E C O N O M I C S B U L L E T I N

How much economic freedom is necessary for economic growth? Theory and evidence

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Abstract

The hypothesis that economic freedom and related variables are significant determinants of real per capita income and growth is critically evaluated. Economic freedom is found necessary for higher levels of per capita income and growth largely in terms of threshold effects as opposed to persistent marginal effects. More economic freedom does not appear to yield higher levels of per capita income. And securing particular levels of economic freedom does not guarantee higher levels of per capita income or growth. Secure private property rights is found to be a most significant positive causal variable as is sound money, whereas moderate amounts of labor regulation and big government are not found to be bad for the economy. Also, good corporate governance, in addition to economic freedom, is of considerable import. Unlike most studies, traditional statistical methods are supplemented by graphical analysis in an effort to determine threshold values for economic freedom and its components.

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1. Introduction

The focus of this paper is to critically evaluate the hypothesis that economic freedom is a significant causal variable in the determination of real per capita income. Although I do find that economic freedom is a necessary condition for the latter; this is largely in terms of threshold effects or critical values as opposed to persistent marginal effects. More and more economic freedom does not appear to yield higher levels of per capita income. Moreover, I find that the use of aggregate measures of economic freedom can generate misleading results given that they comprise different sub-indexes that do not always correlate in a similar fashion with per capita income. Of particular importance, the evidence suggests secure private property rights is a most significant positive causal variable, whereas the hypothesis that labor regulation and big government are bad for the realization of higher levels of real per capita income finds little empirical validation. Traditional statistical methods plus graphical analyses are used in this study.

In some of the recent applied literature on economic growth and development, where institutional variables are given some consideration in the modeling process, a key independent variable is what is broadly referred to as economic freedom. This variable is considered to be proxy measure for secure private property rights, where the latter is critically important to the New Institutional Economics (NIE) along the lines pioneered by North (1990) and Olson (1996, 2000). A key argument put forth in NIE is that such rights provide the incentives for individual agents to behave in a fashion wherein the private and social rates of return are equalized. This minimizes the incentives for agents to engage in rent seeking behavior thereby encouraging behavior which would maximize per capita growth. Similar points have been articulated much earlier (and largely ignored) by Hayek who argued for the establishment of an environment where de-centralized planning can take place though individual agency thus making optimal use of one the scarcest of resources necessary to the organization and functioning of economic life—knowledge. Secure private property rights facilitates independent economic agents making allocative decisions in a world of continuously moving disequilibria and imperfect information given extant and changing relative product and factor prices (Hayak 1945, 1967, 1989, 1991; see also Pipes 2000).

Implicit in some of the NIE literature is the hypothesis that competitive markets force efficient institutional change in terms of ideal configurations of property rights and, more generally, economic freedom. The more competitive are the markets, the more efficient will be the economy, ceteris paribus (see Parente and Prescott 2000, for detailed and explicit narrative on this point; see also Leibenstein 1966). Needless to say, making an economy more competitive is, itself, a function of institutional change. But given the state of competitiveness, the more secure are private property rights, the more efficient will the economy be. Thus, for the NIE, it is of considerable analytical importance to include a proxy for private property rights as an independent variable, *irrespective of market structure*, when testing for the importance of institutional variables for growth and development. In terms of theory and the causation, the NIE and econometricians testing the hypothesis that secure private property rights are critical, it is suggested that not only is this variable (and economic freedom writ large) a necessary condition for sustained per capita growth and economic development, but that the higher is the extent of secure property rights, the higher should be the level of real per capita income and per capita growth. It is implied that there is both a threshold effect and a marginal effect, where the latter is not subject to diminishing returns. In fact, the standard econometric analyses do not test for threshold effects and focus on the marginal effects (slope coefficients) and pay most heed to statistical significance, which has nothing to do with either of these effects nor with economic significance (Ziliak and McCloskey 2004; see also Altman 2004c).

2. Economic Freedom Index

Although secure private property rights is at the core of the NEI and the early Hayek, a typical and popular measure of economic freedom, the Fraser Institute's Economic Freedom Index (EFI), part of its Freedom of the World project (Fraser Institute 2007a) is an amalgam of indexes, only one component of which is a proxy for property rights.[1] The same is true of the Index of Economic Freedom (IEF) produced by the Heritage Foundation (Heritage Foundation 2007). These indexes are deemed to be of causal significance in affecting the level of per capita income. But given the nature of the aggregate index, EFI cannot test for the importance of secure private property rights per se. Nor can the IEF. Any identical aggregate index number across countries or for a given country over a set of years can have a different economic meaning if this index number is made up of *different* index numbers for its component parts. The index for secure private property rights might be either falling or rising as the aggregate index number for economic freedom increases or diminishes.

Given its practical importance for research, I focus on the Fraser Institute's EFI. But I also provide some comparative estimates derived from the Heritage Foundation's data base. The EFI is comprised of sub-indexes for the following variables (the Heritage Foundation's IEF is similarly constructed, but includes an additional index measuring the extent of corruption):

1. Size of Government: Expenditures, Taxes, and Enterprises (incorporating: general government consumption spending as a percentage of total consumption; transfers and subsidies as a percentage of GDP; government enterprises and investment; and top marginal income and payroll tax rates).
2. Legal Structure and Security of Property Rights (incorporating: judicial independence; impartial courts; protection of property rights; military interference in rule of law and the political process; integrity of the legal system; legal enforcement of contracts; and regulatory restrictions on the sale of real property).
3. Access to Sound Money (incorporating: money growth; standard deviation of inflation; inflation: most recent year; and freedom to own foreign currency bank accounts).
4. Freedom to Trade Internationally (incorporating: taxes on international trade; revenue from taxes on international trade as a percentage of exports and imports; mean tariff rate; standard deviation of tariff rates; non-tariff trade barriers; compliance cost of importing and exporting; size of the trade sector relative to expected; black-market exchange rates; international capital market controls; foreign ownership/investment restrictions; and capital controls).
5. Regulation of Credit, Labor, and Business (i. credit market regulations comprising: ownership of banks; foreign bank competition; private sector credit; interest rate; ii. controls/negative real interest rates; ii. labor market regulations comprising: minimum wages; hiring and firing regulations; centralized collective bargaining; mandated cost of hiring; mandated cost of dismissing; conscription; and iii. business regulations comprising: price controls; administrative requirements; bureaucracy costs; starting a business; extra payments/bribes; licensing restrictions; cost of tax compliance).

As a footnote to the empirical narrative below, it is important to observe that the Fraser Institute's and the Heirtage Foundation's perspective on the necessarily negative effects of minimum wages, unions, safety nets, and government (points 1 and 5 above), although very much part of the conventional wisdom is not universally adhered to. Labor market flexibility need not imply 'cheap' and weak labor.

[1] See the Fraser Institute's (2007b) Free the World link (http://www.freetheworld.com/papers.html) for a list peer reviewed papers using this Economic Freedom Index testing (and supporting the hypothesis) that economic freedom indeed is important to sustained economic growth and development.

For example, Baumol, Litan, Schramm (2007, 7) write: "…the importance of flexible labor markets cannot be overstated: if entrepreneurs cannot attract new labor, they cannot grow, nor will they want to grow if labor rules are overly restrictive (especially if rules limit the ability of firms to fire nonperforming workers or shed workers they no longer need)." Flexibility is related to the capacity of entrepreneurs to adopt changes that allow their corporations to flourish—they can't be forced to maintain workers if so doing will cause their firms long-term harm. Baumol, Litan, Schramm (2007, p. 91) also maintain that a social safety net can be positive for the economy since it reduces the extent to which workers can be expected to resist entrepreneurial innovations which can be devastating to individual workers in the absence of a safety net. A safety net therefore has both efficiency and social justice dimensions attached to it. Moreover, Lindert (1996) shows that state expenditure, so often inveighed against by many mainstream economists, need not negatively affect the economy. Its impact can even be quite positive. Much depends, as common sense would lead us to expect, on how funds are spent. Moreover, for the seeds of economic freedom to take root often requires government investment in public goods. In addition, there is a theoretical literature which suggests that cheap and weak labor can negatively impact of labor productivity and technological change whilst better-rewarded workers can have the opposite effect (Altman 1992, 1998, 2001, 2003, 2004a, 2004b, 2005, 2006, 2007).[2]

3. Economic Freedom and GDP

3.1 Basic Empirical Results

The empirical relationship between the EFI and its component indexes, and real per capita GDP (PCGDP) and per capita growth, is discussed in relation to Table 1 and Charts I to XV. Table 1 presents estimates for correlation and slope coefficients. The charts provide a more revealing analysis of the relationship between economic freedom and PCGDP, which goes beyond the mere average relationships specified by regression analysis. It is here that threshold effects are discussed. I also speak to the possible importance of governance to the determination of PCGDP levels (Chart XVI). It is assumed that either levels or growth rates of per capita GDP is the dependent variable. All data are derived from the data bases of the United Nations' Human Development Report (2006), the Fraser Institute's Economic Freedom Index (Fraser Institute 2007a), the Heritage Foundation's Index of Economic Freedom data base (Heritage Foundation (2007) and the World Bank's governance (Kaufmann, Kraay, Mastruzzi, 2007) data bases. All charts employ the Fraser Institute data for economic freedom. Real PCGDP estimates are for 2004 in 2004 United States purchasing power parity equivalents. The sample size of 133 countries (Appendix 1) was determined by the EFI data base and its compatibility with the Human Development Report data on PCGDP and per annum PCGDP growth rates. I use annual real GDP per capita growth rates for the 1990-2004 period and rely on the 2004 economic freedom estimates. Using the available data for the pervious few years would not affect my results.

