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Corrupt Clubs and the Convergence Hypothesis

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1. INTRODUCTION

Convergence is defined as the decreasing gap of GDP growth rates between leading and lagging countries. This thesis is based on the Veblen's idea of "Advantages of Backwardness". It states that a less developed country tends to grow, at a rate which is inversely proportional to its initial GDP per capita; that is, faster than more advanced countries. There are several reasons for this convergence across different countries. First, there is a scope for poor nations to absorb existing technology and to catch up advanced countries if the gap between country's technologies is larger. Second, the development process is often characterised by a shift of resources from low productivity agriculture sector to high productivity industrial sector. The process certainly benefits more the poor nations because the capacity for such shift is more in poor countries than in rich countries.[1]

Empirical work in a cross section framework demonstrates little or no support for absolute convergence in per capita GDP. The literature, however, supports this hypothesis for homogenous group of countries [Dowrick and Nguyen (1989), Ben-David (1993, 1996)]. Alam (1992) empirically identifies factors that influence the rate of convergence across countries. These factors include size of the domestic market, trade intensity, Heitger index, initial enrollments in higher education expressed as a percentage of the population in a relevant age cohort, and a Harbison-Myers index of human capital. Abramovitz (1986, 1990) argues that the advantage of the backwardness primarily depends on the nation's willingness to realise the potential rapid growth: what he calls Social Capability. The pace at which the potentiality is realised depends on factors that limit diffusion of knowledge, the rate of structural change, the accumulation of capital, and the expansion of demand. However, the empirical literature fails to recognise that the social capability is seriously undermined due to pervasive corruption. Chowdhury (2004)

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[1]The discussant, Dr Adeel Malik, explained the convergence hypothesis that was laid down in the neo-classical growth model of Solow/Swan. The Solow/Swan model, however, does not seem to be correct in the context of inter-country convergence, which is the subject matter of my paper. M. Shaukat Ali, while making a theoretical comment on Dr Eatzaz Ahmed's paper titled "An Empirical Analysis of Convergence Hypothesis", clearly distinguished between the concepts of convergence developed in the Solow/Swan model and the inter-country convergence based on Veblen's idea of Advantages of Backwardness. For details, see Ahmed and Naz (2000).

argues that corruption is one of the reasons for non-convergence across SAARC countries. He did not provide any empirical support for his argument, however.

In this paper I attempt to demonstrate that persistent corruption influences the social capabilities and thus impedes the rate of convergence in per capita income across countries. I approach this task by following the same methodology used in convergence literature. I hypothesise that lagging countries do not grow faster than leading countries simply because lagging countries are unable to break the shackle of high level of corruption. Thus, this divergence in corruption rankings, which I call C-divergence, explains the non-convergence of GDP per capita between lagging and leading economies. In other words, these corrupt countries will form a "corrupt club" making corruption more persistent. This is because an already corrupt society is likely to create an environment where newcomers are also treated as corrupt. There is pressure on honest officials to be corrupt. Thus, the poor collective reputation of the previous corrupt government partly determines future corruption. There may be a demonstration effect across club members such that officials of one nation perceive the gains of corruption and mimic the behavior of their peers. Also, multi national corporations (MNCs) and foreign investors may help create a culture of corruption across a subset of poor nations with weak statutory and legal protections, thereby spreading the "disease" more widely.

The literature on convergence often describes two seemingly similar concepts of convergence. First, β convergence shows the tendency of poor countries to grow faster than rich countries. Second, σ convergence indicates a declining dispersion in per capital income for a group of countries over time. An index of rank concordance (γ convergence) is another measure of convergence used in Boyle and McCarthy (1997). I borrow the above measures from the convergence literature and show that countries are C-diverging in corruption ranking.

The study is organised as follows. Section 2 describes the data and explains the methodology of this empirical investigation. Section 3 presents the empirical results and final section concludes the study.

2. DATA AND METHOD

The basic theme of this paper is to show that C-divergence process in corruption across a diverse group of countries influences the convergence process in per capita GDP. The empirical analysis of corruption for a large sample of countries has been constrained for almost two decades by lack of data. There are two reasons for this gap. First, it is difficult to define corruption in a way that is valid across countries. A transaction that is considered corrupt in one culture may be regarded as benign in another. Second, corrupt transactions are kept secret because they are illegal, so counting and estimating is hard.

