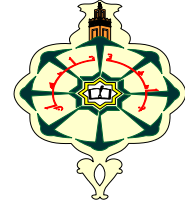




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*Ministry of Higher Education and Scientific Research*



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# **INSTITUTIONS AND INFORMAL ECONOMY IN ALGERIA**

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## General Introduction

In these last decades, informal economy became a pervasive phenomenon in developed and developing countries as well. This is due to the link between weak institutional framework and low growth rates that contribute to the rising size of these hidden activities.

Moreover, the informal economy became a controversial subject since its discovery by Keith Hart in 1970; where researchers, scientists and policy-makers attempt to find different ways to control its rising size and its effects on economic outcomes. Thus, measuring the size of these informal activities would help better understanding the functioning of the economy and help elaborating relevant and efficient policies to integrate the informal agents in the official economy.

Algeria, as many developing countries, has implied several economic reforms including banking system, exchange rate regime, the liberalization of trade and price, public services etc, aiming to achieve high growth rates and to increase the economic performance, and thereby reducing the size of the informal activities. However, these reforms had led to many other economic and social issues, such as unemployment, poverty, smuggling, tax evasion, etc, rather than improving the wellbeing of the citizens. These issues are gathered in the so-called “informal economy (IE)” or informal practices.

There are many interpretations of the Algerian informal economy, in which every author has interpreted this phenomenon using his point of view. Generally, there are four interpretation of this phenomenon in Algeria, in which it is interpreted as "petty commodity production" (PPM) which focuses on the development of small-scale activities and different forms of employment (caregivers, apprentices, work at home and multiple activities). It is interpreted as a "parallel economy" in the period of state-led economy, where it includes parallel activities resulting from the inefficiency of the public regulations, such as: production in black market, distribution and import-export, foreign exchange. (Henni, 1991)

After that, it is extended to include illegal activities particularly in the period of the transition to market economy, where the legalist approach is introduced to understand the behaviors of illegal economic agents who seek to maximize their profit by the circumvention of the government regulations. (Bounoua 1999, 2002b)

And finally, it is interpreted as the informal economy, which includes individuals who seek to meet their own needs; because of the unemployment crisis in the official economy or because their revenues didn't



satisfy their needs, so they choose this alternative lifestyle. Also, firms or micro-enterprises work illegally in order to reduce the cost of being formal. All these interpretations will be demonstrated in detail in the third chapter.

As to many international institutes (World Bank (doing business), the Worldwide Governance Indicators; Ibrahim index of African governance (IIAG); Heritage foundation on the index of economic freedom; Transparency international on corruption perception index; Fraser Institute on economic freedom index and the Global Competitiveness Index), the rising size of non-compliance in Algeria is the result of many social and economic phenomena, among which the weak institutional settings and inefficient economic policies, which will be empirically tested in the empirical review in the third chapter.

Furthermore, bad institutions and the government size; related to tax system and public governance; are the main drivers of the increased informal activities. (De Soto, 2000, and Dessy and Pallage, 2003) On the one hand, the impact of burdensome government regulations on economic activities that promote economic agents to hide underground, but on the other hand, the informal institutions; where the *informal production* is considered as one of the most pervasive forms of informal institutions. (Dell'Anno 2010)

Besides this, good institutions depend on state capacity, which in turn depends on bringing economic activity into the formal sector. A large informal economy limits the state capacity, which may curb institutional development, and thus, discouraging the expansion of the formal; which leads to a bad equilibrium.

On the basis of this political and institutional framework, our emphasis will be on the impact of **institutions, economic policies and public governance** in shaping the incentives that promote the economic agents to conceal their activities, and thus, the main issue is to examine how the informal economy interacts with institutional settings and economic policies, which help better understanding the role played by institutions, stage of economic development and informal economy. (Bhattacharya and Diego Rei 2008; Onnis and Tirelli 2011; Schneider, Andreas and Claudio 2010; Alm and Abel 2013)

We should state in here that it is extremely difficult to measure the informal economy in developing and in developed countries as well, because of it differs according to the range,

the different economic agents involved, the degree of non-compliance with rules and conventions of established institutions, importance and extent of the rule being violated and it depends on the chosen method of measurement. All these clues make finding an appropriate definition of the informal economy hard, and thus, difficult and costly to observe and measure it.

**In this perspective, this research addresses the following issues:**

What exactly explains the existence of informal economy in Algeria and its raising size?

What is the link between institutions, economic policies and informality? And how do institutions shape the development process?

**In particular**, what is the role of informal institutions in shaping the incentive to be informal? Consequently, what is the relevant and appropriate economic and social policies that help reduce the size of these informal practices?

**Hypotheses and prediction procedure:**

In order to answer the main issues mentioned above, our study will be based on the following hypotheses; which will be further translated to institutional indices in the empirical party of this thesis:

- The institutions shape the development by its effects on the economic agents' decisions to be informal and thus their behavior, which in turn lead to informal behaviors and create informal practices.
- **Bad combinations** of high level of taxes, weak institutions, inefficient economic and social policies lead not only to the reallocation of resources and labor between the formal and informal economy, but also to the reduction in outputs in formal sector and thus increase **the exit option** of economic agents and firms.
- **The inadequate provisions of public goods and services** combined with bureaucracy and rent-seeking behaviors of bureaucrats promote more non-compliant behaviors.
- The importance of the informal institutions, trust in public institutions and the social capital of the society, in promoting cooperation among economic agents, and thus promoting inclusive growth.

**Objectives and potential contributions of the study:**

The purposes of this research are as follows:

- Emphasizing the impact institutional framework on the informal economy by focusing on the legal status of these activities and non compliance with government regulations.
- Rethinking the informal economy analysis from an institutional perspective to analyze the complex interactions between formal rules and informal norms.
- Pinpointing the role of governance quality and corruption in forcing firms to go underground; which may curb the expansion of the formal economy.
- Stressing the role played by institutions (both formal and informal institutions); where the impact of social norms is of a paramount importance in the reduction of informal activities.
- Examining empirically the interaction between informal economy and institutional settings in the economic sector (economic firms).

**Description of the research design:**

To cope with scope of this study, we will give a literature review link between institutional settings and informal practices in economic firms; which help better understand the role of both formal and informal institutions in shaping the incentives to go underground.

In addition to the empirical review that will help in the foundation of our econometric model and apply it to the Algerian case.

Finally, using a field survey, we will analyze the link between governance and the institutional quality indices and the size of the non compliance in Algeria, we run a field survey in the economic sector based on the economic firms in different regions of the west of Algeria.

# CHAPITRE ONE: Literature review on non-compliance and Institutions

## Introduction

The informal economy became a controversial subject since its discovery by Keith Hart in 1971; the small socio-economic activities shown in the street are the first introduced to the informal sector; where researchers; scientists and policy-makers attempted to find different ways to control its rising size, because of its potential consequences on economic growth and public finance.

There are several causes of the informal economy, among which: the economic institutions of the country that affect the economic agents' behavior. On the one hand, the impact of inefficient formal institutions on economic activities that promote economic agents to hide underground, but on the other hand, the pervasive informal institutions; such as informal rules and social norms; that are deep-rooted in the society's culture, where the informal production is considered as one of the most pervasive forms of informal institution. (Dell'Anno 2010)

In this study, our emphasis will be on the impact of institutions in shaping the incentives that promote the economic agents to conceal their activities, and thus, the main issue is to examine how the informal economy interacts with institutional settings and economic policies, which help better understanding the role played by institutions in the development process. (Onnis and Tirelli, 2011)

In order to do so, *in section one*, we will emphasize the importance and the contribution of the informal sector in the economy and its impact on economic outcomes; where in the *second section*, we will shed light on the main institutional approaches that analyze the institutional change and its undesirable effects, among which the informal economy.

## **1. Individuals and interactions**

### **1.1. The non-compliant behavior in developing countries**

The genesis of informal economy is hard and difficult to find; therefore, this research will provide an overview of its beginning over different periods.

At first, it is considered as a marginal sector that gathers jobless people, and thus will be absorbed in the formal economy. (Arthur Lewis, 1954)

However, the informal sector grew rapidly and became the standard lifestyle for many individuals and thus it became a part of the economy.

Besides its increasing size, it became a pervasive phenomenon in both developed and developing countries that are characterized by the low growth rate and the rural migration towards the urban sector; which give rise to a dualism of two sectors: the high profit/high wage sector versus the low profit/low wage competitive sector. (Moser, 1978)

**In 1970s**, the first who coined the term “informal sector” is Keith Hart, an anthropologist, to describe the scope of unregistered economic activity operating in Accra, Ghana. He noticed marginal urban productive activities of self-employed and poor workers to survive and satisfy their own needs. (ILO, 1972)

Hence, this concept became a crucial part of the economy, and attracted the attention of politicians and economic researchers, where they attempted to analyze its main causes and determinants of its rising size, among which the institutional settings and governance capabilities especially in developing countries; which is the novel of this research.

### **1.2. The definition of the non-compliant behavior or non-compliance**

As it's agreed from the researchers in this field, non-compliance is extremely difficult to define because it differs according to the range, the different economic agents involved, the degree of compliance with rules and conventions of established institutions, importance and extent of the rule being violated and it depends on the chosen method of measurement. All these clues make finding an appropriate definition hard, and thus, difficult and costly to observe and measure.

Among these different definitions, our emphasis will be on the non-compliance that includes all underground activities, which reflects circumvention of the established rules, or exclusion from the protection of those rules. (Feige, 1990)

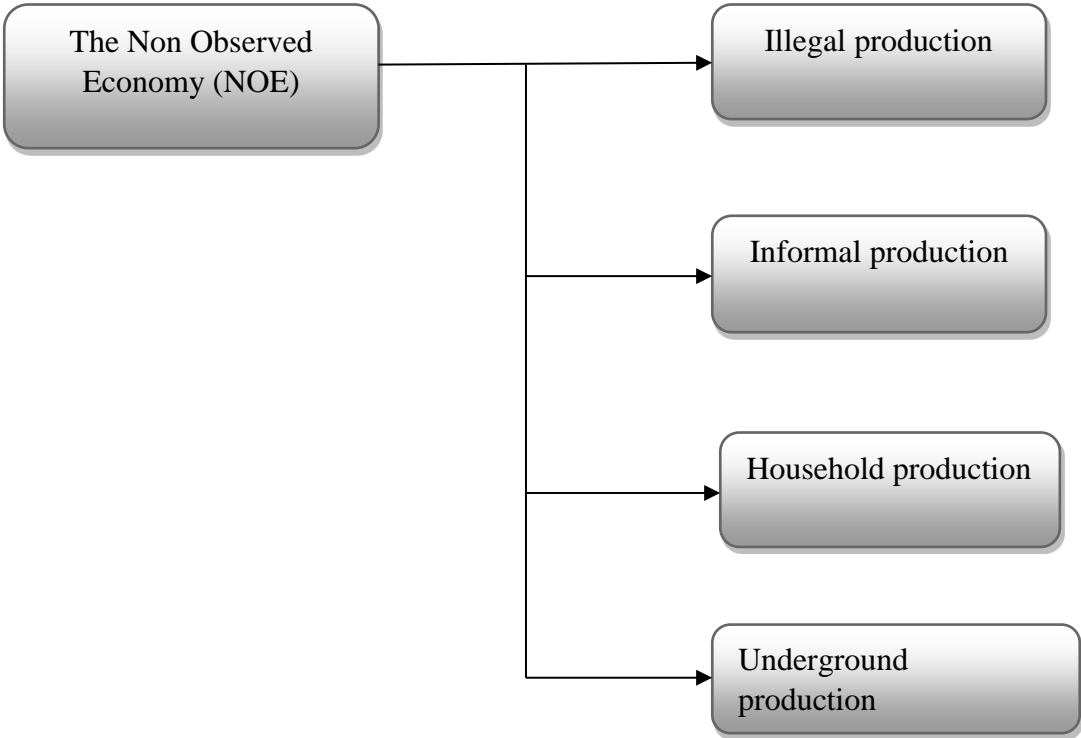
Consequently, the underground economy includes all activities that have legal outputs but employ illicit means and are concealed from public authorities for the following reasons, such

as: avoiding the payment of income, social security contributions and other taxes, besides avoiding certain legal labor market standards and other administrative obligations, etc.

Recently, the OECD basing on the heterogeneity of the activities which encompasses the non compliant behavior uses the term non observed economy (NOE). The NOE consists of all product activities that are classified into the following sub-areas: illegal production, informal production, household production and underground production. (OECD, 2002)

Among these different subareas, our emphasis will be on the underground economy and its important implications for the macro-economic outcomes.

**Figure1:** the main subareas of the non-observed economy (NOE)



**Source:** author’s construction, based on OECD handbook, 2002.

Concerning the first subarea; the **illegal economy**; those activities are either prohibited by law, such as the production and sale of illicit drug, prostitution, production and sale of counterfeits, smuggling, concelement of stolen goods, corruption, extortion, money laundering, etc; or are illegal when performed by economic agents who do not have permission, such as as the practice of medicine, the organization of gambling or alcohol production without licence, poaching, such as fishing, hunting and felling of trees.

Moreover, the illegal activities are distinguished from the informal activities according to the production of goods and services, where the informal sector generates goods and services whose the production and distribution are legal, whereas the illegal sector does not. Besides this distinction, there is another difference between the illegal activities and the underground activities, where the underground ones are those that do not comply with the administrative rules, while the illegal ones are associated with criminal behaviors.

As to the second subarea; the **informal economy**; that represents a significant portion of the economy in developing countries; especially the labor market; where those countries are characterized by a demographic growth rate and a high urbanization, thus, the informal sector absorbs the increasing labor force in urban areas.

Basically there are two different points of view concerning the definition of the informal sector, as to the first, it can be defined as those enterprises that do not respect the legal and administrative regulations (i.e. are not registered). As to the second one, it is a specific type of production that is different in its type of organization of its enterprises and the way of running them. Moreover, the 15<sup>th</sup> ICLS <sup>1</sup> adopted these two approaches in defining the informal sector, and they claimed that the difference between the underground economy and the informal economy, is that: the economic agents work in the shadows are deliberately intended to evade payment of taxes and social security contributions or violate labor legislation, whereas the agents who work in the informal economy choose to work illegal in order to reduce the costs of production or seek to survive and meet their own needs.

Thus, this sector can be defined as a set of units that produce goods and services in order to create jobs and generate incomes, with low level of organization, provision of goods in small sizes, no division between labor and capital and it is based on the familial or social relations rather than contracts. Besides this definition, the informal sector is considered as a sub-sector of household sector. **Consequently**, the informal businesses are defined as a subset of **incorporated businesses** owned by households that are defined as production units that are not incorporated and are not independent from the persons to whom they belong, in a way that we cannot distinguish the flows of income and capital of the business from its owners.

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<sup>1</sup> These criteria were adopted in the Fifteenth International Conference of Labour Statisticians (15<sup>th</sup> ICLS), a Resolution concerning statistics of employment in the informal sector (International Labour Organization, in January, 1993). Moreover, the objective of this conference is to help national statistical offices in developing definitions, classifications and methods of collecting data on the informal sector.

Consequently, we can summarize the criterion that the definition of the informal sector based on: legal status of the business, corporate ownership and type of accountancy. Based on these criteria, we can distinguish two types of informal businesses:

(i) Informal businesses of self-employed, which are businesses that do not respect the government regulation (such as industrial or commercial regulations, tax laws and social security, etc) and thus are not registered, with addition of their small size and the lack of complete accountancy.

(ii) Businesses of informal employers are defined based on the following criteria: the small size of the business, the non-registration of the business and the non-registration of the employees (i.e. the lack of any contracts when hiring the employees). The last criterion is crucial in identifying the informal businesses, and thus a business is an informal business if none of their employees are registered.

As to the third subarea; **household production**; can be defined as all the goods and services provided by the household members for the own final use, which consists of:

- The agricultural goods provide by households for the own final use, such as crops and breeding or livestock. (these activities are excluded from the production field)
- The services of owner-occupied housing, such rental or hired houses;
- Paid domestic services, such as self-employed (enterprises) providing services to other households.

There are many authors who tried to define the **underground economy**. This theoretical review will help us in the elaboration of the empirical model for this study. Among which:

The underground economy *includes: "all those economic activities and the income derived from them that circumvent or otherwise elude government regulation, taxation, or observation"*. (Feige, 1989)

For Smith (1994) <sup>2</sup>this sector is a "*market-based production of goods and services, whether legal or illegal, which escapes detection in the official estimates of GDP*". According to Loayza (1996), "*underground economy is unregulated by the institutions of society, in a legal and social environment in which similar activities are regulated*". As Tanzi (1999) claims that there are at least two definitions. The first, is connected to "*the production (or income) missed in the official statistics*"; the other, refers to "*...revenue not reported to, and not discovered by, the tax authorities*".

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<sup>2</sup> Smith (1994) cited in Shneider and Enste (2000).



According to Thomas (2001), the UE is: “*those activities which are not recorded in the national income accounts*”. In addition to the definition of Schneider and Enste (2000), “*all economic activities which contribute to the officially calculated (or observed) gross national product*”.

There are other definitions that emphasize the role of institutional environment in the development of the UE; where these institutions affect behaviors of economic.

Although there are many attempts to define the underground economy, there is no agreement on one common definition. Thus, a common definition is needed to be elaborated. Moreover, we can refer at the System of National Accounts (SNA93) and the European System of National Accounts (ESA95).

Consequently, the underground economy can be defined according to the SNA93, as: “*all legal market-based production of goods and services that escapes detection in the official estimates of GDP*”. These activities have legal outputs but employ illicit means and are concealed from public authorities for the following reasons (Lars Feld and Schneider, 2010; Schneider, Andreas and Montenegro, 2010):

- To avoid payment of income, value added or other taxes,
- To avoid payment of social security contributions,
- To avoid certain legal labor market standards, such as minimum wages, maximum working hours, safety standards (politicization) , etc., and
- To avoid certain administrative obligations, such as completing statistical questionnaires or other administrative forms.

The analytical framework of ESA95 and Italian National Statistical Institute (Istat) divided the underground activities into: activities that are considered underground because the businesses that exercise them are not registered, and activities that are considered underground because the businesses that exercise them are registered, but they underreport them and some of their workers are unregistered.

Thus, the underground economy is very heterogeneous and includes both legal activities; such as unreported income that would normally be reported in GDP; and illegal activities including smuggling, fraud, and money laundering, in addition to the unproductive activities; such as: small-scale commercial activities, undeclared incomes to tax authorities.

Nevertheless, there are other underground activities that are not observed (i.e. are not included in the estimations of the official national accounts), such as: **Tax evasion** which means unreported income to tax authorities; **Shuttle trade** is when entrepreneurs buy goods abroad and import them to resale them in the local markets or to small shops in order to avoid

paying import duties; **Border purchases** which means buying goods abroad because of lower taxes and import them but for the own use; **Barter** which means exchange a good or an asset for a good or an asset other than cash; and finally, **Capital flows** which means conversion of assets that are denominated in domestic currency to assets that are denominated in foreign currency but this conversion is outside the normal transactions whether in the same country or abroad.

### **Terminology:**

The literature on the non-observed economy includes a large variety of concepts referring to those activities. Some of the former phrasings are: the informal economy (ILO 2002a, 2002b), the bazaar economy, the firm-centered economy, the black market in periods of war. Besides this, we find another terms, such as: underground or shadow (Feige, 1990, Schneider and Enste, 2000,etc), hidden (Bhattacharyya and Diego Rei, 2008), parallel, second, gray, unofficial, irregular, illegitimate, subterranean, invisible, moonlighting, black, occult, elusive, not structured, unregistered, not declared, unrecorded, sector of micro enterprises, and the Non Observed Economy (NOE) as stated by the OECD (2002).

Even there are different types and parts of the NOE; each part is related to the official economy; one way or another; in addition to the differences that distinguish these two economies.

As many researchers claimed, the distinction between the official and NOE is based on the spheres of organization, technology, relations of enterprises with governments and other institutions such as banks, and the nature of product and market structure, which give rise to the dualism of the economy.

Furthermore, there were another kind of studies that focused on the legal status of the activities, where the NOE consists of activities that did not comply with the rules of law and other government regulations that hampered the economic agents to run their businesses formally. (Feige 1990; North 1990; O. Williamson, 1979)

As a result, several schools of thought interpret the relationship and interdependences between the official and the NOE, which are: the dualist, the structuralist and the legalist one.

#### **1.2.1. Costs and benefits of being part of the Non-observed economy**

After mentioning almost all the different aspects of informality, we will stress the set of determinants and causes that contribute to the raising size of the NOE; which are: economic (as

macroeconomic policies ...), political (as corruption and rent seeking...) and finally the institutional ones (concerning the governance quality) which are the novel of this research.

Hence, its determinants can be gathered in three categories (La Porta and Shleifer, 2008), as follow:

- *Costs of being formal* or entry costs in the official market, which are the resources to fulfill the required procedures to legally start a business.
- *Costs of staying formal* which consist of tax payments and government regulations (as regulation of labor market) and also corruption that increase the incentive to escape to the underground economy.

Individuals go underground because of the cost of legality. That is to say that the law has a cost like everything else, for example: the amount of time and information necessary to comply with these imposed regulations. In developing countries, the transaction costs (or the cost of law) are low; which encourage economic agents to be legal. (North, 1990)

- *Benefits of being formal* (opportunity cost of informality) which encompass access to public goods, such as: infrastructures.
- Finally; for individuals; there is another important element which is *the cost of compliance*, in terms of tax compliance, which refers to the costs that make taxpayers evaded to pay their taxes. *These costs involve keeping accounts, reporting information to the tax authorities, keeping informed about changing tax laws, hiring tax advisers, obtaining tax forms, filling them out, standing in line to make tax payments, and so on.* (Tanzi,1999)

Furthermore, the state should whether increases the benefits of being formal to promote businesses to stay legal, or reduces the transaction and monitoring costs that prevent economic agents to comply with the government regulation.

### **1.3.The behavioral options by households and firms**

All the different kinds of costs mentioned above prevent the economic agent to work legally; thus, he chooses to work in the NOE and conceal his activities, which the economist called "*the exit option*".

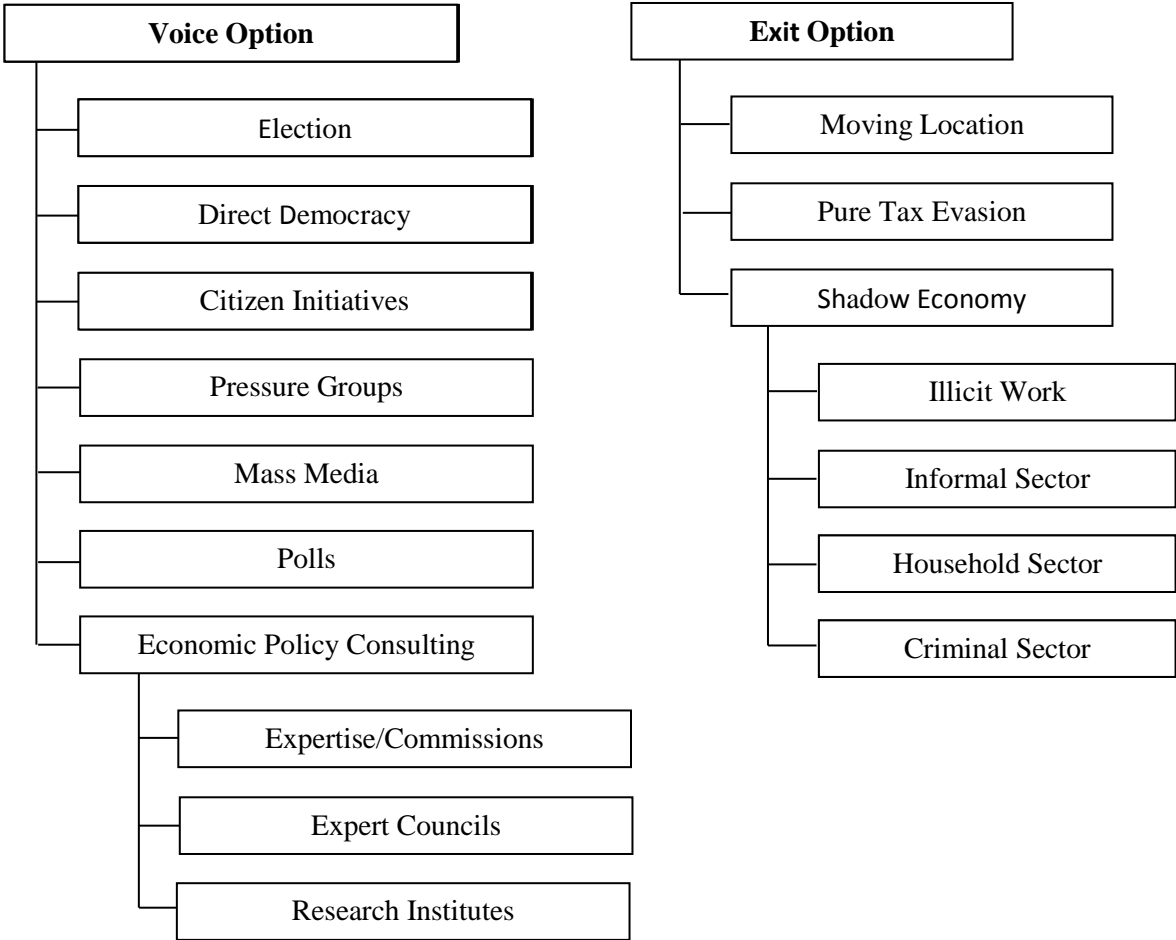
According to Hirschman, (1974), there are two behavioral options that economic agents choose to follow, whether the exit option or the voice option, which compose *the Two Pillar- Strategy*. The voice option consists of : elections, direct democracy, citizen initiatives, pressure groups, mass media, polls and economic policy consulting (such as: expertise/ commissions, expert councils and research institutes). And the exit option involves: moving location (migration), pure tax evasion and go underground.

As a result of the overburdened economic and institutional environment, economic agents choose to work illicitly or search for other alternatives. For instance, firms choose the exit option, whether to change location or go underground and tax evasion, as well as to the households who choose to migrate.

Consequently, the state has two ways to solve this issue, whether by decreasing the attractiveness of the exit option, or increasing the efficiency of the voice option. To do so, it should pursue the following procedures: the reduction of the tax rates by simplification of the tax system, adoption of reforms over the social security systems, increasing the efficiency of public administrations by effective monitoring procedures, more protection of property rights, stabilization of the society, etc.

To sum up, all these actions are gathered in an efficient economic and institutional change based on the citizen’s preferences and introducing public participation in the political process and democratic decision.

**Figure2:** the behavioral options by households and firms



**Source:** Boyan Bolev, 2003.

To sum up this section on non compliance, we should say that non compliance is widespread phenomenon in the developing and developed countries as well; and though the diversity of the non compliant behaviors in NOE, what distinguish between them in importance and magnitude is the rule and the extent of the rule being violated and circumvented.

Thus, there are several causes behind its rising size, among which the institutional settings. The next section will give an overview on the new institutional approach and its contribution in analyzing the non compliant behaviors in the NOE.

## **2. New Institutional Economics and informality**

### **2.1. Background on New Institutional Economics (NIE)**

We should mention that there are two mainstreams of institutionalism, the first are the old intuitionism as Veblen, Commons<sup>3</sup> and Michael, who are the pioneers of this approach in 1920<sup>th</sup>. The second was the new institutionalism by *R. Coase* from law, *O. Williamson* from managerial sciences and organizational theory, and *D. North* from political science, cognitive science, and history, who extended the old views to elaborate their new approach, where each one of them add some contributions to the analysis of institutions and its impact on economic behavior, allocation of resources and equilibrium outcomes.

What makes the NIE differs from the new classical approach is that this approach remove the assumptions of the standard neoclassical, such as: perfect information, rationality, stable references, zero transaction costs and equilibrium, and replace them by learning, bounded rationality and evolution with addition of other assumptions.

