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CONTRACT-INTENSIVE MONEY: Contract Enforcement, Property Rights, and Economic Performance

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CONTRACT-INTENSIVE MONEY:

Contract Enforcement, Property Rights, and Economic Performance

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I. Introduction

Markets are commonplace in all types of societies, including the poorest. The less-developed countries today have a profusion of bazaars, shops, and people who bargain with skill. This was also true of the pre-industrial societies of earlier times; Herodotus, for example, discusses Phoenician merchants who traded even with distant tribes with whom they shared no government or language. Markets exist in remarkably unfavorable conditions. There is a long-standing literature on the “silent trade” among those who cannot communicate directly, and it even includes accounts of tribes that, at war, traded with each other through their women (Grierson, 1904). As “black markets” show, markets often exist even when they are prohibited.

If markets are everywhere and if they are also the major source of economic efficiency and progress, why are international differences in per-capita incomes so large and persistent? By the best available purchasing-power-parity statistics, average incomes in the poorest countries are less than one-fortieth of those in the richest countries and the gap is, if anything, increasing. Why don't the innumerable markets in the poorest countries narrow these vast disparities?

There is, to be sure, much less capital per worker in poor than in rich countries, but this does not explain the great gap in per capita incomes. Investors have an incentive to invest their capital wherever the risk-adjusted return is highest and to do so until the marginal product of capital is equalized everywhere. Thus we also need to explain why, with markets everywhere, the world's capital stock is so unevenly distributed.

Clearly, some governments repress and distort markets more than others. When the percentage of the GDP allocated by government rises beyond optimal levels, the distortion of markets through taxation and public spending must increase gratuitously. Yet the size of government does not have the robust negative association with economic performance that might be expected (e.g., see Levine and Renelt, 1992 and Rubinson, 1977). The unexpectedly large and

protracted decline in output after the collapse of communism also suggests that the repression of markets is not the only barrier to economic success.

We shall argue that there are **often** huge losses **from** misguided government interventions, but that they can be properly appreciated and measured only **after** we understand the gigantic losses that also arise because many governments do not adequately perform the “market augmenting” functions for which they are needed. When both the sins of commission and of omission by governments are considered together, we find that the quality of governance is an overwhelmingly important determinant of economic performance.

We shall show here that, while many markets are spontaneous if not irrepressible, other markets that are essential for economic development require certain types of governance and institutions that are partly or wholly missing in the unsuccessful economies. While spontaneous markets help to account for such well-being as the poorest economies afford, they are not sufficient for a high level of economic development. Good economic performance requires, in addition, a far wider range of markets, and these latter markets require quite different use of the power of government than is typical in poor countries.

The markets that emerge spontaneously in all societies are those in which transactions are self-enforcing, such as those in which trades can be consummated on the spot. There are three reasons why markets of this kind are commonplace in all societies. First, the gains from trade are **often** so large that they call forth whatever effort and ingenuity is needed to realize them whenever the trades are legally permissible -- and often even when they are not. Second, because **they are** self-enforcing, they require little or nothing in the way of supporting institutions. To be sure, unless there is the double coincidence of wants required for barter, money is needed. But this takes us to the third reason why markets are commonplace in all societies: the seignorage or gains to governments **from** issuing and spending money ensure that money in the form of currency, at least,

is always available.

The kinds of markets that exist only in special institutional circumstances are those with trades that are not self-enforcing -- those that require third-party enforcement. On-the-spot markets will not suffice when the *quid* is needed at one time or place and the *quo* at another. When there is lending and borrowing, capital is lent in expectation of a later return. When a demander and a supplier are some distance apart, someone must be at risk for the value of the goods in transit. When there is insurance, some parties must make payments now in hope of indemnification if specified contingencies occur. Whenever there is a trade in futures, it is in the expectation that even a losing party will have to complete the deal. In all of these cases, the gains from trade cannot be realized unless the parties expect that the contracts they make will be carried out, if necessary through third-party enforcement.

The gains from many trades that require third-party enforcement are large -- so large, we hypothesize, that they explain a substantial part of the differences across countries in capital intensity and per capita income. Transactions in capital markets are not usually self-enforcing: they typically require either enforcement of loan contracts or enforcement of rules (which we subsume under the heading of contract enforcement) protecting investments in equities against misappropriation or fiduciary neglect by corporate management (see La Porta *et al*, 1996). Since investment is usually required for innovation and the purchase of new technologies as well as capital deepening, contract enforcement also affects the rate of growth. Firms in societies without third-party enforcement cannot usually mobilize much capital beyond that which can be obtained through entrepreneurial saving or **family** connections. Most of the gains from either **capital-**intensive or large-scale production are accordingly lost in these societies. Some gains from specialization in production are also lost: if there are only self-enforcing transactions, no one will **specialize** in producing those goods and services that can be profitably sold only through

enforceable contracts. We therefore argue that, while most of the gains from self-enforcing transactions are obtained even in societies with abysmal institutions and policies, the gains from trades that require third-party enforcement are extremely sensitive to the quality of governance.*

While the gains to governments **from** creating and spending money ensure that the currency or coinage needed for on-the-spot transactions is available, government officials need not gain **from** enforcing contracts. The direct gains from using the government's coercive power to enforce contracts go to private parties: this enables them to make credible commitments that they could not otherwise have made and thereby to obtain gains from trade they could not otherwise have achieved. But there is not necessarily a gain, at least in the short run, to those who wield political power, or as much gain as they might have obtained by using the government's power in other -- even predatory -- ways. As we have shown elsewhere (Clague, Keefer, Knack, and Olson, 1996; Olson, 1993), leaders of governments with short planning horizons usually have little or no incentive to enforce contract and property rights, and sometimes even have strong incentives to be predatory.

As David Hume and others (e.g. Hayek, 1948, Telser, 1980) have explained, a reputation for honoring commitments can be valuable and this means that some transactions are self-enforcing because of the participants' interest in reputation. Some agreements may also be made **self-enforcing** by leaving valuables hostage (as, most simply, in a pawn shop loan), and we know that, even in societies with the best legal systems, the overwhelming majority of disagreements are resolved without being taken to court (Williamson, 1983, 1985). Arbitration and dispute settlement

¹ We are by no means the first to point to the need for third-party enforcement of contracts. In 1651 Thomas Hobbes said that, in the absence of government, the party that "performs first has no **assurance that the other will perform after**, because the bonds of words are too weak to bridle men's ambition, avarice, **anger, and other passions without the fear of some coercive power**" (1958, p 15). Douglass North distinguishes **self-enforcing** transactions from those that require third party enforcement at several points in his important 1990 book, which precedes Olson's 1992 attempt to analyze the difficulties of the transition from communism in terms of this distinction.

services are sometimes also available from the private sector. Does the market solve all contract enforcement problems, so that differences in governmental enforcement do not matter?

In fact, most reputation effects, privately-settled contracts, and markets for dispute resolution rest, in turn, on a more elemental reality. The point that reputation effects do not ensure contract compliance in one-shot games is only part of the story. Either repeated transactions must be between the same pairs of transactors or -- since notoriety for contract violators is a public good -- there must be some government or other organization that publicizes breaches of contract. The interactions must also be peaceful: if there is a Hobbesian anarchy, a reputation for effective violence is worth more than one for honoring commercial contracts.

Whatever *authority maintains the peace must have the power needed to do this. That means, in turn, that it has the power to enforce or to abrogate contracts. It follows that even if markets by themselves could make all contracts self-enforcing, differences in the behaviors of the governments would still make for cross-country differences in contract enforcement. The use of private dispute resolution firms and out-of-court settlements usually also depends on the option of appeal in the last resort to a court with coercive power.

II. Testing the Theory: Contract-Intensive Money

To test the foregoing conception statistically, we need data on the proportion of the transactions in a society that rely on third-party enforcement. Luckily, because the pattern of money and credit resembles trade in goods and services in much the way a negative resembles a print, the needed data are available. Though the **gains from** issuing money ensure that it is available everywhere, the types of money that **are** most widely used vary greatly **from** country to country. In some countries, currency is the only **money that is** widely used, whereas in others the types of money that are held in banks or invested in other financial institutions or instruments are

more important.

In environments where only self-enforcing transactions are safe, currency is often the most advantageous type of money. The same **governmental** deficiencies that make any transaction that is not self-enforcing risky also make the use of other forms of money problematic. This is not only because, if contracts are unreliable, there can be no assurance that the money lent to financial institutions is safe. When financial institutions cannot rely on third party-enforcement of loan contracts -- and when property rights are not clear, so that lenders do not have secure rights to mortgaged assets in the event of borrowers' defaults -- then they cannot earn as much with the depositors' money. This means in turn that there will be less financial intermediation and higher charges for banking services.

In a badly governed environment, currency also has a big advantage over other monies. When many trades are prohibited, or allowed only at prices that do not clear markets, or subjected to regulations that induce those with small transactions or limited literacy to operate outside the law, currency has the advantage of permitting discreet transactions in the informal economy.

In societies where contract and property rights are secure and well defined, so that even transactions that require the most reliable outside enforcement can be advantageous, currency is **normally** used only for small transactions. In such environments, it is also profitable to provide extensive banking and financial intermediation services, and, as is well known, when such services are available, it is normally safer and more convenient to hold most money in banks or financial instruments. The secondary markets, derivative securities, and thick capital markets characteristic of **transaction-friendly** environments also mean that, even though much of an economy's capital is tied up in fixed and illiquid assets, some forms of money (but not, of course, currency) earn interest. As is evident from the work of Townsend (1983), when more sophisticated forms of money and trade credit are available, individuals and firms can not only trade without a double

coincidence of wants, but they are also spared much of the opportunity cost of significant intervals between the receipt and the spending of money. Finally, when the institutional environment permits even complex and difficult transactions, the use of monies held in financial institutions rather than currency also provides records that enhance the legal rights of the parties and thereby reduce their risks.

