectiveness of anti-monopoly policy	In your country, to what extent does anti-monopoly policy promote competition?	WEF - Global Competitiveness Index
Competition regulation arrangements	Efficiency of competition regulation in the market sector (excluding the financial sector)	IPD
Anti-monopoly policy	To what extent do safeguards exist to prevent the development of economic monopolies and cartels, and to what extent are they enforced?	BTI
Protecting Minority Investors (DTF)	It measures the strength of minority shareholder protections against misuse of corporate assets by directors for their personal gain as well as shareholder rights, governance safeguards and corporate transparency requirements that reduce the risk of abuse. The DTF measure illustrates the distance of an economy to the "frontier", which represents the best performance observed on each Doing Business topic across all economies and years included since 2005. An economy's distance to frontier is indicated on a scale from 0 to 100, where 0 represents the lowest performance and 100 the frontier.	Ease of Doing Business - WB

Government respect for contracts	It is the simple average of two variables: In the past 3 years, has the State withdrawn from contracts without paying the corresponding compensation (1) vis-à-vis national stakeholders? (2) vis-à-vis foreign stakeholders?	IPD
Information on the quality of goods and services (International Standards)	Implementation of a system of norms and standards as part of an international system (e.g. ISO, Codex etc.)	IPD
Investment freedom	constructs the freedom of investment by deducing investment restrictions over 7 categories: -1-National treatment of foreign investment -2-Foreign investment code -3-Restrictions on land ownership -4-Sectoral investment restrictions -5-Expropriation of investments without fair compensation -6-Foreign exchange controls -7-Capital controls	Heritage - Index of Economic Freedom
Ratio of FDI inflows to GNI, (per capita, current $US)	FDI flows consist of the net sales of shares and loans (including non-cash acquisitions made against equipment, manufacturing rights, etc.) to the parent company plus the parent firm´s share of the affiliate´s reinvested earnings plus total net intra-company loans (short- and long-term) provided by the parent company. For branches, FDI flows consist of the increase in reinvested earnings plus the net increase in funds received from the foreign direct investor. FDI flows with a negative sign (reverse flows) indicate that at least one of the components in the above definition is negative and not offset by positive amounts of the remaining components. GNI per capita based on purchasing power parity (PPP). PPP GNI is gross national income (GNI) converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GNI as a U.S. dollar has in the United States. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current international dollars based on the 2011 ICP round.	UNCTAD
Public support for innovation	It is the simple average of three variables: (1) Efficiency of technology transfer mechanisms and skills from foreign to domestic stakeholders. Efficiency of public support in moving upmarket and acquiring technologies (2) in SMEs, (3) in large companies	IPD
Public-private cooperation	it is the simple average of three variables: (1) Degree of cooperation between the public and private sectors? (2) Degree of involvement by the State's highest authorities in the cooperation between public and private stakeholders? (3) Does this cooperation allow account to be taken of the interests of key economic and social stakeholders in the country?	IPD
Support for businesses considering the public interest	Is support (subsidies, trade protection, financial facilities etc.) granted to local and foreign companies conditional on the achievement of objectives serving the general interest?	IPD

Investment climate for rural businesses	It is composed of 3 variables: (1) Environment for private sector development in rural areas, (2) Market liberalization in rural areas, (3) Procedures for registering small rural business	IFAD
Effectiveness of insolvency law	Is insolvency legislation efficient?	IPD
Restructuring procedures (in case of insolvency)	Efficiency of restructuring procedures in the event of insolvency	IPD
Resolving Insolvency (DTF)	Resolving Insolvency indicator studies the time, cost and outcome of insolvency proceedings involving domestic entities. In addition, this year it introduces a new measure, the strength of insolvency framework index, evaluating the adequacy and integrity of the legal framework applicable to liquidation and reorganization proceedings. The data for the resolving insolvency indicators are derived from questionnaire responses by local insolvency practitioners and verified through a study of laws and regulations as well as public information on bankruptcy systems. The ranking of economies on the ease of resolving insolvency is determined by sorting their distance to frontier scores for resolving insolvency.	Ease of Doing Business - WB
Procedures for land tenure formalization and registration	Are there any current procedures for land tenure formalization and registration?	IPD
Land tenure insecurity	It is the simple average of three variables: (1) Importance of land issues as a political and media concern. Share of the population with no formally recognized land tenure rights (2) in urban and peri-urban areas, (3) in rural areas	IPD
Contract enforcing (DTF)	This indicator measures the time and cost for resolving a commercial dispute through a local first-instance court. In addition, this year it introduces a new measure, the quality of judicial processes index, evaluating whether each economy has adopted a series of good practices that promote quality and efficiency in the court system. The ranking of economies on the ease of enforcing contracts is determined by sorting their distance to frontier scores for enforcing contracts.	Ease of Doing Business - WB
Transparency of government policymaking	In your country, how easy is it for businesses to obtain information about changes in government policies and regulations affecting their activities?	WEF - Global Competitiveness Index
Perception of standard of living for entrepreneurs	Is the city or area where you live a good place or not a good place to live for entrepreneurs forming new businesses?	Gallup
Corruption Within Businesses	Is corruption widespread within businesses located in this country, or not?	Gallup
Efficiency of legal framework in settling disputes	In your country, how efficient is the legal framework for private businesses in settling disputes?	WEF - Global Competitiveness Index
Efficiency of legal framework in challenging regulations	In your country, how easy is it for private businesses to challenge government actions and/or regulations through the legal system?	WEF - Global Competitiveness Index

Transparency of government policymaking to businesses	In your country, how easy is it for businesses to obtain information about changes in government policies and regulations affecting their activities?	WEF - Global Competitiveness Index
Likelihood of violent demonstrations	Assessment of the likelihood of violent demonstrations, based on the question, "Are violent demonstrations or violent civil/labor unrest likely to pose a threat to property or the conduct of business over the next two years?"	Global Peace Index
Business Impact of rules on FDI	In your country, how restrictive are rules and regulations on foreign direct investment (FDI)?	WEF - Global Competitiveness Index
Dealing with construction permits (DTF)	This indicator records all procedures required for a business in the construction industry to build a warehouse along with the time and cost to complete each procedure. In addition, this year Doing Business introduces a new measure, the building quality control index, evaluating the quality of building regulations, the strength of quality control and safety mechanisms, liability and insurance regimes, and professional certification requirements.	Ease of Doing Business - WB
Number of days to obtain an operating license	Approximately how many days did it take to obtain this operating license from the day of the application to the day it was granted?	Enterprise Surveys - WB
Business licensing and regulations	Are business licenses available to all citizens? It is composed of four variables: (1) In law, anyone may apply for a business license. (2) In practice, citizens can obtain any necessary business license (i.e. for a small import business) within a reasonable time period.(3) In practice, citizens can obtain any necessary business license (i.e. for a small import business) within a reasonable time period.(4) In practice, citizens can obtain any necessary business license (i.e. for a small import business) at a reasonable cost. Q2- Are there transparent business regulatory requirements for basic health, environmental, and safety standards? (A) In law, basic business regulatory requirements for meeting public health standards are transparent and publicly available. (B) In law, basic business regulatory requirements for meeting public environmental standards are transparent and publicly available. (C) In law, basic business regulatory requirements for meeting public safety standards are transparent and publicly available. Q3- Does government effectively enforce basic health, environmental, and safety standards on businesses? (A) In practice, business inspections by government officials to ensure public health standards are being met and are carried out in a uniform and even-handed manner. (B) In practice, business inspections by government officials to ensure public environmental standards are being met are carried out in a uniform and even-handed manner. (C) In practice, business inspections by government officials to ensure public safety standards are being met are carried out in a uniform and even-handed manner.	Global Integrity Report