The emergence of the new-institutional approach was in 1970<sup>th</sup>, by Coase (1937) in his article titled “the Nature of the firm; North and Davis (1971), North (1981) “*Structure and Change in Economic History*” and “*Markets and Hierarchies*” by Williamson (1975, 1985), besides others. (see, e.g., Alchian 1965; Demsetz 1967; Claude Menard and Mary Shirley 2005; Elinor Ostrom 2009)

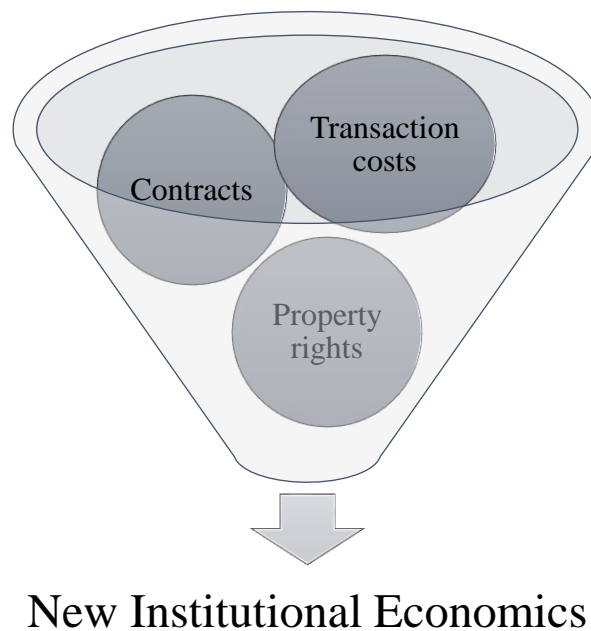
This approach arose to resolve two problems, *the first* one is related to the organization of the economic activity in firms, markets and other modes of governance which explain the process of *decision making* (i.e. make, buy and look for proper organizational arrangements and *the second* is related to the explanation of the status of the countries as poor or rich, which reflect their *economic performance*.( North, Summerhil and Weingast, 2000)

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<sup>3</sup> Commons is the first pioneer of the term “Institutional Economics” in 1931.

Hence, as response to these issues, two schools of thought emerged. *The first* school is pioneered by *Coase and Williamson*, who analyzes **property rights** and **contracts** at the firm level. Whereas *the second* one is invented by *North* who analyzes **institutional change** and **the role of the state**, which the following figure emphasize:

**Figure3:** the golden triangle in New institutional economics



**Source:** author’s construction based on: [Ménard, Claude; Shirley, Mary M. \(2005\)](#).

As we have seen there are several streams that attempted to analyze the firm and the market, among which Transaction costs theory, Property Rights theory (Alichian, 1965; H.Desmetz in 1967), Agency theory (Jensen and Meckling, 1976); and Game theory, which they form **the contractual approach**, whereas there is another approach which is **the cognitive approach**, among which, theory of competences and the evolutionary theory of organization of the firm.

## 2.2.An overview on institutions:

After given a short overview on the NIE and its main streams, we will give the definition of institutions and emphasize its influence on the economic agents’ behaviors and its impact on the rising size of the underground activities.

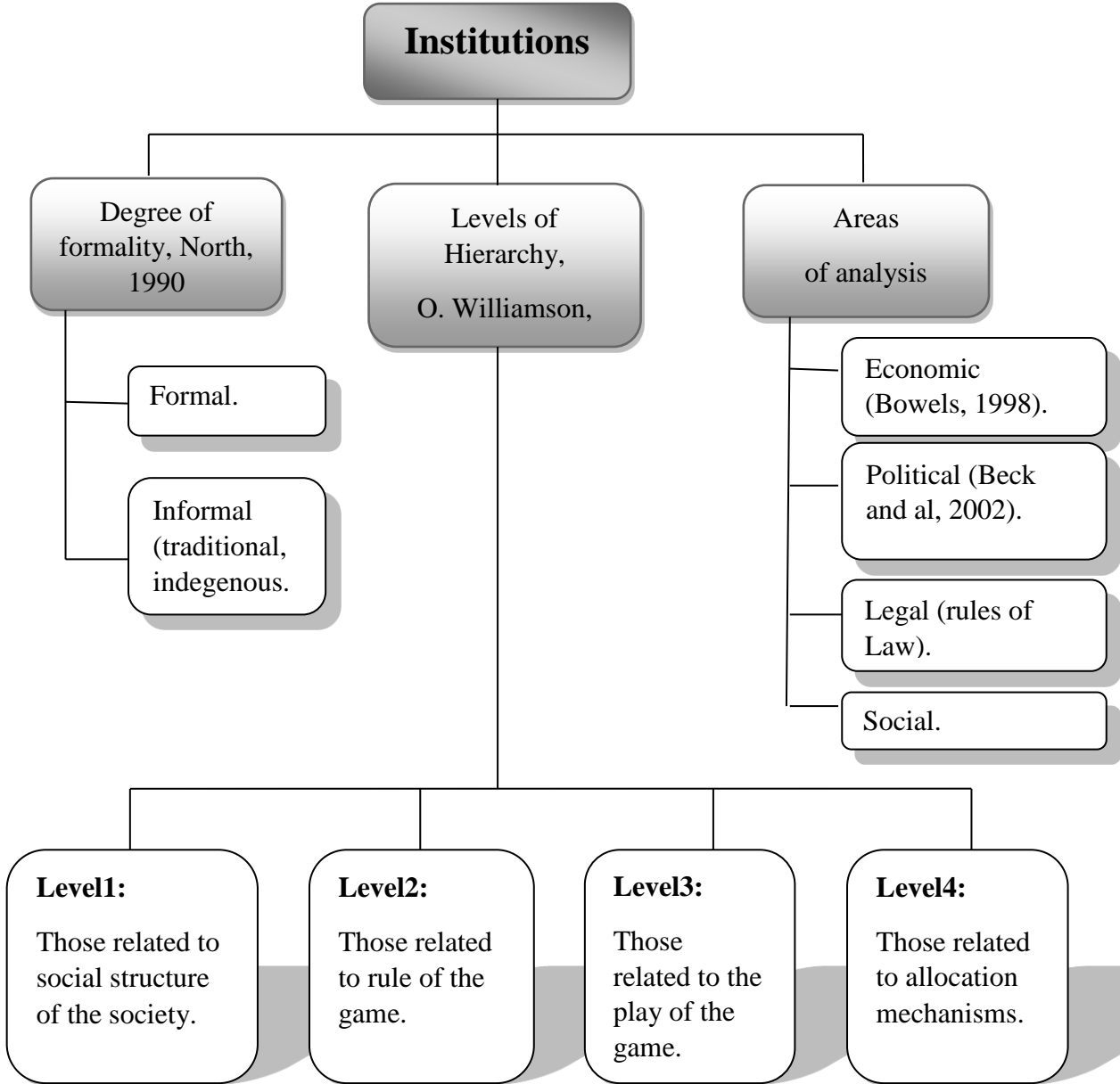
Institutions are generally defined as the “rules of the game”, or “humanly- devised constraints that shape human political and social interactions”. Since human beings live in an uncertain

world, they devise institutions to control their environment, to bring some certainty. (North, 1990)

Recent researches include in their definition of institutions: organizational entities, procedural devices, and regulatory frameworks (Williamson, 2000). Moreover, they are important for reducing transaction costs that arise while doing business and enforcing contracts, for improving information flows and enforcing property rights. (North, 1990)

There are several ways to classify institutions. In this research, institutions are gathered in three categories, which can be represented in the following diagram:

**Figure4:** the classification of institutions



**Source:** author constructions basing on Johannes Jütting, (2003).

Among the classification of institutions mentioned in the figure 4, we select the North's division, where he considered *Formal institutions* as the rules engaged in formal structures such as constitutions, political institution and property rights systems, while *Informal institutions* are largely self-enforcing through *mechanisms of obligation*, and they include: socially sanctioned norms of behavior (e.g. attitudes, customs, taboos, conventions and traditions), extensions, elaborations and modifications of formal rules outside the official framework. Besides this, *the enforcement mechanisms* of the informal institutions are:

Self-enforcement mechanisms of obligation, expectations of reciprocity, gossip, shunning, ostracism, boycotting, shaming, threats and the use of violence. (Indra Soysa and Johannes Jutting, 2007). North asserted that those institutions are rooted in the Society's structure, and thus are difficult to change over time.

Institutions are different than organizations, where institutions are the rules of the game, they consist of formal rules (statute law, common law and regulations), and informal constraints (conventions, norms of behavior and self-imposed codes of conduct) and the enforcement characteristics of both, while organizations are the players groups and individuals who have the same objectives; which are:

- Political groups: political parties, regulatory agency, etc.
- Economic groups: firms, trade unions, cooperatives, family farms, etc.
- Social groups: churches, clubs, etc.
- Educational groups: schools, college, vocational training centers, etc. (North 1992)

Concerning the two others classifications, the first one is the classification of *O. Williamson* that is based on four hierarchical levels, which are connected to each other.

**The first level** comprises all social structures of the society, such as: social norms, customs, traditions, etc.

**The second level** encompasses the rules of the game that ensure and enforce property rights.

**The third level** is related to governance or the play of the game; which aims to ensure social and economic order.

**The final level** is related to allocation mechanisms, and thus to the adjustment of prices and quantities, capital flow controls, trade flow regimes, social security systems, etc. (Dixit, 2011)

The second classification is based on the different areas of analysis (e.g. economic, political, legal and social). As to the **economic area**, it is related to the allocation mechanisms.



The **political area** includes: elections, electoral rules, type of political system, political stability, etc. And the **legal area** encompasses the type of legal system, the enforcement of property rights and legal origin, etc.

Finally, the **social area** includes social institutions, such as access to health and education, social security arrangements, etc.

### **2.2.1. Interaction between formal and informal (rules of games) institutions**

Concerning the interaction between the formal institutions and the informal ones, it found four kinds of informal institutions, as follows (Indra Soysa and Johannes Jutting, 2007):

As to the first, informal institutions are *complementary* to formal institutions, when both formal and informal institutions have the same enforcement characteristics. This means that there is interaction between social norms and rules of law; which is the optimal situation to promote economic growth.

Second, informal institutions *accommodate* formal institutions, when both formal and informal institutions diverge. This means that there is not interaction between informal and formal institutions, where each one generates different outcomes.

Third, informal institutions *compete* with formal ones that are inefficient. This is especially in countries that are characterized by no enforcement of the rules of law, because of the high costs of enforcement.

Finally, informal institutions can *substitute* inefficient formal institutions, where informal institutions generate outcomes that the formal institutions should generate. (Helmke et Levitsky, 2004)

**In developing countries**, it is found that informal institutions are complementary to formal institutions; where the government should include social norms in the elaboration of their policies.

## **3. New Institutional Economics, economic development and non compliant behavior**

As stated earlier, the new institutional approach; with its theories of property rights, contracts and governance structures; is created by rational individuals as responses to the market failures, in order to overcome the production externalities, free rider and collective action problems and imperfect information. These sources of uncertainty (e.g. uncertainty about prices, type, choices, costly information, and unforeseen contingencies) motivate the creation of institutions other than the market in order to reduce the transaction costs. For instance, in the

labor market that is similar to the market of lemons to overcome the limitations (adverse selection and moral hazard) imposed by the asymmetric information. (Akerlof, 1970)

Thus, by creating new incentives or by imposing new constraints as new ways of living; the non market institutions provide mechanisms that enable individuals to overcome social dilemmas to achieve higher level of welfare. (Harriss, Hunter and Lewis, 1996)

Furthermore, the institutional approach; in contrast to the neo classical approach; is based on incomplete information and limited mental capacity that process information that determines the transaction costs. Therefore, the transaction costs occur because information is costly and asymmetrically held by economic agents who are part of the exchange (occurred when measuring the value of exchanged goods and services, or when measuring the performance of agents, or when enforcing agreements and contracts).

Thereby, the institutional approach introduces ideas and ideologies in the analyses, besides considering the political process as the source of economic performance and in the explanation of inefficient markets.

Institutions (especially property rights) thus are created to reduce uncertainty and the costs on the transactions among economic agents, in other words, the creation of institutions that structure the rules and their enforcement in order to support cooperative solutions.

Therefore, any successful development process requires understanding the dynamics of economic change to achieve the desirable economic outcomes; where this economic change is based on the polity (i.e. state) that enforces and specifies the formal rules. (Harriss, Hunter et Lewis, 1996)

### ***Informality matter:***

Although formal institutions are important in modern life to secure economic transactions, informality (informal institutions and informal connections) is the essential and crucial element in constructing trust and supporting cooperative arrangements among economic agents in order to improve the performance of the economy. This recognition of the importance of informal settings in economic environment does not deny the necessity of formal rules because of the negative consequences of informality; such as: nepotism, favoritism, patronage, clientelism, corruption and bureaucratic practices; which pinpoint that informal connections need to be supported and need to be operate within formal structures to secure transparency, accountability and property rights basing on effective formal procedural democracy and efficient public administration. (Miszta 1999) and (Williamson 2009)

Thus, recent changes need to be based on combining impersonal and procedural rules with particularistic and local standards of the society, which in turn ensure equality without eroding individual and societal uniqueness. In another way we can say that both formal rules of political and economic system and informal connections (that link the society to a common system of relations) are used as platforms for exploring social problems and conflicts; which support cooperative and trustworthy actions outside the formal channels basing on mutual trust, respect and cultivation. Basing on this perspective, the institutional approach is used to analyze the link between reflexivity and freedom civility, intimacy and sociability (features of informality) and restrictions (aspect of formality). (Knight jack and Sened Itai 1998)

To sum up, a society that link informality and formality of interactional practices can support cooperation, cohesion (integration) and innovation among its members.

### ***Cooperation:***

Generally, cooperative links based on trust are pre-required condition for economic transactions in order to promote competitiveness among economic agents, where markets became more volatile and fragmented, rapid technological change, the non contractual element of contracts is entailed.

In the context of growing complexity, uncertainty and fragmentation of the society and the autonomy of its members; asymmetry featured by expansion of options, specialization and functional differentiation; is considered as the main cause for cooperation and compatibility problems.

Therefore, there are many approaches that try to solve these collective action problems, among which to approaches: rational choice theory. (Diego Gambetta, 1988)

### ***The state and non compliant behavior***

As it is mentioned earlier, the non compliant behaviors in the unobserved economy are distinguished one from other basing on the nature and the extent of the rule being circumvented and violated. And because the state is the one that creates the rules that govern exchange among individuals, we will emphasize the role of the state in reducing transaction costs, enforces contracts and secure property rights, which in turn affect economic outcomes such as economic performance and the productivity of the whole economy. Furthermore, without the state, its institutions, and enforcement of property rights, high transaction costs will curb production systems, and economic investment both local and foreign investors. *Although the state is a two-*

*edged sword*: "The existence of a state is essential for economic growth; the state, however, is the source of man-made decline. (Eggertsson 1990; Furubotn Richter 1997, 2010)

Economic outcomes are determined by the quality of economic institutions, which are rooted in political institutions and the distribution of resources. Good economic institutions emerge when there are constraints on power-holders, broad based property rights enforcement, and relatively few rents to be captured by elites. Economic institutions shape the incentives of key economic actors in society, determining both growth potential and the distribution of resources. Good economic institutions are defined as those which provide secure property rights and relatively equal access to resources to a broad cross-section of society, *where* the distribution of political power determines the structure of economic institutions, the allocation of resources, and the rate of economic growth, *besides that* the political power has two forms: de jure power determined by political institutions and de facto power stemming from the ability to act collectively and mobilize resources, where the distribution of de facto power is influenced by the distribution of resources in society. (Acemoglu, Simon and James, 2004)

### **3.1.Link between non-compliance and institutions (rethinking non-compliance analysis from an institutional perspective)**

There several school of thoughts that analyze the determinants of informality, **some of them** attribute the rising size of the IE to government size and its economic policies (Dessy and Pallage, 2003) and to tax burden, **while others** found that institutional quality and corruption have a major impact on economic outcomes, and thus on informal economy. (Schneider 2006), (Eric Friedman 2000), (Simon Johnson 1998) and (Torgler and Schneider (2007)

Thus, institutional design plays a crucial role in shaping the incentives to go underground, where both formal and informal institutions are important in reducing the costs of undertaking economic and social interaction between individuals and raising the level of economic growth and social welfare, where the *development of underground activities* is the consequence of the gap between public policies and the institutional environment (the so-called institutional voids), *where each part of the underground economy reflects the different violated rules.*

Aforementioned, *institutional voids* are defined as gaps between rules and the effectiveness of their implementation. They emerge when there is a divergence between economic growth and

social and economic structures, which in turn leads to over-exploitation of human and natural resources<sup>4</sup>. (Rodrigues 2013)

According to Feige (1990), who stressed that when formal and informal institutions are complement and consistent, this will promote the agents' behavior to remain formal, whereas when formal institutions conflict with informal norms, this will raise the noncompliance with the formal rules and the informal institutions will dominate, and thus, the IE will be a pervasive issue to be resolved.

The previous thoughts fit with the point of view of North and al, (2009), who found that to be developed economically requires economic organizations, enforcement of property rights and other contractual commitments. Besides, to be developed politically requires efficient rule of law and state control, where institutions; both formal and informal; generate and enforce rules of behavior (which structure incentives and constraints) and rules of procedure (means for modifying the existing rules). All of this pinpoints the need for improving the functioning of law and justice by the enforcement of contracts and the protection of property rights. Recently, North in his book "Violence and social order", mentioned that there are three social order; which are: foraging order, natural state or limited access and the open access order, where the transition from the limited to the open access order requires polity (i.e. ensure the citizens participation and more transparent institutions that structure the decision making process) and economy (i.e. creating economic institutions that reduce transaction costs and promote the performance of the economy, protection of property rights, enforcement of the rules of law, etc). (North, John et R.Barry 2009)

Therefore, economic performance relies on both the formal and informal institutions and the compliance with them, so it is important to ensure efficient formal institutions that are complementary with the informal ones, in order to enforce property rights and reduce uncertainty and transaction costs, in order to promote economic growth and technological progress. All of this will specify efficient contracts among firms and their environment, where there are *strong formal rules*, such as **rules of law and courts** to enforce those contracts to increase the citizens' attitude towards the state, and *informal rules*; such as **trust and cooperation**; that are the basis for resolving conflicts.

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<sup>4</sup> There are two types of void: structural (concerns the distance between rules and the institutional capacity for their enforcement) and contingent (arise from a combination of factors unique to given environments such as the social and economic contexts in which they are embedded).

### **3.2.The contribution of institutions in promoting economic development**

Many economists claimed that institutions (e.g. regulatory systems, contract enforcing, infrastructures, etc) are of paramount importance in explaining institutional voids in those countries, where it affects the players of the game.(Mike W Peng 2008) and (Sinha 2010)

Consequently, institutions shape the economic and social context in the emerging markets, such as the capital, product and labor markets, in addition to information, certain regulatory environment and efficient judicial systems. Otherwise, those institutional weaknesses (or voids) affect the foreign investors and make them reluctant to do business in these developing economies. (Greif Avner 2006)

Furthermore, the developing economies faced by a dilemma between their democracy and free market capitalism, where there is no-existence of market based institutions, or even worse they are underdeveloped and inefficient which in turn affect the economic environment for businesses both local and foreign ones; besides the raising amounts of red tape and corruption between the government's bureaucrats that curb the expansion of the economic transactions, which in turn undermine the entrepreneurial activity.

All this combined with the transition in a short period of time when moving toward open political and economic systems affect the quality and the quantity of the institutional quality that is important for the economic development. (Garten 1997) and (Zelner 2010)

Furthermore, although formal institutions are important in modern life to secure economic transactions, *informality* (informal institutions and informal connections) is the essential and crucial element in constructing trust and supporting cooperative arrangements among economic agents in order to improve the performance of the economy. This recognition of the importance of informal settings in economic environment does not deny the necessity of formal rules because of the negative consequences of informality; such as: nepotism, favoritism, patronage, clientelism, corruption and bureaucratic practices; which pinpoint that informal connections need to be supported and need to be operate within formal structures to secure transparency, accountability and property rights basing on effective formal procedural democracy and efficient public administration. (Miszta 1999)

Thus, *recent institutional changes* need to be based on combining impersonal and procedural rules with particularistic and local standards of the society, which in turn ensure equality without eroding individual and societal uniqueness.

In another way we can say that both formal rules of political and economic system and informal connections (that link the society to a common system of relations) are used as platforms for exploring social problems and conflicts and violence in the society; which support cooperative and trustworthy actions outside the formal channels basing on mutual trust, respect and cultivation. Basing on this perspective, the institutional approach is used to analyze the link between formality and informality and their impact on the economy.

To sum up, a society that link informality and formality of interactional practices can support cooperation, cohesion (integration) and innovation among its members. Hence, any conflict between formal and informal settings requires the adjustment of institutional structure to the requirements of the informal exchange, in order to support institutional change and thus the development process.

## **Conclusion**

As it is mentioned in this chapter, government faces two major challenges, the first one is linked to the bad governance, and the second is related to encouraging the economic growth and opportunities by promoting economic agents to be legal; which depends on the state's capacity to provide public goods.

Moreover, the large size of hidden activities reduces the state's capacity and makes it raising the tax rates for the formal agents, which in turn restricts the expansion of the formal sector and encourage more hidden activities that make the official statistics incomplete and hamper the establishment of efficient economic policies.

In other words, it is noticed that transition and developing countries have larger shares of the underground activities than developed countries, and it is obvious that this depends mostly on the quality of institutions and property rights in promoting economic agents to be formal or go underground, as they are rational.



## **Chapitre two: Empirical evidences on the the link between non-compliance and institutions**

### **Introduction**

Although, the underground economy is a controversial subject, its size should be estimated even it is difficult, because the individuals who go underground leave no trace; in the three different market.

To realize this daunting task, several empirical measures of the underground economy are undertaken, with the difference in terms of the used methodology, the used data; which leads to a variety in the estimation results. Thus, the estimation results will be used in elaborating efficient policies.

In this part, we will give a short but comprehensive overview of the used methods in estimating the size of the underground economy. Three different types of methods are used (direct, indirect and modeling), and each one is briefly discussed and criticized. Our emphasis will be on the modeling approach which is considered as the most appropriate approach for measuring the size of the Underground Economy.

## **2.1.Measurement methods of the Size of the Non-observed economy**

As it is mentioned above, there is a large literature on the used methods to measure the size of the underground economy, among which: surveys, discrepancy between macroeconomics variables, monetary approaches and the modeling approach; where each method has advantages and disadvantages.

### **2.1.1. Direct Approaches**

These are micro approaches that employ both surveys and samples based on voluntary replies, or tax auditing and other compliance methods.

The results of these approaches depend on the respondent's willingness to cooperate, which make it so difficult to assess the amount of undeclared work from a direct questionnaire, and most interviewers hesitate to confess. In addition, the results from these kinds of surveys are very sensitive to the formulation of the questionnaires, which require well designed questionnaires to get reliable data.

### **2.1.2. Indirect Approaches**

These approaches, which are also called "indicator" approaches or macroeconomic approaches, are based on various economic and other indicators that contain information about the development and the size of the underground economy. Currently there are five indicators that leave some "traces" of the shadow economy.

#### **2.1.2.1.The national accounts**

The Discrepancy between National Expenditure and Income Statistics:

This approach is based on discrepancies between income and expenditure statistics. In national accounting the income measure of GNP should be equal to the expenditure measure of GNP. Furthermore, the gap or the discrepancy between the expenditure measure and the income measure can be used as an indicator of the extent of the underground economy.

However, this discrepancy can reflect omissions and errors in the national accounts statistics as well as the shadow economy activity. Thus, this method should be carefully used.

The Discrepancy between the Official and Actual Labor Force:

As unemployment is one of the main causes of underground activities, a decline in participation of the labor force -that causes unemployment - in the official economy can be seen as an

indication of increased activity in the shadow economy (with labor force participation is assumed to be constant, in a certain period).

Nevertheless, this method has been criticized because the discrepancy in the rate of participation has other causes. For instance, many people can work in the underground economy and have a second job in the official economy (i.e. Plural-activities).

**2.1.2.2.The monetary approaches**

When using methods basing on these approaches, the authors attempted to exploit the link between the monetary aggregates (demand for currency) and the underground economy.

Moreover, the monetary approach passed through three stages and was developed by Gutmann 1977, Feige et all 1979 and Tanzi 1980, each one of them introduced the monetary factor in explaining the existence of underground economy. According to them the UE is channeled through currency in circulation basing on the assumption that the existence of the UE affects the demand for currency to settle underground transactions.

The following table describes the non-compliant behavior types in term of illegal and legal activities from the monetary point of view:

**Table 1:** types of hidden economic activities

	<b>Monetary transactions</b>		<b>Nonmonetary transactions</b>	
<b>Illegal activities</b>	Trade is stolen goods, drug dealing and manufacturing, prostitution, gambling, smuggling and fraud.		Barter, drugs, stolen goods, smuggling, etc. producing or growing drugs for own use. Theft for own use.	
	<b>Tax evasion</b>	<b>Tax avoidance</b>	<b>Tax evasion</b>	<b>Tax avoidance</b>
<b>Legal activities</b>	Unreported income, activities from self-employment, wages, salaries and assets from unreported work.	Employee discount, fringe benefits	Barter of legal services and goods	All do it yourself work and neighborly help

**Source:** Shneider and Ernste (2000).

### ***Ratio of currency to demand deposits***

The first who used the monetary approach is Gutmann in 1977. He used the currency to demand deposits to measure the size of the UE in U. States. Gutmann noticed that the ration of currency stock to demand deposits stayed stable over the period 1937- 1941. This ratio started to decrease after 1941 because most of the transactions were settled in cheques and after that, this ration increased. According to Gutmann, the increase of the ratio of currency to demand deposits is due to the emergence of the underground economy that is neglected before 1941 and thus increases the demand for currency. Furthermore, he assumed that only cash is used in the UE as a method of payment, in addition that only tax burden and government regulations are the main causes of the emergence of UE after the war, which affected the habits of payments of individuals.

Thus, Gutmann estimated the size of currency circulating in the UE using to equations, the first covers the reference period 1937-1941 where there is no UE and the second for 1976, the difference between these two measures is the extra-currency used in the UE. By assuming that the velocity of circulation of money in the UE is the same as M1 in the official economy, he estimated the size of the UE.

Many criticisms are addressed to this method, concerning the assumption that the ratio of currency to demand deposits is stable, in addition to the velocity of currency circulation in the UE that is supposed to be the same as M1 in the official economy.

### ***The Transactions Approach***

The second author that developed the monetary approach is Feige in 1979. Feige used the link between income (i.e. total nominal GNP that is equal to official GNP plus unofficial GNP) and total transactions basing on the Fisherian quantity equation. His main equation is as follows:  
$$p \cdot T = M \cdot V + M' \cdot V'$$

with  $M$  = currency notes,  $M'$  = demand deposits,  $V$  and  $V'$  their velocities,  $p$  = prices, and  $T$  = total transactions).

Moreover, Feige criticized Gutmann on his assumption that only cash is used in the UE, where he assumed that both cash and demand deposits were used to settled underground transactions. As Gutmann, he assumed that the ratio of total transactions to income remained constant; he then calculated the values of cheque transactions and of cash transactions. The measure  $p \cdot T$  is calculated by dividing the observed income to the GDP ratio to get the size of the UE, where observed income is the product of price index (of newly produced goods) and real income of the economy.

Finally, using these measures, he calculated the ratio of total value of these transactions to observed income, where he attributed the increase in this ratio to the emergence of the UE.

This method is criticized because of the choice of a reference year where there is no UE, and that all the changes in the ration of total transactions and official GDP are attributed to UE. in addition that his method required many estimations concerning the velocity of bank notes and the velocity of demand deposits.

### ***The Currency Demand Approach***

The currency demand approach was first used by Cagan (1958) who estimated the UE in the U. States, where he used tax rates (to model the incentives of individuals to go underground), interest rate and income in his equation. Mathematically, his equation is as follows:

$$C = A (1 + F)^\alpha y^\beta \exp^{-\gamma i} .$$

With:

C: currency or cash;

F: is a scale variable that reflects the incentives to go underground;

Y: is the official GDP;

I: is interest rate on savings deposits.

A,  $\alpha$ , B and  $\gamma$  are structural coefficients.

The currency demand approach was developed and refined by Tanzi (1980) who is based on Cagan's approach. Tanzi combined the previous monetary approaches (the method of ratio of currency to demand deposits and transaction method) and he estimated quantity of money held by people to settle the underground transactions by estimating the changes of the demand for currency. He used the underground transactions associated with tax evasion, and thus excluded the illegal activities (drugs and prostitution).

