# POLITICAL INSTITUTIONS AND POLICY VOLATILITY 

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#### Abstract

Checks and balances that limit the discretion of policy-makers reduce the volatility of government expenditure and revenue. While this assumption is at the heart of a large body of empirical work, the association between political institutions and policy volatility has itself been the focus of only limited empirical testing. The results presented here support the existence of this link, allow for a comparison between two prominent measures of checks and balances and provide insight into the relative impact of checks and balances on the volatility of nine different types of fiscal policy both during times of macroeconomic stability and upheaval.


Political economy models begin with the assertion that economic policy choices are not made by social planners, who live only in academic papers. Rather, economic policy is the result of political struggle within an institutional structure. The empirically oriented researcher and the policy advisor have to be well aware of how politics influences policymaking.
(Alesina and Perotti, 1994)

## 1. INTRODUCTION

LITERATURE IN political economy that reduces the policy-making process to the decisions of a unitary actor assumed to be omniscient, omnipotent and benevolent (Dixit, 1996) strays too far from the reality of a multiple principal multiple agent process (Dixit et al., 1997) in which each actor has a unique set of objectives, incentives, and constraints (Alesina and Tabellini, 1988). Most of the literature linking political institutions and economic outcomes has focused on the last of these features and asked whether institutions that offer "some credible restrictions on the state's ability to manipulate economic rules to the advantage of itself and its constituents" (North and Weingast, 1989, p. 808) can overcome what Weingast has labeled "the fundamental political dilemma of an economic system." Namely, "a government strong enough to protect property rights is also strong enough to confiscate the wealth of its citizens" (Weingast, 1993).

That confiscation may take the form of outright expropriation of assets or of a revenue stream from those assets but more commonly involves changes in the policy regime that intentionally or unintentionally have the result of

[^0]altering the value of the revenue stream generated by private sector assets. Examples include changes in tax policy, regulations, or procedural requirements. While such actions are often far removed from the expropriation of property, plant, and equipment, they still impact the decisions of private actors especially those that include long-lived up-front investments with substantially reduced value in their next-best use (Pindyck, 1991). These long-term investments in both physical and human capital are commonly identified as statistically and economically significant and robust determinants of economic growth (Barro, 1991, 1996; Levine and Renelt, 1992; Mankiw et al., 1992; Sala-i-Martin, 1997). Following this logic, Aizenman and Marion (1993), Ramey and Ramey (1994), Bleaney (1996), and Brunetti (1998) have demonstrated a strong negative relationship between policy uncertainty or volatility and economic growth in cross-country panel datasets, and Severn (1998) has done the same for private investment.

A related literature examines the link between political institutions and economic growth (Brunetti and Weder, 1994; Henisz, 2000; Knack and Keefer, 1995; Quinn and Woolley, 2001; Scully, 1988). The causal mechanism here is more opaque. One potential channel is through the predictability and stability of policies of interest to investors consistent with the theoretical arguments and empirical evidence described above. Other causal channels include the development of a strong and independent press or legal system (Dyck and Zingales, 2001), an improvement in the availability and efficiency of provision of public goods (Boix, 2001; Esfahani and Ramirez, 2003; Roller and Waverman, 2001; Tanzi and Davoddi, 1997), curtailment of corruption possibly through better monitoring and enforcement (Mauro, 1995; Tanzi and Davoddi, 1997), better rather than more stable or predictable economic policies (Ahn and Hemmings, 2000; Collier and Gunning, 1999; Frankel and Romer, 1996; Nelson and Singh, 1998; Sachs and Warner, 1995), and financial market development (Bekaert et al., 2001; Levine and Zervos, 1998; Levine et al., 2000; Rajan and Zingales, 1998). As the literature has largely established the existence of a linkage between political institutions and economic outcomes, the next challenge is to better understand precisely which political institutions matter and why.

This paper addresses one part of this research agenda by demonstrating a strong relationship between political institutions that provide checks and balances that limit the discretion of political actors and policy volatility in a broad sample of countries, time periods, and macroeconomic environments. To date, no empirical evidence - outside of a literature on policy responses to exogenous shocks in industrialized nations summarized below - actually links the structure of a nation's political institutions to the stability of economic policy. ${ }^{1}$ I also compare the efficacy of two widely used metrics of political institutions which differ in their assumptions regarding the impact

[^1]of political structure on the extent of checks and balances. I proceed by briefly reviewing the existing literature that links variation in the structure of a nation's political institutions to variation in economic outcomes in sections 2 and 3. The former considers the broad literature on the impact of political institutions defined either as democracy vs. autocracy or as institutions that limit political discretion while the latter focuses on variation within the literature examining political discretion. Section 4 develops the theoretical arguments that are then tested on a panel dataset containing infor-mation on three types of expenditure and six types of revenue for as many as 92 countries over as many as 23 years in section 5 . Section 6 concludes.