Some have questioned economists' focus on the determination of per capita GDP. But the conventional wisdom perceives that this variable is an important proxy for socio-economic wellbeing. The HDI is an unweighted index of PCGDP, life expectancy, and education, where these component index numbers

[2] This last point is in part inspired by x-efficiency and efficiency wage theory pioneered by Leibenstein (1966, 1979). Contrary to the conventional wisdom, I assume that the quality and quantity of effort on the part of workers, managers and owners is a variable input affected by the overall incentive environment. Moreover, changes in labor costs are shown to impact on the rate of technological change. Particular forms of labor regulation can here have possible positive effects on per capita income and growth. Under these assumptions it is possible that competitive markets do not suffice to induce efficient institutional change (on this point see Altman 2006).

are scaled back at an increasing rate as one move towards the top of the scale. The HDI index is held to be, by many, a truer representation of wellbeing than PCGDP. However, the correlation (R^2) between PCGDP and the HDI ranking for 177 countries is 0.92. Chart I illustrates the tight relationship between these two variables. Clearly, per capita income matters substantively for a country's HDI ranking.[3] This especially the case if a nation is to move beyond the bottom 60 ranked economies, for whom this wide range of low rankings is consistent a narrow range of low PCGDPs. It is therefore possible to move up the bottom steps of the ladder of low-ranked countries with a given low level of per capita income largely through government policy making more effective use of scarce resources toward improvements in education and health; but beyond this per capita income must increase for socio-economic wellbeing to improve. And, it is hypothesized that extended the breath and scope of economic freedom is vital to achieve this end.

From Table 1 it is evident that there is a tight statistical relationship between economic freedom and PCGDP—a R^2 of 0.76. This is not, however, the case with all of the core components of the EFI. Sound Money and Freedom to Trade score in the high 0.50s whereas Economic Regulations, in the low 0.50s; but the Size of Government is a negative 0.05. Also a key sub-component of Economic Regulation, Labor Market Regulations scores an R^2 of only 0.23. The tightest fit is between PCGDP and the Legal Structure and Protection of Property Rights, with an R^2 of 0.82, where the latter variable is the de facto core of the New Institutional Economics' and of the early Hayek's causal hypothesis positively relating economic freedom to growth and development. The slope coefficients for linear regressions of PCGDP as a function of the EFI and its components are mainly large. For the EFI, there is a slope value of almost $8,000. Every one point increase in the EFI, which ranges from 0 to 10, statistically yields a $8,000 increase in PCGDP. For economic growth and the EFI the R^2 is much lower at 0.36 and at a similar level for its sub-components except for Economic Regulations, which is at 0.22 and Size of Government, at 0.05. Labor Market Regulation is only 0.03. Therefore, there is much more variation from the mean relationship when the dependant variable is economic growth. Nevertheless, it is clear that there is the 'expected' positive relationship between growth and economic freedom. The slope coefficient is almost 1.0; a one point increase in the EFI is correlated with a 0.9 increase in the annual growth rate. Such growth would increase PCGDP by about 9 percent in ten years. But once again the relationship between Labor Regulations and economic freedom and Size of Government and Economic Freedom is a trivial one. The Heritage Foundation's data yield similar results, but with even stronger negative results for government variables. Finally, both the Heritage Foundation's Corruption Index and the World Bank's Corporate Governance Index, which incorporates corruption, are very strongly and positively correlated with PCGDP, with large slope coefficients. This suggests that economic freedom itself, no matter how important, requires good corporate governance, if economic freedom is to facilitate sustained growth (Kaufmann 2003, 2005, 2007).

With regards to the slope coefficients that, for the EFI (and for the IEF), are economically significant for both PCGDP and growth, one must be wary about easily projecting, in a linear fashion, from changes in the EFI to changes in PCGDP. Graphical analysis suggests otherwise. It is also important to note that if one relates PCGDP to the marked increase in the EFI from 1990 to 2004, the R^2 is negative 0.33 for a percentage change and negative 0.31 for an absolute change in economic freedom. The R^2 is negative 0.88 and 0.08 respectively for per capita growth rates. This tests the hypothesis that changes in the extent of economic freedom drives differences in PCGDP with a time lag. These basic results at least suggest that, *on average*, increasing the extent of economic freedom, in terms of the EFI, was not

[3] See Davies and Quinlivan 2006 who discuss this tight relationship with international trade as the mediating variable between PCGDP and the HDI ranking.

economically important during this time frame wherein much per capita growth actually took place. It also points to the possible importance of thresholds of economic freedom that must be realized for higher levels of per capita GDP to be realized.

3.2 Threshold Effects

The thresholds effects are more analytically nuanced than traditionally discussed coefficients. What the graphed data on the charts suggest is that particular thresholds of economic freedom need be passed for a wide array of per capita GDPs and growth rates to be achieved. The marginal effects intimated by the slope coefficients do not seem to be all that important. Moreover, the value of the correlation coefficient indicates the importance of each threshold value for achieving higher levels of income and growth. The higher the R^2, the greater the number of thresholds that need be passed—the more linearity there is in the statistical relationship between the dependent and independent variables.

The EFI is scaled 0 to 10, with 10 representing the most economic freedom, where 10 is hypothesized to be the ideal by some scholars. With regards to the aggregate EFI and PCGDP (Chart II), an EFI of 5 to 6 is consistent with a PCGDP of between $5,000 and $10,000. Between $10,000 and $15,000 correlate with an EFI of close to 7, while an EFI of between 7 and 8 correlate with PCGNPs greater than $15,000. Going above 8 is not required to generate ever higher levels of per capita income. Moreover, achieving an EFI of between 7 and 8 is also consistent with very low PCGDPs. Therefore, certain levels of economic freedom might be necessary to achieve particular levels of per capita income, but they are far from sufficient. This latter basic finding holds true for each of the EFI sub-indexes.

In terms of Legal Structure and the Protection of Property Rights (Chart III), an EFI sub-index of 4 to 5 is associated with a PCGDP of between $5,000 and $10,000, while an EFI of 5 to 6 correlates with a PCGDP of between $10,000 and $15,000, although a few countries achieve per capita incomes that are even higher. An EFI of 6 to 7 correlates best to PCGDPs of between $15,000 and $30,000. Higher per capita incomes require even greater protection of property rights and a more conducive legal system. Unlike the other sub-indexes, the property rights sub-index is characterized by some statistical linearities between itself and the level of per capita income. It is also the case that with an EFI sub-index exceeding 7, PCGDP does not fall below some threshold—getting this sub-index high enough is correlated with the absence of low income economies. This is not the case for the aggregate EFI and most of the other sub-indexes.

Economic Regulation (Chart IV) between 5 to 6 is most closely correlated with a PCGDP of $5,000 to $10,000. Between 6 and 7, per capita income spans to close to $30,000, but can also reach to well below $5,000. PCGDPs exceeding $30,000 is associated with an EFI sub-index of 7 to 8. However for the Labor Regulations (Chart V) component of the Economic Regulation sub-index, index numbers of between 4 and 5 are consistent with PCGDPs approaching $30,000, and between 5 and 6 correlate with the highest of per capita incomes. Apparently less and less labor regulation does not purchase ever higher levels of per capita income. At the same time even a minimum threshold of labor market de-regulation is consistent with both very low *and* very high levels of PCGDP.

An index number of 6 for the Sound Money (Chart VI) sub-index is the threshold for achieving between $5,000 and $10,000 PCGDP. However, one has to jump to a sub-index number of 8 to 9 to realize a PCGDP of $10,000 to $35,000. Moreover, most economies achieving PCGDPs above $20,000 are characterized by a Sound Money EFI of 9 to 10. The evidence suggests that it is unlikely that high per capita incomes can be achieved without realizing high thresholds for Sound Money.

The Big Government (Chart VII) sub-index tells another tale. A sub-index of 4 to 5 is consistent with an array of PCGDPs ranging from the very low to close to $40,000. In addition, low to very high (indicating small government) sub-index numbers are all consistent with PCGDPS of $5,000 or less.

For the Freedom to Trade (Chart VIII) sub-index a threshold of 5 to 6 is consistent with per capita incomes of $5,000 to $10,000. Index numbers of 6 to 7 are consistent with PCGDPs of $10,000 and above, albeit many more countries are characterized by PCGDPs above $15,000 with index numbers of 7 to 8.

Turning ones attention to per capita growth (Chart IX), an EFI of less than 5 is only consistent with negative growth rates. Index numbers of 5 to 6 correlate with growth rates up to 2 percent per annum. Above 6, one has a wide range of growth rates from the very low to the very high. Therefore, 5 is a critical threshold for significant economic growth, where a 2 percent annual growth rate yields a 22 percent increase in per capita income over 10 years. EFIs well below 10 correlate with growth rates ranging to 12 percent, albeit most of the very high growth rates economies are at about 4 percent, where the latter yields a 48 percent increase in PCGDP over 10 years.

In terms of Property Rights (Chart X) sub-index, 4 (approximately) is a threshold for positive growth. Between 4 and 5 correlates with negative to high positive growth rates. Also, as this sub-index increases there are fewer economies with very low and negative growth rates. Nevertheless, growth rates of between 2 and 4 percent (which are actually quite high historically speaking), are consistent with sub-index numbers of 5 and above.

Economic Regulation (Chart XI) sub-index numbers of 4 to 5 are consistent with negative to just above 2 percent growth rates. But sub-index numbers of 5 to 6 correlate with negative to even higher positive growth rates, ranging to about 6 percent. Reducing economic regulation per se (increasing the sub-index number) does not appear to yield more growth. With regards to the Labor Regulations (Chart XII) component of this sub-index, index numbers of 4 to 5 correlate with negative to positive 4 percent growth rates. A relatively low threshold need be met with regards to Labor Regulation to achieve fairly high rates of economic growth. Sub-index numbers of between 5 and 6 are consistent with growth rates ranging from the negative to well over 8 percent. As is true with the other Economic Freedom Indexes, realizing a threshold value is not sufficient to generate a particular rate of growth.