In contrast to Gutmann who assumed that tax burden and intensity of regulations are the solely factors that affect the size of the UE, Tanzi included other variables. Thus, he used the share of currency stocks (i.e. All bank notes and coins in public circulation) to M2 as dependent variable, and income tax rate, interest rate, inflation rate, per capita income and total wages to GDP as explanatory variables. Mathematically, his **basic regression equation for the currency demand is:**

$$C/M2 = A (1 + F)^\alpha y^\beta \exp^{-\gamma i} \text{Inf} .$$

And after introducing natural logarithms, the equation becomes:

$$\ln (C / M_2)_t = \beta_0 + \beta_1 \ln (1 + T)_t + \beta_2 \ln (WS / Y)_t + \beta_3 R_t + \beta_4 \ln (Y / N)_t + \beta_5 \text{Inf} + u_t$$

With:  $\beta_1 > 0, \beta_2 > 0, \beta_3 < 0, \beta_4 > 0, \beta_5 > 0$ : are structural coefficients.

Where:

$\ln$  denotes natural logarithms,

$C / M_2$  : is the ratio of cash holdings to M2,

T: is the scale variable that reflects the incentives to go underground; it could be either the proportion of total taxes to GDP or government expenditures (to proxy changes in the size of the underground economy),

WS / Y: is a proportion of wages and salaries in national income (to capture changing payment and money holding patterns),

R: is the interest paid on savings deposits (to capture the opportunity cost of holding cash) and;

Y / N: is the GDP per capita.

Inf: is the inflation rate;

$U_t$ : the error term.

His approach is applied in two stages, the first is estimating the currency-demand regression equation, using econometric methods, that include a scale variable related to cash transactions in the UE and the second is estimating the UE using the quantity theory of money. The first stage is based on the assumption that people use cash in their transactions to leave no traces (makes the transactions more easier and is considered as a confidence factor) and they go underground to avoid the tax burden and the intensity of government regulations, which promote more tax evasion and increase the demand for currency.

**Consequently**, the demand for cash to settle underground transactions (or the amount of irregular transactions settled in cash) is calculated as the difference between two values, one is estimating using the equation of demand for cash of the full model, and the other one is estimating using the equation by removing the determinants of UE, which means removing the incentives to go underground and thus the demand for currency is motivated only by regular transactions<sup>5</sup>.

Hence, using this difference between the two equations, the UE is then calculated using the Fisherian equation, which is using to calculate first the velocity of money in circulation as the ratio of official GDP to the stock of liquid assets M1 (i.e. currency and sight deposits) where it is assumed that the velocity of money circulation is the same in both sectors. Thus, the UE is calculated by multiplying the velocity of money by the estimated “excess demand” for cash

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<sup>5</sup> The equation of the demand for currency of Tanzi includes determinants of cash for regular transactions (wages paid in cash to GDP, interest rate on savings deposits, per capita income) and determinants of cash for underground transactions (tax burden or government expenditures).

(here Tanzi assumed that in the base year there is no transactions, which means that the UE/GDP = 0).

**Furthermore**, the measured Underground Economy is one component of the total amount of cash payments in the unobserved economy (in cash-based economy) in addition to the illegal component. In other words, the cash determinants are divided in three categories: the structural (economic development proxied by GDP per capita, education level proxied by income, the degree of spatial diffusion of banking proxied by the per capita number of current accounts, the payment technology and interest rate on current or saving deposits), underground (tax burden) and illegal (drug and prostitution offences to total number of crimes).

In order to isolate the illegal component of the unobserved economy, one should include crime indicators related to drug dealing and prostitution, and thus obtaining a precise estimate of the excess demand for cash associated with tax evasion.

*In short, the monetary approaches have been criticized as follows:*

- The assumption that there is no UE in the reference year.
- The overestimation of the UE using these monetary approaches which is due to the neglected illegal economy in the estimation.
- Most studies assume the same velocity of money in the official and underground economy, where the velocity of money in the underground economy is even more difficult to estimate, besides, it is high than the velocity of circulation in the official economy.

### **2.1.2.3. The Physical Input (Electricity Consumption) Method**

This method is based on the consumption of some standard commodity such as electricity, which is considered as a physical indicator of the economic activity. This method is first developed by Kaufmann and Kaliberda and was refined later by Lacko.

#### ***The Kaufmann – Kaliberda Method***

They used this method to measure overall economic activity in the economy, basing on the assumption that electricity consumption is used as the best physical indicator, where it is noticed that economic activity and electricity consumption have been observed to move at the same rate (electricity/GDP elasticity usually close to one).

Kaufman and Kaliberda estimated the size of the unofficial GDP by having a proxy measurement of total electricity consumption (of overall economy) and subtracting it from the estimates of official GDP. Consequently, the gap between the rate of the official GDP and the rate of total electricity consumption is contributed to the growth of the Underground economy.

However, this approach was also criticized, mostly by Lackó (1998):

-Not all the underground activities are estimated, because they require in addition to electricity other energy sources, such as: gas, oil, etc.

-Because of the technical progress, electricity is greatly used in both official and unofficial economy. Thus, we cannot contribute all the electricity consumption only to the UE.

### ***The Lackó Method***

Kaufman and Kalebirda approach was criticized and refined by Lackó (1998), who assumed that a part of the underground economy is related to the household consumption of electricity. Lackó approach is related to household economy, such as: do-it-yourself activities, and other non registered production and services.

Furthermore, she assumed that the higher the household consumption of electricity, the higher the part of the underground economy (the part that cannot be measured).

Lackó's approach (1998, p.133) are based on the following two equations:

$$\left\{ \begin{array}{l} \ln E_i = \alpha_1 \ln C_i + \alpha_2 \ln PR_i + \alpha_3 G_i + \alpha_4 Q_i + \alpha_5 H_i + u_i \quad (1) \\ \qquad \qquad \qquad \text{with } \alpha_1 > 0, \alpha_2 < 0, \alpha_3 > 0, \alpha_4 < 0, \alpha_5 > 0 \\ H_i = \beta_1 T_i + \beta_2 (S_i - T_i) + \beta_3 D_i \quad (2) \\ \qquad \qquad \qquad \text{with } \beta_1 > 0, \beta_2 < 0, \beta_3 > 0 \end{array} \right.$$

### **Where:**

$i$ : the number assigned to the country,

$E_i$ : per capita household electricity consumption in country  $i$ ,

$C_i$ : per capita real consumption of households without the consumption of electricity in country  $i$  in US dollars (at purchasing power parity),

$PR_i$ : the real price of consumption of 1 kWh of residential electricity in US dollars (at purchasing power parity),

$G_i$ : the relative frequency of months with the need of heating in houses in country  $i$ ,

$Q_i$ : the ratio of energy sources other than electricity energy to all energy sources in household energy consumption,

$H_i$ : the per capita output of the underground economy,



$T_i$ : the ratio of the sum of paid personal income, corporate profit and taxes on goods and services to GDP,

$S_i$ : the ratio of public social welfare expenditures to GDP, and

$D_i$ : the sum of dependants over 14 years and of inactive earners, both per 100 active earners.

In a cross country panel study, Lackó econometrically estimates equation (1) substituting  $H_i$  by equation (2). The econometric estimation results can then be used to establish an ordering of the countries with respect to electricity use in their respective underground economies.

However, Lackó's method was also criticized:

- There are other energy sources used in the underground economy, besides the electricity.
- Not only the household sector that include the underground activities.

### 2.1.3. The modeling approaches (the MIMIC approach)

Structural Equation Models (SEM)<sup>6</sup> are statistical relationships between latent variable (unobserved) and observed variables. The Multiple Indicators and Multiple Causes (MIMIC model) model is a special case of SEM. In this model, the latent variable is linked to two set of variables on the one hand, to observable indicators that reflect changes in the size of the SE; and to a set of observed causal variables, which are regarded as crucial determinants of the underground economy.

The advantage of this method is that it combined multiple causes and multiple indicators of the underground economy, instead of using just one indicator (i.e. tax burden) like the other methods.

The equation with the relationships between the latent variable and the causes is called the Structural Model:

$$\eta_t = \gamma'x_t + \xi_t \dots\dots\dots (1)$$

With :  $x_t = [x_{t1}, x_{t2}, \dots \dots \dots, x_{qt}]$  being a  $(q \times 1)$  vector of time series variables, each of which is a potential cause of the unobservable time series variable  $\eta_t$ ,  $\gamma'$  being a  $(1 \times q)$  vector of coefficients describing the causal relationship between  $x_t$  and  $\eta_t$ , and  $\xi_t$  being an error term.

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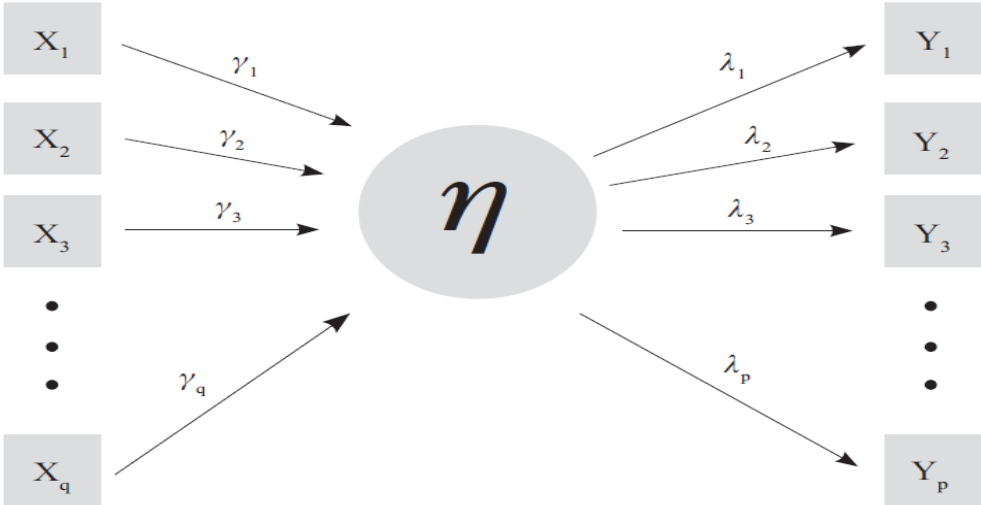
<sup>6</sup> It is also called: the « analysis of covariance structures ».

The equations system that links the indicators and the unobservable variable is the Measurement Model:

$$y_t = \lambda \eta_t + \varepsilon_t \dots\dots\dots (2)$$

With:  $Y_t = [y_{11}, y_{21}, \dots \dots, y_{pt}]'$  being a  $(p \times 1)$  vector of indicators,  $\lambda$  being a  $(p \times 1)$  vector of coefficient describing the relationship between  $\eta_t$  and  $y_t$ , and  $\varepsilon_t$  being an error term of the  $I(0)$  kind.

**Figure5:** the structure of a MIMIC q-1-p model



**Source:** author’s construction.

It is important to mention that when using the MIMIC model, the identification is a necessary condition; which states that the MIMIC model should have at least one cause with at least two indicators, in addition that we should assign a scale to the latent variable,  $\eta$ , which the econometricians called “ **normalizing procedure**”.

In order to estimate the MIMIC model we need to fix a scale variable, that’s mean fixing  $y_1$  (Useally the GDP is assigned and fix the M2) to an exogenous value, which can be +1 or -1 and alternatively  $y_2$ ).

**2.2.Empirical Review on the link between informality and Institutions**

Several researchers in the literature examine the link between institutional quality, government policies and informal economy, and thus, they link informality to a wide set of institutional

quality measures and macro-economic aggregates. The following table (2) gives a synopsis of the main works that control for these related factors that affect informality directly or indirectly:

**Table 2:** empirical evidences on informality and institutional settings

<b>Authors</b>	<b>Data and methodology</b>	<b>Used variables</b>	<b>Main findings</b>
<b>SIMON JOHNSON et al. 1998</b>	for 49 countries in Latin America, the OECD, and the former Soviet bloc.	<b>Institutional variables:</b> bureaucratic quality, rule of law index, property rights index, economic freedom, top marginal tax rate and Corruption. <b>Control variables:</b> GDP per capita.	-The unofficial economy accounts for a larger share of GDP when there is more corruption and when the rule of law is weaker. -The problem appears to be not regulation or taxation per se, but whether the state administrative system can operate without corruption. -A high level of regulatory discretion helps create the potential for corruption and drive firms into the unofficial economy.
<b>Schneider and Klinglmair (2004)</b>	110 developing, transition and OECD countries	<b>-Dependent variable:</b> official” economic growth; <b>-Independent variables:</b> openness, inflation rate, government consumption, lagged GDP per capita growth rate, total population, capital accumulation rate.	-The average size of the shadow economy (in percent of official GDP) over 1999-2000 in developing countries is 41%, in transition countries 38% and in OECD countries 18.0%. -An increasing burden of taxation and social security contributions combined with rising state regulatory activities are the driving forces for the growth and size of the shadow economy.
<b>Friedrich Schneider and Andreas Bulm 2007</b>	2002-2002, for 120 countries and a panel of 70 countries.	-Corruption, -Log GDP per capita, <b>-Measures for institutional quality</b> and regulatory burden, -Tax rates and government revenues.	-The shadow economy reduces corruption in high income countries, but increases corruption in low income countries. -The stricter regulations increase both corruption and the shadow economy.

			-The results also suggest that corruption and the shadow economy tend to be substitutes in high income countries, but complements in low income countries.
<b>Diego Rei and Manas Bhattacharya 2008</b>	N=111, developing countries	<p><b>Institutional variables:</b> labour market regulations index , index of regulatory constraints on business, index of workers’ rights, an index of women social rights, an indicator of the level of democracy in the political process, a set of World Bank governance indicators.</p> <p><b>Policy variables:</b> an index of the overall tariffs’ level and an index of freedom of trade, the ratio of total trade to GDP, the ratio of FDI to GDP, index of sound money, the top marginal income tax rate and an index of the fiscal burden.</p> <p><b>Macro-economic variables:</b> the ratio of gross fixed capital formation to GDP, the per capita GDP, the number of telephone subscribers per 1,000 people in the country, the % contribution of agriculture to GDP, the general government consumption expenditures to GDP, the percentage of gross primary education enrolment</p>	-The quality of governance has a primary role to play and the impact of strict regulation is generally overrated on shadow economy.

		and the total working population. <b>Fixed variables:</b> : a set of geographical dummies.	
<b>Adalgiso Amendola y Roberto Dell’Anno, 2010</b>	1990 to 2004, for 19 Latin American countries.	<b>Institutional variables:</b> economic Freedom Index: rule of law; labour regulation, freedom to trade international, access to sound money, top marginal tax rate, revenue from taxes on international trade as a percentage of exports and imports, transfers and subsidies to GDP. <b>- Control variables:</b> <sup>7</sup> the human development index (HDI); the logarithm of GDP, Gini’s index of income inequality (Gini); the unemployment rate .	- To reduce constrains on the labour market and improve rule of law are the most effective policies to reduce SE.  - At the contrary, fiscal policies seem ineffective to influence the size of the IE.
<b>Alm James and Abel Embaye, 2013</b>	1984-2006, for 111 OECD and non- OECD countries.	-Quality of Bureaucracy and the Rule of Law indexes. <b>Control variables:</b> Lagged value of dependent variables (C/M2), tax rates, inflation rate, <b>-Dummy variables.</b>	-The results indicate a substantial shadow economy across countries, ranging from 10 to 86 percent of GDP, with some tendency to grow over time, where it varies significantly by country income group.  -We find that the currency to M2 ratio tends to be higher the higher the economic return from underreporting activities, the weaker the enforcement capacity of the tax administration, and the higher the inflation rate.

<sup>7</sup> The control variables listed in table 1 are able to take into account further potential causes of IE and reduce potential omitted variables bias.

			-The currency ratio is also affected by per capita income, the interest rate, and the degree of urbanization.
<b>Alberto Chong and Mark Gradstein, 2004</b>	1970- 2000, for 57 industrial and developing countries.	<p><b>- Institutional variables:</b> government stability, corruption, rule of law, democratic accountability, and quality of bureaucracy quality, institutional freedom, labor regulations.</p> <p>- Inequality (proxied for Gini coefficients), and tax burden</p> <p><b>-Macroeconomic controls:</b> GDP per capita, the rate of economic growth and the rate of inflation.</p>	<p>-The results show a positive and statistically significant relationship between income inequality and the size of the informal sector.</p> <p>-Thus, Countries with poor institutional arrangements appear to have larger informal economies, especially so when income is unequally distributed.</p>
<b>Chowdhury Hedayet Ullah, 2005</b>	2004-2005 for Bangladeshi	<p><b>-The informal economy</b> measured as % of GNP;</p> <p><b>-Institutional variables:</b> voice and accountability; political instability and violence; government effectiveness; rule of law; business regulation; rigidity of employment index; corruption and irregular payments;</p> <p><b>-Other variables:</b> Minimum capital for starting any business measured as % of income per capita; marginal tax rate; gross national income (GNI) per capita (in US \$); population of the country and</p>	<p>-Bangladesh, like other developing countries, recognizes the significance of the informal sector as an expanding source of employment, given the failure of the rural and urban formal sectors to absorb more workers.</p> <p>-The study found that increased burden of taxation, combined with labor market regulation; corruption and lack of good governance are the driving forces of the informal economy. It is evident that the higher the level of informal economic activity, the lower the level of economic freedom.</p>

		government intervention in the economy.	<p>-Policy regarding informal economy should address the issues of social, macroeconomic, labor, urban regulation, and social protection, in order to improve their living and working conditions.</p> <p>-Government should also reduce the cost of doing business by making the public services work more effectively, combating corruption and reducing harassment from the usual rent seekers within and outside the government.</p>
<b>Krakowski Michael, 2005</b>	1996-2002, for 109 countries (Industrialised Countries , Asian Countries, Transition Countries, African Countries, Latin American Countries)	<p>-<b>The informal economy</b> of GNI;</p> <p>- <b>Standard of Living Indicator</b> (Gross National Product per capita (year 2000),</p> <p>- <b>Regional Dummies</b> (that express regional differences);</p> <p>-</p> <p>-<b>Institutional variables:</b> Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption;</p> <p>-<b>Other variables:</b> starting business cost, starting business duration (days), opportunity cost of starting business duration per day, taxes, cost of labour regulation, probability of detection per year, penalty in</p>	<p>- Higher inflexibility in labor regulations is associated with a larger hidden economy.</p> <p>- More efficient government reduces the rising size of the hidden economy through a better rule of law, thus increasing the advantages of working in the formal sector.</p> <p>-The variable duration of starting a business shows a significant influence on the size of the informal economy.</p> <p>- The intensity of regulations, taxes and the cost of establishing a business reveal that the intensity of labour regulations seems to be the most important factor in explaining the size of the informal economy.</p> <p>-Socio-cultural indicators are only important in explaining the size of the informal economies in Latin America.</p>

		case of detection, advantage of working in the formal sector and real interest rate.	Moreover, government efficiency is an important factor in explaining the size of the informal economy in world regressions.
<b>Krstić Gorana et al. 2013</b>	2001-2010, for Serbia and other Central and Eastern European countries (Bulgaria, the Czech Republic, Estonia, Lithuania, Latvia, Hungary, Poland, Romania, Slovenia, and Slovakia)	<p><b>-Shadow economy,</b></p> <p><b>-Institutional variables:</b> Regulatory quality index, Rule of Law, Corruption-index,</p> <p><b>-Other variables:</b> Indirect taxation revenues in percent of GDP, Direct taxation revenues in percent of GDP, Marginal income tax burden in percent, Effective average tax rate in percent, Self-employment in percent of total employment and Unemployment rate in percent, cash per capita growth, employment rate in percent and GDP per capita.</p>	<p>- The size and structure of the tax burden; efficiency of the tax administration in collecting taxes; penalty policy; complexity and fairness of the tax system and compliance costs have a great impact on the shadow economy.</p> <p>- Rigid labor market regulation (particularly hiring and firing rules, employment protection legislation) is one of the major causes of the shadow economy.</p> <p><b>-There are other institutional and economic factors affect the shadow economy, which are:</b> low productivity; economic crisis and lack of liquidity; inefficient market exit mechanism; high administrative burden on operating; poor regulatory environment and legal insecurity; construction permitting, low quality of public services; large number of small business entities; structure of the population's income; high levels of corruption; high tolerance for the shadow economy by the state; high unemployment rate and low tax morality.</p>



<p><b>Jamalmanesh, Ali and Mahdi 2014</b></p>	<p>2000-2007, for 34 countries</p>	<p>- <b>Depended Variable:</b> Shadow Economy ;  <b>-Institutional variables :</b> Rule of Law, Government Effectiveness, Property Rights, Political Stability, Fiscal Freedom, Control of Corruption, Regulation Quality, Voice and Accountability,  <b>-Growth Rate of Labor Force.</b></p>	<p>-For political indices, they find strong support that its increase (improve) leads to a smaller shadow economy.  -Schneider (2005) point out all three sets of regression show that shadow economy has a significant influence on official economic growth. This influence is positive for transition and OECD countries and negative for developing countries.  - Moreover, fiscal freedom affects negatively the shadow economy. Besides, control of corruption (CC) cause decrease in the size of the shadow economy.  Political stability and regulation quality limit the rising size of shadow economy.  -Growth Rate of Labor Force in formal economy results in decreasing the shadow economy.  -One of the democracy indications, and voice and accountability affect negatively the size of the shadow economy.</p>
<p><b>Anoop, Sonali and Adil 2012</b></p>	<p>100 countries, including Advanced countries, Emerging markets, and</p>	<p><b>Institutional variables:</b> voice and accountability, political stability and the absence of violence, government effectiveness, regulatory</p>	<p>-The size of underground economies is influenced predominantly by the quality of institutions, where better institutions are associated with a significantly lower share of the shadow economy.</p>

	Developing countries.	quality, the rule of law, and control of corruption. - <b>Control variables:</b> the top marginal income tax rate , real per capita GDP and inflation rate. - <b>Dummy variables</b> related to geographical and historical.	- Besides this, Countries with more corruption tend to have larger underground economies.
<b>Onnis and Patrizio, 2011</b>	2000-2002, for high and low income countries.	- <b>Control variables:</b> the log of per-capita GDP, the ratio of public expenditure to GDP. - <b>Institutional variables:</b> are proxies for the costs and benefits associated to formality, which are: rule of law, voice accountability, government effectiveness, political stability, absence of violence, regulatory quality and control for corruption.	-The stage of development has a negative effect on the size of the shadow economy. In addition to negative impact for indicators of institutional quality (such as measures of rule of law, government stability, democratic accountability and regulation of labour). -Public expenditure has also a negative impact on the shadow economy.
<b>Mohammad Javad Razmi, Mohammad Ali Falahi, &amp; Samane Montazeri , 2013</b>	1999-2008, for 51 OIC member Countries.	- <b>Institutional variables:</b> control of corruption , political stability and rule of law. -control variables: the growth rate of GDP per capita and Economic freedom respectively.	-There is a negative relationship between the mentioned institutional quality indicators and size of underground economy.  The results also confirm that with larger size of formal economy and more freedom of individuals and firms, the smaller size of underground economy is expected.

<p><b>Friedman Barry, 2014</b></p>	<p>2002-2007, for 149 countries</p>	<p><b>-Dependent variable:</b> informal economy,</p> <p><b>-Institutional variables:</b> Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption.</p> <p><b>-Control variables:</b> Employment rate, manufacturing sector size, net immigration rate, and GDP.</p>	<p>-Unstable current regime, low regulatory quality, and the low control of corruption were associated with larger national informal economies. Conversely, higher perceived levels of political stability, regulatory quality, and corruption control were associated with smaller informal economies.<sup>8</sup></p> <p>- Conversely, lower political stability, lower regulatory quality, and less control of corruption were associated with larger informal economies.</p>
<p><b>Ruge Marcus, 2012</b></p>	<p>For 35 OECD countries and south-eastern European transformation countries</p>	<p><b>Dependent variable:</b> shadow economy activities,</p> <p><b>-General public governance</b> includes: wealth and development level (three indicators); administrative system (fourteen indicators); and constitutional trust and values (eleven indicators).</p> <p><b>-Tax system</b> includes: tax and social security payments (seven indicators), tax complexity and surveillance (six indicators), and tax ethics (two indicators).</p>	<p>-The estimation results reveal that the most important influencing factors for the shadow economy are the quality of public governance, the general level of development, the quality of public administration, and constitutional trust and values.</p> <p>-Moreover, the higher wealth and development level, a better administrative system, lower taxes and social security payments, higher tax complexity and surveillance, and the extent of labor market regulations reduce the level of the shadow economy.</p>

<sup>8</sup> Citizens' perceptions of the general governance (e.g., public services, civil service, policy implementation, and commitment) are likely a lagging measure of several efforts to improve governance.

		<p><b>-Labor system</b> includes: labor market regulations (four indicators), unemployment (one indicator), participation rights (three indicators), and labor wages (two indicators).</p>	
<b>Bouanani and Bounoua, 2014</b>	Algeria over the period 1990 till 2011	<p><b>-Dependent variable:</b> estimate of the informal economy (basing on the MIMIC approach)</p> <p><b>- Explanatory variables:</b> set of institutional variables that include fiscal, monetary, regulatory and institutional,</p> <p><b>-Policy or macro-economic variable:</b> that reflects the stage of development: GDP per capita.</p>	<p>-The estimate of the informal economy in Algeria using the MIMIC (Multiple Indicators, Multiple Causes) approach confirmed the rising size of the informal economy, and that its main causes are: unemployment rate, inflation rate, minimum wages (labor market restrictions) and government expenditures that we used as a proxy variable of institutional measures.</p> <p>-Moreover, the size of the informal economy is due in the first place to the weak institutional framework of the business environment that contains some inadequate regulations for creating businesses, besides the labor market restrictions and inefficient and corrupt formal institutions that hinder the development of the formal economy.</p>

**Source:** author's construction.

### **Main findings:**

After highlighting the main papers that investigate the relationship between non compliance and institutional and governance quality indices in the table mentioned above, we will summarize their main findings in the following points, which will help us later in the foundation

of our research survey on the link between institutional measures and informality in Algeria through our field survey.

There are many causes that lie behind the rising size of non compliant behavior. Some authors attribute *the rising size of non compliance to the burden of direct and indirect taxation, the burden of regulation as proxy for all other state activities, and to the tax morality*<sup>9</sup>. While other authors attribute it *to the institutional and governance quality indexes; which are of paramount importance in the economic and political analysis.*

*There are two points of view concerning the impact of tax burden on non compliance.* The first one did not contribute informal economy to tax burden, because high tax rates increase the government revenues, and thus, improve the quality of public goods and services, including an efficient legal system, which encourage individuals to remain formal. The second point of view considers the tax burden as the main driver of informality, because of the onerous tax rates and administration. (Eric Friedman 2000), (Schneider 2006), (Bhattacharya 2008) and (Anoop Singh 2012)

In general, all the factors that are related to the design of the tax system and the institutional environment for its payment, collection, and administration, efficiency of the tax administration in collecting taxes; penalty policy; complexity and fairness of the tax system; and compliance costs have the most significant impact on the extent of the shadow economy. (Krstić, et al. 2013)

Tax evasion literature usually identifies two groups of factors that affect an enterprise's (or entrepreneur's) decision to participate in the shadow economy (SE). *The first group of factors* relates to the model of the rational choice to engage in tax evasion, where the second *group of factors* –attitudes and social norms. In tax evasion literature, these factors include the perception of the fairness of the tax system – the attitudes on the equity of the tax burden and procedures. (Krstić, et al. 2013)

Moreover, *high tolerance for the shadow economy by the government*, where many forms of the shadow economy are visible and could be tackled, affect the quality of the tax system that is a burden only on the economic agents in the official sector. However, this governmental tolerance hides behind it another kind of social support of the government to

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<sup>9</sup> Tax morality means the citizens' attitudes toward the state.

The social welfare for the unemployed and low income groups of the society. (Lautier 2004) Furthermore, in assessing the regulatory burden we should bear in mind the fact that it is not just the burden that matters (in terms of money and time spent on compliance, etc.) – it is, also the quality of the regulatory environment that is important, where the regulatory environment is poor, and the regulatory burden is greater, economic agents will tend to shift at least part of their activities into the shadow economy, which in turn affect the economic and social interactions among economic agents in the formal sector. Enste (2010)

As to the **measures of institutional quality**: it is agreed that political, economic and social institutions are the main drivers of the rising size of informal activities.

Strict *labor market regulations* increase the size of informal employment, even if these hiring and firing regulations are created to protect workers, but are onerous and thus, they encourage firms to hide some there workers underground. Hence, higher inflexibility in labor regulations (i.e. the labor rigidities) is positively associated with a larger shadow economy. (Anoop Singh 2012), (Krakowski 2005) and (Chong 2004)

According to Tanzi, 1999, *the unemployment rate* is weakly related to the SE, because of the heterogeneity of the labor force in the SE, where a part of this labor force include official unemployed individuals, another part include informal workers consists of retirees, minors, and homemakers, besides of those individuals who have both official and informal jobs.

