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ECONOMIC GROWTH, POLITICAL AND CIVIL LIBERTIES

John C. McMillan, Gordon C. Rausser,
and Stanley R. Johnson

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Economic Growth, Political and Civil Liberties

John C. McMillan, Gordon C. Rausser, and Stanley R. Johnson

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PREFACE

We are pleased to publish *Economic Growth, Political and Civil Liberties* by John C. McMillan, Gordon C. Rausser, and Stanley R. Johnson as the fifty-third in our series of Occasional Papers, which present reflections on broad policy issues by noted scholars and policy makers.

In this paper, the authors examine the relationship between institutional reforms, measured by changes in political or civil rights, and economic growth. In investigating the empirical foundation for policy reform prescriptions that arise from the institutional approach to economic growth, they modify previous models, adding a temporal element that allows them to estimate the timing of benefits following a reform.

The authors' analysis supports the idea that reforms protecting political and civil rights can cause increases in economic growth. Five major implications emerge from their investigation: (1) The economic benefits of freedom reforms are systematic and significant. (2) After a lag, economic growth increases following initiation of a reform in political rights or civil liberties. (3) If reforms in civil liberties are to be sustained, they eventually require a reform in political rights. (4) Changes in the capital-labor ratio have a larger effect on economic growth in the short-run than in the long-run, but (5) there is still significant and unexplained regional variation in the short-run effects of changes in this ratio.

The work described in this Occasional Paper was conducted under the auspices of the Institute for Policy Reform, whose objective is to enhance the foundation for broad-based economic growth in developing countries. Through its research, education, and training activities, IPR encourages active participation in the dialogue on policy reform, focusing on changes that stimulate and sustain economic development.

The authors bring to their investigation combined expertise in a wide range of economics and policy disciplines, including agricultural and development economics, econometrics, and institutional analysis. The findings of their study should be of intense interest to all those concerned with encouraging the growth of freedom and democracy, along with economic growth, in developing countries.

Nicolás Ardito-Barletta
General Director
International Center for Economic Growth

Panama City, Panama
April, 1994

ABOUT THE AUTHORS

John C. McMillan is an economist whose work is currently focused on econometrics, economic policy, technological change and economic growth, and institutions and economic growth. Dr. McMillan has been associated with the Institute for Policy Reform and with the University of Chicago, where he received his Ph.D. in 1991.

Gordon C. Rausser is Robert Gordon Sproul Distinguished Professor and chairman of the Department of Agricultural and Resource Economics at the University of California at Berkeley. He is co-founder and current president of the Institute for Policy Reform and principal of the Law and Economics Consulting Group. He has also served as chief economist of the U.S. Agency for International Development, as senior staff economist of the president's Council of Economic Advisers, and in a wide range of other academic and policy positions. Dr. Rausser is the recipient of a number of honors and awards in economics.

Stanley R. Johnson is Charles F. Curtiss Distinguished Professor in the Department of Economics and director of the Center for Agricultural and Rural Development at Iowa State University. He is also executive director of the Food and Agricultural Policy Research Institute and chairman of the Institute for Policy Reform. Dr. Johnson is chairman of the board of the Midwest Agribusiness Trade Research and Information Center and is recognized especially for his work in agricultural and trade policy, both in the United States and abroad.

JOHN C. McMILLAN, GORDON C. RAUSSER,
AND STANLEY R. JOHNSON

Economic Growth, Political and Civil Liberties

Although economists have for decades researched and studied the topic, and although donor agencies and foundations have committed hundreds of billions of dollars to technical assistance promoting it, sure-fire recipes for accelerated and sustained national economic growth and development remain substantially a mystery. Recent evidence for the lower income economies that have benefitted from donor support is discouraging (World Bank 1991, U.S. Agency for International Development 1989). During the decade of the 1980's the lower income nations made little progress in improving their economic status. Moreover, there is no widely accepted empirical basis for distinguishing between those nations that did grow and develop and those that did not. In short, despite an abundance of anecdotal evidence and armchair theorizing, the policy disciplines have not solved the puzzle of sustained economic growth.