A Sound Money (Chart XIII) sub-index number of 6 to 7 correlates best with growth rates ranging from the negative to about 6 percent. Increasing this sub-index number does little (statistically speaking) to generate more growth.

A Government Size (Chart XIV) sub-index number of about 3.5 is consistent with growth rates ranging to about 2 percent. To locate many economies with growth rates above the 2 percent rate requires sub-index numbers of 5 to 6. Also, between 4 and 5, one finds many more economies with growth rates ranging to 2 percent. One does not require (statistically speaking) smaller and smaller government to correlate with high rates of growth.

With regards to Freedom to Trade (Chart XV), sub-index numbers of 5 to 6 correlate with growth rates ranging from the negative to about 4 percent. Lesser sub-index numbers correlate only with negative growth economies—with one exception, that of a near zero growth economy. Sub-index numbers of 6 to 7 are associated with even higher growth rates. Once again, achieving a threshold index number appears to be necessary but not sufficient to generate the higher rates of economic growth.

Finally, it is revealing to refer to Chart XVI, where the World Bank's corporate governance index (CGI) is graphed against PCGDP. The former includes measures for illegal and legal corruption, public sector ethics, and judicial/legal effectiveness. The CGI is scaled from 0 to 100, with 100 being the best.

A CGI of 20-30 is associated with $5,000 to $15,000 of PCGDP; $15,000 to $20,000 with a CGI of 30-40; $20,000 to $25,000 with a CGI of 40-50; and above $25,000 with a CGI of greater than 60. Most high income economies are correlated with CGI numbers above 70, where one also finds no low income economies. There are some linearities associated with the CGI and PCGDP. Improving corporate governance, on the margin, appears to make a substantive difference. But, typically, achieving a particular level of corporate governance, does not guarantee the realization of a particular level of PCGDP. Needless to say, corporate governance appears to be of some importance in the determination of PCGDP. It is not at all clear that economic freedom without good corporate governance (in terms of appropriate thresholds) will suffice to facilitate the realization of high levels of per capita income.

IV. Conclusion

At a most general level the evidence supports the hypothesis that Economic Freedom, as embodied in the Fraser Institute's EFI, is economically important to the determination of per capita income. As the conventional wisdom would have it, there exists relatively large correlation coefficients with the 'right' sign and relatively large and substantive slope coefficients linking per capita income, per capita growth, and economic freedom. This is especially true of the EFI's sub-indexes relating to property rights and sound money. There is much less support, if any, that labor market regulation and big government, as defined by the Fraser Institute as well as by the Heritage Foundation, apart from extreme levels, negatively impact per capita income. Indeed, this is consistent with research suggesting that free market economies benefit from properly administered quality doses of Big Government and Labor Regulation. Graphical analysis suggests that what is most important is the threshold values or minimum values of economic freedom (and that of its components) to realize particular levels of per capita income and growth. These values are typically moderate and far from the maximum value 10, with exception of Sound Money. The evidence supports the hypothesis that once these thresholds are met, further increases to economic freedom (or its components) do not appear necessary for the realization of further increases in per capita income and growth. There are clear exceptions to this. One is with regards to private property—affirming the long held Hayekian view of its vital import for economic growth.

For more economies to move forward, typically different thresholds must be realized for the different sub-indexes of economic freedom. Yet, reaching and even surpassing such thresholds is shown not to be sufficient to realize higher levels of per capita income and growth. Therefore, although economic freedom is important to grow an economy, pursuing marginal increases in economic freedom past the threshold will not do the trick, especially if attention is directed to the wrong components. The level of economic freedom per se does not indicate if a particular economy has its economic freedom mix just right. It also seems to be the case that different economies at different and perhaps even at the same stage of development might require somewhat different mixes of the ingredients for economic freedom.[4] The estimates presented here are only suggestive of the thresholds values that need be met, in terms of economic freedom index numbers and their components. Moreover, for economies to grow, other variables (such as good corporate governance) must also be in place. And, the Economic Freedom Index, by its very nature, provides no information on whether these other necessary pieces in the growth puzzle are present and appropriately positioned.

[4] An important point recently made by Rodrik (2007) is that one must appreciate that different economics might very well require different development strategies contingent upon local circumstances. But this need not distract from the notion that certain core fundamentals (such as threshold levels of economic freedom and good corporate governance) are universally necessary (but not sufficient) for sustainable development to transpire.

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Appendix 1

Economies Included n this Study (Fraser Insttute EFI Based)

1	Albania	35	Czech Republic	69	Kenya	103	Poland
2	Algeria	36	Denmark	70	Korea, Rep. of	104	Portugal
3	Angola	37	Dominican Republic	71	Kuwait	105	Romania
4	Argentina	38	Ecuador	72	Kyrgyzstan	106	Russian Federation
5	Armenia	39	Egypt	73	Latvia	107	Rwanda
6	Australia	40	El Salvador	74	Lesotho	108	Senegal
7	Austria	41	Estonia	75	Luxembourg	109	Sierra Leone
8	Azerbaijan	42	Ethiopia	76	Macedonia	110	Singapore
9	Bahamas	43	Fiji	77	Madagascar	111	Slovakia
10	Bahrain	44	Finland	78	Malawi	112	Slovenia
11	Bangladesh	45	France	79	Malaysia	113	South Africa
12	Belgium	46	Gabon	80	Mali	114	Spain
13	Belize	47	Georgia	81	Malta	115	Sri Lanka
14	Benin	48	Germany	82	Mauritania	116	Sweden
15	Bolivia	49	Ghana	83	Mauritius	117	Switzerland
16	Bosnia and Herzegovina	50	Greece	84	Mexico	118	Syrian Arab Republic
17	Botswana	51	Guatemala	85	Moldova	119	Tanzania,
18	Brazil	52	Guinea-Bissau	86	Mongolia	120	Thailand
19	Bulgaria	53	Guyana	87	Morocco	121	Trinidad and Tobago
20	Burkina Faso	54	Haiti	88	Mozambique	122	Tunisia
21	Burundi	55	Honduras	89	Namibia	123	Turkey
22	Cameroon	56	Hong Kong	90	Nepal	124	Uganda
23	Canada	57	Hungary	91	Netherlands	125	Ukraine
24	Central African Republic	58	Iceland	92	New Zealand	126	United Arab Emirates
25	Chad	59	India	93	Nicaragua	127	United Kingdom
26	Chile	60	Indonesia	94	Nigeria	128	United States
27	China	61	Iran	95	Norway	129	Uruguay
28	Colombia	62	Ireland	96	Oman	130	Venezuela
29	Congo	63	Israel	97	Pakistan	131	Viet Nam
30	Congo, Dem. Rep. of the	64	Italy	98	Panama	132	Zambia
31	Costa Rica	65	Jamaica	99	Papua New Guinea	133	Zimbabwe
32	Côte d'Ivoire	66	Japan	100	Paraguay		
33	Croatia	67	Jordan	101	Peru		
34	Cyprus	68	Kazakhstan	102	Philippines		

Note: Luxenbourg is excluded from the Graphic analysis given its outlier status.

Table I

Economic Freedom and Governance Correlation and Slope Coefficients

Independent Variable	Dependant variable GDP per capita		Dependant variable Growth per annum		Dependant variable GDP per cap		Dependant variable Growth per annum	
	Fraser Institute				Heritage Foundation			
	Slope	Correlation	Slope	Correlation	Slope	Correlation	Slope	Correlation
Economic Freedom (1990)	$6,579	0.762	0.442	0.278				
Economic Freedom (2005)	$7,648	0.697	0.861	0.363	$7,521	0.705	0.624	0.280
Property rights	$5,084	0.823	0.471	0.353	$3,793	0.795	0.228	0.235
Economic regulations	$5,693	0.526	0.516	0.219	$4,306	0.669	0.294	0.221
Labor regulations	$2,199	0.233	0.064	0.032	$1,815	0.234	0.199	0.121
Sound money	$4,320	0.583	0.549	0.343	$3,755	0.373	0.534	0.260
Financial					$2,681	0.533	0.273	0.267
Size of government	-$411	-0.051	0.084	0.048	-$3,172	-0.512	-0.216	-0.172
Fiscal					-$3,791	-0.306	-0.259	-0.099
Investment					$3,309	0.572	0.292	0.246
Freedom to trade	$5,732	0.572	0.708	0.326	$3,985	0.442	0.274	0.152
Corruption					$4,020	0.844	0.258	0.266
Corporate governance	$424	0.817	0.0126	0.131				
Percentage change in Economic Freedom Index (1990-2005)		-0.331		-0.883				
Absolute change in Economic Freedom Index (1990-2005)		-0.307		0.084				