## 2. POLITICAL INSTITUTIONS

The literature examining the link between a nation's political institutions and its economic outcomes has typically focused on one of two dimensions. The first is the role of democracy versus autocracy where participatory democracies are either argued to offer higher aggregate expected returns (and growth prospects) because policy-makers favor national policy interests over the narrower particularistic and welfare-reducing policies of an autocracy ${ }^{2}$ (North, 1990; Olson, 1993) and enhance transparency and accountability (Baba, 1997; Wittman, 1989), or alternatively, to offer lower returns (and growth prospects) as competing interests create costly policy logrolls that divert economic resources away from their first-best uses (Olson, 1965, 1982) and incentives vary over the electoral cycle (Nordhaus, 1975) and from one government to the next (Alesina et al., 1996). The empirical literature in this domain has accordingly produced mixed results (Brunetti, 1997; Przeworski and Limongi, 1993).

Within the growth literature, Rodrik (1999) has recently argued that the benefits of democracy are most apparent in the presence of exogenous shocks to the system that require negotiation regarding the reallocation of resources. Relatedly, Quinn and Woolley (2001) find that democracies serve to increase not the rate of growth but the volatility-adjusted rate of growth as citizens are willing to trade lower economic growth rates for more stability. Results of empirical specifications such as these where the benefits of democracy are conditional on certain macroeconomic conditions or a more nuanced economic outcome than simply the rate of economic growth have generally yielded more favorable and consistent results. Both the unconditional formulation that characterizes much of the research in this domain and the more nuanced specifications pursued by Rodrik, Quinn and others, however, neglect the question of the mechanisms by which democracies guarantee the policy frameworks that benefit these broad national

[^2]interests against the possibly divergent and particularistic prefer-ences of either a dominant interest group or of the next government.

Several researchers have responded to this challenge by turning away from the dichotomy of democracy versus autocracy and to an examination of the institutional and political constraints placed on the discretion of policy-makers in democracies and autocracies alike (Clague et al., 1996; Durham, 1999; Knack and Keefer, 1995; Mauro, 1995). Here, either explicitly or implicitly, a democracy in which the executive controls 100 percent of the seats of the legislature and has appointed all of the sitting justices of the supreme court is distinguished from one in which multiple parties and preferences are represented in the various chambers of government or even within a given branch of government and are forced to work together to achieve policy outcomes. In short, the distinction between democracies and autocracies is largely retained in that the latter typically face few checks and balances but more is made of the gradations within democracies and the cross-national and intertemporal variation in the ease with which political actors may alter policy.

Like the theoretical and empirical problems generated by the presence of democracies hostile to private enterprise and autocracies that are favorable thereto, however, this operationalization also suffers from an important flaw: namely that the same institutions that can provide a credible commitment to the stability of good status quo policies may impede the adjustment to external shocks that require a policy response (Rodrik, 2000). Empirical specifications that seek to identify the link between the political institutions of a country and economic policy outcomes must incorporate both of these effects. Specifically, they should examine the role of checks and balances in a country's political environment in both reducing the unconditional volatility of various policies as well the responsiveness of these policies to volatility in the macroeconomic environment. As one of these effects may not be economically desirable, an evaluation of the normative benefits of additional checks and balances will depend on the relative magnitude of these two effects. The comparison provided here across a wide range of government policies will help both investors and policy-makers distinguish between the benefits of constraining policy-makers and the risks of creating policy gridlock.

## 3. SUBJECTIVE MEASURES, CHECKS AND BALANCES, OR POLITICAL CONSTRAINTS

The two pioneering empirical studies that shifted focus from the political science constructs of democracy vs. autocracy or political stability to the credibility of the policy environment both relied upon subjective indices of that environment derived either from the opinions of either local businesspeople or country experts (Borner et al., 1995; Knack and Keefer, 1995). Similarly, Campos and Nugent (1998) use principal components analysis on
multiple subjective scores compiled within the Polity III database (Gurr, 1999) to capture the likelihood of policy instability in their study of crossnational variation in investment, and Mauro (1995) employs one of the subjective scores employed by Knack and Keefer (1995) spliced onto an earlier dataset compiled by the Economist. Finally, Brunetti and Weder (1997) expand upon their earlier study with the assistance of the World Bank to conduct another subjective survey of investor perceptions.

