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Jian-Guang Shen

Democracy and growth:
An alternative empirical approach

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Jian-Guang Shen*

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Abstract

This paper proposes a "before-and-after" approach to empirical examination of the relationship between democracy and growth. Rather than the commonly used cross-country regression method, this paper compares the economic performances of forty countries before and after they became democracies or semi-democracies sometime within the last forty years. The empirical evidence indicates that an improvement in growth performance typically follows the transformation to democracy. Moreover, growth under democracy appears to be more stable than under authoritarian regimes. Interestingly, wealthy countries often experience declines in growth after a democratic transformation, while very poor nations typically experience accelerations in growth. Growth change appears to be negatively related to the initial savings ratio and positively related to the export ratio to GDP. Partial correlation between growth change and primary school or secondary school enrollments and the ratio of government expenditure to GDP is not identified.

Key words: Democracy, economic growth
JEL classification: O40, O57

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Jian-Guang Shen *

Democracy and growth: An alternative empirical approach

Tiivistelmä

Tutkimuksessa selvitetään taloudellisen kasvun ja demokratisoitumisen yhteyttä vertaamalla taloudellista kasvua 40 maassa ennen ja jälkeen poliittisen systeemin demokratisoitumisen. Tuloksena on, että demokratisoituminen keskimäärin kiihdyttää taloudellista kasvua. Lisäksi kasvu on tasaisempaa demokratioissa. On kuitenkin huomattava, että rikkaissa maissa demokratisoitumiseen näyttää liittyvän kasvun hidastuminen, kun taas köyhemmissä maissa kasvu kiihtyy demokratisoitumisen jälkeen. Muutos kasvunopeudessa korreloi negatiivisesti säästämisasteen kanssa. Korrelaatio viennin BKT-osuuden kanssa on positiivinen. Muutos kasvunopeudessa ei näytä riippuvan kansalaisten koulutustasosta tai julkisten menojen BKT-osuudesta.

Asiasanat: demokratisoituminen, talouskasvu
JEL-luokittelu: O40, O57

1 Introduction

Democracy as a national political system gained wide acceptance in the past half century as the percentage of the world population living under elected governments with universal suffrage rose from 31% to 58.3%.[1] Between 1980 and 2000, 81 countries took significant steps toward democracy.

Despite this impressive progress, some 60 countries are still ruled by authoritarian regimes. Moreover, numerous newly democratized nations reverted to authoritarian regimes. Others have seen their progress toward democracy stall in a limbo of semi-democracy.

Democratic structures benefit countries in numerous ways. They promote rule of law, open society, freedom of choice, and stable politics, which discouraging corruption and extremist policies. Democratic nations, according to a 2002 UN report, are also better at managing conflicts, avoiding catastrophes, and dealing with major public health crises. With few exceptions, developed nations are also democratic states.

An unresolved issue is whether democracy promotes economic growth better than other systems. For the developing world, this question is critical as economic growth is typically portrayed as the path to prosperity. Yet, if democracy fails to deliver higher economic growth than authoritarian regimes, the implicit short-term policy goal for poor developing countries is that they should concentrate on activities that promote economic growth until they achieve a degree of affluence.

This fundamental issue has serious implications for developing nations with authoritarian regimes. For example, China has achieved high economic growth under an authoritarian regime. Many argue that China has reached the stage where it can initiate political reforms and should transition to a more democratic regime to sustain high growth over the long term. Others counter that, although one-party rule has major disadvantages, it is doubtful China has yet made sufficient gains to sustain high growth without one-party rule. Indeed, they note, the very stability provided by one-party rule is what has made China's spectacular growth possible. Moreover, other Asian economies such as Taiwan and South Korea achieved democracy only recently after decades of high economic growth under authoritarian regimes. Thus, a clearer understanding of the relationship between democracy and economic growth may help shed light on this issue.

Both the theoretical and empirical literature is highly divided on the effects of democracy on economic growth. Regarding theory,[2] Clague et al. (1996) and Haggard (1997) argue that democracy promotes economic growth better than authoritarian regimes. Rao (1984), Persson and Tabellini (1992) and Blanchard and Shleifer (2000) disagree. Olson (1982) actually reverses himself and joins the proponents (Olson 1993). On the empirical front, Brunetti's 1997 survey of nineteen empirical studies only found one study that identified a solid positive relation between democracy and growth. For the rest, one saw a negative relation, three found a fragile positive relation, four noted a fragile negative relation, and nine were indecisive on the relationship. All papers used a cross-country regression approach, which unfortunately for our purposes, lacks robustness of model specification, and has trouble overcoming collinearity of explanatory variables, simultaneity bias, parameter heterogeneity and possible non-linearity of the growth model. It is also hard to control for institutional elements (e.g. culture and religion) in different countries.

We therefore propose a "before-and-after" approach to examine the relationship between economic growth and democratic transformation. The paper uses a group of coun-

[1] The Freedom House (2002.)

[2] See the earlier survey of Przeworski and Limongi (1993).

tries that transformed themselves from authoritarian regimes to totally or partially free democracies during the past forty years. The average GNP per capita growth of the ten-year period prior to democracy is compared with the average growth rate in the first ten years under a democratic regime. The change in growth performance after the transformation to democracy is then examined in terms of income, inequality, investment ratio, education levels, and several other factors.

The advantage of this method is its simplicity. It allows us to circumvent many of the drawbacks of cross-country regression extensively discussed in the literature. The selection of our samples is based exclusively on the regime change from authoritarian rule to a democratic regime. In addition, unlike cross-countries regression studies that use a unified time period for all countries, we simply take the starting year of democracy as the dividing line to examine growth performance under pre-democratic and democratic regimes. Thus, we obviate the need to control for an individual country's institutional factors as the county is compared only to itself. This approach also gives the possibility to test for impacts of various institutional factors on growth performance.

Most Eastern European countries became democracies quite recently following the end of the Cold War. If only for the sake of fairness, they should be included in our sample. Unfortunately, we must exclude the Eastern European bloc for two reasons. First, their economic statistics, and particularly GNP per capita growth prior to 1990, are nonexistent or highly dubious. This makes it difficult to compare growth performance before and after transformation. Second, most of these nations experienced severe disruptions in economic activity for several years in the early phases of transition. During early transition from a centrally planned to a market-oriented economy factors such as re-orientation of external trade play a much more substantial role in GNP development than democracy.

The results of our "before-and-after" method indicate that a change in political regime influences economic growth. The ten-year average growth rate for some 40 countries is higher by a half percentage point after their democratic transformations. The five-year average growth rate is higher by a full percentage point. Over 60% of the sample countries witnessed accelerations in growth after they adopted democracy. Countries in our sample also generally experienced a deterioration of growth performance before they shifted to democracy. This may support the view that a deterioration of economic conditions can propel the transformation to democracy. In any case, growth under democracy is much more stable than under authoritarian regimes. Interestingly, wealthy nations often see a decline in growth after democratic transformation, while very poor countries generally experience accelerations in growth.

There are other factors, of course, that could explain the difference in growth performance across countries after democratic transformation. We identify several here: growth performance is negatively related to the initial savings ratio and positively related to the export ratio to GDP. There are no partial correlation relations between growth change and primary school or secondary school enrollments, or the ratio of government expenditure to GDP.

2 Literature survey, existing methodology and related problems

In the theoretical literature, Olson (1993) argues that democracy better guarantees property and contract rights because autocratic regimes are unable to commit credibly to such rights.[3] Clague et al. (1996) extend this view, noting that because democracy better protects property rights, it provides greater incentives for investment. Haggard (1997) posits that democracy may better manage and consolidate economic reform than an authoritarian regime.

In some studies, democracy was seen as a potential risk to growth because it was open to pressures from interest groups, e.g. Olson (1982). Rao (1984) further argues authoritarian regimes orchestrate economic growth by sacrificing current consumption for investment, which makes them rather effective at mobilizing savings. Persson and Tabellini (1992) observe democracies may attempt to reduce material inequality through growth-deterring redistributive taxation. This school of thought has reemerged recently with novel arguments as to why authoritarian regimes are better at promoting economic growth than democracies. Blanchard and Shleifer (2000) compare fiscal federalism in China and Russia to demonstrate that political centralization in China reduces both the risk of capture and the scope of competition for rents by local governments. In contrast, the emergence of a partly dysfunctional democracy in transitional Russia deters economic growth due to rampant local capture and competition for rents.

