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***Governance and Private Investment  
in the Middle East and North Africa***

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***Governance and Private Investment  
in the Middle East and North Africa***

Abstract

This paper addresses the issue of the low level of private investment in the Middle East and North Africa (*MENA*) region, with special emphasis on the role of governance. Based on the existing literature, we have categorized what types of governance institutions are more detrimental to entrepreneurial investments. We have then estimated a simultaneous model of private investment and governance quality where economic policies concurrently explain both variables. Our empirical results show that governance plays a significant role in private investment decisions. This result is particularly true in the case of “Administrative Quality” in the form of control of corruption, bureaucratic quality, investment-friendly profile of administration, and law and order, as well as for “Political Stability”. Evidence in favor of “Public Accountability” seems, however, less robust. Our estimations also stress that structural reforms -- such as financial development and trade openness – and human development affect private investment decisions directly, and/or through their positive impact on governance. These findings bring new empirical evidence on the subject of private investment in the developing world and in MENA countries in particular.

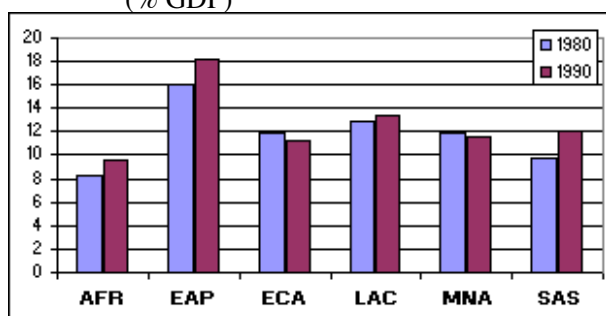
**Keywords:** governance, private investment, Institutions, Middle East and North Africa.

**JEL Classification:** P4, E2, E6, D02

## 1. Introduction

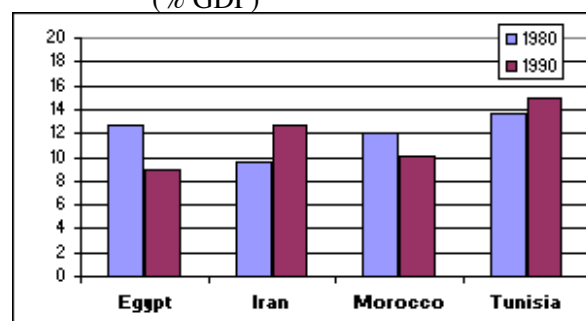
During the 1980s and 1990s, private investment in the Middle East and North Africa (*MENA*) has on average shown a decreasing trend. With the liberalization of economies and the acceleration of reforms, private investment increased throughout the world in the 1990s. The Middle East and North Africa (*MENA*) countries did not follow this pattern. While private investment to GDP declined by 2.4 percent in the region, this rate increased by 4.8 percent in Latin America (*LAC*), 15.8 percent in Africa (*AFR*), 23.4 percent in South Asia and 14 percent in East Asia (*EAP*), despite the financial crisis.

**Figure 1: Private Investment by Region <sup>1</sup>**  
(% GDP)



*Source* : Authors' calculations

**Figure 2: Private Investment in MENA Countries**  
(% GDP)



*Source* : Authors' calculations

This paper addresses the issue of the low level of private investment in the MENA region, with special emphasis on the role of governance. In fact, the MENA countries have on average been characterized by a clear deficit in “good” governance institutions. This shortfall is particularly related to democratic institutions such as political rights, civil liberties, or freedom of the press. Similarly, the quality of the administration has also been of some concern. These deficiencies have been reported as being responsible for the slow economic activity in MENA (see El Badawi, 2002; and the World Bank, 2004).

These results are in line with a growing literature on governance which suggests that successful market-based economies need “good” governance institutions<sup>2</sup>. However, the channel investigated to date concerns more the impact of governance on economic growth<sup>3</sup>, GDP per capital<sup>4</sup>, or volatility of the economic activity<sup>5</sup>. Little is empirically done to analyze the effects of institutions on private investment. As far as private investment is concerned, the literature on the role of governance has essentially focused on the effect of the rule of law – more specifically on the security of property rights which is the best documented and supported by the empirical evidence<sup>6</sup>. Other components of governance are less documented and the empirical validation is not as successful. This is not only the case for corruption and bureaucratic quality<sup>7</sup>, but also for democratic participation which lacks theoretical and empirical precision<sup>8</sup>. A few studies have, however, addressed more successfully the link between political instability, policy uncertainties and firms’ decision to invest<sup>9</sup>.

Governance, however, is part of the investment climate of a country. Investment decisions are mainly driven by profitability motives (Jorgenson, 1963). The forward-looking nature of investment underlines the importance of a stable and secure environment – in particular the security of property rights. At the same time, “good” governance institutions are viewed as reducing uncertainty and promoting efficiency (see North, 1981). In this respect, and as reported by the World Bank (2004), better governance improves the investment climate by improving bureaucratic performances and predictability. This in turn reduces uncertainty, as well as the cost of doing business. Better governance also contributes to the effective delivery of public goods that are necessary for productive business. Cross-country correlations using broad proxies for

investment climate quality suggest a positive link between the investment climate and private investment decisions<sup>10</sup>.

As a part of the reflection on the channel through which governance may affect economic performance, one strand of the literature has recently reconsidered the role of economic policies in explaining cross-country economic achievements. This research has also been of importance for our interest in the determinants of private investment. Recent work on the role of both governance and economic policies has found that governance institutions are the dominant factor with little, if any, independent influence of policies<sup>11</sup>. However, these results stem from endogeneity and specification problems, as pointed out by Sachs (2003). In fact, economic policies are likely to affect cross-country variations in governance quality. There is, in particular, some evidence that greater openness to trade and stronger competition are conducive to better governance<sup>12</sup>. Given these conditions, economic policies may explain economic performances through their impact on governance<sup>13</sup>. In the case of private investment, we show that both effects (i.e., direct and indirect) can be brought together if the model chosen is well specified<sup>14</sup>. We estimate in particular a simultaneous model of private investment and of various forms of governance institutions, where economic policies concurrently explain both variables.

In this paper, we also address other shortfalls of the empirical literature on governance and economic performances. We intend, in particular, to categorize what types of governance institutions are more detrimental to entrepreneur investments. To this end, we introduce a large set of governance variables which are not typically used in the literature on the determinants of private investment. Since these indicators are likely to be correlated, we process a few aggregated indicators using the principal component

analysis methodology. Based on the existing literature, we categorize so called governance institutions in three broad clusters as “Administrative Quality”, (*QA*), “Public Accountability” (*PA*), and “Political Stability” (*PS*). We also generate a global indicator of governance (*GOV*) which summarizes these three aspects<sup>15</sup>. This method allows in a second step to evaluate the contribution of the initial indicators to the private investment’s decisions. This information will be useful to understand which factors explain the low investment’s performances of the region. In this paper, human development and economic policy variables have been similarly processed.

Our empirical approach relies also on panel data (cross section-time series analysis) which is suitable -- contrary to previous studies -- to jointly assessing the impact of economic policies and governance institutions on private investments: the time series dimension captures the variability of policies through time and the cross section dimension covers the governance variables which tend to evolve slowly. This paper also acknowledges the deficiencies of existing data on governance as being subjective and outcome-based rather than representing the quality of actual institutions. However, this paper points out that these deficiencies do not constitute a severe problem in analyzing the effects of governance on private investment. Whether actual or not, what is important for the private investors is the perceived quality of governance at the time of investment.

This paper also benefits from a newly constructed data set on private investment. The ultimate purpose of the existing paper on investment is to determine which factors are central in the decision-making process of private entrepreneurs to invest. However, due to the lack of comparable data on private investment, most of the earlier studies use aggregate investment as a proxy for private investment. Later, the International Finance

Corporation (*IFC*) of the World Bank launched a project which addresses the private investments of various developing countries from 1970 to 1999. Studies using this disaggregated data on private investment show that private and public investment can have very different determinants (Aizenman and Marion, 1999). Therefore, disaggregated data need to be utilized in order to capture the investment-conducive factors in today's globalized economies. Building on the IFC series, our new data set covers 99 countries (63 for high quality data) over the period 1970-2002.

Finally, as previously mentioned, our empirical model allows for the simultaneous estimation of private investments and of various types of governance institutions. This model is also justified by the fact that -- in addition to economic policies -- changes in private investment can influence the quality of governance. Moreover, some hidden factors are likely to affect in parallel private investment and governance institutions. Our empirical results show that governance institutions play a significant role in private investment decisions. This result is particularly true in the case of "Administrative Quality" (*QA*) in the form of control of corruption, bureaucratic quality, investment friendly profile of administration, and law and order. Similarly, "Political Stability" (*PS*) significantly generates higher private investment. Evidence in favor of "Public Accountability" seems, however, less robust.

This paper is organized as follows. The second section introduces our classification of governance institutions to determine which institutions are detrimental for entrepreneur investments. The third section presents the other determinants of private investment which will be taken into consideration in our empirical analysis and highlights the importance of these factors for the MENA countries. The fourth section presents the



characteristics of the data used. The fifth section introduces the private investment model tested and the results of the estimations. The sixth section uses this model to determine which factors would boost the level of MENA's private investments in the future. The last section presents the conclusions.

## **2. Governance Institutions: An Attempt at Classification**

A first step in our analysis of the link between governance and private investment has been to differentiate and categorize the numerous different dimensions of governance, to better understand which institutions are investment-conducive. Existing literature on the classification of governance institutions provides some alternatives. Various authors have aggregated certain indices to better capture the common features of the existing data.

Kaufmann, Kraay and Mastruzzi (2003) categorize governance institutions in six broad groups. Their measures of governance indicators are based on 194 variables drawn from 17 different sources, in order to measure six different aspects of governance. "Government Effectiveness" and "Regulatory Quality" summarize the ability of the government to formulate and implement sound policies. The respect of citizens and the state for the institutions which govern their interactions is categorized as "Rule of Law" and "Control of Corruption". "Political Stability and Absence of Violence" measure perceptions of likelihood that the government in power will not be destabilized and indicate the continuity of policies. "Voice and Accountability" captures the process by which citizens of a country are able to participate in the selection of their government (see *Annex. 2* for more details on these indicators). The World Bank (2004) has used two

indices on “Public Accountability” and “Administrative Quality” by aggregating the existing relevant data sets for these features of governance.

