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' productivity. Indeed, by analyzing the territory of the Ksar-Hellal town, we noted that informal institutions, apprehended by trust and collective punishment, contribute with the formal penal institutions to channel the behavior of Hilalian companies but with less effectiveness. Similarly, the strong contribution of exogenous institutions in boosting productivity compared to that of the endogenous ones states that 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.

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, Constitution) and informal constraints (such as norms of behavior, conventions, codes of conduct imposed) are often assimilated 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)

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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, 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), regulatory mechanisms are essentially economic or sociopolitical. The Sociopolitical regulatory mechanisms are based on cultural foundations and on the 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 formal controls.

In order to assess the effect of institutions on 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 the informal ones (Rodrik and Subramanian, 2003; Edison, 2003). Indeed, it turned out that the absence of credible indicators that represent the formal and informal regulations, justifies the difficulty of a detailed analysis of the institutions. For this reason, 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. By using the case of the town of Ksar-Hellal which is regarded as the historical capital of textile clothing in Tunisia, we try to detect the formal and informal local institutions which are 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 is to detect the different institutions on the Hilalian territory and to highlight their degrees of effectiveness in terms of regulating the 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 are, according to our readings, 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 to obtain and understand various laws and regulations, that affect their activities 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, it will be constructed by including some qualities such as equitable, impartial, fast, honest, incorruptible, etc. Finally, the corruption control indicator will highlight the abuse of power by some officials in the performance of certain services provided by 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. According to theory, the informal regulation indicator will be built 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 means 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 the indicator belongs i.e., 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 able to give appropriate responses. The textile-clothing companies in Ksar-Hellal represent in fact more than 90% of the total of the localised companies. Thus, it is on this category of companies that we will apply our study.

3. Local regulation and productivity: estimation of the relationship

In this section, we will first try to build the various institutional indicators supposed to apprehend the quality of regulation of the local institutions within the town of Ksar-Hellal, followed by an analysis of their weight in the total regulation. Finally, via an econometric model, we try to specify the impact of these institutional elements on the level of the productivity of the companies in 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 did it 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 1

states that 76% of the control of the conflict level in the LPS of Ksar-Hellal is provided by public institutions against 24% due to social rules relating to the Hilalian territory. More specifically, it is the penal institutions which control 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 the transparency and clarity of public action which jointly occupy the second place in the coordination of Hilalian companies' 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 due to the presence of corrupt officials who demand bribes, as well as a low transparency in laws and their application.

Table 1. Main results of the regression of the local regulation indicator

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

Source: Our own investigations from the Eviews software
All the estimated coefficients are significant with the threshold of risk α=5%

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

3.2 Econometric model and estimation

Departing from the endogenous growth model of Romer (1986), we try to detect 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 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 :

$$Y_t = K_t^\alpha (A_t\, L_t)^{1-\alpha} \tag{1}$$
$$A_t = A_0 e^{\theta_j w_{jt}}$$

where;

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

θ_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:

$$y_t = k_t^\alpha\ A_t^{1-\alpha} \tag{2}$$
$$A_t = A_0 e^{\theta_j w_{jt}}$$

We follow the same methodology used by the economists of endogenous growth to explain technical progress, and this by adding some variables in the equation of the production function. Widening consists in 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:

$$\log(y_i) = \beta_0 + \beta_1 [log(k)_i] + \beta_2 \left(Forml_{Reg_i}\right) + \beta_3 \left(Informl_{Reg_i}\right) + \varepsilon_i \tag{3}$$

$i : 1 \ldots n$, 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 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.

Iinforml_Reg: This represents the informal institutions apprehended by social mechanisms, which include the use of trust and the introduction of collective sanctions to discourage opportunistic behavior.

Table 2. Main results of the regression of the model

Variable	Coefficient	Prob.
Capital intensity	*0.45*	*0.021*
Formal regulation	*0.23*	*0.035*
Informal regulation	*0.03*	*0.016*
R^2	*0.77*	
Prob (F-statistic)	*0.045*	
DW stat.	*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 significance probability of 0.045. Similarly, variables justify their individual significance in the model which have lower probabilities than the risk α = 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 on the Hilalian territory leads to a very low productivity growth 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 the localized exogenous institutions than to 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. In other words, to reduce the opportunist behavior of companies, the gouvernment should improve the regulation quality of the exogenic institutions, and don't attribute much importance at the endogenous institutions of the territory. By such a strategy, it can on the one hand reduce the interest conflicts and on the other hand, improve the economic efficiency.

4. Conclusion

By analysing 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, social

mechanisms, apprehended by trust and collective sanctions, contribute to the control of the companies behavior of the Hilalian productive system, but according to a lower effectiveness degree than the formal institutions. Morever, the social effects phenomena on the productive dynamics of Hilalian companies, remain far from exceeding those of the exogenic institutions. In light of this finding, governments should identify a strategy to improve the effectiveness of local regulation and direct its policy towards the development of the 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 to the productivity of its enterprises.

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