Thus the extent to which societies can capture not only the gains **from** self-enforcing transactions, but also those potential trades that are intensive in contract enforcement and property rights, can be approximated by the *relative* use of *currency* in comparison with “*contract-intensive money!*” We define contract-intensive money (CIM) as the ratio of non-currency money to the total money supply, or $(M_2 - C)/M_2$, where M_2 is a broad definition of the money supply and C is currency held outside banks. Fortunately, there are data on the quantities of both currency and M_2 for almost all countries. Each firm and individual can decide, **after** taking account of the type of governance in that society, in what form it wants to hold its assets. Thus the CIM ratio is determined by the public’s choices in each institutional environment. It offers a measure of the extent to which governmental power in society is used to help firms and individuals achieve gains from trade that they could not otherwise obtain and thereby provides a measure with which we can test the conception that we have set out.

Our theory implies the following set of hypotheses. First, the higher a country’s **CIM** ratio, the larger the share of its GDP that is generated by those industries that are especially dependent on third-party enforcement, such as those involved with insurance, capital markets, and financial services, and the greater its financial development and sophistication. Second, the higher **CIM**, the more **transaction-friendly** a country is and the more gains **from** trade and specialization it reaps and thus the higher its capital stock, productivity, and per capita income. Third, the higher **CIM**, the greater the ability of firms to raise capital and the higher the rate of investment and (other things,

like the opportunity for catch-up growth, equal) the faster the rate of economic growth. Because secure individual rights to contract enforcement and to property will help most in obtaining those gains **from** trade and specialization that can be completed only over a long period of time, such as those involving long-term loans, CIM should be more closely associated with the gains **from** trade in the capital market than with the gains **from** trade in the economy as a whole, and thus better correlated with investment than with growth.

Note that we are not suggesting that a relatively greater use of more sophisticated, non-currency monies causes better economic performance; we are hypothesizing instead that better institutions, especially with respect to contract enforcement, enable a society to obtain a wider array of (real) gains from trade, and, at the same time, facilitate the use of more sophisticated forms of money.. Thus CIM is a reflection or measure of the type of governance that improves economic performance rather than a cause of that performance.

Before we turn to the statistical tests of our hypotheses, we examine, in Section III, some especially instructive cases. Since the CIM ratio not only offers a precise test of our theory, but also a new measure of the quality of governance and institutions, we relate it, in Section IV, to other measures of quality of governance. We then present in Sections V-VII a variety of evidence that stronger economic performance is associated with higher values of CIM. Section VIII responds to possible objections to our tests. Section IX concludes.

III. CIM Case Studies

If CIM is a good measure of the security of contract and property rights, dramatic political events or changes of regime affecting these rights should change the CIM ratio. They do, **and** in the directions that are consistent with our argument. We looked for countries that experienced sharp and sudden political changes and present CIM time series graphs, along with a brief summary

of political events for each of these countries, below. Where data are available from IFS Yearbooks, we trace CIM from 1960 forward; for other countries, the beginning date is 1969.

1. Iran

The Shah ruled Iran from the 1950s until he was overthrown by a revolution led by Khomeini in 1978. The new regime had no respect for the rights of those who had been allied with the old regime or who did not fully support the new regime and follow its religious doctrine. There was a period of revolutionary turmoil and a dramatic change in the social order. Iraq launched a war against Iran in September 1980 that lasted until 1988. CIM was at relatively high and stable levels under the Shah, then dropped sharply with Khomeini's takeover, the revolutionary turmoil, and the attack by Iraq. As the new regime established a relatively stable order and as the war with Iraq came to an end, the CIM ratio increased and approached its former level.

2. The Gambia

Sir Dawda Jawara led Gambia from 1962 through 1992, winning re-election in several meaningful elections. In October of 1980, however, the Gambian government had, out of fear of a coup by its own military, requested that Senegal station troops in the Gambia. In 1981, while Sir Dawda was out of the country, left-wing rebels staged a coup that was suppressed only with the help of Senegalese troops. The data indicate a substantial upward trend in the contract-intensive money ratio from 1969 to 1990 (consistent with the general stability of the regime) that is interrupted in the 1978-82 period.

3. Chile

Following a period of unsustainable expansionary policies, accelerating inflation, and some moves by the Allende government away from a market economy based on private property, a military government took over in 1973. Within a few years it brought about a dramatic change in