Chart I
HDI & Per Capita GDP

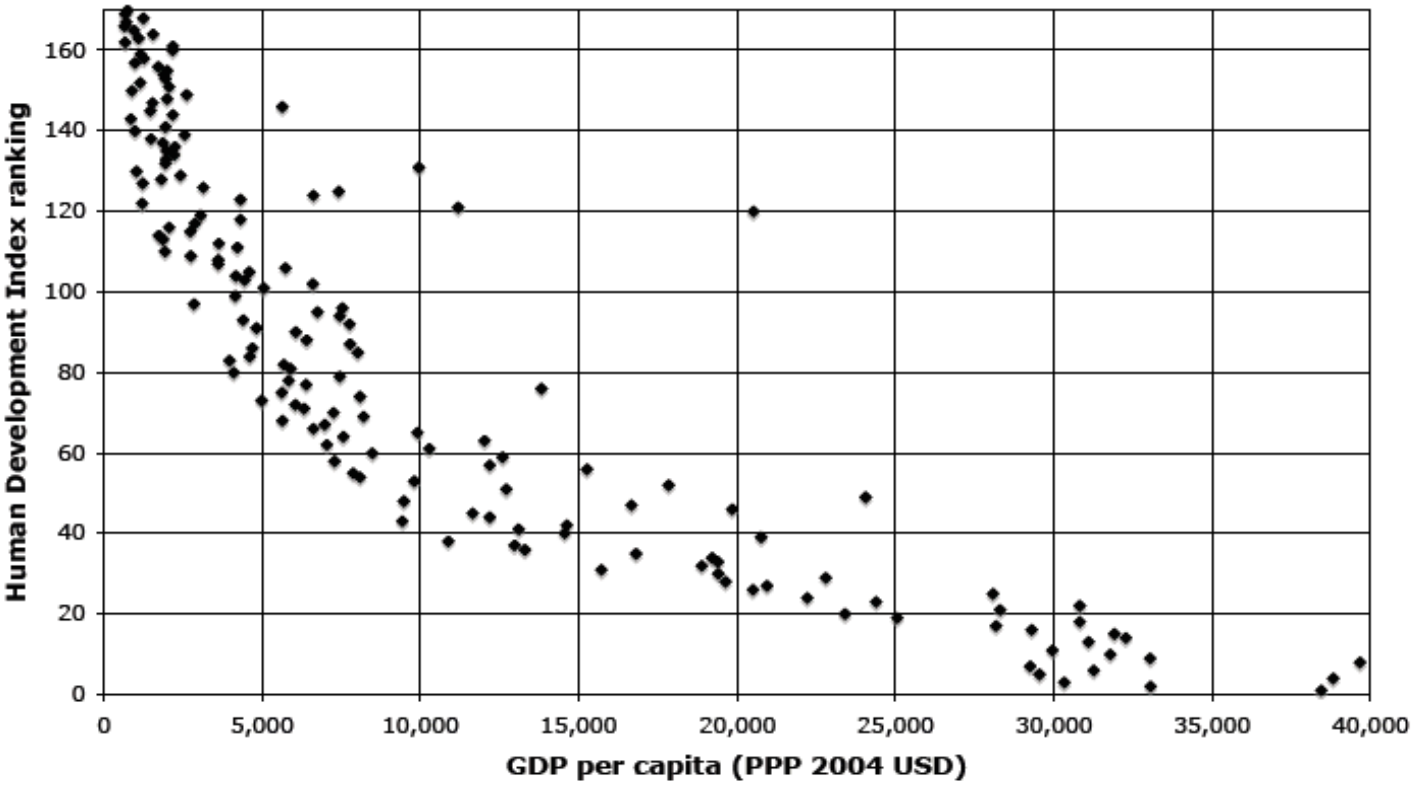

Chart II
Economic Freedom & Per Capita GDP

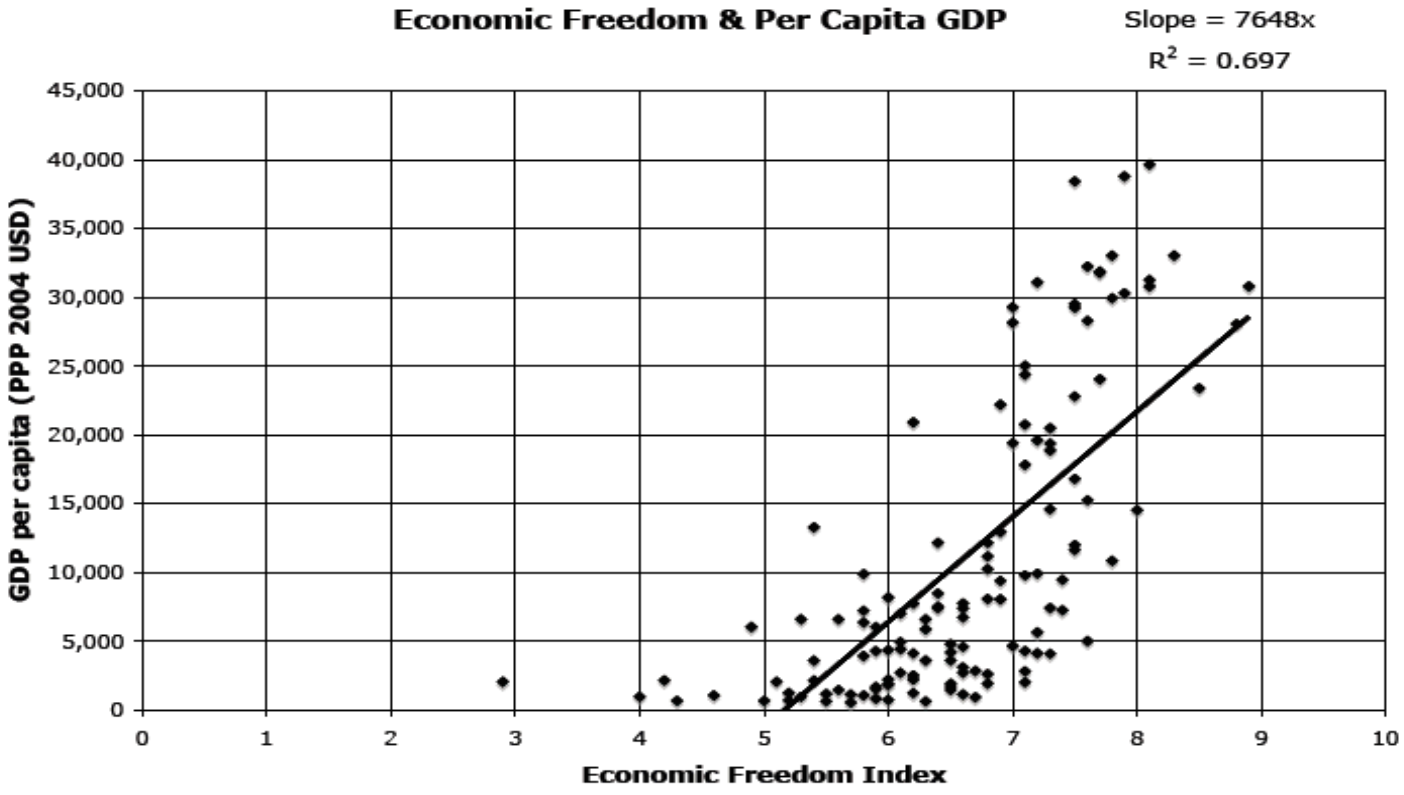

Chart III
Property Rights & Per Capita GDP

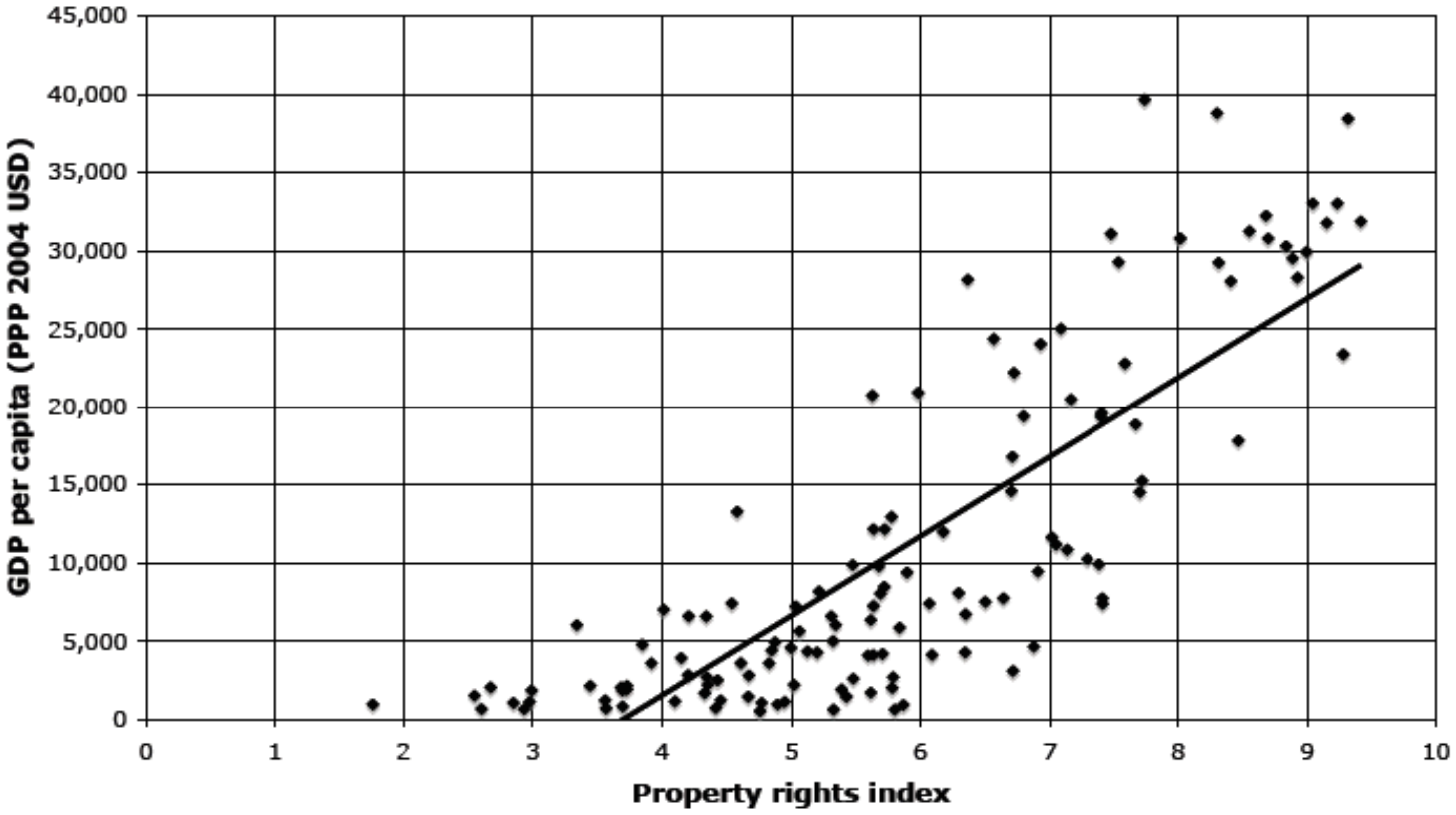