The first shortcoming of such strategies is the lack of consistent historical information on the opinions of these individuals resulting in the danger of endogeneity if one uses current opinions to predict historical economic outcomes as well as the potential for variation in the rating scores caused solely by variation in the coders. The second shortcoming is that such subjective ratings fail to forge an explicit link between objective characteristics of the political institutions and economic outcomes but rather rely on the unknown relationship between investor or expert opinions of credibility and these institutions. Establishing a relationship between perceptions and outcomes without a clear sense of the origins of perceptions presents both investors and policy-makers with difficulty in their attempts to generalize these findings to other countries or time periods where political institutions differ in certain respects or the characteristics of the investment profile have changed. In fact, such perceptions are best viewed as outcomes of a political process rather than independent measures of the underlying political institutions that shape that process. Finally, and most seriously, the correlation between these subjective indices and the true nature of political institutions will break down in precisely the moments in which correct signals are most valuable: during a speculative bubble in which investors ignore the hazard of a change in the policy regime. Despite notable improvements in scores of corruption, bureaucratic efficiency, the likelihood of contract repudiation, government expropriation and government quality in Indonesia from 1993-1997, investors in 1998 learned that the underlying ability of Presidents Suharto or Habibe to alter the rules of the game in a manner that expropriated their assets and/or the revenue streams of those assets continued to pose a substantial hazard to their long-term profitability.

In response to these weaknesses in both measures of democracy or subjective measures of policy credibility, Henisz (2000) and Beck et al. (2001) develop objective measures of the credibility provided by the structure of a country's political institutions using different assumptions regarding the relative importance of veto points and the homogeneity vs. heterogeneity of preferences within each veto point. Theoretical work within the political science literature argues that such criteria are closely linked to the constraints faced by policy-makers. For example, the work of George Tsebelis concludes, "the potential for policy change decreases with the number of veto players, the lack of congruence (dissimilarity of policy positions among veto players) and the cohesion (similarity of policy positions among the
constituent units of each veto player)" (Tsebelis, 1995). Similar results are reported in Butler and Hammond (1997) and Hammond and Butler (1996).

These theoretical insights are supported by a number of empirical studies that examine the responsiveness of policies to certain exogenous shifts in the economic or policy environment or examine long-term trends in fiscal or monetary policy. For example, Hallerberg and Basinger (1998) find that in response to the policy innovation of tax cuts enacted by the United States in the 1980s, other OECD nations with few de facto veto points lowered their tax rates by a greater amount than countries with a larger number of such checks and balances. Franzese (2002) and Treisman (2000) find that countries with more veto points have stable levels (either high or low) of government deficits and inflation respectively. The vast literature on political determinants of budget deficits [see Persson and Tabellini (1999) for a recent review] that posits that countries with a larger number of policy-makers will have a more difficult time allocating costs (tax revenue) but will be more likely to generate policy logrolls that increase spending (expenditure) and thus generate larger deficits is also consistent with the underlying logic presented here especially to the extent that it isolates the fiscal response to exogenous shocks (Alt and Lowry, 1994; Persson, 2001; Poterba, 1994; Roubini and Sachs, 1989). ${ }^{3}$

While these studies provide preliminary evidence in support of the importance of veto points for policy stability they each examine a relatively limited sample of countries (often a subset of the OECD members), consider a limited and varying set of veto points and focus on a single policy. I seek to extend these preliminary empirical tests of the veto point perspective by examining the ability of two measures of veto points to predict the annual volatility of nine different fiscal policies in a large population of countries over several decades.

## 4. HYPOTHESES

Political structures that impose checks and balances on policy-makers reduce policy volatility through two distinct mechanisms. First, they minimize the ability of politicians to respond to short-term political or social incentives to favor one group over another or transfer resources from society to the public sector. In polities characterized by multiple independent veto players, such actions are more likely to be blocked by a political actor that draws support from the disadvantaged class or to be exposed in public debate thereby engendering opposition from the disadvantaged class that ultimately yields an operational veto.

[^3]Hypothesis 1. Checks and balances on the discretion of policy-makers will be positively associated with policy stability, ceteris paribus.

Checks and balances on policy-makers' discretion should also serve to moderate the policy response to exogenous economic shocks. Constrained policy-makers will be less able to craft a change in a given policy that is amenable to all veto players and the status quo policy will be likely to persist even in the face of a substantial shift in the macroeconomic environment.

