

Corruption and Inequality

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Abstract

Income inequality can partly be explained by mean income through the labour productivity, employment and participation rates and it has been tested here that corruption has statistically significant effect on economic (income/expenditure) inequality. Increase in transparency (or reduction of corruption) reduces inequality through reduction of the shares of top 20 percent, while increasing the share of bottom 80 percent of the population. Thus, corruption only favoured the top 20 percent of the population who in one way or other, usually are related to the political power.

Keywords: Corruption, Transparency, Inequality.

1- Introduction

In recent years qualitative economics has attracted the attention of many economists. As indicated in Mauro(1995), Bardhan(1997), Tanzi(1998) and Barreto(2000), the qualitative economic indicators are not only the main economic development indicators, their effects on economic growth are also important.

Anybody who curious about the development failures in most developing countries must consider the problem of corruption and the weakness of the state structure that encouraged it. Corruption could have a large role in any economy, especially in developing countries and inequality is one of the most (if not the

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most) important indicators of development. The object of this paper is to explain main part of the income inequality by mean income through labour productivity, employment rate and participation rate as well as to test the effect of corruption. Therefore, the main hypothesis is that “corruption has statistically significant effect on the economic inequality”.

This paper is organised in 5 sections. Section 2 is devoted to a brief literature survey in order to introduce a simple model (theory) of income distribution concerning corruption. The method and data are provided in section 4 and finally, conclusion is presented in section 5.

2- A Brief Survey of Literature and The Model

Tanzi(1998) emphasizes the cost of corruption in terms of economic growth. It also emphasizes that the fight against corruption may not be cheap and cannot be independent from the reform of state. If certain reforms are not made, corruption is likely to continue to be a problem regardless of actions directly aimed at curtailing it.

A few papers, such as Gupta, Davoodi and Alonso-Terme(1998, 2002) and Li, Xu, and Zhou(2000) which discuss inequality in the context of corruption mainly look at how corruption leads to more inequality empirically. Gupta, Davoodi and Alonso-Terme(1998, 2002) carried out an empirical study on the effects of corruption on inequality. They found that corruption tends to increase inequality and poverty through lower economic growth, biased tax systems favouring the rich and influential; lower social spending, unequal access to education and poor targeting of social programs; interest-group lobbying that perpetuates asset inequality; and increased risk for investment decision of the poor.

Dutta and Mishra(2004) analyse the relation between corruption, competition and inequality in a developing economy context where markets are imperfect and there is wealth inequality. We consider an economy where different types of households (efficient and inefficient) choose whether to enter the production sector or not. Due to information asymmetry and wealth inequality, the market fails to screen out the inefficient types. In addition to the imperfect screening in the credit market, the inefficient type's entry is further facilitated by corruption in the product market. We analyze the market equilibrium and look at some of the implications. By indigenising the types, we

also show how in the presence of corruption, initial wealth inequality will distort the incentives of the poor and lead to trap-like situations.

In general the main indicator of inequality in the literature is the Gini coefficient. Gini coefficient is measured and assessed (both parametrically and non-parametrically) using different methods by Abounoori and McCloughan(2000). Results obtained indicate that Payatt, Chen and Fei(1980), Milanovic(1994, 1997) are the Gini coefficients corresponding to the Lorenz curve (polygon), with different representations.

Gini obtained in Payatt, Chen and Fei(1980) can serve to explain the inequality and develop the concerned model of the paper:

$$G = \frac{2Cov(y, r_y)}{n\bar{y}} \quad (1)$$

Therefore Gini is an inverse function of mean income (\bar{y}). The Mean income can be approximated as:

$$\frac{GNP}{L} \times \frac{L}{TLF} \times \frac{TLF}{POP} = \frac{GNP}{POP} = \bar{y} \quad (2)$$

where GNP/L , L/TLF and TLF/POP can be interpreted as labour productivity (P), Employment Rate (E) and participation rate (Π), respectively.

Substituting for $\bar{y} = P \times E \times \Pi$ in (1), the Gini coefficient can be written as follows:

$$G = \frac{2Cov(y, r_y)}{n \times P \times E \times \Pi} \quad (3)$$

Thus,

$$\frac{dG}{dP} = -\frac{2Cov(y, r_y)}{n \times P^2 \times E \times \Pi} < 0, \text{ since } n > 0, 2Cov(y, r_y) > 0, E > 0 \text{ and } \Pi > 0.$$

Similarly,

$$\frac{dG}{dE} = -\frac{2Cov(y, r_y)}{n \times P \times E^2 \times \Pi} < 0$$

and

$$\frac{dG}{d\Pi} = -\frac{2Cov(y, r_y)}{n \times P \times E \times \Pi^2} < 0$$

Concerning $Cov(y, r_y) = E(yr_y) - E(y)E(r_y) > 0$, y is multiplied by the corresponding rank. Rank preserving increase (decrease) in income gaps ($y_i - y_{i-1}$) increases (decreases) the Gini coefficient.