Our choice of indicators has been limited by the lack of annual data available for a large sample of countries over long periods of time. Considering the existing classifications of governance data, this paper categorizes the governance variables which are likely to affect individual investors’ decision into three broad clusters: “Administrative Quality” (*QA*), “Public Accountability” (*PA*), and “Political Stability” (*PS*).

### **2.1. Quality of Administration (*QA*)**

The first set of candidates is intended to provide information on the ability of government to deal with investors and to provide them with an investment-friendly and reliable context in which to conduct their investment projects. Following the World Bank (2004), we have defined the first governance variable as the “Quality of Administration”. This variable incorporates four indicators from the International Country Risk Guide (*ICRG, 1999*), namely: (a) “Control over Corruption”, (b) “Quality of Bureaucracy”, (c) “Investment Profile”, and (d) “Law and Order” (see definitions of variables in *Annex 3*). These institutions are part of the investment climate of a country. They promote investments by reducing the costs and risks of doing business.

Corruption often has adverse effects on economic activities. This fact is well documented and is often described as one of the major constraints facing enterprises in the developing world (see the World Bank 2005). In his cross-country analysis, Mauro (1995) shows that corruption reduces growth. Gupta, Davooli and Alonso-Terme (2002) stress that corruption exacerbates income inequality and poverty. Mo (2001) documents a

causal chain of interest for our work, linking corruption to low growth through reduced human and physical capital. In fact, for private investors, corruption increases investment and operation costs, as well as uncertainties about the timing and effects of the application of government regulations. Corruption raises also the investment and operational costs of public enterprises, which are detrimental to private investment through insufficient and low quality infrastructures (see Tanzi and Davooli, 1997). The same conclusions have been reached for the effects of bureaucratic quality on the economic activity (see Evans and Rauch, 2000).

The “Quality of Bureaucracy” index of ICRG summarizes the ability of the government to formulate and implement sound policies. Moreover, the “Quality of Bureaucracy” index indicates that “countries where the bureaucracy has the strength and expertise govern without drastic changes in policy or interruptions in government services. In these low-risk countries, the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training”.

The “Investment Profile” is a measure of the “government’s attitude to inward investment as determined by the assessment of four sub-components: risk to operations, taxation, profit repatriation and labor costs”. Because investors are making long-term decisions, risks to operations and other uncertainties about future policies are detrimental to investment decisions. Taxation and labor costs have also a first order implication on costs, and therefore on decisions to invest. Although government regulations and taxation are reasonable and warranted in order to protect the general public and to generate

revenues to finance the delivery of public services and infrastructures, overregulation and over-taxation deter investments by raising business start-up and operating costs.

In the “Law and Order” index, the law sub-component provides an “assessment of the strength and impartiality of the legal system”, while the order sub-component concerns the “popular observance of the law.” Although many aspects of the business environment affect investments, the security of property rights is the most important and the better documented issue. Because of the forward-looking nature of investment, investors need institutions that preserve the right of private property, ensure equitable and consistent rule of law in protecting this right, as well as effective incentives to respect and enforce it. A reliable judiciary, in particular, reduces transaction costs for businesses and sends positive signals to investors that rules of law will be equitably and consistently protected and enforced. On the empirical side, the issue of property rights and of rule of law has been widely covered by the literature, and the results of cross-country analysis are robust to various tests and specifications<sup>16</sup>.

## **2.2. Public Accountability (PA)**

The second set of indicators measures “Public Accountability”. This index consists of two indicators from Freedom House (FH): “Civil Liberties” and “Political Rights”.

Public accountability is part of the investment climate of an economy. Because fixed capital investments are generally irreversible, private investment decisions are highly sensitive to the perception of the credibility and tenacity of the political regime, as well as of policies<sup>17</sup>. An open and participatory political system provides stability of social institutions and ensures a broad public support to policies, which are in this case

more sustainable in the long run. Public accountability is a guaranty of transparency and of better availability of information, which also help governments to build credibility. Public accountability provides access to policymakers and can hold them responsible for failures in implementing policies. In particular, freedom of press, free political parties and open elections contribute to government's legitimacy and give voice to citizens in the decision-making process. On the empirical side, the literature on democratic participation has focused on the effects of transparency and accountability on growth, using data on civil liberties, political rights, and freedom of press from various sources. The empirical validation has, however, produced mitigated success<sup>18</sup>. The work of Pastor and Sung (1995) is one of the few to have been able to show a positive effect of various indicators of democratic institutions on private investment in the developing world.

### **2.3. Political Stability (PS)**

The last set of variables is intended to measure the "Political Stability". Political instability increases the uncertainty in the economy and deters the risk-averse entrepreneurs to take action for profitable investment opportunities. The political stability index includes the following variables from ICRG: "Government Stability", "Internal Conflict", "External Conflict", and "Ethnic Tensions". Various authors, using different indicators of political uncertainties, have brought empirical evidence that institutions associated with political instability hamper aggregate investment<sup>19</sup>.

All the political and governance indicators have been aggregated by using principal component analysis (PCA) to account for the multi-collinearity issue in using these potentially correlated variables in the same regression equation. In addition, we have generated a global indicator of governance (*GOV*) which summarizes the

information contained in the three previous indicators (*QA*, *PA* and *PS*). Results of PCA are given in *Annex 4*.

### **3. Other Determinants of Private Investment**

Although the importance of private investment has been widely developed in the literature, there is less evidence on what induces private firms to invest in developing countries. In fact, developing countries do not operate in a competitive environment and face constraints that are not accounted for in the neoclassical model. This partly explains why most of the economists do not agree on the subject of the determinants of investment in the developing countries<sup>20</sup>. This phenomenon is also the case for MENA economies, for which the empirical literature is very deficient<sup>21</sup>. In this paper, we address some of these constraints, in particular the ones linked to economic policy and to the quality of governance institutions.

#### **3.1. The Neoclassical Accelerator Model**

In the macroeconomics literature, the neoclassical flexible accelerator model is the most widely accepted model of investment. This model is based on the neoclassical idea of the theory of the firm (Jorgenson, 1963), which postulates that enterprises decide to invest so as to generate more profit in the future. The investment function is derived from the optimization problem of the firms, which maximize current and expected profits by equating the production prices to their marginal costs. Firms will invest so long as the marginal benefit of doing so outweighs the additional cost. The net investment is the gradual adjustment of the actual capital stock to its desired level, which is derived from maximization of profit. The determinants of investment in the neoclassical flexible

accelerator model include the expected aggregate demand (the accelerator), the user cost of capital, the wage rate and the initial capital stock.

This model postulates, however, that firms operate in competitive markets, which contradicts the structural and institutional factors prevailing in developing countries. Even though the empirical tests of the model appear to be successful for several developed countries, the firms in developing countries face certain constraints that are not accounted for in the conventional neoclassical theory<sup>22</sup>. It is some of these constraints (in particular those of specific interest for the MENA region) that are discussed below.

### **3.2. Structural Reforms**

Among the most common constraints faced by developing countries is the deficit in economic reforms. This is the case of the MENA countries which have lagged behind other regions in terms of reforming their economy (Nabli and Végañonès -Varoudakis, 2004). Structural reforms constitute an important determinant of the actual and future profitability of private investment. We have considered trade policy and financial development as part of our structural reforms index.

By providing more opportunities and incentives for the firms to invest, the financial development is an important part of private investment decisions. A developed financial system mobilizes and allocates resources to the enterprises. A developed financial system is also expected to be more efficient due to an increasing technological specialization, which leads to a better selection of projects and a more advanced diversification of risks. This allows the firms to finance more investment projects and increases the productivity of new investments (see Levine, 1997, for a synthesis). In addition, given the lack of well-functioning financial markets, the neoclassical

assumption of the flexible accelerator model about the availability of credit supply by the banking sector cannot be taken for granted in developing countries. This discrepancy also occurs because of the public deficits and public debt, which can lead to financial repression and to eviction of private investment. On the empirical side, the impact of financial development on private investment is now well documented<sup>23</sup>. In his survey of investment functions in developing countries, Rama (1993) presents the positive effect of financial development on private investment in 21 of the 31 papers surveyed.

Trade reforms constitute another factor that can stimulate private investment decisions. Trade openness increases competitiveness and provides access to enlarged markets (Balassa, 1978; Feder, 1982). Trade openness can be at the origin of economies of scale and of productivity gains. In addition, trade openness influences the availability of external credit -- considering the general consensus on the role of tradable goods in providing positive externalities in the form of collateral for external financing (Caballero and Krishnamurthy, 2001).

All these factors create favorable conditions for the enterprises to invest. However, as mentioned in the introduction, economic reforms are also expected to affect private investment through their impact on the quality of governance institutions. There is, in particular, some evidence that greater openness to trade and stronger competition are conducive to governance improvement<sup>24</sup>. Opening up markets may help to weaken vested interests and reduce rents derived from prevailing economic and institutional arrangements. Trade openness may also lead to demands for governance institutions more suited to an increasingly varied and complex range of transactions (See IMF, 2003).



### 3.3. Human Capital

Human capital is part of the investment climate of an economy and is generally considered as a complementary factor of physical capital. Here, we have considered health and education as part of the human capital index. Human capital stimulates private capital formation by raising the profitability of investment. Human capital can also be at the origin of positive externalities<sup>25</sup>. Because skilled workers are better in dealing with changes, a skilled work force is essential for firms to adopt new and more productive technologies<sup>26</sup>. Besides, new technologies generally require significant organizational changes, which are handled better by a skilled workforce<sup>27</sup>. Human capital also gives the opportunity to the enterprises to expand or enter new markets.