Registering property (DTF)	This indicator records the full sequence of procedures necessary for a business (the buyer) to purchase a property from another business (the seller) and to transfer the property title to the buyer's name so that the buyer can use the property for expanding its business, use the property as collateral in taking new loans or, if necessary, sell the property to another business. It also measures the time and cost to complete each of these procedures. In addition, this year Doing Business adds a new measure to the set of registering property indicators, an index of the quality of the land administration system in each economy. The quality of land administration index has four dimensions: reliability of infrastructure, transparency of information, geographic coverage and land dispute resolution.	Ease of Doing Business - WB
Index of Regulatory Quality	Reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	WGI
Getting credit (DTF)	Getting Credit explores two sets of issues—the strength of credit reporting systems AND the effectiveness of collateral and bankruptcy laws in facilitating lending.	Ease of Doing Business - WB
Labor regulations as a major business constraint	To what degree are Labor Regulations an obstacle to the current operations of firms?	Enterprise Surveys - WB
Burden of government regulation	In your country, how burdensome is it for companies to comply with public administration's requirements (e.g., permits, regulations, reporting)?	WEF - Global Competitiveness Index
Number of procedures to start a business	Number of procedures to start a business	WEF - Global Competitiveness Index
Tax policy risk	Tax policy risk is the average of: 1- stable regime (Is the tax regime clear and predictable?) Consider: - all forms of taxation and taxes at the federal state and municipal level if relevant. - imposition, or likely imposition, of taxes in case of fiscal emergency caused by excessive deficits, natural disasters or political conflicts. - cases where taxes are imposed for a defined period of time (for example, one year) for specific defined reasons and then maintained indefinitely. - frequent changes in administration which result in sharp swings in tax policy. 2- discriminatory taxes (What is the risk that corporations will face discriminatory taxes?) : Are domestic firms in effect taxed at lower rates than foreign firms? Does government use taxes to protect domestic industries or to favor specific local corporations? level of corporate taxation (Is the corporate tax rate low or is the prevailing rate of corporate tax actually paid low?) If foreign and national firms face different tax regimes, consider each separately with final score an average of the two regimes. retroactive taxation (What is the risk from retroactive taxation?) Consider the severity of the fiscal constraint, the government's record, and recent statements by planners regarding tax policy.	EIU Operational Risk Model

Percentage of firms identifying business licensing and permits as a major constraint	Percentage of establishments that consider business licensing and permits to be the Biggest Obstacle	Enterprise Surveys - WB
Electrical connection waiting time	Delay in obtaining an electrical connection (upon application)	Enterprise Surveys - WB
Transparency of economic policy (fiscal, budgetary, monetary, exchange rate, etc)	It is the simple average of two variables: Is State economic policy (e.g. budgetary policy, fiscal policy etc.) (1) communicated? (2) publicly debated?	IPD
Customs waiting time - exports	Average number of days to clear direct exports through customs. Question: In fiscal year [….], when this establishment exported goods directly, how many days did it take on average from the time this establishment's goods arrived at their main point of exit (e.g., port, airport) until the time these goods cleared customs?	Enterprise Surveys - WB
Customs waiting time - imports	Average number of days to clear imports from customs	Enterprise Surveys - WB
Percentage of firms identifying customs and trade regulations as a major constraint	Percent of firms identifying customs and trade regulations as a major constraint	Enterprise Surveys - WB
Issuance of import licenses	Difficulty in obtaining import licenses (entry barriers, corruption, red tape etc.)	IPD
Foreign trade risk	It is the average of the following: 1. Trade embargo risk (What is the risk that the country will be subject to a trade embargo sponsored either by a major international organization, a significant trading partner, or one or more of the G-8 countries?) If such an embargo is already in place, score as high-risk. 2. Capital account (Can investors move money in and out of the country with ease for financial transactions (capital account)?) 3. Financial crisis (What is the risk that a financial crisis could curtail access to foreign exchange for direct investors?) Consider risk of contagion effects from peers and neighboring countries, as well as prevailing domestic conditions 4. Capital controls risk (What is the risk that capital controls would be applied or, if already in place, tightened in time of economic or financial crisis?) 5. Current account convertibility (Can investors make payments for goods and services and access foreign exchange without restriction? (current-account convertibility) 6. Discriminatory tariffs (What is the risk of discriminatory tariffs?) 7. Excessive protection (What is the risk of excessive protection (tariff and non-tariff) in current period?)	EIU Operational Risk Model

Availability of financial services	In your country, to what extent does the financial sector provide the products and services that meet the needs of businesses?	WEF - Global Competitiveness Index
Ease of starting a business	It is the simple average of two variables: (1) Ease of starting a business governed by local law?, (2) Ease of setting up a subsidiary of a foreign firm?	IPD
Ease of access to loans	In your country, how easy is it to obtain a bank loan with only a good business plan and no collateral?	WEF - Global Competitiveness Index
Proportion of investments financed by banks	Proportion of investments financed by banks (%) Estimated proportion of purchases of fixed assets that was financed from bank loans. Over fiscal year, please estimate the proportion of this establishment's total purchase of fixed assets that was financed from each of the following sources: -Internal funds or retained earnings -Owners' contribution or issued new equity shares -Borrowed from banks: private and state-owned -Borrowed from non-bank financial institutions -Purchases on credit from suppliers and advances from customers -Other, moneylenders, friends, relatives, bonds, etc	Enterprise Surveys - WB
Proportion of working capital financed by banks	Proportion of the working capital that was financed by bank loans. Over fiscal year , please estimate the proportion of this establishment's working capital that was financed from each of the following sources: -Internal funds or retained earnings -Borrowed from banks: private and state-owned -Borrowed from non-bank financial institutions which include microfinance institutions, credit cooperatives, credit unions, or finance companies -Purchases on credit from suppliers and advances from customers -Other, moneylenders, friends, relatives, etc.	Enterprise Surveys - WB
Percentage of firms identifying access to finance as a major constraint	Percent of firms identify access/cost of finance as a "major" or "very severe" obstacle Using the response options on the card; To what degree is Access to Finance an obstacle to the current operations of this establishment?	Enterprise Surveys - WB

Starting a business (DTF)	This indicator records all procedures officially required, or commonly done in practice, for an entrepreneur to start up and formally operate an industrial or commercial business, as well as the time and cost to complete these procedures and the paid-in minimum capital requirement. These procedures include obtaining all necessary licenses and permits and completing any required notifications, verifications or inscriptions for the company and employees with relevant authorities.	Ease of Doing Business - WB
Trading across borders (DTF)	This indicator records the time and cost associated with the logistical process of exporting and importing goods. Under the new methodology introduced this year, Doing Business measures the time and cost (excluding tariffs) associated with three sets of procedures—documentary compliance, border compliance and domestic transport—within the overall process of exporting or importing a shipment of goods	Ease of Doing Business - WB
Efficiency of the tax administration	It is the simple average of four variables: Efficiency of the tax administration in relation to the collection of (1) corporation tax in non-exempt economic sectors, (2) income tax of households with formal income (excluding measures exempting low-income households), (3) tax across the whole of the national territory (excluding statutory scheme exempting parts of the territory for specific reasons), (4) Practical ability of the administration to limit tax evasion.	IPD
Soundness of banks	In your country, how do you assess the soundness of banks?	WEF - Global Competitiveness Index
Micro-lending	It is the simple average of two variables: (1) Significance of informal microfinance (tontines etc.), (2) Significance of institutional microfinance (supported by NGOs, banks etc.)	IPD
Transparency of listed companies	Transparency of information on listed companies	IPD
Strengthening of banking and financial supervision	It is the simple average of two variables: (1) Efficiency of the banking supervisory authority, (2) Efficiency of the insurance market supervisory authority	IPD
Banking system	To what extent have a solid banking system and a functioning capital market been established?	BTI
Accounting information on banks	It is the simple average of two variables: (1) Implementation of a standardized accounting system, (2) Implementation of accounts certification for banks	IPD
Financial freedom	Financial freedom is an indicator of banking efficiency as well as a measure of independence from government control and interference in the financial sector. State ownership of banks and other financial institutions such as insurers and capital markets reduces competition and generally lowers the level of access to credit. The Index scores an economy's financial freedom by looking at five broad areas: 1-The extent of government regulation of financial services, 2-The degree of state intervention in banks and other financial firms through direct and indirect ownership,	Heritage - Index of Economic Freedom