The Republic of Iran

CIM vs time

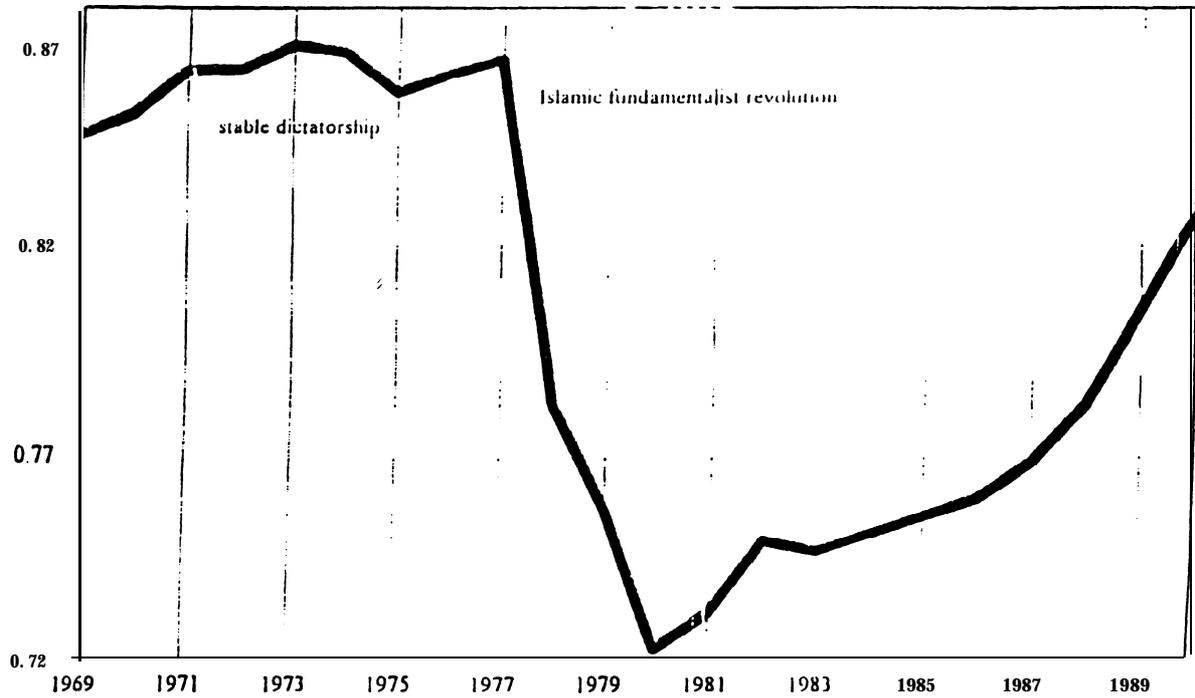


fig. #1

The Gambia

CIM vs time

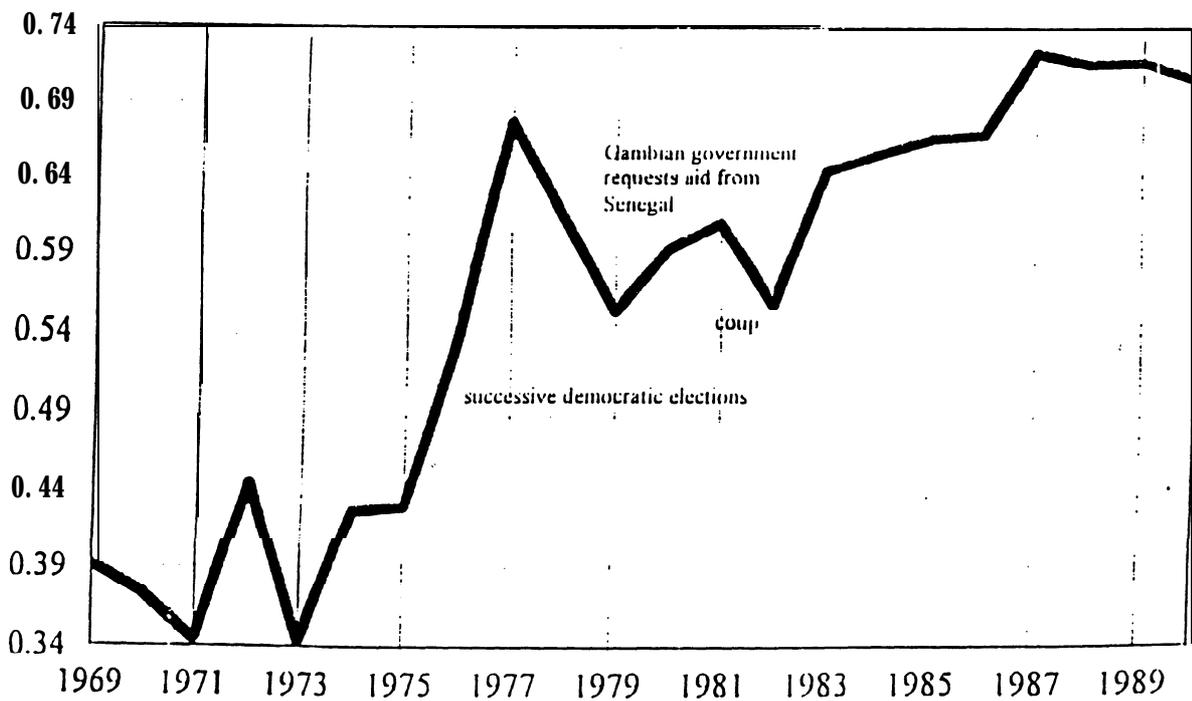


fig. # 2

Chile

CIM vs time

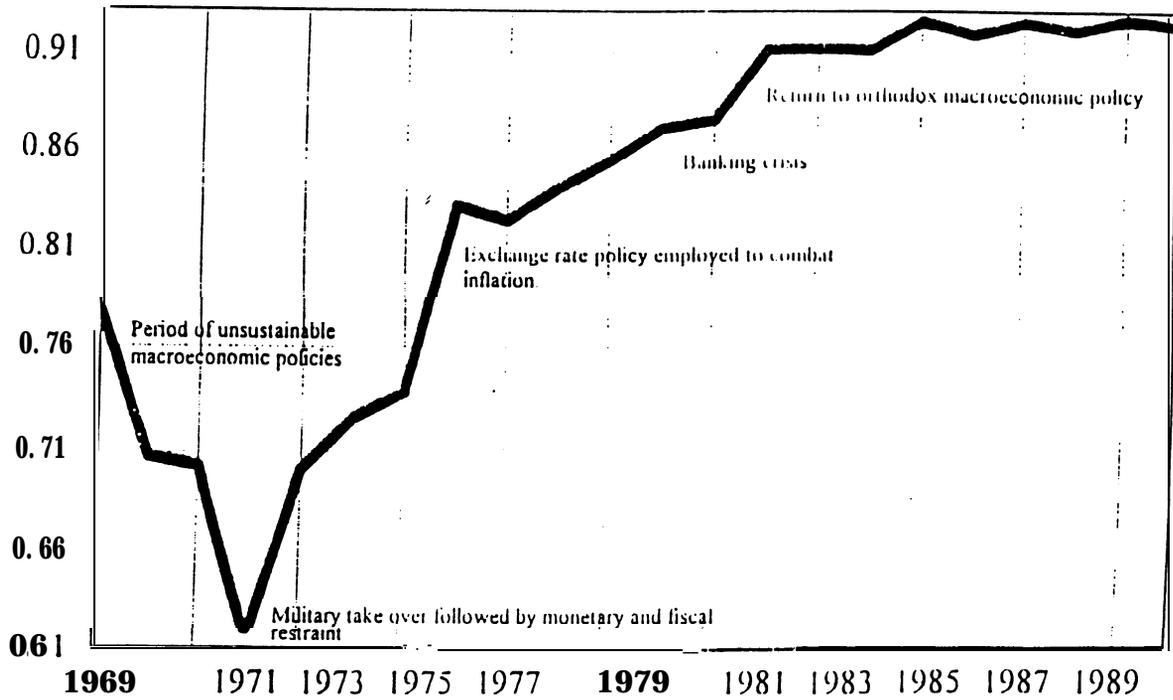


fig. # 3

economic policy in the direction of economic orthodoxy in microeconomic, monetary, and fiscal policies. The late 1970s and early 1980s witnessed a degree of unorthodoxy in the use of exchange-rate policy to combat inflation, and these policies, perhaps combined with the explosion of the Mexican debt crisis in 1982, produced a banking crisis in 1982, followed by a severe recession. By 1985 the severe recession was over, macroeconomic policy seemed to be back on track, and the regime continued to pursue its economically orthodox policies including deregulation and privatization of the economy. The data show a marked decline in CIM in the early 1970s, followed by a dramatic rise in the ratio in the late 1970s, remaining at a very high level since the mid-1980s. The ratio exhibited only a moderate negative reaction to the macroeconomic and financial crisis of the early 1980s, suggesting that CIM was not very sensitive to the problems of the financial sector and that its increase in the late 1970s and its steadiness at a high level in the 1980s was mainly a consequence of the security of contract enforcement and property rights.

4. Brazil

There was a similar dramatic change in economic policy in Brazil after the military coup in 1964. Recession occurred in 1965 and 1966, as the new regime brought inflation down from the high level in the last years under Goulart. From 1967 to 1974 there was what has been described as “the economic miracle,” and growth remained high during the 1970s, although based on excessive foreign borrowing and ultimately unsustainable.

The data for Brazil from the IFS yearbooks do not correspond to the data on the IFS tapes for the years 1969-70. Thus there is a break in the series. The data in the earlier series show a fairly constant level of CIM during 1960-64, followed by a jump in 1965 and a gradual rise in the late 1960s. The later series shows a further rise during the 1970s and 1980s. The data for Brazil stop in 1985.

5. Grenada

Brazil

CIM vs time

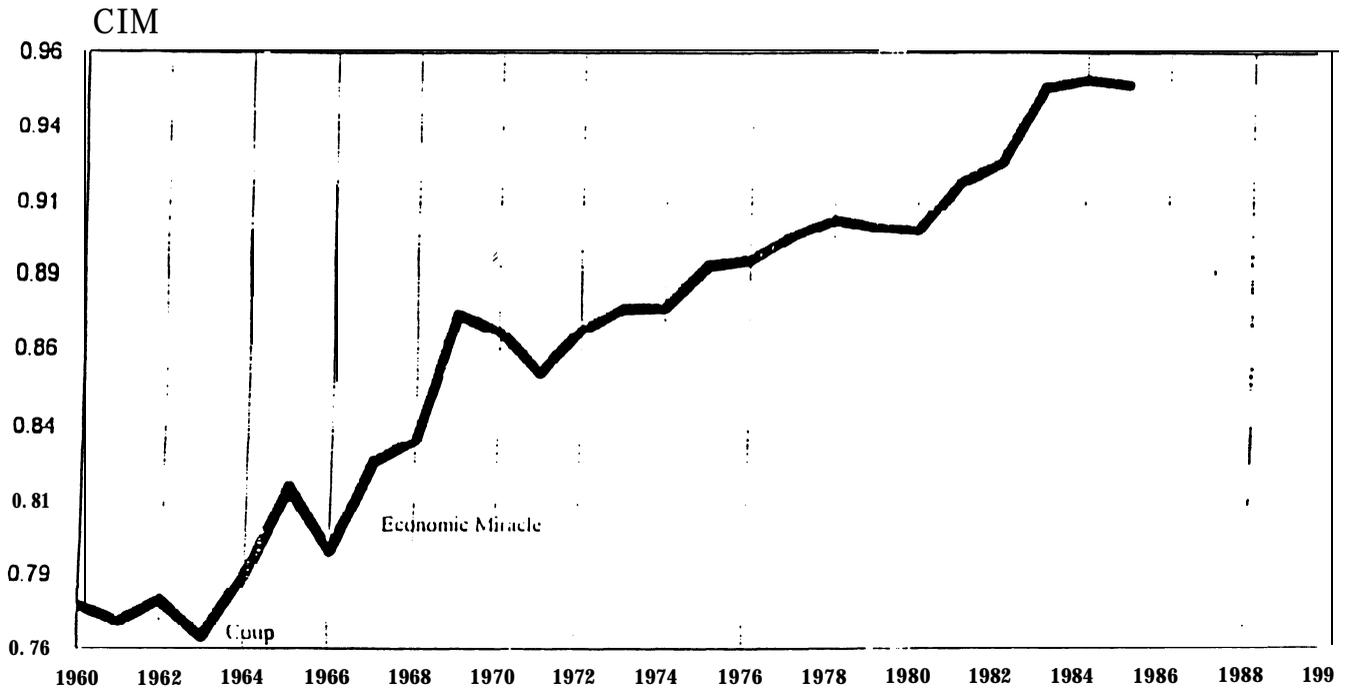


fig. # 4

Grenada

CIM vs Time

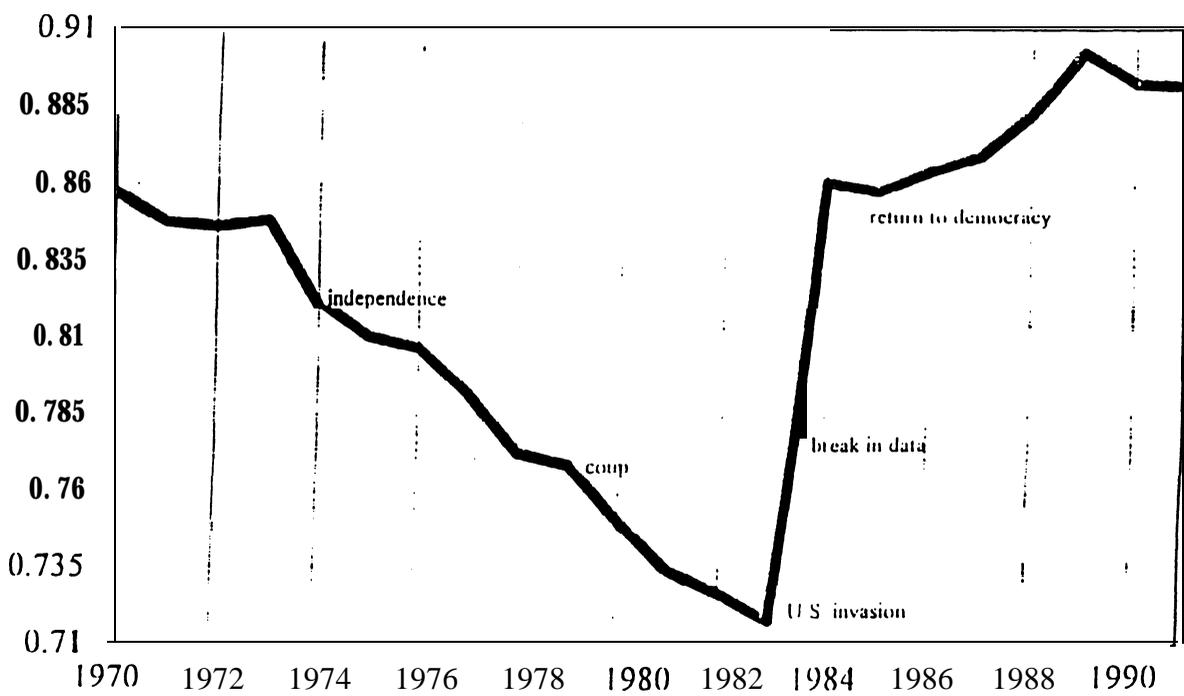


fig. # 5

According to the *Europa Yearbook*, Grenada functioned as a democracy during its pre-independence years in the 1960s and up through independence in 1974. But Grenada was not a placid democracy like its neighbor, Barbados. In the late 1970s the opposition accused Prime Minister Gairy of being autocratic and corrupt, and in 1979, Maurice Bishop, the leader of the left-wing PRG (People's Revolutionary Government), led a bloodless coup. The constitution was suspended. During 1980 and 1981 there was an increase in repression and mounting fears by the PRG of an invasion by the U.S. During 1982 Grenada was aligning itself with Cuba and the USSR. In 1983 the armed forces were put on alert out of fear of a US invasion. Bishop tried to conciliate the U.S., but was assassinated in a coup by more radical forces. The U.S. invasion occurred in October 1983. By December, most American troops had pulled out. There were preparations during 1984 for elections, which were held in December. Though there was tension over the trial of the coup leaders and restrictions on some left-wing politicians in 1988 and 1989, there was a return to democracy and relative stability.