On the empirical front, Kormendi and Meguire (1985) and Barro (1991) established cross-country regression on growth by democracy controlling for a number of standard additional variables as a standard procedure.[4] Surveys including Sirowy and Inkeles (1990), Borner, Brunetti and Weder (1995) and Brunetti (1997) conclude that the relationship between democracy and growth is ambiguous. Among these studies, only a few find a significant unambiguous relationship between growth and democracy (and these only under particular specifications subject to arbitrary selection of data sets). Most recent studies, e.g. Barro and Lee (1993), Helliwell (1994), de Haan and Siermann (1995), Levin and Renelt (1992), Alesina et al (1996) and World Bank (1990) find no relationship between growth and democracy. Barro (1996) tests for a non-liner relationship between democracy and growth. He finds that the relationship overall is ambiguous; more democracy is conducive to growth at low levels of democracy, but harmful at high levels of democracy.

The typical cross-country regression uses average GDP per capita growth in a certain period of time regressed on a certain measurement of degree of democracy and controlling for a set of other determinants of economic growth. The degree of democracy is often a yearly average or in a certain year. This methodology neglects regime change and is highly dependent on controlling variables.

[3] North (1990) makes a forceful argument that secure property rights are critical for growth.

[4] Empirical testing for a relationship between democracy and growth has evolved along two lines. The first approach, pioneered by Lipset (1959), examines the relationship between the level of development and democracy. The second tests for a relationship between growth rate and democracy using the cross-country regression method. Most recent studies belong to this type, e.g. Barro (1991, 1996). Recent development focuses on the regression of growth on change of democratic level, e.g. Minier (1998) and political regime change, e.g. Alesina et al (1996) and Durham (1999).

A typical regression takes the following form:

$$g_i = \alpha + \beta \cdot X_i + \gamma \cdot D_i + \varepsilon \quad (1)$$

where g_i is the growth rate of a certain country, vector X_i is the set of additional explanatory variables for economic growth such as initial GDP per capita, investment, and education. A more extensive set of X also includes fertility rate, government spending, black-market premium on foreign exchange, and change in terms of trade.[5] D_i is the democratic indicator and ε is the error term.

Empirical studies on the relationship between democracy and growth reflect the problems of gross-country empirical studies on economic growth in general. Brock and Durlauf (2001) detail the complexity of these problems.[6] Here we focus on the empirical work on the relationship between growth and democracy, but refer to general cases when appropriate.

Empirical studies must overcome the lack of robustness of specification, as well as problems related to collinearity, simultaneity bias, parameter heterogeneity and non-linearity of growth model. We address each drawback in turn.

First, there is a lack of consistency in specification of controlling variables. About 50 specifications and over 90 variables may be statistically significant to economic growth. Researchers subjectively select what seems reasonable in the context of their work. Their choice of controlling variables, however, may have significant effects on the result. In other words, we are essentially dealing with a robustness problem and the need for sensitivity analyses. Levine and Renelt (1992) show that most explanatory variables in cross-country regressions hinge on particular specifications; they do not survive if the set of additional variables is altered. They propose that a formal sensitivity test of explanatory variables should be included in this type of regression by systematically varying the set of variables. Formal sensitivity tests have not been done in most empirical growth regressions, although there are exceptions, e.g. Alesina and Perotti (1996).

Second, controlling variables are sometimes correlated with explanatory variables. This is a typical multi-collinearity problem. Democracy could have an impact on rule of law, markets and human capital. The benefits of democracy on growth depend mainly on democracy's impacts on these variables. If any of these variables are used as controlling variables, the multi-collinearity problem occurs. In a well-noted study, Barro (1996) states,

"The favourable effects on growth include maintenance of the rule of law, free market, small government consumption and high human capital. Once these kinds of variables and initial levels of real per capita GDP are held constant, the overall effect of democracy on growth is weakly negative."

Third, when growth is regressed on democracy, causal interpretations presuppose that democracy is exogenous to the development level or economic growth. This flies in the face of well-documented theories, e.g. Lipset (1959) Rustow (1970), Huntingon (1991) and Barro (1997). As Przeworski and Limongi (1993) point out "if democracies and authoritarian regimes have a different chance of survival under various economic conditions, the regimes are endogenously selected."

[5] For more, see Barro (1996).

[6] The problems of cross-country regression studies on democracy and growth resemble closely those on trade policy and growth. See Rodriguez and Rodrik (1999) and Srinivasan (2001).

Minier (1998) argues that the level of development affects democracy, while economic growth does not. Here, there is no causality problem since the growth rate is regressed. Unfortunately, this argument is unconvincing as a deteriorating economy (i.e. declining growth rate) may very well trigger a change in the political regime. As we will see below, a transition from authoritarian regime to democracy is often preceded by a substantial decline in economic growth.

In a larger context, this is basically an issue of simultaneity. OLS regressions do not reveal the direction of causality, so we consider the use of exogenous variables as instruments. Finding a suitable instrument is not easy, as it should not be auto-correlated to economic growth. Frankel and Romer (1996) use area as an instrument in cross-country regression on growth.[7] Another way to handle this problem is to estimate simultaneous equations as in Helliwell (1994) and Alesina and Perotti (1996).

Fourth, conventional growth regression studies assume that parameters that describe growth are identical across countries. Normally, an augmented Solow growth framework, with fixed parameters for both rich and poor countries, is used. As pointed out by Brock and Durlauf (2001), a problem of parameter heterogeneity arises in such cases. They further claim that the assumption of a single linear growth model that applies to all countries is incorrect.

Fifth, as Barro (1996) demonstrates, the relationship between democracy and growth may be non-linear. When a country's democracy indicator (Freedom House index) changes from 3 to 1 (both indicate a free democracy), the impacts on economic growth may be different from that of a change of democracy indicator in another country, say, from 6 to 4, which means a country has transformed from a not free regime to a partly free democracy. Using linear models may produce biased indicators.

Sixth, empirical studies often rely on comparison with "prior similar countries." For example, a recent study, Minier (1998), examines the growth experience of countries that undergo substantial change in levels of democracy directly. The author concludes,

"Countries that democratize are found to grow faster than a prior similar countries, while countries that become less democratic grow more slowly than comparable countries. These differences are not due to difference in education or investment level."

The criterion for choosing "prior similar countries" or "comparable countries" is the similar level of GDP per capita and democracy. Since "prior similar countries" have to maintain sufficiently small change in democratic level, the number of "prior similar countries" is small. In addition, the sole use of per capita GDP as a criterion is an overly narrow definition for "prior similar countries." Other factors, such as economic structure, trade dependency, geographic location, population, ethnical composition and cultural and historical heritages, may also play important roles.

Seventh, most empirical studies ignore the obvious possibility that the democratic level of a country may change over time. As de Haan and Siermann (1995) observe,

This implies that focusing on period averages of the Gastil rankings, as most authors do, may yield biased estimates, since basically the same problems remains as with point estimates. For the characterization of a regime it makes quite a difference whether a country has a constant ranking over a number of years, say a ranking of 2, or weather its position varies greatly ending up with the same average ranking of 2.

These problems are not only fairly intractable, but the proposed solutions are also unsatisfactory. We therefore propose a "before-and-after" method to look at the unique stage of political development that transforms the regime from authoritarian to democracy and examine the relationship between democracy and economic growth by comparing individ-

[7] This instrument, however, is controversial and is criticized by Brock and Durlauf (2001).

ual country's growth performance under authoritarian and democratic regimes. This may help answer the question of whether democratic transformation are better at promoting economic growth than authoritarian regimes, and if so, under what conditions (e.g. initial income level). We consider countries that transformed themselves from authoritarian regimes to totally or partially free democracies within the last thirty years. The average economic growth rate of five to ten years prior to democracy is compared with the average growth rate during the first five or ten years under democracy.

Our method is based on a conviction that a regime change (in this case, the transformation from an authoritarian regime to a democracy) impacts many aspects of economic relations. Growth performance before and after transformation thus needs to be analyzed separately. We attempt to discern whether the change in growth performance after the transformation to democracy is explained by factors that include initial income level, inequality, investment ratio, and education levels. The method applies regression as follows

$$\Delta\overline{g}_i = \alpha + \beta \cdot X_i + \varepsilon \,. \qquad (2)$$

The advantages of this method are its simplicity and the possibility to circumvent some of the drawbacks of cross-countries regression discussed earlier. The selection of the sample is based exclusively on change from authoritarian rule to a democratic regime. The year of transformation when regime change occurred is used as the dividing point for examining growth performance in two regimes. By looking only at the same country at different times, we eliminate the need to identify many otherwise indispensable control variables. Moreover, there are no problems of simultaneity bias or collinearity – and no definitional problems such as "prior similar countries." The aggregate of all these countries mitigates shocks to individual countries. Moreover, for each individual country, the time span under study is different, which partially mitigates the trend of growth over time.