Available theories on economic growth and development have generated a number of hypotheses on potential determinants. In the contemporary literature, for example, different theories have for periods captured the imagination of the policy disciplines, and of the policy professionals responsible for programming development assistance. Institutions (Commons 1934), technological change (Solow 1957), human capital (Schultz 1964), infrastructure (Mellor 1976), economic policy (Balassa 1971 and Johnson 1973), and increasing external returns to knowledge (Lucas 1988) are examples. More recently, the research on

economic growth and development has focused on institutions and contracts, returning to the themes of Commons and his contemporaries (de Soto 1989, Olson 1982, North 1990, Clague and Rausser 1991, Williamson 1991).

These modern approaches have presented a widened lens linking political rights, civil rights, and economic rights with results on the organization and functioning of competing interest groups and the fuller understanding of the roles of incentives, incentive compatibility, contracts, and credibility (Clague and Rausser 1991). The new democracy initiative of the U.S. Agency for International Development (USAID) and the attention given to processes of policy reform by the donor organizations exemplify the implicit support for the modern institutional approach to programming for economic growth and development.

The empirical results in this paper respond to the challenge of the new institutional approach to economic growth and development policy. The analysis utilizes a set of indices on political and civil rights to measure the impact of reforms on national economic performance for 125 countries during the period, 1972–1988. Exploratory work correlating these liberty indices with variables describing economic performance has already been conducted (Scully 1988, Grier and Tullock 1989, Barro 1991). In contrast to earlier work, our analysis allows an assessment of the causal relationships between political and civil freedoms and the dynamics of economic growth. Moreover, our framework admits a measurement of the size and timing of the benefits realized from reforms of institutional rights.

Institutions and Economic Growth

The modern theory for linking institutions, broadly conceived as both the rules of the game and organizations, to economic growth and development is just emerging (Buchannan 1989, North 1991, Olson 1991, Ruttan 1991, Rausser 1982, 1990). At the heart of the new theory of institutional economics is the idea that the setting in which policies are made or formulated or the ''rules by which rules are made,'' or the ''policy culture,'' are a critical determinant of sustained economic growth and development. This theory goes beyond the idea of rent

seeking (Krueger 1974) to identify both productive and predatory roles for interest groups and government (Rausser 1982). In concept, the constitutional setting, the legal and regulatory framework, the authority and history of the bureaucracy (Allison 1971) and the political, civil, and economic rights implied by this complex set of factors govern the possibilities for sustained national economic growth and development.

Research to expand the analytical basis for applying the ideas from this new institutional approach has taken a number of directions. Game theory models have been used to study the strategies of interest groups or agents in competing situations (Rausser and Zusman 1992). Economic functions have been dissected to understand the impacts of ownership and control on the behavior of economic agents, and the principal agent problem. Complexities of the operations of large and multifunction economic units have been evaluated for impacts on behavior (Williamson 1985). And the incentives in differing types of contracts and contracting arrangements have been analyzed (Tirole and Laffont 1990). A major contribution of these results to date has been to seriously question existing theories of economic growth. The more conventional theories have in large measure taken as ''given'' the very aspects of the national political and economic systems that are the focus of the analysis on institutional-constitutional economics (Buchanan 1989).

Formal economic growth models have been extended to improve explanations of sustained economic growth (Lucas 1988, Romer 1986). Traditional models of economic growth which emphasize capital accumulation predict growth until a zero-growth-rate steady state is reached—a prediction in contrast to the experience of sustained growth in developed economies. Rather than rely on exogenous technological change as an ''explanation'' of sustained growth, these more recent approaches search for specifications which generate sustained nonzero equilibrium growth rates. A change in institutional technologies can potentially be an important explanation of an economic growth.

Empirical Approach

In many recent empirical growth models,[1] average rates of economic growth conditioned by production function arguments have been related to indices of political and civil rights recorded at particular points in time

(Scully 1988, Barro 1991, Grier and Tullock 1989). These studies have produced promising results, showing an association between higher growth and enhanced political and civil rights. However, these findings are also consistent with an alternative hypothesis: that richer countries can afford more liberal political and civil rights systems. Clearly, differentiation between these two causal hypotheses has far-reaching implications for development assistance and national strategies for economic growth. If the direction of causality is from economic growth to institutions, programs which attempt to produce growth through changed policies and institutions are flawed. However, if economic growth is produced by changes in political, civil, and economic institutions, then initiatives addressing these fundamental features of societal organization can be successful.

