

ECONOMIC GROWTH AND CORRUPTION

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Economics Senior Thesis

May, 2007

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INTRODUCTION

The present study is an attempt to examine the impact of fast economic growth on a country's development of social norms, using cross-country panel data and an annual average index of corruption. Our main results, while insufficient to ascertain a direct causal link between spurts in growth and instances of rapid deterioration of perceived social norms do supply evidence that a relationship exists between these two variables. In addition, we find that increases in the level of corruption depend on the country's stage of economic development as measured by the level of GDP per capita, on the overall corruption level and on the degree of government stability.

Due to a growing interest in the concept of social capital, the complex interactions between economic development and institutional efficacy have received much attention in the last fifteen years (Aron, 2000). We plan to extend this analysis in order to investigate the evolution of corruption in times of rapid economic burgeoning. This topic has received less attention up to this date, apart from a few papers whose findings we will succinctly review.

This issue of corruption is of particular relevance when one examines countries that have encountered what is known as the "resource curse" phenomenon. The term refers to those cases in which a country experiences a decline in crucial segments of its economy following a significant influx of wealth, usually but not always as a result of massive exports of a natural resource (Ebrahim-Zadeh, 2003). This reversal of fortunes is due partly to an appreciation of the exchange rate which in turn drives up the prices for many of the domestically produced goods. Another side of the story attributes a share of

this decline to the nefarious effects the new money has on the behavior of the individuals in that society (Ball, 2001 & Lane and Tornell, 1996).

Venezuela and Argentina during the 1970s, Nigeria in the sixties and seventies and more recently the Russian oil-boom might serve as examples for this type of situation. In Latin America, Argentina and Venezuela in the 1970s have seen their level of income per capita rise significantly as a result of oil exports. Only a decade later, however, these economies had lost all their momentum and were trailing behind countries significantly less endowed with natural resources (Lam and Wantchketon, 2002). A similar case is that of Nigeria, its oil-based accumulation of wealth in the sixties being followed in the following two decades by a progressive shrinking of its growth rate (Lane and Tornell, 1996). Beginning in 1998, in the aftermath of the crash, Russia has experienced an acceleration in the rate of growth fueled at first by an increase in oil exports in the late 1990s and subsequently by an increase in oil-prices (Gianella, 2007). This has led to fears that the country might start to show symptoms characteristic of the “resource curse”. As Ahrend (2006) argues in his paper the resource curse need not manifest itself in every case of resource abundance. If the economy of that state benefits from the support of a solid institutional framework and is able to implement policies directed at managing the influx of wealth, the country may avoid following in the path of Venezuela or Nigeria.

In their study of sociopolitical factors and economic growth, Adelman and Morris (1967) show that, at different levels of development, societal factors manifest different levels of influence on the economic activity of a state. The transition from a low to a high

level of development is for many countries a difficult stage, fraught with political and social instability which can severely preclude economic advancement:

"Important as these economic measures are, however, they may be less important than the establishment of a social structure that is sufficiently stable to permit the continued growth of the economy. This means that the extreme social tensions characteristic of the intermediate-level countries must be reduced before significant economic progress can be made" (Adelman and Morris, 1967, pg. 272)

When the society is ill-prepared to adjust to an expansion in prosperity this can have unfortunate results. The rapid increase in a country's level of revenues can lead to a decrease in a society's moral standards and paradoxically to the reversal of a previous pattern of economic progress (Ball, 2000). The degree of institutional development is crucial in determining to what extent the social customs or erosion thereof will impact economic outcomes (Ball, 2001).

Lane and Tornell (1996) attempt to explain the paradoxical decrease in economic growth which sometimes follows a terms-of-trade windfall. They propose a concept which they call "the voracity effect". This term describes a situation in which the institutions in a country are weak allowing for the redistribution of new wealth to be decided by powerful groups which have the ability to obtain some form of transfers from the national wealth. The authors offer the examples of Venezuela and Nigeria as cases where the oil wealth was improperly managed as a great part of it found its way out of the country by way of illicit transfers (Lane and Tornell, 1996).

Furthermore, Lam and Watchkenton (2002) show that sudden windfalls can result not only in subsequent lower economic performance but also in the strengthening of an authoritarian regime, especially in Middle-East oil-rich countries.

In Russia the pattern of increase in economic development has been paralleled by a rise in “endemic corruption” (Gianella and Tompson, 2007) which has had a negative impact on investor assessment of the economic climate (Tompson, 2007).

Developing economies are also more prone to experience growth volatility which has been shown to have a negative impact on long-run economic growth (Hnatkovska and Loayza, 2003). This type of relationship between development and growth volatility is found to be significantly stronger in countries with a weak institutional framework.

The institutional efficiency problem and its relevance to economic development has been discussed as part of the broader issue of social capital. In Robert Solow’s (2000) view, the term social capital encompasses the behavioral patterns of a society. These socially and culturally determined rules of conduct have a profound influence on economic outcomes. Developing countries are often plagued, in addition to incompetent governance, by an atmosphere of instability ill suited to economic progress (Chhibber, 2000). In examining the use of social networks as an alternative solution to malfunctioning bureaucracies by individuals in Russia, Richard Rose (2000) notes that in order to circumvent cumbersome regulations individuals become willing to pay bribes to officials. He also notes that the introduction of market economy has supplied individuals with even more opportunities to buy off favors from willing officials (Rose, 2000). This kind of behavior not only undermines proper enforcement of the law but living in this type of society, governed by what Rose calls “anti-modern” rules, individuals are offered

no incentive to act differently because they believe this is the only way to get things done.

The link between social capital and economic growth has been examined directly in studies which measure social perceptions by using cross-country questionnaires. One such example is the Knack and Keefer (1997) study which uses data from The World Values Survey (1991) to measure the level of trust and civic involvement in a sample of 29 countries. Their results show a positive impact of the level of interpersonal trust on economic growth as well as on the level of investment. Moreover the authors find that this relationship is stronger in poorer countries than in well-developed societies (Keefer and Knack, 1997).

In a similar manner, Mauro (1995) looks at the effects of corruption, as measured by the Business International indices, on the investment rate. He finds that high levels of perceived corruption have a negative impact on the level of investment. This, Mauro argues, leads to a decrease in economic growth. One problem that arises in this type of analysis is the dual causality running from good institutions to economic growth and from healthy economic development to a well-functioning bureaucracy. In order to account for this and test the robustness of his results Mauro uses an index of ethnolinguistic fractionalization as a proxy for the level of corruption. The direction as well as the magnitude of his findings appears to hold under these specifications which for Mauro is further evidence that economic growth is directly affected by the proper functioning of institutions.