	3-Government influence on the allocation of credit, 4-The extent of financial and capital market development, and 5-Openness to foreign competition.	
Reliance on financial institutions (Deposit rate=Deposit/M2)	Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2; it corresponds to lines 34 and 35 in the International Monetary Fund's (IMF) International Financial Statistics (IFS). GDP (current LCU): GDP at purchaser's prices 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. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current local currency.	WDI
Life Insurance Premium to GDP	Ratio of life insurance premium volume to GDP. Premium volume is the insurer's direct premiums earned (if Property/Casualty) or received (if Life/Health) during the previous calendar year.	GFDD
Non-life Insurance Premium to GDP	Ratio of nonlife insurance premium volume to GDP. Premium volume is the insurer's direct premiums earned (if Property/Casualty) or received (if Life/Health) during the previous calendar year.	GFDD
Pension fund assets to GDP	Ratio of assets of pension funds to GDP. A pension fund is any plan, fund, or scheme that provides retirement income.	GFDD
Nonbank financial institutions' assets to GDP	Total assets held by financial institutions that do not accept transferable deposits but that perform financial intermediation by accepting other types of deposits or by issuing securities or other liabilities that are close substitutes for deposits as a share of GDP. It covers institutions such as saving and mortgage loan institutions, post-office savings institution, building and loan associations, finance companies that accept deposits or deposit substitutes, development banks, and offshore banking institutions. Assets include claims on domestic real nonfinancial sector such as central-, state- and local government, nonfinancial public enterprises and private sector.	GFDD
Mutual fund assets to GDP	Ratio of assets of mutual funds to GDP. A mutual fund is a type of managed collective investment scheme that pools money from many investors to purchase securities.	GFDD
Banks Concentration	Assets of five largest banks as a share of total commercial banking assets. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax, discontinued operations and other assets.	GFDD
Banks Competition	A measure of deviation from perfect competition in the banking market (deviation of the H-statistic from 1). The H-statistic measures the elasticity of banks revenues relative to input prices. Under perfect competition, an	GFDD

	increase in input prices raises both marginal costs and total revenues by the same amount, and hence the H-statistic equals 1. Under a monopoly, an increase in input prices results in a rise in marginal costs, a fall in output, and a decline in revenues, leading to an H-statistic less than or equal to 0. When H-statistic is between 0 and 1, the system operates under monopolistic competition. However, it is possible for H-stat to be greater than 1 in some oligopolistic markets.	
Bank overhead costs to total assets	Operating expenses of a bank as a share of the value of all assets held. Total assets include total earning assets, cash and due from banks, foreclosed real estate, fixed assets, goodwill, other intangibles, current tax assets, deferred tax assets, discontinued operations and other assets.	GFDD
Stock market turnover	Total value of shares traded during the period divided by the average market capitalization for the period.	GFDD
Capital adequacy	The capital adequacy of deposit takers. It is a ratio of total regulatory capital to its assets held, weighted according to risk of those assets.	GFDD
Bank nonperforming loans to gross loans	Ratio of defaulting loans (payments of interest and principal past due by 90 days or more) to total gross loans (total value of loan portfolio). The loan amount recorded as nonperforming includes the gross value of the loan as recorded on the balance sheet, not just the amount that is overdue.	GFDD
Liquid assets to deposits and short-term funding	The ratio= the value of liquid assets (easily converted to cash)/(total deposits + short-term funding). This ratio gives an idea about the prudential measures taken by the regulator/banks to cover banks liability to customers Liquid assets include cash and due from banks, trading securities and at fair value through income, loans and advances to banks, reverse repos and cash collaterals. Deposits and short-term funding includes total customer deposits (current, savings and term) and short-term borrowing (money market instruments, CDs and other deposits). Consequently a very high ratio would mean that there is no adequate investments and opportunities. Too much liquidity means the economic cycle is idle.	GFDD
Enabling conditions for rural financial services development	It is composed of 4 variables: A-Government's policy on rural financial services B-provision of rural financial services C-Legal framework for the promotion and regulation of rural finance D-Inspection and supervision of rural financial services providers	IFAD
Confidence in financial institutions	In this country, do you have confidence in each of the following, or not? How about financial institutions or banks?	Gallup
Interest rate spread (lending rate - deposit rate)	Interest rate spread (lending rate minus deposit rate, %). Interest rate spread is the interest rate charged by banks on loans to private sector customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits. The terms and conditions attached to these rates differ by country, however, limiting their comparability.	WDI

Banks' assets to GDP	Total assets held by deposit money banks as a share of GDP. Assets include claims on domestic real nonfinancial sector which includes central, state and local governments, nonfinancial public enterprises and private sector. Deposit money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits.	GFDD
Wastefulness of government spending	In your country, how efficiently does the government spend public revenue?	WEF - Global Competitiveness Index
Quality of budgetary and financial management	Quality of budgetary and financial management assesses the extent to which there is a comprehensive and credible budget linked to policy priorities, effective financial management systems, and timely and accurate accounting and fiscal reporting, including timely and audited public accounts.	WDI
Generic subsidies (fuel sector)	IEA estimates of fossil fuel consumption subsidies (billion USD)	OECD
Central government debt, total (% of GDP)	Debt is the entire stock of direct government fixed-term contractual obligations to others outstanding on a particular date. It includes domestic and foreign liabilities such as currency and money deposits, securities other than shares, and loans. It is the gross amount of government liabilities reduced by the amount of equity and financial derivatives held by the government. Because debt is a stock rather than a flow, it is measured as of a given date, usually the last day of the fiscal year.	WEF - Global Competitiveness Index
10 years average of (GDP Growth Rate-Interest Rate)	It is the difference of the 10-year averages of GDP growth and real interest rate. Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability. GDP growth is the annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. 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. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	WDI
Ratio of short-term public debt to total external debt	Short-term debt includes all debt having an original maturity of one year or less and interest in arrears on long-term debt. Total external debt is debt owed to nonresidents repayable in currency, goods, or services. Total external debt is the sum of public, publicly guaranteed, and private nonguaranteed long-term debt, use of IMF credit, and short-term debt. This measures government commitment to long term liabilities	WDI
Ratio of short-term public debt to total reserves	Short-term debt includes all debt having an original maturity of one year or less and interest in arrears on long-term debt. Total reserves include gold. It measures how much the government can commit to its short-term liabilities	WDI