Besides this, variables as *rule of law*, including strong property rights, *democratic accountability and political or government stability* affect negatively the shadow economy. (Onnis 2011), (Mohammad Javad Razmi 2013) and (Eric Friedman 2000)

Concerning, the *index for government effectiveness*, it has a strongly significant influence on the SE, where more efficient government reduces the relative size of the informal activities through better rule of law, thus increasing the advantages of working in the formal sector. (Krakowski 2005)

Coming to the role of *control of corruption*<sup>10</sup> or of the *quality of public administration*, it has a big impact on the SE, where the best quality public administrations reduce the size of this economy. (SIMON JOHNSON 1998), (DeSoto 1990) and (Olken 2006) (Schneider 2006)

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<sup>10</sup> The three most popular of these indices are the corruption perception index constructed by Transparency International (the TI index); the corruption index from the International Country Risk Guide (the ICRG index); and the control of corruption index (the WB index) from the World Bank, Kaufmann et al., 2005.

Also, it is found that corruption and SE are substitutes *in high-income countries*, where corruption and the shadow economy are significantly smaller with better rule of law, greater government effectiveness, more judicial independence, impartial courts, and higher integrity of the legal system. (Schneider 2006), (Mohammad Javad Razmi 2013)

*In low-income countries*, corruption and SE are complements, where corruption is needed to remain informal and to avoid the detection of tax authorities. This is occur when corruption is a pervasive phenomenon in addition to the lacks of transparency and accountability, and thus, paying taxes cannot be accepted as a social norm, which undermine the willingness of citizens to pay taxes. (Hindriks et al. 1999), (Johnson et al. 1997)

Generally, in countries with good governance, the effect of corruption on growth is negative, while in countries with poor governance, the effect is positive. (Aidt 2009)

As regards to the impact of **state economic policies** on the non-observed economy:

It is found that the size of the government helps to reduce informality, where *government consumption, trade* (as percentage of GDP) and the *level of FDI* influence positively informality, where the stronger trade freedom or openness of the economy, the higher the size of the SE. (Dell'Anno 2010), (Bhattacharya 2008) and (Onnis 2011)

Furthermore, the *money index* affects positively the SE, where the inflation rate is among the main determinants because it increases the lack of trust in the government policy and the tax burden. (Chong 2004), (Dell'Anno 2010)and (Alm James et Abel Embaye 2013)

In addition to that, the GDP per capita and economic growth affects negatively the size of the SE. (Chong 2004), (Onnis 2011) and (Mohammad Javad Razmi 2013)

Moreover, the variable for *duration of starting a business* shows a significant influence on the size of the informal economy, in addition to *higher barriers to trade* that increase corruption and thus, increase the SE, because when economic agents face more severe restrictions, they engage in bribery and corrupted activities to pursue their business. (Schneider 2006) and (Krakowski 2005)

The overall development level of a country, the quality of public governance and the administrative system are the most important factors and should be the focus of the state's politics. *The best state is not necessarily the one with the lowest taxes, but the one with the best system of public governance.* The focus of the state thus should be on the quality of public governance like administrative systems and constitutional trust. (RUGE 2012)

*In sum*, a causal link is running from weak and poor institutional quality indices towards the SE, because burdensome government regulations and high level of corruption promote economic agents to go underground, which decrease the tax revenues, and thus, affect the quality of public administrations and lead to more non-compliant behaviors, forming a vicious circle.

Hence, large shadow economy may describe a situation where comparative costs for not complying with overall regulation are small, and governments cannot increase rates in the formal sector without increasing the informal sector substantially, where those governments need to search for the main reasons of non-compliance basing on a country-specific analysis; in order to limit the extension of the informal activities. (Krakowski 2005)

**For Algeria**, we have shown that although the several researches that attempt to estimate the size of the underground economy; using the direct approaches, they just led to an approximation of this phenomenon, because of the lack of data and the costs spent in elaborating such questioning and surveys techniques and the heterogeneity of the hidden activities.

According to our study on the informal economy in Algeria using the MIMIC approach, that reveals that labor market restrictions, tax burden and rule of law are the main drivers of the rising size of informal activities, in addition to the inefficient social and economic policies that reflects the state tolerance of informality as a result of its incapacity to create jobs and provide social services.

There are other institutional quality measures that affect informality but are not significant because of the small sample size of our econometric study or the existence of other variables that are not included in the model.

Furthermore, when using the Tanzi's monetary approach (the currency demand approach), we have confirmed that inflation rate and GDP per capita the main factors that influence the demand for currency to settle transactions in the informal economy; which confirm that the increase of inflation rate and decrease in GDP per capita will increase the cash holding to settle hidden transactions. (Bouanani and Bounoua, 2014)

In general, economic agents will make decisions, in large part, basing on their assessment of the government quality and effectiveness. If they have less trust in their



governments<sup>11</sup>, they will engage in the informal economy; where they choose to avoid interacting with the government (e.g., paying taxes, complying with regulations) if they expect to be treated unfairly. (Friedman Barry, 2014)

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<sup>11</sup>This trust should be supported with political stability, regulatory quality, implementation of sound policies and regulations that promote private sector and entrepreneurial activity and better control of corruption and bureaucracy.

## **Conclusion**

As it is mentioned in this chapter, government faces two major challenges, the first one is linked to the bad governance, and the second is related to encouraging the economic growth and opportunities by promoting economic agents to be legal; which depends on the state's capacity to provide public goods.

Moreover, the large size of hidden activities reduces the state's capacity and makes it raising the tax rates for the formal agents, which in turn restricts the expansion of the formal sector and encourage more hidden activities that make the official statistics incomplete and hamper the establishment of efficient economic policies.

In other words, it is noticed that transition and developing countries have larger shares of the underground activities than developed countries, and it is obvious that this depends mostly on the quality of institutions and property rights in promoting economic agents to be formal or go underground, as they are rational.

# **CHAPITRE THREE: Field survey on the institutional quality and the non compliance in Algeria (data presentation, analyses, interpretation and disscussuion)**

Introduction

## **3.4. A brief literature review on the non-observed economy in Algeria**

3.1.1. The interpretation of this phenomenon

3.1.2. Empirical evidences on the non compliance in Algeria (the objectives (production, labor, consumption, etc), the used methods (questioning and surveys on households and private sector, women and gender and modeling approach) and synthesis);

## **3.5. Institutional framework in Algeria (global overview on the institutional quality and their impact on non-compliance)**

3.5.1. Local institutional overview of Algeria's institutional status

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3.5.3. The Worldwide Governance Indicators (Aggregate Governance Indicators),

3.5.4. Ibrahim index of African governance (IIAG);

3.5.5. Fraser Institute on economic freedom index;

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## **3.6. Field survey on institutional quality and the non compliance in Algeria**

3.3.1. The research survey and data collection

3.3.2. Sample of the research and data description

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3.4.3.1. The PLS –SEM methodology

3.4.3.2. The PLS path model assessment

3.4.3.3. The PLS regression results.

## **3.5. Discussion of the institutional framework in Algeria**

Conclusion

## **Introduction**

Non-compliance is a social and economic phenomenon that one cannot ignore; especially with its effects on the official economy. Consequently, policy makers and academicians have made concerted efforts to estimate its size, and to determine its main causes.

However, there is a consensus among the policy makers that a better macroeconomic policy elaboration and its true implementation are subject to the proper management of the associated issues of underground economy with suitable policy measures. (Ahmed Gulzar, Novaira Junaid, 2010)

In this section we will attempt to measure the size of the underground economy in Algeria, and analyze its main causes and its effects on economic outcomes. First of all, we will present a brief literature on the Algerian underground economy. After that, we will present an overview of some empirical evidences that have attempted to estimate its size, concluding that there are some shortages concerning the estimation of the informal economy using the modeling approach.

Thus, in order to analyze the link between governance and the institutional quality indices and the size of the non compliance in Algeria, we run a field survey in the economic sector based on the economic enterprises in different regions of the west of Algeria. Analysis and results of this field survey will be further discussed.

### 3.1.A brief literature review on the underground economy in Algeria

There are many phenomena that are shown in Algeria, among which we notice a significant scope of unrecorded economic activities. Its rising size has been discussed because of the causes, effects and problems that these activities have generated, such as unemployment and financing problems of public expenditures.

In a nutshell, the underground economy in Algeria passed by many periods; in which every period has its specific characteristics.

**First**, till the 1987, the Algerian economy was state-led economy (**providence state**) where the state was fixed almost everything; such as: the prices, interest rates, exchange rate and even wages. Moreover, the Algerian economy was characterized by a quasi-monopoly of the economic activities by the state, lack in supply in the public market that is filled by goods and services from the underground activities on low prices.

During the 1960s to early 1970s, tax policy in the country was aimed at maximizing revenues to finance public sector programs in order to meet the accelerated economic growth and development programs of the government. The excessive interference from the state in the economy and the overvalued currency in the official foreign exchange market (which give rise to speculation on public exchange rate where people used the differences between the public and parallel exchange rate to make profits) led to favorable conditions for the rapid growth of rent seeking activities and the institutionalization of the underground economy.

**Secondly**, beginning from mid-1986, the world oil market began to collapse due to the oil's over-abundance and the fall of oil prices, and thus, the Algerian economy has witnessed terrible economic crisis during the 1980s, which caused a widespread increase in the underground activities by individuals in order to survive and meet their own needs.

Moreover, in response to the economic crisis at the time, the government changed from a state-led to market economy. Consequently, the state has changed its role and its nature (**nation or regulatory state**) and could not provide employment opportunities and social services as it did during the oil boom era. This situation, combined with the effects of some public policies led to high unemployment in the economy.

In particular, the adoption of the Structural Adjusted Program (SAP) in 1994, affected the performance of most sectors of the economy, thus forcing most sectors like the industrial sector to downsize. On the other hand, there are no solid institutions to enforce the private sector (the privatization program) coupled with the rationalization of the workforce by various levels of government, to absorb those unemployed people. Besides this, the massive participation of graduates from the tertiary institutions, without corresponding expansion in jobs, has left many of these graduates unemployed.

As a result, most individuals work in the underground economy in order to meet their own needs; because of the unemployment crisis in the official economy; they didn't find a job, or because their revenues didn't satisfy their needs, so they choose this alternative lifestyle. Also, firms or micro-enterprises work illegally in order to reduce the cost of being formal.

**In response to** the lack of employment opportunities within the formal sector, the underground economy absorbs the "excess labor force". Individuals in this sector mainly engage in activities that are generally small –scale, relying on indigenous resources and skills acquired through informal means and operate outside the administrated market.

Employment opportunities in this sector ranges from street vending, petty trading, food vending, artisan and craft workers, transport, personal services, security services, import-export activities and crime to small-scale businesses.

Furthermore, in these last decades, the underground activities are grown because of the corrupted and inefficient public authorities, coupled with tax burden and excessive government regulations that make economic agent choose not to comply for many reasons both economic and social, and thus lead to more tax evasion and circumvention of public rules.

**To sum up**, given the fact that a great proportion of economic activities in Algeria are underground, this cannot be just interpreted as the result of the weakness of the state. This gives rise to the following issue: why the state does not impose the missing link with the underground economy and try to integrate it, either the internal organization of economic activities (e.g. regulations of labor), the visibility of these hidden activities (e.g. registration in the public authorities) or the contribution to social expenditures (e.g. paying taxes and social security contributions).

There are two possible interpretations of this confusing situation. **For the first**, the insufficient capacity of the state monitoring in terms of number and quality of their administration officials, because it is a costly procedure, in addition to the non existence of stable rules of law. Moreover, it is found that the lack of weak control of the state authorities is the effect of the existence of the UE rather than its cause. (Lautier, 2004)

The state tolerance of illegality is the result of its incapacity to take more active role in creating jobs and social services. Thus, the state did not allow the existence of hidden activities only, but it allows also for the existence of parallel police as well as parallel justice.

On the other hand, this incapacity to control hides more evidences, **whether** its incapacity to pay the administration officials, and thus the obligation to tolerate the activities that operate for their own profits, **or** its incapacity to impose the deductions for tax on certain activities.

**Secondly**, it is because of the burden of the government regulations (tax burden and social security contributions), especially in developing countries, such as Algeria; that did not engage in capitalism correctly, where the established institutions prevent initiatives to be legal and run legal firms. Some regulations are not elaborate for the informal agents, and thus; according to them; any attempt to repress them is illegitimate. According to De Soto (1989), the rigidity and burden of those regulations lead to a revolution and chaos in order to engage in the other path, the so-called: the luminous path.

Thus, law is necessary for the functioning of the economy, but what is needed is another kind of law. Under the name deregulation, the law needs to be minimized; which means simplify the government regulations, the reduction of the tax rates and especially extract and dissociate corruption from the law; to promote informal agents to be formal.

### **3.1.1. The interpretation of this phenomenon**

There are many interpretations of the underground economy, in which every author has interpreted this phenomenon using his point of view. Generally, there are four interpretation of this phenomenon in Algeria (Bellache, 2010), as follows:

**The first** deals with the phenomenon as "petty commodity production" (PPM) which focuses on the development of small-scale activities and different forms of employment (caregivers, apprentices, work at home and multiple activities).

**The second** focuses on the "parallel economy" in the period of state-led economy, where is includes parallel activities resulting from the inefficiency of the public regulations, such as: production in black market, distribution and import-export, foreign exchange. (Henni, 1991)

**The third** extended the underground economy to include illegal activities particularly in the period of the transition to market economy, where the legalist approach is introduced to understand the behaviors of illegal economic agents who seek to maximize their profit by the circumvention of the government regulations. (Bounoua, 1999, 2002b)

**The latter** presents the approach of the OECD, 2002, in terms of the Non Observed Economy (NOE), which is the adopted interpretation in this research. Where the NOE includes four elements: illegal, underground, informal and household sectors, as it is demonstrated in details in the first chapter.

### 3.1.2. Empirical evidences on the non compliance in Algeria

We can classify the different researches on the informal economy in Algeria by adopting a classical approach, which consists of arranging them according to the direct and indirect approaches. We have observed that the majority of these researches have privileged questioning and surveys methods, and they have marginalized the quantitative approaches, such as MIMIC model.

And they can be divided in many categories according to: their objectives (production, labor, consumption, etc), the used methods (questioning and surveys on households and private sector, women and gender and modeling approach) and synthesis<sup>12</sup>.

- ***According to their objectives:***

Among the various researches on the Algerian NOE, there are some surveys on the production, on finance (Adair P, 2002b), on labor or workforce (KEKOUL. M. 1989, Musette M S, Hamouda, 2002 and ISLI M A, 2003, Bellache Y et Adair P, 2012) and on consumption and the multi-criterion approaches (e.g. social security, size of business, the establishment status, form of recording (trade register or communal authority), the mode of taxation (tax payment and legal sector), etc.

- ***The used methods:***

Questioning and surveys method:

Besides, there are others whom used several estimation methods, such as: the questioning and surveys on households and businesses (**by business**, as micro-enterprise survey covering three branches: mechanical, textile and restoration from 1990 to 1992, **by sex and by sector**, and private sector (Adair P et Bellache Y., 2008b (80), Bellache, 2010, ONS, 2007, 2008 and 2009, Bouzidi M., 1985 , Hamed Y., 2002, Ecotechnics., 1998, Kelkoul M., 1998 (the applied criteria are: administrative recording, fiscal recording, mode of taxation, the place of exercising

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<sup>12</sup> For all the papers on the underground economy in Algeria that are not mentioned in the bibliography because of the lack of access, are cited in Adair Philippe, 2002b.



activity, statement to the social security), Musette M S et Hamouda N E., 2002), surveys on household sector (Attar Abd Elhafid, 2010, Fatma Boufenik, 2010, on women (Lakjaa. A, 1996, Musette-Belhouari D., 2006), and gender approach (Fatma Boufenik, 2010).

- **Researches based on the indirect approaches:**

Moreover, there are another kinds of researches that are based on quantitative methods, such as: logistic model (Philippe ADAIR et al, 2012), national accounts (Zidouni H., 2002, 2003), and MIMIC model (Bouanani and Bounoua, 2014).

- **Synthesizable approach:**

The researches based on synthesis about the NOE, whether definition or characteristics, etc. (Prenant A., 2002, Adair P., 1985, Bounoua C., 1992, 1995, 1998, 1999, 2002a, b, Adair P et Bounoua C., 2003, Benissad H., 1984, 1993a, Boufnik F et Elaidi A., 2002, Henni, 1988, 1989, 1990, 1991, Cherif Aissat, 2012, Prenant A.2002).

*Because of the lack of data and the costs spent in elaborating such questioning and surveys techniques and the heterogeneity of the activities of this sector, all these researches have argued that it is very difficult to estimate the size of the underground economy; this is why we need more researches in this field.*

Besides, the UE estimates are never very stable and absolute, and there is always space for questions, discussion and critiques, (Dell'Anno and Schneider, 2003):

*They stated that: "All the specialists in this field of estimating the shadow economy know quite well, estimating SE is an exercise that does not allow applying well-defined methods and common accepted assumptions. That said it is quite understandable why there are so much replications, and criticisms of the various econometric methods to estimate SE".*

- **Modeling approaches:**

There are few works on estimating the size of the underground economy in Algeria using the modeling approaches. In the study of Bouanani and Bounoua, 2014, we found that the size of the informal economy is due in the first place to the weak institutional framework of the business environment that contains some inadequate regulations for creating businesses, besides the labor market restrictions and inefficient and corrupt formal institutions that hinder the development of the formal economy.

This is why we will estimate the underground's economy in Algeria using a field survey in the economic sector in order to construct our study institutional measures. Thus, the next sections will be devoted to this purpose.

### **3.2. Institutional framework in Algeria**

#### **3.2.1. Local institutional overview on Algeria institutional status**

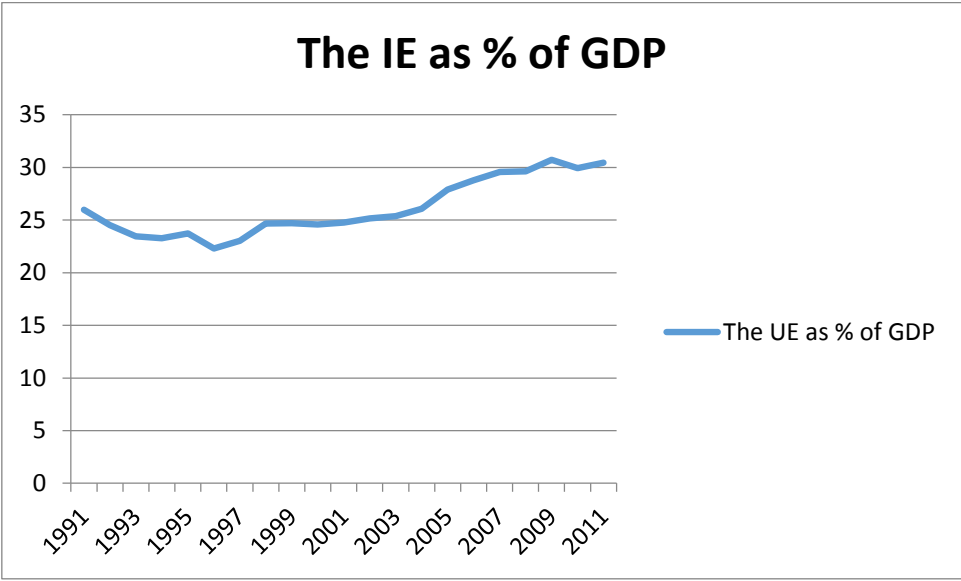
Algeria as many developing countries has suffered from the rising size of the informal economy over a long period of time. Thus, several researchers attempted to estimate and interpret the reasons behind the existence of these kind of activities, where some considered it as “petty commodity production” which focuses on the development of small-scale activities and different forms of employment (caregivers, apprentices, work at home and multiple activities). Others called it as "parallel economy" in the period of state-led economy, where it includes parallel activities resulting from the inefficiency of the public regulations, such as: production in black market, distribution and import-export, foreign exchange. (Henni, 1991)

Others extended the informal economy to include illegal activities particularly in the period of the transition to market economy, where the legalist approach is introduced to understand the behaviors of illegal economic agents who seek to maximize their profit by the circumvention of the government regulations. (Henni, 1991, Bounoua, 1999, 2002b)

Even each one of them has a different interpretation of the underground economy; all of them agreed that it kept raising especially in these last decades, and this is due to the weak institutional framework and inefficient economic and social policies of the government especially after *the transition towards the market economy*, where good institutions are of paramount importance in protecting property rights, insure economic performance and cooperation among the society's citizens.

Moreover, our estimate of the underground economy in Algeria using the MIMIC (Multiple Indicators, Multiple Causes) approach confirmed the rising size of the informal economy, and that its main causes are: unemployment rate, inflation rate, minimum wages (labor market restrictions) and government expenditures that we used as a proxy variable of institutional measures. The following graph exhibits the size of the underground economy as percentage of real GDP:

**Figure 6:** the size of the IE as % of real GDP



**Source:** Bouanani and Bounoua, 2014.

We can see from the graph above that the size of the informal economy follow an upward and downward trends during the sample period 1990 - 2011, starting from 26% of real GDP in 1991 till 30% of real GDP in the year 2011.

The downward trend of the informal economy (i.e. from 1991 to 2004) is due to the rising size of the tax burden and unemployment rate in this period that force the individuals to go underground in order to improve living standards and reduce poverty, besides the falling of the GDP per capita and the crude oil prices that aggravate the economic and social situations of the Algerian economy.

We believe that the rising size of the informal economy is due in the first place to the weak institutional framework of the business environment that contains some inadequate regulations for creating businesses whether the procedures, time or costs. Algeria rank is 156, in particular: Starting a Business (142), Dealing with Construction Permits (77), Getting Electricity (118), Registering Property (162), Getting Credit (175), Protecting Investors (173), Paying Taxes (155), Trading Across Borders (178), Enforcing Contracts (102) and Resolving Insolvency (74). (*World Bank, Doing Business 2017*)

In this perspective, we can see that starting a business in Algeria is a lengthy, bureaucratic and difficult process to engage in, which promote economic agents to go underground. According to the *economic freedom's indices*, property rights and freedom from corruption in Algeria is about 30 and 28.7 respectively; which reflects the rule of law or courts are slow, and thus, the

enforcement of legislation, trademarks, patents and protection of property rights are inconsistent because of the corruption and rent-seeking activities of bureaucrats.

As to fiscal freedom and government spending are about 80.5 and 51 respectively; which reflects that the government spending kept rising about 43.1 percent of GDP and also the tax burden is about 10.4 percent of total domestic income.

As to the regulatory efficiency, business freedom, labor freedom and monetary freedom amount to 66.3, 48.3 and 67.8 respectively; which reflects that the labor market regulations remain rigid and thus contribute to the high level of unemployment. (World Bank, Doing Business 2017)

Before moving forward, we will give a global overview on the institutional quality in Algeria by some international institutes in order to help us better understand the institutional framework in Algeria, and we will demonstrate their method in assessing the institutional quality measures; which in turn will help us in the construction of our study institutional indices to explain the underground economy mechanisms in Algeria.

### **3.2.2. Global overview on the institutional quality and their impact on non- compliance**

As policymakers and researchers focus more on the question of the impact of governance in economic development where there are institutional prerequisites of economic growth, they have required measures of the quality of governance to set policy and to conduct analyses. (North and Thomas, 1996)

A number of measures of the quality of governance have been created. Among these are the following international institutes' measures:

- The Worldwide Governance Indicators (Aggregate Governance Indicators 1996-2016),
- Ibrahim index of African governance (IIAG) (from 2006 to 2015);
- Heritage foundation on the index of economic freedom (from 1995 to 2018);
- Transparency international on corruption perception index (from 1995 to 2017);
- Fraser Institute on economic freedom index (from 1970 to 2009);
- The Global Competitiveness Index from 1971 to 2016.

#### **3.2.2.1. The Worldwide Governance Indicators (WGI)**

The World Bank provides a set of governance and institutional settings for a wide range of developing and developed countries alike.

The Worldwide Governance Indicators cover over 200 countries and territories, measuring six dimensions of governance; which are: voice and accountability, political stability and absence

of violence/ terrorism, government effectiveness, regulatory quality, rule of law and control of corruption. The aggregate indicators are based on several hundred individual underlying variables taken from a wide variety of existing data sources. The data reflect the views of governance of survey respondents and public, private and NGO sector experts in industrial and developing countries, besides think tanks, non-governmental organizations, international organizations, and private sector firms.

Among the different definitions of governance between the broad and the narrow one, governance can be defined as the traditions and institutions by which authority in a country is exercised. This includes: (i) the process by which governments are selected, monitored and replaced, (ii) the capacity of the governments to effectively formulate and implement sound policies, and (iii) the respect of citizens and the state for the institutions that govern economic and social interactions among them.

Others more narrowly focus on public sector management issues, including the definition proposed by the World Bank in 1992 as “*the manner in which power is exercised in the management of a country's economic and social resources for development*”. In specific areas of governance such as the rule of law, there are extensive debates among scholars over “thin” versus “thick” definitions, where the former focus narrowly on whether existing rules and laws are enforced, while the latter emphasizes or the justice of the content of the laws.

We construct two measures of governance corresponding to each of these three areas, resulting in a total of six dimensions of governance (six clusters of governance):

*(i) The process by which governments are selected, monitored, and replaced:*

☞ **Voice and Accountability (VA)**

capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

☞ **Political Stability and Absence of Violence/Terrorism (PV)**

capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism.

*(ii) The capacity of the government to effectively formulate and implement sound policies:*

☞ **Government Effectiveness (GE)**

capturing perceptions of the quality of public services, the quality of civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation and the credibility of the government's commitment to such policies.

#### ☞ **Regulatory Quality (RQ)**

Capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

(iii) *The respect of citizens and the state for the institutions that govern economic and social interactions among them:*

#### ☞ **Rule of Law (RL)**

Capturing perceptions of the extent to which agents have confidence in and abide by the rule of society, and in particular the quality of contract enforcement, property rights, the police, the courts, as well as the likelihood of crime and violence.

#### ☞ **Control of Corruption (CC)**

Capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

### **Constructing the Aggregate WGI Measures**

For each of the above clusters, a statistical methodology known as Unobserved Components Model (UCM)<sup>13</sup> is used in order to gather and combine the many individual sources from different international organizations into six aggregate governance indicators corresponding to the six dimensions of governance mentioned above.

By using this model, the authors aim to first standardize the data from the different data sources into comparable units, then construct an aggregate indicator of governance as a weighted average of the source variables and finally construct margins of error that reflect the unavoidable imprecision in measuring governance, besides each of the individual data sources *provides imperfect signal of the notion of governance* that is difficult to observe directly; which means that *there is a signal extraction problem* how to isolate informative signal about the unobserved governance component common to each individual data source and how to *combine these many data sources to get the best possible signal* of governance in a country.

Moreover, there are small changes from year to year in the data sources on which the WGI is based, where they introduce new data sources as they become available and if necessary

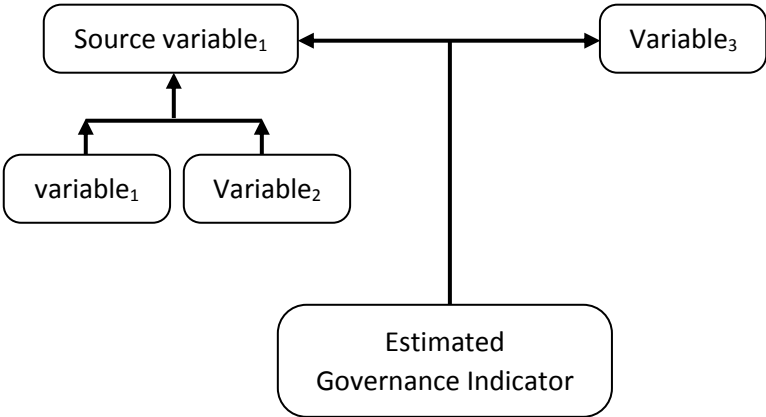
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<sup>13</sup> For more details on the UCM model, check the article of Kaufmann et al, "Governance Matters" 1996-2008.

remove existing sources that stop publication. So one should be aware that each annual update of the WGI previous years' version of the data for the entire time period covered by the indicators, and not to compare directly the scores from different individual sources for a single country as these are not comparable.