In a comprehensive overview of the literature on growth and institutions, Aron (2000) examines both the strengths and the weakness encountered by this type of studies.

She notes that in the case of the Knack and Keefer study the endogeneity of trust and economic development was not adequately addressed. Aron believes this might pose a serious problem for inferring causal links between level of trust and their dependent measures.

In this paper, we intend to examine the impact of growth spurts in the level of economic development on the perceived level of corruption in a country. In contrast to the Knack and Keefer as well as the Mauro papers, the dependent variable in this case will be the level of perceived corruption, as measured by the annual average ICRG corruption indices. The endogeneity problem discussed by Aron(2000) should not constitute a problem here. If previous studies had to disentangle the positive dual relationship between institutions and growth, in our case we expect this relationship, if any, to only go in one direction. If fast economic growth can lead in certain circumstances to the spread of corruption, it is difficult to make the argument that more corruption could result in faster economic development. Much research, including the papers already discussed, has gone to show that this is very unlikely.

Dependent Variable

The dependent variable in this study is the annual average corruption index provided by the International Country Risk Guide (ICRG), which is part of the PRS Group. ICRG covers a sample of 161 countries, out of which 146 were used in our analysis. While most of the corruption ratings are provided beginning in 1984, for some of the countries ratings

start as late as the mid-nineties. One of the ICRG political risk components, the corruption index has a focus on the political environment (A Business Guide to Political Risk for International Decisions). It is assigned a value on a 0-6 scale, with lower numbers indicating high levels of corruption and higher values a relatively corruption-free environment.

A closer inspection of the corruption index shows that it ranges in values from 0 (in places like Bangladesh, Congo or Niger) to 6.0 (Iceland) with a mean of 3.17 and a standard deviation of 1.38. Corruption scores are assigned on a monthly basis but in our study we use a yearly average for each country.

The advantages as well as disadvantages of using a subjective index of corruption as opposes to an objective one are outlined by Mauro (1995). He argues that subjective appraisals are often more salient to economic decisions than objective ones which may in fact turn out to be less sensitive to the overall socioeconomic climate.

Independent Variables

Our level of GDP per capita as well as the rate of growth and our measure of the openness of the economy were taken from the Penn World tables. We also took into account a country's agricultural share of GDP and its ratio of domestic private credit to GDP as a measure of financial soundness. These controls were used by Fiaschi and Lavezzi (2003) by Hnatkovska and Loayza (2003) in their studies. For the purpose of the

current analysis they were taken from the World Development Indicators published by the World Bank (2006).

We also included a measure of the level of government stability which we obtained from the ICRG dataset.

DESCRIPTION OF THE DATA

The current sample included 146 countries which were selected on the basis of their availability from the ICRG and from the Penn World Tables. Data from the Penn Tables and the two indicators from the World Development Indicators cover a period from 1970 to 2004. Most of our analysis however, will be focused on the last two decades, from 1984 to 2004 as the ICRG corruption index data begins in 1984 and the Penn World Tables data ends in 2004.

To allow for a more detailed examination countries were clustered into seven subgroups based on geographical and socioeconomic criteria: OECD countries, Middle East and North Africa, Latin America, former Communist countries (including but not limited to Eastern Europe), East Asia, South Asia and Sub-Saharan Africa. This clustering is similar to the one used by Hausmann, Pritchett and Rodrick (2005). Each group was assigned a number, as follows:

OECD countries - group 1

Middle East and North Africa – group 2

Latin America – group 3

Former Communist states – group 4

East Asia – group 5

South Asia – group 6

Sub-Saharan Africa – group 7

While the precise boundaries of these regions are sometimes a topic of debate, their composition is not completely arbitrary. Moreover this method has been widely used for the purpose of comparisons.

The ICRG corruption index

Our two ICRG indices, corruption and government stability are positively correlated. This overall relationship is however weak (0.145), and may reflect the fact that many countries have high levels of corruption but stable governments. An interesting result is the significant negative (-0.6) correlation between these two indicators for our countries in East Asia: China, Hong Kong, Taiwan, Mongolia, Republic of Korea and the Democratic Republic of Korea. One possible interpretation would be that totalitarian regimes, even when stable, do not act to prevent corruption but often even foster it. For example since 1993 China has experienced not only a fast paced economic development but also a spread of corruption in the midst of its heavy handed officials.

When we look at the relationship between these two indicators at an individual country level we find that the high positive correlation (over + 0.75) present in some cases (ex: Bahamas, Bolivia, Congo, El Salvador, Sierra Leone, Sri Lanka) is offset by the often and somewhat surprising, strong negative correlation (more than $|-0.75|$) between these two indicators we find in many other cases (ex: Burkina Faso, China, Cuba, France, Germany, Mongolia, Niger, Russia). Still, for a large part of the sample we observe no apparent relationship between government stability and corruption. The countries at both ends of this spectrum are extremely diverse in terms of their level of economic development and political environment. Therefore we cannot draw any definitive conclusions about this type of dynamics based on correlation analysis alone.

Figure 1 shows the mean corruption levels for our seven sub-groups. OECD countries rate significantly better than all the other regions in the sample, with an average of almost 5 on 0-6 scale. The other regions have much lower averages, a little over 3 for the Asian regions and the lowest for Sub-Saharan Africa (2.54). These results are not unexpected, given what we know about the rampant corruption in many of the third world economies of Africa. Figures 3 and figure 4 represent histograms of the corruption ratings for OECD and African countries. Here we can observe in more detail the frequencies of the ratings. Values of 5 and 6 are most common for highly developed economies whereas in poorly developed African economies, ratings of 1, 2, 3 and even 0 are much more common.

A cursory glance at the average level of GDP per capita in Figure 2 shows a familiar pattern in the distribution of wealth among regions. OECD states (group 1) and the oil

rich countries of the Middle East (group 2) have the highest level of GDP per capita whereas Sub-Saharan Africa finds itself at the bottom. The simple level of GDP per capita does not, however, tell us much about the distribution of revenues within a certain country and should not be taken as direct evidence for the standard of living of its inhabitants.

We gain interesting insights if we look at differences in the growth rate between individual countries as well as between groups of countries. For the period 1970-2004 the mean growth rates (with standard errors in parentheses) were: 2.3 (2.95) for the OECD countries, 1.62 (12.13) for the Middle East, 1.34 (5.64) for Latin America, 2.25 (9.34) for the ex-Soviet region, 4.93 (4.48) for East Asia, 3.3 (4.31) for South Asia and a meager .344 (4.31) for Sub-Saharan African countries. Just by looking at means and standard deviation we can get a picture of the variability and volatility of the various sub-groups. Western Europe and the other highly developed economies are much more homogenous in terms of their growth rates than the Middle East, for example where, in spite of the abundance of oil, economic development has been slow. For instance, in the case of Kuwait, the growth rate takes values from -26.77 to + 33.7. At the opposite end of the spectrum and for the same period France experience a minimum of -2.21 annual growth rate and a maximum of 4.91 per year growth rate of GDP per capita.