3 The empirical test

3.1 The data set

To select which countries have transformed from authoritarian regime to democracy, we use Freedom House's annual survey of country scores as a selection standard. Freedom House has published its annual assessments of freedom since 1972. As they observe, their subjective assessment

> *"attempts to judge all countries and territories by a single standard and to emphasize the importance of democracy and freedom. At a minimum, a democracy is a political system in which the people choose their authoritative leaders freely from among competing groups and individuals who were not designated by the government… … Freedom House does not rate governments per se, but rather the rights and freedoms enjoyed by individuals in each country or territory."*[8]

[8] The Freedom House index for democracy is not entirely satisfactory as it is highly subjective and places an overly high emphasis on political systems. Its long historical data and comprehensiveness probably explain its popularity among researchers.

Table 1. Change in growth performance

Countries	First year of Democracy		Growth in GNP per capita					
			10-year average			5-year average		
	Region		Prior	After	Difference	Prior	After	Difference
Argentina	L	1984	-0.7	1.5	2.2	-2.7	-0.6	2.1
Bangladesh*	A	1992	2.5	3.4	0.9	2.6	3.2	0.6
Benin*	AF	1992	-0.6	1.9	2.5	-2.3	1.4	3.7
Bolivia	L	1983	1.0	-0.5	-1.5	-1.5	-2.0	-0.5
Brazil	L	1975	5.6	0.9	-4.8	8.7	3.0	-5.7
Cape Verde*	AF	1992	..	..	..	1.9	2.9	1.0
Central Africa*	AF	1994	-2.5	1.6	4.1	-3.3	1.5	4.8
Chile	L	1990	1.4	5.4	4.0	5.2	5.6	0.4
Ecuador	L	1980	5.6	-0.5	-6.1	4.3	-1.5	-5.8
Ghana*	AF	1996	1.4	1.7	0.3	1.3	1.7	0.4
Greece	E	1975	7.2	2.1	-5.1	7.8	3.9	-3.9
Grenada	L	1986	3.4	3.3	-0.1	2.3	5.7	3.4
Guatemala	L	1986	0.0	1.1	1.1	-3.1	0.4	3.5
*Guinea-Bissau**	*AF*	*1995*	*1.3*	*-4.0*	*-5.3*	*1.9*	*-4.0*	*-5.9*
*Guyana**	*L*	*1993*	*6.8*	*7.5*	*0.7*	*-6.8*	*10.3*	*17.1*
Honduras	L	1981	2.3	-0.8	-3.1	3.3	-1.2	-4.5
Jordan*	A	1992	-2.3	2.9	5.2	-5.2	4.6	9.8
Lesotho*	AF	1994	0.6	-0.9	-1.5	0.9	-0.4	-1.3
Madagascar*	AF	1991	-3.0	-1.0	1.9	-0.9	-3.0	-2.0
Malawi*	AF	1995	0.6	4.4	3.8	1.3	4.4	3.2
Mali*	AF	1993	-1.0	0.7	1.7	0.0	0.1	0.2
Mexico	L	1974	3.8	1.9	-1.9	3.0	2.4	-0.6
Morocco	AF	1978	3.8	0.8	-3.0	3.4	1.1	-2.4
Mozambique*	AF	1995	0.6	6.5	5.8	0.5	6.5	5.9
Nepal	A	1981	0.2	2.1	1.9	0.7	2.2	1.5
Nicaragua*	L	1991	-4.6	2.0	6.6	-7.2	-1.0	6.2
Pakistan	A	1986	2.4	3.3	0.9	3.1	4.0	0.9
Panama*	L	1991	-1.7	2.7	4.3	-2.6	3.8	6.3
Paraguay	L	1990	1.4	-0.6	-2.1	0.1	0.0	-0.1
Peru	L	1981	0.8	-2.3	-3.0	-1.4	-2.1	-0.7
Philippines	A	1985	2.2	0.6	-1.6	1.2	0.9	-0.3
Portugal	E	1977	5.5	1.7	-3.7	4.4	2.3	-2.1
Senegal	AF	1979	-0.7	0.4	1.1	-0.6	1.0	1.6
Singapore	A	1982	6.9	5.4	-1.5	6.2	4.5	-1.7
South Africa*	AF	1995	-1.1	0.3	1.4	-1.7	0.3	2.0
Korea. Rep.	A	1986	5.8	7.9	2.1	4.4	9.4	5.0
Spain	E	1978	4.3	1.3	-3.0	4.0	0.0	-4.0
Suriname	AF	1988	-1.6	1.5	3.1	-6.4	2.4	8.8
Thailand	A	1980	4.4	5.3	0.9	4.9	3.4	-1.5
Turkey	A	1983	1.5	2.9	1.4	-0.8	4.1	4.8
Uruguay	L	1986	-0.2	3.6	3.8	-4.6	3.6	8.2
Zimbabwe	AF	1980	1.9	1.6	-0.3	-3.7	1.3	5.0
Average*			1.5	2.0	0.5	0.7	2.0	1.3

* Countries with less than a decade of democracy. Their average growth under democracy is calculated, instead of the ten-year average. For geographic location, A stands for Asia, AF Africa, E Europe and L Latin America. Outliers Guinea-Bissau and Guyana are excluded from the overall average for reasons discussed below.

The Freedom House Survey employs two series of checklists, one for questions regarding political rights and one for civil liberties, and assigns each country or territory considered a numerical rating for each category on a scale of 1 to 7. The political rights and civil liberties ratings are then averaged and used to assign each country to an overall freedom value. Those with ratings averaging 1-2.5 are generally considered "Free," while 3-5.5 is "Partly Free," and 5.5-7 "Not Free." The dividing line between "Partly Free" and "Not Free" is 5.5. For our purposes, any time a country's Freedom House score falls from above 5.5 to under 4.5, and remains below 4.5 for the next five or ten years, the country is selected as an example. For almost all the examples, the scores consistently decline after the years after the democratic shift. Some countries experienced this transformation recently in the 1990s, so only a five-year period of growth performance is possible. Nigeria, and a few other, had scores that dipped below 5 in the 1980s then went up again. Such performances are excluded. Valid sample countries must sustain a democratic regime at least five years so that their economic growth before and after democratic transformation can be compared (see Appendix).

We take our real GNP per capita growth figures from the World Bank's Development Indicators 2002. The average five- and ten-year growth rates before and after democratic transformation are calculated. The World Bank does not include data for Taiwan, so we exclude it even though the country is an otherwise suitable example of democratic transformation

The starting year of democracy for each country is quite important. The starting year chosen is the first full calendar year under stable democracy. The ten-year average growth rate for the country thus includes the starting year's growth. When calculating the 10-year average growth rate prior to transformation, the year immediately before the starting year of democracy is not included, because this year is most vulnerable to the immediate impact of regime change. Even when the changeover year is included in the calculations, however, the results are virtually the same. We present the results that exclude the year immediately before the starting year of democracy.

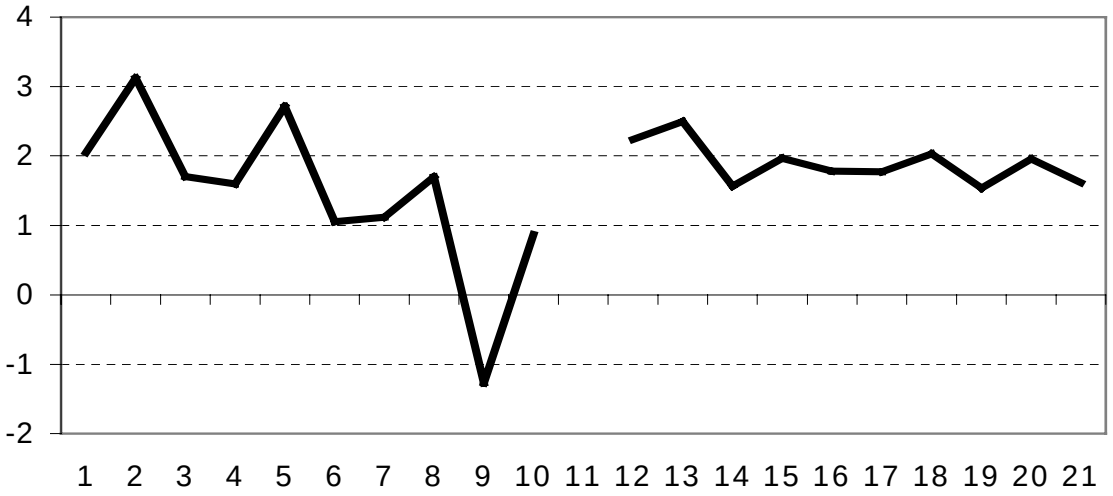
3.2 Empirical tests and results

Two conclusions can be drawn directly from Table 1. First, the change of regimes seems to influence economic growth in general. The ten-year average growth rate is higher by a half percentage point after the democratic transformation. Around two-thirds of the sample countries witnessed a pick-up in growth. If five-year average growth is compared, the difference is larger than a full percentage point. Thus, on average, there is an improvement in growth performance after the democratic transformation.