Though there is a break in the data series for Grenada in 1983, the year of the second **coup** and the U.S. intervention, the data are nonetheless instructive. From the mid-1970s to 1983, when political developments must have made contract and property rights less secure, there was a large decline in CIM. The new data series starting in 1984 shows an increase in CIM along with the installation and gradual consolidation of a new democratic regime.

6. Turkey

The following summary paraphrases Haggard and Kaufman (1992, p. 289). The **democratic** government began losing control over the economy in the late 1970s. There was political

² The Eastern Caribbean Central Bank was established in that year, and the currency figures become **more** precise starting in 1984. Prior to that year, the numbers of Eastern Caribbean Dollars circulating in Grenada were based on estimates, while after that year, the ECCB placed a letter "G" on the EC Dollars issued **there and** was therefore able to track the currency circulation precisely. This information was kindly supplied by Mr. Kavar of the IMF.

Turkey

CIM vs time

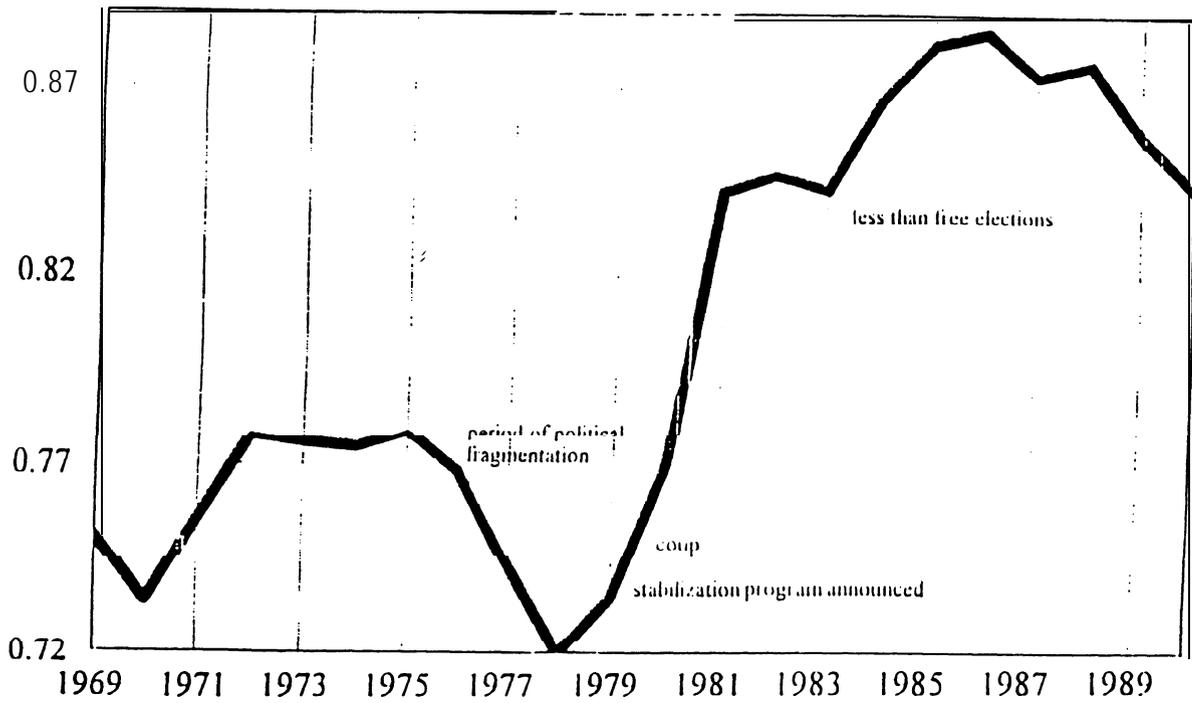


fig. # 6

Indonesia

CIM VS time

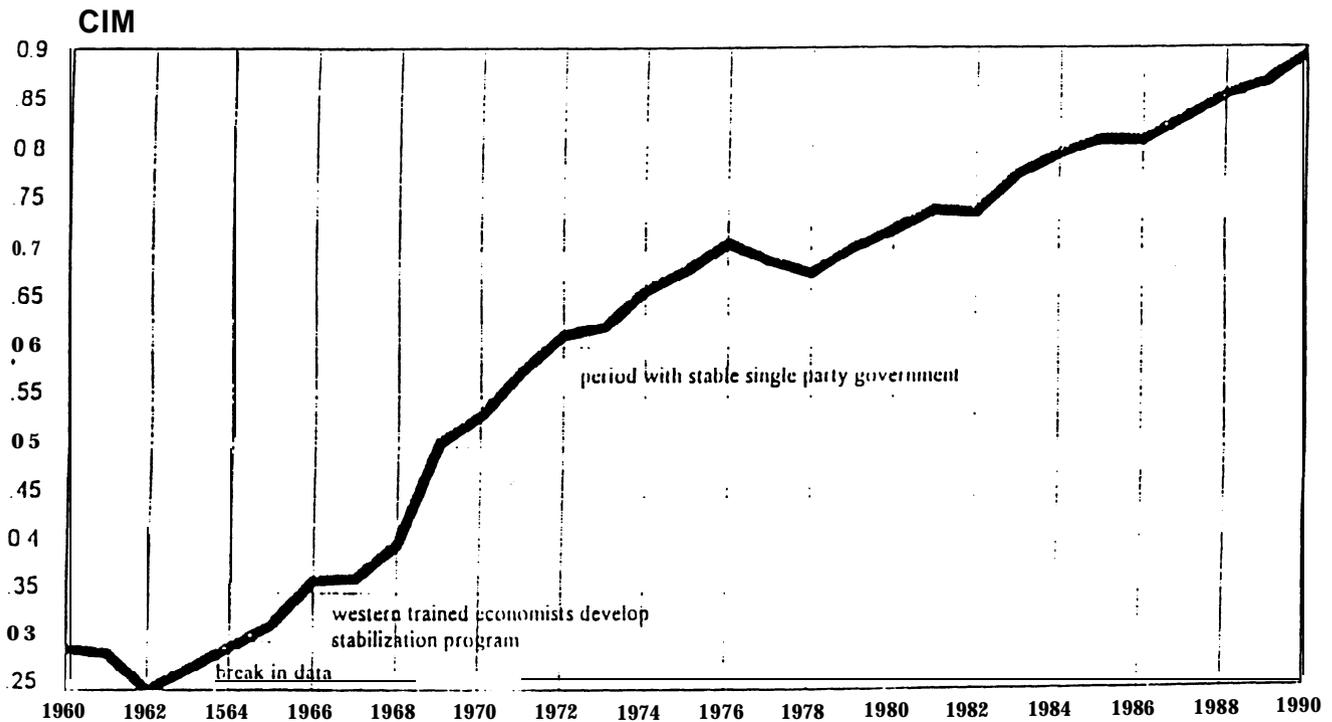


fig # 7

fragmentation under proportional representation: government coalitions proved difficult to form, were hostage to the demands of small anti-system parties, and were pulled toward policy positions more radical than those of most of the electorate. In these circumstances it was difficult to cut government expenditure or adjust to the withdrawal of foreign lending. A stabilization program was announced in January 1980, but the government was quickly deadlocked over political issues and was ousted by the military in September. An economist, **Ozal**, became the leading economic policy maker under the military, and he won the (less-than-free) election held in 1983. In 1988, after democracy had been restored, he was re-elected.

The data show a flat level of the CIM ratio from 1972 to 1975, followed by a decline to 1978. There was a slight recovery in 1979 and 1980, a jump in 1981, followed by a gradual rise to 1986, and then another mild decline in the late 1980s.

7. Indonesia

In the 1960s the country suffered serious macroeconomic and political instability. In 1965 an attempted communist takeover failed and was followed by a civil war in which millions were killed and the Communists suppressed. In 1966 Western-trained economists gained Suharto's ear and a stabilization program was carried out in the late 1960s. By 1970 Indonesia resembled certain other countries with secure long-tenure autocrats with a stake in price stability and increased income in their domain: there was a stable single-party government with an economic bureaucracy that was, because of the low level of independent interest-group mobilization and the absence of electoral pressures, relatively insulated and able to continue orthodox economic policies. (See also Haggard and **Kaufman**, 1992, p. 289).

The data show a fairly flat level of CIM in the early 1960s; there are no data for 1963 and 1964. There is some rise from 1965 to 1968, consistent with the end of the civil war, followed by a dramatic and sustained rise from 1970 onward as the new regime showed evidence of

considerable staying power, predictable enforcement of contract and **property rights, and prudence** in the management of economic policy.

Most of the foregoing countries fall into two main groups. In one group of countries -- Chile, Brazil, **and** Indonesia -- weak **governments** with ill-chosen interventionist economic policies were replaced by strong military dictatorships in which economic technocrats had considerable influence. In all three cases, the CIM ratio rose dramatically after the change in government and economic policies. In the second group of countries -- The Gambia, Grenada, and Turkey -- a democratic regime suffered a period of political uncertainty with an actual or threatened military coup, and then after a time democratic stability was restored. During the period of turmoil there was a decline in the CIM ratio but this ratio rose again after the restoration of democracy. These patterns are consistent with related work the authors have done (see Clague, Keefer, Knack **and** Olson, 1996) suggesting that the security of contract and property rights is greater under strong and secure autocrats than under those of short tenure or in transient democracies and reaches the highest levels in lasting democracies.