Moreover, human capital entails better governance institutions. More educated people with higher life expectancy become more competent bureaucrats and -- in addition to better monitoring of the functioning of government officials -- demand for better quality of bureaucracy (Galor et al., 2005). In addition, educational attainment reduces the political instability by generating more avenues to reconcile the opposing parties. This idea constitutes one of the classical approaches in the literature to highlight the importance of education in bringing better governance institutions (Lipset, 1959). From the democratic accountability point of view, a more educated society is more likely to be enfranchised in terms of civil rights and liberties (Acemoglu and Robinson, 2001). These considerations justify that human capital also appears as an explanatory factor of private investment through its impact on the quality of governance institutions.

Although educational attainment has improved in the majority of developing countries, many firms still rate inadequate skills and education of workers as severe

obstacles to their operations<sup>28</sup>. This is the case of the MENA region, where progress is still needed in order for the region to catch up with South East Asia and Latin America<sup>29</sup>. To meet this challenge and as pointed out by the World Bank (2004), MENA countries have to gear up their educational system both to improve basic education and to equip the labor force with skills appropriate for enterprises to invest efficiently.

#### **4. Some Considerations on the Data Used**

##### **4.1. A New Data Set on Private Investment**

Data on the breakdown of investments as either private or public are scarce. The best available data set on private investment was provided by the International Finance Corporation (*IFC*) of the World Bank<sup>30</sup>. However, this data set covers only the period from 1970 to 1999. It also has some limitations for certain countries in terms of quality of the breakdown between public and private investment. This is most often due to the status of the state- owned enterprises, for which investment data are not always available, and which are in this case included in the private investment series.

Considering these pitfalls of existing data, we have reexamined the IFC data set and updated the private investment series for the available years after 1999. More importantly, we have carefully checked the IFC private investment series and compared them to the national sources where available, as well as to the World Bank and International Monetary Fund (*IMF*) series. This has been done in close collaboration with the country economists of these two institutions. We have thus been able to generate high quality data for the majority of our sample countries, as well as for other countries which can be considered as relatively accurate. This private investment series which covers 63

countries has been used in the empirical analysis (see in *Annex 1* the list of countries).

We have also generated a broader set of private investment series which includes countries for which the distinction between private and public investment is not as satisfactory, but which can be used for robustness analysis (this data set covers 99 countries).

#### **4.2. Nature of Data on Governance**

The data usually used in governance are produced by independent private firms who provide consulting services to international investors such as the International Country Risk Guide (*ICRG*), the Heritage Foundation (*HF*), the Freedom House (*FH*) or the Fraser Institute (*FI*). To a certain extent, these indices provide very similar information on various aspects of governance. These data sets have certain common features. First of all, they can be considered to be subjective. They measure the perceptions of governance quality rather its actual quality. They also measure outcomes rather than actual rules (see Glaeser et al., 2004). Finally, given that governance institutions do not change easily in theory, institutional indices are supposed to be rather persistent, even though they are relatively volatile in existing data sets.

All these factors appear contrary to using governance indices commonly used in the literature. In fact, these characteristics are very useful in determining investor perceptions on the quality of governance at the time of their investment. Indeed, what we are more concerned about is not the actual governance quality per se, but its perception by the private sector since our ultimate aim is to identify the determinants of private investment. This paper strongly shows that, in addition to the conventional determinants of private investment, governance institutions – whether perceived or real – are

detrimental to investors' decision to invest. Hence, we allow the possibility that perceived institutions differ from the actual institutions. It is quite possible that in our framework, even though quality of actual governance is not high, private investors tend to perceive that their investment projects are protected by good institutions or vice versa.

To illustrate this idea, it can be noticed that following economic crises, governance indices of crises-hit countries can vary enormously. It is hard to believe that institutions change drastically in a short period of time, but it is reasonable to argue that perceptions of governance institutions in the eyes of beholders, i.e., investors, are altered through the crises. Investors modify their expectations from the institutions when new information is revealed in a crises-hit economy.

One explanation for these drastic upheavals in governance indices of crises-hit countries is that investors definitely have incomplete and asymmetric information on the quality of governance institutions in the economy. During normal times, when business runs as usual, information on the quality of governance is not observed. However, with the advent of crises or new information, governance institutions face with a real examination. Hence, the manner in which countries handle new conditions can influence the perception of governance by private investors. This information also accumulates over time and provides a basis for long-term perceptions of governance quality throughout the countries.

The advanced countries of today have built their investor-friendly and persistent governance institutions over long periods of time, after successfully passing certain historical tests. However, in the short term, investors make their judgments on the quality of governance based on a numerous factors. These factors certainly include some

historical episodes experienced by the country which can provide insight into the future potential performance of existing governance institutions. Debt repudiation or the state's appropriation of private property in the past, for example, definitely is taken into account in assessing the quality of country governance by entrepreneurs. However, in addition to this type of backward looking behavior, entrepreneurs' perception of the quality of governance is also shaped by existing and anticipated conditions in the future. In this regard, we argue that existing indices measuring the quality of governance capture investors' concerns about the institutions quite well.

## **5. The Econometric Analysis**

### **5.1. The Model Tested**

The primary purpose of the model tested is to disentangle the effects of governance on private investment. More importantly, in this paper we want to make a horse-race among the different types of governance variables commonly used in the literature to distinguish the most vital ones in accelerating the private investment in our sample of developing countries.

In the empirical model, endogenous variables are the share of private investment and the various measures of governance, namely "Quality of Administration" (*QA*), "Public Accountability" (*PA*), "Political Stability" (*PS*) and a global indicator of governance (*GOV*). These endogenous variables are simultaneously determined by influencing each other. In order to account for this reverse causality, we establish a system of equations to estimate the share of private investment in GDP (*PI*) and quality of governance institutions (*QI*) simultaneously. In the private investment equation, lower

quality of governance institutions is expected to reduce the private investment. In the governance equation, private investment enters on the right side with an expected positive sign. This simultaneous system of equations also enables us to take into account other factors that affect both private investment and governance institutions.

This system of equations is estimated using three stage least squares by controlling other determinants of endogenous variables. Three stage least square (3SLS) estimation allows to use the links between endogenous variables efficiently. Since endogenous variables appear as regressors in other equations, they have to be instrumented out using exclusion restrictions. Initially, 3SLS regressions are run separately for QA, PS and PA. However, to complete the analysis, we have substituted in this system of equation the aggregate indicator of governance (*GOV*), which is calculated as the principal component analysis of all the initial indicators and which provides a summary of the three measures of governance.

The model estimated is the following:

$$PI_{it} = \alpha_0 + \alpha_1 QI_{it} + \alpha_2 X_{1i} + \varepsilon_{1it} \quad (1)$$

$$QI_{it} = \gamma_0 + \beta_1 PI_{it} + \beta_2 X_{2i} + \varepsilon_{2it} \quad (2)$$

Where

$PI_{it}$  is the share of private investment in GDP

$QI_{it}$  represents the various indexes of governance (*QA*, *PA*, *PS* and *GOV*)

$X_{1i}$  and  $X_{2i}$  are the other control variables in private investment (*PI*) and governance (*Gov*) equations respectively

$\varepsilon_{1it}$  and  $\varepsilon_{2it}$  are the error terms of each equations.  $i$  indicates the country and  $t$  represents the time of the variable.

The determinants of private investment in the neoclassical flexible accelerator model include the expected aggregate demand (the accelerator) and the user cost of capital. Hence, the private investment equation in our specification incorporates real interest rate (*Realr*) to capture the user cost of capital. It also accounts for the GDP growth rate in last year (*grow*) to control for the accelerator effect. These two variables are excluded from the governance equation (*QI*) in order to identify the system.

Both of the equations, on the other hand, take into account the GDP per capita, as well as the variations in structural reform (*SR*) and human capital (*H*). Structural reforms are characterized with trade policy (*TP*) and financial development. Financial development is proxied by the private credit by banks and other depository institutions (*Pcr*). Trade policy is constructed as the commercial openness (calculated by aggregating the export and import in total GDP) from which we have subtracted the exports of oil and mining products, as well as the “natural trade openness” constructed by Frankel and Romer (1999). The trade policy and financial development variables form the structural reform indicators after implementing the principal component analysis (see *Annex 4* for results of PCA). Structural reform is expected to stimulate private investment, as well as the institutional change for the better.

Human capital (*H*) is expressed with life expectancy at birth, and average years of primary, secondary and higher schooling in the total population over 15 years old. These variables are also aggregated with principal component analysis. Human capital is widely considered to enhance the private investment and to lead to better governance institutions. Therefore, human capital variable is expected to have positive coefficients in both of the equations.

GDP per capita is controlled in the investment equation to account for the neoclassical Solow growth model. Countries with lower GDP per capita are expected to gradually catch up with the more developed counterparts by having more capital investment over time. Moreover, GDP per capita accounts for possible externalities, such as greater market size on demand and supply of good and services, and finally on private investment. GDP per capita in governance equations represents the idea that more developed countries can afford to have better governance institutions (Azariadis and Lahiri 2002). Hence, a positive relationship is expected between GDP per capita and governance quality.

Oil export as a percentage of total merchandise export also enters into both equations. The typical natural curse hypothesis is taken into account by incorporating this variable into the investment equation. When a country relies more on natural resources extraction in its exports, there can be less incentive to invest for other products. This result, for example, may stem from the increase in the cost of labor (Rodriguez and Sachs, 1999). This variable also has an implication for the quality of governance institutions. Countries with less reliance on natural resources are expected to form better governance institutions. The natural resource-abounded countries do not need to mobilize the society to enhance aggregate income. The ruling class can control the economy by collaborating with a small number of people in the society. Therefore, the production structure of the country does not generate good governance institutions in favor of the society (Ross 2001, Bellin, 2001). Under these circumstances, the elite is also less inclined to provide better governance by considering the future effects of today's enfranchisements (Acemoglu and Robinson, 2001) and engage in more rent-



seeking activities<sup>31</sup>. Hence, the share of oil export in merchandise export is expected to reduce the quality of governance institutions.