During the ten-year period prior to the democratic transformation, the yearly growth rate trends downward, deteriorating on average to its lowest level two years before the democratic transformation. This supports the view that deterioration of economic conditions may actually impel the transformation to democracy. Once the sample countries achieve democracy, growth initially picks up strongly in most cases then gradually decelerates to the twenty-year average. Growth under democracy is generally much more stable than under authoritarian regimes. The standard deviation of average growth before democratic transformation is 1.2, but only 0.2 after. The average of individual country's standard deviation of growth is 3.8 after becoming democracy compared with 4.4 under authoritarian regimes. In addition, the average growth rate before the transformation trended down-

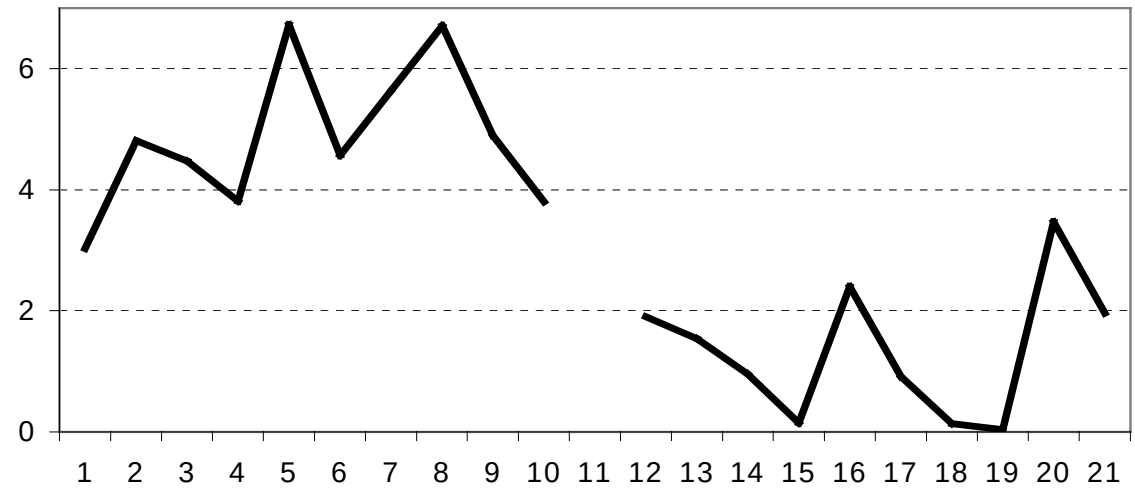
wards, declining by 0.25 percentage points per year, while during the first ten years of democracy, average growth rate is rather stable.

Figure 1 Growth performance before and after democracy transformation, 20-year period



Examining the growth performance of individual countries, we find most conform to pattern described above. Brazil, Ecuador, Greece, Honduras, Morocco, Portugal, Spain and Thailand are the exceptions. They suffered a drastic decline in growth after becoming democracies. Others, including Bolivia, Lesotho, Mexico, Philippine and Singapore experienced modest declines in economic growth after their democratic transformations. Notably, these countries were already relatively wealthy when they adopted democracy. It is probably not the deterioration in economic conditions, but emerging middle classes that drove the democratic transformation in these countries.

Figure 2 Growth performance before and after democracy transformation for eight countries



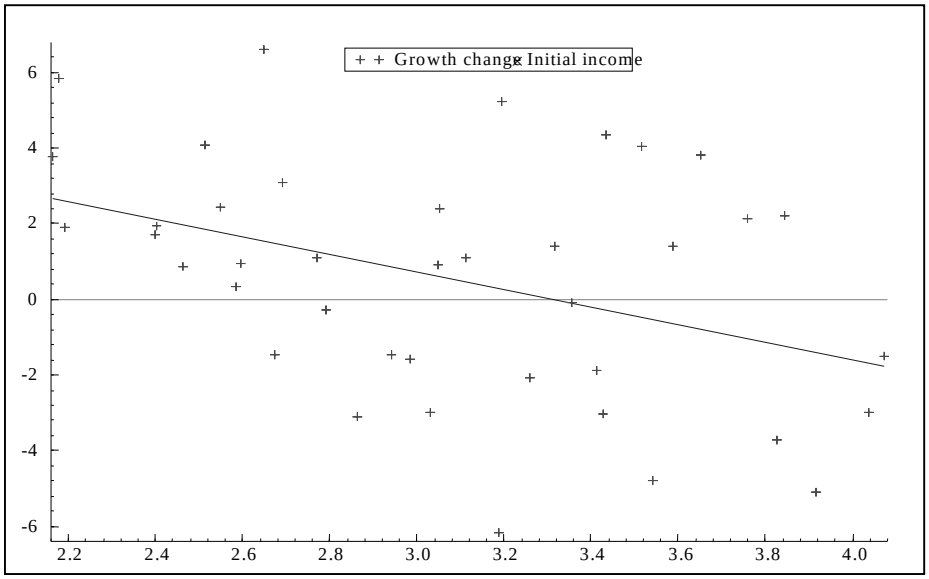
Greece, Portugal and Spain, which all enjoyed robust growth under authoritarian regimes, suffered significant declines in economic growth when they adopted democracy. In all three countries, the democratic transformation occurred in the latter part of the 1970s,

when long-ruling dictators were overthrown. In Asia and Latin America, the outcomes of democratic transformations are mixed; some countries experienced higher growth, others didn't. Most African countries witnessed a pickup in growth after democratic transformation. Democracy swept most of Africa in the early 1990s, so the post-authoritarian experiences are relatively short. Many countries have been under democratic regimes for less than ten years, so we must assess them for shorter periods of growth performance.

In terms of regime change, the three European countries experienced the most dramatic change, with their freedom index values falling from above 5.5 (Not Free) to below 2.5 (Free) immediately after transformation. Most countries' freedom index values were in the range of 2-4.5 (Partly Free to Free) for a long period after above 5.5 (Not Free). Thus, the impact of democratic transformation on growth coincides with geographic locale. Outside Europe, the correlation between the degree of democratic change and growth is weak.

One might argue that poor countries benefit economically by switching to democracy, while wealthy countries gain little in terms of economic growth. We can test this claim by regressing the change in growth for each country on their initial income per capita in the starting year of democracy. Guinea-Bissau and Guyana are excluded, as these two are the outliers. In 1998, Guinea-Bissau's GNP per capital declined by 30% due to a war. Guyana's change in growth rate of GNP per capita after democratic transformation exceeded 17%. Guyana is a very poor country, which reinforces the negative relation between growth change and initial income. Including Guyana does not change the result. We present results in Table 2 below as a scatter plot with a regression line.

Table 2. Regression of growth change on initial income

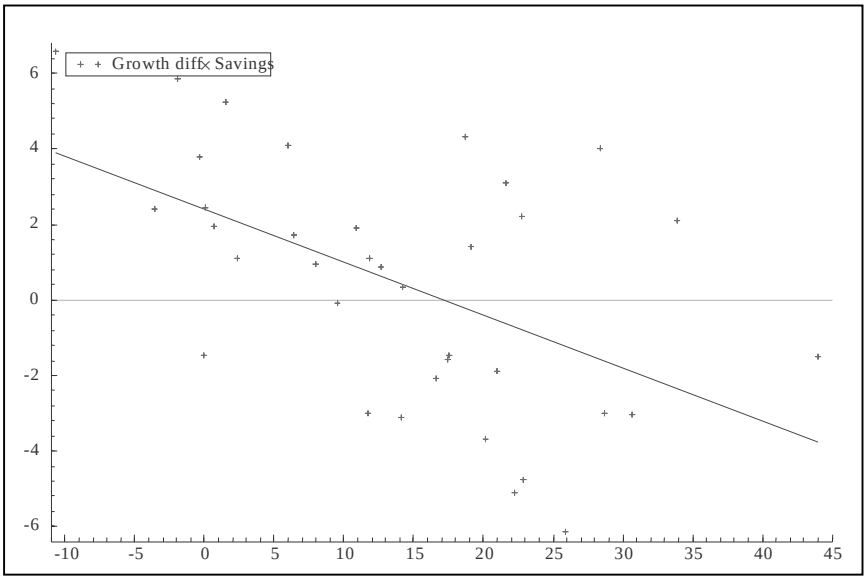


	Coefficient	Std. Error	t-value	t-prob.	Part.R^2
Constant	7.69528	2.681	2.87	0.007	0.1782
LOG (Initial Income)	-2.32861	0.8591	-2.71	0.010	0.1620
sigma	2.89119		RSS	317.641861	
R^2 0.162005		F(1,38) =	7.346 [0.010]*		
log-likelihood	-98.1984		DW	2.28	
no. of observations	40		no. of parameters	2	
mean(Growth Change)	0.535227		var(Growth Change)	9.47624	

The relation is negative. The coefficient of initial income to growth change is significant at the 1% level. Thus, rich countries often saw a decline in growth after democratic transformation, while very poor countries typically experienced accelerations in growth. With regard to the debate in China, the empirical evidence does not support the claim that poor countries should wait until the economy reaches certain degree of affluence before engaging in democratic transformation. According to the empirical test, China might be able to achieve an acceleration of growth by 1 percentage point in the next ten years, given a current per capita GDP of $1,000.