Hypothesis 2. Checks and balances on the discretion of policy-makers will moderate the impact of macroeconomic shocks on policy outcomes.

While narrowly targeted policies are largely welfare destroying and constraints upon them should promote investment, economic efficiency, and growth, the welfare implications of reducing policy responsiveness are less clear. The desired quantity of policy response to economic shocks varies with political and economic ideology. Some would view politicians as unable to meaningfully respond to shocks without adding new distortions or responding with such a lag that the policy becomes pro- rather than countercyclical. Others would argue that it is exactly the development of countercyclical policies that has cushioned the blow of the economic business cycle and allowed for the continued development of modern capitalism after the severe threats posed by nineteenth- and twentiethcentury global depressions. The empirical results presented herein will not attempt to evaluate the veracity of these positions. I note, however, that policy responsiveness to exogenous shocks is not as clearly welfare destroying as policy changes that are more arbitrary. It is therefore of interest to examine the relative reduction in overall policy volatility that arises from a reduction in the unconditional policy volatility versus the volatility caused by exogenous economic shocks.

## 5. EMPIRICS

### 5.1 Data and Specification

Dependent Variables. Following Severn (1998), I employ the "conditional variance of the innovation to policy as the measure of policy uncertainty, constructed using the generalized conditional heteroskedasticity (GARCH) specification of Bollerslev (1986)" (Severn, 1998, p. 9). I calculate this measure for nine different fiscal policies including three subcategories of expenditure (goods and services, subsidies, and capital expenditure) and six subcategories of revenue (non-tax, taxes on goods and services, taxes on capital and profits, taxes on trade, social security taxes, and other taxes) all normalized by a country's level of gross domestic product (GDP). The countries with the largest average volatility in each of these nine measures of fiscal policy are provided in Table 1.
Table 1 Countries with Most Volatile Economic Policies

|  | Goods and services expenditure/ GDP | Subsidies and transfers/ GDP | $\begin{aligned} & \text { Capital } \\ & \text { expenditure/ } \\ & \text { GDP } \end{aligned}$ | Non-tax revenue/ GDP | Taxes on goods and services/ GDP | Taxes on capital and profits/GDP | Other taxes/ GDP |  | Taxes on trade/GDP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (1) | Namibia | Greece | Swaziland | Romania | Romania | Venezuela | Zimbabwe | Romania | Guyana |
| (2) | Israel | Romania | Zimbabwe | Guyana | St. Lucia | Romania | Romania | Greece | Swaziland |
| (3) | Greece | Yemen, Rep. | Tonga | Indonesia | Croatia | Cameroon | Argentina | Japan | Somalia |
| (4) | Romania | Namibia | Guyana | Botswana | Mexico | PNG | Hungary | Sweden | Namibia |
| (5) | Oman | Zimbabwe | Romania | Egypt | Argentina | Namibia | Barbados | Italy | Uganda |
| (6) | Solomon Isl. | Chile | Guinea-Bissau | Morocco | Hungary | Botswana | Venezuela | Zimbabwe | Gambia, The |
| (7) | PNG* | Israel | Morocco | Cameroon | Mongolia | Swaziland | Israel | Argentina | Botswana |
| (8) | Guyana | Bolivia | Vanuatu | PNG | Costa Rica | Zimbabwe | Uruguay | Guyana | Costa Rica |
| (9) | Liberia | PNG | Solomon Isl. | Brazil | Kenya | Indonesia | Belize | Estonia | St. Lucia |
| (10) | Bahrain | Argentina | Maldives | Yemen, Rep. | Guyana | St. Lucia | Somalia | Costa Rica | Ghana |
| (11) | Iran | Tunisia | Gambia, The | Zimbabwe | St. Kitts \& Nevis | Oman | UK | Chile | Egypt |
| (12) | Yemen, Rep. | Solomon Isl. | Liberia | Togo | China | Morocco | Belarus | Luxembourg | Cameroon |
| (13) | Congo, Dem. | Egypt | Oman | Venezuela | Morocco | Israel | Cameroon | Barbados | Vanuatu |
| (14) | Belarus | Belarus | Egypt | Iran | Greece | Luxembourg | Sweden | Belarus | Sierra Leone |
| (15) | Croatia | Guyana | Venezuela | Mongolia | Israel | Zambia | Tonga | Netherlands | St. Kitts \& Nevis |
| (16) | Vanuatu | Mexico | Namibia | Oman | Belarus | Barbados | Paraguay | Tunisia | Solomon Isl. |
| (17) | Malaysia | UK | Cameroon | Burkina Faso | Estonia | Italy | Mali | St. Lucia | Kenya |
| (18) | Egypt | Luxembourg | Singapore | Israel | Brazil | Guyana | Korea, Rep. | Hungary | Zambia |
| (19) | Syria | Hungary | St. Lucia | Malaysia | Luxembourg | Ecuador | Greece | UK | Belize |
| (20) | Kenya | Syria | Malaysia | St. Lucia | Uganda | Malaysia | Morocco | France | Dominican Rep. |
| (21) | Bolivia | Belgium | Iran | Namibia | Sierra Leone | Mongolia | St. Vincent | Brazil | Senegal |
| (22) | Zambia | Costa Rica | Dominican Rep. | Argentina | Swaziland | Japan | Peru | Norway | Venezuela |
| (23) | Costa Rica | Finland | Malawi | Tunisia | Thailand | Kenya | Cyprus | Egypt | Philippines |
| (24) | St. Lucia | Bulgaria | PNG | Ethiopia | Zambia | Sweden | Chile | Croatia | Jordan |
| (25) | Tunisia | Kenya | Sudan | Kenya | Ghana | Estonia | St. Lucia | Uruguay | Congo, Dem. |

