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**Article**

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# **Local regulation between formal and informal institutions: Analysis by application to the case of the town of Ksar-Hellal (Tunisia).**

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## **Abstract**

The purpose of this paper is to detect the relevance degrees of formal and informal institutions at the level of local regulation, as well as their effects on the local companies' productivities. Indeed, by an analysis of the territory of the Ksar-Hellal town, we noted that informal institutions, apprehended by the trust and the collective punishment, contribute beside the formal penal institutions to channel the behaviors of the hilalian companies but with a less effectiveness. Similarly, the strong contribution of exogenous institutions in boosting productivity compared to that endogenous, states that the decision makers should improve the quality of formal regulation, and this at the expense of any form of regulation built by values commonly shared by the local community.

## **Resumen**

El objetivo del presente trabajo es detectar los grados de relevancia de las instituciones formales e informales en el nivel de regulación local, así como sus efectos sobre productividades de las empresas locales. En efecto, por un análisis del territorio de la ciudad de Ksar Hellal, observamos que las instituciones informales, aprehendidas por la confianza y el castigo colectivo, contribuyan al lado de las instituciones penales formales para canalizar las conductas de las empresas hilálíes pero con una menor eficacia. Asimismo, la fuerte contribución de instituciones exógenas en incrementar la productividad comparada con la endógena, afirma que los responsables deben mejorar la calidad de la regulación formal, y esto a expensas de cualquier forma de regulación construido por valores comúnmente compartidos por la comunidad local.

*KeyWords:* Local regulation, formal institutions, informal institutions, productivity, Tunisia

*Jel Classification:* O12, K2, L51

## 1. Introduction

Apprehended as formal and informal constraints, North (1991) affirms that institutions are established by men, to structure their interactions. Formal (eg rules, laws, constitutions) and informal constraints (such as norms of behavior, conventions, codes of conduct imposed) are often assimilated respectively to exogenous and endogenous institutions. By reducing transaction costs and by solving problems of coordination of actors, the institutions of quality enable cooperation between agents and reducing opportunistic behavior (Boyer, 1990). Neo-institutional works insist in fact on the role of institutions in economic dynamics, growth and development (Rodrik and Subramanian, 2003, Edison, 2003). In this context, Solari (2003) advances that much of the regulation of economic processes is closely linked to a network of social relations, firmly rooted in the local culture. For him, the local regulation is largely the result of institutions that belong to civil society, mostly informal, while it is mostly formal institutions that affect national regulation. Becattini (1989) affirms that a set of values commonly shared by the local community can reduce conflicts of interest. Similarly, according to Assens (2003), the regulatory mechanisms are essentially economic or sociopolitical. The Sociopolitical regulatory mechanisms are based on cultural foundations and on social identity of the considered population. For Putnam (1993), the relationship between formal and informal institutions is fundamental for the local regulation, but it is the adaptation of local government to the local political culture which is decisive. This process has been observed in some Italian regions by Messina (2001), and in European countries by Lorrain (2002). However, some researchers (Ellickson, 1991, Granovetter, 1985), estimate that social control often exceeds the formal controls.

In order to assess the effect of institutions on the economic performances, the authors conceive an econometric model, that connects the macroeconomic performance of a country with a proxy of institution qualities. Generally, the authors use a global index that takes into account formal institutions, while ignoring those informal (Rodrik and Subramanian, 2003, Edison, 2003). Indeed, it turned out that the capacity to establish regularities informal, different from the formal regularities, justifies the difficulty of the detailed analysis of the institutions. For this reason, the temptation is great, where we try by an application on the Local Productive System (LPS) of the town of Ksar-Hellal, to overcome such a statistical problem, and also check the relevance of such advanced assumptions. Regarded as the historical capital of textile\_clothing in Tunisia, we try from the case of the town of Ksar-Hellal, detect the formal and informal local institutions which

supposed to ensure the regulation of the companies of the territory in question, and identify in a second phase, their effect on the productivity.

## **2. Local regulation: Methodology and data sources**

Our goal consist to detect the different institutions on the hilalian territory , and to highlight their degrees of effectiveness, in terms of regulating of behavior of the productive system. For this reason, we construct a synthetic indicator of regulation, called the local regulation indicator. This indicator will be composed by the aggregation of two sub-indicators i.e.; the formal regulation that is applied by public and legal administrations, the formal regulation , generated by social mechanisms. For the formal regulation, the effectiveness of local government to coordinate the interactions of actors will be measured by: the transparency and clarity of policy, the effectiveness of justice and, the control of corruption. These indicators which, according to our readings, are commonly used by the World Bank (WB) and the Ministry of Economy, Finance and Industry of France (MINEFI), to analyze the effectiveness of government institutions. Certainly, the indicator of transparency and legibility of the public action, reflects the ability of firms in obtaining and understanding the various laws and regulations that affect their activities, whether at the level of taxes, social contributions, etc. . For the justice efficiency indicator, it apprehends business confidence in government, during the conflict resolution by the court system. Within this framework, qualities of equitable, impartial, fast, honest and incorruptible, etc, will be the characteristics adopted in our investigation. Finally, the corruption control indicator will highlight the abuse of power by some officials in the performance of certain services, whether by officials of the Office of Tax Control (OTC), the National Social Security Fund (NSSF), customs ... etc. These concepts will be adopted as such in the composition of our synthetic indicator precisely, the formal regulation. Concerning the informal regulation indicator, it will be built, according to the theory, by the aggregation of two sub-indicators, which can control the relational behaviors of the firms by social mechanisms namely, trust (Shapiro, 1987, Dyer and Singh , 1998) and collective punishment (Dyer and Singh, 1998, Larson, 1992, Weigelt and Camerer, 1988).