The paucity of data on corruption was solved by some business firms who conducted questionnaire-based surveys to measure the perception of corruption. These surveys ask firms' correspondents to rank countries on the basis of their perceptions. Almost all of these sources define corruption as the misuse of public power for private benefits such as the bribes to public officials or kickbacks on government contracts.

I have used Transparency International Corruption Perceptions Indices (CPI) that are now available for almost ten years from 1996 to 2005 for forty economies including both developed and developing world. The index ranges from 0 (corrupt) to 10 (clean).

The Transparency International Corruption Perceptions Indices are available electronically at http://www.transparency.org. The categorisation of countries is given in Table 1.

One usually tests the unconditional or absolute convergence by running the Barro (1991) type regressions, which involve regressing the growth in GDP per capita on its initial level for a given cross-section of countries. This methodology however, produces biased estimate of β convergence [Friedman (1992) and Quah (1993)]. Moreover, in my case corruption indices are merely perceptions about corruption and are used to rank countries without attaching any significance to their absolute values. A country with CPI of 2.8 and 2.9 are both corrupt.

I have used two seemingly different methods. First, I attempt to show that the average corruption over a ten-year period (1996-2005) is directly related to the initial value of the corruption index. A positive relationship suggests that initially corrupt countries are on average corrupt over the ten year time period. I also check this relationship by introducing a dummy variable for corrupt countries whose index is less than 3. I ran the following regression:

$$\text{Average CPI (1996-2005)} = \beta_0 + \beta_1 * \text{Initial CPI (1996)} + \beta_2 * D \quad \ldots \quad (1)$$

Where CPI is corruption perceptions index and D = 1 if CPI is less than 3 and D = 0 otherwise.

Second, I have categorised, using average CPI (1996-2005), countries into four groups: namely corrupt (0 to less than 3), partly corrupt (3 to less than 5), partly clean (5 to less than 7), and clean (7 to less than 10). I then show that there is absence of marked improvement in the corruption indices of corrupt countries for the whole period.

To support my results, I follow Sala-I-Martin's (1996) methodology and estimate the dispersion in corruption indices and coefficient of variation of corruption indices; I call C-σ convergence across countries. To further strengthen my analysis and recognising the fact that corruption indices are primarily for ranking countries, I follow Boyle and McCarthy's (1999) procedure. I estimate the rank correlation coefficient (rank concordance); I call it C-γ convergence. C-σ and C-γ coefficients are estimated as follows:

$$C-\sigma = \frac{Var(CPI_{ti}) \big/ Mean(CPI_{ti})}{Var(CPI_{t0}) \big/ Mean(CPI_{t0})} \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (2)$$

$$C-\gamma = \frac{Var(RCPI_{ti} + RCPI_{t0})}{Var(RCPI_{t0} \times 2)} \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (3)$$

Where *CPI* is corruption perceptions index, *Var* (CPI) is the variance of corruption perceptions index for a group of heterogeneous countries. *Var* (*RCPI*) is the corresponding variance of rank of *CPI*. *ti* refers to 1996 to 2005 and to is the initial year 1996.

3. EMPIRICAL RESULTS

To understand the trend in corruption I have categorised countries into four groups: namely corrupt (0 to less than 3), partly corrupt (3 to less than 5), partly clean (5 to less than 7), and clean (7 to less than 10). I have used average corruption index (1996-2005) for this categorisation. Table 1 shows the categorisation

Table 1

Categorisation of Countries

Corrupt	Partly Corrupt	Partly Clean	Clean
Argentina	Brazil	Belgium	Australia, Austria,
Bolivia	Colombia	France	Canada, Chile,
India	Greece	Japan	Denmark, Finland,
Indonesia	Italy	Malaysia	Germany, Honk Kong
Nigeria	Mexico	Portugal	Ireland, Israel,
Philippines	South Korea	Spain	Netherlands, New Zealand
Venezuela	Thailand	Taiwan	Norway, Singapore,
	Turkey		Sweden, Switzerland,
			United Kingdom, and USA

Out of 40 countries for which data are available from 1996 to 2005, 7 countries (on average) are corrupt, 8 countries are partly corrupt, 7 countries are partly clean and 18 countries are clean.