One may think of the population as divided into corrupted and non-corrupted. Assuming, in average, corrupted gain to the relatively rich in the ladder is relatively more, corruption tends to increase the income gaps at different levels, hence increasing the Gini coefficient.

3- The Method and Data

Gini coefficient will be estimated by

$$\ln G_i = \alpha + \beta_1 \ln P_i + \beta_2 \ln E_i + \beta_3 \ln \Pi_i + u_i \quad (4)$$

Where $j = 1, 2, \dots, n$ represent different country. It is expected that

$$\beta_1, \beta_2, \beta_3 < 0$$

Then corruption will be introduced to the model;

$$\ln G_i = \alpha + \beta_1 \ln P_i + \beta_2 \ln E_i + \beta_3 \ln \Pi_i + \lambda \ln K_i + u_i \quad (5)$$

In which the hypothesis $\lambda > 0$ will be tested using *F-test* (*t-test*).

Using cross-sectional data, in order to estimate the effects of changes in corruption on the income distribution the following model is used;

$$\ln S_{ij} = \alpha_i + \beta_{1i} \ln P_j + \beta_{2i} E_j + \beta_{3i} \Pi_j + \lambda_i K_j + \gamma_i DD_j + \theta_i ID_j + u_{ij} \quad (6)$$

where S_{ij} is the share of the i th quintile ($i = 1, 2, \dots, 5$) in total income (expenditure) within country j .; DD is dummy variable for

developed/developing countries² ($DD = 1$ for developed and $DD = 0$ for developing countries) and $GDDU = DD \times U$ and $GDDI = DD \times I$.

ID is dummy variable for income/expenditure ($ID = 1$ for income data and $ID = 0$ for expenditure data) and $GIDU = ID \times U$ and $GIDI = ID \times I$. Concerning the data, 65 observations including developing and developed countries with income or expenditure Gini coefficient is used for estimation.

The corruption indices applied were very often those by Transparency International (TI). This is a composite index including many other sources. Some studies used data from these individual sources, i.e. the Political Risk Service (PRS), the Institute for Management Development (IMD), the World Bank and University of Basel (WB/UB) or the World Economic Forum (WEF). For a description of these sources see Lambsdorff(1999). An older source has been compiled by Business International (BI). A description is provided by Mauro(1995). Transparency International prepares a cross-country index of corruption that is a compilation of others' rankings based on perceptions of the level of corruption. The index ranged from zero to ten; 0 indicates highest Corruption and 10 reflects highest Transparency. The Scandinavian countries are at the top of the list along with New Zealand, Singapore, Sweden, Switzerland, Norway, Australia and the Netherlands. Iran is placed at 87 on the list. The 2004 Transparency International Corruption Perception Index (TICI) is available on its web page at:

www.transparency.org/pressreleases_archive/2004/2004.10.20.cpi.en

As indicated in Lambsdorff(1999) the data on corruption are to a large extent subjective assessments of the level of corruption in various countries. As such perceptions are commonly a good indicator of the real level of corruption. The data permit various regressions with other macroeconomic, political or social data.

4- Application

Regression 4 is estimated using the Gini coefficient, portion of the low 10 percent and portion of the high 10 percent, each as the dependent variable.

2- Developed countries here are taken as synonymous to the high income group countries used in the World Bank.

Model 5 is estimated as the Seemingly Unrelated Regression Equations (SURE). The models are estimated first without the corruption indicators and then with the corruption indicators. The estimated results are presented in Table 1.

Table 1: Estimated results: Transparency (Corruption) and income or expenditure distribution, across developed and developing countries (n=65).