In our study, we will use the same aggregation technique adopted by MINEFI, in fact, the arithmetic mean of questions that make up each indicator, weighted by their standard deviations. Each survey question is accompanied by a rating scale to measure the importance, frequency or intensity of the corresponding quality. It is a Likert scale (1932),

limited by the terminal (1) to describe the low level and the terminal (5), characterizing the very high level. By such a scale, we can specify the category to which belongs the indicator i.e., belongs to the class of low level of the interval  $[0,2[$ , the class of mean level of the interval  $[2,3[$ , and the important level of the interval  $[3,5]$ . Indeed, applied during the year 2009 to a sample of 74% textile\_clothing companies, the questionnaire is addressed to the managers which are able to give the appropriate responses. The Textile\_Habillment companies in Ksar\_Hellal represent in fact more than 90% of the total of the localised companies. Thus, on this category of companies we will apply our study.

### **3. Local regulation and productivity: Estimation of the relationship**

In this section, we will try in a first step to build the various institutional indicators supposed apprehending the quality of regulation of the local institutions within the town of Ksar\_Hellal, followed by an analysis of their weights in the total regulation. Finally, in a second step, and via an econometric model, we try to specify the impact of these institutional elements on the level of the productivity of the companies of the city in question.

#### ***3.1 Institutional factors analysis***

According to Table 1, we find that the local regulation recorded in the town of Ksar-Hellal did not exceed the level of 1.77 nor fall to the lower level of 1.17. Such a margin evolution, accompanied by a low standard deviation of 0.16, emphasizes the low level of quality control. In addition, the analysis in Table states that 76% of the control of conflict level in the LPS of Ksar-Hellal, is provided by public institutions, against 24% due to social rules relating to territory hilalian. More specifically, it is the penal institutions, which controls the behavior of companies of Textile-Clothing in Ksar-Hellal, because they ensure 30% of the quality of the local regulation. Then, it is the control quality of corruption, as well as transparency and clarity of public action, which jointly occupy the second place in the coordination of hilalian compaignies behavior . These last two each represent 23% of the level of local regulation. In other words, despite the prominence of legal institutions in the regulation of conflicts in Ksar-Hellal, LPS 's companies in question suffer from the presence

of corrupt officials who demand bribes, as well as a low transparency in laws and in their application.

**Table1: Main results of the regression of the indicator of the local regulation**

<b>Variable</b>		<b>Coefficient</b>	<b>Variable</b>		<b>Coefficient</b>
<b>Local Regulation</b>	<b>Minimum</b>	1.17	<b>Formal regulation</b>	<b>Transparency and clarity of policy</b>	23%
	<b>Maximum</b>	1.77		<b>Effectiveness of justice</b>	30%
	<b>Std. Error</b>	0.16		<b>Control of corruption</b>	23%
<b>Formal regulation</b>		76%	<b>Informal regulation</b>	<b>Trust</b>	12%
<b>Informal regulation</b>		24%		<b>Collective punishment</b>	12%
<b>DW.stat</b>		1.84	<b>DW.stat</b>		1.78

Source: Our own investigations from the Eviews software.

All the estimated coefficients are significant with the threshold of risk  $\alpha=5\%$ .

In third position, we find that the regulation of hilalian companies is guaranteed by the social control, more precisely, via the collective punishment and the value of trust between companies. These two mechanisms help to coordinate the interactions between hilalian companies, but in very small proportions, and this with a weight each of 12% of the total local regulation. Thus, despite the supremacy of the formal institutions to those informal, these two last contribute to the regulation in the LPS of Ksar-Hilal. Indeed, it turned out that the social mechanisms, apprehended by the trust and collective punishment, contribute beside the penal institutions, at the control and the normal functioning of the hilalian productive system but, with a less effectiveness. Certainly, after such identification of the various institutions in the hilalian territory, it will be possible in the next step, to clarify the importance of their effects on the productive dynamics of the concerned enterprises.