Chart IV
Regulations & Per Capita GDP

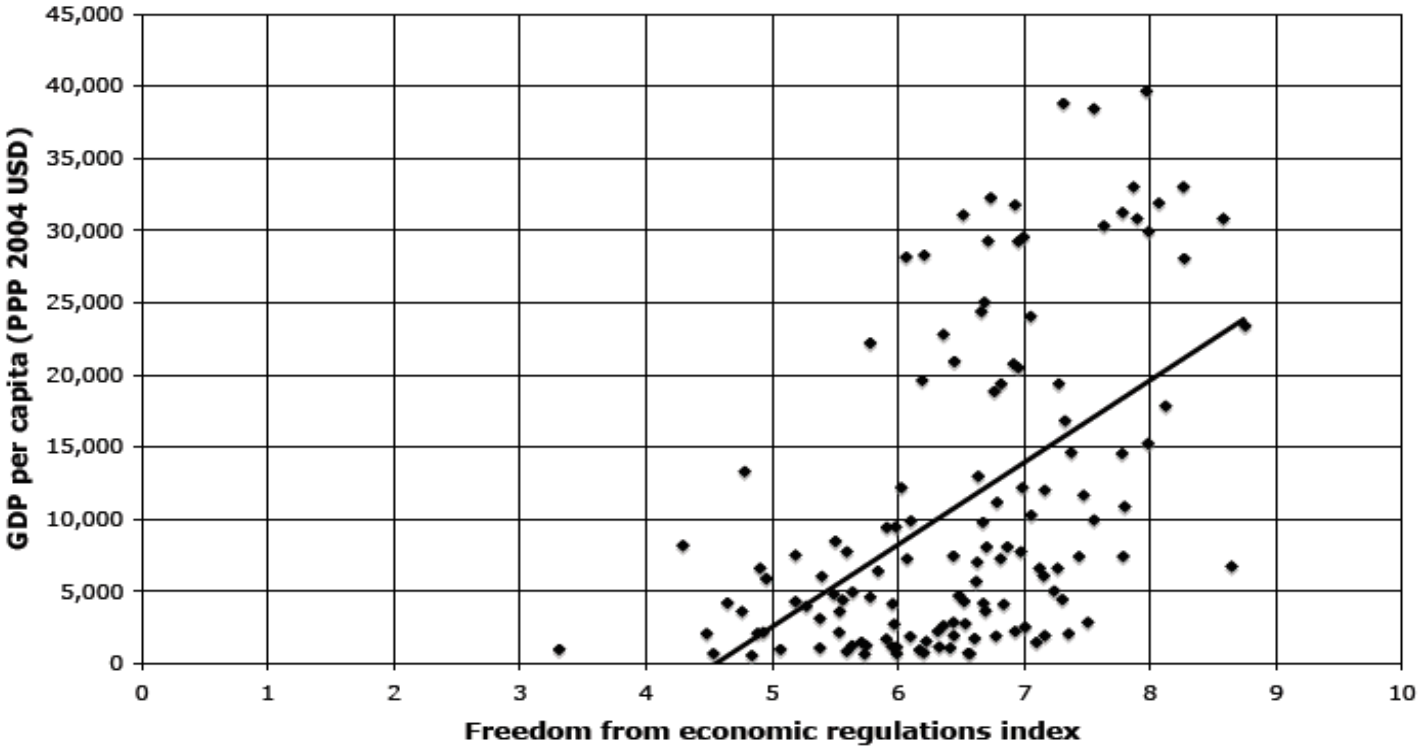

Chart V
Labor Regulations & Per Capita GDP

Chart VI
Sound Money & Per Capita GDP

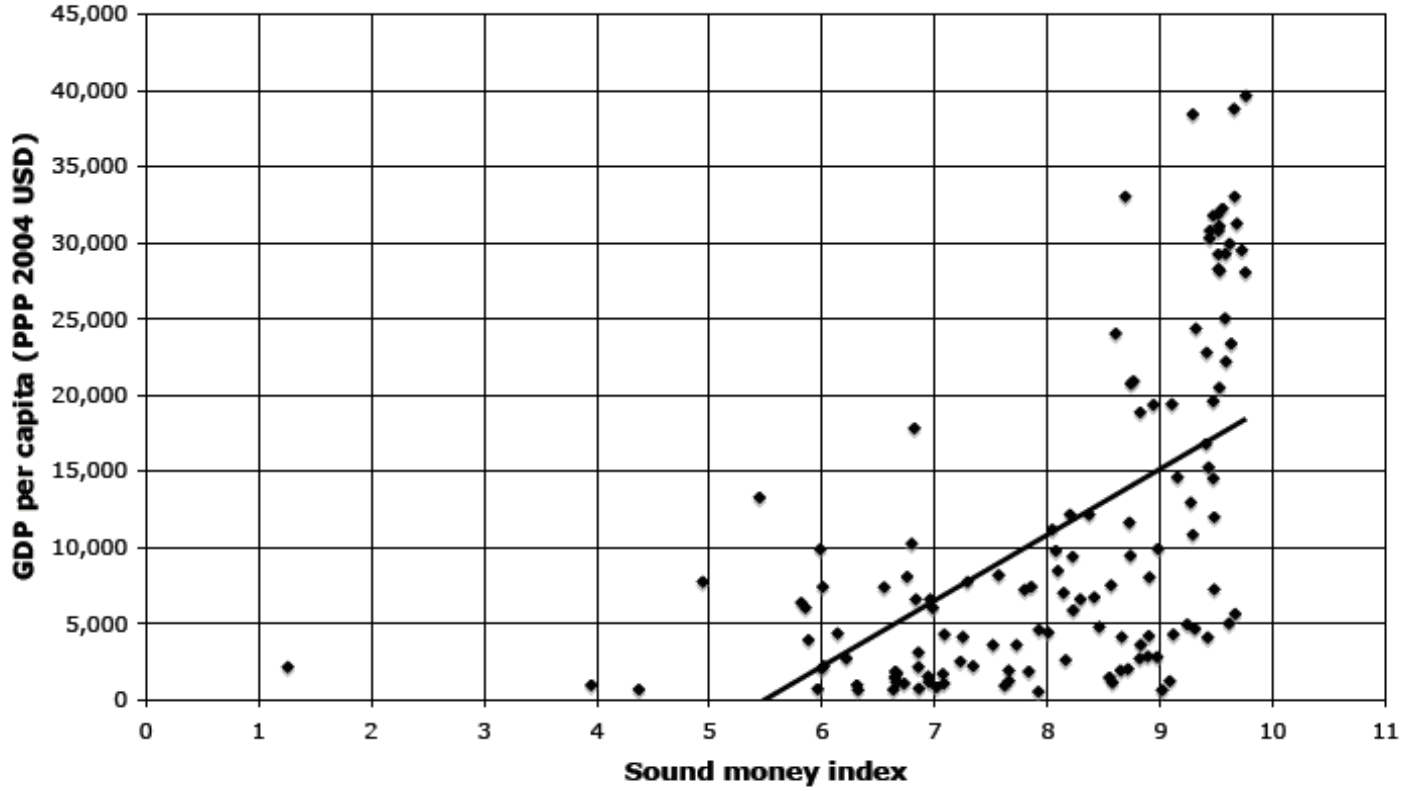

Chart VII