The tenure of the system (*TenSyst*) from Keefer et al. (2001) is excluded from the investment equation to identify the system of equations. *TenSyst* reports the number of years that an administrative system -- regardless of whether autocratic or democratic -- lasts in the country. The underlying idea to include this variable in the governance equation is to account for the fact that institutions settle over time. The longer the time passes with the existing system, the better institutions are established. This exclusion restriction is quite reasonable considering that *TenSyst* has a direct impact on the governance institutions whereas its influence on private investment is more likely to be realized through its effect on these institutions.

Finally, a regional dummy for the Middle Eastern and North African countries (*MENA*) appears as a right hand side variable in both of the equations. One of our primary purposes is to understand the position of MENA countries among the other countries and to see whether MENA substantially diverges from the rest of the world in terms of private investment and of governance performance.

## **5.2. Estimation Results**

Equations (1) and (2) have been estimated on an unbalanced panel of 31 developing countries over 1980-2002 using the three stages least square estimations technique (*3SLS*). Four sets of regressions have been conducted, each one with a different indicator of governance. Table1 presents the estimation's results of equations (1) and (2) when "Quality of Administration", "Political Stability", "Public Accountability" and "Governance" are taken into consideration respectively.

### ***5.2.1 Administrative Quality***

In Table 1 -- when “Administrative Quality” (*QA*) is used as a measure of governance – estimation results produce quite interesting conclusions. One of the most interesting outcomes concerns the Quality of Administration index which gives a positive and significant coefficient at the 5 percent level in the investment equation (1). This result confirms that a low level of corruption, a good quality of bureaucracy, a clear security of property rights, a reasonable risk to operations, a sound taxation and regulation as well as better law and order are of first importance for the enterprises’ decisions to invest. This result makes a real contribution to the empirical literature on governance by validating, over a relatively long period of time, the role of a large set of governance variables on private economic performance.

Our result is unambiguous and robust to the introduction of other explanatory variables. This is the case of structural reforms and human capital. The roles of these variables in explaining cross-country economic achievement has recently been questioned (Easterly and Levine; 2003). Our regression results indicate a significant impact of these variables on private investment decisions. Hence, our estimations stress that, although the quality of governance constitutes a major factor in the private sector decisions, the role of economic policies cannot be disregarded. Our result also confirms that firms in developing countries face constraints that are not accounted for in more developed economies and that deficiencies in trade policy, financial development and education have a long-term impact on private investment decisions and growth.

Another conclusion of our model consists in validating the neoclassical theory of the firm in the case of developing countries. The accelerator variable has the expected

positive sign which implies that anticipations of economic growth induce more investment. Similarly, the interest rate appears to exert a negative and significant effect on private investment which is consistent with the user cost of capital theory. Both variables are highly significant, indicating that at the final stage, supply and demand considerations constitute major factors for the entrepreneurs to undertake a new investment project. However, our model fails to verify the Solow hypothesis of decreasing return to scale of physical capital accumulation. The coefficient of the GDP per capita variable, although negative, is not significant.

Finally, estimation of equation (1) confirms the natural curse hypothesis. The coefficient of the oil export variable as a percentage of total merchandise export is significant and negative. Identically, the regional dummy for MENA countries exhibits a negative coefficient. MENA countries seem to be diverging from the rest of the world in terms of private investment which is the key determinant of long-term growth. However, this dummy variable is not significant at the conventional levels. This result is likely to stem from the oil export variable in the system which significantly reduces the private investment.

In the “Administrative Quality” equation (Table 1, column 2), our estimations reveal the positive impact of several factors on the quality of the administration. This is the case of the GDP per capita which means that more developed countries entail better governance institutions. Also, private investment helps improve the administrative quality significantly at a 5 percent level. This last result justifies the use of the 3SLSQ

**Table 1. Estimation Results**

Explanatory Variables	Endogenous Variables		Endogenous Variables		Endogenous Variables		Endogenous Variables		Endogenous Variables		Endogenous Variables	
	Priv Inv (1)	QA (2)	Priv Inv (3)	QA (4)	Priv Inv (5)	PS (6)	Priv Inv (7)	PA (8)	Priv Inv (9)	GOV (10)	Priv Inv (11)	GOV (12)
QA	1.99 (1.98)**		2.07 (2.06)**									
PS					3.51 (1.67)*							
PA							4.43 -1.6					
GOV									2.25 (1.99)**		2.26 (2.00)**	
Private Investment		0.1 (2.16)**				-0.065 (-1.61)		-0.08 (-1.53)		0.014 -0.667		
Structural Reforms	1.64 (4.73)***		1.64 (4.75)***		1.07 -1.45		3.27 (4.86)***		1.98 (8.06)***		1.98 (8.07)***	
		0.11 -1.04		0.31 (9.37)***		0.5 (4.86)**		-0.05 (-0.40)		0.1 -1.2		0.13 -1.46
Human Capital	0.62 (2.82)***		0.57 (2.63)***		-0.1 (-0.2)		-0.05 (-0.10)		0.36 -1.4		0.35 -1.36	
		-0.02 (-0.46)		0.04 -1.08		0.25 (5.21)***		0.21 (3.49)***		0.124 (3.27)*		0.133 (4.36)***
Oil Exports	-0.03 (-2.66)***		-0.03 (-2.91)***		-0.05 (-2.86)***		-0.05 (-2.90)***		-0.035 (-2.97)***		-0.038 (-3.14)***	
		0.0003 -0.11		-0.003 (-1.65)*		0 (-0.10)		-0.001 -0.19		0 (-0.13)		-0.001 (-0.49)
GDP per Capita	0 (-0.28)		0 (-0.01)		0 (-0.42)		-0.01 (-1.12)		0 (-0.84)		0 (-0.81)	
		0.0001 (3.54)***		0.0001 (4.1)***		0.0002 (4.04)***		0 (6.56)***		0.0003 (8.72)***		0.0003 (8.84)***
MENA Dummy	-1.2 (-1.21)		-1.1 (-1.11)		-2.3 (-1.75)*		3.72 -1.11		-0.34 (-0.31)		-0.32 (-0.29)	
		0.15 -0.84		0.06 -0.38		0.34 (1.84)*		-1.14 (4.91)***		-0.28 (-1.91)**		-0.29 (-2.09)**
Rear	-0.02 (-2.06)**		-0.036 (-3.39)**		-0.05 (-2.53)**		-0.05 (-3.13)***		-0.037 (-2.87)***		-0.035 (-3.21)***	
Growth	0.22 (3.29)***		0.2 (2.88)**		0.22 (3.09)***		0.29 (3.04)***		0.22 (3.53)***		0.21 (3.58)***	
Ten Syst		0.02 (4.36)***		0.017 (6.19)***		0.013 (3.71)***		0.11 (2.54)***		-0.015 (5.75)***		-0.016 (6.44)***
Constant	11.8 (16.95)***	-1.53 (-3.20)***	11.8 (16.92)***	-0.52 (-6.52)***	14 (7.48)***	-0.2 (-0.4)	11.1 (16.34)***	-0.73 -1.19	12.2 (15.55)***	-0.82 (-2.14)	12.2 (15.61)***	-0.66 (-9.39)
Numb obs	349	349	349	349	349	349	349	349	349	349	349	349

Notes: (\*) indicates significance at 10 %; (\*\*) indicates significance at 5 %; (\*\*\*) indicates significance at 1 %. See sources of data in footnote <sup>32</sup>

estimation technique in order to address – among other things – the two ways causality.

Tenure of system also predicts better administrative quality at less than 1% significance level.

Our estimations fail, however, to validate the negative impact of the share of oil export in merchandise export. This result contradicts the fact that countries with less

reliance on natural resources form better governance institutions. More importantly, structural reforms and human capital do not appear to immediately improve the administrative quality. However, when estimating the system by eliminating private investment from equation (2), structural reforms appears to be positive and highly significant, other results being unchanged<sup>33</sup> (see Table 1, column 4). This result seems to be due to the fact that the structural reforms index is correlated with private investment. Hence, the positive impact of private investment on administrative quality appears to be mainly due to the structural reforms which stimulate firms' decisions to invest. This result confirms that, in addition to the direct link highlighted previously, economic reforms affect private investment through their impact on institutional quality. This two channel causality brings new empirical evidences on the link between institutions and private economic activity.

### ***5.2.2 Political Stability***

When "Political Stability" is taken into consideration (columns 5 and 6, Table 1), the first interesting result is that this factor -- similar to "Administrative Quality" -- appears to have a significant and positive impact on the firms' decisions to invest. This conclusion is in line with the findings of various authors which have been able to show -- using various indicators of political stability -- that a sound and stable political environment provides enterprises with more predictable conditions to invest.

Besides, our new set of estimations validates most of the conclusions drawn previously for "Administrative Quality", with a few exceptions. First, structural reforms and human capital are still validated as important factors for private investment decisions. This time, however, they play their roles indirectly only, through improving political

stability. This conclusion constitutes quite an interesting empirical evidence. Structural reforms, by leading to better economic performances, lower the discontent of the population and produce a more stable political environment. Education goes in the same direction.

Another small difference can be seen in the MENA dummy variable, which is now significant in both equations, though at the 10 percent level: MENA countries underperform in private investment while appearing to be better in reaching more stable political systems. This finding is quite understandable considering that MENA countries display high government stability which is one of the main components in aggregate political stability indicator

Other conclusions such as the neoclassical investment model and the natural curve hypothesis in equation (1) of private investment, the positive impact of the tenure of the system and the better political stability of richer countries in equation (2) of institutional quality, hold in the case of the “Political Stability” index.

### ***5.2.3 Public Accountability***

Columns 7 and 8 of Table 1 report the regression results when “Public Accountability” is controlled to gauge the quality of institutions. Results are this time quite different. In fact, our estimations fail to find strong evidence that “Public Accountability” is detrimental for private investment. Although some empirical evidence can be found in the literature (see in particular Pastor and Sung, 1995), this result may be explained by the unresolved debate on the potential role of democratic institutions on growth (see Glaeser et al., 2004), as well as by some deficiencies in the specification of our model. For the comparison purposes in this paper, we have estimated the same model

for each of our indicators of governance. Hence, our results are likely to stem from the fact that the underlying mechanisms to shape the Public Accountability are different from the mechanisms of Administrative Quality and Political Stability.