**Method of the Construction of the WGI Indicators**

The aggregate WGI indicators are the results of three levels of aggregation of underlying variables; which the following figure illustrates: Kaufmann et al (1999a), Arndt and Oman (2006).



**Figure 7:** Model of governance underlying the WGI. Variables produced by the same data source (here, variables 1 and 2) are averaged to produce a source

Some of the used variables in this model are responses to survey questions or to questions asked of experts, some of these variables are themselves aggregates produced by third parties. The authors then rescale these variables for comparability and used to construct the six clusters (or constructs). The authors hence reduce the variables and the source variables (averaged variables) in each cluster to a single number for each country<sup>14</sup>, which is the governance indicator.

Among the many assumptions that this model is based on; the following ones are the most important:

Each variable and source variable is assumed to be a linear function of one, and only one, independent variable, namely the unobserved governance component for that cluster, which create a problem of signal extraction that is eliminated using standard unobserved

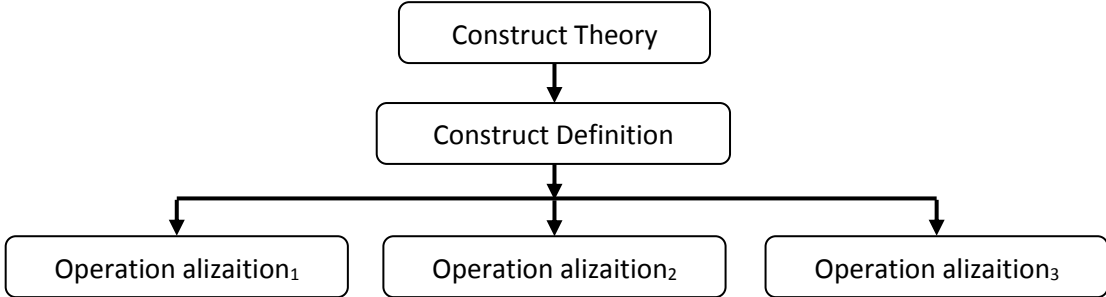
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<sup>14</sup> In order to reduce the correlated errors among the variables arising from source-specific perception errors, where more than one variable from the same data source is used in constructing an indicator

components model which expresses the observed data in each cluster as a linear function of the unobserved common component of governance, plus a disturbance term capturing perception errors and/or sampling variation in each indicator.

To produce estimated governance indicators for a particular governance component for a country, the authors produce a weighted average of the governance estimates for the variables and the source variables in the cluster for that country. The weights are inversely proportional to the variance of the error term of the source. (Kaufmann et al, 2005)

A measure of a construct is validated, first by showing that it correctly represents the theoretical definition of the construct (**‘content validity’ or ‘face validity’**), and second by seeing whether the proposed measure has the same relationships with observable variables that the theory predicts the construct itself to have (**convergent and discriminant validity**).



**Figure 8:** Measuring constructs

**Source:** measuring constructs. (Thomas, 2010)

Construct validity requires content validity, convergent validity and discriminant validity. validity is concerned with whether the proposed operationalization or model captures the entire domain of a construct and includes nothing extraneous (Carmines and Zeller, 1979).

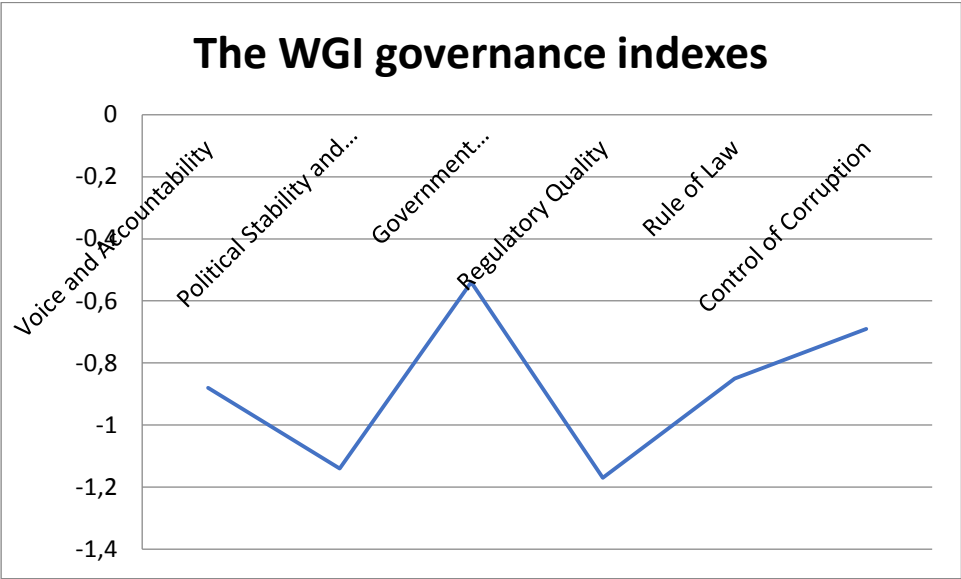
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<sup>15</sup> There are two main ingredients to construct validity. First, a construct, such as "self-esteem" (to take an example from psychology) needs to have a clear definition. Second, for self-esteem to be a useful construct, alternative measures of self-esteem should satisfy (a) "convergent validity" in the sense of being highly correlated with each other, and (b) "discriminant validity" in the sense of not being very highly correlated with other constructs, for example, self-absorption.



**Algeria profile:**

**Figure 9:** The Worldwide Governance indicators (1996- 2017)



**Source:** authors’ construction basing on the WGI governance indicators for the year 2017.

From the figure above, we can see that although the massive investment that Algeria has made in different socio-economic domains to foster inclusive growth, many other structural issues have emerged, such as: weak private sector job creation where the public sector is supposed to promote private sector rather than compete with it, besides high unemployment, low women labor force participation and insufficient quality of public services.

All these are related to public spending policies that undermine the private sector development; because of low investment in human capital, innovation and infrastructure. Thus, the private sector is featured by low productivity and non tradable activities.

Additionally, weak institutional capacity and governance lead to more opportunities for corruption, rent-seeking behavior and non compliance behavior, which reduce good job opportunities and thus limit the accumulation of skills that are required for the private sector development. According to the World Bank:

*“The public investment efficiency is relatively weak in Algeria because the government has focused on reducing spending in real terms, mostly by freezing government wages and hiring, and cutting investment, in order to adjust to the recently lower oil prices that affect the quality of public service delivery and infrastructure. A certain level of spending is thus*

*recommended to maintain and improve infrastructure quality in Algeria”*. (Pierre & Souissi, 2018)

### **3.2.2.2. Ibrahim index of African governance (IIAG)**

The IIAG was created in recognition of the need for a quantifiable tool to accurately measure and monitor African governance performance, its progress over time and across countries, and as a means of supporting effective and responsive solutions to complex public policy challenges in developing countries. Policies need to be evaluated by their results, which can only be done if accompanied by robust data.

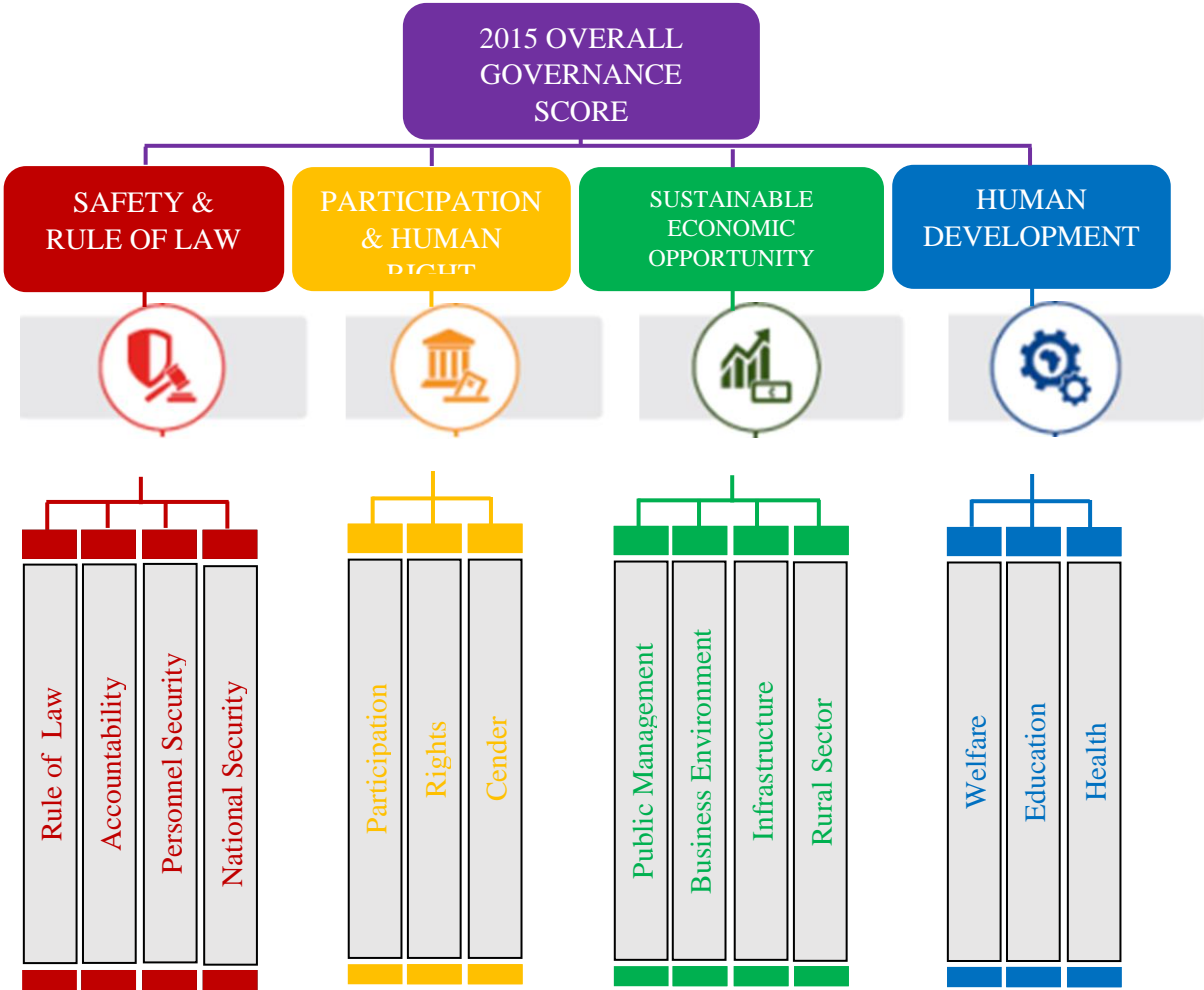
The IIAG was launched in 2007 and has evolved to be the most comprehensive assessment on African governance.

#### **Measuring Governance**

MIF defines governance as the provision of the political, social and economic public goods and services that every citizen has the right to expect from his or her state, and that a state has the responsibility to deliver to its citizens.

The governance framework has been constructed by the MIF Board and the IIAG Advisory Council to have four overarching dimensions (or categories) which comprehensively cover the goods and services a citizen has the right to expect from his or her state: *Safety & Rule of Law, Participation & Human Rights, Sustainable Economic Opportunity* and *Human Development*. These categories are made up of a total of 14 sub-categories.

**Figure 10:** overall governance score of the IIAG index



**Source:** Ibrahim index of African governance.

These four overarching dimensions, and the constituent sub-categories, represent the Foundation’s definition of governance and provide a citizen-centric governance framework around which to organize underlying data and construct the IIAG.

This framework allows the user to analyse governance performance within both distinctive and broad governance concepts by providing measurements of governance performance at different tiers - at the overall governance level, category and sub-category level, and indicator level.

**☞ Safety & Rule of Law**

*Rule of Law:* extent to which the government protects and enforces private property and contract rights. It consists of five indicators; which are: property Rights, judicial Process, judicial Independence, sanctions, transfers of Power.

*Accountability*: extent to which the executive and public employees can be held to account by the electorate, legislative and judiciary. It consists of nine indicators; which are: accountability, Transparency & Corruption in the Public Sector, access to Information, online Services, corruption & Bureaucracy, corruption in Government & Public Officials, diversion of Public Funds, accountability of Public Officials, public Sector Corruption Investigation, prosecution of Abuse of Office.

*Personal Safety*: it consists of six indicators; which are: safety of the Person, police Services, social Unrest, violent Crime, political Violence, human Trafficking.

*National Security*: degree of direct or indirect involvement of the government in an armed conflict which results in at least 25 annual battle-related deaths. It consists of five indicators; which are: government Involvement in Armed Conflict, domestic Armed Conflict, cross-border Tensions, internally Displaced People, political Refugees.

### ☞ **Participation & Human Rights Participation**

*Participation* : extent to which citizens are free to participate in the political process including the right to vote freely for distinct alternatives in legitimate elections, compete for public office, join political parties and organisations and elect accountable representatives. It consists of five indicators; which are: political Rights, political Participation, free & Fair Elections, free & Fair Executive Elections, effective Power to Govern.

*Rights*: extent to which citizens and organisations can express opinions freely; the degree of print, broadcast and internet freedom; and the existence of media and citizen self-censorship. It consists of five sub-indicators. It consists of four indicators; which are: freedom of Expression, freedom of Association & Assembly, international Human Rights Conventions, human Rights.

*Gender*: extent to which the government promotes equal access for men and women to human capital development opportunities and productive and economic resources, and provides equal status and protection under the law. It consists of sixteen indicators; which are: gender Equality, gender Balance in Education, women's Participation in the Labour Force, gender Equality in the Workplace, legislation on Violence against Women, women in Politics, women in the Judiciary, public Administration, statistical Capacity, diversification, budget Management, ratio of Total Revenue to Total Expenditure, fiscal Policy, ratio of External Debt Service to Exports, revenue Mobilisation, access to Financial Records of State-owned Companies.

## ☞ Sustainable Economic Opportunity

*Public Management:* effectiveness of the civilian central government in designing and implementing policy, delivering public services and managing human resources. It consists of nine indicators; which are: public Administration, statistical Capacity, Diversification, Budget Management, Ratio of Total Revenue to Total Expenditure, Fiscal Policy, Ratio of External Debt Service to Exports, Revenue Mobilisation, Access to Financial Records of State-owned Companies.

*Business Environment:* business regulatory environment; the level of market-based competition; and the quality of the competitive bidding process. It consists of five indicators; which are: Competitive Environment, Customs Procedures, Investment Climate, Bureaucracy & Red Tape , Soundness of Banks.

*Infrastructure:* is consists of seven indicators; which are: road Network, rail Network, air Transport, access to Water, electricity Supply, telephone & IT Infrastructure, digital Connectivity.

*Rural Sector:* government policies, strategies and investment programmes for the agricultural and rural development sector, and the efficiency, consistency and transparency with which resources are allocated, managed and accounted for. It consists of eight indicators; which are: public Resources for Rural Development, accountability, Transparency & Corruption in Rural Areas, land & Water for Low-income Rural Populations , rural Business Climate , agricultural Research & Extension Services, agricultural Policy Costs, engagement with Low-income Rural Populations, equal Representation in Rural Areas.

## ☞ Human Development

*Welfare:* extent to which there is equality of opportunity in society and there are social safety nets which compensate for poverty and other risks, such as old age, illness, unemployment or disability. It consists of seven indicators; which are: welfare Regime, welfare Services (Health & Education), social Protection & Labour, social Exclusion, equity of Public Resource Use, environmental Policy, environmental Sustainability.

*Education:* extent to which there are solid institutions for basic, secondary and tertiary education, as well as for research and development. It consists of seven indicators; which are: education Provision & Quality, education System Quality, ratio of Pupils to Teachers in Primary School, literacy, primary School Completion, secondary School Enrolment, tertiary Education Enrolment.

Health: Population with access to an improved sanitation facility, and the population served with open defecation sanitation. It consists of two sub-indicators. It consists of seven indicators; which are: access to Sanitation, child Mortality, maternal Mortality, undernourishment, disease (Malaria & TB), immunisation (Measles, DPT & Hepatitis B), antiretroviral Treatment (ART) Provision, public Health Campaigns.

### **Measuring Governance**

This IAG does not collect primary data, but rather collates data provided by many data sources, where it consists of 93 indicators from 33 data providers. Their model then is based on the aggregation of multiple types of third-party data, using Official Data (OD), Expert Assessments (EA), and Opinion Surveys (OS).

Moreover, the IAG Advisory Council plays an important consultative role regarding assigning indicators to sub-categories. Assigning an indicator to one of the 14 sub-categories (and essentially to a category) is not straight forward as the dimensions of governance are not independent. As such, an indicator can be deemed suitable for multiple sub-categories in which it suits conceptually.

They construct indicators by clustering indicators from different data sources that fall into the same governance concept resulting in clustered indicator that is the average of its underlying sub-indicator, in order to improve the accuracy of the indicator measurement and to take into account potentially diverse viewpoints.

Furthermore, some indicators measure a governance concept which is too narrow for inclusion as a stand-alone indicator. In this case, indicators are clustered to develop a measure of a broader concept.

As it is mentioned, there are many data sources used to construct the IAG indicators; which means that the authors should make them comparable in order to standardize all the data. This method is called *normalization*.

The raw data for each indicator are transformed by the min-max normalization method. This process allows all scores to be published in common units and within the same bounds of 0-100, where 100 is always the best possible score. The application of this normalization method means that a score of 100 relates to the best possible score within the group of 54 African countries between 2000 and the latest data year.

After all this, the IAG is a composite index built on four underlying indicators, from the underlying sub-indicators to the indicators, from the indicators to the sub-categories, from the

sub-categories to the categories, and finally from the categories to the overall IIAG score, as follows:

**Figure 11:** measure of the IIAG overall score



**Source:** IIAG index of African governance

**Algeria profile:**

After demonstrating the estimation method used by the IIAG, we will turn now to show the Algerian score within this foundation.

Algeria scores higher than the African average and the regional average for North Africa. It is ranked 3rd in North Africa in overall governance, being outperformed by both Tunisia and Morocco, while performing better than Egypt, Mauritania and Libya.

Algeria scores 52.9 (out of 100) in overall governance, ranking 20th in Africa. Since 2011, the country has shown some progress (+1.4), demonstrating the thirteenth largest improvement on the continent and the third largest improvement in North Africa, where it shows progress in three of the four categories: *Safety & Rule of Law*, *Participation & Human Rights* and *Human Development*.

Moreover, when looking at the whole IIAG time series (2000-2014), Algeria achieved its highest overall governance score in 2013 and its lowest score in 2000. There was a slight deterioration in performance between 2013 and 2014 (-0.3).

**3.2.2.3. Fraser Institute on economic freedom index (economic freedom of the world)**

The index measures the degree to which the policies and institutions of countries are supportive of economic freedom that includes personal choice, voluntary exchange, freedom to enter markets and compete, and security of the person and privately-owned property. There are forty-two data points are used to construct a summary index and to measure the degree of economic freedom in five broad areas (Gwartney, Lawson, and Hall, 2016):

1. Size of government: expenditures, taxes, and enterprises;
2. Legal structure and security of property rights;
3. Access to sound money;
4. Freedom to trade internationally; and
5. Regulation of credit, labor, and business.

### **Source of the database:**

Construction of the index published in *Economic Freedom of the World* is based on three important methodological principles. **First**, objective components are always preferred to those that involve surveys or value judgments, where data based on surveys, expert panels, and generic case studies. **Second**, the data used to construct the index ratings are from external sources such as the International Monetary Fund, World Bank, and World Economic Forum that provide data for a large number of countries. **Third**, transparency is present throughout. The report provides information about the data sources, the methodology used to transform raw data into component ratings, and how the component ratings are used to construct both the area and summary ratings.

### **Structure of the EFW index**

Exhibit 1.1 indicates the structure of the EFW index. The index measures the degree of economic freedom present in five major areas: [1] Size of Government; [2] Legal System and Security of Property Rights; [3] Sound Money; [4] Freedom to Trade Internationally; [5] Regulation. Within the five major areas, there are 24 components in the index. In total, the index incorporates 42 distinct variables. Each component and sub-component is placed on a scale from 0 to 10 that reflects the distribution of the underlying data.



**Table 3:** areas, components and sub-components of the EFW index

<p><b>1. Size of government</b></p> <ul style="list-style-type: none"> <li>A. Government consumption</li> <li>B. Transfers and subsidies</li> <li>C. Government enterprises and investment</li> <li>D. Top marginal tax rate</li> </ul>
<p><b>2. Legal system and property rights</b></p> <ul style="list-style-type: none"> <li>A. Judicial independence</li> <li>B. Impartial courts</li> <li>C. Protection of property rights</li> <li>D. Military interference in rule of law and politics</li> <li>E. Integrity of the legal system</li> <li>F. Legal enforcement of contracts</li> <li>G. Regulatory costs of the sale of real property</li> <li>H. Reliability of police</li> <li>I. Business costs of crime</li> </ul>
<p><b>3. Sound money</b></p> <ul style="list-style-type: none"> <li>A. Money growth</li> <li>B. Standard deviation of inflation</li> <li>C. Inflation : most recent year</li> <li>D. Freedom to own foreign currency bank accounts</li> </ul>
<p><b>4. Freedom to trade internationally</b></p> <ul style="list-style-type: none"> <li>A. Tariffs</li> <li>B. Regulatory trade barriers</li> <li>C. Black-market exchange rates</li> <li>D. Controls of the movement of capital and people</li> </ul>
<p><b>5. Regulation</b></p> <ul style="list-style-type: none"> <li>A. Credit market regulations</li> <li>B. Labor market regulations</li> <li>C. Business regulations</li> </ul>

**Source:** Fraser institute’s overall index scores.

- *Size of Government*

The four components of Area 1 indicate the extent to which countries rely on the political process to allocate resources and goods and services. When government spending increases relative to spending by individuals, households, and businesses, political decision-making is substituted for personal choice and economic freedom is reduced.

- **Legal System and Property Rights**

Protection of persons and their rightfully acquired property is a central element of economic freedom and a civil society. Indeed, it is the most important function of government. The key ingredients of a legal system consistent with economic freedom are rule of law, security of property rights, an independent and unbiased judiciary, and impartial and effective enforcement of the law.

- **Sound Money**

Money oils the wheels of exchange. An absence of sound money undermines gains from trade. As Milton Friedman informed us long ago, inflation is a monetary phenomenon, caused by too much money chasing too few goods. High rates of monetary growth lead to inflation.

- **Freedom to Trade Internationally**

In our modern world of high technology and low costs for communication and transportation, freedom of exchange across national boundaries is a key ingredient of economic freedom

- **Regulation**

When regulations restrict entry into markets and interfere with the freedom to engage in voluntary exchange, they reduce economic freedom. This index focuses on regulatory restraints that limit the freedom of exchange in credit, labor, and product markets.

**Algeria profile:**

The following table summarizes Algeria's rank over the period 1980 till 2014, as follows:

**Table 4:** Algeria's economic freedom index during the period 1980-2014

	1980	1990	2000	2005	2010	2013	2014
	Ratings (Rank)	Ratings( Rank)	Ratings( Rank)	Ratings( Rank)	Ratings( Rank)	Ratings( Rank)	Ratings( Rank)
<b>Summary Ratings (Rank)</b>	3.97(89)	3.45(107)	4.66( 117)	5.74(126)	5.22(148)	5.19(149)	5.15(151)
	Ratings (Data)	Ratings( Data)	Ratings( Data)	Ratings( Data)	Ratings( Data)	Ratings( Data)	Ratings( Data)
<b>Size of Govern</b>	4.32	4.60	5.65	4.84	3.38	3.42	3.46
<b>Legal System and Property Rights</b>	3.77	3.50	2.39	5.32	4.44	4.90	4.90
<b>Sound Money</b>	5.23	4.50	7.00	7.51	7.17	7.17	7.20
<b>Freedom to Trade Internation ally</b>	2.55	1.69	4.80	5.98	5.79	4.87	4.64
<b>Regulation</b>		2.93	3.45	5.06	5.33	5.70	5.66

**Source:** Fraser institute's report on Algeria's economic freedom.

Algeria ranked 20th in 2017, down one from last year, and its score fell from 5.7 to 5.5. Its score in the size of government area moved up by 0.1 point to 4.1, putting Algeria in 18th place, up one. Algeria's score remained unchanged at 5.9 points for legal structure and security of property rights, with a rank of 10th, up from 14th. Its score for the access to sound money area fell to 7.9 from 8.0 points for a rank of 15th, down one. Algeria's score in freedom to trade internationally dropped significantly from 4.7 to 3.9, placing it in 22nd place, down 2 from last year. Algeria is the least free in the Arab world for this area. In the regulation area, its score fell from 5.7 to 5.6, with a rank of 18th, down one from last year.

#### **3.2.2.4. Heritage foundation on economic freedom index in the world**

Economic freedom is the fundamental right of every human to control his or her own labor and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please. In economically free societies, governments allow labor, capital, and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself.

Moreover, there are many benefits of economic freedom, within bringing greater prosperity. The Index of Economic Freedom documents the positive relationship between economic freedom and a variety of positive social and economic goals. The ideals of economic freedom are strongly associated with healthier societies, cleaner environments, greater per capita wealth, human development, democracy, and poverty elimination.

Furthermore, Countries are graded and ranked on 12 measures of economic freedom that evaluate the rule of law, government size, regulatory efficiency, and the openness of markets.

#### **Structure of the Economic Freedom index**

The Index of Economic Freedom takes a comprehensive view of economic freedom. Some of the aspects of economic freedom that are evaluated are concerned with a country's interactions with the rest of the world. Most, however, focus on policies within a country, assessing the liberty of individuals to use their labor or finances without undue restraint and government interference.

The 12 aspects of economic freedom measured in the Index may be grouped into four broad categories:

- **Rule of law** (property rights, judicial effectiveness, and government integrity);
- **Government size** (tax burden, government spending, and fiscal health);
- **Regulatory efficiency** (business freedom, labor freedom, and monetary freedom); and
- **Market openness** (trade freedom, investment freedom, and financial freedom).

### ☞ **Rule of Law**

Secure property rights give citizens the confidence to undertake entrepreneurial activity, save their income, and make long-term plans. In a market economy, the ability to accumulate private property and wealth is a central motivating force for workers and investors.

As an essential component of the rule of law, judicial effectiveness requires efficient and fair judicial systems to ensure that laws are fully respected, with appropriate legal actions taken against violations.

Government Integrity in a world characterized by social and cultural diversity, practices regarded as corrupt in one place may simply reflect traditional interactions in another.

### ☞ **Government Size**

All governments impose fiscal burdens on economic activity through taxation and borrowing. Governments that permit individuals and businesses to keep and manage a larger share of their income and wealth for their own benefit and use, however, maximize economic freedom.

The cost, size, and intrusiveness of government taken together are a central economic freedom issue that is measured in the Index in a variety of ways. Government also spends on public goods, the benefits of which accrue broadly to society in ways that markets cannot price appropriately.

A government's budget is one of the clearest indicators of the extent to which it respects the principle of limited government. By delineating priorities and allocating resources, a budget signals clearly the areas in which government will intervene in economic activity and the extent of that intervention.

### ☞ **Regulatory Efficiency**

An individual's ability to establish and run an enterprise without undue interference from the state is one of the most fundamental indicators of economic freedom. Burdensome and redundant regulations are the most common barriers to the free conduct of entrepreneurial activity.

The ability of individuals to find employment opportunities and work is a key component of economic freedom. By the same token, the ability of businesses to contract freely for labor and dismiss redundant workers when they are no longer needed is essential to enhancing productivity and sustaining overall economic growth.

Monetary freedom requires a stable currency and market-determined prices. Whether acting as entrepreneurs or as consumers, economically free people need a steady and reliable currency as a medium of exchange, unit of account, and store of value. Without monetary freedom, it is difficult to create long-term value or amass capital.

### ☞ **Market openness**

Many governments place restrictions on their citizens' ability to interact freely as buyers or sellers in the international marketplace. Trade restrictions can manifest themselves in the form of tariffs, export taxes, trade quotas, or outright trade bans.

A free and open investment environment provides maximum entrepreneurial opportunities and incentives for expanded economic activity, greater productivity, and job creation. An effective investment framework is characterized by transparency and equity, supporting all types of firms rather than just large or strategically important companies, and encourages rather than discourages innovation and competition.