Government Size & Per Capita GDP

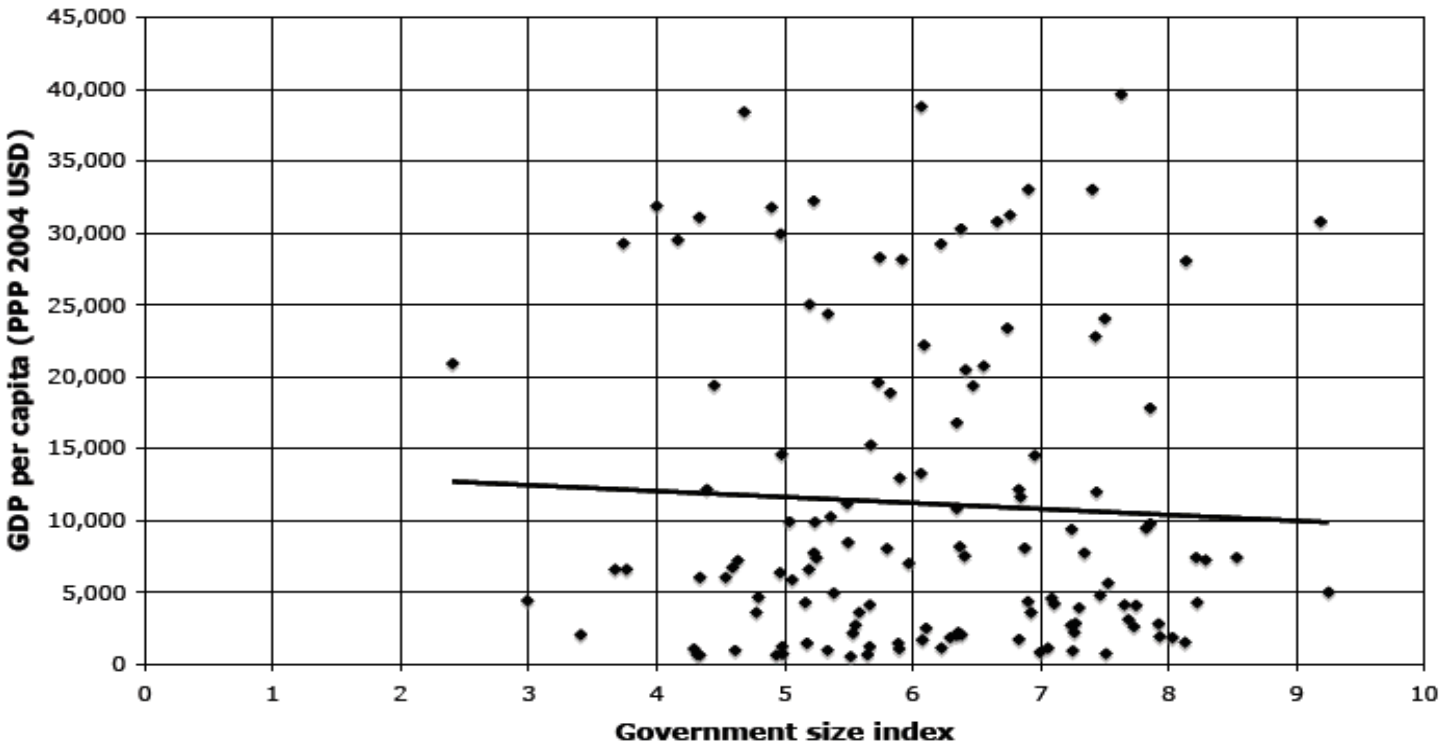

Chart VIII
Freedom to Trade & Per Capita GDP

Chart IX
Economic Freedom & Growth

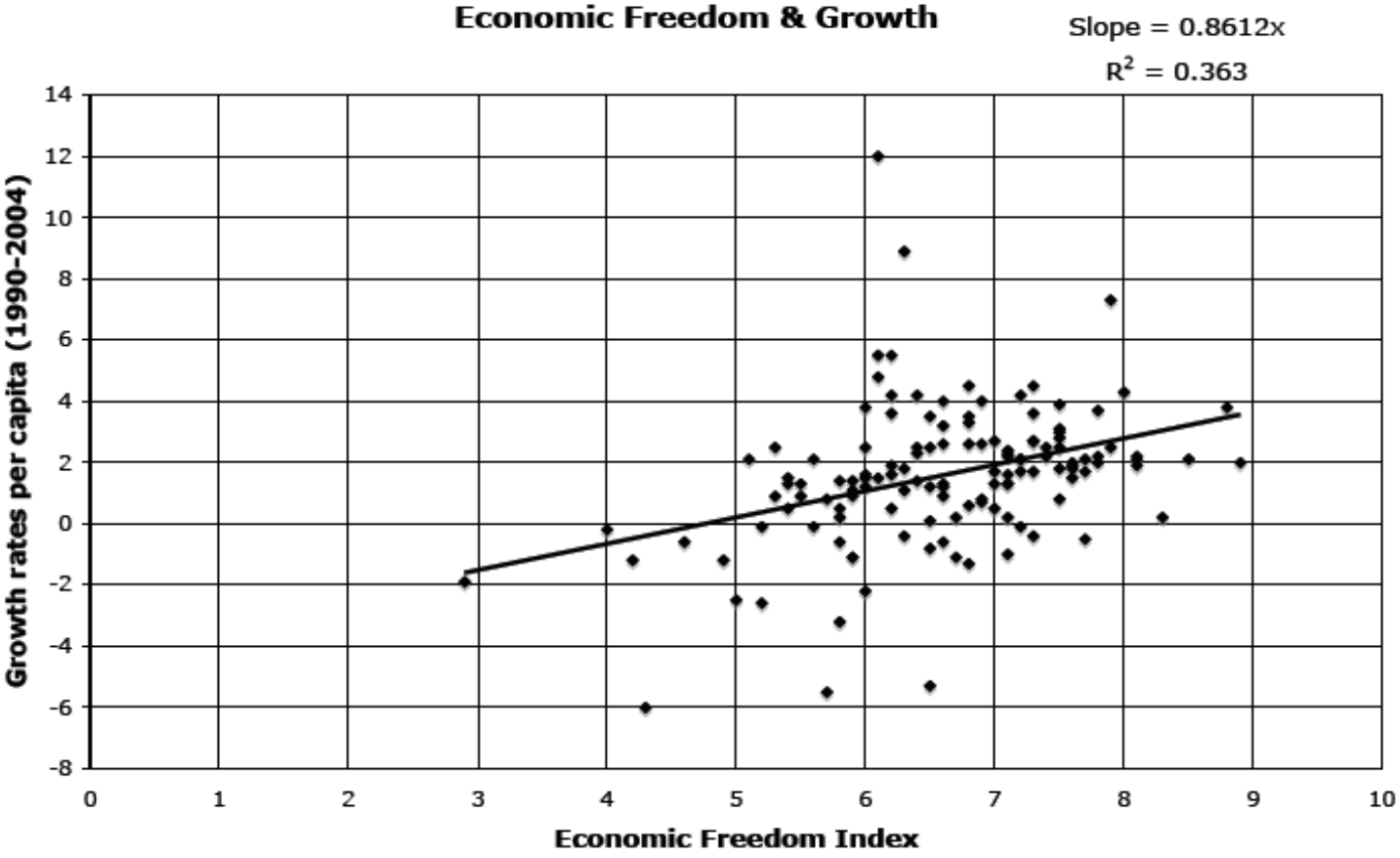

Chart X
Property Rights & Growth

