

CORRUPTION AND ECONOMIC GROWTH: HOW DOES PIETY MATTER?

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Abstract- This study integrated the religious dimension into the economic analysis of corruption and growth. The idea along which, religion matters in explaining the extent of corruption -in addition to the conventional factors (institutional and economic ones)- was defend. Parting from the fact that Qur'an and Prophetic Narrations forbid corruption, the more pious is a Muslim, the lower should be his incentives for corruption. Hence, a higher level of piety in a society should translate into higher economic outcomes. The tractable analytical model developed in this study showed two possible channels for corruption to damage the long-run rate of economic growth. It also showed that, there is a minimum level of piety required for an economy to be productive. Below this threshold, the economy moves away towards an illegal rent-seeking situation. In addition, better quality of institutions and a reduced income tax contribute in lowering the threshold of piety required for an economy to move away from rent-seeking activity and towards productive activity.

Keywords- Piety, Islamic References, Corruption, Public investments, Economic growth JEL Classification: E62, O43, P47

I. INTRODUCTION

Perhaps, corruption is one of the most concerning economic and social scourge. If left unchallenged, it undermines a country's attempts to engage in sustainable development and fight against poverty and inequality. The severity of the phenomenon is essentially due to its endemic character, as demonstrated in a number of studies (Andvig and Moene, 1990; Murphy et al., 1993; Mauro, 2004; Sah, 2007).

The economic analysis often attributes corruption to the institutional and economic factors. Because of their poor economic policies and poor institutions and regulations, developing countries typically rank lower than developed nations in terms of the fighting against corruption (1). Nevertheless, economic and institutional factors are not the only factors explaining why corruption is high or rather limited in a given country. Indeed, there is a need to consider cultural factors as additional causes of the extent of corruption. The conclusions of some rare empirical studies in this field are in line with this argument and confirm that cultural factors play, indeed, a role (Paldam, 2001; Serra 2006). One proxy of the cultural dimension used in these studies is religion, which is viewed as a pillar of a country's culture and ethical education.

Unfortunately, in spite of their novelty compared to existing works in this field, these rare studies leave at least two crucial unanswered questions. First, how can one explain the transmission mechanism(s) of the effects of religion to corruption? Second, how important are the results concerning religion and corruption for economic growth analysis?

The aim of this theoretical work is to demonstrate that religion is, indeed, a determinant of the extent of corruption, and therefore, the economic growth in the long-run. Nevertheless, by contrast to these studies,

we argue here that what matters for corruption is not the simple belonging to a given religion, but rather the obedience to that religion's Commandments. We focus here on the Islamic religion. Islam -through Qur'an and the Prophetic Narrations- forbids corruption. The self-discipline to obey God's Commandments is called "piety"; and it is the level of that "piety" in a given society that may, in part, explain why corruption is high or rather limited.

In the next section a theoretical model is developed in which corruption undermines the long-run economic growth rate via two channels: i) by reducing time allocated to productive labour, and ii) by diverting public capital expenditures from productive use. Because, in the model, piety is a key determinant of corruption as well as the institutional dimension, it also comes out as a determinant factor of the economic growth rate in the long-run. Furthermore, it is shown that the "Corruption Concentration" index, i.e., the amount of rent-seeking revenues relative to productive revenues, is decreasing in the level of piety in the society; and that the threshold for this piety level (which classifies an economy as a rent-seeking one or a productive one) is a depending function of economic and institutional factors.

II- A THEORETICAL MODEL OF PIETY, FINANCIAL CORRUPTION AND ECONOMIC GROWTH

Consider a continuum of individuals indexed by $i \in [0, 1]$. The population is assumed to be constant and normalised to 1. Individuals have one unit of labour services (or time) available, and they allocate it between productive work, L , and rent-seeking (theft from the government), S . Hence, $L + S = 1$. We describe the two activities successively.

II-1 The illegal rent-seeking activity:

By “illegal rent-seeking activity” or “corruption” we mean the activity of stealing public resources. For each rent seeker i , this activity generates a fraction t_i of the given total government spending, X . The fraction t_i is assumed to increase with the time spent in stealing, s_i . By contrast, it should decrease with respect to two additional factors:

- i) the quality of institutions, i.e., the intensity of government efforts to fight against corruption, E , including the degree of supervision and existence of accountability and punishment, and
- ii) the average level of piety, \bar{P} , in the society.

Hence, corruption technology can be represented by the following general function:

$$t_i = t_i(s_i, E, \bar{P}) \quad (1)$$

where: $\frac{\partial t_i}{\partial s_i} > 0$, $\frac{\partial t_i}{\partial E} < 0$ and $\frac{\partial t_i}{\partial \bar{P}} < 0$.