Budget quality and transparency	It is the simple average of the numerical value of each of the responses to the 95 questions in the questionnaire that assess the public availability of budget information. A country's OBI score reflects the timeliness and comprehensiveness of publicly available budget information in the eight key budget documents.	Open Budget Index
Budget Process Oversight & Transparency	It consists of four questions: (1) Can the legislature provide input to the national budget? (2) Can citizens access the national budgetary process? (3) In law, is there a separate legislative committee which provides oversight of public funds? (4) Is the legislative committee overseeing the expenditure of public funds effective?	Global Integrity Report
Reliability of government budget	it is the simple average of four variables: (1) Is the report produced by the IMF under Article IV published? (2) Reliability of the State budget (completeness, credibility, performance etc.), (3) Reliability of basic economic and financial statistics (e.g. national accounts, price indices, foreign trade, currency and credit etc.), (4) Reliability of State-owned firms' accounts.	IPD
Private credit by banks to GDP	Private credit by deposit money banks and other financial institutions to GDP.	GFDD
Frequency of bank branches	Number of commercial bank branches per 100,000 adults.	GFDD
Fairness and Capacity of Taxes and Customs	It consists of the following questions: In law, is there a national tax collection agency? Is the tax collection agency effective? In practice, are tax laws enforced uniformly and without discrimination? In law, is there a national customs and excise agency? Is the customs and excise agency effective? In practice, are customs and excise laws enforced uniformly and without discrimination?	Global Integrity Report
Macro-stability	To what extent do the government's fiscal and debt policies support macroeconomic stability?	BTI
Tax administration as a major business constraint	Percent of firms identifying tax administration as a "major" or "very severe" obstacle	Enterprise Surveys - WB
Tax rates as a major business constraint	Percent of firms identifying tax rates as a "major" or "very severe" obstacle	Enterprise Surveys - WB
Reliability of the State accounts	Reliability of the State accounts (completeness, audit, budget review law etc.)	IPD
Allocation and management of public resources for rural development	Composed of 4 variables: A- Decentralization of administrative and fiscal authority B- Budgetary allocation process against policy priorities (PRSP/relevant sector policies) C- Release of budget for agricultural / rural development D- Budget execution for agricultural and rural development	IFAD
Paying taxes (DTF)	This topic addresses the taxes and mandatory contributions that a medium-size company must pay or withhold in a given year, as well as measures the administrative burden in paying taxes	Ease of Doing Business - WB
Independence of Central Banks	Independence of the Central Bank	IPD

Anti-inflation/forex policy	To what extent do government and central bank pursue a consistent inflation policy and an appropriate foreign exchange policy?	BTI
Monetary freedom	Monetary freedom combines a measure of price stability with an assessment of price controls. Both inflation and price controls distort market activity. Price stability without microeconomic intervention is the ideal state for the free market.	Heritage - Index of Economic Freedom
Inflation standard deviation over 5-years	We took the standard deviation of inflation, over 5 years, as measured by the consumer price index. inflation 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, such as yearly. The Laspeyres formula is generally used.	WDI
Trade liberalization	it is the simple average of two variables: (1) Currency convertibility for current account transactions, (2) Is the country a WTO member?	IPD
Prevalence of non-tariff barriers	In your country, to what extent do non-tariff barriers (e.g. health and product standards, technical and labeling requirements, etc.) limit the ability of imported goods to compete in the domestic market?	WEF - Global Competitiveness Index
Trade freedom	Trade freedom is a composite measure of the extent of tariff and non-tariff barriers that affect imports and exports of goods and services. The trade freedom score is based on two inputs: (1) The trade-weighted average tariff rate and (2)Non-tariff barriers (NTBs).	Heritage - Index of Economic Freedom

ANNEX 2 – Euclidian Differences

Table 12 – Summary of top 3 Euclidian Differences

Competitive Environment Pillar - 3 indicators (j247 j248 j256)

Model	Ed	Method (Coefficients)	Comments
m39	254.85	***PCF***	Min Ed
m40	256.02	***Simple Average (1/3,1/3,1/3)***	1st after min Ed
m24	258.71	***Weighted Average (.4,.3,.3)***	2nd after min Ed

Enabling Environment for Private Sector Pillar - 5 indicators (j271 j273 j278 j298 j356)

Model	Ed	Method (Coefficients)	Comments
m64	579.9699	***Weighted Average (.2, .1, .2, .3, .2)***	Min Ed
m77	586.1912	***Simple Average (.2,.2,.2,.2,.2)***	1st after min Ed
m129	586.1912	***PCF***	Same ranking as previous

Red Tape & Regulations Pillar - 5 indicators (j283 j288 j291 j344 j284b)

Model	Ed	Method (Coefficients)	Comments
m77	660.56	***Simple Average (.2,.2,.2,.2,.2)***	Min Ed
m129	669.09	***PCF***	1st after min Ed
m80	688.29	***Weighted Average (.2, .2, .3, .2, .1)***	2nd after min Ed

Financial Sector Pillar - 6 indicators (j296 j305 j310 j311 j312 j313)

Model	Ed	Method (Coefficients)	Comments
m130	423.3759	***Simple Average (1/6,1/6,1/6,1/6,1/6,1/6)***	Min Ed
m117	423.3759	***Weighted Average (.3, .2, .1, .1, .2, .1)***	Same ranking as min Ed
m129	423.3759	***PCF***	Same ranking as min Ed

Monetary Policy Pillar - 4 indicators (j303 j350 j351 j352)

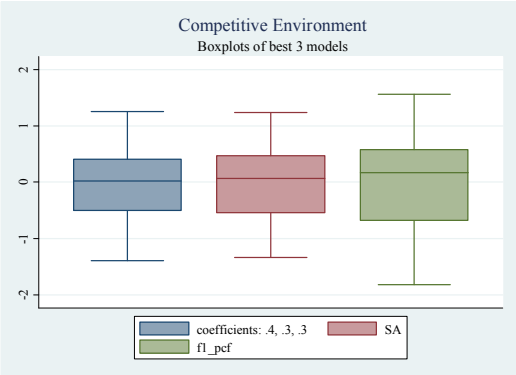
Model	Ed	Method (Coefficients)	Comments
m41	516.475	***Weighted Average (.2,.3,.2,.3)***	Min Ed
m88	517.1911	***Simple Average (.25,.25,.25,.25)***	1st after min Ed
m36	520.9001	*Weighted Average (.2,.2,.2,.4)*	
m87	526.6246	***PCF***	3rd after min Ed