Previous empirical work measuring economic growth models has exclusively utilized cross-section data, an approach that has become standard in this area of empirical research. Scully uses ninety-five countries and averages gross domestic product (GDP) growth rates over twenty-five years and Freedom House institutional measures over fifteen years. Barro uses ninety-eight countries and averages country data on growth and on revolutions and assassinations over twenty-six years. DeLong and Summers use twenty-five countries and average their economic data over twenty-six years, and match these averages with policy and institutional measures from the *World Competitiveness Report* in 1983, from the World Bank *World Development Report* in 1983 and 1987, and with information on import barriers measured by Barbine in 1988. Murphy, Shleifer, and Vishny (1991) augment Barro's data set (data averaged over the period 1960–1985) with college enrollment ratios measured in 1970. The empirical results from these and other studies of cross-sectional economic performance are reviewed in Levine and Renalt (1992). While these authors conclude that the most important determinant of economic growth is investment, an alternative methodology provides justification for including measures of institutional rights.[2]

Presumably there are two justifications for the cross-section studies. The first is that economic growth is a long-run phenomenon, best measured through averages over long time periods, and that annual data are contaminated with short-run "noise." A corollary is that there are

no interesting or measurable short-run relationships between institutions, policies, and economic performance. A second justification is that political, institutional, and policy measures have little temporal variation within countries and that measurements across countries capture the main sources of variation.

Unfortunately, the existing cross-sectional approach can be used to measure neither causality nor the timing of responses to reforms in institutions. An alternative to identifying long-run features through averaging the data over long time periods is to utilize time-series econometric methods to decompose annual data into their ''permanent'' and ''transitory'' components. This approach has the advantage of utilizing temporal variations in these data to provide evidence on causality and timing issues.

Our alternative approach is to decompose annual observations of per capita GDP growth into two components, permanent and transitory. The two resulting time series are alternatively used as dependent variables in regressions on a set of economic and political variables. The regression utilizing the permanent component as a dependent variable will identify the long-run relationship between growth and economic, political, and reform variables while the regression utilizing the transitory component as a dependent variable will identify the short-run relationship between growth and economic, political, and reform variables. An autoregressive moving average (ARMA) time series model is used to perform the decomposition of GDP growth rates into their permanent and transitory components.

The statistical framework relates the growth rate of aggregate output to the growth rates and levels of physical capital, labor, and shifters of the production function. Our statistical approach is a two-step procedure where the first step is the decomposition of the growth series and the second step is an empirical model which uses the components from the first step as dependent variables and economic and quantified institutional features as explanatory variables.

Data

The data for the empirical analysis are Freedom House indices of political and civil rights (Gastil 1987) and the Penn World Table da-

tabase on national income accounts (Heston and Summers 1992). The sample covers the period from 1972 (the earliest year for which Freedom House indices are available) to 1988 (the last year for which economic data are available in version IV of Heston and Summers Penn World Tables). Annual national capital stocks are estimated from the Penn World Table data.

The dependent variables in empirical estimations are alternatively the permanent and transitory components of annual per capita GDP growth rates. The independent variables are grouped by class. The first class, economic and demographic variables include:

GDP	Per capita gross domestic product, parity purchasing power corrected in 1980 U.S. dollars
GROWKL	The difference in the logarithms of the capital/labor ratio between the current and previous years
POPCHG	The difference in the logarithms of population between the current and previous years
RGDPTT	The level of real gross domestic product (with terms of trade adjustment)

The second group of variables measure levels of the institutional features. These ratings are constructed by the Freedom House through a simple averaging of ratings for different features of a nation's political rights or civil rights (seven features for political rights and thirteen features for civil rights). The political-rights rating measures the degree of representativeness or democratization of a particular government. The civil-rights rating measures whether basic liberties are protected. Each item or point in the list is given a score of 0, 1, or 2 based on a set of procedures that is standard across countries and years. These raw scores are then averaged and represented by a 7-point scale, with 1 being the most free or with the most rights and 7 being the least free or with the most restrictions on rights.

For the political rights most western European democracies are 1's while nations ruled by despots who feel little constraint from public opinion or popular tradition are 7's. Civil rights are 1's for nations in which publication and expression are not closed, especially if the intent is to influence legitimate political processes. The scale level of 7 is for

nations where there is pervasive fear, little independent expression, and a police-state environment.