The trend in CPI is reported in Table 2 and Table 3. It is evident from Table 2 and 3 that very few countries have succeeded in moving from one category to another. The results do confirm the formation of corrupt clubs that slow down the convergence in per capita GDP process.

Table 2

Trend in Corruption (for Corrupt Countries)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Argentina	CR	CR	CR	CR	PCR	PCR	CR	CR	CR	CR
Bolivia	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
India	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
Indonesia	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
Nigeria	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
Philippines	CR	PCR	PCR	PCR	CR	CR	CR	CR	CR	CR
Venezuela	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR

CR = Corrupt; PCR = Partly Corrupt.

Table 3

Trend in Corruption (for Clean Countries)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Australia	C	C	C	C	C	C	C	C	C	C
Austria	C	C	C	C	C	C	C	C	C	C
Canada	C	C	C	C	C	C	C	C	C	C
Chile	PC	PC	PC	PC	C	C	C	C	C	C
Denmark	C	C	C	C	C	C	C	C	C	C
Finland	C	C	C	C	C	C	C	C	C	C
Germany	C	C	C	C	C	C	C	C	C	C
Hong Kong	C	C	C	C	C	C	C	C	C	C
Ireland	C	C	C	C	C	C	PC	C	C	C
Israel	C	C	C	PC	PC	C	C	PC	PC	PC
Netherlands	C	C	C	C	C	C	C	C	C	C
New Zealand	C	C	C	C	C	C	C	C	C	C
Norway	C	C	C	C	C	C	C	C	C	C
Singapore	C	C	C	C	C	C	C	C	C	C
Sweden	C	C	C	C	C	C	C	C	C	C
Switzerland	C	C	C	C	C	C	C	C	C	C
United Kingdom	C	C	C	C	C	C	C	C	C	C
USA	C	C	C	C	C	C	C	C	C	C

C = Clean; PC = Partly Clean.

Very similar results were found for Partly Corrupt and Partly Clean countries. The results are reported in Tables 4 and 5.

Table 4

Trend in Corruption (for Partly Corrupt Countries)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Brazil	CR	PCR	PCR	PCR	PCR	PCR	PCR	PCR	PCR	PCR
Colombia	CR	CR	CR	CR	PCR	PCR	PCR	PCR	PCR	PCR
Greece	PC	PC	PCR	PCR	PCR	PCR	PCR	PCR	PCR	PCR
Italy	PCR	PC	PCR	PCR	PCR	PC	PC	PC	PCR	PCR
Mexico	PCR	CR	PCR	PCR	PCR	PCR	PCR	PCR	PCR	PCR
South Korea	PC	PCR	PCR	PCR	PCR	PCR	PCR	PCR	PCR	PCR
Thailand	PCR	PCR	CR	PCR	PCR	PCR	PCR	PCR	PCR	PCR
Turkey	PCR	PCR	PCR	PCR	PCR	PCR	PCR	PCR	PCR	PCR

CR = Corrupt; PCR = Partly Corrupt; PC = Partly Clean.

Table 5

Trend in Corruption (for Partly Clean Countries)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Belgium	PC	PC	PC	PC	PC	PC	C	C	C	C
France	PC	PC	PC	PC	PC	PC	PC	PC	C	C
Japan	C	PC	PC	PC	PC	C	C	PC	PC	C
Malaysia	PC	PC	PC	PC	PCR	PCR	PCR	PC	PCR	PC
Portugal	PC	PC	PC	PC	PC	PC	PC	PC	PC	PC
Spain	PCR	PC	PC	PC	PC	PC	C	PC	C	PC
Taiwan	PCR	PC	PC	PC	PC	PC	PC	PC	PC	PC

PCR = Partly Corrupt; PC = Partly Clean; C = Clean.

When I regress average of CPI on initial value of CPI and a dummy for corrupt countries, following results were obtained using ordinary least square method.

Table 6

Dependent Variables: Average Corruption Index between 1996 and 2005

Independent Variables	
Constant	0.77
	(1.97)***
CPI 1996	0.91
	(18.7)*
Dummy	-0.65
	(-2.03)**
Adjusted R^2	0.95
D-W Statistic	2.2
Number of Countries	40

*** 10 percent level of significance,** 5 percent level of significance, * 1 percent level of significance, Results are adjusted for heteroskedasticity. Figures in parenthesis are t-values.