There are several other factors that may explain the difference in performance across countries, including the initial savings ratio, the ratio of government expenditure to GDP, the fertility rate, and income inequality. Because data is available, we examine the savings ratio, export ratio to GDP, ratio of government expenditure, and education.
We try the regression of the growth change on initial saving ratio, get a negative relationship, and the result is highly significant.[9]

Table 3. Regression of growth change on savings ratio



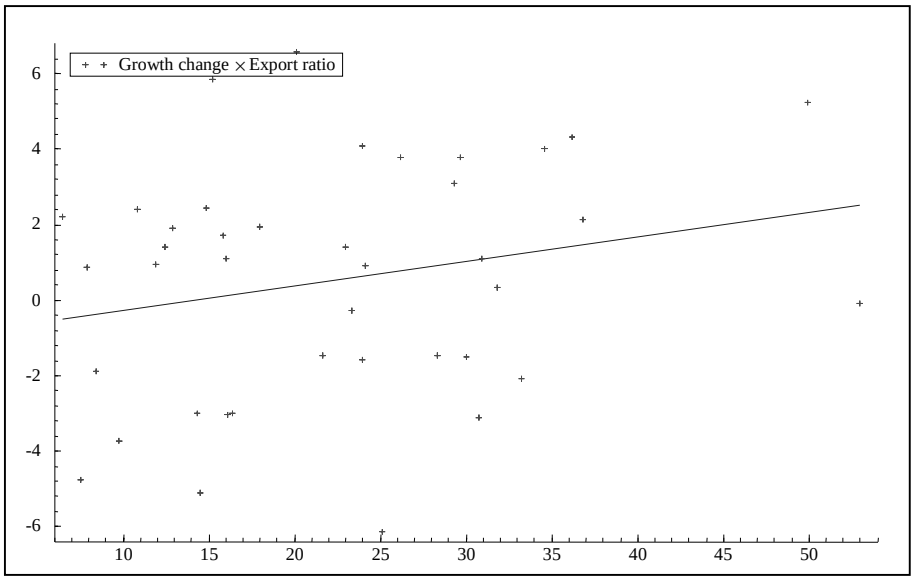
	Coefficient	Std. Error	t-value	t-prob	Part.R²
Constant	2.41846	0.6944	3.48	0.001	0.2420
Savings ratio	-0.133302	0.03831	-3.48	0.001	0.2416

sigma	2.75049	RSS	287.477154
R²	0.241584	F(1,38) =	12.1 [0.001]**
log-likelihood	-96.2028	DW	2.13
no. of observations	40	no. of parameters	2
mean(Growth change)	0.535227	var(Growth change)	9.47624

[9] Lesotho, with a savings rate of -36%, is an outlier. It is excluded from the regression.

The test for the impact of export ratio to GDP on growth change yielded a positive relation between the two. The coefficient becomes significant at 10% after initial income is controlled. The partial relation between primary school and secondary school enrollments, the ratio of government expenditure to GDP, and growth change, is not significant.

Table 4. Regression of growth difference by OLS



	Coefficient	Std. error	t-value	t-prob	Part.R^2
Constant	6.18883	2.856	2.17	0.037	0.1154
Export ratio	0.0753177	0.04150	1.81	0.078	0.0838
Income	-2.39691	0.8815	-2.72	0.010	0.1704

sigma	2.82861	RSS	288.036365
R^2	0.224942	F(2,36) =	5.224 [0.010]*
log-likelihood	-94.3293	DW	2.03
No. of observations	39	No. of parameters	3
mean(Growth difference)	0.551265	Var(Growth difference)	9.52903

Alesina and Rodrick (1991) argue that democracies with initially unequal distributions of income will have lower growth than democracies with more even distributions of income for the reason that the large group of enfranchised poor in the first case will vote for a high tax on capital, which will deter investment. Persson and Tabellini (1992) and Alesina and Perotti (1996) give evidences to show that inequality is harmful for growth. To test this hypothesis, we regress the change in growth rate on initial inequality in the year of democratic transformation. Since inequality indicators are not available for many countries, we use the same method as Alesina and Perotti (1996), who use differences in male and female primary enrollment rates as an indicator for inequality across countries. The empirical

test fails to find a partial correlation relation between this enrollment difference and growth change.

Thus, the difference in growth performance may be accounted for by initial income, savings ratio and the openness of economies at the beginning of transition to democracy. Using multiple regression, i.e.

$$\Delta\overline{g}_i = \alpha + \beta \cdot \log(GNPPC_i) + \gamma \cdot Savings_i + \delta \cdot Export\_ratio_i + \varepsilon \qquad (3)$$

we get the results shown in Table 5.

Table 5. Regression of growth difference by OLS

	Coefficient	Std. error	t-value	t-prob	Part.R²
Constant	3.14923	3.222	0.978	0.335	0.0273
log(GNPPC)	-0.729326	1.174	-0.621	0.538	0.0112
Savings ratio	-0.136693	0.05969	-2.29	0.028	0.1336
Export ratio	0.0606830	0.04045	1.50	0.143	0.0621

sigma	2.68381	RSS	244.89566
R²	0.336485	F(3,34) =	5.747 [0.003]**
log-likelihood	-89.3213	DW	1.98
No. of observations	38	No. of parameters	4
mean(Growth difference)	0.509835	Var(Growth difference)	9.71285

By controlling for the initial income, savings negatively affect growth performance, while openness has a positive impact on growth performance after democratic transformation.

Barro (1996) suggests that the relationship between growth and democracy may be nonlinear, as more democracy enhances growth at low levels of political freedom, but depresses growth when a moderate level of freedom has been attained. Here, we test for this with following regression

$$\Delta\overline{g}_i = \alpha + \beta \cdot \Delta FI_i + \gamma \cdot Savings_i + \delta \cdot D_i + \varepsilon \qquad 4)$$

where ΔFI is the change in the Freedom House index in the first year in democracy, D is a dummy variable equal to 1 when the regime change ends up with full freedom (Freedom House index below 3) and 0 when partial freedom is achieved (Freedom House index above 3).

Table 6. Regression on Growth Difference by OLS

	Coefficient	Std. error	t-value	t-prob	Part.R^2
Constant	2.45953	1.235	1.99	0.054	0.1017
Savings	-0.147097	0.03973	-3.70	0.001	0.2814
ΔFI	0.212225	0.5118	0.415	0.681	0.0049
D	-1.35705	1.268	-1.07	0.292	0.0317

sigma	2.73149	RSS	261.136314
R^2	0.299982	F(3,35) =	5 [0.005]**
log-likelihood	-92.4175	DW	2.2
No. of observations	39	No. of parameters	4
mean(growth difference)	0.458181	var(growth difference)	9.56519

The results show that when the initial savings ratio is controlled, large improvements in the democratic environment are beneficial to growth. However, if countries become "too free" immediately after democratic transformation, growth performance is likely to suffer. Countries that experience large improvements in democratic institutions while retaining some curbs on freedom can expect higher growth.

4 Conclusions and discussion

This paper applied a simple "before-and after" method to test the relationship of democracy and economic growth. Using a sample of forty countries, we found that, on average, there was an improvement in growth performance after the transformation democracy. Moreover, in the period just before the switch to democracy, most countries experienced deteriorations in growth performance. This supports the view that deteriorations in economic condition may propel the transformation to democracy. In any case, growth under democratic regimes tends to be far more stable than that under authoritarian regimes. Interestingly, relatively rich countries often experienced a decline in growth after their democratic transformations, while very poor countries often experienced accelerations in growth.

There are obviously many factors that may explain differences in growth performance across countries after democratic transformation. We found that growth performance is negatively related to the initial savings ratio and positively related to the export ratio to GDP. There are no partial correlation relations between growth change and primary school or secondary school enrollments, the ratio of government expenditure to GDP, or income inequality (or, at least, its crude approximation). The initial state of these variables in the year of transformation apparently matters little; rather, what matters is the change in these variables after democratic transformation.

The sample countries that converted to democracy within the last forty years on average witnessed a pickup in growth. However, we did not study whether authoritarian regimes were necessary doing any worse in the same time frame. It is obviously difficult to infer the growth performance under democracy of a country that remained authoritarian. One popular comparison is China and India. In the 1950s, China and India had comparable income levels and populations, but quite different political regimes. India was the democ-

racy and China was an authoritarian regime. Yet China has enjoyed higher economic growth than India, especially after 1980. During 1980-2000, China grew almost twice as fast as India.