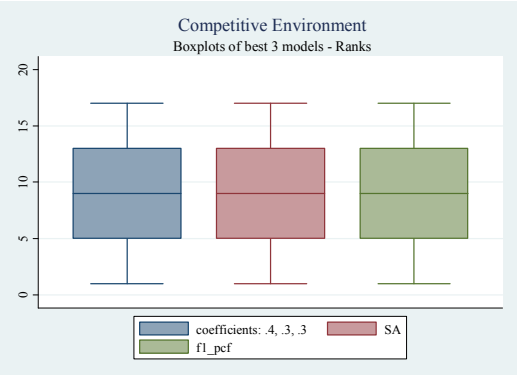
Table 13 – Best aggregated models

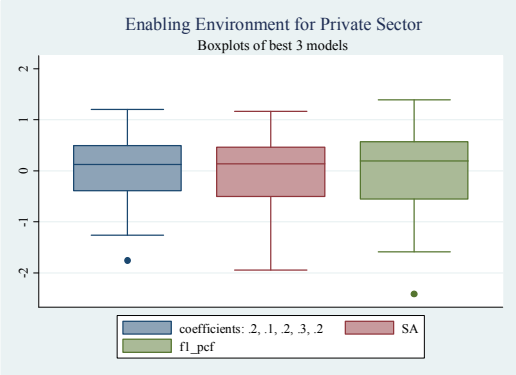
	Model	Ed	Model Specification	Aggregation Coefficients at the pillars level				
Best Fit models	r202	1743.614	Combination of the best Weighted Average models: 'Competitive Environment' (.4,.3,.3) 'Enabling Environment for Private Sector' (.2,.2,.1,.2,.3) 'Red Tape & Regulations' (.2,.2,.3,.2,.1) 'Financial Sector' (.3,.2,.1,.1,.2,.1) 'Monetary Policy' (.2,.3,.2,.3)	0.2	0.2	0.2	0.2	0.2
	r201	1743.614	Combination of the best Weighted Average models: 'Competitive Environment' (.4,.3,.3) 'Enabling Environment for Private Sector' (.2,.2,.1,.2,.3) 'Red Tape & Regulations' (.2,.2,.3,.2,.1) 'Financial Sector' (.3,.2,.1,.1,.2,.1) 'Monetary Policy' (.2,.3,.2,.3)	0.2	0.2	0.2	0.1	0.3

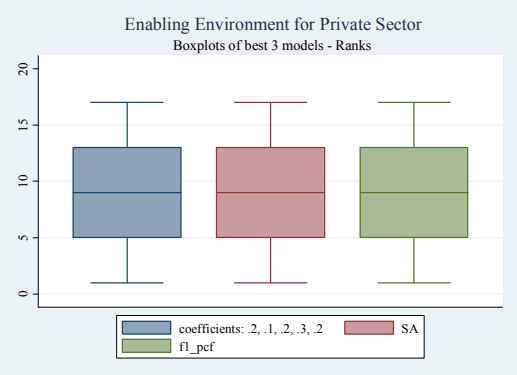
	Model	Ed	Model Specification	Aggregation Coefficients at the pillars level				
Worse Models	r181	3558.167	Combination of the best Weighted Average models: 'Competitive Environment' (.4,.3,.3) 'Enabling Environment for Private Sector' (.2,.2,.1,.2,.3) 'Red Tape & Regulations' (.2,.2,.3,.2,.1) 'Financial Sector' (.3,.2,.1,.1,.2,.1) 'Monetary Policy' (.2,.3,.2,.3)	0.1	0.6	0.1	0.1	0.1
	r55	3641.185	Combination of the Simple Average models	0.1	0.6	0.1	0.1	0.1
	r307	3641.185	Combination of PCF models, for the 5 pillars	0.1	0.6	0.1	0.1	0.1

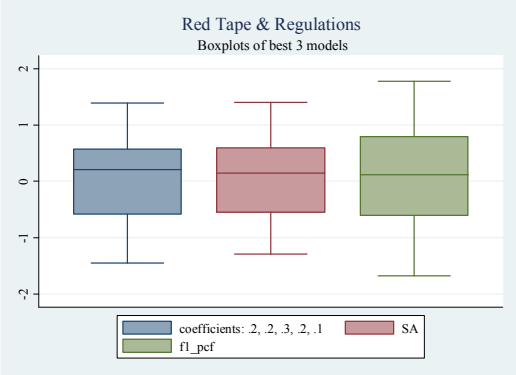
ANNEX 3 – Boxplots of best 3 models per pillar

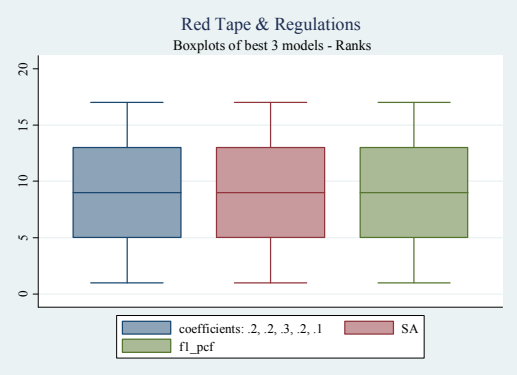


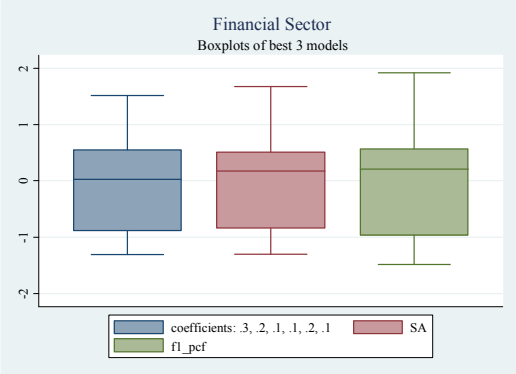


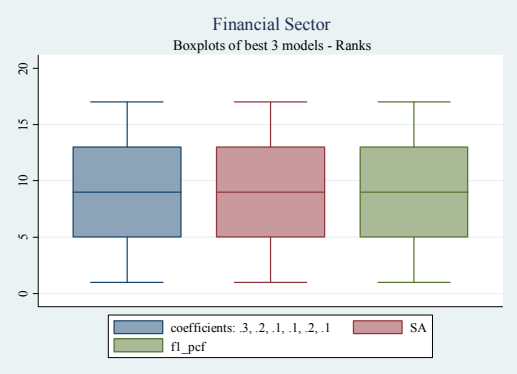


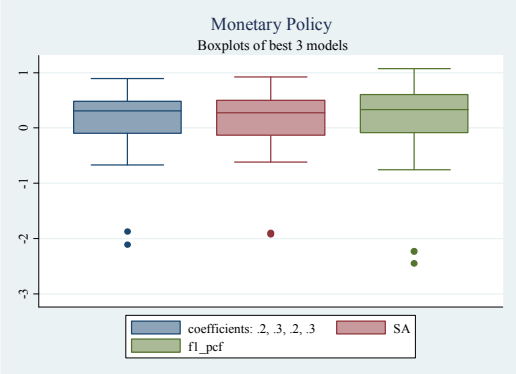


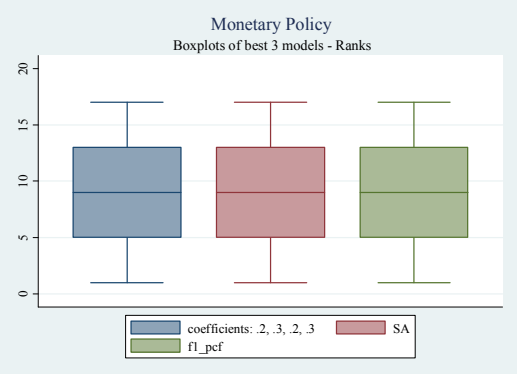





Financial Sector
Boxplots of best 3 models
2
1
0
-1
-2
coefficients: .3, .2, .1, .1, .2, .1
SA
f1_pcf


Financial Sector
Boxplots of best 3 models - Ranks
20
15
10
5
0
coefficients: .3, .2, .1, .1, .2, .1
SA
f1_pcf