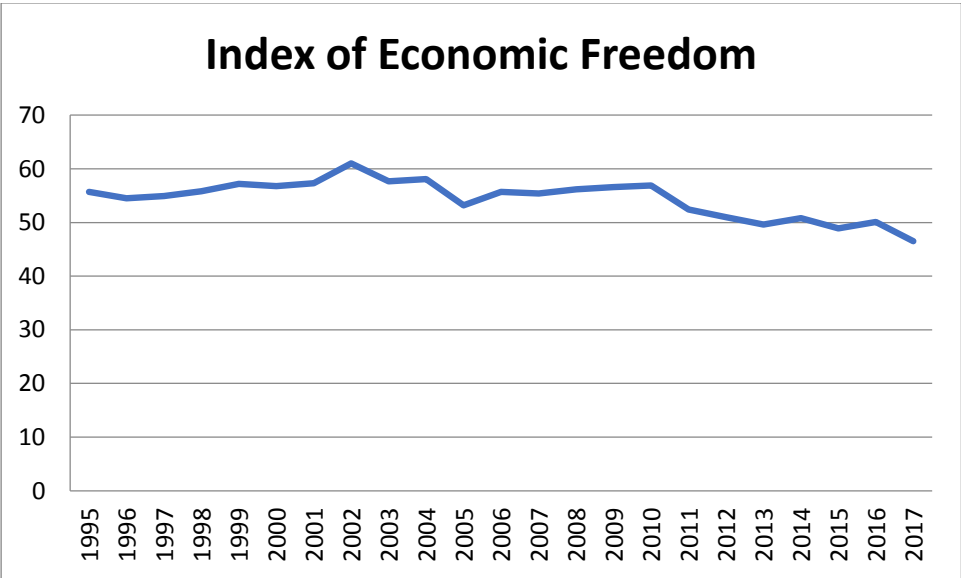
An accessible and efficiently functioning formal financial system ensures the availability of diversified savings, credit, payment, and investment services to individuals. By expanding financing opportunities and promoting entrepreneurship, an open banking environment encourages competition.

**Measuring Economic freedom index**

Ranked countries are given a score ranging from 0 to 100 on each of the 12 components of economic freedom, and these scores are then averaged (using equal weights) to compute a country’s final economic freedom score. In addition to the scores, the country pages include a brief overview describing economic strengths and weaknesses and providing the political and economic background that may have influenced the country’s performance. A statistical profile includes the country’s main economic and demographic indicators.

For Algeria, the following figure illustrates the main scores:

**Figure 12:** Algeria economic freedom index during the period 1995- 2017



**Source:** author’s construction.

From the graph above, we can see downward trend exploring the low level of economic freedom of the Algerian economy; which is due to low quality of rule of law and regulatory efficiency, besides the low attractiveness of FDI and few opportunities that promote entrepreneurial activity.

Algeria’s overall score has dropped 1.8 points because the declines in property rights and investment in business freedom. It is ranked last among the Middle East and North Africa countries.

For the rule of law, the judicial system is weak and slow, which in turn, allow more corruption in business and public sectors, especially energy sector allowing for the rent-

seeking activities to emerge, besides one half of all economic transactions are operated in the informal sector.

For the regulatory efficiency: although the improvements in the business environment, significant bureaucratic impediments, entrepreneurial activity and economic development remain the same. Besides, the labor market is still rigid, where there is shortage of the skilled labor force.

Its score is below the regional and world averages, although the progress that have been made to improve the fiscal governance. Besides the restrictions on imports and foreign engagements in its economy, political uncertainty and the institutional weaknesses that curb the opportunities for sustained long-term economic development and limit foreign investments, because of the difficulty in the credit access and the underdevelopment of the equity market.

### **3.2.2.5. Transparency international on corruption perception index**

The transparency international gives the corruption perception index of different countries around the world, basing on the level of transparency in those countries.

According to them, transparency is about shedding light on rules, plans, processes and actions. It is about knowing why, how, what, and how much, by ensuring that public officials, civil servants, managers, board members and businesspeople act visibly and understandably, report on their activities, and thus hold them to account.

Defined in this manner, accountability is the best way of guarding against corruption, and helps increase trust in public institution.

#### **Definition of corruption and its main costs:**

It is generally defined as *the abuse of entrusted power for the private gain*. It can be classified as grant, petty or political basing on the amount of money lost or the sector where it occurs.

Petty corruption refers to everyday abuse of entrusted power by public offices in their interactions with citizens. Where grant corruption refers to acts committed to high level of government enabling leaders to benefit at the expense of the public good.

As to political corruption, it refers to a manipulation of policies, institutions and rules of procedure in the allocation of resources, that is financing by political decision makers who abuse their position for their private gain.

The costs of corruption can be divided into political, economic, social and environmental; as a result it costs people their freedom, health and money.

As it is said, corruption is an obstacle to democracy and the rule of law, where public institutions lose their legitimacy by undermining people's trust in the political system, in its institutions and its leadership; and thus is extremely challenging to develop accountable political leadership in a corrupt climate.

All this will affect the development of fair market structures and distorts competition, which in turn curbs investment and entrepreneurial activity in the country.

**Anti corruption procedures:**

Because of the distorting consequences of corruption under its many forms, procedures to fight against it must be taken.

Transparency International gives the following actions to curb corruption and challenge it:

- ☞ Governments must raise trust among people by encouraging free speech, independent media, political dissent and an open and engaged civil society. All this is based on press freedom.
- ☞ Civil society and governments should promote laws that focus on access to information. This access helps enhance transparency and accountability while reducing opportunities for corruption. All this is based on appropriate well implemented legal framework.
- ☞ Specifically, governments must ensure access to information and the protection of fundamental freedoms and align these to international agreements and best practices.
- ☞ Governments and businesses should proactively disclose relevant public interest information in open data formats. Proactive disclosure of relevant data, including government budgets, company ownership, public procurement and political party finances allows journalists, civil society and affected communities to identify patterns of corrupt conduct more efficiently.



## **Main targets of this organization:**

The main goal of this organization is based on the vision of a world free from corruption.

With more than 100 national chapters worldwide and an international secretariat in Berlin, Transparency International index is based on partners in government, business and civil society to put effective measures in place to tackle corruption, and to stop the abuse of power, bribery and secret deals.

Thus, they focus on the world's collective conscience to bring about change, and there is much work achieved, including:

- ☞ The creation of international anti-corruption conventions
- ☞ The prosecution of corrupt leaders and seizures of their illicitly gained riches
- ☞ National elections won and lost on tackling corruption
- ☞ Companies held accountable for their behavior both at home and abroad.

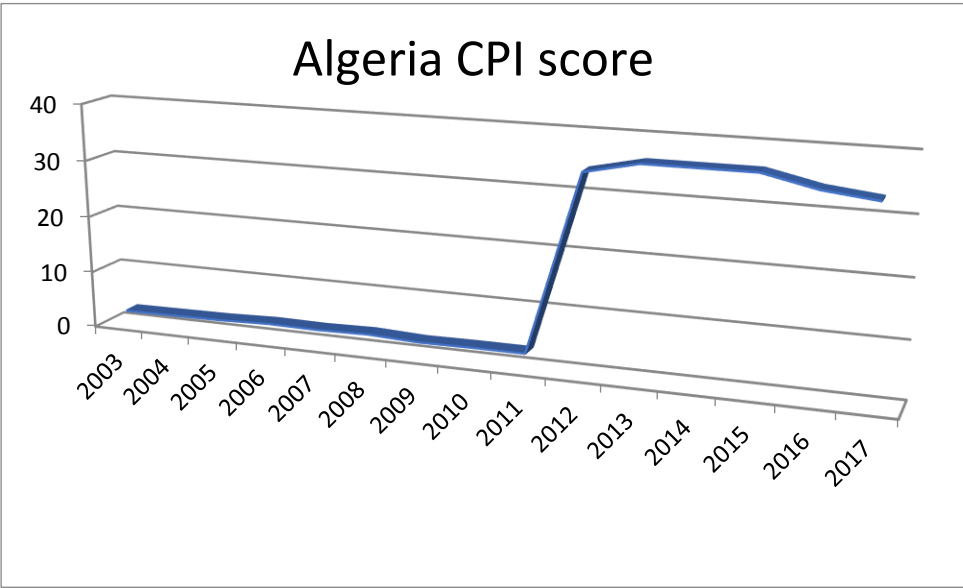
By setting a five years strategy, starting from 2015, the so-called “ *Together against Corruption: Transparency International Strategy 2020* ”, the International Transparency movement aim to address both the corruption environment of today and the one anticipated in the years ahead.

The change that is aimed to be happened is based on prevention and punishment mechanisms. In order to make prevention and punishment more effective is to work with people as part of collective action against corruption by creating a strong public pressure for change (e.g. a refusal to bribe, vote for the corrupt or turn a blind eye to corruption). This also requires enforcement of anti-corruption rules and the sound institutions that implement them for the best practice.

Thus, civil society is essential to tackling corruption. Partnerships across civil society and with public and private sector actors strengthen the capacity of people working to stop and curb corruption.

**Algeria profile:**

**Figure 13:** Algeria corruption index during the period 2003- 2017



**Source:** CPI scores from Transparency International organization.

As many countries worldwide, corruption is a growing problem in the Algerian society including all its forms and the damage that could affect the economic activity. Although the rules and the regulations that are created in this field, its impact and its spread size in the whole economy couldn't not be arrested or reversed, which the graph above illustrate; a rising upward from 2011 till the year 2017.

From an institutional point of view, corruption is considered as an informal institution that reflects the violation of the rules that create social welfare, which in turn imply negative externalities and positive social costs, and thus undermine the institutionalization of the formal institution and their efficacy, such as private property rights. (Hodgson & Jiang, 2007) Furthermore, all this will affect the trust between the state and the economic agents, which will reduce cooperation and competition that are key engines of the market economy. Because of this violation, economic activity will be directed by clans and illegal mafias, and thus leads to more non compliance behaviors.

To sum up, the state should reduce and tackle all the forms of corruption in order to establish trust and cooperation in the whole economy.

### 3.2.2.6. The Global Competitiveness Index

The Global Competitiveness Report assesses the competitiveness of 138 economies, besides the drivers of their productivity and prosperity.

This report also highlights that declining openness is threatening growth and prosperity, within the monetary stimulus measures are not enough to sustain growth and must be accompanied by competitiveness reforms. Final key finding points to the fact that updated business practices and investment in innovation are now as important as infrastructure, skills and efficient markets.

#### Structure of the index

Competitiveness is defined as the *set of institutions, policies, and factors that determine the level of productivity of a country*. The level of productivity, in turn, sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained by investments in an economy. The components of this index are grouped into 12 categories, the pillars of competitiveness:

- ☞ 1st pillar: **the institutional environment of a country** depends on the efficiency and the behavior of both public and private stakeholders. The legal and administrative framework within which individuals, firms, and governments interact determines the quality of the public institutions of a country and has a strong bearing on competitiveness and growth.
- ☞ 2nd pillar: **extensive and efficient infrastructure** is critical for ensuring the effective functioning of the economy. Effective modes of transport enable entrepreneurs to get their goods and services to market in a secure and facilitate the movement of workers to the most suitable jobs.
- ☞ 3rd pillar: **the stability of the macroeconomic environment** is important for business and, therefore, is significant for the overall competitiveness of a country. Although it is certainly true that macroeconomic stability alone cannot increase the productivity of a nation, it is also recognized that macroeconomic disarray harms the economy.

- ☞ 4th pillar: **Health and primary education** is vital to a country's competitiveness and productivity. Investment in the provision of health services is thus critical for clear economic, as well as moral, considerations.
- ☞ 5th pillar: **quality higher education and training** is crucial for economies that want to move up the value chain beyond simple production processes and products.
- ☞ 6th pillar: countries with **efficient goods markets** are well positioned to produce the right mix of products and services given their particular supply-and-demand conditions, as well as to ensure that these goods can be most effectively traded in the economy.
- ☞ 7th pillar: **the efficiency and flexibility of the labor market** are critical for ensuring that workers are allocated to their most effective use in the economy and provided with incentives to give their best effort in their jobs.
- ☞ 8th pillar: an **efficient financial sector** allocates the resources saved by a nation's population, as well as those entering the economy from abroad, to the entrepreneurial or investment projects.
- ☞ 9th pillar: **the technological readiness** pillar measures the agility with which an economy adopts existing technologies to enhance the productivity of its industries, with specific emphasis on its capacity to fully leverage information and communication technologies (ICTs) and enabling innovation for competitiveness.
- ☞ 10th pillar: **the size of the market** affects productivity since large markets allow firms to exploit economies of scale. Traditionally, the markets available to firms have been constrained by national borders.
- ☞ 11th pillar: **Business sophistication** concerns two elements that are intricately linked: the quality of a country's overall business networks and the quality of individual firms' operations and strategies.

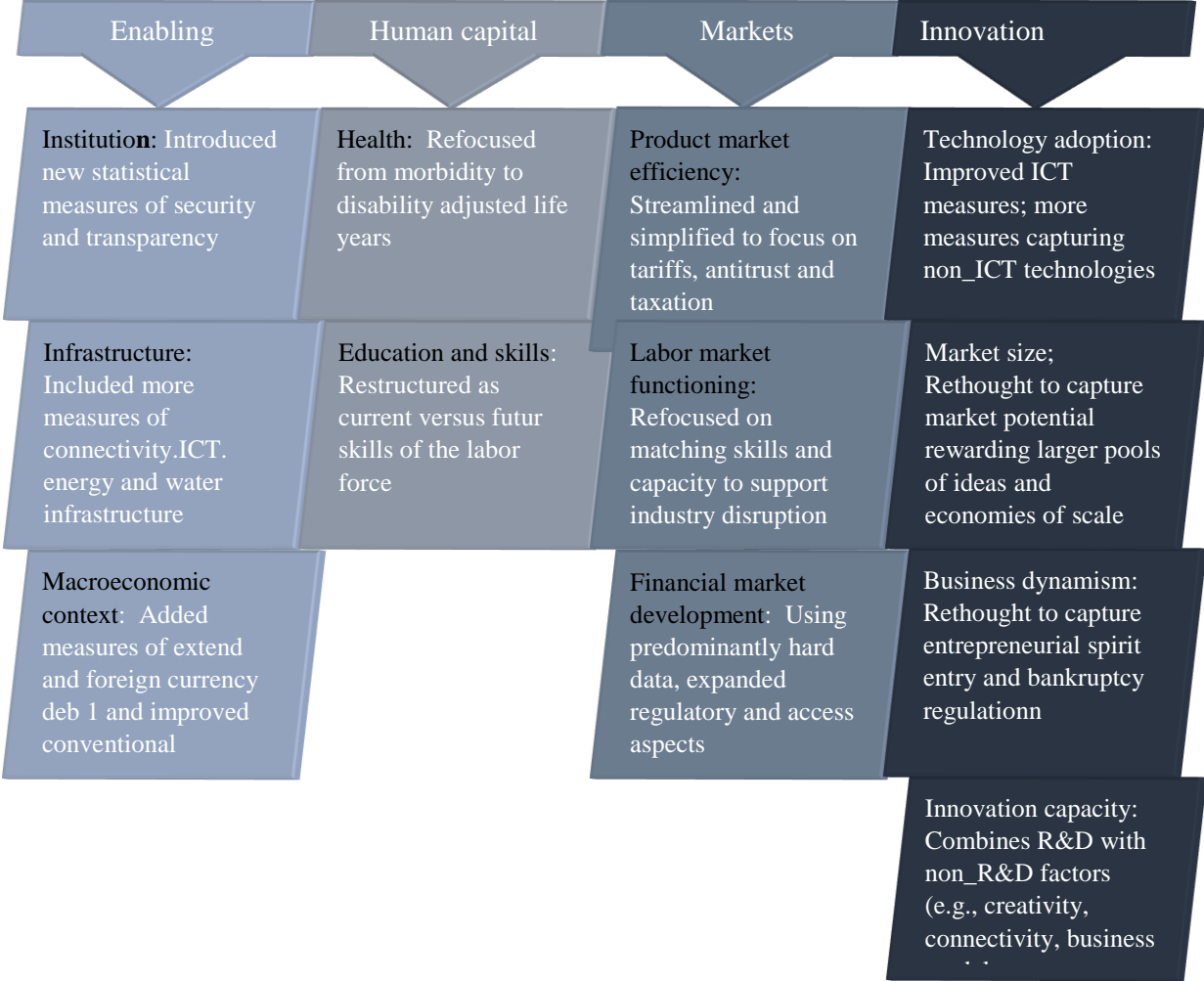
∞ 12th pillar: **innovation** is particularly important for economies as they approach the frontiers of knowledge, and the possibility of generating more value by merely integrating and adapting exogenous technologies tends to disappear.

Moreover, these 12 pillars fit with the well-known economic theory of stages of development, within the **GCI assumes that, in the first stage, the economy is *factor-driven* and** countries compete based on their factor endowments basing on and private institutions (1st pillar), a well-developed infrastructure (2nd pillar), a stable macroeconomic environment (3rd pillar), and a healthy workforce that has received at least a basic education (4th pillar).

Countries **will then move into the *efficiency-driven stage of development***, when they must begin to develop more-efficient production processes and increase product quality by higher education and training (5th pillar), efficient goods markets (6th pillar), well-functioning labor markets (7th pillar), developed financial markets (8th pillar), the ability to harness the benefits of existing technologies (9th pillar) and a large domestic or foreign market (10th pillar).

Finally, as countries move into the ***innovation-driven stage, wages will have risen by so*** much that they are able to sustain those higher wages and the associated standard of living using the most sophisticated production processes (11th pillar) and by innovating new ones (12<sup>th</sup> pillar).

**Figure 14:** the main pillars of the competitiveness index



**Source:** extracted from the World Economic Freedom.

**Measuring competitiveness index**

The planned index will weight all 12 pillars equally for all countries and the pillars will be grouped into four sub-indexes:

- ☞ The enabling environment sub-index measures whether countries have in place sound institutions, well-developed infrastructure, and strong macroeconomic conditions, which together determine the environment in which companies operate.
- ☞ The human capital sub-index measures how the health and skills of the labor force contribute to a country’s competitiveness. The markets sub-index measures how firms can rely on product, labor, and financial markets to find the production inputs they need and how quickly and easily they can reorganize when the industry landscape changes. The innovation ecosystem sub-index measures how technology adoption, business

dynamism, and innovation capacity all influence the innovation process. Using existing technology can give rise to new products and business models.

### Algeria profile

The following table shows the evolution of the competitiveness index of Algeria over the period 2012 till 2018, as follows:

**Table 5:** global competitiveness index during the period 2012- 2018

Period	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Rank	110/144	100/148	79/144	87/140	87/138	86/137
Score	3.7	3.8	4.1	4.0	4.0	4.1

**Source:** extracted from the World Economic Freedom, Executive opinion survey 2017.

From the table above, we can see that Algeria's score is 4.07 points out of 7 on the 2017-2018. We should mention that the competitiveness index in Algeria averaged 3.91 points from 2007 until 2018, reaching a high score of 4.08 points in 2015 and a low level of 3.71 in 2009.

### 3.3. Field survey on institutional quality and the non compliance in Algeria

In order to analyze the link between governance and the institutional quality indices and the size of the non compliance in Algeria, we run a field survey in the economic sector based on the economic enterprises in different regions of the west of Algeria.

Thus, a questionnaire was designed basing on the LIKERT scale (from 1 to 5) forming our study constructs; which are:

- ☞ Trust in public institutions,
- ☞ Support of public institutions,
- ☞ Corruption and extra-costs,
- ☞ Execution and adjustment of the rules of law,
- ☞ Legal system and enforcement of property rights,
- ☞ Persistence of informal institutions and previous habits,
- ☞ Informal practices (that reflect the size of the non compliant behavior).

### 3.3.1. The research survey and data collection

Our study enterprise survey covers the western region of Algeria including the following states: Sidi Bel Abbas- TLEMCEM – SAIDA- ORAN.

We have begun this field survey in September 2017 till September 2018, over a year between the survey (data collection) and the data analysis, using both the emails and interviews to fill out the questionnaires.

We believe that firm survey is an important source of information and macroeconomic data about the link between business environment and the institutional framework (formal and informal institutions) in which the firms operate, which in turn affect either directly or indirectly their productivity<sup>16</sup> and their economic performance within the whole economy.

In general, the survey covers 150 economic enterprises in different economic activity. These economic activities are divided in the economy sectors, which are as follows:

- ☞ Manufacturing, processing and construction sector: activities associated with this sector include automobile companies, textile companies, paper products companies, rubber and plastic products companies, construction companies, food processing companies, estate agencies, electronics companies and catering companies.
- ☞ Service sector: activities associated with this sector include insurance companies, banking sector, wholesale sales, office and accountancy firms, information technology companies, communication companies.

The following table summarizes the economic enterprises related to each sector, as follows:

**Table 6:** distribution of the economic enterprises on each economic sector

	Sector			
	Agriculture	Industrie	Services	Total
<b>SBA</b>	1	50	2	53
<b>ORAN</b>	/	21	40	61
<b>TLEMCEM</b>	/	24	6	30
<b>SAIDA</b>	/	6	/	6
<b>TOTAL</b>	1	101	49	150

<sup>16</sup> The firms productivity is affected by both internal factors, namely: research and development, management practices, human capital, etc; and external factors, among which we find the institutional framework that shape the their business environment, which will affect the reallocation of labor and capital.



**Source :** authors' construction.

The questionnaire of the firm survey has three main parts. First part is related to the respondent status, the second one is related to the firm economic activity description, and finally the third part is related to our constructs' items.

The constructs' items are: support of public institutions (4 questions), adjustment to formal institutions (5 questions), persistence of informal institutions (3 questions), quality of legal system and property rights (2 questions), trust in public institutions (2 questions), cost of institutional transformation (2 questions) and informal practices (2 questions). In total, we have 24 items covering 7 pages.

### 3.3.2. Sample of the research and data description

#### Sample Composition (or Structure)

We selected the economic firms that are medium (20-99) and large size (100+), and operate in both manufacturing and services sectors. Economic firms with 100 percent state ownership are not included in the survey. ( To see if the sample is representative; these criteria are included in here: size, foreign ownership, sector of activity, and export activity).

Concerning the sampling technique, and because our research is a qualitative in nature; we choose the purposive sampling technique, also called judgment sampling, which is one of nonrandom sampling techniques that are used basing on the choice of a sample with particular features and qualities; *such as location, size, ownership, economic sector, and export activity;* that will better provide information to investigate the problematic of our research.

Before applying any method of our estimation methods to test the research hypotheses, we will first give the descriptive statistics (Min, Max, Mean and Std. deviation) of our original data, in order to specify the links between the research principal variables.

**Table 7:** descriptive statistics of the indicator variables

	N	Minimum	Maximum	Mean	Std. Deviation
support1	150	1,00	5,00	2,7315	,86705
support2	150	1,00	4,33	2,2192	,63645
support3	150	1,50	5,00	2,4128	,79000
support4	150	1,00	5,00	2,6812	1,14817
adjust1	150	1,00	3,50	2,1409	,54550
adjust2	150	1,00	5,00	2,4027	1,13256
adjust3	150	1,00	5,00	2,5034	1,13527
adjust4	150	1,00	5,00	1,9732	,89251
adjust5	150	1,00	5,00	2,5805	1,08595
persist1	150	1,00	4,00	2,1141	,92656
persist2	149	1,00	5,00	2,9392	1,49478
persist3	150	1,33	5,00	3,3043	1,15010
legal1	150	1,00	5,00	3,2371	1,19953
legal2	150	2,00	5,00	3,1074	,68202
trust1	150	1,75	5,00	3,6745	1,18931
trust2	150	1,00	4,20	1,5477	,59702
informal1	150	1,00	3,00	1,1946	,46029
informal2	150	1,00	3,00	1,8054	,88285
extracost1	150	1,00	3,00	1,5626	,62285
extracost2	150	1,00	5,00	2,1141	,40320
Valid N (listwise)	149				

**Source:** author's construction based on the SPSS 21.0 outputs.

### 3.3.3. Research Methodology and Estimation results

In the last section, we have attempted to test the strength of our theoretical constructs basing on the PCA analysis, where the results show a strong link between informality and the institutional constructs.

In this perspective, this section is devoted to the construct reliability and validity tests, besides the results of the estimation of the structural (inner) model.

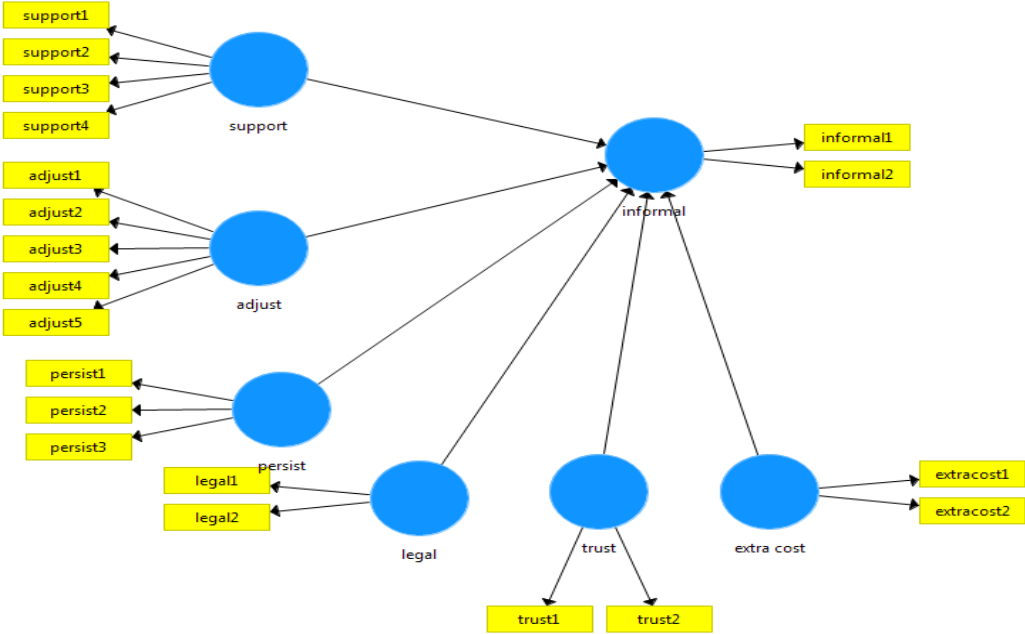
Finally, and basing on the estimation results, the discussion of these results is given, in addition to the implications and the limitations of our research.

According to Hair et al (2014), the first step when using PLS-SEM is the model specification, which encompasses creating a path model that, connects the exogenous and the endogenous constructs basing on the literature review.

The following figure emphasizes the research base model that is based on eighth latent constructs. We choose the reflective measurement model. Each latent construct is described by a reflective mode, which means that the direction of causality is from the construct to its

indicators; thus, observed measures are assumed to reflect variation in the latent variable; which means that any changes in the construct are expected to be manifested in changes in all of its indicators.

**Figure 15:** the research base model



**Source:** the base model basing on the conceptual framework.

Thus, we will test the results of regressions whether are in conformity with the estimation assumptions, or not. We should remind in here that the aim of this research is to assess the impact of institutional setting on the existence of informality, with special emphasis on the impact of informal rules like lobbying, rent-seeking of bureaucrats, privileges, old habits and values are deep-rooted in the economy in which they affect the relationships between economic agents.

From this basic issue, we will assume that our seven institutional indexes capture the reality about the link between those indexes and informality, where they cover all the institutional dimensions of the institutional change of the transition phase. The hypotheses that will be tested empirically are as follows:

- ☞ The transformation institutional cost: that is related to the uncertain acquiring costs of property rights, to starting-up costs of firms, to corruption and transaction costs among economic agents, and to the costs of emerging markets institutions. *This extra cost index has a positive effect on informality.*

- ☞ Persistence of informal institutions that include norms, values, routines and social rules, *which affect positively the choices of economic agents to go underground.*
- ☞ Another kind of informal institutions is trust or the social capital (or trust in public institutions) of the society, *which affect negatively the existence of informality among the economic agents.*
- ☞ Economic institutions and their support to economic agents, which include: the quality of bureaucratic services, governmental rules supporting business, public information agencies and banking and financial sector. In general, *we suppose that the support of public institutions for economic agents has a negative effect on the rising size of informality.*
- ☞ Legality and property rights that encompass the quality of legal and judicial systems, *protection of property rights have a negative impact on the existence of informality.*
- ☞ The enforcement of market rules, where the good governance and quality of formal economic institutions influence positively the economic agents' behavior. Thus, the adjustment to formal institutions; such as the introduction of new market rules, attractiveness of foreign direct investment, enforcement of competition policies, etc; *have a negative effect on informality, when these rules are well applied and executed.*

### **3.3.3.1. The PLS-SEM methodology**

We used the following statistical tools to analyze the obtained data; the SPSS software to analyze the preliminary data and the estimation of the partial least square- structural equation path modeling (PLS- SEM) is conducted by the SmartPLS 3.00 software. And for the reason of multi-collinearity issue among our study constructs, we run a PLS regression using XLSTAT 2014 to resolve this issue and to measure the effect of the institutional settings on informality.