If we look at the same statistics but focus on the 1984 -1997 (Figure 5)and 1998-2004 (Figure 6) periods we find that both the African states as well as the former communist states have experienced a significant increase in their growth rates in the second interval

going from negative to positive (and high in the case of the Eastern emerging democracies) . In contrast, the well developed countries have maintained their economic performance at the 2 percent level throughout.

ICRG and GROWTH

Figure 7 shows the joint evolution of the income level (the level of GDP per capita) and the corruption index in the case of Russia. The graph presents the z-score deviations for these two indices. For the purposes of clarity the scale of the ICRG index has been inverted so that a positive slope represents an increase in the level of corruption. We cannot make causal inferences on this type of analysis alone but it is encouraging that the pattern of data in this case appears to support our hypothesis. Russia has seen its levels of GDP per capita rise considerably in the last years as a result of its oil exports. At the same time its problems with endemic corruption, sometimes in the form of illicit transfers made by government officials has been well documented by OECD experts and the media. Here the conditions seem ripe for a rapid devaluation of social norms as a result of a massive influx of wealth. A similar pattern with that of Nigeria (Ball, 2001) or the one described by Lane and Tornell (1996) in the case of Venezuela could be seen to emerge.

We define two types of binary variables to help us detect sudden changes in growth and in the corruption level of a country.

The corruption episodes constitute our main dependent variable. We use the growth episodes as our main dependent variable for the first part of our regression analysis.

Growth episodes

A growth episode occurs, according to our definition, when the growth in the level of GDP per capita in a year exceeds one of the following thresholds: 3%, 4%, 5%, 6%, or 7%.

While we recognize that these parameters, though concurrent with previous literature, are nonetheless arbitrary to a certain degree, we expect to find results that support our hypothesis.

Corruption episodes

We regard a corruption episode as having occurred when there is a drop in the corruption index of at least 0.3, 0.4, 0.5, 0.6 or 0.7 decimal points for a country in a specific year.

The ICRG index is a subjective measure of the level of corruption prevalent in a society. Nonetheless, given its general stability over years and countries, we believe that these drops in the value of the index reflect significant changes in the level of perceived red tape and bureaucratic efficiency. These perceptions, though subjective in nature, have been shown by other studies to have an important impact on the economic performance of a country (Mauro, 1995).

If we now look at Figure 8 which is similar to Figure 7 but with the corruption and growth episodes added in, we notice that the some of the corruption and growth episodes

seem to occur in the same period, similar to the dynamic outlined by our hypothesis. In this specific case, we used a combination of .3 corruption episode (i.e. a drop of at least 0.3 in the corruption index) and a 0.03 growth episode (i.e. a growth rate in the level of GDP per capita of at least 3%). As a reminder, the mean OECD growth rate for the 1984-2004 period was 2.3 % so a growth rate of more than 3% can be regarded as fast growth.

The graphs for Bulgaria (Figure 9), Ukraine (Figure 10) or Albania (Figure 11) tell a similar story. The rise in the level of income in these former communist states appears to be accompanied by a rise in corruption. It may be the case that these countries, as they transition towards higher levels of development experience the kind of social instability Adelman and Morris (1967) were arguing for in their study. In places where the development of properly functioning institutions and agencies is hampered by a culture of nepotism and personal connections, the opportunities for corruption abound. An influx of wealth and foreign investment can often act as a lure for well-entrenched political elites which have the means to divert part of this wealth for their own benefit.

Other visual illustrations of these two variables are less supportive in terms of our main hypothesis. In the case of China (Figure 12) and India (Figure 13), two countries that have recently experienced a period of rapid and extremely significant economic development, the graphs do not point to the same kind of parallel relationship between growth and the quality of perceived corruption. Given the multitude of factors that affect both the level of GDP per capita and the perceived amount of institutional deficiencies, it is not surprising that economies with different political backgrounds and history of

development would display different patterns in the relationship between our main variables of interest.

Regression Analysis

In the second part of this paper we focus on regression analysis which allows us to further explore the relationship between growth and the level of corruption. Figure 14 presents a table of the probit regressions to be discussed. In order to make the interpretation of the results more intuitive, instead of the probit coefficients, we report the change in probability for a marginal change in each of our independent variables.

We begin by running a simple probit on our main independent variable, one of the growth episodes defined previously. For this part of the study we chose a growth episode of .05 (the occurrence of an increase of more than 5% in the level of GDP per capita as compared to the previous year) and a 0.3 corruption episode (i.e. a drop of at least 0.3 in the corruption index).

The coefficient on *growth_ep_5* is negative (-.0028) and not statistically significant in this first regression. We then add in the log of GDP per capita (*ln_gdp_pc*) and a control variable *openk* which measures total trade as a percentage of GDP per capita. Given all we know about the interactions between economic development and social outcomes we

hypothesize that the level of income could influence the likelihood of observing a corruption episode. Therefore we chose to include it in our analysis. Total trade is also a measure of the status of a country's economy.

Our two other control variables, agricultural share of GDP (*ag_share*) and the ratio of domestic private credit to GDP (*prv_crd*) were included in previous models but we chose to exclude them due to their high collinearity with the level of GDP. The correlation between the log of income and *ag_share* is very high and negative (-0.87) which is not surprising given that as a country's level of development increase, its dependence on agriculture as a main source of income decreases. The relationship between the level of GDP and the ratio of domestic private credit is strongly positive (0.62), as we would expect given that the latter variable is a measure of financial stability. Our third control variable, *openk* does not correlate very significantly with the log of income so we felt confident that including it would not bias the results as in the case of the previous two controls.

We then add in our government stability index (*gov_stab*) as well as the overall level of corruption (*icrg*) and the squared index for corruption (*icrg2*). The political environment of a country is closely related to its level of institutional efficiency. A government's ability to successfully implement its policies and to remain in office can have a weighty impact on the evolution of corruption. It is therefore worthwhile, we argue, to control for government stability and include it in the analysis. As we shall see, government stability retains its statistical significance throughout.