The qualitative variables measuring institutional features are:

P1OR2 Takes the value 1, if the political rights have a scale value of 1 or 2; 0 otherwise

P3TO5 Takes the value 1, if the political rights have a scale value of 3 to 5; 0 otherwise

C1OR2 Takes the value 1, if the civil rights have a scale value of 1 or 2; 0 otherwise

C3TO5 Takes a value of 1, if the civil rights have a scale value of 3 to 5; 0 otherwise

Thus, the Freedom House indices were compressed into 3 instead of 7 scale values. Also, to avoid singularity by construction, the qualitative variables representing the scaled values of 6 and 7 were omitted.

Table 1 summarizes annual means and standard deviations of economic and institutional variables for 125 countries. The institutional measures are annual ratings of political and civil rights produced by the Freedom House. These measures are discussed later in greater detail. Table 1 suggests that there is significant temporal variation in these institutional variables within a given country. The empirical approach of this research utilizes these additional sources of variation in identifying relationships between institutional measures of freedoms and economic performance.

The last group of variables are again qualitative and designed to permit impact estimation of the timing and magnitude of the institutional changes for each of the countries:

RPD1 Takes the value 1, if the nation has had a political rights scale value less than the historically highest for one year; 0 otherwise

RPD2–RPD5 Similarly defined variables with the number of years political rights had a scale value less than the historically highest indicated by the identifiers 2 through 5

RCD1–RCD5 Defined using the same procedures as for political rights, but for civil rights.

Table 1 Country Annual Means and Standard Deviations for Selected Variables, 1972–1988

	GDP growth mean	GDP growth std. dev.	KL growth mean	KL growth std. dev.	Pol. rights mean	Pol. rights std. dev.	Civil lib. mean	Civil lib. std. dev.
Afghanistan	−0.0021	0.055	0.0001	0.016	6.8	0.75	6.5	0.62
Algeria	0.0315	0.101	0.0538	0.031	6.0	0.35	6.0	0.00