(1) : The reader can refer to the studies of Ades and Di Tella (1999), Aidt, (2009), Assiotis (2012), MacDonald and Majeed (2011) among others which focus on the economic dimension of corruption. The institutional dimension of corruption can be understood by referring to the works of Ades and Di Tella (1999), Tanzi (2002), Dreher and Schneider (2010), Dreher and Gassebner (2011) and Goel (2012).

Misappropriation of resources is called in Islam “Gulul” and is naturally forbidden. From this interdiction, the assumption of a negative relationship between the extent of corruption and the level of piety in a Muslim society seems to be justified. Each rent-seeker obtains an income, R_i (from stealing) given by:

$$R_i = t_i X \quad (2)$$

By assuming symmetry among rent-seekers, thus dropping the subscript i , this income (which is also rent-seekers’ total income) can finally write as:

$$R = S f(E, \bar{P}) X \quad (3)$$

where $S = \int_0^1 s_i di$ represents (average) time spent in rent-seeking activity.

The religious self-control and the institutional governmental control are two key determinants of the extent of corruption and the revenues it generates. The two factors reinforce one-each-other. That is,

$$\frac{\partial R}{\partial \bar{P}} < 0, \quad \frac{\partial R}{\partial E} < 0 \quad \text{and} \quad \frac{\partial^2 R}{\partial \bar{P} \partial E} > 0$$

II-2 THE GOVERNMENT BUDGET

The productive fraction of public spending, i.e., the part not extracted by rent-seekers, enters the production function as a public input, as in Barro (1990).

Denoting this productive fraction of public spending by G , one can write:

$$G = (1 - Sf(E, \bar{P}))X \quad (4)$$

Let us denote by the average rent to public spending ratio, i.e., the fraction of public spending diverted to rents. We obtain:

$$t = \frac{R}{X} = Sf(E, \bar{P}) \quad (5)$$

Hence, we can write:

$$G = (1 - t)X \quad (6)$$

The government finances public expenditures through a tax levied on incomes of productive workers so that government budget constraint is:

$$\tau y = X \quad (7)$$

where τ is the exogeneous tax rate and y is total output. Note here, that since corruption reduces "productive" aggregate income, it also results in lower tax revenues.

II-3 THE PRODUCTIVE ACTIVITY

The production function of a representative firm is assumed to be Cobb-Douglas in private capital, households’ time spent in working, and productive government spending, (the fraction of X net of theft), as in Barro (1990).

$$y = K^{1-\alpha} L^\alpha [(1-t)X]^\alpha \quad (8)$$

The equilibrium wage, and the return on saving (equal to investment), are given by the marginal products of labour and capital, respectively.

$$w = \frac{\partial y}{\partial L} = \alpha K^{1-\alpha} L^{\alpha-1} [(1-t)X]^\alpha = \alpha \frac{y}{L} \quad (9a)$$

$$r = \frac{\partial y}{\partial K} = (1-\alpha) K^{-\alpha} L^\alpha [(1-t)X]^\alpha = (1-\alpha) \frac{y}{K} \quad (9b)$$

II-4 The long-run economic growth rate:

Individuals maximize a utility function given by the present discounted value of utility:

$$V_t = \int_0^\infty e^{-\rho t} U(C_t) dt \quad (10)$$

where C is consumption and ρ the constant rate of time-preference. The instantaneous utility is specified by the following iso-elastic function:

$$U(C_t) = \frac{C_t^{1-\sigma} - 1}{1-\sigma} \quad (11)$$

where the inter-temporal elasticity of substitution is constant and given by $\frac{1}{\sigma}$.

The dynamic budget constraint of an individual i is:

$$(1 - \tau)[wL + rK] + tX = \dot{K} + C \quad (12)$$

In this constraint, it is assumed that individuals do not pay tax on the fraction of their income resulting from corruption, which is likely to be a realistic assumption.

Maximizing (10) under (12) and using (9b) yield the expression of the growth rate of consumption (Euler Equation). In the transition dynamics, both consumption and income per-capita grow at the same growth rate, which is given as follows:

$$g_c = g_y = \frac{1}{\sigma} \left\{ (1 - \tau)(1 - \alpha) \frac{y}{K} - \rho \right\} \quad (13a)$$

By using (6) and (9a), equation (13) transforms to:

$$g_c = \frac{1}{\sigma} \left\{ (1 - \tau)(1 - \alpha) L^{1-\alpha} \cdot \tau^{1-\alpha} \cdot (1 - t)^{\frac{\alpha}{1-\alpha}} - \rho \right\} \quad (13b)$$

At the steady state equilibrium, each worker compares the net wage (corresponding to the marginal product of labour) with the marginal payoff of corruption. In addition, by using the fact that $w = y$, the optimal level of labour effort, L , is:

$$L^* = 1 - S^* = \frac{\alpha(1-\tau)}{\tau f(E, \bar{P})} \quad (14a)$$

Similarly, by using (5) and substituting S^* by its expression in (14), we obtain:

$$t^* = f(E, \bar{P}) - \frac{\alpha(1-\tau)}{\tau} \quad (14b)$$

Hence, the higher are E and \bar{P} , the lower will be the rate of public resources diversion. By contrast, this rate will be higher as the income tax raises, because in this case, individuals allocate more time to unproductive activity, S^* .