#### **☞ Origin and development of PLS path modeling**

As is well known, the CB-SEM path modeling describes causal relationships among dependent and independent variables in a closed restrictive system. Here come Herman Wold (1980 and 1982 till 1985) and developed the PLS modeling; that overcome those limitations, and introduce it to the behavioral and social sciences.

Thus, the PLS is an SEM technique that is like multiple regression analysis and aims to explain the variance of endogenous constructs, in contrast to the CB-SEM that aims to estimate the covariance matrix for the sample data. (Hair et al., 2014)

In this regards, the PLS path modeling is a soft modeling (in contrast to the hard modeling the CB-SEM) that is suitable for low information, emerging theories, small samples, data that violate statistical assumptions and subjective observations, and this path modeling is developed later by many other researchers and introduced to many fields, such as: marketing, strategic management, information systems research, operations management, accounting, etc.

### ☞ The nature and features of PLS-SEM

The SEM analysis reveals that there are two statistical techniques: covariance-based SEM and variance based SEM<sup>17</sup>, the so-called: PLS-SEM path modeling. This approach allows the analysis of small sample size and missing data, which is better suited for our research analysis. The PLS path modeling estimates causal links between both types of variables, latent and observed and it better suited for the exploratory analysis and theory building, in contrast to the CB-SEM that suits the confirmatory analysis. However, PLS PM is used for both exploratory and confirmatory analysis . The following table summarizes the main differences between the two approaches:

**Table 8:** main features of the PLS and CB-SEM and the difference between the two approaches

Model requirement	PLS-SEM	CB-SEM
<b>Includes interaction effects</b>	Preferable, as it is designed for easy interactions	Difficult with small models, nearly impossible with large ones
<b>Includes formative factors</b>	Easier	Difficult
<b>Includes multi-group moderators</b>	Can use, but difficult	Preferable
<b>Testing alternative models</b>	Can use	Preferable, as it provides model fit statistics for comparison
<b>Includes more than 40-50 variables</b>	Preferable	Sometimes unreliable if it does converge, sometimes will not converge
<b>Non-normal distributions</b>	Preferable (although it will still affect results)	Should not be used, results in unreliable findings.

<sup>17</sup> It is sometimes called: composite-based SEM , variance-based SEM or components-based SEM.

<b>Non-homogeneity of variance</b>	Preferable (although it will still affect results)	Should not be used, results in unreliable findings.
<b>Small sample size</b>	It will run (although it will still affect results negatively)	Unreliable if it does converge.

**Source:** Lowry and Gaskin 2014.

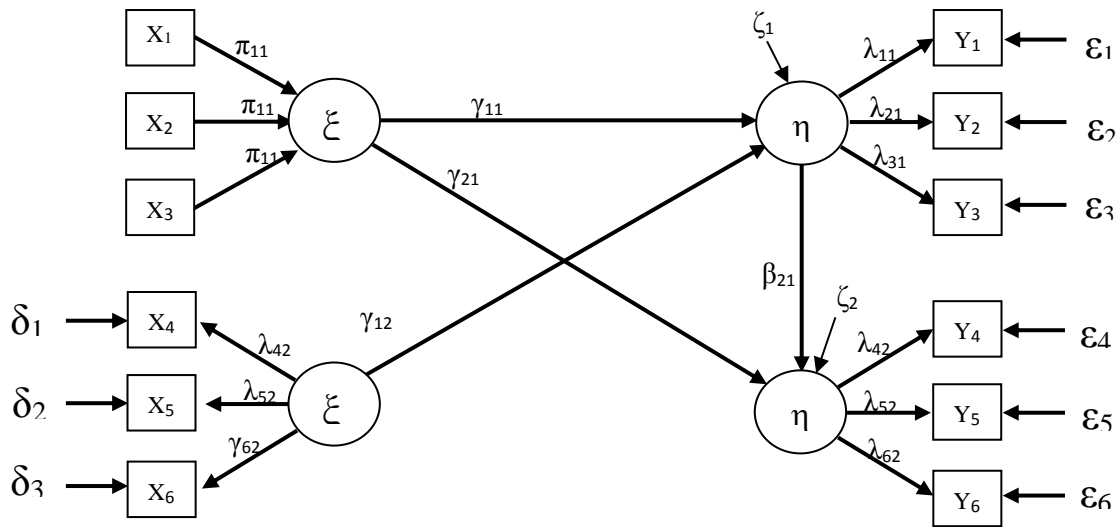
Another difference between the two approaches, is that the PLS PM is component based in which represent the constructs in terms of components; whereas, the CB SEM is a factor based approach.

The PLS algorithm includes many statistical analysis, such as: principal components analysis, multiple regression, multivariate analysis of variance, redundancy analysis, and canonical correlation; *“in which they allows each indicator to vary in how much it contributes to the composite score of the constructs”*.

As a result, the PLS is robust to violations of multivariate normal distributions, which allows more analysis flexibility of the path models.

Moreover, the PLS path modeling encompasses two types of models: the outer model (i.e. the measurement model) and the inner model (i.e. the structural model). The first one include the relationships that relate the latent variable to its observed variables (or components), and the second one specify the links between the latent unobserved constructs (or variables). The following figure illustrates the PLS path model

**Figure 16: PLS path model**



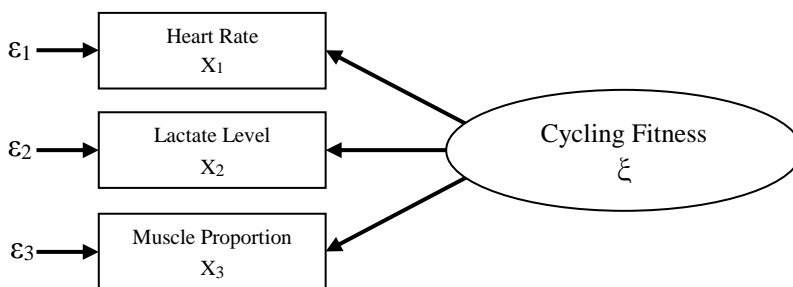
$\xi$  : Exogenous construct  
 $\eta$  : Endogenous construct  
 $X$  : Manifest variable, measure or indicator  
 $Y$  : Manifest variable, measure or indicator  
 $\pi$  : Regression weight  
 $\lambda$  : Loading  
 $\delta$  : Error term for an exogenous construct  
 $\varepsilon$  : Error term for an endogenous construct  
 $\zeta$  : Residual in the structural model  
 $\gamma$  : Path or regression coefficient  
 $\beta$  : Path or regression coefficient

So  $\lambda$  : Loading n

We can distinguish two types of the outer model: reflective and formative measurement model.

**∞ Reflective model:**

This model includes effective indicators or variables that are assumed to be the effect of the latent construct, which is assumed, determine its observed variables. In other words, the changes in the latent constructs will occur as changes (or changes in the indicators' loadings) in all its reflective indicators.



**Figure 17: Example of a reflective**

As a result, the reflective indicators are highly correlated among each other, and the omission of one indicator will not change the meaning of the latent construct, because the

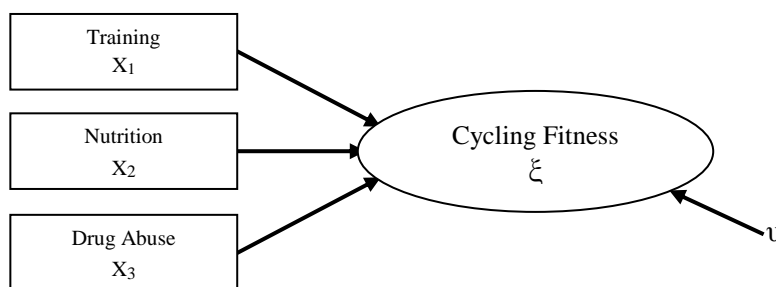
increase in the value of one indicator translates into a higher score for the composite variable, regardless of the value of the other indicators.

The assessment of the reflective model should be first by verifying the internal consistency reliability and validity of the latent constructs.

### ∞ Formative model:

In contrast to the reflective model, the formative model includes formative variables that cause the latent construct. The construct is defined as a combination of its indicators, in other words the indicators represent all the relevant dimensions or independent underpinnings of the latent variable. Thus, the omission of one indicator can change the meaning of the latent construct, because it omits a unique part of the formative measurement model

The introduction of the formative mode in PLS path modeling is new, where they should be used with caution when applying it. (Hair et al., 2014)



**Figure 18:** Example of a formative measurement model

### ∞ PLS path modeling software:

There are several softwares used in the soft modeling starting with LVPLS developed by Lohmöller (1981). After that, they used the PLS Graph program created by Wynne Chin (2001). Then, they have used the Smart PLS (Ringle, Wende, & Will, 2005), besides other statistical tools have been introduced to the PLS modeling; such as: XLSTAT PLSEM 2014. Another software is used to overcome the non linear equations is the Warp-PLS developed by (Kock, 2011).



**Table 9:** the main software used in the PLS path modeling<sup>18</sup>

<b>Software</b>	<b>Developers</b>
Coheris SPAD data mining	Coheris
LVPLS 1.8	Jan Bernd Lohmoller
PLS –Graph	Wynne Chin, Soft Mdeling.Inc.
Plspm	Gaston Sancher, Laura Trinchera
PLS-GUI	Y. Li , University of South Carolina
SemPLS	Armin Moneche, Ludwig Maximilian University Munchen
Smart PLS 2.0	Christian Marc Ringle , Sven Wende , Alexander Will, University of Hamburg
VisualPLS	Jen Ruei Fu , National Central University in Taiwan
WarpPLS 2.0	Ned Kock, ScriptWarp Systems
XLSTAT-PLSPM	XLSTAT

**Source:** in the Handbook of Partial Least Squares: Concepts, Methods and Applications, Temme, Kreis et Hildebrandt (2010).

#### ∞ Reasons behind choosing the PLS PM:

The PLS-SEM has many advantages and helps overcome numerous statistical issues.

The first reason behind the use of the PLS path modeling is its strength and ability to handle missing data. It is used to measure links between dependent and independent latent variables and to test the results reliability. (Fornell and Lacker, 1981)

According to Hair et al, 2014, the main reasons behind using the PLS path modeling are:

- It avoids small sample size problems,
- Overcome non normal data, and missing data,
- Introducing formative measured constructs, and thus, it can handle both reflective and formative measurement models.
- *Besides, other factors are as follows:*

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<sup>18</sup> For more details on the PLS path modeling software, see the article of Temme, Kreis and Hildebrandt 2010.

- The PLS path modeling give latent variables scores (proxies of the constructs measured by one or more indicators),
- It has less restrictive assumptions about the distribution of variables and error terms. According to Fornell (1982): “there are no distributional requirements.

(Henseler et al 2009)

### ☞ The process of PLS Path Model assessment

According to Hair et al, 2014, when applying the PLS-SEM, there are three important steps that the researcher should follow, which include: the model specification (e.g. data collection and examination), the outer model evaluation and estimation of the inner model.

- **The outer model evaluation**

According to Hensler et al, 2009, the main stages of the PLS-SEM estimation are as follows<sup>19</sup>:

**Stage 1:** iterative estimation of latent variable scores, consisting of a four-step iterative procedure that are repeated till satisfying the convergence conditions;

- Outer approximation of the latent variables scores;
- Estimation of the inner weights;
- Inner approximation of the latent variables scores,
- Finally, estimation of the outer weights.

**Stage 2:** estimation of outer weights (or loadings) and path coefficients;

**Stage 3:** estimation of location parameters.

However, there are similar estimation stages than the mentioned above, but much clear in Hair et al, 2014, where he stated that the reflective measurement model are assessed with reliability and validity to achieve the model consistency.

The reliability means the extent to which the measurement model is reliable in measuring intended latent constructs, the so-called construct or composite reliability. It values ranges from 0.60 to 0.70; whereas values beyond 0.60 indicate a lack of reliability.

In general there are three types of validity, which are: convergent validity, construct or composite validity and discriminant validity.

- ✓ **Convergent validity**

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<sup>19</sup> For more details on these estimation stages, see Lohmoller, 1989.

To achieve this validity, we examine the average variance extracted (AVE), which is need to be higher than 0.50 to satisfy the convergent condition that the latent construct is well explained by its indicators' variances. The AVE is the grand mean value of the squared loadings of a set of indicators and is equivalent to the communality of a construct.

The following equation shows how it is calculated:

$$CR = \frac{\text{Square of total standardized loadning}}{\text{Square of total standardized loadning} + \text{measurement error}}$$

$$CR = \frac{\text{Sum of total standardized loadning}}{\text{Sum of total standardized loadning} + \text{measurement error}}$$

$$\text{Measurement error} = 1 - (\text{Standardized loadning})^2$$

- **Discriminant validity**

By the discriminant validity, we mean the extent to which the latent construct is distinct from other latent constructs in the model. Within this validity, there two used test, the Fornell and Larcker (1981) criterion, where the AVE of each construct should be higher than the highest squared correlation with any other construct, where the construct shares more variance with its indicators than with any other Construct. The second one is by examining the cross loadings of the indicators or manifest variables. In here; the loadings of each indicator on its construct should be higher than the cross loadings on other constructs.

$$DV = \sqrt{AVE}$$

- **Uni-dimensionality procedure**

We mentioned above that the PLS-SEM is an iterative process that aims to achieve a good model. This procedure is called the unidimensionality procedure<sup>20</sup>.

It is achieved by getting the acceptable outer factor loadings (should be equal or higher than 0.50) for the latent constructs after removing the undesirable factors that affect the total reliability of the outer model.

After the deletion of the undesirable factors, the measurement model should be run again with the reliable factors.

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<sup>20</sup> Marsh, H. W., & Hocevar, D. (1985). Application of confirmatory factor analysis to the study of self-concept: First- and higher order factor models and their invariance across groups. *Psychological bulletin*, 97(3), 562.

This procedure is primordial to improve the reliability and validity of the measurement reflective model.

- **The inner model evaluation**

After doing the uni-dimensionality procedure and verifying the reliability and validity of the outer model, we should evaluate the PLS path model coefficients.

To do so, we should run the bootstrapping to determine first the significance of the factors or the indicators. This approach is a resampling procedure that creates other subsamples from the basic sample, and thus, estimates the model coefficients for each of these subsamples, and obtains a large number ( 5,000 or more) of model estimates, which can be used to compute a standard error of each model parameter . (Hair et al., 2014)

According to Hair et al, 2014, the PLS-SEM quality is based on its ability to predict the endogenous constructs basing on the exogenous constructs. Thus, there are several criteria that indicate a good quality of the PLS path model.

- **Introduction to PLS regression:**

Partial least squares (PLS) regression is used to describe the relationship between multiple response variables (endogenous constructs) and predictors (exogenous variables), where it analyzes data with collinear or corelated, noisy, and numerous X-variables, and also simultaneously model several response variables,  $Y^{21}$ .

In general, the PLS approach is particularly useful when one or a set of dependent variables (or time series) need to be predicted by a large set of predictor variables (or time series) that are strongly cross-correlated.

Moreover, there are many advantages of the PLS regression, among which:

- It help overcoming the multi-collinearity issue,
- It allows taking into account the data structure, and thus, it can model several response variables at the same time,
- It provides visual results that help their interpretation.

There are several used criteria to evaluate the performance and the quality of the PLS path model , among which :

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<sup>21</sup>For more details on the PLS regression, see the article of Tenenhaus, (1998), Svante Wold et al, (2001) and Abdi, H. (2003).

- ✓ **Coefficient of determination ( $R^2$ ):** is a measure of the model's predictive accuracy, where it represents the exogenous variable's combined effect on the endogenous variable(s). it ranges from 0 to 1, where 0.75, 0.50, 0.25, respectively, describe substantial, moderate, or weak levels of predictive accuracy.
- ✓ **The VIP scores** which are obtained by PLS regression, can be used to select most influential variables or predictors, X, where the latent variable whose VIP score is greater than 0.8 and above is considered as an important variable. It can be estimated for j-th X-variable by the following equation:

$$VIP_j = \sqrt{\frac{P}{\sum_{i=1}^k R_d(Y, t_i)} \sum_{i=1}^k R_d(Y, t_i) w_{ij}^2}$$

$R_d$  is defined as the mean of the squares of the correlation coefficients (R) between the variables and the component.

- ✓ **The  $Q_{CUM}^2(h)$  index** measures the global contribution of the h first components to the predictive quality of the model. The  $Q_{CUM}^2(h)$  index writes:

$$Q_{CUM}^2 = 1 - \sum_{j=1}^k \frac{PRESS_j}{RRS_{j-1}}$$

$PRESS_j$ ,  $PRESS$  being associated with a j-component PLS model and  $RRS_{j-1}$ ,  $RRS$  being associated with a (j - 1) component PLS model. It must be as close as possible to 1.

- ✓ **The  $R_{XCUM}^2$  index** is the sum of the coefficients of determination between the explanatory variables and the h first components. It is therefore a measure of the explanatory power of the h first components for the explanatory variables of the model.

$$RX_k^2 = \frac{\sum_{i=1}^k \| t_i \|^2 \| p_i \|^2}{(n_l - 1)p} \times 100$$

- ✓ **The  $R_{YCUM}^2$  index** is the sum of the coefficients of determination between the dependent variables and the h first components. It is therefore a measure of the explanatory power of the h first components for the dependent variables of the model.

$$RY_{k,adj}^2 = \left[ 1 - (1 - RY_k^2) \left( \frac{n_l - 1}{n_l - h - 1} \right) \right] \times 100$$

where

$$RY_k^2 = \frac{\sum_{i=1}^{n_l} (y_i - \hat{y}_i^{[k]})^2}{\sum_{i=1}^{n_l} (y_i - \bar{y}_i^{[k]})^2}$$

$y_i^{[k]}$  is the prediction of the observation  $y_i$  for an h-component model and  $\bar{y}$  the average of the  $n_L$  observations,  $y_i$ .

### 3.3.3.2. The PLS Path Model assessment

As it is mentioned above, we will run our model that includes two types of variables: the endogenous latent constructs; which is informality; and endogenous latent constructs that are the institutional indices that are build basing on the research questionnaire<sup>22</sup>.

The results of the measurement model and of the structural model will be discussed in much more details in what follows, besides the multi-collinearity issue and the PLS regression.

In doing the statistical analysis of the latent constructs in the PLS SEM path modeling, we should evaluate the signs and significance of the indicators. the unexpected and no significant indicators and variables refer to statistical issue among the original data, among which the multi-collinearity.

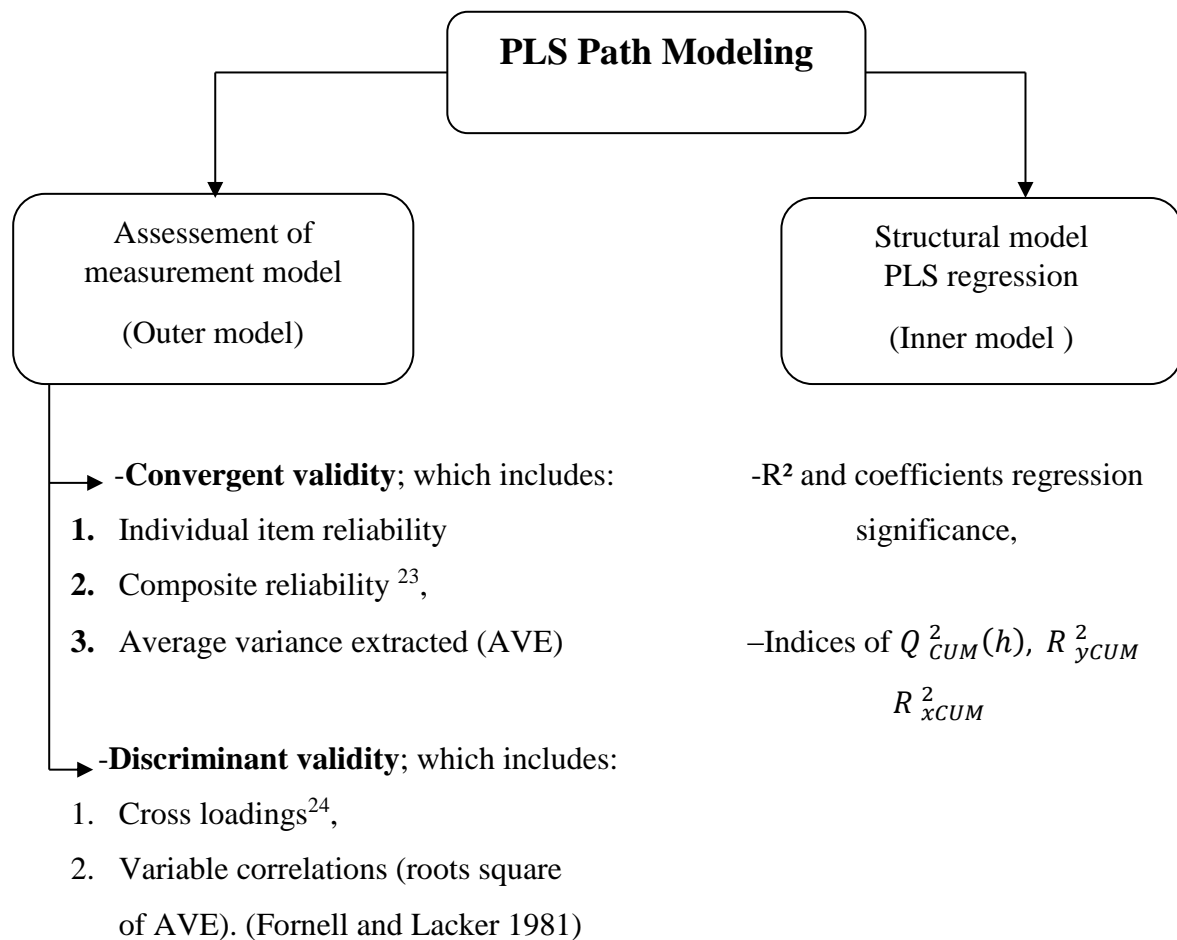
The variance inflation factor (VIF) is used to show the multi-collinearity issue among the latent constructs, where the high value of VIF indicates that the variables are highly correlated among each other.

*In this regard*, the following figure presents a guideline for applying PLS path modeling, as follows:

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<sup>22</sup> All the used latent constructs and their dimensions are mentioned in the appendix 1.

**Figure 19:** PLS path modeling application



**Source:** a two-step process of PLS Path Model assessment.

The figure19 of the two-step process of PLS Path Model assessment above, shows that within the measurement model, we should verify the reliability and validity among the model constructs.

#### **A. The measures reliability**

First, we will test the composite reliability to evaluate the construct measures' internal consistency reliability. The composite reliability should be higher than 0.70 and the AVE support this reliability when each construct's average variance extracted (AVE) is loadings above 0.50. The results are presented in the following table:

<sup>23</sup> It is also called : construct validity.

<sup>24</sup> This requires that the loadings of each indicator on its constructs are higher than the cross loadings on other constructs. (Henseler et al , 2009)

**Table 10:** composite reliability of the measures

<i>Latent variables</i>	<i>Measure variables</i>	<i>Composite reliability</i>	<i>AVE</i>
Threshold		> 0.70	> 0.50
<b>Informal practices</b>	infor1, infor2	0.813	0.687
<b>Support of public institutions</b>	supp4	1.000	1.000
<b>Adj. of formal institutions</b>	adj1 till adj5	0.881	0.649
<b>Persist. of informal institutions</b>	pers1,pers2,pers3	0.832	0.712
<b>Quality of legal system</b>	legal1	1.000	1.000
<b>Trust in governance</b>	trust1, trust2	0.856	0.749
<b>Cost of institutional change</b>	extracost1	1.000	1.000

**Source:** author's construction based on the PLS PM results.

The results of our latent variables show a good composite reliability and AVE, which reflect a good measures 'reliability.

### **B. Convergent validity of the measures**

The second step is the assessment of the construct's convergent validity of the observed variables; which refers to the correlations between the observed variables and their reflective constructs. The convergent variables are those who have coefficients of correlation higher than 0.70 (Fornell and Lacker, 1981). The next table shows the results of this step, as follows:



**Table 11:** convergent validity of the latent constructs

	Adjusutment of formal institutions	Cost of institutional change	Informal practices	Quality of legal system	Persistence of informal institutions	Support of public institutions	Trust in public institutions
Convergnent reliability when correlation bet measure variables and construct > 0.60							
<b>adjust1</b>	0.730						
<b>adjust2</b>	0.792						
<b>adjust3</b>	0.840						
<b>adjust4</b>	0.855						
<b>extracost2</b>		1.000					
<b>informal1</b>			0.743				
<b>informal2</b>			0.907				
<b>legal1</b>				1.000			
<b>persist1</b>					0.854		
<b>persist2</b>					0.834		
<b>support4</b>						1.000	
<b>trust1</b>							0.813
<b>trust2</b>							0.915

**Source:** author’s construction based on the PLS PM results.

We have first removed all the non desirable measure variables that don’t fulfill the convergence conditions, and then, we have estimate our measurement and structural relationships using the bootstrapping approach.

In here, we mention that the latent constructs cost on institutional change, quality of legal system and support of public institutions have one measure variable, because the other measures didn’t satisfy the convergence conditions, thus, they have been removed from the path model.

### C. Discriminant validity of the measures

This validity represents the extent to which the construct is empirically distinct from other constructs, in other words, the construct measures what it is intended to measure. Basing on the Fornell and Lacker (1981) criterion, this method states that construct shares more variance with its measures (or its indicators) than with any other construct. To do so, the AVE of each construct should be greater than the squared correlations with any other construct. (HAIR, et al. 2014)

Another option to verify the discriminant validity is by examining the cross loadings of the indicators. (Hensler et al, 2009)

**Table 12:** discriminate validity of the measure variables (based on Fornell-Larcker Criterion)

	<b>Adjust</b>	<b>Cost</b>	<b>Informal</b>	<b>Legal</b>	<b>Persist</b>	<b>Support</b>	<b>Trust</b>
Criterion	<b>AVE (x) &gt; Cor<sup>2</sup> (x, y)</b>						
<b>Adjust</b>	<b>0.806</b>						
<b>Extra cost</b>	0.072	<b>1.000</b>					
<b>Informal</b>	0.517	0.165	<b>0.829</b>				
<b>Legal</b>	0.104	-0.404	0.273	<b>1.000</b>			
<b>Persist</b>	-0.619	0.040	-0.597	-0.184	<b>0.844</b>		
<b>Support</b>	0.024	-0.117	-0.357	-0.036	-0.030	<b>1.000</b>	
<b>Trust</b>	-0.136	-0.085	-0.458	-0.038	0.149	0.766	<b>0.865</b>

**Source:** author’s construction based on the PLS PM results.

Thus, from the table above, the discriminant validity conditions are verified among the model constructs.