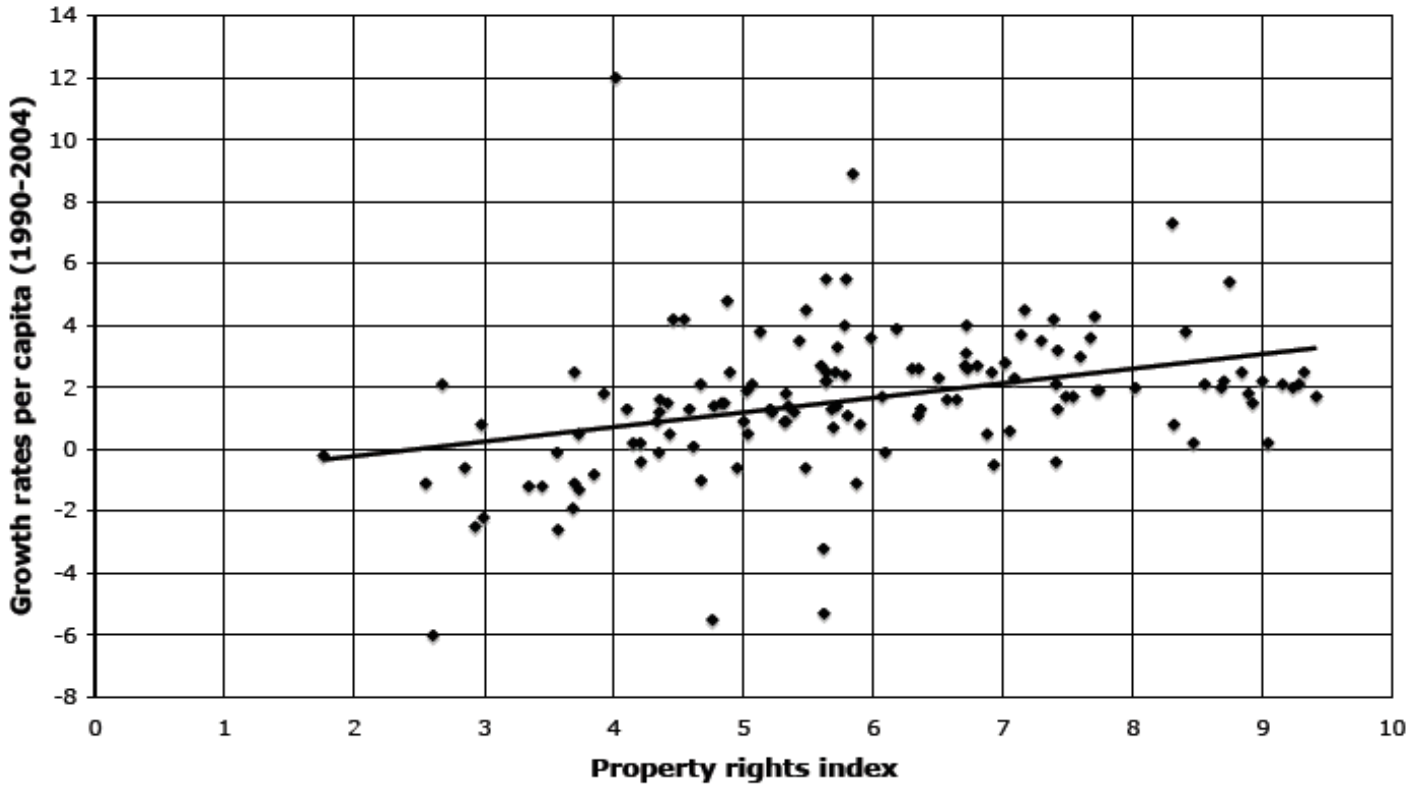

Chart XI
Economic Regulations & Growth

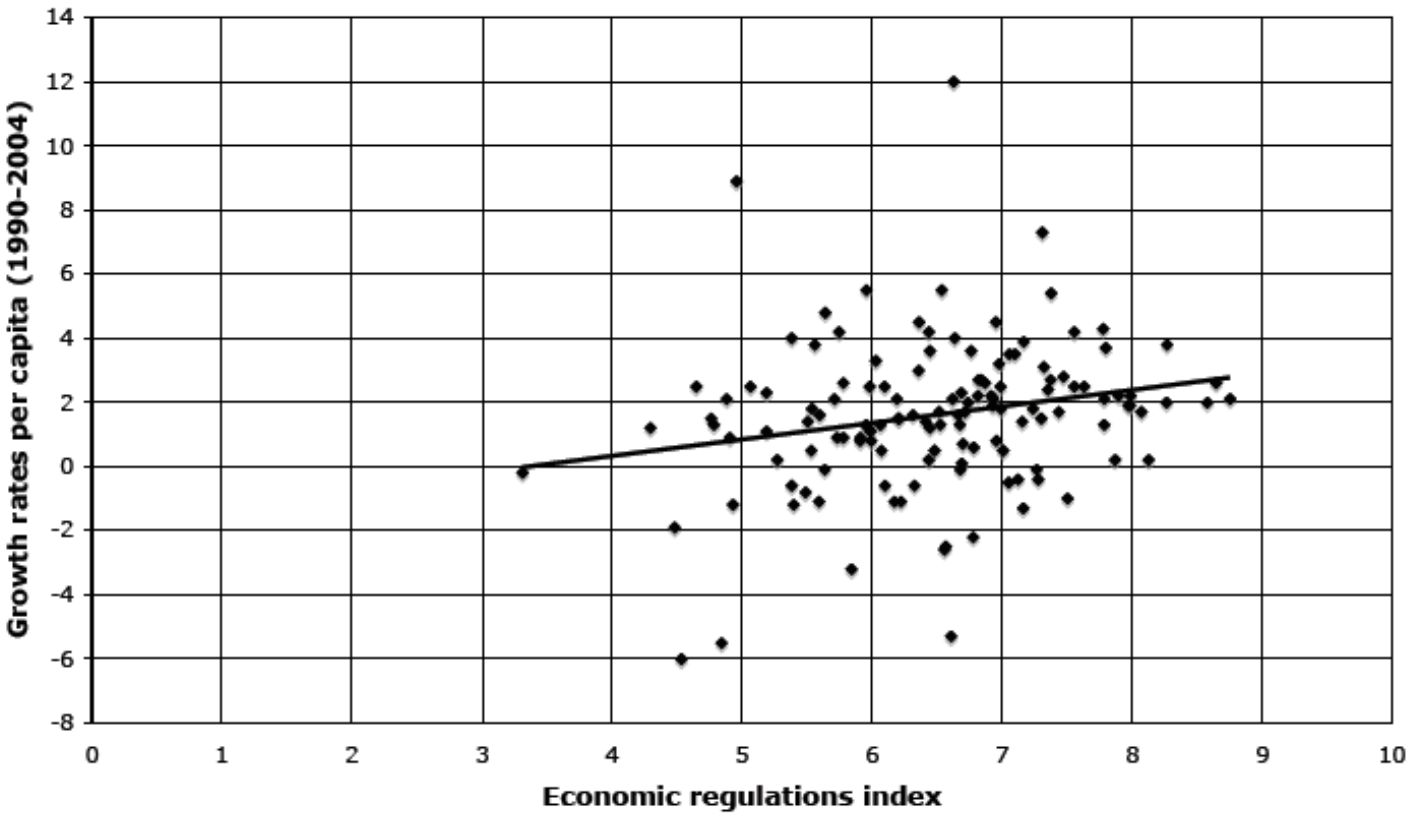

Chart XII
Labor Market Regulations and Growth

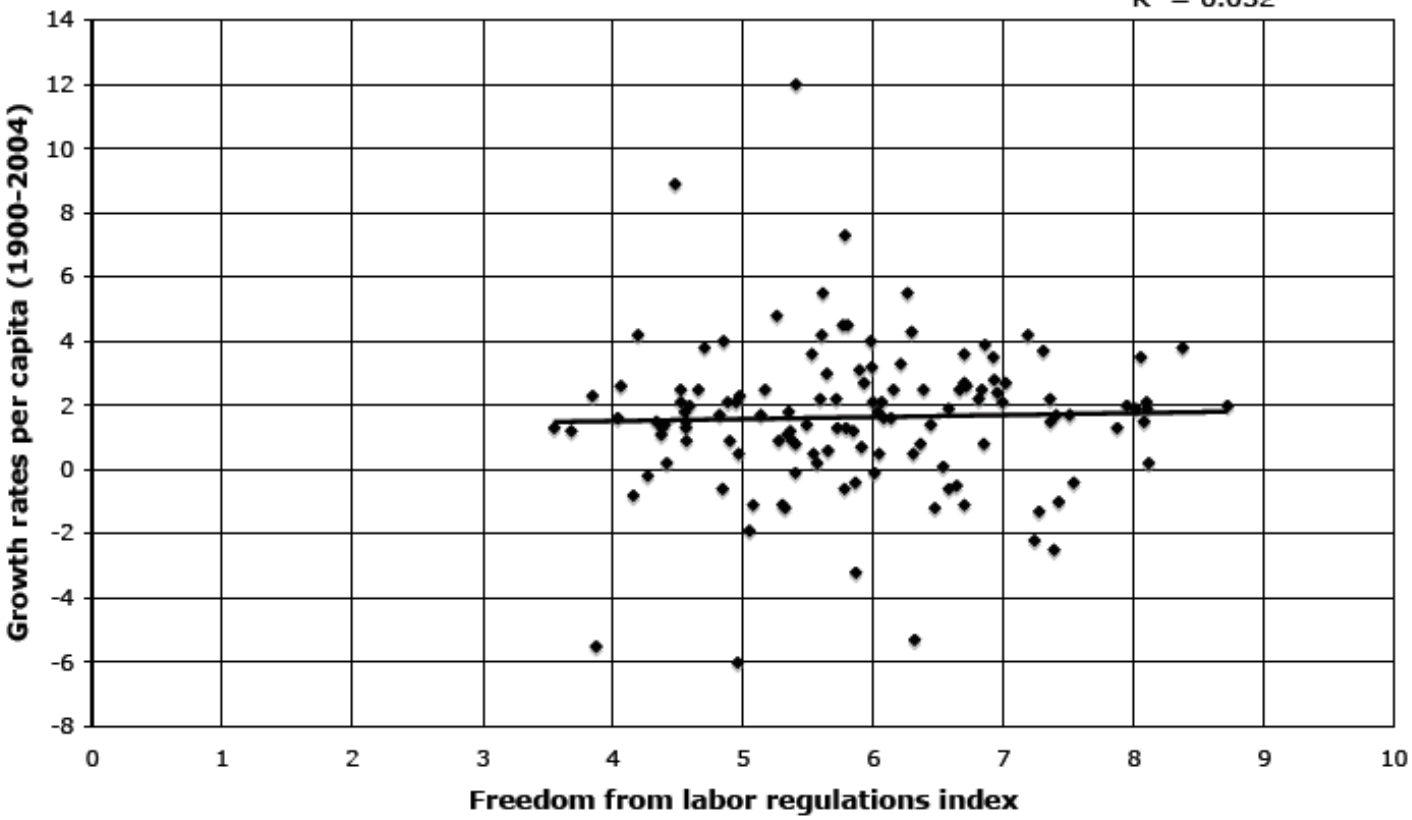

Chart XIII
Sound Money & Growth