IV. CIM and Complementary Measures of the Quality of Governance

The CIM ratio not only mirrors changes in politics, institutions, and economic policies in a reassuring way, but is also positively correlated with independent measures of quality of governance and institutions used in prior studies. Most of these independent measures are systematic subjective ratings generated by scholars, such as Gastil's indexes of political freedoms and civil liberties (used, for example, in **Scully** 1988) or produced by private firms that meet the market test by selling their measures of political and institutional risk to investors, such as the ICRG, BERI and BI ratings (introduced by Knack and Keefer, 1995, and used by Mauro, 1995, and

others). There is a danger that these subjective measures may be influenced by outcomes -- when economic performance is good, the evaluators may be subtly induced to report that governance is also good. The CIM ratio may also have some limitations; a study of the period averages for individual countries in Appendix C suggests that some of the cross-country variation in CIM may be idiosyncratic and have little to do with differences in contract enforcement and security of property.³ Fortunately, because the subjective measures and CIM --which is an objective outcome of portfolio decisions by individuals and firms in the countries at issue -- are generated by manifestly different and independent processes, they almost certainly have no idiosyncracies or biases in common. Thus it is a good sign for CIM, and for the subjective measures, that CIM's correlations with these complementary measures of institutional quality are fairly high and remarkably consistent (at .62 or .63). Each type of measure adds credibility to the other.

This is one of the reasons why it is useful to have a new and objective measure of the quality of institutions and governance like CIM. It also has the virtue of being readily available on a timely basis for a large number of countries (and for many of them the data go back quite a number of years). The literature contains only a few other useful objective measures or proxies for the quality of institutions. The political violence indicators (used, for example, by Barro, 1991) are objectively-measured proxies for institutional quality and property rights. Reverse causality is a possible problem here, however, since Alesina et al. (1996) have found that poor economic performance increases the likelihood of **coups**. The prevalence of violent executive transfers is another useful objective measure, but it obviously does not offer anything like a complete measure of the enforceability of contracts between private parties and the security of private property.

Since CIM appears to be both a credible and a useful new measure of the quality of a country's institutions and economic policies, we proceed to test its relationship to economic outcomes.

³ For example, South Africa has the 3rd-highest value, while Malawi ranks above Belgium.

V. Governance and the Size of Finance and other Contract-dependent Sectors

The first of the hypotheses derived from our framework was that those sectors of the economy that are especially dependent on contract enforcement should be relatively larger in those countries with better contract enforcement and property rights. The insurance industry is exceptionally dependent on contract enforcement, since those who pay premiums receive nothing on the spot and can benefit from insurance only if the policy contract is honored when there is a valid claim. Accordingly, we obtained data on insurance premiums as a percent of Gross National Product up to 1994 from the International Insurance Council and tested whether CIM and other measures of institutional quality predicted average insurance premiums (from the five years 1990 through 1994) over GDP for the period. Since the demand for insurance may be related to income and wealth, we controlled for per capita GDP (1990). As Table 1 shows, there is a statistically significant positive association between CIM (and ICRG and BERI) and the relative size of the insurance industry. Each 10-percentage point rise in CIM is associated with a rise in the insurance share of GDP of about 1.2 percentage points -- a sizeable amount in relation to the mean size of the insurance sector of 4 percent of GDP.

To obtain the broadest reasonable measure of the industries that are especially dependent on contract enforcement, we took the aggregate of the finance, insurance, real estate, and business services sectors as a percentage of GDP from the UN National Accounts data. This measure was available for more countries and years than was the insurance data, so we use the average of this variable over the 1980-90 decade as the dependent variable in equation of Table 1. Again, **all** three of the measures of institutional quality are positively related to the size of the financial sector, holding per capita income (1980) constant, and all but one of the relationships is statistically

Table 1
Contract Intensive Money and the Financial Sector

Equation	1	2	3	4	5	6
Dependent variable:	Insurance/GDP 1990-94			Finance/GDP 1980-90		
Constant	-17.060 (2.498)	-6.184 (4.114)	-8.555 (3.083)	-12.516 (2.515)	-8.664 (4.196)	-13.727 (7.020)
Initial (log) GDP per capita	1.679 (0.456)	0.634 (0.626)	0.574 (0.556)	1.822 (0.447)	1.812 (0.529)	2.860 (1.111)
CIM	7.682 (2.765)			11.007 (2.686)		
ICRG		0.135 (0.044)			0.333 (0.077)	
BERI			1.134 (0.304)			0.251 (0.462)
Adj. R ²	.47	.41	.56	.41	.38	.27
N	57	68	47	104	58	43
Mean, D.V.	3.90	3.87	4.15	10.7	10.5	12.3

Standard errors (in parentheses) are computed using White's heteroskedastic-consistent variance/covariance matrix. Finance/GDP is the percentage of GDP accounted for by finance, insurance, real estate and business services, from UN National Accounts data.

significant.⁴

The elemental importance of contract enforcement and the foregoing relationships is evident from the way they help solve some uncertainties in the literature about the direction of causality. In an already well-known article, King and Levine (1993a) find that there is a strong statistical association between various measures of financial development and economic growth. We agree with King and Levine that financial institutions play a useful role in mobilizing capital and allocating it across enterprises. Yet this fact and the strong statistical relationship between financial development and growth do not tell us the direction of causation. Since an economy with high levels of investment and growth needs more financial services, economic growth could bring about an increase in financial development even if financial development had no causal significance for growth. Though King and Levine show that financial development is associated with growth and investment in later periods, this does not rule out the possibility that the measures of financial development are endogenous, since the formation and expansion of banks and other financial intermediaries is influenced by expectations about the future.

Accordingly, we ask: What market failures or defects in public policy would keep a country from having enough financial development in the first place? When, because of some market failure or policy defect, a country's financial sector is smaller than optimal, then it makes theoretical sense that policies that expanded that sector should generate growth, whereas if there is not any such failure in the country the size of its financial sector probably reflects an optimal adaptation to the economy's income, rate of investment, and so on.

Because we consider collective choice as well as microeconomics -- and deploy new cross-country data on contract enforcement -- we are able to provide new evidence on the direction of

⁴ Probably some of the effects of better contract enforcement are due to its influence on the habits and expectations of a country's population. Knack and Keefer (1997) find some tendency for countries with better institutions to have higher levels of interpersonal trust.

causation. Basic microeconomic logic and the accumulated learning of the economics profession tell us that market forces are very strong, so we expect that self-enforcing markets will work in a variety of environments. But markets by themselves may fail to provide third-party enforcement of contracts. Governments can provide this enforcement, but the theory of collective choice tells us that government failure is very common. Thus we hypothesize that many governments fail in varying degrees to make up for the market's failure to provide third party enforcement and that the more a country's government fails in this the less the relative importance of contract-intensive industry in that country. Since poor contract enforcement in a country is normally due to inadequacies of its politics, bureaucracy, and legal system, which **often** do not change with fluctuations in income, it is also much less likely to be determined by income than is the size of the financial sector.

In each country, the public decides, given its assessment of contract enforcement and governance in that country, whether to deposit its money in contract-intensive forms or in currency. The strong correlation between **CIM** -- and also the subjective measures of institutional quality -- and the relative size of the insurance and finance sectors, therefore completes the cross-country causal chain. That is, the countries that fail to enforce contracts tend to be the *same* countries that have the least financial depth. Moreover, this is not only due to their lower levels of income, since it was shown in regressions in which we controlled for the level of per capita income. Since better contract enforcement clearly generates more financial development at any given level of income, it is now safe to conclude that King and Levine's strong statistical association between financial development and growth is not merely an **artefact** of the tendency for the financial sector to **grow** as income increases, but also reflects, at least in part, a causal chain running **from** contract enforcement to financial development to economic growth.

In another article (1993b), King and Levine point out that discriminatory taxation or other

repression of the financial sector could make this sector inefficiently small. This could create an additional causal connection between a lack of financial development and poor economic performance. They do not, however, offer any data on whether any such discrimination varies across countries in a way that could help explain the connection between financial depth and growth. But it is possible that it does, and if so, then financial depth would have an impact on growth beyond that which stems **from** contract enforcement. In any event, contract enforcement, as we shall later see, has **sizeable** effects on economic performance that are separate **from** its impact on financial development.

The foregoing logic and evidence corroborate what we learned from looking at how CIM changed with dramatic political developments and at its correlation with subjective measures of institutional quality: CIM, even though it is derived from data in the money markets, is a measure of the quality of governance and institutions that partly determines the degree of financial development, but not a reflection or measure of financial development. We obtained still further evidence of this through a factor analysis of many different measures of “quality of governance and institutions,” on the one hand, and “financial development” on the other. We included four indicators of financial depth used by King and Levine (1993a), CIM, and six alternative measures of institutions in the factor analysis. The variables break down into two factors, with all six alternative governance indicators loading on one factor, and all four King and Levine variables (including M_2/GDP) loading most heavily on the other factor. As expected, CIM loads most heavily on the institutional factor?

VI. CIM and the Level of Income and Wealth

The second hypothesis generated by our argument is that the better are institutions as

⁵ These results are available from the authors on request.

measured by **CIM**, the greater the degree of specialization and the gains from trade and the higher the level of capital accumulation, productivity, and per capita income. We can impartially test this hypothesis by using the specifications introduced by Hall and Jones (1996) in their study of the determinants of income per worker in 1988. Hall and Jones include the ICRG index of property rights first deployed by Knack and Keefer (1995) along with several other independent variables listed in the note to our Table 2. We replicate their regressions for the countries in their sample for which **CIM** data are available, except that we replace ICRG with **CIM** in one case, and include both ICRG and **CIM** as regressors in another. Coefficients and standard errors for **CIM** and ICRG (but not for the other Hall-Jones regressors) are shown in Table 2. Adjusted R-squares in the first two rows of the top panel of Table 4 show that **CIM's** explanatory power slightly exceeds that of ICRG. The third row shows that each variable's significant relationship with income per worker survives when both are included together.

The second panel replicates their regressions of their estimates of capital stock per worker on the same independent variables and reveals broadly similar results. The third panel replicates the Hall-Jones schooling equation, in which they use the **Barro-Lee** attainment measure for 1985 as the dependent variable. Again, **CIM** (with or without ICRG in the model) is significantly related to factor accumulation. Finally, Hall and Jones estimated total factor productivity as a residual, regressing these estimates on the same set of independent variables. The bottom panel of **Table 2** shows that TFP is significantly related to **CM** (but not to ICRG).