Substituting (14a) and (14b) into (13b), the growth rate of per-capita income re-writes as follows:

$$g_y = \frac{1}{\sigma} \left\{ (1 - \tau)(1 - \alpha) \left(\frac{\alpha(1-\tau)}{\tau f(E, \bar{P})} \right)^{\frac{\alpha}{1-\alpha}} \cdot \tau^{1-\alpha} \cdot \left(\frac{\tau + \alpha(1-\tau)}{\tau} - f(E, \bar{P}) \right)^{\frac{\alpha}{1-\alpha}} - \rho \right\} \quad (15)$$

The growth rate of the economy is constant in the steady state as the tax rate, τ , the labour supply, L^* ,

and the diversion rate, t^* , are all constant. From (15), it comes out that:

$$\frac{\partial g_y}{\partial E} > 0 \quad \text{and} \quad \frac{\partial g_y}{\partial \bar{P}} > 0$$

The effects of Piety and institutional quality transmit through two channels:

- i) people engage more in productive labour L , and
- ii) the amount of government spending diversion decreases so that more public resources are used as a productive input.

Notice also from (15) that the labour income tax τ affects the long-run economic growth rate both directly and indirectly.

- The direct effect is classic as in Barro (1990)'s model and it is non-monotonic.

- The indirect effect of the tax transmits through its effects on both the equilibrium productive labour, L^* , and the diversion rate, t^* . Unambiguously, L^* is lower and

t^* higher when τ goes up. Hence, this indirect effect is always negative.

II-5 Rent-seeking economy versus productive economy:

Let's denote by CC^* the Corruption Concentration index, i.e., the amount of corruption revenues, relative to productive revenues, y , in the equilibrium. By using (5) and (7) we obtain:

$$CC^* = \frac{R}{y} = \tau \cdot S^* \cdot f(E, \bar{P}) \quad (16)$$

There is a threshold level of average Piety, \hat{P} , such that revenues in the economy are equally distributed between rent-seekers and productive agents (i.e., $CC^* = 1$).

Above this threshold, corruption revenues exceed productive income so that the economy transforms into an economy of illegal rent-seeking. Below this threshold, the economy is mostly a productive one. Assuming a Cobb-Douglas technology for corruption, i.e., $f(E, \bar{P}) = E^{-\varepsilon} \bar{P}^{1-\varepsilon}$, where $E > 1$, $\bar{P} > 1$ and $0 < \varepsilon < 1$, and substituting S^* and F in (16), yield the following threshold level of Piety for given levels of income tax, τ , and institutional quality, E :

$$\hat{P} = \left(\frac{\tau E^{-\varepsilon}}{1 + \alpha(1-\tau)} \right)^{\frac{1}{1-\varepsilon}} \quad (17)$$

Hence, the threshold level of Piety is higher in a society where τ is high. However, it is lower in a society where E is high.

CONCLUSIONS AND POLICIES

Presently, there is a general unanimity in the economic analysis upon the serious socioeconomic problems caused by corruption, and its multidimensional feature. Relatively to the economic and institutional dimensions, there are only very few studies evoking the cultural dimension of that phenomenon; with the cultural dimension being mainly approximated by religion belonging. The simple analytical model developed in the last section showed two possible channels for corruption to damage long-run rate of economic growth: i) through reducing time allocated to productive labour, and ii) through diverting public capital from its productive use. We also showed that, whether a country is mostly an economy

of rent-seeking or rather a productive one, this depends on the level of piety among the society. In addition, better quality of institutions and a reduced income tax contribute in lowering the threshold of piety required for an economy to move away from rent-seeking activity and towards productive activity. Hence, the fight against this phenomenon must be pursued on several fronts. Some anti-corruption policies can be described as conventional and they mainly aim at establishing confidence for the citizens in their institutions and improving their quality or governance. But, there exists another set of unconventional policies that should also be advocated. These policies aim at instilling religious and moral values in the society, which reflect the term of "piety". From these policies, one can cite i) providing religious education at all educational levels (elementary, secondary and higher levels), ii) providing anti-corruption education at all educational stages, iii) involving religious and cultural institutions in the promotion of human noble values such as piety, transparency, integrity and reporting of corruption.

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