Other countries under authoritarian regimes have done quite badly, e.g. Iraq. As Barro (1996) and Sah (1991) claim, an authoritarian regime is a risky investment. The autocrat may be preoccupied with economic development, as was the case in some countries in East Asia, while other may advance interests in conflict with growth promotion, as we have seen in Africa.

Our findings lend support to the view that growth on average is more stable under democracy. For those economies that experienced transformation to democracy, economic growth under democracy has been more stable than that under their earlier authoritarian regimes. However, this conclusion is subject to sample bias. The reason for the collapse of authoritarian regime may well be a collapse in economic growth. Thus, it may be a two-way causal relation, which indeed justifies simultaneous estimation methods in normal cross-country regression analyses.

Some of the poorest countries in the sample set have histories of democracy less than ten years old. It is not clear how long or even whether they can sustain democracy. Since the 1990s, several former democracies have returned to authoritarian regimes. It is clear that the collapse of authoritarian regime is preceded by decline in growth. For those with the stomach, it may also be worthwhile to find out what prompts regime change from democracy to an authoritarian regime.

Appendix

Annual freedom scores in sample countries, 1972 to 2001

Year	Argentina	Bangladesh	Benin	Bolivia	Brazil	Cape Verde
1972-73	6,3,PF	2,4,PF	7,5,NF	5,4,PF	5,5,PF	-
1973-74	2,2,F	4,4,PF	7,5,NF	5,4,PF	5,5,PF	-
1974-75	2,4,PF	4,4,PF	7,6,NF	6,5,NF	***4,4,PF***	-
1975-76	2,4,PF	7,5,NF	7,7,NF	6,5,NF	*4,5,PF*	5,5,PF
1976-77	6,5,NF	7,4,PF	7,7,NF	6,4,PF	*4,5,PF*	6,6,NF
1977-78	6,6,NF	6,4,PF	7,7,NF	6,4,PF	*4,5,PF*	6,6,NF
1978-79	6,5,NF	4,4,PF	7,7,NF	5,3,PF	*4,4,PF*	6,6,NF
1979-80	6,5,NF	3,3,PF	7,6,NF	3,3,PF	*4,3,PF*	6,6,NF
1980-81	6,5,NF	3,3,PF	7,6,NF	7,5,NF	*4,3,PF*	6,6,NF
1981-82	6,5,NF	3,4,PF	7,6,NF	7,5,NF	*4,3,PF*	6,6,NF
1982-83	6,5,PF	5,5,PF	7,6,NF	**2,3,F**	*3,3,PF*	6,6,NF
1983-84	**3,3,PF**	6,5,PF	7,6,NF	2,3,F	*3,3,PF*	6,6,NF
1984-85	2,2,F	6,5,PF	7,7,NF	2,3,F	*3,3,PF*	6,7,NF
1985-86	2,2,F	5,5,PF	7,7,NF	2,3,F	*3,2,F*	6,7,NF
1986-87	2,1,F	4,5,PF	7,7,NF	2,3,F	*2,2,F*	6,6,NF
1987-88	2,1,F	4,5,PF	7,7,NF	2,3,F	*2,2,F*	5,6,PF
1988-89	2,1,F	4,5,PF	7,7,NF	2,3,F	*2,3,F*	5,6,NF
1989-90	1,2,F	4,4,PF	7,7,NF	2,3,F	*2,2,F*	6,5,NF
1990-91	1,3,F	5,5,PF	6,4,PF	2,3,F	*2,3,F*	5,5,PF
1991-92	1,3,F	**2,3,F**	**2,3,F**	2,3,F	*2,3,F*	**2,3,F**
1992-93	2,3,F	2,3,F	2,3,F	2,3,F	*2,3,F*	1,2,F
1993-94	2,3,F	2,4,PF	2,3,F	2,3,F	*3,4,PF*	1,2,F
1994-95	2,3,F	2,4,PF	2,3,F	2,3,F	*2,4,PF*	1,2,F
1995-96	2,3,F	3,4,PF	2,2,F	2,4,PF	*2,4,PF*	1,2,F
1996-97	2,3,F	2,4,PF	2,2,F	2,3,F	*2,4,PF*	1,2,F
1997-98	2,3,F	2,4,PF	2,2,F	1,3,F	*3,4,PF*	1,2,F
1998-99	3,3,F	2,4,PF	2,2,F	1,3,F	*3,4,PF*	1,2,F
1999-00	2,3,F	3,4,PF	2,3,F	1,3,F	*3,4,PF*	1,2,F
2000-01	1,2,F	3,4,PF	2,2,F	1,3,F	*3,3,PF*	1,2,F

Year	Central African Rep.	Chile	Ecuador	Ghana	Greece	Grenada
1972-73	7,7,NF	1,2,F	7,3,PF	6,6,NF	6,6,NF	-
1973-74	7,7,NF	7,5,NF	7,5,NF	7,6,NF	7,5,NF	-
1974-75	7,7,NF	7,5,NF	7,5,NF	7,5,NF	**2,2,F**	2,4,PF
1975-76	7,7,NF	7,5,NF	7,5,NF	7,5,NF	2,2,F	2,4,PF
1976-77	7,7,NF	7,5,NF	6,5,PF	7,5,NF	2,2,F	2,4,PF
1977-78	7,7,NF	7,5,NF	6,5,PF	6,5,PF	2,2,F	2,3,F
1978-79	7,7,NF	6,5,NF	5,3,PF	6,4,PF	2,2,F	2,3,F
1979-80	7,6,NF	6,5,PF	**2,2,F**	4,4,PF	2,2,F	4,5,PF
1980-81	7,6,NF	6,5,PF	2,2,F	2,3,F	2,2,F	5,5,PF
1981-82	7,5,NF	6,5,PF	2,2,F	2,3,F	1,2,F	6,5,NF
1982-83	7,5,NF	6,5,NF	2,2,F	6,5,NF	1,2,F	6,5,NF
1983-84	7,5,NF	6,5,PF	2,2,F	6,5,NF	1,2,F	7,6,NF
1984-85	7,6,NF	6,5,PF	2,2,F	7,6,NF	1,2,F	5,3,PF
1985-86	7,6,NF	6,5,PF	2,3,F	7,6,NF	2,2,F	**2,3,F**
1986-87	7,6,NF	6,5,PF	2,3,F	7,6,NF	2,2,F	2,2,F
1987-88	6,6,NF	6,5,PF	2,3,F	7,6,NF	2,2,F	2,1,F
1988-89	6,6,NF	5,4,PF	2,2,F	6,6,NF	2,2,F	2,1,F
1989-90	6,6,NF	**4,3,PF**	2,2,F	6,5,NF	1,2,F	2,2,F
1990-91	6,5,NF	2,2,F	2,2,F	6,5,NF	1,2,F	2,2,F
1991-92	6,5,PF	2,2,F	2,3,F	6,6,NF	1,2,F	1,2,F
1992-93	6,5,PF	2,2,F	2,3,F	5,5,PF	1,2,F	1,2,F
1993-94	**3,4,PF**	2,2,F	2,3,F	5,4,PF	1,3,F	1,2,F
1994-95	3,4,PF	2,2,F	2,3,F	5,4,PF	1,3,F	1,2,F
1995-96	3,4,PF	2,2,F	2,3,F	**4,4,PF**	1,3,F	1,2,F
1996-97	3,5,PF	2,2,F	2,4,PF	3,4,PF	1,3,F	1,2,F
1997-98	3,5,PF	2,2,F	3,3,PF	3,3,PF	1,3,F	1,2,F
1998-99	3,4,PF	3,2,F	2,3,F	3,3,PF	1,3,F	1,2,F
1999-00	3,4,PF	2,2,F	2,3,F	3,3,PF	1,3,F	1,2,F
2000-01	3,4,PF	2,2,F	3,3,PF	2,3,F	1,3,F	1,2,F
Year	**Guatemala**	**Guinea-Bissau**	**Guyana**	**Honduras**	**Jordan**	**Korea, S.**
1972-73	2,3,F	-	2,2,F	7,3,PF	6,6,NF	5,6,NF
1973-74	2,2,F	-	4,2,PF	6,3,PF	6,6,NF	4,6,PF
1974-75	4,3,PF	6,6,NF	4,3,PF	6,3,PF	6,6,NF	5,6,PF
1975-76	4,3,PF	6,6,NF	4,3,PF	6,3,PF	6,6,NF	5,5,PF
1976-77	4,3,PF	6,6,NF	3,3,PF	6,3,PF	6,6,NF	5,6,NF
1977-78	4,4,PF	6,6,NF	3,3,PF	6,3,PF	6,6,NF	5,5,PF
1978-79	3,4,PF	6,6,NF	4,3,PF	6,3,PF	6,6,NF	5,5,PF
1979-80	3,5,PF	6,6,NF	4,4,PF	6,3,PF	6,6,NF	4,5,PF
1980-81	5,6,PF	6,6,NF	4,4,PF	**4,3,PF**	6,6,NF	5,6,PF
1981-82	6,6,NF	6,6,NF	5,4,PF	3,3,PF	6,6,NF	5,6,PF
1982-83	6,6,NF	6,6,NF	5,4,PF	2,3,F	6,6,NF	5,6,PF
1983-84	6,6,NF	7,6,NF	5,5,PF	3,3,PF	6,6,NF	5,6,PF
1984-85	5,6,PF	6,6,NF	5,5,PF	2,3,F	5,5,PF	5,5,PF
1985-86	**4,4,PF**	6,6,NF	5,5,PF	2,3,F	5,5,PF	**4,5,PF**
1986-87	3,3,PF	6,7,NF	5,5,PF	2,3,F	5,5,PF	4,5,PF
1987-88	3,3,PF	6,7,NF	5,5,PF	2,3,F	5,5,PF	4,4,PF
1988-89	3,3,PF	6,7,NF	5,5,PF	2,3,F	6,5,NF	2,3,F
1989-90	3,3,PF	6,6,NF	5,4,PF	2,3,F	5,5,PF	2,3,F
1990-91	3,4,PF	6,5,NF	5,4,PF	2,3,F	5,5,PF	2,3,F
1991-92	3,5,PF	6,5,PF	5,4,PF	2,3,F	**4,4,PF**	2,3,F
1992-93	4,5,PF	6,5,PF	**3,3,PF**	2,3,F	3,3,PF	2,3,F
1993-94	4,5,PF	6,5,PF	2,2,F	3,3,PF	4,4,PF	2,2,F
1994-95	4,5,PF	**3,4,PF**	2,2,F	3,3,PF	4,4,PF	2,2,F
1995-96	4,5,PF	3,4,PF	2,2,F	3,3,PF	4,4,PF	2,2,F
1996-97	3,4,PF	3,4,PF	2,2,F	3,3,PF	4,4,PF	2,2,F
1997-98	3,4,PF	3,4,PF	2,2,F	2,3,F	4,4,PF	2,2,F
1998-99	3,4,PF	3,5,PF	2,2,F	2,3,F	4,5,PF	2,2,F
1999-00	3,4,PF	3,5,PF	2,2,F	3,3,PF	4,4,PF	2,2,F
2000-01	3,4,PF	4,5,PF	2,2,F	3,3,PF	4,4,PF	2,2,F