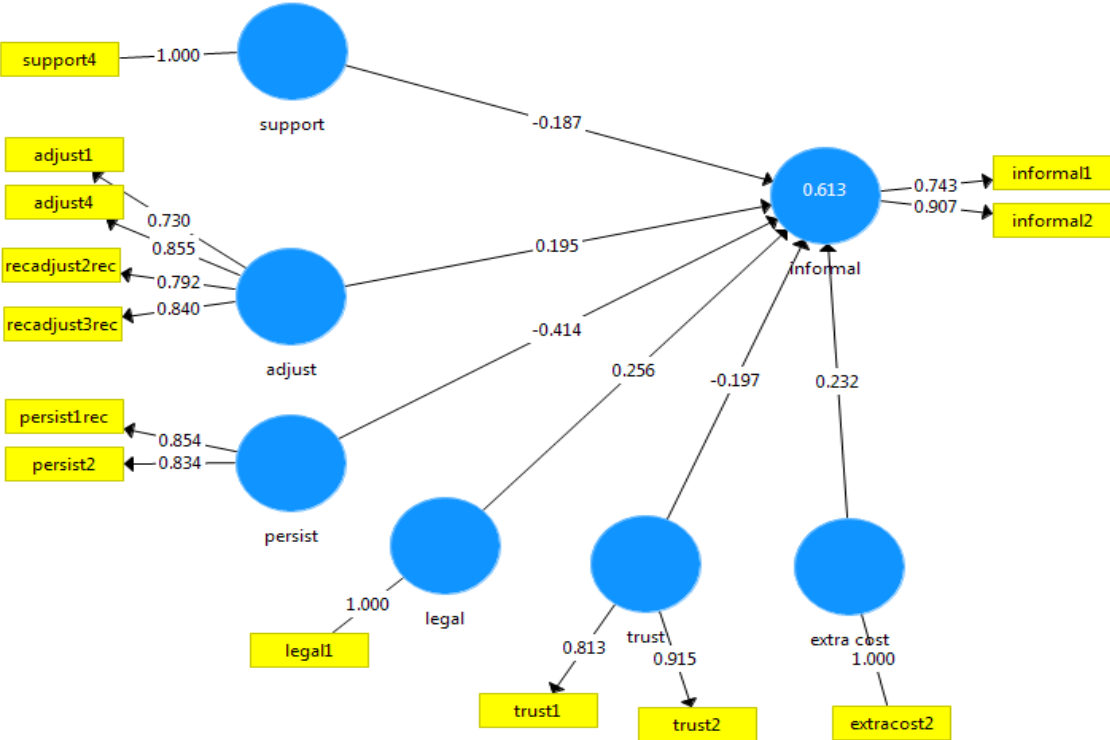
#### **D. Estimation of the structural model**

From the figure above that summarizes the two steps PLS path modeling, that to estimate the path coefficients the bootstrapping technique is used if the data are normally distributed and samples are independent. Because of the non-normality and the multi-collinearity issue in our dataset, we will use the PLS regression rather than the bootstrapping technique.

Thus, this section is devoted to the estimation of the structural model and coefficients of the links between the measures variables and the latent constructs.

We have seven latent constructs; with one endogenous latent construct; and eleven measure variables related to each other by a reflective mode that are reflected by arrows coming from the latent construct to its indicators. The estimation coefficients are those located on the links between exogenous and endogenous latent variables. The following figure presents the structural model and loadings among the measures and the latent constructs.

**Figure 20:** measurement model of PLS-SEM after uni- dimensionality



**Source:** results of PLS path modeling based on the SmartPLS ( version 3.0).

It is well known that PLS-SEM does not have a standard goodness of fit statistic. However, the assessment of the model’s quality is based on its ability to predict the endogenous constructs. Thus, there are numerous criteria that facilitate this assessment, which are: the coefficient of determination ( $R^2$ ), cross-validated redundancy ( $Q^2$ ), path coefficients and the effect size ( $f^2$ ). (Hair et al. 2014)

For our model,  $R^2$  is about 0.613, which reflect a good explanation of the endogenous construct (informality) by the exogenous latent variables.

The regression coefficients are presented on the arrows that relate the constructs to their measure variables.

In general, some latent variables have positive coefficients; which are quality of legal system (0.256), adjustment of formal institutions (0.195) and the cost transformation institutional (0.232).

The other latent variables have a negative effect on the endogenous construct, which are support of public institutions (-0.187), persistence of informal institutions and old habits (-0.414) and trust in public institutions (-0.197).

Nevertheless, the regression coefficients do not satisfy our research hypotheses, which is due to a multi- co linearity issue among our latent constructs. Thus, we will use the PLS

regression in order to overcome this issue of the non significance of the path coefficients. (Tenenhaus et al. 2005)

### 3.3.3.3. The PLS regression

#### ∞ Multi- co linearity diagnostic

Although, PLS-SEM allows for more flexibility, it can lead to many other problems, among which the multi-collinearity issue. To overcome this issue, we will use the PLS regression.

There are several collinearity diagnostic tests, among which the variance inflation factors (VIF). It measures the inflation in the variance of the parameter estimates due to collinearity among the explanatory variables.

In addition to the VIF test, there are other proofs of the existence of multi- collinearity among our constructs, which are:

- It results in coefficients appearing to have the wrong sign.
- Estimates of coefficients are sensitive to sets of the research sample data.
- Some items are dropped from the path model although; they are of great importance in our research analysis.

#### ∞ PLS regression results

Among the used approaches to solve the multi- collinearity, we have the PLS regression. It is a technique that aims to create from a sample of n observations and p variables, a set of components with PLS algorithm. In other words, it is a statistical procedure that predicts a dependent variable from an unlimited number of possible correlated explanatory variables by a linear relationship. (Lohmoller 1989)

The PLS regression is applied in the XLSTAT 2014, the results of this technique are as follows:

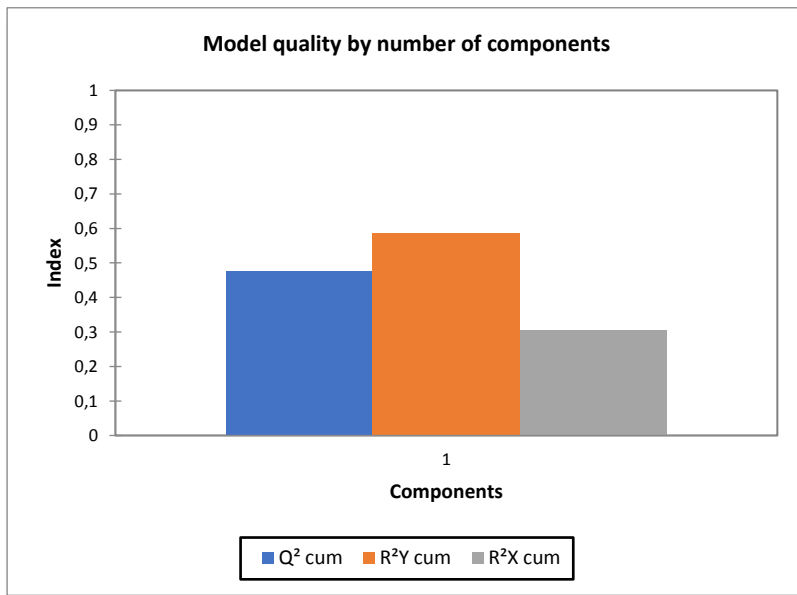
- ✓ The model quality, which is based on the following criteria ( $Q^2_{CUM}$ ,  $R^2_{xCUM}$ ,  $R^2_{yCUM}$ ):

**Table 13:** model quality indexes

Index	Comp1
$Q^2_{CUM}$	0.476
$R^2_{yCUM}$	0.588
$R^2_{xCUM}$	0.305

**Source:** extracted from the PLS regression results.

**Figure 21:** model quality indexes



**Source:** extracted from the PLS regression results.

It is clear from the table above of the model quality that the indexes have a good quality the one component, which are 0.476, 0.588 and 0.305.

**Table 14:** the PLS regression normalized coefficients

Variable	Coefficient	Std. deviation	Lower bound (95%)	Upper bound (95%)
adjust extra	0.286	0.107	0.077	0.495
cost	0.091	0.089	-0.082	0.265
legal	0.151	0.138	-0.120	0.423
persist	-0.330	0.121	-0.567	-0.093
support	-0.198	0.172	-0.534	0.139
trust	-0.253	0.078	-0.406	-0.101

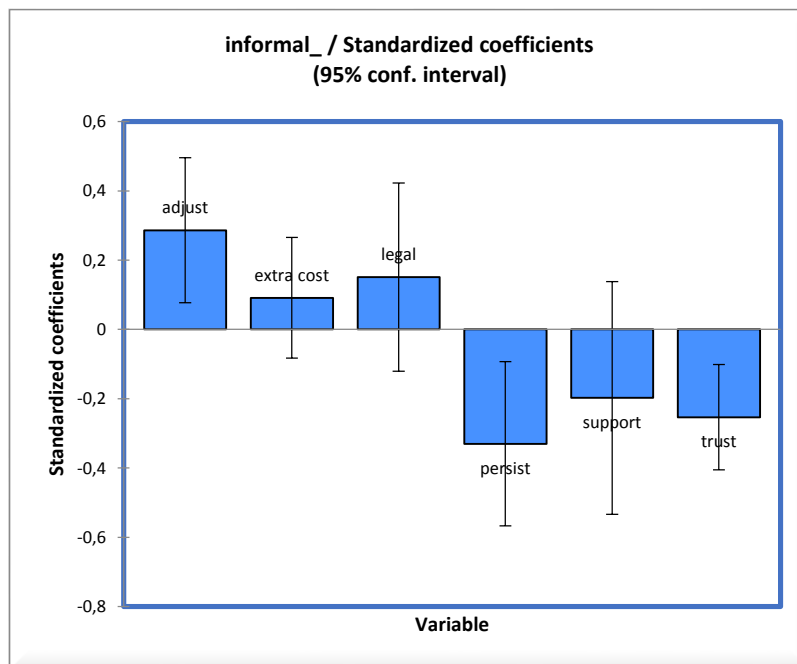
**Source:** extracted from the PLS regression results.

The table above indicates the signs and model coefficients between the latent construct informality and the exogenous latent constructs.

We can see that the variables cost of institutional transformation, quality of legal system and support of public institutions are not statistically significant, although they have the desirable sign.

The following figure also illustrates these results: n

**Figure 22:** confidence interval of the latent constructs



**Source:** extracted from the PLS regression results.

These results can be interpreted basing on our hypotheses and the literature review as follows:

First, we will begin by the significant variables. Trust in public institutions explains the informality variance by about 26%. Besides it affects negatively informality. This means that trust measures the confidence between the economic agents and level of trust that those economic agents have in the economic system and public institutions. Thus, the greater the index implies the lowest level of informal practices.

The index of persistence of informal institutions implies: the highest level indicates the great influence of the rules and institutions of old regime, and thus the resistance to the institutional change increased by economic agents. This results in the increasing size of informal practices that break the rules of law.

Our results indicate that persistence of informal institutions has an impact on informality, but this impact is negative (explain its variance by 33%). This means that even economic agents resist economic change but they do not go underground.

Adjustment to formal institutions implies adaptation of the economic agents to formal economic institutions. Our results indicate a positive impact on informality (explain its variance by 29%), which means that there is a bad execution of the rules of law, although there are many

adjustments of the economic institutions that aim to promote entrepreneurial activity and thus improve economic growth.

The other variables; which are cost of institutional transformation, quality of legal system and support of public institutions are not significant and have not an impact on informality even their importance in the institutional analysis of informality. We can attribute this non significance to the small sample size and the used PLS approach that is a constructive method.

### **3.4. Discussion of the global institutional framework in Algeria**

According to the *Worldwide Governance Indicators* (WGI), Algeria has the lowest rank among the Middle East and North Africa countries for all the governance indicators, although the massive investment that Algeria has made in different socio-economic domains to foster inclusive growth.

They attribute this inefficiency to public spending policies, the quality of public service delivery and infrastructure; in addition to the weak institutional capacity and governance that lead to more opportunities for corruption, rent-seeking behavior and non compliance behaviors.

According to the *Ibrahim index of African governance* (IIAG), Algeria is ranked well among the North African countries showing an improvement in some governance indicators, such as: rule of law, human right and human development.

According to the *Fraser Institute and Heritage foundation* on economic freedom index and *The Global Competitiveness Index*, Algeria's low rank didn't change reflecting the low quality of rule of law and regulatory efficiency and protection of property rights scores; besides the low attractiveness of FDI and few opportunities that promote entrepreneurial activity, which give it the last rank in freedom to trade internationally among the MENA countries.

Moreover, even though the improvements in the business environment, entrepreneurial activity and economic development remain the same, the labor market is still rigid; among other thing like the rent seeking activities, corruption in business and informal economic practices.

According to the *Transparency international* on corruption perception index, corruption is a growing problem in the Algerian society including all its forms and the damage that could affect the economic activity, even though the rules and the regulations that are created in this field.

Additionally, corruption reduces the trust between the state and the economic agents, which will hinder cooperation and competition that are key engines of the market economy. Because

of this violation, economic activity will be directed by clans and illegal mafias, and thus leads to more non compliance behaviors.

Our study on governance and institutional environment and its impact on non compliance in Algeria show that the existence of the informal practices in the business environment is attributed to the lack of trust among the public institutions, persistence of informal institutions that reflect the influence of the rules and institutions of old regime, and thus the resistance to the institutional change increased by economic agents; which in turn increase the size of the informal practices that break the rules of law. In addition, there is a bad execution of the rules of law, although there are many adjustments of the economic institutions that aim to promote entrepreneurial activity and improve economic growth.

To sum up, our study confirms the point of view of all the international institutes mention above, and they accentuate the role of the state that should adjust public spending to improve the quality of public services delivery and to maintain infrastructure quality, beyond tackling all the forms of corruption in order to establish trust and cooperation in the whole economy.



## **Conclusion**

The objective of this research is to analyze the impact of institutional and governance indicators on the non compliance (informal practices) in Algeria. To do so, we sued a field survey on the economic enterprises in the west of Algeria.

Our findings indicate that the existence of the informal practices over the economic enterprises is due in the first place to the level of trust that the economic agent have in the public institutions and the economic system. In the second place, is due to the persistence of informal institutions and the adjustment to formal institutions that reflect the adaptation of economic agents to formal economic institutions.

However, some variables are not significant even their importance in the analysis of non compliance, which is due to the small sample size.

Moreover, our study; comparing to other international institutes; confirms the weak institutional framework for the Algerian business environment that need to be adjusted in order to promote private sector and inclusive growth.

## **General conclusion**

We have shown that because of the rising size of the underground economy and its potential effects on the official sector, many authors try to measure its magnitude; though it is a difficult task; in order to help the bureaucrats in elaborating efficient development policies that promote growth.

Moreover, we have seen that each estimation method has advantages and disadvantages that limit its use, where the modeling approach is considered as the most appropriate method for measuring the size of the underground economy, even the criticisms that we have cited earlier.

For Algeria, we have shown that although the several researches that attempt to estimate the size of the underground economy; using the direct approaches, they just led to an approximation of this phenomenon, because of the lack of data and the costs spent in elaborating such questioning and surveys techniques and the heterogeneity of the informal practices.

According to our findings, the existence of the informal practices over the economic enterprises is due in the first place to the level of trust that the economic agent have in the public institutions and the economic system. In the second place, is due to the persistence on informal institutions and the adjustment to formal institutions that reflect the adaptation of economic agents to formal economic institutions.

However, some variables are not significant even their importance in the analysis of non compliance, which is due to the small sample size.

## **Recommendations**

Basing on our estimation results, in order to increase the size of the non compliance and informal practices the state should increase the level of trust among the economic agents. This so-called social capital is the key for improving investment and productivity of the economy basing on the cooperation and social and economic interactions among the economic agents. Besides this, this base of trust will reduce the cost of transaction that is due to the increasing cost of the institutional change.

Although the non significance of the quality of legal system and the support of public institutions for the entrepreneurial activity, these two basic elements are important for stimulating the adaptation of economic agents to the formal regulations, and thus reduce the informal practices by creating social networks that support that.

Moreover, the state should include social norms in the elaboration of its policies because of their roles in reducing social conflicts, and thus increase cooperation and economic performance in the society.

And finally, the law is important for the functioning of the economy, but it is up to the state to simplify the process of creating and enforcing its regulations. This is the only way to fight against corruption, protect property rights, and restore the confidence of economic agents into the institutions of the state.

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## APPENDICES

### Appendix 1:

The following table summarizes the content of the definition of each of the institutional indices:

Institutional indices	Definition
<b>Support of Public Institutions (SUPPORT)</b>	Government institutions support for business; public information agencies; banking and financial services.
<b>Adjustment to Formal Institutions (ADJUST)</b>	Introduction of new market rules.
<b>Persistence of Informal Institutions (PERSIST)</b>	Social norms, lobbies; informal information network; privileges; rent-seeking, etc.
<b>Legal System and property rights (Legal)</b>	Quality of legal and judicial Systems; enforcement of property rights.
<b>Trust (Trust)</b>	Trust in the public institutions and cooperation among economic agents.
<b>Corruption and bureaucracy cost (extra COST)</b>	Corruption; bribes; unofficial payments; bargaining costs of economic transaction and acquisition costs of property rights, and other costs related to the institutional change.
<b>Non compliance (Informal)</b>	includes all the practices that have a legal market but are produced in an illegal way (e.g. tax evasion, non-respect of law, etc).

**Source:** authors' construction.

### Appendix 2:

#### Survey on informality and institutions in Algeria

The aim of this survey is to emphasize the importance of institutions for economic growth during the institutional change; that is affected not only by the introduction of new rules of law and formal institutions, but also by informal institutions, that lead to non-compliant behaviors which in turn create informal practices.

Thus, institutional indexes are used to measure governance capacity and the quality of institutions; which are used to measure the performance of the whole economy, where the informality (informal practices) is one of the undesirable effects of the institutional change towards the market economy.

## About the respondent

### Is the respondent :

- Manager
- Owner
- Other (please indicate the fonction)

### Level of Education :

- MA (or equivalent)
- Postgraduate education
- Secondary school
- Primary school
- Other (please indicate)

## Nature of the company (enterprise)

Region (location):

Name of the company:

Number of owners:

Annual sales:

Year of creation:

**Sector of production** (indicate the specific goods or services):

- Agriculture
- Industrie
- Service sector / retail,

**Size : number of employees**

- SEM (small or medium size enterprise, 250 or less) ; N=
- LE (large enterprise, more than 250) ; N=

**Ownership :**

- Public
- Private
- Mixte, public ownership : %, Private ownership : %
- Cooperative,

- Other (such as)

**Capital :**

- 100% FDI (foreign direct investment)
- 100% national capital,
- Mixte, foreign capital : %, national capital : %

**Is the company:** (please indicate the percentage)

- Export oriented %
- Local market oriented %
- National market oriented %

**Questionnaire :** (Write or tick (√) the appropriate response next to the number)

**Q.1** Do you think that public institutions (such as: public administrations, chamber of commerce, etc) will support and help you company?

هل تعتقدون أن الهيئات العمومية (الإدارة المحلية، المؤسسات العمومية، غرف التجارة،) مستعدة على مساعدة ودعم مؤسساتكم؟؟؟

NO 1\_ 2\_ 3\_ 4\_ 5 YES

<b>Q.2 What are the money capital sources of your company ?</b> ما هي آليات تمويل نشاطكم؟؟	Not at all	Very little	Few	Quite a lot	A lot
A) Bank loans					
B) Browning from famliy or freinds					
C) Your own savings					
D) State aid					
E) Re-investment of profits					
F) Stock exchange					
G) Other					

<b>Q.3 Where do you find information to run your company ?</b> أين تجد المعلومات اللازمة لتسيير مؤسساتكم؟	Not at all	Very little	Few	Quite a lot	A lot

A) Public administration					
B) Press					
C) Colleagues					
D) Foreign contacts					
E) Chambre of commerce					
F) Other					

<b>Q.4 What are the main obstacles when creating your business activity?</b> ما هي الصعوبات التي واجهتك عند مباشرتك إنشاء مؤسستك؟	1 : A lot	2	3	4	5 : No obstacle
A) Lack of information					
B) Lack of governmental support					
C) Lack of trust in public institutions <sup>25</sup>					
D) Long bureacratic process					
E) corruption					
F) Finacial issues					
G) Other					

<b>Q.5 How do you assess the government role in the following areas ?</b> كيف تقيمون دور الدولة في محاربة الفساد، والسوق الموازية والبيروقراطية؟	Very good	Good	Sufficient	Bad	Very bad
A) Corruption					
B) Black market					
C) Bureacracy					

<b>Q.6 How do evaluate the Algerian legal system ?</b> كيف تنظرون إلى جهاز العدالة في الجزائر؟	Very good	Good	Sufficie nt	Bad	Very bad
A) Contracts' protection					

<sup>25</sup> Institutions include: administrative, political and economical framework such as: public office, financial institutions, public administration, property rights, commercial law, etc.



B) Judicial system (judges)					
C) Police					
D) Protection of property rights					
E) Consistency of law					
F) Implementation of law					

<b>Q.7 Do you benefit from the banking system services ?</b> هل تستفيدون من الخدمات المقدمة من النظام المصرفي ؟	Not at all	Very little	Few	Quite a lot	A lot
A) Bank loans					
B) Savings					
C) Investment funds					
D) Other					

<b>Q.8 Do you trust Algerian customers/suppliers and foreign customers/suppliers ?</b> هل تثق في الزبائن /المنتجين الجزائريين والزبائن /الزبائن /المنتجين الأجانب؟	Never	Seldom	Sometimes	Usually	Always
A) Algerian customers					
B) Algerian suppliers					
C) Foreign customers					
D) Foreign suppliers					

**Q.9** Do you think that there are some old social rules remain unchanged, which curb your activity ?

هل تعتقدون انه لا تزال هناك بعض القوانين و الاليات النظام الاشتراكي التي تعيق النشاطات التي تقوم بها مؤسساتكم ؟

None 1\_2\_3\_4\_5 Yes, a lot

	Improved	Fallen	Didn't change
<b>Q.10 In the last 2 years (2016, 2017), your company sales have been :</b>			

<b>Q.11</b> In the last 2 years (2016, 2017), your company productivity have been:			
<b>Q.12</b> In the last 2 years (2016, 2017), the number of your company employees have been:			
<b>Q.13</b> Does your company declare the entire turnout to the tax office?	Yes	Partly	No

<b>Q.14</b> How do you determine the price of your company good or service ? كيف تقومون بتحديد سعر المنتج او الخدمة المقدمة من طرف مؤسستكم؟	No	Neutre	A lot
A) It depends on the price of other companies			
B) It depends on the payed taxes			
C) It depends on the fixed price by administration			
D) It depends on the price of foreign products			
E) It depends on the production costs			
F) It depends on other unofficial payments			
G) It depends on the transaction costs <sup>26</sup>			

<b>Q.15</b> What is the impact of the representative costs <sup>27</sup> on your company, concerning the following institutes? كيف تؤثر المصاريف الدعائية اتجاه الهيئات التالية على مؤسستكم؟	Very low	Low	Sufficient	High	Very high
A) Employers' association					
B) Chambre of commerce					

<sup>26</sup> **Transaction costs include:** official and unofficial costs that occur when making an exchange, transferring a property, gathering information, etc.

<sup>27</sup> **Representative costs** mean the cost that company should pay in order to be well known in the market, to get public privileges or procurements, etc.

C) Local administration					
D) Political parties					
E) Media / Advertising					
F) Other					

<b>Q.16 In the Algerian business environment, are there any other additional payments, in terms of?</b> هل تعتقدون انه يتوجب عليكم دفع مبالغ اضافية غير رسمية فيما يخص النشاطات التالية :	Not at all	Very little	Few	Quite a lot	A lot
A) Respect of property rights					
B) Gathering information					
C) Get public privileges					
D) Create a business activity					
E) Other					
<b>Q.17 Do you think that the lobbying of the employers' associations will affect the government to change the business law?</b> هل تعتقدون ان جمعيات ارباب العمل لها تأثير في تغيير القانون التجاري بالجزائر؟؟	Not at all	Very little	Few	Quite a lot	A lot

<b>Q.18 In which of the following areas, the lobbying of your government will improve your activity?</b> في أي من الأقسام التالية تعتقد أن ضغط حكومتك من شأنه أن يحسن أداء عملك و نشاط مؤسستكم؟	Not at all	Very little	Few	Quite a lot	A lot
A) Tax subsidies					
B) Reduce the bureaucratic obstacles					
C) Raise the price of goods/ services					
D) Reduce import tax and barriers					

<b>Q.19 Which one of the following categories, are the most resisted to the transient towards the market economy?</b>	Not at all	Very little	Few	Quite a lot	A lot
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من بين الفئات التالية، ما هي الأكثر معارضة للانتقال من النظام الاشتراكي لاقتصاد السوق ؟					
A) Aged people					
B) Workers					
C) Bureaucrats					
D) Young people					
E) Jobless people					
F) Other					

**Q.20** From 1 to 5, how much is the public administration adapted to the new market economy regulations?

من 1 الى 5، كيف تقيمون الخدمات العمومية المقدمة في اطار الانتقال لاقتصاد السوق ؟؟

Not adapted 1\_2\_3\_4\_5 very adapted

**Q.21** What type of wages do you have in your company ?

ما هو نوع الاجور المدفوعة لعمال مؤسستكم ؟؟

- Fixed wages,
- Flexible wages,
- Other incentives.

<b>Q.22</b> What are the main used criterion, when you employ someone? ما هي المعايير المأخوذة بعين الاعتبار حسب الاهمية عند قيامكم بالتوظيف ؟	Not important	Little important	Important	Very important
A) Level of education				
B) Mastering foreign languages				
C) Communication skills				
D) Will to learn				
E) Experince				
F) References from other companies				
G) Other				

<b>Q.23</b> What kind of problems do you have with foreign companies ?	Not at all	Very little	Few	Quite a lot	A lot

ما هي المشكلات التي تواجه مؤسساتكم عند التعامل مع المقاولين الاجانب ؟					
A) Judicial					
B) Language					
C) Cultural					
D) Relations to costumers					
E) Lack of trust					
F) Other					

<b>Q.24 What are your main incentives to invest in Algeria ?</b> ما هي دوافعك للاستثمار في الجزائر ؟	Not at all	Very little	Few	Quite a lot	A lot
A) Lower labor cost					
B) Geographical position					
C)Exploiting raw materials					
D)Big competitive market					
E) High profits					
F)Low investment risk					
G) Other					

## **Abstract**

The informal economy is a social and economic phenomenon that one cannot ignore; especially with its effects on the official economy. Consequently, policy makers and academicians have made concerted efforts to estimate its size, and to determine its main causes. Moreover, among the main drivers and the causes of this economy are the state formal regulations on economic activities.

The emphasis of this research will be on the impact of both formal and informal institutions on the economy, by conducting a field survey in the economic sector based on 150 economic enterprises in different regions of the west of Algeria. Our results basing on the PLS-SEM modeling show that trust in public institutions and the persistence of the informal institutions including the rules of old regime, in addition to the adjustment to formal institutions affect the economic agents to go underground. But what are of paramount importance are informal institutions, such as informal rules and social norms that are deep-rooted in the society's culture and are influenced by historical patterns, and thus take too much time to be changed.

Key words: New institutional economics, social norms, non-compliance, informal economy, PLS-SEM path modeling

## **Résumé**

L'économie informelle est un phénomène social et économique que l'on ne peut ignorer surtout avec ses effets sur l'économie officielle. En conséquence, les décideurs et les chercheurs ont consenti des efforts concertés pour en estimer la taille et en déterminer les causes principales.

Cette recherche mettra l'accent sur l'impact des institutions formelles et informelles sur l'économie, en réalisant une enquête de terrain sur 150 entreprises économiques dans différentes régions de l'ouest algérien. Nos résultats fondés sur la modélisation PLS-SEM montrent que la confiance dans les institutions publiques et la persistance des institutions informelles, y compris les règles de l'ancien régime économique, ainsi que l'adaptation aux institutions formelles ont une incidence sur le passage clandestin des agents économiques. En outre, parmi les principales causes de cette économie, la réglementation étatique sur les activités économiques. Mais ce qui est primordial, ce sont les institutions informelles, telles que les règles informelles et les normes sociales profondément enracinées dans la culture de la société, qui prennent du temps pour changer.

Mots clés : Nouvelle économie institutionnelle, normes sociales, non-conformité, économie informelle, modélisation de la trajectoire PLS-SEM

## **المخلص :**

تهدف هذه الدراسة الى بيان اشر كل من المؤسسات الرسمية و الغير الرسمية على المجمعات الاقتصادية، و ذلك من خلال اجراء مسح ميداني على 150 مؤسسة اقتصادية و شملت عدة مجالات خدمية، صناعية من مختلف مناطق الغرب الجزائري و باستعمال نمذجة PLS-SEM . حيث اشارت نتائج الدراسة أن الثقة في المؤسسات العمومية ، بالإضافة إلى تعديل القواعد و التنظيمات الرسمية تؤثر على سلوك المتعامل الاقتصادي للانتقال للاقتصاد غير الرسمي. ولكن ما يكتسي أهمية قصوى هو المؤسسات غير الرسمية ، كالقواعد غير الرسمية والمعايير الاجتماعية التي لها جذور عميقة في ثقافة المجتمع، وبالتالي فهي تحتاج إلى وقت مطول للتغيير.

الكلمات المفتاحية : الاقتصاد المؤسسي الجديد ، المعايير الاجتماعية ، عدم الامتثال ، الاقتصاد غير الرسمي ، ونمذجة مسار PLS-SEM