[^4]Checks and Balances on Policy-Makers' Discretion. ${ }^{4}$ I employ two different measures of the checks and balances on a policy-maker's discretion. First, as described by Beck et al. (2001), CHECKS2a "counts the number of veto players in a political system, adjusting for whether these veto players are independent of each other, as determined by the level of electoral competitiveness in a system, their respective party affiliations, and the electoral rules." The index yields a minimum score in the absence of an effective legislature. The index score then increases linearly with the addition of subsequent veto points whose political preferences are closer to the opposition ${ }^{5}$ than the average of the government using a three-point scale using different methodologies for Presidential (one increase for each legislative chamber and for the President unless elections are held under closed lists and the President's party is the largest government party in a particular chamber in which case the President is not counted as a check) and Parliamentary systems (one increase for the Prime Minister and for each party in the government coalition including the Prime Minister's party with a similar reduction as above in the event of closed lists) (Beck et al., 2001).

While the CHECKS2a index takes into account the complex relationship between veto points, party preferences, and preference heterogeneity, it also assumes a linear relationship between the number of adjusted veto points and the degree of constraints on policy change. Similarly, the number of adjusted veto points increases linearly in Parliamentary systems with each addition of a party to the ruling coalition without regard to the relative size of the parties in the coalition. Each of these results contradicts the theoretical findings of Tsebelis (1995) described above.

Henisz (2000) provides an alternative measure. The Political Constraint Index (POLCONV) similarly begins by assigning those countries without effective veto points with the lowest score. However, Henisz (2000) relies upon a simple spatial model of political interaction to derive the extent to which any one political actor or the replacement for any one actor - e.g. the executive or a chamber of the legislature - is constrained in his or her choice of future policies. The first step in the construction of this variable is the identification, using the Polity III database (Gurr, 1999), of the number of independent branches of government (executive, lower and upper legislative

[^5]chambers, judiciary, and sub-federal institutions) with veto power over policy change in each country. The preferences of each of these branches and the status quo policy are then assumed to be independently and identically drawn from a uniform, unidimensional policy space. This assumption allows for the derivation of a quantitative measure of institutional constraints using a simple spatial model of political interaction.

This initial measure is then modified to take into account the extent of alignment across branches of government using data on the party composition of the executive and legislative branches. Alignment across branches increases the feasibility of policy change thereby reducing the level of political constraints. ${ }^{6}$ The measure is then further modified to capture the extent of preference heterogeneity within each legislative branch. Greater within-branch heterogeneity increases (decreases) the costs of overturning policy for aligned (opposed) branches. Possible scores for the final measure of political constraints range from zero (most hazardous) to one (most constrained).

In contrast to the CHECKS2a measures, POLCONV does show diminishing marginal returns to the addition of subsequent veto points and the functional form of those diminishing returns is not arbitrary (such as would be the case if the CHECKS2a scores were logged or otherwise mathematically transformed) but rather derived from the spatial model. Similarly, rather than assuming that the addition of a new party to a coalition adds one new veto player, POLCONV examines the impact of that party on the fractionalization of the legislature (the probability that two random draws will belong to the same party). This construct has often been used by political scientists to assess the difficulty in managing a coalition. Finally, rather than using different rules to calculate veto points for Presidential and Parliamentary systems, POLCONV follows the same methodology but does yield important differences in the scores across these two political systems as Parliamentary systems are characterized by alignment between the executive and legislature and tend to have more fragmented legislatures. Thus the differences again emerge from the spatial model rather than ad hoc construction.