Table 6 shows that countries with high CPI in 1996 have also high average value of CPI and vise versa suggesting that corrupt countries in 1996 are corrupt on average over the whole period. The negative coefficient of a dummy variable suggests that corrupt countries have low value of average CPI, which means more corruption over the whole period.

To further strengthen my analysis, I have calculated C-σ for the full sample and for the sample of corrupt and clean countries for the last ten years for which the data are available. The sample of corrupt and clean countries slightly deviates from the above definition that I have used in Table 1. To have enough observations, I have ranked countries as corrupt if the CPI is less than 5 and clean if CPI is greater than 5. The results are presented in Table 7.

Table 7

C–σ Coefficient and Standard Deviation (S.D)

	Full Sample		Corrupt		Clean	
	S.D.	C-σ	S.D	C-σ	S.D.	C-σ
1996	2.58	1.00	1.70	1.00	0.77	1.00
1997	2.61	1.02	1.62	0.90	0.93	1.50
1998	2.60	1.01	1.52	0.80	0.93	1.40
1999	2.58	0.99	1.56	0.80	0.96	1.60
2000	2.58	0.99	1.65	0.90	0.97	1.60
2001	2.53	0.95	1.78	1.00	0.78	1.00
2002	2.58	0.99	1.77	1.10	0.87	1.30
2003	2.68	1.01	1.89	1.20	0.84	1.20
2004	2.61	1.00	1.84	1.10	0.89	1.30
2005	2.56	0.95	1.85	1.10	0.90	1.40

Looking at these standard deviations in Table 7, it is evident that standard deviation is not changing drastically suggesting that the relative position of each country over the years is same. However, for corrupt countries the standard deviation up until 1998 decreases showing C-convergence and after 2000 it appears that they are C-diverging but again in 2004 and 2005 S.D decreases suggesting C-convergence. One must notice here that the values for S.D are very close to each other but this temporary increase in S.D might be due to sudden changes in government policies. For clean countries I observe C-convergence between 2000-2001and 2002-2003. After 2003 it shows C-divergence. Nevertheless, the values are very close to each other suggesting that there is no drastic change in their status over time. The C-σ coefficient also demonstrates that the relative position of each country in the corruption ladder is almost the same with few transitory ups and downs that may be due to government policies that affect corruption temporarily or changes in perceptions that might be associated with highly visible news items such as corruption in a major weapons procurement contract or the removal of a key cabinet official (e.g. public works).

This issue is further explored by calculating C-γ coefficient for the same set of countries. The results are reported in Table 8.

Table 8

C-γ Coefficient

	Full Sample C-γ	Corrupt C-γ	Clean C-γ
1996	1.000	1.000	1.000
1997	0.968*	0.843*	0.960*
1998	0.974*	0.889*	0.956*
1999	0.965*	0.849*	0.935*
2000	0.962*	0.888*	0.878*
2001	0.961*	0.861*	0.863*
2002	0.948*	0.854*	0.810*
2003	0.954*	0.848*	0.850*
2004	0.952*	0.842*	0.860*
2005	0.952*	0.883*	0.803*

*1 percent level of significance.

Table 8 shows that the value of rank correlation (or C-γ) is very high and also significant at 1 percent level of significance. The high positive value of rank correlation among corrupt countries suggests that they form a corrupt club and do not realise the potentiality of high growth rate.

4. CONCLUSION

The basic theme of this paper is to demonstrate that persistent corruption is one important factor explaining the non-convergence hypothesis across heterogeneous group of countries. This paper using methodology of the convergence literature attempts to show a C-convergence for a group of corrupt countries that impedes the convergence process in per capital GDP. Using Transparency International (TI) corruption perceptions index, I calculate C-σ, and C-γ coefficients for both corrupt and less corrupt economies to explore C-divergence. I find that corrupt and less corrupt countries are C-diverging in corruption rankings, which reduces the speed of convergence process in per capita GDP. My results suggest that corrupt countries are indeed C-converging forming a "corrupt club". The study concludes that countries with pervasive corruption cannot exploit the benefits of backwardness because of the adverse effects of corruption on social capability. This analysis explains why backward nations remain backward. The results must be considered with caution, however. This is a preliminary exercise to shed some light on the importance of abating corruption in order to realise the potential for high economic growth in lagging countries.

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