The relationship between changes in the corruption index (whether or not we observe a corruption episode) is potentially related to the country's preexistent social environment in terms of corruption. This relationship however might not be linear. Indeed as our analysis shows, it appears to be convex in shape. From a theoretical perspective, this makes sense. We might argue that, if a country is already plagued by rampant corruption, the likelihood of observing a drop in the index is low because the ICRG does not assign negative values. As the situation improves and the country's ratings increase in absolute value, so does the possibility for regression and the index is now able to show various changes in the institutional mores prevalent in a society. After the country reaches a higher level of institutional efficiency (i.e. corruption is significantly less prevalent) the likelihood of observing a corruption episode decreases again because now the bureaucratic framework is much more stable.

As we can see from the regression table, the level of income (\ln_gdp_pc) reaches significance level after we control for the overall level of corruption ($icrg$). In addition, when we introduce $icrg$ and $icrg$, the Pseudo- R^2 of the regression increases, suggesting that by including these variables we reduce the omitted variable bias.

For this model specification the log of income marginal effect is -0.0179 (.007).

Therefore if we increase the GDP level by 1 percent, we decrease the likelihood of observing a corruption episode by almost 18 percent, holding everything else fixed and in the absence of a growth episode. In other words, richer countries are less likely to experience a drop in the corruption index, all else equal.

The marginal effects for *icrg* and *icrg2* are 0.129 (.025) and -0.015 (.003) respectively. As we discussed previously this points to a non-linear relationship between a country's likelihood of experiencing a drop in the corruption index and the overall level of corruption. Given that we are using a probit model, which is a nonlinear regression function where the effect of a change in an independent variable depends on the starting value of the variable in question, there is the possibility that, given the nature of our dependent variable (a drop in the corruption index) this result reflects a mechanistic process and not the theory we have outlined before. However, the significance, direction and magnitude of the coefficients on these two variables are similar if we use a linear regression model instead of a probit regression. This, and the fact that the model's explanatory power increases when we add these controls allows us to assume that we are in fact justified in including these two variables in our analysis.

The marginal effect for government stability is positive, an outcome which changes after we introduce year dummies for the twenty year period we examine in our study. The level of income and the two corruption controls retain their direction and their significance. Including the year dummies increases the pseudo R2 of the model from 0.0411 to 0.1475. We drop year 2004 and use it as a basis for comparison. Of the nineteen year dummies six of them reach at least the .05 significance level. It is interesting to note that they constitute the 1996-2001 period. This result is robust and does not change when we include additional variables or use a linear regression model. The marginal effects of all these year dummies are positive and range from 0.173 in 1999

to 0.544 in 2001. It appears that, all else equal during those years countries were more likely to experience a corruption episode, as compared to 2004. In an attempt to explain this somewhat surprising outcome, we first examined the number of corruption ratings each year to take into account the possibility that a significant number of new countries might have entered the sample in 1996. This idea was not substantiated. The number of ratings around that period was constant. Beginning with 1996, however, the mean corruption index started to decrease in absolute value, a trend that continued throughout 2003. We then look at the evolution of the corruption index by groups of countries and we notice a decline (worsening) of the in the index across all seven groups over this period even for OECD members. What we are able to say at this point is that there seems to have been a deterioration of the perceived corruption situation over the 1996-2001 as compared to a more recent year – 2004.

After we introduce the year dummies the marginal effect of the government stability level remains significant but becomes negative. A 1 unit increase in the stability index decreases the likelihood of a country's experiencing a corruption episode by 1.2 percent, holding everything else constant. We must note however that these marginal effects are calculated around the mean for continuous variables. Caution should be employed in drawing conclusion about countries at either end of the spectrum on the government stability scale.

Our dependent variable *growth_ep_5* has not reached significance level. It may be that our definitions of corruption and growth episodes, while correctly indicating they specific

years when these changes take place, do not allow for time lags between the starting moment of a growth spurt and the beginning of a period of deterioration in the social norms, as measured by our corruption index. A country might experience an influx of wealth in one year but it might take an additional year for the society to readjust and for the individuals to modify their behavior accordingly. If that is true, then this would explain the apparent lack of connection between the growth and the corruption episodes, which is somewhat unexpected given the visual evidence we obtained from graphing the joint evolution of our two main variables in the case of specific countries.

Country dummies were not included because of the bias and collinearity problems they would have introduced in our analysis. Many of the indicators we use to predict the occurrence of a corruption episode (such as income level or the corruption level) do not display much within country variation.

In order to account for the potential influence the overall corruption level might have on the effect of income on our dependent variable, we introduce an interaction term *inc_by_icr*. As a result the significance of the marginal effect of log of income is diminished and becomes positive 0.024 (.019). The interaction term turns out to be statistically significant and negative in value -0.012 (.005). It is possible the relationship between our main dependent variable (*corr_ep_3*) and the level of GDP per capita is not linear. In this case, the positive effect of income on the likelihood of having a corruption episode is offset as the corruption ratings improve. The overall effect of income might be calculated as: $0.024 - 0.012 = 0.012$. Intuitively this result appears sensible. If a rise in income offers more incentive for corruption, this effect diminishes as the country's

institutions develop and become more reliable and the perceived level of corruption diminishes.

In our final probit regression (with the marginal effects) we introduce three additional interaction terms between our main independent variable (growth episode) and the level of income in log units, the corruption index and the corruption index squared. None of these effects are statistically significant independently or jointly (as confirmed by a Wald test of significance). The interaction between a spurt in growth and these indicators seems to have no effect on a country's likelihood of experiencing a corruption episode.

Conclusions

Even though we were unable to find in this present study a direct link between spurts in economic growth and falls in the ICRG corruption index this does not mean that such a relationship does not exist. The definitions used for the corruption and growth episodes might not be able to accurately reflect the time frame under which these effects operate. We did find that the probability of observing a corruption episode is influenced by the level of economic development, the bureaucratic environment as reflected in the corruption index and the stability of the government.