The correlation between **CIM** and the level of economic development does not depend on the Hall-Jones specification; we obtained similar results with other specifications.

VII. CIM, Investment, and Growth

If countries have relatively large stocks of capital and high per capita incomes, that will tend

Table 2
 CIM and Levels of Output. Factor Accumulation and TFP
 Summaries of Regression Results

	CIM	ICRG	R ²
log output/ worker, 1988		1.938 (0.411)	.78
	1.852 (0.384)		.79
	1.393 (0.422)	1.274 (0.428)	.80
log capital/ worker, 1988		3.446 (0.685)	.69
	4.143 (0.569)		.74
	3.504 (0.656)	1.772 (0.735)	.75
school/ worker, 1985		8.356 (1.245)	.74
	5.736 (1.204)		.70
	3.290 (1.203)	6.787 (1.336)	.76
log TFP, 1988		0.488 (0.299)	.66
	0.816 (0.312)		.68
	0.773 (0.339)	0.120 (0.319)	.67

Cells of table report coefficients for CIM and M_2 /GDP. White-corrected standard errors are in parentheses. Other independent variables in every equation are: latitude (distance from the equator), percent English-speaking, percent speaking another "international language," dummies for "capitalist-statist" and "capitalist" systems ("statist" is reference category), and fraction of years from 1950-94 with open economy (from Sachs and Warner, 1995). Sample size is 110.

to reduce the marginal productivity of further investment and limit any opportunities for rapid “catch up” growth through adopting superior foreign technologies. Since a high CIM ratio is associated with high levels of capital accumulation and per capita income, this consideration by itself would tend to make for a negative correlation between **CIM** and investment and growth. Nonetheless, our framework and third hypothesis predict that, at least when the level of per capita income is controlled for, the CIM ratio should be positively associated with growth and, especially, investment, because good contract enforcement and property rights make it easier to mobilize capital for investment and innovation.

We therefore enter contract-intensive money into widely-used cross-country investment and growth regressions. The independent variables we employ in addition to **CIM** are conventional in this literature (see Barro, 1991, and Levine and Renelt, 1992). One of these is initial GDP per capita. As it increases, this should, for the reasons set out in the previous paragraph, lower the productivity of additional investment and the rate of growth. The other independent variables in this specification are the price level of investment goods relative to U.S. prices and 1960 school enrollment. Though Pritchett (1996) finds that school enrollment is not a good proxy for the stock of educational capital and that increases in the stock of educational capital do not predict increases in output, this conventional specification may nonetheless be justified. School enrollment may be a proxy measure of the desire and capability of a country’s government to provide public services to the population as a whole. (The foregoing variables are defined, and data sources provided, in Appendix A; descriptive statistics are in Appendix B.)

The regression results on the determination of the ratio of investment/GDP, averaged over the 1969-1990 period for which CIM data are consistently available for a large sample, are shown in Table 3. Equation 1 shows a strong, positive, and highly significant relationship between **CIM** and investment. Results for **CIM** are very similar for a sample of developing (non-OECD) nations only

Table 3
Contract Intensive Money and Investment/GDP

Equation	1	2	3	4
Constant	-5.553 (7.194)	1.451 (7.796)	-4.463 (6.904)	-4.757 (6.353)
Log 1969 GDP per capita	0.988 (1.226)	0.022 (1.353)	1.029 (1.218)	0.585 (1.104)
Primary enrollment, 1960	5.134 (2.679)	5.691 (3.203)	6.193 (2.673)	3.993 (2.6 10)
Secondary enrollment, 1960	9.033 (4.782)	5.920 (6.531)	7.379 (4.749)	4.692 (4.600)
Price level of inv. goods, 1969	-3.312 (1.072)	-3.339 (1.053)	-3.284 (1.234)	-2.962 (1.229)
Contract-Intensive Money, 1969-90	17.917 (5.075)	17.256 (5.414)	17.280 (5.059)	18.065 (4.882)
Currency Deprec., Mean, 1969-90			-10.513 (3.918)	-3.954 (4.252)
M ₂ /GDP, 1969-90				9.649 (2.924)
Adj. R ²	.63	.46	.65	.68
N	96	74	96	96
Mean, D.V.	18.3	15.3	18.3	18.3

Standard errors (in parentheses) are computed using White's heteroskedastic-consistent variance/covariance matrix.

in equation 2, indicating that CIM is not merely capturing broad differences between the groups of developed and developing nations. To ensure that inflation's effects on currency demand do not influence our results, we add a measure of inflation in equation 3 and succeeding specifications.⁶ This is the depreciation in the real value of money introduced by Cukierman and Webb (1995), i.e., $DEP = INF/(100+INF)$, where INF is the rate of inflation in percent. (We consider inflation in detail later). Its inclusion leaves the CIM coefficient essentially unchanged.

In equation 4, we add King and Levine's primary measure of financial depth, M_2/GDP . The CIM coefficient remains unchanged. This suggests that the institutions that enforce contracts influence investment not only (as we showed in Section V) by increasing financial depth, but through other channels as well.

Standardized estimates of CIM's association with investment compare favorably with those of other independent variables. A one-standard-deviation increase in CIM (i.e. an increase of .14) in equation 4 is associated with an increase in investment as a proportion of GDP of .28 standard deviations, or more than 2.5 percentage points. This effect exceeds the impact of the price of investment goods (-.20), and the combined impacts of primary (.16) and secondary (.11) education.

Since CIM and economic performance are measured contemporaneously in our analysis, our correlations conceivably may capture effects of the latter on the former. Accordingly, we substituted the initial-year (1969) value of CIM for its 1969-90 average. The coefficient for initial CIM is very close to that for the period average, and is higher than that for the end-of-period (1990) CIM value, indicating that our estimates are not biased upward by reverse causality.

Adding other regressors such as population growth, indicators of trade openness, and government size similarly leaves the CIM coefficient substantially unchanged. Finally, we obtain

⁶ A "monetarist" interpretation of CIM also suggests that real interest rates should be controlled for. Doing so only trivially affects the CIM coefficient and at a substantial cost in sample size due to gaps in the interest rate data. Regressions reported here thus do not include the real interest rate.

similar results for **CIM** when we substitute for total investment certain of its components, namely the average of private investment/GDP for 1970-85 as constructed by **Barro (1991)**, and the average of equipment investment/GDP for 1975-85 as estimated by **DeLong and Summers (1991)**.⁷

Growth equations are reported in Table 4. Since the error variance in OLS regressions exhibits a strong correlation with (initial) per capita income (see Figure 1),⁸ we used weighted least squares in growth equations shown in Table 3.⁹ The growth regressors are the same as those used for investment except that the price of investment goods is omitted.

Again, results indicate that contract enforcement is important for growth. In equations 1-4, which parallel the identically-numbered equations in Table 3, **CIM** is positively and significantly related to growth. Its association with growth -- as with investment -- is not sensitive to the exclusion of developed nations, or to the inclusion of currency depreciation or M_2/GDP . Each one-standard-deviation increase in **CIM** is associated with an increase in annual per capita growth of about 0.6 percentage points.

Equation 5 omits the school enrollment variables. If our suggestion that school enrollment is partly a proxy measure of the extent to which a country's institutions and policies serve the population, this omission should considerably increase the **CIM** coefficient. As we expect, the **CIM** coefficient rises by one third when the schooling variables are omitted in equation 5.

The addition of investment/GDP as a regressor in equation 6 indicates that much of the

⁷ Results described in this paragraph are available on request. We use total investment from Summers and Heston (1991) as our primary investment variable because it is likely measured more accurately than are estimates of private or equipment investment.

⁸ A similar pattern was found when the error variance was regressed against the Summers and Heston (1991) data quality grades (transformed into a log-point interval scale), instead of initial GDP per capita, suggesting that greater measurement error among poorer countries may be responsible for the greater error variance at low levels of income. Similar plots from investment equations displayed no such correlations with the error variance.

⁹ The **CIM-growth** association is somewhat weaker when we use OLS instead of WLS.

Table 4
Contract Intensive Money and Per capita income growth, 1969-90

Equation	1	2	3	4	5	6	7
Constant	5.356 (2.107)	8.090 (2.764)	6.772 (2.082)	6.889 (2.053)	0.074 (1.670)	7.076 (1.875)	6.675 (2.063)
Log 1969 GDP per capita	-1.287 (0.339)	-1.658 (0.453)	-1.403 (0.329)	-1.476 (0.326)	-0.352 (0.271)	-1.399 (0.296)	-1.237 (0.340)
Primary enrollment, 1960	2.393 (0.822)	2.160 (1.242)	2.660 (0.795)	2.196 (0.821)		1.546 (0.754)	2.742 (0.796)
Secondary enrollment, 1960	2.986 (0.907)	3.114 (2.241)	2.719 (0.876)	2.735 (0.864)		2.064 (0.801)	3.124 (0.924)
CIM, 1969-90	4.559 (2.118)	4.613 (2.437)	4.404 (2.036)	4.531 (2.009)	6.028 (2.224)	2.292 (1.887)	2.108 (2.002)
Currency Dep., 1969-90			-3.698 (1.267)	-2.648 (1.366)	-3.621 (1.388)	-2.195 (1.184)	
M2/GDP, 1969-90				1.241 (0.654)			
Investment/GDP, 1969-90						0.110 (0.023)	
Adj. R ²	.23	.15	.29	.29	.13	.43	.21
N	96	74	96	96	96	96	102
Mean, D.V.	1.82	1.17	1.82	1.82	1.82	1.82	1.85

All equations are weighted least squares, using 1969 GDP per capita as the weight variable.

impact of the contract enforcement and governance as measured by **CIM** is through investment effects rather than through efficiency effects. The **CIM** coefficient in equation 6 is only one-half its value in equations 1-4. This result is consistent with the theory on which this paper is based.