This set of estimations, however, seems to still validate that structural reforms encourage private investment decisions. This time, the link appears to be only direct and the coefficient of the structural reform indicator in the institutional quality equation [equation (2)] appears insignificant. Besides, as for “Political Stability”, education and health of the population seem to entail private investment by participating in the democratization process of the country. An interesting result also concerns the MENA dummy variable in “Public Accountability” equation. Its coefficient is now significant and negative. This finding confirms the deficit in democratic institutions of the MENA region, as already stressed by several authors (see in particular the World Bank, 2004). Moreover, following our estimations, richer countries exhibit better democratic institutions and natural resources exporters still show low private investment performances. The initial results for real interest rate, economic growth and tenure of system remain unaltered as well.

#### **5.2.4 Governance**

Our last set of estimations takes into consideration the aggregate indicator of governance (*GOV*) which summarizes the information contained in the three previous indicators. Results of the regressions are reported in columns (9) to (12) of Table 1. This last set of estimations confirms most of the results obtained before. The aggregate indicator of governance appears to have a positive and significant coefficient which

validates the importance of this factor for the firm's decisions to invest. Structural reforms are highly significant in enhancing the private investment. The effects of human capital work indirectly through affecting aggregate governance. Overall, MENA countries under-perform in terms of governance institutions. This result indicates the need for institutional reform in the MENA region, especially considering the positive and persistent role of governance institutions in private investment.

Other results remain the same as well which confirms the robustness of our previous results. An interesting point, however, can be seen in the fact that since Public Accountability is included in the aggregate indicator of governance<sup>34</sup>, this factor now actively participates in the firm's decisions to invest. Even though this result has to be considered with caution, it can be seen as another evidence for the literature on the positive role of democratic institutions in the economic performance of the countries.

## **6. Governance Institutions: How Much Can they Improve Private Investment in MENA?**

In this section, we use the model estimated previously to determine which factors would improve the investment's performances of our MENA countries. We evaluate, in particular, the contribution of the administrative quality, political stability and public accountability, which have revealed to be of primary importance in the firm's decision to invest. We also consider the role of structural reforms and human capital. For this purpose, we simulate how much private investment the region would have achieved if governance institutions, structural reforms and human capital were improved by one standard deviation. This simulation has been done for two time periods, the 1980s and the



1990s, respectively. For the calculations, we use the last set of estimations which summarize the effects of the three sub component of governance (see Table 1, columns 9 and 10).

A first step has consisted in calculating the coefficients of the initial variables which explains the composite indicators of governance (*GOV*), structural reforms (*SR*) and human capital (*H*). The calculation is based on the estimated coefficients of these aggregate indicators in the regression (Table 1, column 9), as well as on the weights of each principal component in the aggregate indicator combined with the loading of the initial variables in each principal component (*Annex 4*)<sup>35</sup>. In the case of human capital calculations, we consider the indirect impact on private investment through the improvement of the quality of governance institutions. We use in this case the coefficient of the human capital indicator in the governance equation (column 10, in Table 10) combined with the estimated coefficient of the governance indicators in the investment equation (column 9, in Table 1). Coefficients of the initial variables are presented in *Annex 5* and contributions to private investment appear in Tables 2 and 3. In Tables 2 and 3, the contribution of the “Administration Quality” index has been calculated by aggregating the contributions of its four sub-components<sup>36</sup>. The same thing has been done for “Political Stability”<sup>37</sup>, “Public Accountability”<sup>38</sup>, “Structural Reform”<sup>39</sup> and “Human Capital”<sup>40</sup>.

These simulations show quite interesting results (see Table 2). A first set of conclusions concerns the potentially significant impact of improved governance institutions in the region. An amelioration of one standard deviation of the “Administrative Quality” would have increased private investment by 1.4 percent of GDP

during the 1980s and the 1990s. This augmentation is of 1.1 to 1.2 percent of GDP in the case of “Public Accountability” and of 0.8 to 0.9 percent of GDP for an amelioration of the “Political Stability”. In total, private investment could have been higher by 3.4 to 3.5 percent of GDP if governance institutions had been reformed in an appropriate way.

**Table 2. Private Investment to GDP**

(Increase with an improvement in)

	Structural Reforms (a)	GOV (a)			Human Capital (b)	Total Contributions (c)
		QA	PA	PS		
1980	2.3	3.5			0.4	6.1
			1.4	1.1	0.9	
1990	3.0	3.4			0.5	6.8
			1.4	1.2	0.8	

*Source:* Authors' calculations

Notes: (a) Direct impact on private investment calculated from equation (9), Table 1.

(b) Indirect impact on private investment calculated from equations (9) and (10), Table 1.

(c) Sum of direct and indirect impact.

Our calculations also point out that governance deficiencies have not been the only reasons of low private investment performance in MENA. Reforming the economy in other dimensions is necessary to boost private investment in the region. This has been the case over the whole period, but more importantly during the 1990s, where private investment could have been increased by 3 percent of GDP if structural reforms had been improved by one standard deviation (2.2 percent in the 1980s).

On average, private investment could have reached 17.7 and 18 percent of GDP in the 1980s and the 1990s (compared to 11.6 and 12 percent observed) if governance institutions and structural reforms had been improved at the same time (see Table 3). If we add the indirect impact of human capital (0.4 to 0.5 percent of GDP, through the amelioration of the governance institutions), private investment in Egypt could have been stimulated by 48 and 77 percent during the 1980s and the 1990s, and could have reached 18.7 and 15.7 percent of GDP (compared to 12.6 and 8.9 observed), respectively. This

percentage increase would have been of 64 and 54 percent in Iran (with a private investment ratio of 15.7 and 19.5 percent of GDP in this case), 51 and 68 percent in Morocco (with a ratio of private investment of 18.1 and 16.9 percent of GDP), and 45 percent in Tunisia (19.7 and 21.7 percent of GDP for the private investment ratio). These figures are in line with the performances of the East Asian economies which have achieved, on average for our sample of countries, an investment ratio of 17.5 and 19.9 percent of GDP during the two sub-periods<sup>41</sup>.

**Table 3. Private Investment to GDP**

	1980s		1990s	
	Observed	Predicted	Observed	Predicted
<b>Egypt</b> (1)	<b>12.6</b>	18.7	<b>8.9</b>	15.7
(2)		(48)		(77)
<b>Iran</b> (1)	<b>9.6</b>	15.7	<b>12.7</b>	19.5
(2)		(64)		(54)
<b>Morocco</b> (1)	<b>12.1</b>	18.1	<b>10.1</b>	16.9
(2)		(51)		(68)
<b>Tunisia</b> (1)	<b>13.6</b>	19.7	<b>14.9</b>	21.7
(2)		(45)		(43)
<b>Average</b> (1)	<b>12.0</b>	18.0	<b>11.6</b>	18.5

*Source:* Authors' calculations

*Notes:* (1): % GDP ; (2): % increase

Our simulations also give a more precise diagnostic of which specific governance institutions would improve private investment performances in MENA. Contributions are calculated for each indicator of governance, as well as for structural reforms and human capital. Interesting conclusions relate to the impact of the different governance institutions. "Public Accountability" appears to be of primary importance in enhancing the confidence of private investors in MENA. An improvement of one standard deviation of civil liberties and political rights would have respectively increased private investment decisions by approximately 0.5 and 0.6 percent of GDP during the 1980s and the 1990s (see Table 4). This result clearly shows that democratic institutions matter for the region.

This finding can be linked to the significant deficit of MENA in terms of democratic institutions (see World Bank, 2004). This aspect gives to the region a significant scope for improving private investment performances in the future.

On “Administrative Quality”, bureaucratic quality and corruption constitute other key factors for private investment decisions in the region. An improvement in the quality of the bureaucracy, as well as a reduction of the level of corruption by one standard deviation would have stimulated firms’ investment by 0.4 to 0.5 percent of GDP for each factor. These findings confirm some conclusions of the literature, specifically on the role played by corruption in increasing the cost and risk of doing business. Besides, our calculations add to the subject by quantifying the importance of these two factors for the countries of our interest.

On the side of “Political Stability”, attention should be given in the region to the reduction of internal and external conflicts, as well as of ethnic tensions. Narrowing the gap with politically more stable developing countries by one standard deviation would have helped private investment decision which could have been higher by 0.2 to 0.3 percent of GDP, depending on the factor. Our findings corroborate that institutions associated with political instability have a disruptive effect on aggregate investment. This result makes of political stability a significant factor in reducing uncertainty and creating a friendly business environment in MENA.

Another striking feature of this set of calculations relates to the critical role of financial development and trade policy within the MENA region. A more developed financial system in the region would have helped private firms to realize their investment project which could have been higher by 1.2 to 1.7 percent of GDP. A more open trade

policy would also have stimulated private investment by 1 to 1.3 percent of GDP. These results have to be related to the deficit of the region in these two fields of activity (see Nabli and Véگانзонès-Varoudakis, 2004). These findings reveal that structural reforms represent another important question that MENA governments have to address if the region wants to catch up with more successful developing economies.