Unfortunately, several important flaws also characterize POLCONV. First, as fractionalization data were not available at the level of the opposition and majority, the fractionalization of the entire legislature was used as an imperfect proxy. Second, while judicial independence is clearly an important check on political discretion, it is unclear whether it emerges or can be sustained independently of an independent legislature and therefore whether it should be treated as a completely independent veto point. Similar criticisms can be levied against the use of sub-federal entities.

[^6]Macroeconomic Volatility. The conditional variance of the innovation to GDP computed using the same methodology as the dependent variable captures the level of macroeconomic volatility. This term enters both directly and as an interaction with the level of checks and balances to allow for the effect of each variable to vary based on the value taken by its counterpart.

Additional Independent Variables. I also employ the level of the relevant dependent variable as a control to take into account that countries with larger expenditures and/or revenues will typically have more volatile fiscal policies as well. Finally, the specification includes both country and year indicator variables to capture unobserved effects that are either countryspecific and time-invariant (e.g. persistent cross-country variation in income, the sectoral composition of output, openness to trade, culture, religion, etc.) or time-specific and country-invariant (e.g. global economic cycles). Summary statistics are provided in Table 2.

Sample. Data were drawn from as many as 172 countries over as long as 18 years (1971-1998). However, due to casewise deletion of records with missing values, the estimating sample was far smaller than its potential maximum of 6,708 . Estimating sample sizes and the number of countries in each regression are reported in Table 3.

Methodology. In order to compute the coefficient estimates while accounting for both intertemporal and cross-sectional correlation in the error term, I estimate the standard errors using a robust covariance matrix estimator based on that developed by Newey and West (Greene, 1997, pp. 503-506; Newey and West, 1987). ${ }^{7}$

### 5.2 Results

Table 3 displays the results obtained in the 18 equations estimated (nine different measures of fiscal policy for two different measures of the credibility of the policy environment). In 13 of the 18 equations, the