FIGURES

Figure 1

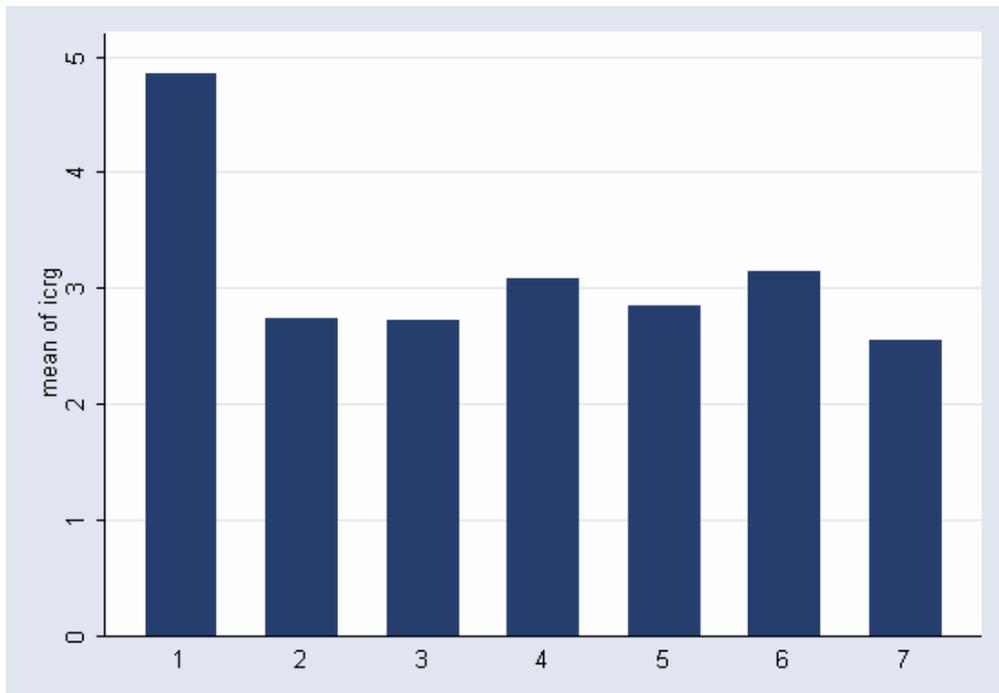


Figure 2

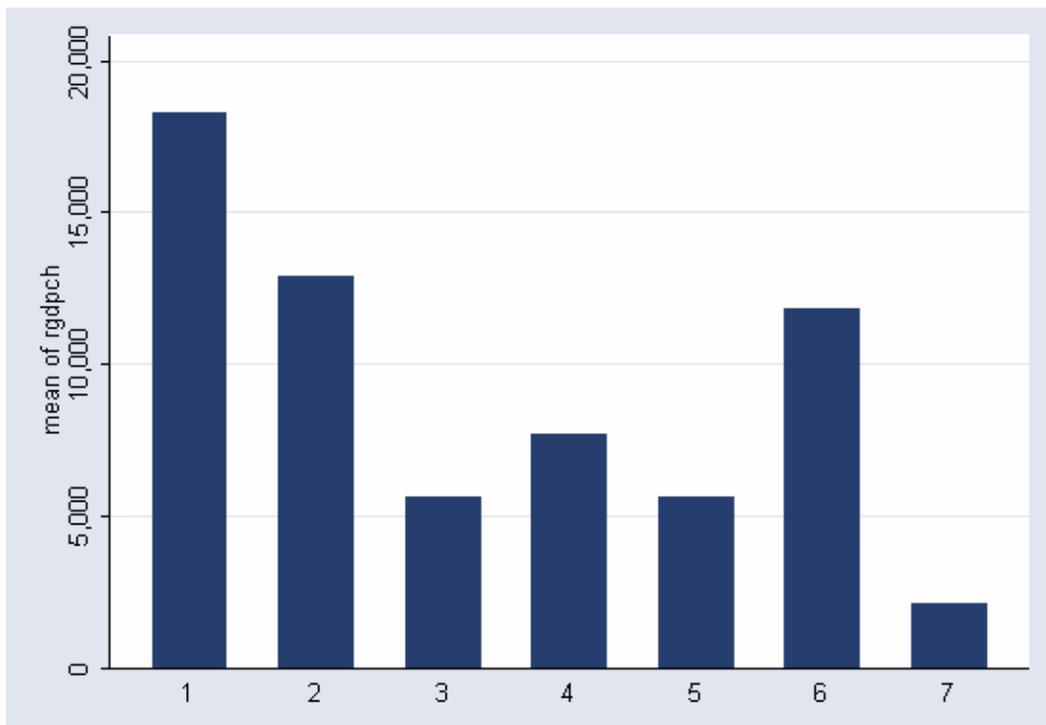


Figure 3

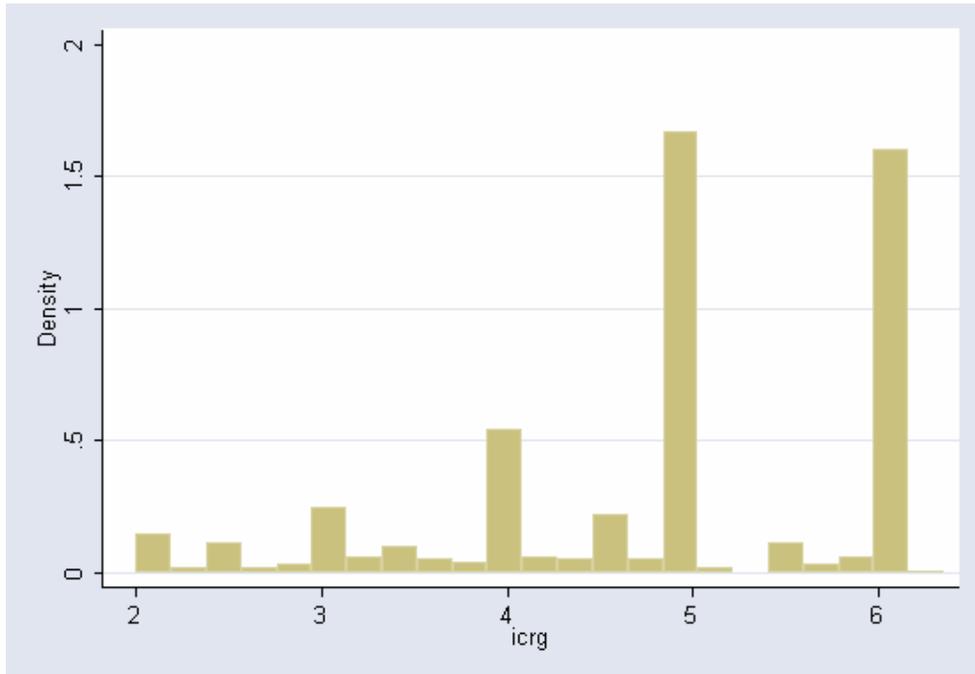


Figure 4

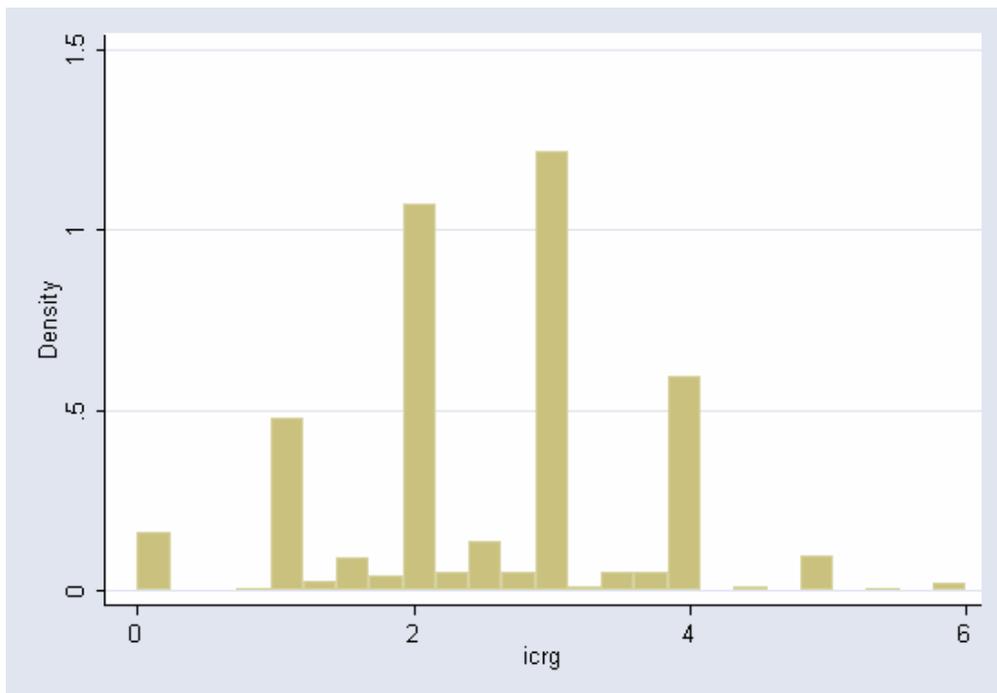


Figure 5- Growth Patterns 1984-1997

Group	Mean	Std. Deviation
OECD	2.3	2.8
Middle East &N. Africa	.90	10.0
Latin America	.75	5.4
Former Communist States	-2.0	10.1
East Asia	4.6	5.3
South Asia	3.4	3.4
Sub-Saharan Africa	-.36	8.6

Figure 6- Growth Patterns 1998 – 2004

Group	Mean	Std. Deviation
OECD	2.3	2.1
Middle East &N. Africa	1.6	8.7
Latin America	1.6	8.6
Former Communist States	5.4	6.6
East Asia	3.1	4.2
South Asia	2.0	3.9
Sub-Saharan Africa	.81	8.0