**Table 4. Private Investment to GDP**

(Increase with an improvement in)

	<b>SR</b>	trade pol	priv cred	<b>QA</b>	corrup tion	bur qual	inves prof	law ord	<b>PA</b>	pol rights	civ lib	<b>PS</b>	gov stab	int confl	ext confl	ethn tens
<b>1980</b>	<b>2.2</b>	1.0	1.2	<b>1.4</b>	0.45	0.53	0.19	0.28	<b>1.1</b>	0.53	0.57	<b>0.9</b>	0.10	0.27	0.30	0.27
<b>1990</b>	<b>3.0</b>	1.3	1.7	<b>1.4</b>	0.42	0.44	0.25	0.26	<b>1.2</b>	0.62	0.56	<b>0.8</b>	0.12	0.25	0.20	0.22

*Source:* Authors' calculations

## 7. Conclusion

This paper empirically shows, for a panel of 31 developing countries studied during the 1980s and the 1990s, that governance institutions constitute an important part of the investment climate of the developing economies. This result strongly holds for the “Quality of Administration” and confirms that a low level of corruption, a good quality of bureaucracy, a reliable judiciary, a strong security of property rights, a reasonable risk to operations, as well as a sound taxation and regulation contribute significantly to the firms’ decision to invest. Our estimations also verify that “Political Stability”, by providing a sound and predictable environment to the enterprises, participates as well in a friendly business environment. These results add significantly to the literature on

governance by validating the role of a large set of institutional variables on private economic performances over a relatively long period of time.

Our findings are unambiguous and robust to the introduction of other explanatory variables. This is the case of structural reforms -- in the form of trade openness and financial development -- and of human capital, which appear to play a significant role in private investment decisions. This result shows that firms in developing countries face constraints that are not accounted for in more developed economies. It also shows that -- contrary to recent works which make of governance institutions the dominant factor with little independent influence of economic policies (see Rodrick, Subramanina, and Trebbi, 2002; and Easterly and Levine, 2003) -- economic policies and governance institutions both participate in the firms' decisions to invest. We show as well that structural reforms and human capital contribute to the firms' decisions to invest by also improving the quality of governance. These conclusions have been reached by estimating a simultaneous model of private investment and governance quality where economic policies and human capital concurrently explain both variables. These conclusions can be considered as an important contribution to the empirical literature on governance.

Our estimations find, in addition, some evidence that "Public Accountability" is detrimental to private investment. Although our results have to be considered with caution, they can be regarded as contributing some empirical evidence to the unresolved debate on the potential role of democratic institutions on growth (see Glaeser et al., 2004 and Pastor and Sung, 1995 for more conclusive studies).

In MENA, improved governance institutions would greatly stimulate private investment decisions. This is the case for all components of governance, with special

attention to civil liberties and political rights, corruption and bureaucratic quality, conflicts and ethnic tensions. By reforming substantially their governance institutions (i.e., by increasing by one standard deviation all components of governance during the 1980s and the 1990s), MENA countries could have boosted private investment by 3.4 to 3.5 percent of GDP. This result makes of governance a key variable for improving the investment climate in the region.

Governance deficiencies, however, are not the only issues that MENA could address to encourage private investment in the region. Reforming the economy constitutes another powerful instrument that would also stimulate firms' investment decisions. A more developed financial system would have permitted the private sector to implement more investment projects. One standard deviation increase during the 1980s and the 1990s would have raised the private investment ratio by 1.2 to 1.7 percent of GDP. Similarly, a more open trade policy would have stimulated private investment decisions by 1 to 1.3 percent of GDP during the same period. This makes of structural reforms an important issue that MENA governments also have to address if the region wants to catch up with more successful developing economies.

## *Notes*

- <sup>1</sup>. Africa (*AFR*), East Asia (*EAP*), Europe and Central Asia (*ECA*), Latin America (*LAC*), Middle East and North Africa (*MENA*) and South Asia (*SAS*).
- <sup>2</sup>. See in particular Rodrik (1999) and Frankel (2002).
- <sup>3</sup>. See, for example, Knack and Keefer (1995), Acemoglu, Johnson, and Robinson (2001), Rodrik, Subramanian, and Trebbi (2002).
- <sup>4</sup>. See Hall and Jones (1999), Acemoglu, Johnson, and Robinson (2001), Easterly and Levine (2003), and Rodrik, Subramanian and Trebbi (2002).
- <sup>5</sup>. See, for example, Acemoglu, Johnson, Robinson and Taicharoen (2003).
- <sup>6</sup>. See North (1990), Knack and Keefer (1995), Calderon and Chong (2000), Easterly and Levine (2003), Rodrik, Subramanian and Trebbi (2002), and Saleh (2004).
- <sup>7</sup>. See in particular Keefer (2002).
- <sup>8</sup>. This shortcoming is a more general concern of the literature on democracy and development (see De Haan and Siermann, 1996, Przeworski and others, 2000). The work of Pastor and Sung (1995) is however one of the few to have been able to show a positive effect of various indicators of democratic institutions on private investment in the developing world.
- <sup>9</sup>. See in particular Rodrik (1991), Alesina and Perotti (1996), Le (2004); and Brunetti and Weder (1994).
- <sup>10</sup>. The World Bank (2004) has investigated the correlation between private investment and the ICRG (1999) index of “investment profile”. This index is based on measures of contract enforceability, expropriation, profit repatriation, risk of operation, taxation and payment delays.
- <sup>11</sup> See in particular Rodrik, Subramanina and Trebbi (2002), and Easterly and Levine (2003).
- <sup>12</sup>. For the positive spillover from trade openness on institutions see Berg and Krueger (2003), Islam and Montenegro (2002), and Wei (2000). For the role of domestic competition, see Ades and Di Tella (1999), Djankov and others (2001), and the World Bank (2002).
- <sup>13</sup> This impact might also be explained by the fact that the measure of institutional quality is most often subjective and an amalgam of policy and institutional factors.
- <sup>14</sup>. In trying to gauge the exogenous contribution of institutions, recent research has given particular attention to the possible role played by geographical and historical influences on institutional formation (see Acemoglu, Johnson and Robison, 2001, and Engelman and Sokoloff, 2002).
- <sup>15</sup>. Various methods of aggregation have been used to categorize different types of institutions. See, in particular, Acemoglu, Johnson, Robinson, and Taicharoen (2003), Kaufmann and others (2003), and the World Bank (2004).
- <sup>16</sup>. See Calderon and Chong, (2000), and Acemoglu, Johnson and Robinson (2001) in the context of growth; See North (1981), Knack and Keefer (1995), Calderon and Chong (2000), Easterly and Levine (2003), Rodrik, Subramanian, and Trebbi (2002), and Saleh (2004) in the context of investment.



- <sup>17</sup>. See in particular Rodrik (1991) and Serven and Solimano (1993).
- <sup>18</sup>. See De Haan and Siermann (1996), Przeworski and Limongi (1993), Przeworski et al. (2000).
- <sup>19</sup>. See in particular Rodrik (1991), Alesina and Perotti (1996), Le (2004), Brunetti and Weder (1994). In the growth context see also Alesina et al. (1996), Svensson (1998), Olson et al. (2000).
- <sup>20</sup>. See for example Greene and Villanueva (1991), Blejer and Khan (1984), and Serven (1997).
- <sup>21</sup>. See Shafik (1992) on *Egypt*; Schmidt and Muller (1992) on *Morocco*, as well as Bisat, El-Erian, El-Gamal and Mongelli (1996) on MENA.
- <sup>22</sup>. See in particular Shafik (1992), and Agenor and Montiel (1999) for a discussion and additional references.
- <sup>23</sup>. See for example, McKinnon (1973) and Shaw (1973).
- <sup>24</sup>. For the positive spillover from trade openness on governance quality, see Berg and Krueger (2003), Islam and Montenegro (2002) and Wei (2000). For the role of domestic competition, see Ades and Di Tella (1999), Djankov and others (2001), and the World Bank (2002).
- <sup>25</sup>. See Lucas (1988), Psacharopoulos (1988), and Mankiw, Romer and Weil (1992).
- <sup>26</sup>. See in particular Acemoglu and Shimer (1999).
- <sup>27</sup>. See Bresnahan, Brynjolfsson and Hitt (2002).
- <sup>28</sup>. See the World Bank (2005).
- <sup>29</sup>. See Nabli and Véganzone -Varoudakis (2004).
- <sup>30</sup>. See Aizenmann and Marion (1999), and Everhart and Sumlinski (2001).
- <sup>31</sup>. Aysan (2005) points out that this variable captures the “rentier effect”. He notes that “it is easier for the elite to control and capture the rents from ‘point source’ resources. Resource rents are generally high in oil production. Around 80 percent of oil income is considered to be resource rent (Gylfason, 2001), while such rents are much lower for other types of products in industry or in agriculture. A small work force is required to extract oil resources. Most of the time, oil is extracted by foreign firms with sophisticated technical skills (Isham et al, 2002). As a result, the ruling elite can exclude the majority of the population in extracting oil reserves. In other words, there exists no incentive on the part of the elite to incorporate the society into increasing aggregate production. Given the lack of economic preconditions, the citizens cannot generate pressure for increased literacy and political influence. This lack of political influence further feeds the vicious cycle by not effectively and peacefully revealing public interest and preferences.”
- <sup>32</sup>. Sources of data are as follows: the private investment series have been processed from various national and international sources (International Finance Corporation (*IFC*), World Development Indicators (*WDI*), Life Data Base (*LDB*), see section 4.1 for more details). The “Administrative Quality” and “Political Stability” indexes use ICRG (1999) data. The components of the “Public Accountability” indicator come from Freedom House (2002). The “Structural Reforms” index uses data from WDI, but the oil export series entering the trade policy indicator comes from the United Nations. In the “Human Capital” indicator, the numbers of years of schooling are from Barro and Lee (1994) and from Barro (2000a and b), and the life expectancy series is from WDI. All aggregated indicators have been generated after implementing the PCA

methodology (see Annex 4 for more details). Interest rates (*Rear*) have been calculated from IFS and *TenSyst* comes from Keefer et al. (2001). All other data are from WDI.