Year	Lesotho	Madagascar	Malawi	Mali	Mexico	Morocco
1972-73	7,4,NF	5,3,PF	7,6,NF	7,6,NF	5,3,PF	5,4,PF
1973-74	5,3,PF	5,4,PF	7,6,NF	7,6,NF	**4,3,PF**	5,5,PF
1974-75	5,4,PF	5,4,PF	7,6,NF	7,6,NF	4,3,PF	5,5,PF
1975-76	5,4,PF	5,5,PF	7,6,NF	7,7,NF	4,3,PF	5,5,PF
1976-77	5,4,PF	6,5,NF	7,6,NF	7,7,NF	4,4,PF	5,5,PF
1977-78	5,4,PF	5,5,PF	7,6,NF	7,7,NF	4,4,PF	**4,3,PF**
1978-79	5,4,PF	5,5,PF	6,6,NF	7,7,NF	4,4,PF	3,4,PF
1979-80	5,5,PF	6,6,NF	6,7,NF	7,6,NF	3,3,PF	3,4,PF
1980-81	5,5,PF	6,6,NF	6,7,NF	7,6,NF	3,4,PF	4,4,PF
1981-82	5,5,PF	6,6,NF	6,7,NF	7,6,NF	3,4,PF	4,5,PF
1982-83	5,5,PF	5,5,PF	6,7,NF	7,6,NF	3,4,PF	4,5,PF
1983-84	5,5,PF	5,6,PF	6,7,NF	7,6,NF	3,4,PF	4,5,PF
1984-85	5,5,PF	5,6,PF	6,7,NF	7,6,NF	3,4,PF	4,5,PF
1985-86	5,5,PF	5,6,PF	6,7,NF	7,6,NF	4,4,PF	4,5,PF
1986-87	5,5,PF	5,5,PF	6,7,NF	7,6,NF	4,4,PF	4,5,PF
1987-88	5,6,PF	5,5,PF	6,7,NF	7,6,NF	4,4,PF	4,5,PF
1988-89	6,6,NF	5,5,PF	6,7,NF	6,6,NF	3,4,PF	4,5,PF
1989-90	6,5,NF	5,4,PF	7,6,NF	6,6,NF	4,3,PF	4,4,PF
1990-91	6,5,NF	**4,4,PF**	7,6,NF	6,5,NF	4,4,PF	4,4,PF
1991-92	6,4,PF	4,4,PF	7,6,NF	6,4,PF	4,4,PF	5,5,PF
1992-93	6,4,PF	4,4,PF	6,7,NF	**2,3,F**	4,3,PF	6,5,PF
1993-94	**3,4,PF**	2,4,PF	6,5,NF	2,3,F	4,4,PF	5,5,PF
1994-95	4,4,PF	2,4,PF	**2,3,F**	2,4,PF	4,4,PF	5,5,PF
1995-96	4,4,PF	2,4,PF	2,3,F	2,3,F	4,4,PF	5,5,PF
1996-97	4,4,PF	2,4,PF	2,3,F	2,2,F	4,3,PF	5,5,PF
1997-98	4,4,PF	2,4,PF	2,3,F	3,3,F	3,4,PF	5,5,PF
1998-99	4,4,PF	2,4,PF	2,3,F	3,3,F	3,4,PF	5,4,PF
1999-00	4,4,PF	2,4,PF	3,3,PF	3,3,F	3,4,PF	5,4,PF
2000-01	4,4,PF	2,4,PF	3,3,PF	2,3,F	2,3,F	5,4,PF
Year	Mozambique	Nepal	Nicaragua	Nigeria	Pakistan	Panama
1972-73	-	6,5,NF	4,3,PF	6,4,PF	3,5,PF	7,6,NF
1973-74	-	6,5,NF	5,4,PF	6,4,PF	3,5,PF	7,6,NF
1974-75	-	6,5,NF	5,4,PF	6,4,PF	3,5,PF	7,6,NF
1975-76	6,6,NF	6,5,NF	5,4,PF	6,5,PF	5,5,PF	7,6,NF
1976-77	7,7,NF	6,5,NF	5,5,PF	6,4,PF	4,5,PF	7,6,NF
1977-78	7,7,NF	6,5,NF	5,5,PF	5,4,PF	6,4,PF	6,5,NF
1978-79	7,7,NF	6,5,NF	5,5,PF	5,3,PF	6,5,PF	5,5,PF
1979-80	7,7,NF	5,4,PF	5,5,PF	**2,3,F**	6,6,NF	5,5,PF
1980-81	7,7,NF	**3,4,PF**	5,5,PF	2,3,F	7,5,NF	4,4,PF
1981-82	7,7,NF	3,4,PF	6,5,PF	2,3,F	7,5,NF	4,4,PF
1982-83	7,7,NF	3,4,PF	6,5,PF	2,3,F	7,5,NF	5,5,PF
1983-84	7,6,NF	3,4,PF	6,5,PF	2,3,F	7,5,NF	5,4,PF
1984-85	6,7,NF	3,4,PF	5,5,PF	7,5,NF	7,5,NF	4,3,PF
1985-86	6,7,NF	3,4,PF	5,5,PF	7,5,NF	**4,5,PF**	6,3,PF
1986-87	6,7,NF	3,4,PF	5,6,PF	7,5,NF	4,5,PF	6,3,PF
1987-88	6,7,NF	3,4,PF	5,5,PF	6,5,PF	4,5,PF	5,5,PF
1988-89	6,7,NF	3,4,PF	5,4,PF	5,5,PF	3,3,PF	6,5,NF
1989-90	6,7,NF	4,5,PF	5,5,PF	6,5,PF	3,3,PF	7,6,NF
1990-91	6,6,NF	4,4,PF	**3,3,PF**	5,5,PF	4,4,PF	**4,2,PF**
1991-92	6,4,PF	2,3,F	3,3,PF	5,4,PF	4,5,PF	4,2,PF
1992-93	6,4,PF	2,3,F	4,3,PF	5,4,PF	4,5,PF	4,3,PF
1993-94	6,5,NF	3,4,PF	4,5,PF	7,5,NF	3,5,PF	3,3,PF
1994-95	**3,5,PF**	3,4,PF	4,5,PF	7,6,NF	3,5,PF	2,3,F
1995-96	3,4,PF	3,4,PF	4,4,PF	7,7,NF	3,5,PF	2,3,F
1996-97	3,4,PF	3,4,PF	3,3,PF	7,6,NF	4,5,PF	2,3,F
1997-98	3,4,PF	3,4,PF	3,3,PF	7,6,NF	4,5,PF	2,3,F
1998-99	3,4,PF	3,4,PF	2,3,F	6,4,PF	4,5,PF	2,3,F
1999-00	3,4,PF	3,4,PF	3,3,PF	4,3,PF	7,5,NF	1,2,F
2000-01	3,4,PF	3,4,PF	3,3,PF	4,4,PF	6,5,NF	1,2,F