Substituting initial (1969) **CIM** for the period average results in a slightly larger coefficient on **CIM**. However, the coefficient for end-of-period (1990) **CIM** is even larger, so that evidence on reverse causation is more ambiguous in the case of growth than in the case of investment.

Unlike the **CIM**-investment relationship, the association between **CIM** and growth is somewhat sensitive to the exclusion of influential observations. Equation 7 in Table 4 adds countries not included in equations 1-6 due to missing data on currency depreciation and M_2/GDP . Malta and North Yemen, with rapid growth (5.8% and 5.7% respectively) and low **CIM** (.60 and .32) are responsible for a sizeable drop in the coefficient of **CIM** in this sample. North Yemen is a particularly influential observation, as its deletion alone increases **CIM's** coefficient from 2.1, in equation 7, to 3.0. Despite a mean per-capita growth rate exceeding 5 percent annually over the period, North Yemen's average **CIM** of .32 is the lowest in the sample. Over this period, most of Yemen's impressive growth performance is apparently due to extraordinary increases in remittances from its workers in other countries and to inflows of foreign aid following the early 1970s oil price increases.¹⁰ Most of the remittance money remains as currency and never enters Yemen's relatively backward banking system (Burrowes, 1987), and this lowers its **CIM** ratio. Accordingly, **CIM's** connection with growth is probably measured more accurately by the equations that exclude Yemen.

The foregoing tests were cross-sectional tests on country averages from 1969-90. In part because our focus here is not as much on short-term policy changes as on continuing institutions

¹⁰ Approximately one-third of Yemen's labor force is estimated to have worked abroad for most of the 1970s and 80s, mostly in Saudi Arabia. Per capita income is estimated to have fallen substantially after the war-related expulsion of about 850,000 Yemenis from Saudi Arabia in late 1990.

for contract enforcement and property rights that, in stable environments, should not change much **from** year to year, we have not, in general, run tests treating each country-year in our sample as a separate observation. We can, nonetheless, construct severe tests of **CIM**'s significance by focusing only on the idiosyncratic variations over time in **CIM**, investment, and income in each country. We do this using two-way fixed effects models, with country and year effects, both with the annual data and with decade averages. These tests should capture mostly any connections **CIM** has with short- and medium-term changes in policy and with the less stable countries where there are major institutional changes in a given year or decade. We find that variations over time within countries in **CIM** are significantly correlated with changes in investment, but not with changes in growth.

VIII. Possible Objections

Partly with the help of critics, we identified three possible problems with the foregoing results that seemed, at first, as though they might be serious. In each case we examined the possible problem in great detail and ran a large number of statistical tests -- so many that, if we discussed them here, this paper would be impossibly long. In every case it also turned out that the possible objection could be categorically dismissed. Thus we do not include a full account of this work here, but readers who want it may obtain it **from** the authors.

The first possible problem was that **CIM** might be an artifact of inflation, interest rates, or monetary policies. On reflection, it is obvious that, since inflation reduces the value of money and raises nominal interest rates, it provides an incentive to **shift** money **from** currency and non-interest bearing accounts into interest-paying time deposits. This increases **CIM**. On the other hand, with very high rates of inflation there is greater uncertainty about the rate of inflation and even about the viability of the existing governmental and financial institutions. This makes deposits in

financial institutions, and especially deposits with limits or penalties on timing of withdrawals, riskier, and tends to reduce CIM. We found **from** statistical tests that when the rate of inflation was very high -- above about 60% per year -- it reduced CIM. But below this level higher rates of inflation increased CIM. Given that inflation reduces economic efficiency, this makes the positive association between CIM and investment and growth more remarkable.

The second possible problem was that, if high levels of currency use coincide with a rising share of the black market economy in true GDP, the positive correlation between CIM and growth might be **spurious**.¹¹ Though greater dependence on currency, which will show up as a low level of CIM, may be associated with a high level of **black** market activity, there is little reason to believe that low levels of CIM will be associated with *increases* in the underground share of GDP. In fact, we found in exploring this issue that countries with below-average levels of CIM (averaged over 1969-90) exhibit larger *increases* in CIM (i.e., a *falling* share of the black market economy in GDP, if CIM is a proxy for such activity). We found in further tests that CIM is correlated even more strongly with an alternative measure of growth that is not subject to bias generated by **mis-**measurement of the underground economy.¹²

The third possible problem was that CIM is a proxy for savings? Countries with high savings rates (due, for example, to age profiles of their populations) might, because time deposits and other financial instruments are better vehicles for saving than currency; have **high values of CIM**. Since national saving rates are highly correlated with national investment rates, the association of CIM with investment might be a product of these influences. We tested **this**

¹¹ **Tanzi** (1982) has used M_2/GDP as a proxy for the size of the underground economy.

¹² This measure of growth was **constructed** from data on **energy** and calorie consumption, which **explain** 83% and 87% of the variation in GDP per capita in 1969 and 1990, respectively. Although measurement **error** is likely higher in our estimated growth values **than** in the usual measure, there is no reason **why this error** should be correlated with CIM.

¹³ We owe this suggestion to Brian Fikkert.

argument by **running** a fixed effects regression, with time and country dummies, of the annual observations of **CIM** on income and saving, and found that, in a variety of specifications, the coefficient of saving was extremely small. We also found that **CIM** is a strong predictor of certain components of total investment -- private investment and equipment investment -- that are particularly sensitive to the quality of governance and that are not forced, through accounting identities, to be as strongly associated with savings rates as is total investment. Still other tests further confirmed that the coefficient of **CIM** in our investment equations is not driven by exogenous variations in saving.

IX. Conclusions

Some assumptions are so elemental or even unconscious that they are not usually even stated explicitly or introduced as axioms in formal theorizing. Mostly, economists and the laity alike have taken it for granted that, unless they are prohibited or repressed by government, the markets that a society needs will exist. Economists recognize that the transactions costs of some potential trades would exceed the gains that they would bring and that rational parties will not undertake such trades, but these trades would not be consistent with economic efficiency in any case. The range of markets needed for a successful market economy are taken for granted because markets are tacitly assumed to be natural and spontaneous phenomena rather than artificial contrivances or creatures of government. Thus most analyses of the determinants of long-term interest rates and of firms' decisions about capital intensity, whether in undergraduate textbooks or in the most imposing formal treatments (e.g., Debreu, 1979), do not mention any institutional or governmental prerequisites for capital markets and, implicitly, take the existence of these markets as given.

We claim to have shown in this paper that this implicit assumption is profoundly **wrong**.

Though the markets for self-enforcing transactions emerge spontaneously and bring some gains from trade everywhere, these markets bring only a part of the possible gains from specialization and trade. Many of the markets that a society needs if it is to develop and achieve its economic potential are missing in most countries. It is only countries where governments give private parties the capacity to make credible commitments that they could not otherwise make, and thereby achieve gains from trade that they could not otherwise obtain, that achieve their economic potential.

We show this empirically by introducing a new and objective measure of the extent to which a country has a market-augmenting government: the proportion of “contract-intensive money,” $(M_2-C)/M_2$. CIM varies in the expected way with major changes in politics and governance. CIM is also correlated with other measures of the quality of governance and institutions that are obtained by subjective procedures and thus should have no biases or other shortcomings in common with it. CIM is available for many countries and for long periods and offers a valuable new resource for empirical studies.

According to our theory, it is only when transactions are self-enforcing that markets work by themselves, but government failure to provide third-party enforcement is commonplace. In countries where government fails in this respect, there is a double failure that is especially bad for contract-dependent industries such as insurance and finance, and these industries will be relatively small. In fact, as the theory predicts, the countries with relatively high values of CIM -- and relatively high scores on other measures of quality of governance -- have relatively more insurance and financial development. This is true even though we control for the level of per capita income. Thus we provide a more fundamental explanation than has previously been offered of the correlation of financial development with growth and also demonstrate that there is a causal **arrow** running from contract enforcement to financial development to economic growth

Governments that give their citizens the capacity to obtain more gains from trade and

specialization also improve economic performance in other ways. We have seen, using the **Hall-Jones** specification, that **CIM** is strongly associated with the size of the capital stock, the level of per capita income, and the total factor productivity of countries. Similar results emerge with other specifications.

Though countries with a high level of **CIM** already tend to have relatively more capital and higher incomes, they nonetheless, at least when the level of per capita income is held constant, tend to obtain higher rates of economic growth and, especially, higher rates of investment. Detailed examination of a variety of factors that might make these relationships spurious shows in every case that they are not.

We have seen that governments vary enormously in the extent to which they do or do not enforce contracts and protect property and thereby vary in the extent to which they fail to perform positive functions for which they are needed. In addition, governments vary greatly in the extent to which they introduce needless distortions of markets. Though there is not a strong cross-national correlation between government size and growth, there are nonetheless many compelling reasons to believe that this variation is also important for economic performance (see, for example, **Bhagwati 1982, Easterly 1993, Krueger 1974, Murphy, Shleifer, and Vishny 1991, Olson 1982, Posner 1975, Sachs and Warner, 1995, Tullock, 1967**).

There is no space here to set out the theory of **collective** choice that predicts that the same governments that introduce the worst distortions of markets will usually also fail to perform the positive **functions** for which governments are required -- that sins of commission and omission by government tend to go together -- or to present the empirical evidence that this is in fact the case. These are tasks for another paper. But there is perhaps a hint of this in the absence of any very strong relation between government size and growth: the same governments that introduce the most distortions skimp on providing public goods such as an effective legal order. If it is accepted that

bad governments not only do less good but also inflict more harm, then it follows that variations in the quality of institutions and economic policies have a gigantic impact on economic performance. Using other types of evidence, Parente and Prescott (1994) and Olson (1996) attempt to show that cross-country variations in the quality of governance explain much more of the international differences in economic performance than either endogenous growth models or the neoclassical growth theory that descends from Robert Solow (1956, 1957).

Whatever the relative importance of different paradigms may be, we conclude that, to obtain a wide array of gains from trade and specialization, a populous society needs a government that impartially protects and precisely defines the rights of all participants – corporate as well as individual, foreign as well as domestic – in the economy. If the gains from transactions among individuals of modest means are to be reaped, a government must be efficient enough to enforce the law and provide low-cost justice to those who would otherwise be outside the formal economy. It must be strong enough to keep even the largest enterprises and strongest Mafiosi from infringing on the rights of weaker parties. It must also be so strong that it is expected to last at least as long as the longest-term loans, the most durable assets, and the longest-lived corporations.