Angola	−0.0574	0.146	−0.0192	0.019	6.8	0.40	6.6	0.81
Argentina	−0.0086	0.047	0.0063	0.023	3.7	1.99	3.3	1.69
Australia	0.0122	0.024	−0.0125	0.005	1.0	0.00	1.0	0.00
Austria	0.0217	0.020	0.0398	0.010	1.0	0.00	1.0	0.00
Bahamas	0.0542	0.072	0.0262	0.023	1.5	0.51	2.1	0.33
Bahrain	0.0433	0.122	0.0051	0.020	5.4	0.61	4.6	0.51
Bangladesh	0.0209	0.028	−0.0101	0.027	4.5	1.46	4.4	0.70
Barbados	0.0142	0.043	0.0243	0.010	1.0	0.00	1.2	0.39
Belgium	0.0135	0.031	0.0239	0.014	1.0	0.00	1.0	0.00
Benin	−0.0110	0.057	0.0148	0.036	7.0	0.00	6.5	0.72
Bolivia	−0.0190	0.049	−0.0012	0.036	4.1	2.03	3.7	0.85
Botswana	0.0410	0.091	0.0797	0.071	2.1	0.24	3.1	0.24
Brazil	0.0178	0.052	0.0327	0.029	3.5	0.94	3.5	1.18
Burkina Faso	0.0216	0.048	0.0158	0.017	5.4	1.80	4.8	1.03
Burma	0.0322	0.020	0.0276	0.024	6.9	0.33	6.2	0.73
Burundi	0.0121	0.057	0.0515	0.038	6.9	0.24	6.2	0.44
Cameroon	0.0208	0.069	0.0362	0.028	6.1	0.24	5.5	1.07
Canada	0.0250	0.034	0.0265	0.008	1.0	0.00	1.0	0.00
Cape Verde	0.0574	0.069	0.0059	0.019	5.7	0.48	6.1	0.57
Cent. Afr. Rep.	−0.0126	0.062	−0.0234	0.017	6.9	0.33	6.3	0.69
Chad	−0.0217	0.109	−0.0310	0.030	6.6	0.51	6.5	0.51
Chile	−0.0012	0.093	−0.0052	0.022	5.9	1.39	4.8	0.75
China	0.0571	0.046	0.0480	0.027	6.3	0.47	6.2	0.56
Colombia	0.0166	0.024	0.0126	0.007	2.0	0.00	2.8	0.39
Congo	0.0217	0.152	0.0146	0.038	6.5	0.87	6.2	0.39
Costa Rica	0.0091	0.056	0.0235	0.023	1.0	0.00	1.0	0.00
Cyprus	0.0282	0.106	0.0235	0.016	2.1	1.14	2.9	0.93
Denmark	0.0087	0.035	0.0148	0.015	1.0	0.00	1.0	0.00
Dominican Rep.	0.0010	0.043	0.0468	0.027	2.2	1.24	2.6	0.51
Ecuador	0.0170	0.065	0.0261	0.029	3.8	2.30	3.2	1.25
Egypt	0.0427	0.083	0.0481	0.028	5.1	0.66	4.6	0.80
El Salvador	−0.0091	0.072	0.0057	0.027	3.2	1.24	3.7	0.77
Ethiopia	0.0012	0.024	−0.0068	0.013	6.5	0.94	6.6	0.61
Fiji	−0.0013	0.061	−0.0101	0.019	2.4	1.18	2.3	0.85
Finland	0.0252	0.029	0.0268	0.012	1.9	0.33	1.9	0.33
France	0.0137	0.019	0.0285	0.014	1.0	0.00	1.9	0.33
Gabon	0.0238	0.235	0.0543	0.101	6.0	0.00	6.0	0.00
Gambia	0.0285	0.201	0.1064	0.080	2.5	0.51	2.8	0.95
Ghana	−0.0157	0.067	−0.0377	0.014	5.9	1.68	5.1	1.05
Greece	0.0124	0.029	0.0338	0.028	2.4	1.62	2.4	1.18