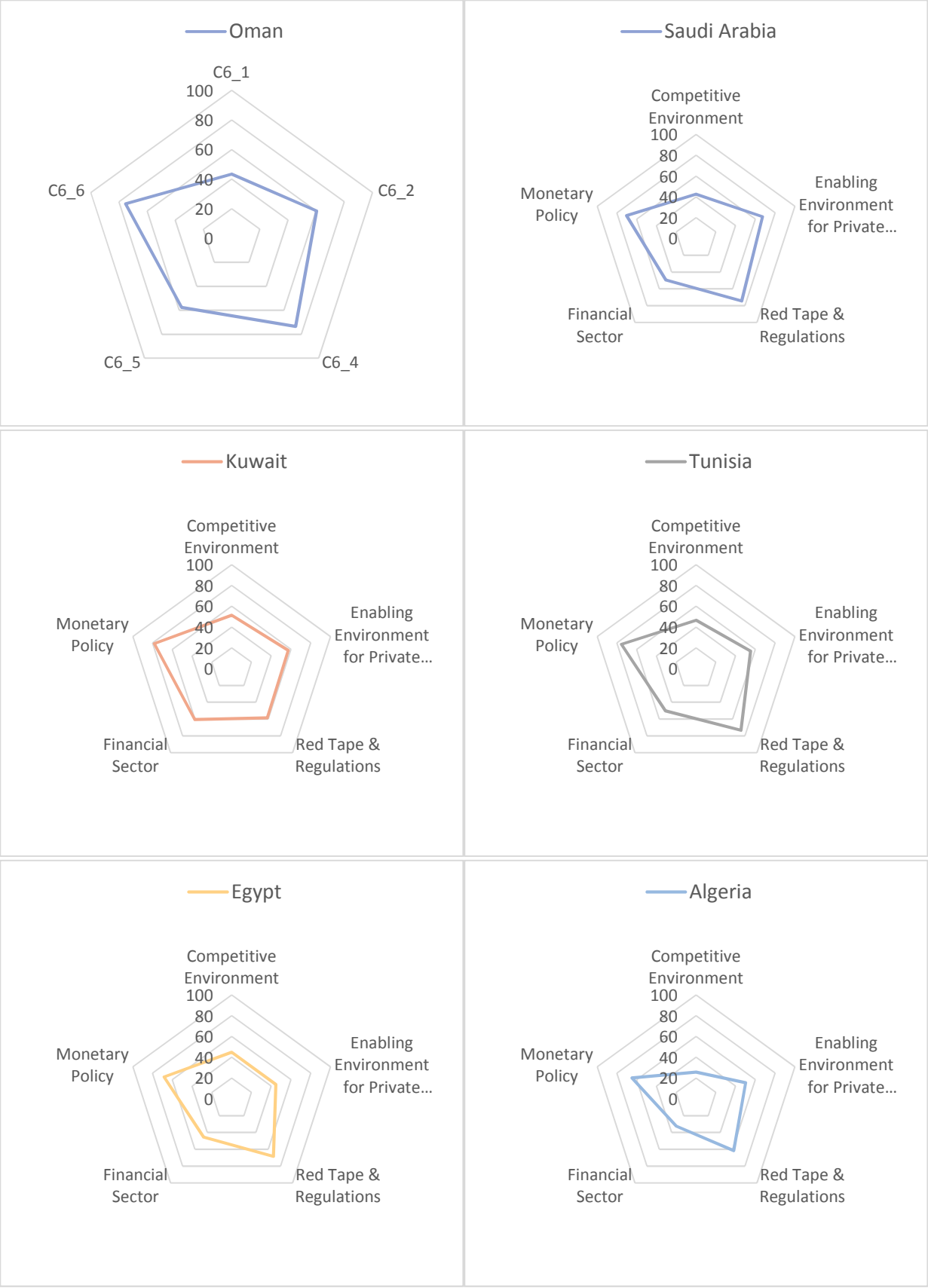

Monetary Policy
Boxplots of best 3 models
1
0
-1
-2
-3
coefficients: .2, .3, .2, .3
SA
f1_pcf


Monetary Policy
Boxplots of best 3 models - Ranks
20
15
10
5
0
coefficients: .2, .3, .2, .3
SA
f1_pcf

ANNEX 4 – Correlation Matrix

	EJ Index Score	Competitive Environment	Enabling Environment for Private Sector	Red Tape & Regulations	Financial Sector	Monetary Policy
Market-based competition	.884**	.864**	.839**	.681**	.771**	.732**
Administered prices	.422	.656**	.111	.275	.518*	.304
Anti-monopoly policy	.686**	.753**	.507*	.628**	.586*	.556*
Contract enforcing (DTF)	.686**	.422	.770**	.494*	.539*	.770**
Perception of standard of living for entrepreneurs	.718**	.582*	.911**	.506*	.430	.728**
Likelihood of violent demonstrations	.556*	.437	.750**	.468	.329	.465
Getting credit (DTF)	.673**	.499*	.710**	.785**	.535*	.440
Foreign trade risk	.873**	.732**	.929**	.689**	.690**	.793**
Dealing with construction permits (DTF)	.716**	.567*	.733**	.684**	.483*	.689**
Index of Regulatory Quality	.571*	.623**	.362	.672**	.472	.406
Starting a business (DTF)	.757**	.607**	.628**	.887**	.723**	.494*
Trading across borders (DTF)	.406	.247	.415	.763**	.294	.095
Efficiency of the tax administration	.904**	.795**	.795**	.863**	.802**	.724**
Banking system	.880**	.850**	.685**	.668**	.927**	.729**
Financial freedom	.817**	.728**	.612**	.728**	.913**	.602*
Reliance on financial institutions (Deposit rate=Deposit/M2)	.648**	.605*	.479	.442	.741**	.562*
Banks' assets to GDP	.718**	.699**	.424	.569*	.885**	.562*
Private credit by banks to GDP	.810**	.740**	.543*	.664**	.922**	.675**
Frequency of bank branches	.697**	.610**	.510*	.465	.814**	.638**
Independence of Central Banks	.542*	.522*	.355	.215	.513*	.756**
Anti-inflation/forex policy	.896**	.725**	.859**	.619**	.758**	.960**
Monetary freedom	.686**	.567*	.565*	.572*	.632**	.669**
Inflation standard deviation over 5-years	.768**	.574*	.809**	.525*	.543*	.914**

ANNEX 5 – Results by country


Oman
C6_1
C6_2
C6_4
C6_5
C6_6
100
80
60
40
20
0
Saudi Arabia
Competitive Environment
Enabling Environment for Private...
Red Tape & Regulations
Financial Sector
Monetary Policy
Kuwait
Tunisia
Egypt
Algeria


Mauritania
Competitive Environment
100
80
60
40
20
0
Enabling Environment for Private...
Red Tape & Regulations
Financial Sector
Monetary Policy
Iraq
Competitive Environment
Enabling Environment for Private...
Red Tape & Regulations
Financial Sector
Monetary Policy
Libya
Competitive Environment
Enabling Environment for Private...
Red Tape & Regulations
Financial Sector
Monetary Policy
Sudan
Competitive Environment
Enabling Environment for Private...
Red Tape & Regulations
Financial Sector
Monetary Policy
Syrian Arab Republic
Competitive Environment
Enabling Environment for Private...
Red Tape & Regulations
Financial Sector
Monetary Policy