It must, while it has undisputed authority and enduring strength, also refrain from infringing on the rights of those subject to it. The same strength a government needs to guarantee the full range of transactions gives it the capacity to seize any property, nullify any contract, or distort any market – government is not only an indispensable provider of the institutions and other public goods required to achieve the full range of gains from trade and specializations, but also the greatest threat to property, to contracts and to markets. This combination of government that is so strong that it will have undisputed authority for an indefinitely long future and – at the same time – so inhibited that it will respect the rights and freedoms of all those that are subject to it, is rather rare. So are economies that achieve their potential.

Appendix A
Descriptive Statistics (96-country sample)

	Mean	Standard deviation
Growth, 1969-90	1.45	1.89
Inv/GDP, 1969-90	18.3	5.7
GDP per capita, 1969	3179	3120
Primary enrollment, 1960	0.74	0.34
Secondary enrollment, 1960	0.21	0.21
Price of inv. goods, 1969	0.96	0.57
CIM, 1969-90	0.77	0.13
Currency depreciation, 1969-90	0.13	0.11
M ₂ /GDP, 1969-90	0.43	0.25

Appendix B
Averages 1969-1990 of Selected Variables

Country	CIM	CIM*	GROWTH	INV/GDP	DEP	M2/GDP	GDP1969
Finland	0.949	0.039	3.032	37.007	0.082	0.452	7522
Japan	0.945	0.045	3.686	38.146	0.051	1.459	6842
South Africa	0.943	0.136	0.462	20.777	0.112	0.593	2896
Canada	0.943	0.002	2.625	26.401	0.065	0.633	10034
Iceland	0.940	0.048	3.338	30.257	0.243	0.310	6426
Australia	0.936	-0.011	1.447	11.216	0.084	0.590	10556
Denmark	0.932	-0.004	1.725	27.530	0.072	0.502	9607
United States	0.930	-0.037	1.726	23.668	0.058	0.657	12806
Swaziland	0.928	0.155	0.168	18.266	0.107	0.353	2210
Israel	0.922	0.046	2.192	26.124	0.348	0.627	5459
Trinidad	0.916	0.013	0.933	13.850	9.107	0.444	7014
Zimbabwe	0.914	0.221	1.168	16.335	0.095		1007
Venezuela	0.913	0.004	-1.222	19.606	0.128	0.452	7437
United Kingdom	0.913	-0.004	2.336	20.419	0.090	0.576	8001
France	0.912	-0.018	2.049	29.508	0.073	0.723	9062
Germany	0.908	-0.022	2.228	28.990	0.037	0.628	9080
Netherlands	0.907	-0.020	1.821	U-392	0.046	0.771	8778
Italy	0.905	-0.001	2.602	28.525	0.105	0.877	7270
Botswana	0.902	0.228	6.751	27.338	0.099	0.297	834
Brazil	0.898	0.120	2.725	21.285	0.477	0.270	2204
Austria	0.895	4.030	2.757	28.573	0.046	0.748	7207
Spain	0.890	0.007	2.379	28.303	0.107	0.768	5864
Jamaica	0.884	0.087	-0.429	21.489	0.139	0.457	2629
Norway	0.882	-0.035	2.938	33.400	0.074	0.587	8035
Sweden	0.879	-0.065	1.629	25.158	0.077	0.505	10295
Ireland	0.878	0.020	3.180	28.985	0.095	0.563	4657
Switzerland	0.877	-0.089	1.424	32.070	0.040	1.130	12612
Korea, Rep. of	0.816	0.142	7.214	29.347	0.098	0.474	1467
Barbados	0.872	0.020	2.829	13.549	0.088	0.429	4388
Malaysia	0.867	0.111	4.813	27.555	0.043	0.788	1785
Fiji	0.863	0.082	2.375	18.836	0.083	0.370	2268
Cyprus	0.863	0.029	3.714	28.975	0.059	0.724	3709
Singapore	0.854	0.048	6.418	38.245	0.042	0.890	2849
Zambia	0.853	0.159	-1.763	20.500	0.197	0.347	1015
Kenya	0.851	0.197	1.273	16.733	0.100	0.379	698
Mexico	0.847	0.010	1.642	18.143	0.260	0.285	3810
Portugal	0.847	0.035	3.673	24.842	0.148	0.901	3017
Papua New Guinea	0.847	0.089	-1.388	18.933	0.068	0.314	1831
Thailand	0.836	0.108	4.454	19.958	0.064	0.493	1386
Chile	0.834	0.005	0.560	13.960	0.032	0.072	3549

Country	CM	CM*	GROWTH	INV/GDP	DEP	M2/GDP	GDP1969
Philippines	0.832	0.105	1.137	17.362	0.122	0.293	1379
Costa Rica	0.829	0.032	1.513	18.665	0.145	0.363	2633
Malawi	0.825	0.217	0.442	12.525	0.137	0.244	452
Belgium	0.821	-0.095	2.548	24.963	0.056	0.598	7965
Colombia	0.813	0.045	2.210	17.029	0.182	0.251	2003
Guyana	0.812	-0.061	-1.739	20.838	0.128	0.732	1719
Greece	0.812	-0.027	2.553	26.747	0.141	0.746	3907
Mauritius	0.811	0.014	3.647	11.694	0.099	0.483	2629
Iran, Islamic Rep.	0.811	-0.025	0.057	22.330	0.132	0.449	3763
Turkey	0.805	0.030	2.617	24.748	0.267	0.288	2142
Bangladesh	0.798	0.103	0.834	3.562	0.124	0.216	1013
Uruguay	0.793	-0.042	0.629	18.365	0.375	0.397	3749
Dominican Rep	0.792	0.061	1.688	19.183	0.141	0.255	1424
Sri Lanka	0.790	0.069	2.656	18.973	0.093	0.341	1304
El Salvador	0.787	0.033	-0.106	9.080	0.127	0.305	1776
Tunisia	0.786	0.065	3.736	15.908	0.066	0.445	1305
Honduras	0.780	0.071	0.543	13.806	0.072	0.270	1158
Guatemala	0.770	0.007	0.369	10.139	0.104	0.230	1922
Ecuador	0.767	0.005	1.872	24.523	0.186	0.212	1885
Argentina	0.766	-0.077	-0.693	13.240	0.620	0.270	4063
Paraguay	0.758	0.027	2.189	18.893	0.145	0.207	1426
Peru	0.755	-0.035	-0.901	19.495	0.422	0.207	24%
Gabon	0.742	-0.090	0.346	25.949	0.078	0.185	3644
India	0.739	0.090	2.285	17.804	0.075	0.374	661
Nigeria	0.737	0.094	1.002	14.920	0.149	0.227	628
Cameroon	0.721	0.043	1.641	9.652	0.086	0.195	875
Suriname	0.719	-0.088	-0.979	17.934	0.101	0.629	2879
Indonesia	0.717	0.067	5.082	22.256	0.110	0.198	668
Morocco	0.705	-0.014	2.182	12.185	0.073	0.451	1278
Haiti	0.704	0.035	-0.056	7.649	0.077	0.248	802
Benin	0.691	-0.010	-0.607	5.085		0.194	1076
Madagascar	0.689	-0.015	-2.361	1.540	0.116	0.214	1105
Mauritania	0.678	-0.015	0.376	5.620	0.071	0.245	998
	0.675	-0.009	-0.596	13.556	0.066	0.206	918
Pakistan	0.671	-0.012	1.877	10.951	0.086	0.415	917
Togo	0.671	0.040	0.498	20.345	0.062	0.319	562
Tanzania	0.670	0.071	0.983	16.343	0.172	0.321	419
Ivory Coast	0.659	-0.061	-0.443	11.490	0.080	0.291	1294
Algeria	0.642	-0.114	1.836	26.720	0.083	0.712	1809
Egypt, Arab Rep.	0.640	-0.058	2.639	5.695	0.114	0.685	1056
Uganda	0.639	-0.028	0.670	7.685	0.485	0.158	788
Nepal	0.633	-0.008	2.124	7.482	0.080	0.232	621
Somalia	0.632	-0.033	0.601	10.704	0.204	0.205	767

Country	CIM	CIM*	GROWTH	INV/GDP	DEP	M2/GDP	GDP1969
Sierra Leone	0.616	0.072	0.614	1.903	0.244	0.207	939
Rwanda	0.615	-0.018	0.667	4.928	0.075	0.145	572
Niger	0.605	-0.043	-1.714	7.870	0.058	0.133	658
Malta	0.604	-0.165	5.805	25.065	0.042		2030
Jordan	0.598	-0.151	1.468	20.150	0.083	1.112	1686
Zaire	0.594	-0.042	-1.863	6.070	0.324	0.096	585
Ghana	0.593	-0.089	-0.485	6.180	0.278	0.189	898
Congo	0.592	-0.131	2.908	10.345	0.074	0.175	1327
Burkina Faso	0.578	-0.023	1.089	12.084	0.055	0.141	424
Ethiopia	0.565	0.004	0.120	5.168	0.062	0.300	291
Gambia, The	0.565	-0.073	0.360	8.018	0.118	0.219	599
Burundi	0.555	-0.037	1.388	6.916	0.086	0.151	390
Bolivia	0.510	-0.228	0.251	16.550	0.311	0.179	1512
Guinea	0.467	-0.119	-0.150	12.442	-0.055		371
Mali	0.439	-0.148	1.588	7.432		0.193	374
Syrian Arab Rep.	0.435	-0.344	2.776	16.044	0.134	0.492	2229
Central African Rep.	0.371	-0.280	-0.955	6.635	0.031	0.181	677
Chad	0.366	-0.277	-2.607	3.656	0.013	0.180	631
Yemen	0.322	-0.300	5.676	10.578		0.611	519

CIM* = The part of CIM that is orthogonal to the log of 1969 real GDP per capita.

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