[^7]Table 2 Summary Statistics

| Variable | $N$ | Mean | Median | Maximum | Minimum | Std. dev. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Volatility in Goods and Services Expenditure/GDP | 1,574 | $3.45 \mathrm{E}-04$ | $1.07 \mathrm{E}-04$ | $8.62 \mathrm{E}-03$ | $2.01 \mathrm{E}-10$ | $7.58 \mathrm{E}-04$ |
| Volatility in Subsidies and Transfers/GDP | 1,575 | $3.82 \mathrm{E}-04$ | $1.12 \mathrm{E}-04$ | $2.03 \mathrm{E}-02$ | $6.23 \mathrm{E}-09$ | $9.90 \mathrm{E}-04$ |
| Volatility in Capital Expenditure/GDP | 1,746 | $5.07 \mathrm{E}-04$ | $7.39 \mathrm{E}-05$ | $1.98 \mathrm{E}-02$ | $4.05 \mathrm{E}-11$ | $1.43 \mathrm{E}-03$ |
| Volatility in Non-Tax Revenue/GDP | 1,986 | $5.72 \mathrm{E}-05$ | $1.61 \mathrm{E}-05$ | $1.05 \mathrm{E}-02$ | $2.27 \mathrm{E}-10$ | $2.78 \mathrm{E}-04$ |
| Volatility in Taxes on Goods and Services/GDP | 1,965 | $7.95 \mathrm{E}-05$ | $2.41 \mathrm{E}-05$ | $4.07 \mathrm{E}-02$ | $2.50 \mathrm{E}-10$ | $9.33 \mathrm{E}-04$ |
| Volatility in Taxes on Capital and Profits/GDP | 1,970 | $1.74 \mathrm{E}-04$ | $3.52 \mathrm{E}-05$ | $1.75 \mathrm{E}-02$ | $7.05 \mathrm{E}-10$ | $7.55 \mathrm{E}-04$ |
| Volatility in Other Taxes/GDP | 1,946 | $1.68 \mathrm{E}-05$ | $1.97 \mathrm{E}-06$ | $9.32 \mathrm{E}-04$ | $2.49 \mathrm{E}-11$ | $6.65 \mathrm{E}-05$ |
| Volatility in Social Security Taxes/GDP | 1,395 | $8.47 \mathrm{E}-05$ | $1.53 \mathrm{E}-05$ | $9.33 \mathrm{E}-03$ | $2.81 \mathrm{E}-11$ | $3.85 \mathrm{E}-04$ |
| Volatility in Taxes on Trade/GDP | 1,970 | $1.60 \mathrm{E}-04$ | $1.51 \mathrm{E}-05$ | $5.27 \mathrm{E}-02$ | $1.68 \mathrm{E}-11$ | $1.40 \mathrm{E}-03$ |
| Goods and Services Expenditure/GDP | 2,358 | $1.18 \mathrm{E}-01$ | $1.04 \mathrm{E}-01$ | $4.41 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $6.30 \mathrm{E}-02$ |
| Subsidies and Transfers/GDP | 2,357 | $9.50 \mathrm{E}-02$ | $6.00 \mathrm{E}-02$ | $1.91 \mathrm{E}+00$ | $0.00 \mathrm{E}+00$ | $9.58 \mathrm{E}-02$ |
| Capital Expenditure/GDP | 2,527 | $5.16 \mathrm{E}-02$ | $3.77 \mathrm{E}-02$ | $4.09 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $4.65 \mathrm{E}-02$ |
| Non-Tax Revenue/GDP | 2,650 | $2.86 \mathrm{E}-02$ | $2.29 \mathrm{E}-02$ | $1.77 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $2.11 \mathrm{E}-02$ |
| Taxes on Goods and Services/GDP | 2,649 | $4.93 \mathrm{E}-02$ | $3.90 \mathrm{E}-02$ | $1.95 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $3.72 \mathrm{E}-02$ |
| Taxes on Capital and Profits/GDP | 2,651 | $5.23 \mathrm{E}-02$ | $4.01 \mathrm{E}-02$ | $2.58 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $4.33 \mathrm{E}-02$ |
| Other Taxes/GDP | 2,648 | $8.25 \mathrm{E}-03$ | $5.49 \mathrm{E}-03$ | $1.41 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $9.25 \mathrm{E}-03$ |
| Social Security Taxes/GDP | 2,652 | $2.45 \mathrm{E}-02$ | $4.66 \mathrm{E}-03$ | $1.87 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $3.92 \mathrm{E}-02$ |
| Taxes on Trade/GDP | 2,649 | $3.18 \mathrm{E}-02$ | $2.18 \mathrm{E}-02$ | $2.93 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $3.52 \mathrm{E}-02$ |
| POLCONV | 5,001 | $2.58 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $8.90 \mathrm{E}-01$ | $0.00 \mathrm{E}+00$ | $3.35 \mathrm{E}-01$ |
| CHECKS2a | 3,495 | $2.06 \mathrm{E}+00$ | $2.00 \mathrm{E}+00$ | $1.50 \mathrm{E}+01$ | $0.00 \mathrm{E}+00$ | $1.39 \mathrm{E}+00$ |
| Volatility in GDP | 5,295 | $3.77 \mathrm{E}-03$ | $1.30 \mathrm{E}-03$ | $4.21 \mathrm{E}-01$ | $5.75 \mathrm{E}-10$ | $1.16 \mathrm{E}-02$ |