- <sup>33</sup> Oil export also becomes significant in “Administrative Quality” equation at a 10 percent level.
- <sup>34</sup> *PA* contributes significantly and with the right sign to *GOV* (see the results of the PCA in Annex 4).
- <sup>35</sup> For more details on the methodology, see Nagaraj, Varoudakis and Véganzonès (2000).
- <sup>36</sup> These sub-components are corruption, bureaucracy quality, investment friendly profile of administration and law and order (see section 2).
- <sup>37</sup> Political Stability has been proxied by aggregating the following indicators: government stability, internal and external conflicts, and ethnic tensions.
- <sup>38</sup> Public Accountability has been calculated by using civil liberties and political rights.
- <sup>39</sup> The Structural Reform indicator contains trade policy and financial development.
- <sup>40</sup> Human Capital is defined from life expectancy, and years of primary, secondary and tertiary education.
- <sup>41</sup> For comparison purposes, we have benchmarked the effort represented by the improvement of one standard deviation of each initial indicator entering the governance (*GOV*), structural reforms (*SR*) and human capital (*H*) indicators, to the reforms achieved by the East Asian economies. These calculations are shown in Table A.6., Annex 6. Figures of the table are the level of reforms potentially reached by our MENA countries divided by the ones achieved by the East Asian economies. For example, the value 1 means that an improvement of one standard deviation has increased the reform indicator in MENA to the level of the East Asian economies. As well, the value 1.2 means that the level reached by MENA is 20 percent higher than the one observed in East Asia. Most of the time, the effort considered in the simulations gives to our MENA countries an advance in “Administrative Quality”, “Political Stability” and “Public Accountability” (during the 1990s in this case). MENA, however, would not catch up with East Asia in terms of structural reforms (except in the case of Tunisia).

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**Annex 1****List of Countries*****List of Countries with High Quality Data (63 countries)***

<i>Argentina</i>	<i>Kenya*</i>
<i>Bangladesh*</i>	<i>Lithuania</i>
<i>Barbados*</i>	<i>Malawi*</i>
<i>Belize</i>	<i>Malaysia*</i>
<i>Benin*</i>	<i>Mauritius*</i>
<i>Bolivia*</i>	<i>Mexico</i>
<i>Brazil*</i>	<i>Moldova</i>
<i>Bulgaria</i>	<b><i>Morocco*</i></b>
<i>Cambodia</i>	<i>Namibia</i>
<i>Chile*</i>	<i>Pakistan*</i>
<i>China*</i>	<i>Panama</i>
<i>Colombia*</i>	<i>Papua New Guinea*</i>
<i>Comoros</i>	<i>Paraguay*</i>
<i>Costa Rica*</i>	<i>Peru*</i>
<i>Cote d'Ivoire</i>	<i>Philippines*</i>
<i>Croatia</i>	<i>Poland*</i>
<i>Dominican Rep.</i>	<i>Romania</i>
<i>Ecuador*</i>	<i>Serbia and Montenegro</i>
<b><i>Egypt, Arab Rep.*</i></b>	<i>Seychelles</i>
<i>El Salvador</i>	<i>South Africa*</i>
<i>Estonia</i>	<i>St Lucia</i>
<i>Ethiopia</i>	<i>St. Lucia</i>
<i>Guatemala*</i>	<i>St. Vincent and the Grenadines</i>
<i>Guinea-Bissau</i>	<i>Thailand*</i>
<i>Guyana</i>	<i>Trinidad &amp; Tobago*</i>
<i>Haiti</i>	<b><i>Tunisia*</i></b>
<i>Honduras*</i>	<i>Turkey*</i>
<i>India*</i>	<i>Uruguay*</i>
<i>Indonesia*</i>	<i>Uzbekistan</i>
<b><i>Iran, Islamic Rep.</i></b>	<i>Venezuela*</i>
	<i>Yugoslavia (FR)</i>

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*Due to the lack of corresponding data for some countries, only countries marked with an \* are included in the final regressions*

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## *Annex 2*

### **Classification of Governance Institution by Kauffmann, Kraay and Mastruzzi (2003)**

Kaufmann, Kraay and Mastruzzi (KKM, 2003) categorize governance institutions in six broad groups. Their measures of governance indicators are based on several hundred variables measuring perceptions of governance drawn from 25 separate data sources constructed by 18 different organizations. Their aggregate governance indicators aim to measure six different aspects of governance as follows:

- 1- "Government Effectiveness"
- 2- "Regulatory Quality"
- 3- "Rule of Law"
- 4- "Control of Corruption"
- 5- "Political Stability and Absence of Violence"
- 6- "Voice and Accountability"

"Government Effectiveness" and "Regulatory Quality" clusters summarize various indicators on the ability of the government to formulate and implement sound policies. "Government Effectiveness" is composed of a single grouping of responses on the quality of public service provision, the quality of bureaucracy, the competence of civil servants, independence of civil service from political process and the credibility of government's commitment to policies. These are considered as requisite conditions enabling governments to produce and implement sound policies and deliver more efficient redistribution. "Regulatory Quality" measures governance by extracting

information from policy outcomes. It includes measures of market-unfriendly policies such as excessive regulation of economy, price controls or inadequate bank supervision.

The respect of citizens and the state for the institutions which govern their interactions is categorized as "Rule of Law" and "Control of Corruption". The "Rule of Law" cluster includes several indicators which measure the extent to which agents have confidence in and abide by the rules of society, such as perception of incidence of crime, effectiveness and predictability of the judiciary, and enforceability of contracts. They also provide a cluster for "Control of Corruption" measuring perceptions of corruption, conventionally defined as the exercise of public power for private gain. The presence of corruption is often a manifestation of lack of respect for the rules which govern the interaction between state and citizens and hence represents inefficiency in governing the redistribution.

The quality of institutions is very much related to how authority figures are selected and replaced. The "Political Stability and Absence of Violence" cluster combines several indicators which measure the perceived likelihood that the government in power will be destabilized or overthrown by unconstitutional and violent means such as domestic violence and terrorism. This index indicates the continuity of policies and its effects on the efficiency of redistribution.

The "Voice and Accountability" cluster is the closest to measures of democracy indicators. KKM includes this cluster as an indicator of governance in an attempt to capture the process by which citizens of a country are able to participate in the selection of governments. This cluster includes a number of indicators measuring various aspects of the political process, civil liberties and political rights, as well as various indicators

measuring the independence of the media in an attempt to quantify the accountability of those in a position of authority.

### ***Annex 3***

## **Our Governance Indicators**

### **Quality of Administration (QA)**

The Quality of Administration index is composed of four indicators from ICRG defined in the following manner:

- (i) Control over Corruption** “is a measure of corruption within the political system. Such corruption is a threat to foreign investment for several reasons: it distorts the economic and financial environment; it reduces the efficiency of government and business by enabling people to assume positions of power through patronage rather than ability, and, last but not least, introduces an inherent instability into the political process”.
- (ii) Quality of Bureaucracy** indicates that “countries where the bureaucracy has the strength and expertise to govern without drastic changes in policy or interruptions in government services. In these low-risk countries, the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training. Countries that lack the cushioning effect of a strong bureaucracy receive low points because a change in government tends to be traumatic in terms of policy formulation and day-to-day administrative functions.”
- (iii) Investment Profile** “is a measure of the government’s attitude to inward investment as determined by an assessment of four sub-components: the risk to operations, taxation, repatriation and labor costs”.

(iv) **Law and Order** “are assessed separately. The Law sub-component is an assessment of the strength and impartiality of the legal system, while the Order sub-component is an assessment of popular observance of the law.”

### **Public Accountability (PA)**

The second set of candidates measures the “Public Accountability”. This index includes two indicators from Freedom House (FH): “Civil Liberties” and “Political Rights”.

The “Civil Liberties” index mainly addresses the following questions:

- Are there free and independent media, literature and other forms of cultural expressions?
- Is there open public discussion and free private discussion?
- Is there freedom of assembly and demonstration?
- Is there freedom of political or quasi-political organization?
- Are citizens equal under the law, do they have access to an independent and nondiscriminatory judiciary, and are they respected by the security forces?
- Is there protection from unjustified imprisonment, exile or torture whether by groups that support or oppose the regime?
- Is there freedom from war or insurgency situations?
- Are there free trade unions and peasant organizations or the equivalent, and is there effective collective bargaining?
- Are there free professional and other private organizations?
- Are there free businesses or cooperatives?



- Are there free religious institutions, and free private and public religious expression?
- Is there personal and social freedom, which include aspects such as gender equality, property rights, freedom of movements, choice of residence, and choice of marriage and size of family?
- Is there equality of opportunity –which includes freedom from exploitation by or dependency on landlords, employers, union leaders, bureaucrats, or any other type of denigrating obstacle – to a share of legitimate economic gains?
- Is there freedom from extreme government indifference and corruption?

The “Political Rights” index addresses the following questions:

- Is the head of the state, head of government, or other chief authority elected through free and fair elections?
- Are the legislative representatives elected through free and fair elections?
- Are there faire electoral laws?
- Are the voters able to endow their freely elected representatives with real power?
- Do the people have the right to freely organize into different political parties or other competitive political groupings of their choice, and is the system open to the rise and fall of those competing parties or groupings?
- Is there a significant opposition vote, a de facto opposition power, and a realistic possibility for the opposition to increase its support or gain power through elections?

- Are the people free from domination by the military, foreign powers, totalitarian parties, religious hierarchies, economic oligarchies, or any other powerful groups?
- Do cultural ethnic, religious, and other minority groups have reasonable self-determination, self-government, autonomy, or participation through informal consensus in the decision-making process?
- For traditional monarchies which have no parties or electoral process, does the system provide for consultation with the people to encourage discussion of policy, and to allow the right to petitions the rules?

### **Political Stability (PS)**

The political stability index includes the following variables from ICRG:

**Government Stability** “is a measure both of the government’s ability to carry out its declared program(s), and its ability to stay in office. This will depend on the type of governance, the cohesion of the government and governing party or parties, the closeness of the next election, the government’s command of the legislature, popular approval of government policies, and so on.”

**Internal Conflict** “is an assessment of political violence in the country and its actual or potential impact on governance. The highest rating is given to those countries where there is no armed opposition to the government and the government does not indulge in arbitrary violence, direct or indirect, against its own people. The lowest rating is given to a country embroiled in an ongoing civil war.”

**External Conflict** “is an assessment both of the risk to the incumbent government and to inward investment. It ranges from trade restrictions and embargoes, whether imposed by a single country, a group of countries, or the international community as a whole, through geopolitical disputes, armed threats, exchanges of fire on borders, border incursions, foreign-supported insurgency, and full-scale warfare.”