Figure 7

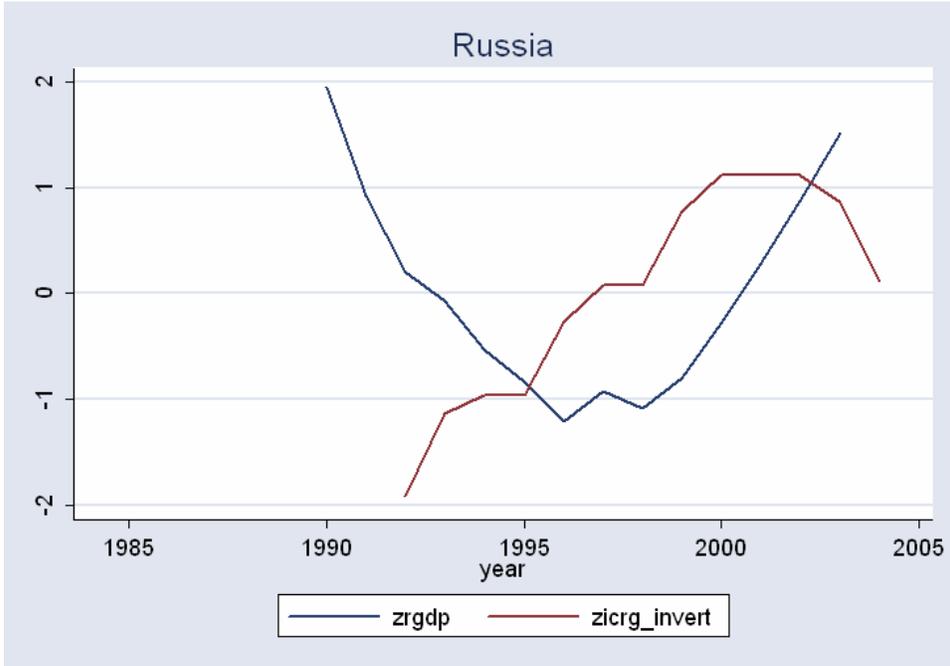


Figure 8

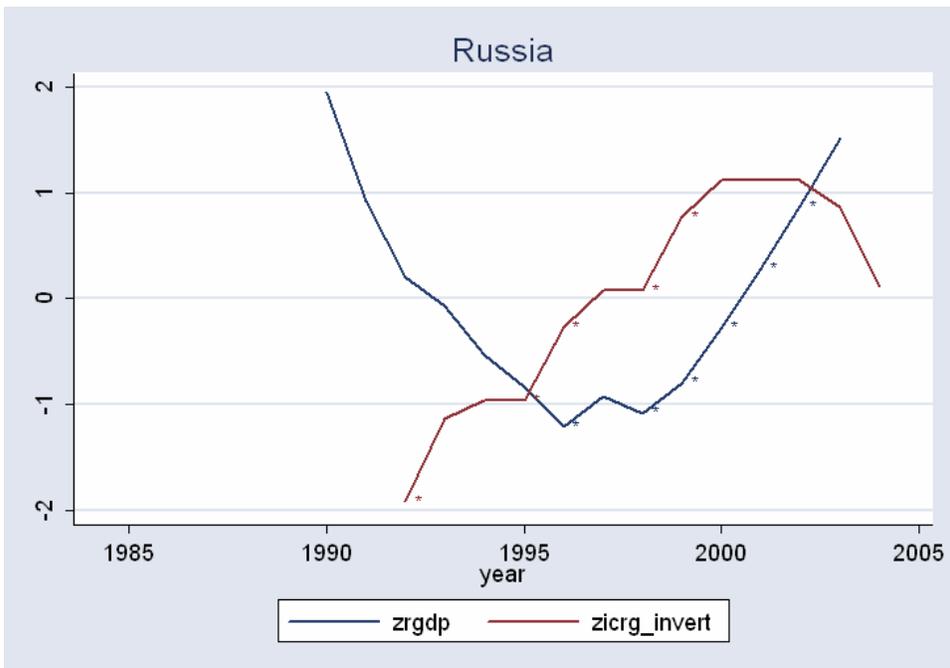


Figure 9

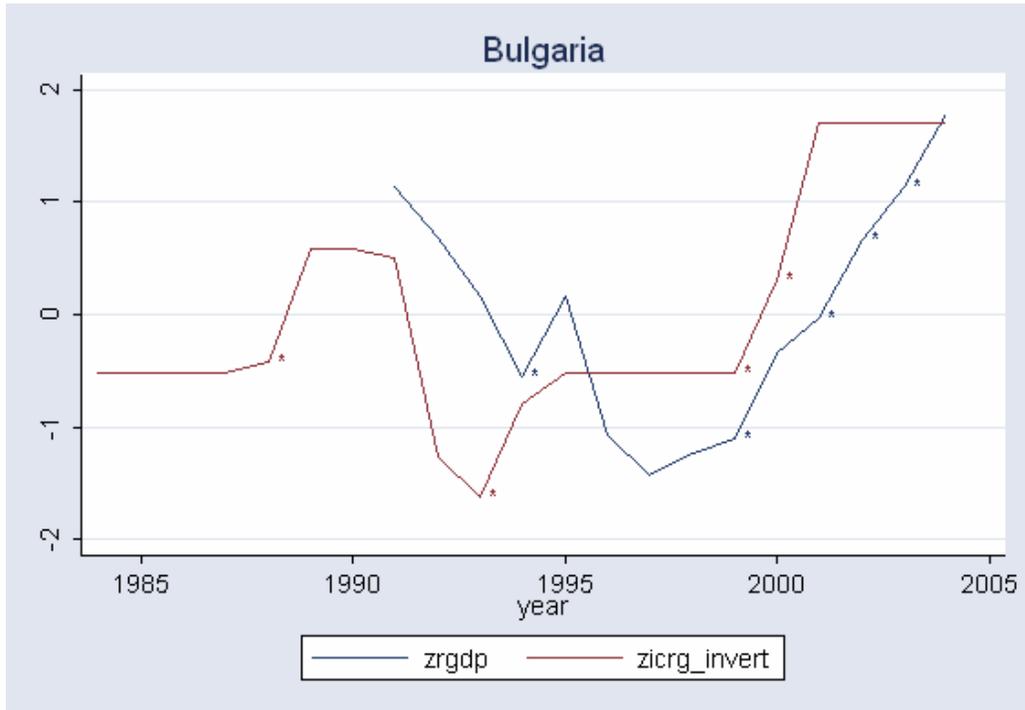


Figure 10

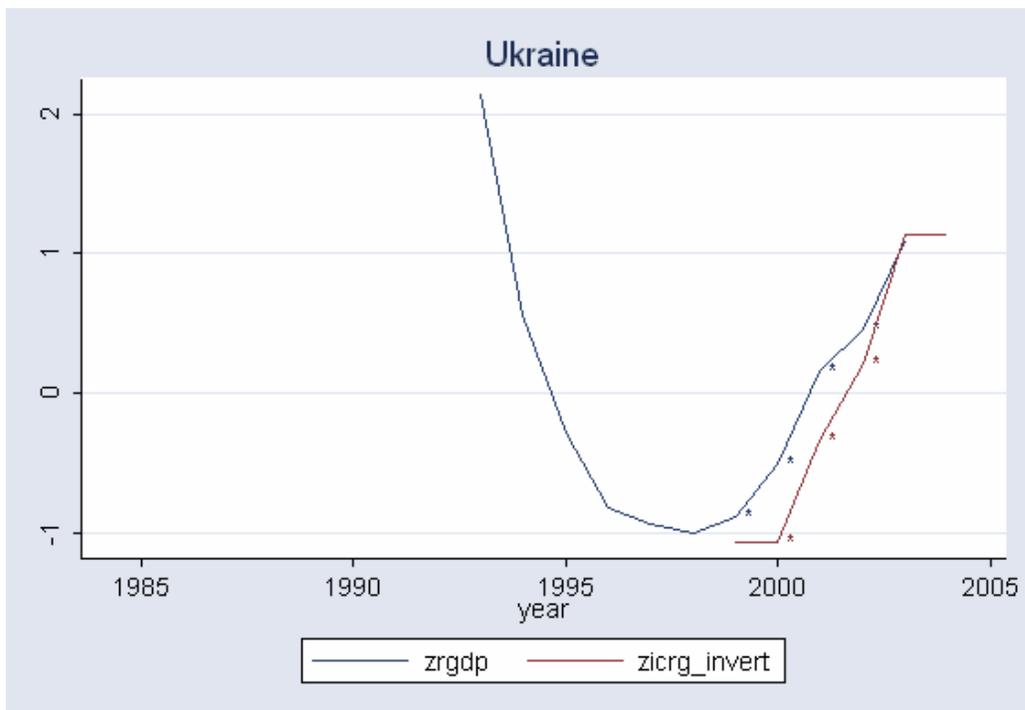


Figure 11

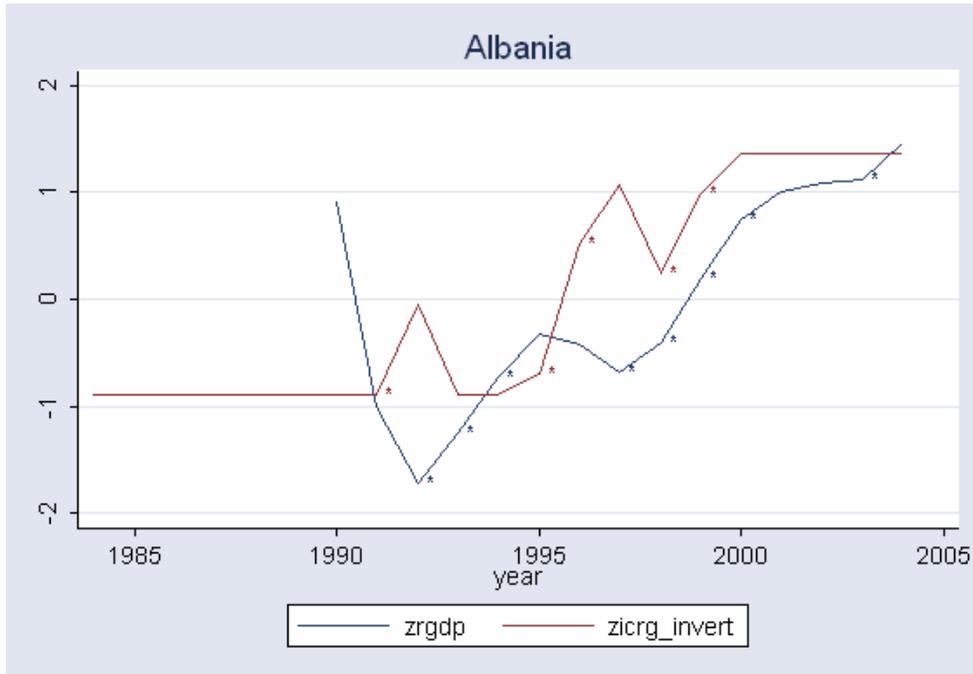


Figure 12

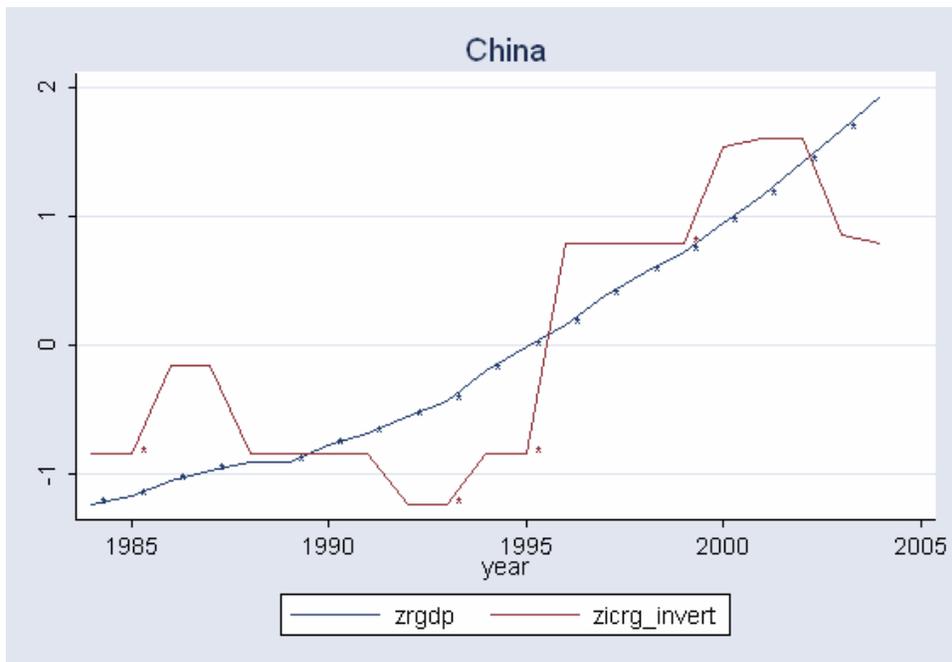
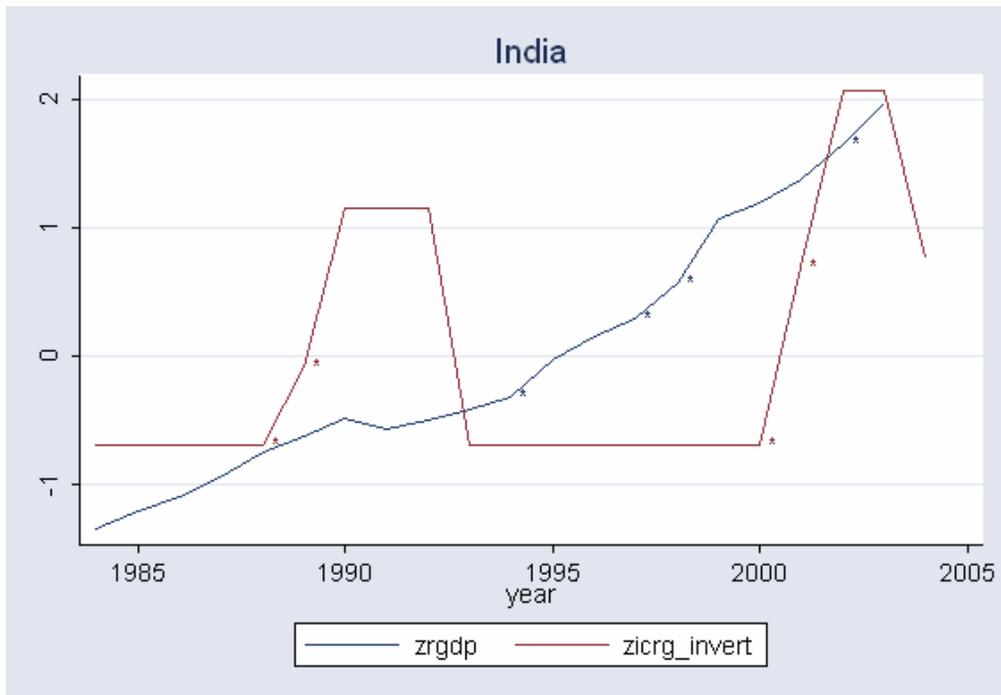


Figure 13



Appendix 1

List of countries

Albania	Guinea	Oman
Algeria	Guinea-Bissau	Pakistan
Argentina	Haiti	Panama
Australia	Honduras	Papua New Guinea