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Guatemala	−0.0025	0.036	0.0035	0.025	3.8	1.19	4.0	1.32
Guinea	0.0145	0.039	−0.0031	0.006	7.0	0.00	6.4	0.87
Guinea-Bissau	−0.0174	0.096	−0.0293	0.021	6.1	0.34	6.2	0.40
Guyana	−0.0183	0.116	−0.0037	0.024	4.2	0.90	3.9	1.11
Haiti	0.0021	0.047	0.0396	0.026	6.5	0.62	5.7	0.59
Honduras	0.0068	0.058	0.0009	0.023	4.2	1.98	3.0	0.00
Hungary	0.0283	0.036	0.0105	0.008	5.7	0.47	5.2	0.64
Iceland	0.0283	0.049	0.0282	0.011	1.0	0.00	1.0	0.00
India	0.0136	0.038	0.0132	0.004	2.0	0.00	3.1	0.83
Indonesia	0.0479	0.059	0.0785	0.033	5.0	0.00	5.3	0.47
Iran	0.0169	0.150	0.0478	0.038	5.4	0.49	5.8	0.39
Iraq	0.0092	0.242	0.0806	0.073	6.8	0.39	6.9	0.24
Ireland	0.0017	0.027	0.0244	0.015	1.0	0.00	1.2	0.44
Israel	0.0098	0.024	0.0192	0.019	2.0	0.00	2.4	0.49
Italy	0.0279	0.028	0.0268	0.007	1.2	0.44	1.5	0.51
Ivory Coast	−0.0155	0.057	0.0105	0.046	5.9	0.33	5.2	0.44
Jamaica	−0.0201	0.045	−0.0193	0.015	1.7	0.47	2.6	0.49
Japan	0.0248	0.029	0.0505	0.023	1.5	0.51	1.0	0.00
Jordan	0.0294	0.090	0.0832	0.058	5.7	0.47	5.6	0.49
Kenya	−0.0056	0.039	−0.0112	0.013	5.4	0.49	4.8	0.66
Kuwait	−0.0694	0.140	0.0444	0.049	4.9	1.03	4.0	0.71
Lesotho	0.0615	0.092	0.1147	0.050	5.2	0.53	4.6	0.79
Liberia	−0.0282	0.064	−0.0413	0.019	5.6	0.49	4.8	0.81
Luxembourg	0.0129	0.045	0.0122	0.007	1.3	0.47	1.0	0.00
Madagascar	−0.0343	0.041	−0.0288	0.015	5.2	0.44	5.2	0.88
Malawi	−0.0059	0.038	−0.0163	0.038	6.4	0.49	6.6	0.51
Malaysia	0.0335	0.079	0.0606	0.028	2.9	0.43	4.2	0.73
Mali	0.0086	0.037	0.0079	0.011	6.9	0.24	6.2	0.44
Malta	0.0528	0.036	0.0379	0.025	1.6	0.51	2.5	1.12
Mauritania	0.0025	0.097	0.0481	0.066	6.4	0.61	6.0	0.00
Mauritius	0.0475	0.084	0.0236	0.027	2.2	0.39	2.4	0.80
Mexico	0.0067	0.054	0.0201	0.024	3.7	0.59	3.7	0.47
Morocco	0.0246	0.040	0.0399	0.027	4.2	0.64	4.6	0.61
Mozambique	−0.0516	0.085	−0.0273	0.021	6.5	0.52	6.8	0.45
Nepal	0.0176	0.039	0.0484	0.020	4.4	1.50	4.4	0.51
Netherlands	0.0101	0.019	0.0119	0.010	1.0	0.00	1.0	0.00
New Zealand	0.0001	0.040	−0.0185	0.013	1.0	0.00	1.0	0.00
Nicaragua	−0.0460	0.181	−0.0021	0.037	5.1	0.43	4.6	0.61
Niger	−0.0029	0.079	−0.0053	0.029	6.8	0.39	6.0	0.00
Nigeria	−0.0164	0.079	0.0302	0.071	5.1	1.90	4.1	0.86
North Yemen	0.0470	0.056	0.0854	0.077	5.4	0.62	4.8	0.44
Norway	0.0238	0.034	0.0276	0.009	1.0	0.00	1.0	0.00
Pakistan	0.0244	0.031	−0.0143	0.009	4.9	1.58	4.9	0.60
Panama	0.0107	0.040	0.0212	0.026	5.7	1.10	4.6	1.17
Paraguay	0.0250	0.089	0.0597	0.035	5.0	0.35	5.4	0.49
Peru	−0.0083	0.068	0.0121	0.024	3.9	2.12	3.7	0.92
Philippines	0.0117	0.051	0.0216	0.029	4.4	1.00	4.3	1.21
Poland	−0.0073	0.076	−0.0152	0.005	5.8	0.39	5.2	0.64
Portugal	0.0191	0.055	0.0395	0.027	2.3	1.61	2.6	1.33
Rwanda	0.0099	0.048	0.0447	0.018	6.4	0.49	5.7	0.47
Saudi Arabia	0.0087	0.151	0.1818	0.094	6.0	0.00	6.4	0.51