**Ethnic Tensions** “measures the degree of tension within a country attributable to racial, nationality, or language divisions. Lower ratings are given to countries where racial and nationality tensions are high because opposing groups are intolerant and unwilling to compromise. Higher ratings are given to countries where tensions are minimal, even though such differences may still exist.”

**Annex 4 :****Principal Component Analysis****Table A4.1: The Administrative Quality Indicator**

Component	Eigenvalue	Cumulative R <sup>2</sup>
P1	2.23	0.56
P2	0.83	0.76
P3	0.51	0.89
P4	0.43	1

Loadings	P1	P2	P3	P4
<i>Corruption</i>	0.49	-0.57	0.06	0.65
<i>Bureaucracy Quality</i>	0.54	-0.08	0.64	-0.54
<i>Investment profile</i>	0.41	0.81	0.08	0.40
<i>Law and Order</i>	0.54	-0.02	-0.76	-0.36

$$QA = P1*(0.5577/0.7640) + P2*(0.2063/0.7640)$$

\*\*\*\*\*

**Table A4.2: The Political Stability Indicator**

Component	Eigenvalue	Cumulative R <sup>2</sup>
P1	2.24	0.56
P2	0.70	0.74
P3	0.69	0.91
P4	0.36	1.00

<b>Loadings</b>	P1	P2	P3	P4
<i>Government Stability</i>	0.45	0.65	0.57	0.22
<i>Internal Conflicts</i>	0.58	-0.06	-0.08	-0.81
<i>External Conflicts</i>	0.48	0.18	-0.75	0.41
<i>Ethnic Tensions</i>	0.47	-0.73	0.33	0.36

$$PS = P1 * (0.5604/0.7356) + P2 * 0.1752 / 0.7356)$$

\*\*\*\*\*

**Table A4.3.: The Public Accountability Indicator**

<b>Component</b>	<b>Eigenvalue</b>	<b>Cumulative R<sup>2</sup></b>
P1	1.88	0.94
P2	0.12	1

<b>Loadings</b>	P1	P2
<i>Political Rights</i>	0.71	0.71
<i>Civil Liberties</i>	0.71	-0.71

$$PA = P1$$

.....

**Table A4.4.: The Governance Indicator**

<b>Component</b>	<b>Eigenvalue</b>	<b>Cumulative R2</b>
P1	3.94	0.39
P2	1.64	0.56
P3	1.2	0.68
P4	0.91	0.77
P5	0.69	0.84
P6	0.47	0.89
P7	0.43	0.93
P8	0.33	0.96
P9	0.26	0.99
P10	0.13	1

<b>Loadings</b>	<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>	<b>P8</b>	<b>P9</b>	<b>P10</b>
<i>Corruption</i>	0.25	-0.15	0.61	0.19	0.00	0.53	0.46	0.06	-0.05	0.03
<i>Bureaucracy Quality</i>	0.30	-0.13	0.35	0.51	-0.10	-0.68	-0.13	0.12	-0.10	0.03
<i>Investment profile</i>	0.33	-0.03	-0.43	0.40	0.11	0.02	0.31	-0.63	0.18	-0.08
<i>Law and Order</i>	0.37	-0.31	0.13	-0.12	0.06	0.20	-0.58	-0.05	0.59	-0.05
<i>Political Rights</i>	0.26	0.63	0.08	0.07	0.06	0.09	-0.15	0.11	-0.06	-0.69
<i>Civil Liberties</i>	0.26	0.63	0.04	0.03	0.07	0.08	-0.13	-0.01	0.06	0.71
<i>Government Stability</i>	0.31	-0.20	-0.52	0.24	0.16	0.21	0.01	0.67	-0.16	0.06
<i>Internal Conflicts</i>	0.41	-0.18	-0.03	-0.30	-0.16	0.10	-0.27	-0.31	-0.71	0.03
<i>External Conflicts</i>	0.33	0.07	-0.14	-0.33	-0.73	-0.15	0.34	0.16	0.26	-0.02
<i>Ethnic Tensions</i>	0.31	-0.04	0.08	-0.52	0.61	-0.36	0.34	0.07	0.06	-0.02

$$\text{GOV} = \text{P1}*(0.3937/0.7696) + \text{P2}*(0.1641/0.7696) + \text{P3}*(0.1204/0.7696) + \text{P4}*(0.0915/0.7696)$$

.....

**Table A4.5 : The Structural Reform Indicator**

<b>Component</b>	<b>Eigenvalue</b>	<b>Cumulative R<sup>2</sup></b>
<b>P1</b>	1.49	0.75
<b>P2</b>	0.59	1

<b>Loadings</b>	<b>P1</b>	<b>P2</b>
<i>Trade Policy</i>	0.71	0.71
<i>Private Credit</i>	0.71	-0.71

$$\text{SR} = \text{P1}$$

.....

**Table A4.6: The Human Capital Indicator**

Component	Eigenvalue	Cumulative R <sup>2</sup>
P1	3.14	0.78
P2	0.38	0.88
P3	0.31	0.96
P4	0.18	1

Loadings	P1	P2	P3	P4
<i>Life Expectancy</i>	0.52	-0.33	0.03	-0.79
<i>H1</i>	0.50	-0.41	0.55	0.53
<i>H2</i>	0.50	-0.05	-0.80	0.32
<i>H3</i>	0.48	0.85	0.23	-0.03

***H = P1***

**Annex 5****Table A.5 : Short-Term Coefficients of the Disaggregated Indicators****A.5.1. Direct Effect on Private Investment (1)**

<b>Index</b>	<b>Variables</b>	<b>Short-Term</b>	<b>Coefficients</b>
		<b>Standardized Variables</b>	<b>Level Variables</b>
<b>GOV</b>	<i>Corruption</i>	0.49	0.45
	<i>Bureaucracy Quality</i>	0.54	0.52
	<i>Investment Profile*</i>	0.32	0.15
	<i>Law and Order</i>	0.29	0.23
	<i>Political Rights</i>	0.64	0.32
	<i>Civil Liberties</i>	0.63	0.39
	<i>Government Stability</i>	0.14	0.06
	<i>Internal Conflict</i>	0.29	0.11
	<i>External Conflict</i>	0.27	0.12
	<i>Ethnic Tensions</i>	0.22	0.15
<b>SR</b>	<i>Trade Policy</i>	1.40	0.05
	<i>Private Credit</i>	1.40	0.07

*Source:* Authors' calculations.

Notes: (1) Direct impact is calculated using the estimated coefficient of the aggregated indicators (*GOV* and *SR*, see equation (9), Table (1)), as well as the weights of each principal component in the aggregate indicators, combined with the loading of the initial variables in each principal component (see *Annex 4*).



**A.5.1. Indirect Effect on Private Investment (1)**

Index	Variables	Short	Term	Coefficients
		Standardized	Level	Level
		Variables (a)	Variables (a)	Variables (b)
<b>H</b>	<i>Life Expectancy</i>	0.06	0.01	0.01
	<i>Primary Education</i>	0.06	0.04	0.09
	<i>Secondary Education</i>	0.06	0.09	0.19
	<i>Tertiary Education</i>	0.06	0.51	1.14

*Source:* Authors' calculations.

Notes: (1) Indirect impact is calculated using the coefficient of the human capital indicator in the governance equation (column 10, Table 1), multiplied by the coefficient of the governance indicator in the investment equation (column 9, Table 1), in addition to the weights of each principal component in the aggregate indicators, combined with the loading of the initial variables in each principal component (see *Annex 4*).

(a) Coefficient entering the governance equation (2).

(b) Coefficient entering the private investment equation (1).

**Annex 6****Table A. 6.**

**Level of variables with an increase of one standard deviation  
compared to the actual level in East Asia**

	<b>SR</b>		<b>QA</b>				<b>PA</b>		<b>PS</b>				<b>H</b>			
	trade pol	priv cred	corrup tion	bur qual	inves prof	law ord	pol rights	civ lib	gov stab	int confl	ext confl	ethn tens	life exp	Iary	Iiary	IIIary
<b>1980s</b>																
<b>Egypt</b>	1.0	1.0	1.0	1.2	1.0	1.2	0.9	1.1	1.3	1.2	1.0	2.0	1.0	0.8	1.6	1.3
<b>Iran</b>	0.4	1.2	1.4	0.8	1.1	0.9	0.7	0.7	1.1	0.8	0.4	1.4	1.1	0.9	1.5	1.0
<b>Morocco</b>	0.9	0.9	1.1	1.4	1.1	1.0	1.2	1.0	1.5	1.1	0.9	1.9	1.1	0.3	0.5	0.7
<b>Tunisia</b>	1.1	1.6	1.4	1.3	1.1	1.0	0.7	1.0	1.2	1.2	0.8	2.8	1.1	0.9	1.4	1.1
<b>1990s</b>																
<b>Egypt</b>	0.9	0.9	1.2	1.3	1.3	1.2	1.1	1.1	1.4	1.1	1.1	1.9	1.1	1.0	1.5	1.6
<b>Iran</b>	0.6	0.8	1.5	1.4	1.1	1.3	1.1	0.9	1.4	1.3	1.0	1.8	1.1	1.0	1.5	1.4
<b>Morocco</b>	1.0	1.0	1.3	1.3	1.4	1.5	1.3	1.3	1.5	1.3	1.1	1.7	1.1	0.3	0.4	0.7
<b>Tunisia</b>	1.3	1.3	1.3	1.3	1.4	1.3	1.1	1.2	1.4	1.4	1.1	1.8	1.2	1.0	1.3	1.4

*Source:* Authors' calculations.

Notes: Figures represent the level potentially reached by the MENA countries when increasing the control variables by one standard deviation divided by the levels achieved by the East Asian economies. For example, the value 1 means that an improvement of one standard deviation has increased the reform indicator in MENA to the level of the East Asian economies. Similarly, the value 1.2 indicates that the level reached by MENA is 20 percent higher than the level observed in East Asia.