ANNEX 6 – Dataset : Indicators, Pillars, EJ Index and Others

Table 14 - Raw Data

Raw data	Indicator	Algeria	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Libya	Mauritania	Morocco	Oman	Qatar	Saudi Arabia	Sudan	Syrian	Tunisia	UAE	OECD Average - Year 2014
Competitive Environment	Market-based competition	4	8	4	4	5	7	6	5	3	6	7	7	6	3	2	6	7	8.8
	Administered prices	1	4	2	3	3	2	4	2	2	3	2	2	2	3	2	2	4	1.21
	Anti-monopoly policy	4	5	7	3	6	5	5	3	2	4	3	7	4	3	2	5	6	9.2
Enabling Environment for Private Sector	Contract enforcing (DTF)	52.89	52.33	44.02	47.32	54.04	52.28	55.4	51.42	58.47	60.14	50.67	56.73	54.82	40.43	35.17	60.96	52.52	69.52
	Perception of standard of living for entrepreneurs	0.61	0.65	0.47	0.65	0.52	0.6	0.67	0.61	0.61	0.64	0.65	0.77	0.81	0.42	0.19	0.64	0.77	1
	Likelihood of violent demonstrations	3	2	1	2	3	4	2	2.5	2	3	3	5	4	2	1	2	4	3.85
	Getting credit (DTF)	43.75	43.75	56.25	18.75	25	43.75	50	12.5	25	50	56.25	43.75	68.75	25	25	50	56.25	71.97
	Foreign trade risk	1.71	3.00	2.00	1.79	2.43	3.14	2.43	1.71	1.86	2.25	3.57	3.57	3.29	0.43	0.43	2.00	3.43	3.25
Red Tape & Regulations	Dealing with construction permits (DTF)	63.81	84.26	61.71	68.85	65.27	60.09	54.16	0	74.41	77.7	76.91	83.65	80.85	55.25	0	72.92	92.59	74.86
	Starting a business (DTF)	73.11	74.76	88.09	73.88	85.5	70.89	82.48	74.55	58.17	90.29	79.07	83.18	78.17	74.34	72.62	83.54	89.96	87.11
	Trading across borders (DTF)	63.74	76.84	71.15	20.64	78.2	68.03	72.3	61.51	55.98	81.99	78.27	77.02	74.06	42.66	59.26	82.17	91.59	85.24
	Efficiency of the tax administration	2.5	3.33	2	0	2	1	1.25	1	2.5	2.5	2.67	2.33	3.67	2	2.25	2.5	3.67	3.37
	Index of Regulatory Quality 284b	-1.21	0.7	-0.75	-1.25	0.08	-0.13	-0.22	-2.19	-0.7	-0.01	0.69	0.57	-0.01	-1.39	-1.67	-0.35	0.98	1.28
Financial Sector	Banking system	4	10	7	4	9	8	9	4	4	7	7	8	8	3	3	5	7	9.1
	Financial freedom	30	80	40	10	60	50	60	20	40	60	60	50	50	30	20	30	50	70.29
	Reliability of financial institutions	0.67	0.92	0.72	0.57	0.73	0.91	0.94	0.66	0.85	0.8	0.86	0.9	0.51	0.61	0.61	0.8	0.83	0.01
	Banks' assets to GDP	37.77	89.99	62.98	12.03	109.87	59.77	166.24	18.47	31.53	92.90	48.86	84.61	46.59	12.65	44.41	74.13	79.54	107.50
	Private credit by banks to GDP	15.19	67.39	25.6	6.04	69.27	56.59	89.05	12.79	27.52	69.94	41.37	36.73	37.92	9.22	20.43	69.28	60.32	91.76

	Frequency of bank branches	5.12	13.16	4.87	5.51	20.33	15.73	30.02	11.70	4.58	24.42	20.26	13.16	9.00	3.11	3.86	18.35	12.43	29.24	
Monetary Policy	Independence of Central Banks	1	2	3	3	3	3	3	2	1	3	2	1	1	0	0	3	2	3.76	
	Anti-inflation/forex policy	6	8	6	7	9	8	8	4	6	8	8	8	8	2	1	6	8	9.4	
	Monetary freedom	67.8	78.4	60.5	70	81.3	73.2	74.5	66.9	75.5	78.1	73.6	81.2	68.7	55.8	71.5	75.9	84.6	79.22	
	Inflation standard deviation over 5-years	-2.42	-1.43	-1.54	-2.10	-1.02	-1.07	-2.45	-6.06	-1.11	-0.53	-1.31	-2.27	-1.45	-10.37	-18.55	-0.84	-0.67	-1.02	

Table 15 – Standardized Data

Standardized data	Indicator	Algeria	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Libya	Mauritania	Morocco	Oman	Qatar	Saudi Arabia	Sudan	Syrian	Tunisia	UAE	OECD Average - Year 2014	Min	Max
Competitive Environment	Market-based competition	-0.75	1.57	-0.75	-0.75	-0.17	0.99	0.41	-0.17	-1.33	0.41	0.99	0.99	0.41	-1.33	-1.91	0.41	0.99	2.03	-2.49	2.73
	Administered prices	-1.75	1.68	-0.61	0.54	0.54	-0.61	1.68	-0.61	-0.61	0.54	-0.61	-0.61	-0.61	0.54	-0.61	-0.61	1.68	-1.51	-1.75	1.68
	Anti-monopoly policy	-0.22	0.41	1.68	-0.86	1.04	0.41	0.41	-0.86	-1.49	-0.22	-0.86	1.68	-0.22	-0.86	-1.49	0.41	1.04	3.07	-2.12	3.58
Enabling Environment for Private Sector	Contract enforcing (DTF)	0.17	0.09	-1.14	-0.65	0.34	0.08	0.54	-0.05	0.99	1.24	-0.16	0.73	0.45	-1.66	-2.44	1.36	0.11	2.62	-7.61	7.10
	Perception of standard of living for entrepreneurs	0.04	0.31	-0.92	0.31	-0.58	-0.03	0.45	0.04	0.04	0.24	0.31	1.13	1.41	-1.26	-2.84	0.24	1.13	2.71	-4.14	2.71
	Likelihood of violent demonstrations	0.29	-0.61	-1.52	-0.61	0.29	1.20	-0.61	-0.16	-0.61	0.29	0.29	2.11	1.20	-0.61	-1.52	-0.61	1.20	1.06	-1.52	2.11
	Getting credit (DTF)	0.18	0.18	0.97	-1.38	-0.99	0.18	0.58	-1.77	-0.99	0.58	0.97	0.18	1.75	-0.99	-0.99	0.58	0.97	1.95	-2.56	3.71
	Foreign trade risk	-0.60	0.73	-0.31	-0.53	0.14	0.87	0.14	-0.60	-0.45	-0.05	1.32	1.32	1.02	-1.93	-1.93	-0.31	1.17	0.98	-2.37	1.76
Red Tape & Regulations	Dealing with construction permits (DTF)	0.03	0.81	-0.05	0.22	0.08	-0.12	-0.34	-2.42	0.44	0.56	0.53	0.79	0.68	-0.30	-2.42	0.38	1.13	0.45	-2.42	1.42
	Starting a business (DTF)	-0.64	-0.44	1.18	-0.55	0.87	-0.91	0.50	-0.47	-2.46	1.45	0.08	0.58	-0.03	-0.49	-0.70	0.63	1.41	1.06	-9.55	2.63