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TABLE 1 (Continued)

	GDP growth mean	GDP growth std. dev.	KL growth mean	KL growth std. dev.	Pol. rights mean	Pol. rights std. dev.	Civil lib. mean	Civil lib. std. dev.
Senegal	0.0014	0.041	−0.0131	0.007	4.3	1.26	4.1	0.86
Sierra Leone	−0.0296	0.062	−0.0103	0.012	5.2	0.64	5.0	0.00
Singapore	0.0490	0.040	0.0955	0.021	4.5	0.51	5.0	0.00
Somalia	0.0042	0.162	0.0481	0.040	7.0	0.00	6.8	0.44
South Africa	0.0018	0.070	0.0073	0.018	4.8	0.40	5.8	0.45
South Korea	0.0583	0.055	0.0764	0.026	4.5	0.80	5.2	0.83
Spain	0.0109	0.029	0.0255	0.019	2.5	1.74	3.1	1.48
Sri Lanka	0.0264	0.051	0.0337	0.014	2.4	0.51	3.4	0.62
Sudan	0.0074	0.075	−0.0012	0.029	5.4	0.79	5.5	0.51
Suriname	0.0040	0.097	0.0167	0.037	4.2	2.26	3.8	1.88
Swaziland	−0.0135	0.103	0.0322	0.038	5.3	0.59	4.9	1.11
Sweden	0.0148	0.024	0.0169	0.010	1.1	0.24	1.0	0.00
Switzerland	0.0150	0.035	0.0264	0.010	1.0	0.00	1.0	0.00
Syria	0.0291	0.119	0.0477	0.037	5.8	0.64	6.6	0.49
Taiwan	0.0550	0.038	0.0798	0.034	5.2	0.44	4.8	0.66
Tanzania	0.0030	0.053	0.0019	0.018	6.0	0.00	6.0	0.00
Thailand	0.0362	0.040	0.0414	0.013	4.1	1.56	3.8	0.88
Togo	−0.0053	0.080	0.0280	0.048	6.6	0.49	5.9	0.33
Trin. & Tob.	−0.0121	0.149	0.0209	0.040	1.6	0.51	1.9	0.43
Tunisia	0.0203	0.037	0.0151	0.017	5.6	0.49	5.0	0.35
Turkey	0.0198	0.043	0.0405	0.023	2.8	1.03	4.0	0.87
Uganda	0.0493	0.189	−0.0175	0.026	5.8	1.15	5.6	1.27
United Kingdom	0.0200	0.029	0.0258	0.010	1.0	0.00	1.0	0.00
United States	0.0158	0.032	0.0171	0.009	1.0	0.00	1.0	0.00
United. Arab E.	−0.0252	0.109	−0.0185	0.096	5.3	0.59	5.0	0.00
Uruguay	0.0060	0.065	0.0115	0.025	4.2	1.64	4.2	1.59
Venezuela	0.0092	0.097	0.0271	0.043	1.2	0.44	2.0	0.00
West Germany	0.0185	0.027	0.0233	0.007	1.0	0.00	1.6	0.49
Yugoslavia	0.0243	0.046	0.0274	0.009	5.9	0.24	5.3	0.47
Zaire	−0.0443	0.060	0.0258	0.028	6.6	0.51	6.4	0.49
Zambia	−0.0514	0.079	−0.0501	0.027	5.1	0.24	5.0	0.35
Zimbabwe	−0.0007	0.078	−0.0158	0.020	4.8	1.13	5.2	0.53
Sample Averages	0.0102	0.068	0.0223	0.027	4.2	0.64	4.1	0.56

These qualitative variables are illustrated for the example of Bangladesh in Table 2. In 1972, Bangladesh had a political-rights rating of 4. This rating rose to 5 in 1975 and fell to 4 in 1976. The year 1976 is then defined as the beginning of a reform, and the qualitative variable RPD1 takes a value of 1 for this year. In 1977, this reform is sustained, so the variable RPD2 takes a value of 1 for this year. Similarly, RPD3,

TABLE 2 Time Series Models of Per Capita GDP Growth Rates

Model	AIC	Chi-sq lags 1–6	Chi-sq lags 7–12	AR(1)	AR(2)	MA(1)	MA(2)
Raw Data		0.000	0.000				
AR(1)	−4004.78	0.016	0.046	0.188			
				(7.83)			
AR(1), MA(1)	−4010.14	0.401	0.392	0.542		0.371	
				(5.50)		(3.41)	
AR(2)	−4008.68	0.203	0.266	0.174	0.065		
				(7.22)	(2.61)		
AR(2), MA(1)	−4008.17	0.268	0.308	0.602	−0.015	0.430	
				(2.07)	(−0.22)	(1.49)	
AR(2), MA(2)	−4006.25	0.119	0.238	1.349	−0.450	1.179	−0.315
				(.96)	(−0.62)	(0.84)	(−0.65)

RPD4, and RPD5 take values of 1 in 1978, 1979, and 1980. In civil rights, there are two Bangladesh reforms, one initiated in 1977 and one initiated in 1984. Each of these reforms is sustained for five years, with the variables RCD1, RCD2, RCD3, RCD4, and RCD5 taking values of 1 in years following the initiation of a reform in a manner similar to political rights. These qualitative variables allow the estimation of an empirical model which addresses the issue of causality of political- and civil-rights reforms on economic growth, and measures the magnitude and timing of the effects.

Regional variables are defined with the Middle East countries omitted to prevent singularity. The country groups for the geographic effect (with numbers of countries in parenthesis) are:

AMER North and South American continent countries (29)

ASIA Asian countries (18)

AFRI Africa (44)

EURO Europe (23)

There were eleven Middle Eastern countries in the sample.