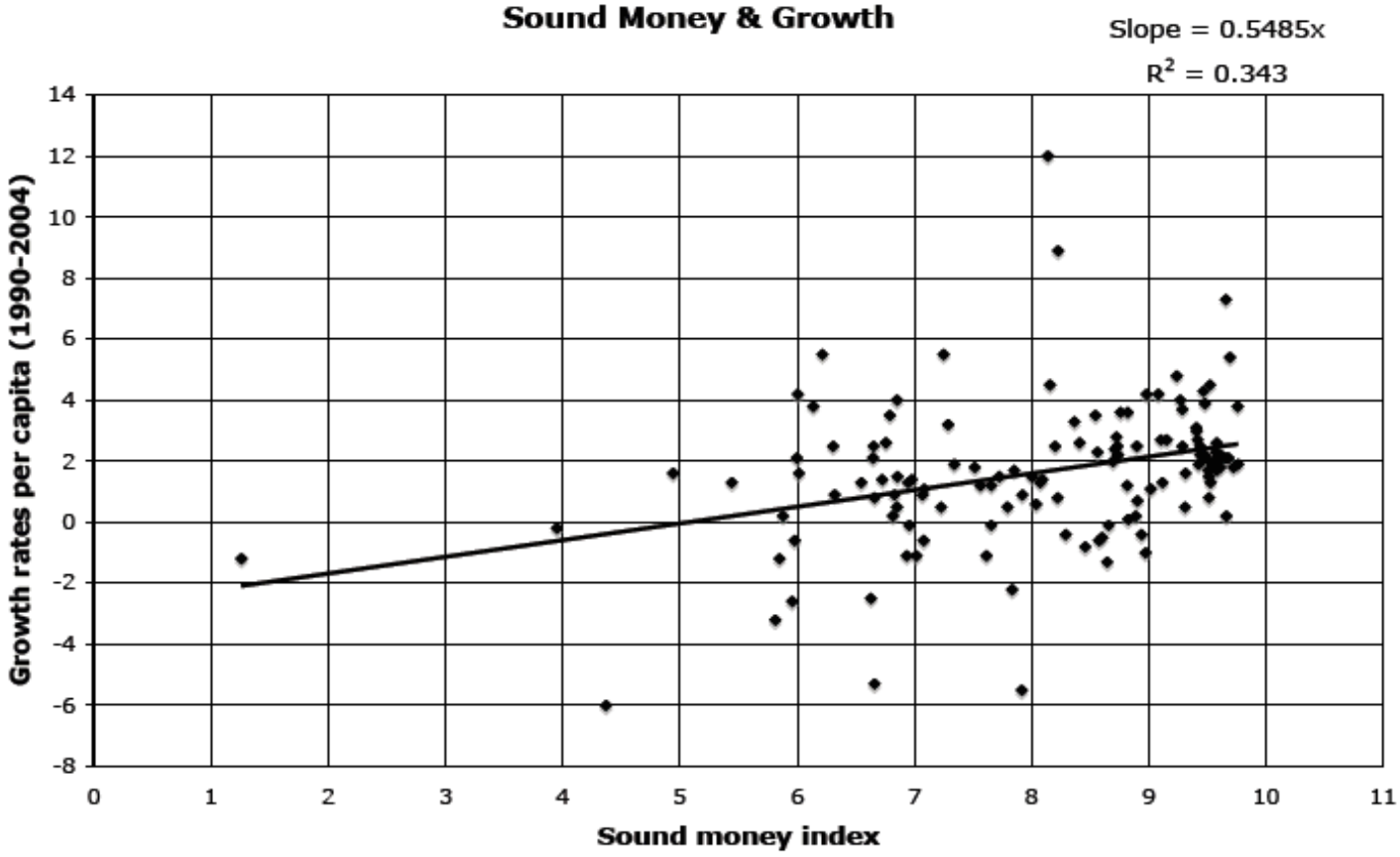

Chart XIV
Government Size & Growth

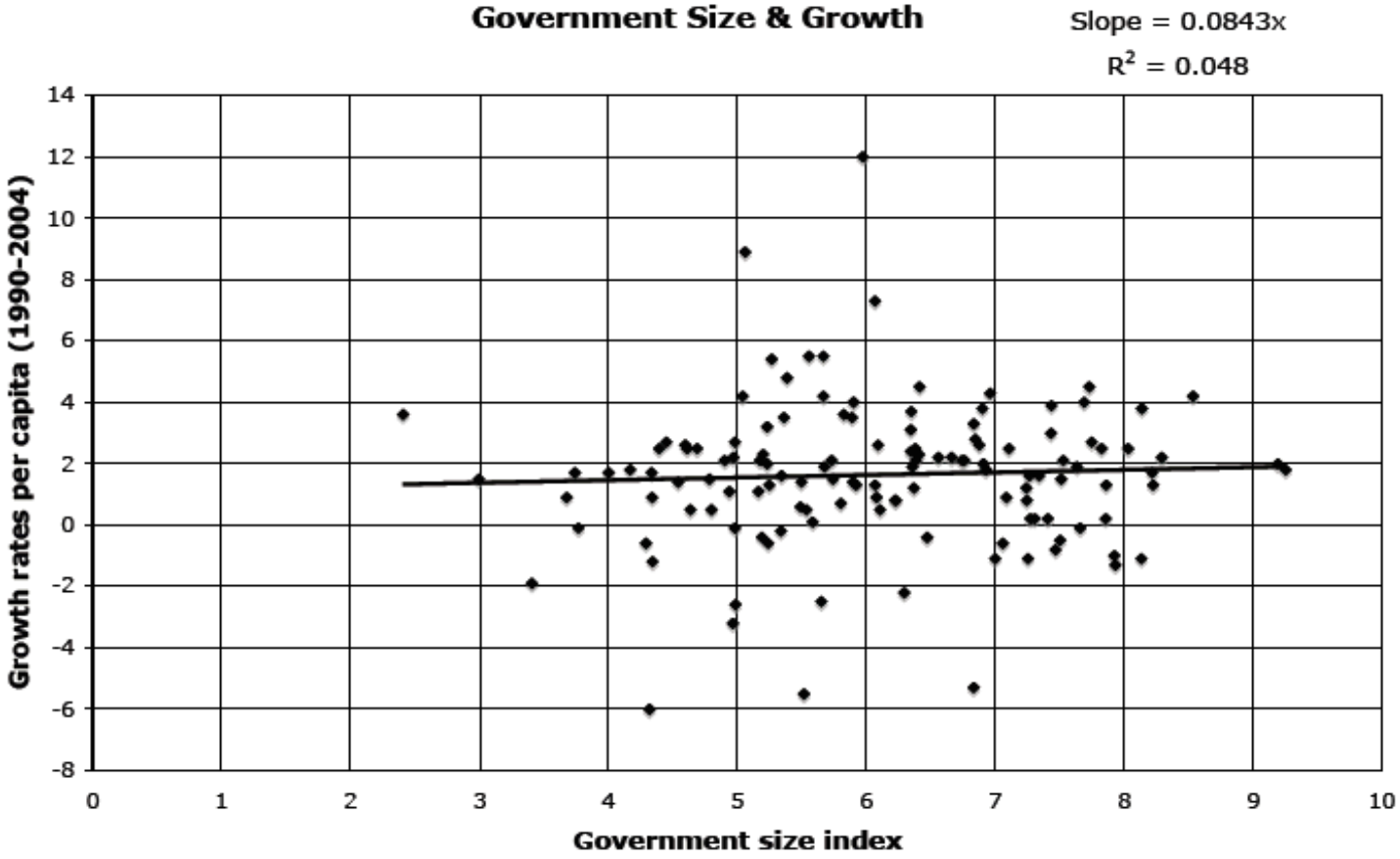

Chart XV
Freedom to Trade & Growth

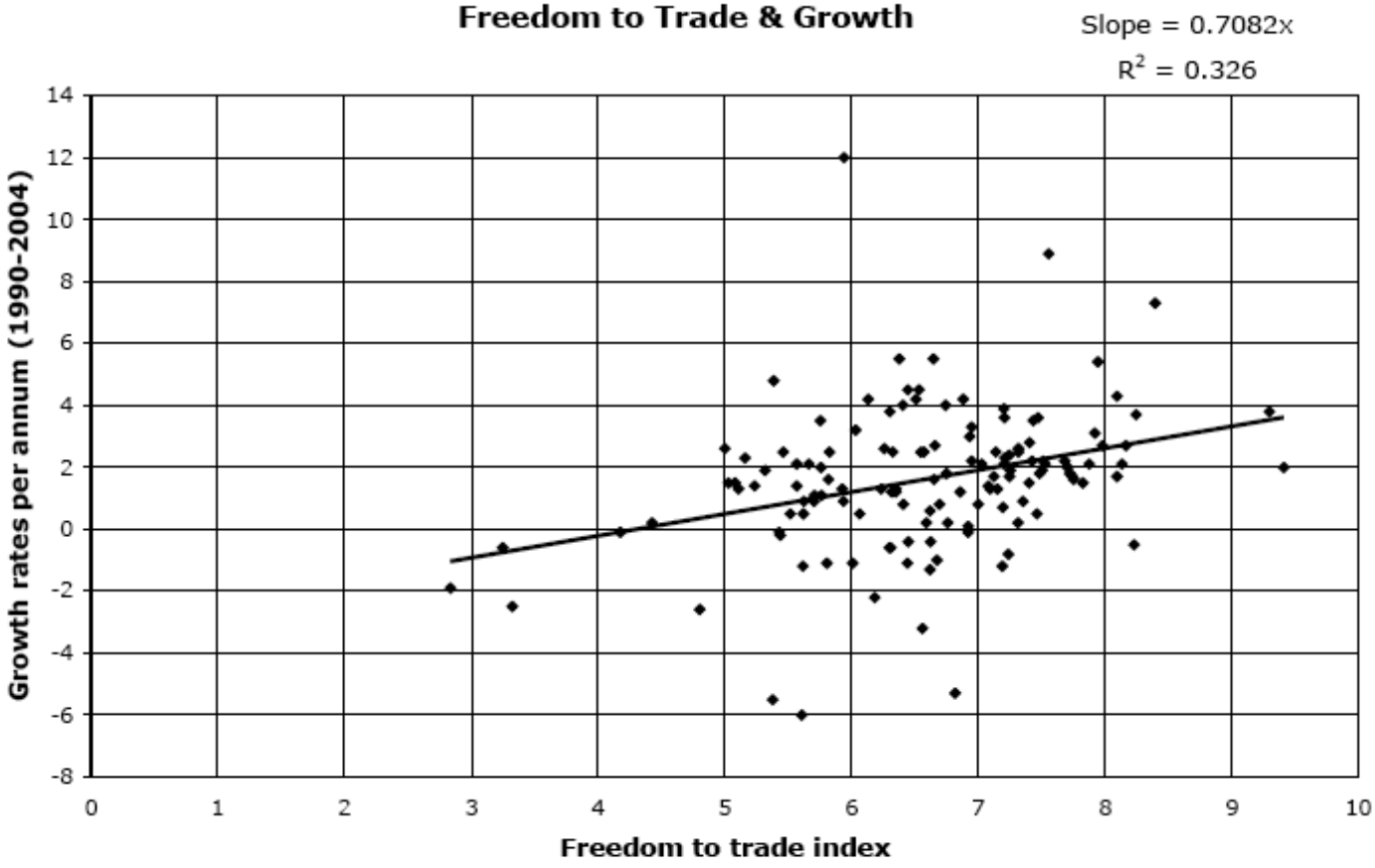

Chart XVI
Corporate Governance & Per Capita GDP