Explanatory Variable	Dependent Variables of the Model							
	Gini	L. 20%	S. 20%	T. 20%	F. 20%	H. 20%	L. 10%	H. 10%
Constant	37.78 (11.63)	7.2957 (9.97)	11.01 (13.88)	15.00 (21.16)	21.07 (46.69)	45.65 (17.86)	3.14 (8.78)	30.52 (12.52)
Labour productivity	+0.20 (0.83)	-0.0710 (1.32)	-0.0436 (0.75)	-0.0203 (0.39)	+0.0045 (0.14)	+0.1295 (0.69)	-0.0401 (1.53)	+0.1105 (0.62)
Employment rate	-0.0114 (1.95)	+0.0020 (1.46)	+0.0028 (1.95)	+0.0030 (2.35)	+0.0022 (2.85)	-0.0100 (2.17)	+0.0008 (1.28)	-0.0098 (2.26)
Participation rate	-13..24 (4.64)	+2.6008 (3.96)	+3.3944 (4.87)	+3.1018 (5.06)	+1.9751 (5.1571)	-11.1240 (4.99)	+0.9638 (2.98)	-10.6169 (5.02)
Developed/Developing Dummy	-11.96 (4.23)	+2.4446 (3.84)	+3.0736 (4.45)	+2.7154 (4.40)	+1.6488 (4.20)	-9.9330 (4.4655)	+0.9131 (2.94)	-9.41 (4.44)
Income/Expenditure Dummy	+2.56 (0.87)	-0.8894 (1.35)	-0.5352 (0.75)	-0.2618 (0.41)	+0.0280 (0.07)	+1.6455 (0.71)	-0.5239 (1.63)	+5113 (0.69)
R^2	0.24	0.19	0.24	0.25	0.25	0.25	0.14	0.26
Constant	39.91 (17.97)	6.5700 (12.85)	10.5374 (19.41)	14.7518 (30.89)	21.0709 (70.64)	47.0933 (27.12)	2.7316 (10.84)	31.7729 (19.29)
Labour productivity	+4.44 (1.20)	-0.9342 (1.41)	-0.7652 (1.09)	-0.5821 (0.94)	-0.2716 (0.70)	+2.5428 (1.13)	-0.5155 (1.58)	+4.444 (1.15)
Employment rate	38.95 (11.96)	7.1182 (9.64)	10.7215 (13.57)	14.6778 (21.10)	20.8086 (48.15)	46.7068 (18.47)	3.0667 (8.40)	31.5687 (13.05)
Participation rate	+0.0977 (0.41)	-0.0558 (1.02)	-0.0187 (0.32)	+0.0075 (0.15)	+0.0267 (0.83)	+0.0393 (0.21)	-0.0341 (1.26)	+0.0208 (0.12)
Transparency*	-0.0109 (1.79)	+0.0016 (1.19)	+0.0027 (1.82)	+0.0030 (2.32)	+0.0024 (2.98)	-0.0098 (2.07)	+0.0006 (0.95)	-0.0097 (2.15)
Developed/Developing Dummy	-13.32 (4.63)	+2.6513 (4.06)	+3.4114 (4.88)	+3.0950 (5.03)	+1.9509 (5.11)	-11.1597 (4.99)	+0.9947 (3.08)	-10.6358 (4.97)
Income/Expenditure Dummy	+3.6562 (1.24)	-1.0549 (1.58)	-0.8057 (1.13)	-0.5658 (0.90)	-0.2139 (0.55)	+2.6279 (1.15)	-0.5893 (1.79)	+2.4894 (1.14)
R^2	0.27	0.21	0.28	0.31	0.34	0.29	0.15	0.31

*Higher transparency is equivalent to lower corruption and vice versa.

(*t*-statistics in the parentheses)

Sources: The SURE system was estimated using Iterative OLS in TSP7, which converged after two iterations.

As indicated transparency¹ has significant effect on Inequality;

Increase in transparency (reduction in corruption) reduces economic inequality. In other words, increase in corruption increases inequality. The effects of corruption are so vital that it changes the direction of labour productivity effect, employment and participation rates through multicollinearity effects. These may take place through intensive reduction of Labour force. Increase in Transparency (or reduction of corruption) reduces inequality through reduction of the shares of top 10 and 20 percents, while increasing the share of bottom 80 percent of the population. Thus, corruption only favoured the top 20 percent of the population.

5- Conclusion

Theoretically, it is shown that income inequality can partly be explained by mean income through the labour productivity, employment and participation rates. Using a sample of 65 cross-country observations, it has been tested here that corruption has statistically significant effect on income inequality. Increase in transparency (or reduction of corruption) reduces inequality through reduction of the shares of top 20 percent, while increasing the share of bottom 80 percent of the population. Thus, corruption only favoured the top 20 percent of the population who in one way or other, usually are related to the political power.

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