### 3.2 Econometric model and estimation

We try to detect from the endogenous growth model of Romer (1986), the sensitivity of the LPS productivity of Ksar\_Hellal to different types of regulation. We will use a Cobb-Douglas function, where Y represents the total production of the economy A, the level of technical progress made by the knowledge derived from the investment of the firms K, capital factor and L, the labor factor, thus :

$$Y_t = K_t^\alpha (A_t L_t)^{1-\alpha} \quad (1)$$

$$A_t = A_0 e^{\theta_j W_j t}$$

where;

$W_j$ : vector of variables included which expected to affect technical progress.

$\theta_j$ : vector of coefficients which are connected to the variables of the vector

In our empirical study, the technological variable (A) increases the efficiency of labor factor. It is also said that it is “neutral within the meaning of Harrod” Indeed, while dividing by the labor factor to express output per capita (y), we obtain the following form:

$$y_t = k_t^\alpha A_t^{1-\alpha} \quad (2)$$

$$A_t = A_0 e^{\theta_j W_j t}$$

We follow the same methodology used by economists of the endogenous growth to explain the technical progress, and this by adding some variables in the equation of the production function. Widening consists of introducing a set of institutional factors likely to influence the productive dynamics of hilalian companies. Indeed, by applying the logarithm to the equation (2), we obtain the equation (3) below, which will provide the equation basis of labor productivity, such as:

$$\log(y_t) = \beta_0 + \beta_1 [\log(k)]_t + \beta_2 (FormL_{Reg}_t) + \beta_3 (InformL_{Reg}_t) + \varepsilon_t \quad (3)$$

$i: 1 \dots n$ , number of observations

where:



$y$ : Represents the labor productivity of the company. It will be measured by dividing the Gross Value Added (GVA) by the amount of labor (L) engaged in a business. We measured the quantity of labor of each company by the number of the employees.

$k$ : Represents the capital intensity of each company. It is measured by dividing the capital factor (K) by labor factor(L). Generally, we use the Stock of Fixed Capital (SFC) to represent the capital factor. But given the absence of data on capital stock per firm, we are forced to use the commonly adopted proxy, which is the variable of Gross Fixed Capital Formation (GFCF).

*Forml\_Reg*: This is the formal regulation conducted by institutions represented by a legal authority or bureaucratic rules.

*linforml\_Reg*: This is the informal institutions apprehended by social mechanisms, which include the use of the trust and the impose of collective sanctions to discourage opportunistic behavior.

**Table2: Main results of the regression of the model**

<b>Variable</b>	<b>Coefficient</b>	<b>Prob.</b>
<b>Capital intensity</b>	0.45	0.021
<b>Formal regulation</b>	0.23	0.035
<b>Informal regulation</b>	0.03	0.016
<b><math>R^2</math></b>	0.77	
<b>Prob (F-statistic)</b>	0.045	
<b>DW stat.</b>	1.87	

Source: Our own investigations from the Eviews software

From Table 2, we note that our model admits an important explanatory power by having a respectable coefficient of determination  $R^2$  of 0.77, and it is globally significant with a probability of the significance of 0.045. Similarly, the variables justify their individual significativities in the model which have lower probabilities than the risk  $\alpha = 5\%$ . Certainly, a DW statistic of 1.87, close to 2, confirms the absence of autocorrelation errors in our model. In this context, the analysis shows that the sign of the estimated coefficient of the relationship between capital intensity ( $k$ ) and productivity of labour ( $y$ ) was positive (0.45), in accordance with the theory. Indeed, the estimation indicates that any 1%

increase in the quality of informal regulation in the hilalian territory , leads to a very low growth of the productivity of about 0.03%. On the other hand, the largest contribution is associated with penal institutions, where every 1% improvement in their quality of regulation causes an increase of 0.23% in productivity. Thus, trust and collective punishment, endogenous modalities to control the opportunistic behavior within the LPS of Ksar\_Hellal, contribute to improve the productive performance of the textile\_clothing companies, but by a small proportion. In other words, the productivity of the city of Ksar\_Hellal is more sensitive to exogenous institutions localized than the different values shared by the population. The emphasis on social and cultural phenomena in the determination of the local economic processes, must be relativized. Policymakers should improve the quality of regulation relating to the exogenic institutions, and don't attribute much importance on the endogenous institutions to reduce the opportunist behavior, in a specific way, and to improve the economic efficiency of the territory, in general way.

#### **4. Conclusion**

By analysing of the territory of Ksar\_Hellal's city, it turned out that formal and informal institutions are involved in the conflicts regulation within the LPS of the territory in question, but in a non-uniform manner. More precisely, the social mechanisms, apprehended by trust and collective sanction, contribute to control the companies behavior of the hilalian productive system, but according to a lower effectiveness degree than the formal institutions. Moreover, the social effects phenomena on the productive dynamics of the hilalian companies, remains far from exceeding that of the exogenic institutions. In light of this finding, government should, in a strategy to improve the effectiveness of local regulation, direct its policy towards to the development of formal system, without attributing much interest to the extra-economic sphere. By such conduct, the government can effectively reduce opportunistic behavior, while providing a significant improvement in the productivity of its enterprises.

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