Austria	Hong Kong	Paraguay
Bahamas	Hungary	Peru
Bahrain	Iceland	Philippines
Bangladesh	India	Poland
Belgium	Indonesia	Portugal
Bolivia	Iran	Qatar
Botswana	Iraq	Romania
Brazil	Ireland	Russia
Brunei	Israel	Saudi Arabia
Bulgaria	Italy	Senegal
Burkina Faso	Jamaica	Serbia
Cameroon	Japan	Sierra Leone
Canada	Jordan	Singapore
Chile	Kenya	Slovakia
China	Korea, DPR	Somalia
Colombia	Korea, South	South Africa
Congo	Kuwait	Spain
Congo, DR	Latvia	Sri Lanka
Costa Rica	Lebanon	Sudan
Côte d'Ivoire	Liberia	Suriname
Cuba	Luxembourg	Sweden
Cyprus	Madagascar	Switzerland
Czech Republic	Malawi	Syria
Denmark	Malaysia	Taiwan
Dominican Republic	Mali	Tanzania
Ecuador	Malta	Thailand
Egypt	Mexico	Togo
El Salvador	Moldova	Trinidad & Tobago
Ethiopia	Mongolia	Tunisia
Finland	Morocco	Turkey
France	Mozambique	UAE
Gabon	Namibia	Uganda
Gambia	Netherlands	Ukraine
Germany	New Zealand	United Kingdom
Ghana	Nicaragua	United States
Greece	Niger	Uruguay

Guatemala

Nigeria
Norway

Venezuela
Vietnam
Yemen
Zambia
Zimbabwe

Source: PRS Group

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