	Trading across borders (DTF)	-0.25	0.53	0.19	-2.81	0.61	0.00	0.26	-0.38	-0.71	0.83	0.61	0.54	0.36	-1.50	-0.52	0.84	1.40	1.02	-4.03	1.90
	Efficiency of the tax administration	0.32	1.18	-0.19	-2.26	-0.19	-1.23	-0.97	-1.23	0.32	0.32	0.50	0.15	1.54	-0.19	0.07	0.32	1.54	1.22	-2.26	1.88
	Index of Regulatory Quality 284b	-0.89	1.21	-0.38	-0.93	0.53	0.30	0.20	-1.96	-0.33	0.43	1.20	1.07	0.43	-1.08	-1.39	0.06	1.52	1.85	-2.30	3.19
Financial Sector	Banking system	-1.00	1.62	0.31	-1.00	1.18	0.75	1.18	-1.00	-1.00	0.31	0.31	0.75	0.75	-1.44	-1.44	-0.57	0.31	1.23	-2.32	1.62
	Financial freedom	-0.74	1.99	-0.19	-1.83	0.90	0.35	0.90	-1.28	-0.19	0.90	0.90	0.35	0.35	-0.74	-1.28	-0.74	0.35	1.46	-2.37	3.08
	Reliability of financial institutions	-0.65	1.20	-0.28	-1.40	-0.21	1.13	1.35	-0.73	0.68	0.31	0.76	1.05	-1.84	-1.10	-1.10	0.31	0.53	-5.57	-5.63	1.79
	Banks' assets to GDP	-0.64	0.68	0.00	-1.29	1.19	-0.08	2.61	-1.13	-0.80	0.76	-0.36	0.55	-0.42	-1.28	-0.47	0.28	0.42	1.13	-1.60	3.93
	Private credit by banks to GDP	-1.04	0.98	-0.64	-1.40	1.06	0.57	1.83	-1.14	-0.56	1.08	-0.03	-0.21	-0.16	-1.27	-0.84	1.06	0.71	1.93	-1.63	2.25
	Frequency of bank branches	-0.95	0.06	-0.98	-0.90	0.96	0.38	2.18	-0.12	-1.02	1.47	0.95	0.06	-0.46	-1.20	-1.11	0.71	-0.03	2.08	-1.59	2.65
Monetary Policy	Independence of Central Banks	-0.87	0.05	0.97	0.97	0.97	0.97	0.97	0.05	-0.87	0.97	0.05	-0.87	-0.87	-1.78	-1.78	0.97	0.05	1.67	-1.78	1.89
	Anti-inflation/forex policy	-0.23	0.65	-0.23	0.21	1.09	0.65	0.65	-1.12	-0.23	0.65	0.65	0.65	0.65	-2.00	-2.44	-0.23	0.65	1.27	-2.44	1.53
	Monetary freedom	-0.67	0.75	-1.65	-0.37	1.14	0.05	0.23	-0.79	0.36	0.71	0.11	1.13	-0.55	-2.28	-0.17	0.42	1.58	0.86	-9.77	3.65
	Inflation standard deviation over 5-years	0.18	0.39	0.37	0.25	0.48	0.47	0.17	-0.61	0.46	0.59	0.42	0.21	0.39	-1.54	-3.30	0.52	0.56	0.48	-4.05	0.70

Table 16 – Aggregated Data

Aggregated Data	Indicator	Algeria	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Libya	Mauritania	Morocco	Oman	Qatar	Saudi Arabia	Sudan	Syrian	Tunisia	UAE	OECD Average - Year 2014	Min	Max
EJ Index	Competitive Environment	-0.89	1.26	0.02	-0.40	0.41	0.34	0.79	-0.51	-1.16	0.26	-0.04	0.72	-0.08	-0.63	-1.39	0.11	1.21	1.28	-2.12	2.66
	Enabling Environment for Private Sector	-0.07	0.27	-0.46	-0.56	-0.18	0.43	0.29	-0.55	-0.19	0.43	0.65	1.02	1.15	-1.42	-1.98	0.28	0.91	1.86	-3.64	3.48
	Red Tape & Regulations	-0.22	0.59	0.21	-1.45	0.39	-0.42	-0.07	-1.13	-0.59	0.76	0.53	0.57	0.59	-0.76	-0.91	0.52	1.39	1.04	-4.11	2.20
	Financial Sector	-0.88	1.28	-0.20	-1.31	0.94	0.55	1.51	-0.98	-0.57	0.74	0.40	0.42	-0.01	-1.19	-1.12	0.02	0.40	0.81	-2.52	2.55
	Monetary Policy	-0.32	0.47	-0.09	0.26	0.89	0.54	0.49	-0.66	-0.03	0.71	0.35	0.31	0.03	-1.87	-2.11	0.36	0.69	1.03	-4.51	1.94
EJ Score		-0.48	0.77	-0.11	-0.69	0.49	0.29	0.60	-0.77	-0.51	0.58	0.38	0.61	0.33	-1.17	-1.50	0.26	0.92	1.20	-3.38	2.57

Table 17 – Benchmarked Data and other indices

	Benchmarked Data	Algeria	Bahrain	Egypt	Iraq	Jordan	Kuwait	Lebanon	Libya	Mauritania	Morocco	Oman	Qatar	Saudi Arabia	Sudan	Syrian	Tunisia	UAE	OECD Average
	EJ % (0-100)	49%	70%	55%	45%	65%	62%	67%	44%	48%	67%	63%	67%	62%	37%	32%	61%	72%	77%
	HDI (0-1)	0.74	0.82	0.69	0.65	0.75	0.82	0.77	0.72	0.51	0.63	0.80	0.85	0.84	0.48	0.59	0.72	0.84	0.89
	GCI (1-7)	3.79	4.45	3.63	0.00	4.20	4.56	3.77	3.73	3.19	4.11	5.64	5.24	5.10	0.00	3.85	4.06	5.11	4.91
	IEF (0-100)	50.80	75.10	52.90	0.00	69.20	62.30	59.40	35.90	53.20	58.30	67.40	71.20	62.20	48.78	0.00	57.30	71.40	71.27
	GII(0-1)	0.43	0.23	0.57	0.53	0.48	0.33	0.38	0.17	0.63	0.49	0.28	0.54	0.26	0.57	0.55	0.29	0.23	0.13
WGI (-2.5;+2.5)	**Control for Corruption**	-0.62	0.30	-0.59	-1.34	0.15	-0.26	-1.06	-1.61	-0.92	-0.26	0.31	1.09	0.10	-1.45	-1.55	-0.09	1.23	1.22
WGI (-2.5;+2.5)	**Regulatory Quality**	-1.28	0.70	-0.74	-1.25	0.08	-0.13	-0.22	-2.11	-0.78	-0.12	0.69	0.57	-1.46	-1.67	-0.39	0.98	-0.01	1.28
WGI (-2.5;+2.5)	**Government Effectiveness**	-0.48	0.59	-0.84	-1.13	0.13	-0.15	-0.38	-1.71	-0.99	-0.07	0.27	0.99	-1.56	-1.44	-0.12	1.48	0.23	1.30
WGI (-2.5;+2.5)	**Rule of Law**	-0.73	0.45	-0.60	-1.36	0.48	0.05	-0.76	-1.53	-0.82	-0.05	0.49	0.99	-1.14	-1.34	-0.13	0.71	0.27	1.36
WGI (-2.5;+2.5)	**Political Stability and Absence of Violence**	-1.17	-0.93	-1.61	-2.49	-0.55	0.13	-1.69	-2.35	-0.61	-0.43	0.73	0.98	-2.38	-2.76	-0.85	0.76	-0.28	0.69
WGI (-2.5;+2.5)	**Voice and Accountability**	-0.82	-1.32	-1.14	-1.22	-0.77	-0.65	-0.46	-1.13	-0.92	-0.74	-1.09	-0.99	-1.75	-1.80	0.16	-1.06	-1.80	1.12
	% Youth Unemployment	25.69	5.08	38.62	32.89	30.50	16.07	20.11	47.23	16.06	19.92	45.29	0.73	30.88	21.49	32.99	37.04	11.82	15.99
	Income Level	Upper middle	High	Lower middle	Upper middle	Upper middle	High	Upper middle	Upper middle	Lower middle	Lower middle	High	High	High	Lower middle	Lower middle	Lower middle	High	