Year	Paraguay	Peru	Philippines	Portugal	Senegal	Singapore
1972-73	4,6,PF	7,5,NF	4,6,PF	5,6,NF	6,6,NF	5,5,PF
1973-74	5,5,PF	7,5,NF	5,5,PF	5,6,NF	6,6,NF	5,5,PF
1974-75	5,5,PF	6,6,NF	5,5,PF	5,3,PF	6,5,NF	5,5,PF
1975-76	5,5,PF	6,4,PF	5,5,PF	5,3,PF	6,4,PF	5,5,PF
1976-77	5,6,NF	6,4,PF	5,5,PF	**2,2,F**	6,4,PF	5,5,PF
1977-78	5,6,NF	6,4,PF	5,5,PF	2,2,F	5,3,PF	5,5,PF
1978-79	5,5,PF	5,4,PF	5,5,PF	2,2,F	**4,3,PF**	5,5,PF
1979-80	5,5,PF	5,4,PF	5,5,PF	2,2,F	4,3,PF	5,5,PF
1980-81	5,5,PF	**2,3,F**	5,5,PF	2,2,F	4,4,PF	5,5,PF
1981-82	5,5,PF	2,3,F	5,5,PF	2,2,F	4,4,PF	**4,5,PF**
1982-83	5,5,PF	2,3,F	5,4,PF	1,2,F	4,4,PF	4,5,PF
1983-84	5,5,PF	2,3,F	5,5,PF	1,2,F	4,4,PF	4,5,PF
1984-85	5,5,PF	2,3,F	**4,4,PF**	1,2,F	3,4,PF	4,5,PF
1985-86	5,5,PF	2,3,F	4,3,PF	1,2,F	3,4,PF	4,5,PF
1986-87	5,6,PF	2,3,F	4,2,PF	1,2,F	3,4,PF	4,5,PF
1987-88	5,6,PF	2,3,F	2,2,F	1,2,F	3,4,PF	4,5,PF
1988-89	6,6,NF	2,3,F	2,3,F	1,2,F	3,4,PF	4,5,PF
1989-90	**4,3,PF**	2,4,PF	2,3,F	1,2,F	4,3,PF	4,4,PF
1990-91	4,3,PF	3,4,PF	3,3,PF	1,2,F	4,3,PF	4,4,PF
1991-92	3,3,PF	3,5,PF	3,3,PF	1,1,F	4,3,PF	4,4,PF
1992-93	3,3,PF	6,5,PF	3,3,PF	1,1,F	4,3,PF	4,5,PF
1993-94	3,3,PF	5,5,PF	3,4,PF	1,1,F	4,5,PF	5,5,PF
1994-95	4,3,PF	5,4,PF	3,4,PF	1,1,F	4,5,PF	5,5,PF
1995-96	4,3,PF	5,4,PF	2,4,PF	1,1,F	4,5,PF	5,5,PF
1996-97	4,3,PF	4,3,PF	2,3,F	1,1,F	4,4,PF	4,5,PF
1997-98	4,3,PF	5,4,PF	2,3,F	1,1,F	4,4,PF	5,5,PF
1998-99	4,3,PF	5,4,PF	2,3,F	1,1,F	4,4,PF	5,5,PF
1999-00	4,3,PF	5,4,PF	2,3,F	1,1,F	4,4,PF	5,5,PF
2000-01	4,3,PF	3,3,PF	2,3,F	1,1,F	3,4,PF	5,5,PF
Year	South Africa	Spain	Suriname	Taiwan	Thailand	Turkey*
1972-73	2,3,F (5,6,NF)	5,6,NF	-	6,5,NF	7,5,NF	3,4,PF
1973-74	4,5,PF	5,6,NF	-	6,5,NF	6,3,PF	2,4,PF
1974-75	4,5,PF	5,5,PF	-	6,5,NF	5,3,PF	2,3,F
1975-76	4,5,PF	5,5,PF	2,2,F	6,5,NF	2,3,F	2,3,F
1976-77	4,5,PF	5,3,PF	2,2,F	5,5,PF	6,6,NF	2,3,F
1977-78	5,6,PF	**2,2,F**	2,2,F	5,4,PF	6,5,NF	2,3,F
1978-79	5,6,PF	2,3,F	2,2,F	5,4,PF	6,4,PF	2,3,F
1979-80	5,6,PF	2,2,F	2,2,F	5,5,PF	**4,3,PF**	2,3,F
1980-81	5,6,PF	2,3,F	7,5,NF	5,6,PF	3,4,PF	5,5,PF
1981-82	5,6,NF	2,3,F	7,5,NF	5,5,PF	3,4,PF	5,5,PF
1982-83	5,6,NF	1,2,F	7,6,NF	5,5,PF	3,4,PF	**4,5,PF**
1983-84	5,6,PF	1,2,F	7,6,NF	5,5,PF	3,4,PF	4,5,PF
1984-85	5,6,PF	1,2,F	7,6,NF	5,5,PF	3,4,PF	3,5,PF
1985-86	5,6,PF	1,2,F	6,6,NF	5,5,PF	3,4,PF	3,5,PF
1986-87	5,6,PF	1,2,F	6,6,NF	5,5,PF	3,3,PF	3,4,PF
1987-88	5,6,PF	1,2,F	**4,4,PF**	5,4,PF	3,3,PF	2,4,PF
1988-89	5,6,PF	1,2,F	3,2,F	5,3,PF	3,3,PF	2,4,PF
1989-90	6,5,PF	1,1,F	3,3,PF	**4,3,PF**	2,3,F	3,3,PF
1990-91	5,4,PF	1,1,F	6,4,PF	3,3,PF	2,3,F	2,4,PF
1991-92	5,4,PF	1,1,F	4,4,PF	5,5,PF	6,4,PF	2,4,PF
1992-93	5,4,PF	1,1,F	3,3,PF	3,3,PF	3,4,PF	2,4,PF
1993-94	5,4,PF	1,2,F	3,3,PF	4,4,PF	3,5,PF	4,4,PF
1994-95	**2,3,F**	1,2,F	3,3,PF	3,3,PF	3,5,PF	5,5,PF
1995-96	1,2,F	1,2,F	3,3,PF	3,3,PF	3,4,PF	5,5,PF
1996-97	1,2,F	1,2,F	3,3,PF	2,2,F	3,3,PF	4,5,PF
1997-98	1,2,F	1,2,F	3,3,PF	2,2,F	3,3,PF	4,5,PF
1998-99	1,2,F	1,2,F	3,3,PF	2,2,F	2,3,F	4,5,PF
1999-00	1,2,F	1,2,F	3,3,PF	2,2,F	2,3,F	4,5,PF
2000-01	1,2,F	1,2,F	1,2,F	1,2,F	2,3,F	4,5,PF

Year	Uruguay	Zimbabwe				
1972-73	3,4,PF	6,5,NF				
1973-74	5,5,PF	6,5,NF				
1974-75	5,5,PF	6,5,NF				
1975-76	5,5,PF	6,5,NF				
1976-77	6,6,NF	6,5,NF				
1977-78	6,6,NF	6,5,NF				
1978-79	6,6,NF	5,5,PF				
1979-80	6,6,NF	**4,5,PF**				
1980-81	5,5,PF	3,4,PF				
1981-82	5,5,PF	3,5,PF				
1982-83	5,4,PF	3,5,PF				
1983-84	5,4,PF	4,5,PF				
1984-85	5,4,PF	4,5,PF				
1985-86	**2,2,F**	4,6,PF				
1986-87	2,2,F	4,6,PF				
1987-88	2,2,F	5,6,PF				
1988-89	2,2,F	6,5,PF				
1989-90	1,2,F	6,4,PF				
1990-91	1,2,F	6,4,PF				
1991-92	1,2,F	5,4,PF				
1992-93	1,2,F	5,4,PF				
1993-94	2,2,F	5,5,PF				
1994-95	2,2,F	5,5,PF				
1995-96	2,2,F	5,5,PF				
1996-97	1,2,F	5,5,PF				
1997-98	1,2,F	5,5,PF				
1998-99	1,2,F	5,5,PF				
1999-00	1,2,F	6,5,PF				
2000-01	1,1,F	6,5,PF				

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