Table 3 Political Institutions and Policy Volatility

|  | Goods and services expenditure GDP | Subsidies and transfers/ GDP | $\begin{gathered} \text { Capital } \\ \text { expenditure/ } \\ \text { GDP } \end{gathered}$ | Non-tax revenue/ GDP | Taxes on goods and services/ GDP | Taxes on capital and profits/ GDP | Other taxes GDP | Social security taxes/GDP | Taxes on trade/GDP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| C | $\begin{gathered} -0.000117 \\ 0.27 \end{gathered}$ | $\begin{gathered} 0.000682 \\ 0.00 \end{gathered}$ | $\begin{gathered} 0.000157 \\ 0.24 \end{gathered}$ | $\begin{gathered} 0.000082 \\ 0.19 \end{gathered}$ | $\begin{gathered} -0.000016 \\ 0.94 \end{gathered}$ | $\begin{gathered} 0.000025 \\ 0.61 \end{gathered}$ | $\begin{gathered} 0.000196 \\ 0.02 \end{gathered}$ | $\begin{gathered} -0.000081 \\ 0.71 \end{gathered}$ | $\begin{gathered} -0.000272 \\ 0.27 \end{gathered}$ |
| Level of Dep. Var. | $\begin{gathered} 0.006310 \\ 0.00 \end{gathered}$ | $\begin{gathered} 0.003908 \\ 0.02 \end{gathered}$ | $\begin{gathered} 0.009398 \\ 0.01 \end{gathered}$ | $\begin{gathered} -0.001827 \\ 0.47 \end{gathered}$ | $\begin{gathered} 0.012550 \\ 0.17 \end{gathered}$ | $\begin{gathered} 0.007235 \\ 0.16 \end{gathered}$ | $\begin{gathered} 0.002871 \\ 0.01 \end{gathered}$ | $\begin{gathered} 0.013375 \\ 0.01 \end{gathered}$ | $\begin{gathered} 0.026660 \\ 0.02 \end{gathered}$ |
| CHECKS2a | $\begin{gathered} -0.000020 \\ 0.29 \end{gathered}$ | $\begin{gathered} -0.000021 \\ 0.30 \end{gathered}$ | $\begin{gathered} -0.000046 \\ 0.17 \end{gathered}$ | $\begin{gathered} -0.000018 \\ 0.07 \end{gathered}$ | $\begin{gathered} -0.000030 \\ 0.29 \end{gathered}$ | $\begin{gathered} -0.000003 \\ 0.82 \end{gathered}$ | $\begin{gathered} -0.000002 \\ 0.04 \end{gathered}$ | $\begin{gathered} -0.000010 \\ 0.41 \end{gathered}$ | $\begin{gathered} -0.000018 \\ 0.37 \end{gathered}$ |
| Volatility of GDP | $\begin{gathered} 0.063253 \\ 0.00 \end{gathered}$ | $\begin{gathered} 0.004689 \\ 0.56 \end{gathered}$ | $\begin{gathered} 0.024455 \\ 0.01 \end{gathered}$ | $\begin{gathered} -0.003657 \\ 0.21 \end{gathered}$ | $\begin{gathered} 0.004629 \\ 0.28 \end{gathered}$ | $\begin{gathered} 0.008681 \\ 0.01 \end{gathered}$ | $\begin{gathered} 0.000396 \\ 0.14 \end{gathered}$ | $\begin{gathered} 0.003825 \\ 0.16 \end{gathered}$ | $\begin{gathered} 0.006177 \\ 0.45 \end{gathered}$ |
| Volatility of GDP*CHECKS2a | $\begin{gathered} -0.003910 \\ 0.54 \end{gathered}$ | $\begin{gathered} -0.000019 \\ 0.99 \end{gathered}$ | $\begin{gathered} -0.009488 \\ 0.02 \end{gathered}$ | $\begin{gathered} 0.004002 \\ 0.07 \end{gathered}$ | $\begin{gathered} -0.001290 \\ 0.50 \end{gathered}$ | $\begin{gathered} -0.004002 \\ 0.04 \end{gathered}$ | $\begin{gathered} -0.000350 \\ 0.13 \end{gathered}$ | $\begin{gathered} -0.002972 \\ 0.11 \end{gathered}$ | $\begin{gathered} 0.001611 \\ 0.68 \end{gathered}$ |
| $N$ | 1,377 | 1,378 | 1,474 | 1,695 | 1,686 | 1,680 | 1,657 | 1,219 | 1,681 |
| Number of Countries | 76 | 76 | 80 | 92 | 91 | 90 | 89 | 64 | 90 |
| Range of Years | 1975-97 | 1975-97 | 1975-97 | 1975-97 | 1975-97 | 1975-97 | 1975-97 | 1975-97 | 1975-97 |
| Adjusted $R$-squared | 0.62 | 0.51 | 0.58 | 0.12 | 0.06 | 0.52 | 0.67 | 0.31 | 0.25 |
| Relative to Mean of the Dependent Variable |  |  |  |  |  |  |  |  |  |
| Unconditional Impact* |  |  | -7.3\% | -22.9\% |  | -8.5\% | -16.9\% |  |  |
| Impact* during GDP shock |  |  | -22.7\% | 26.3\% |  | -26.2\% |  |  |  |
| Relative to Standard Deviation of the Dependent Variable |  |  |  |  |  |  |  |  |  |
|  |  |  | -2.5\% | -0.5\% |  | -1.9\% | -4.3\% |  |  |
| Impact* during GDP shock |  |  | -7.7\% | 0.5\% |  | -5.9\% |  |  |  |

[^8]TABLE 3 Continued

|  | Goods and services expenditure/ GDP | Subsidies and transfers/ GDP | $\begin{gathered} \text { Capital } \\ \text { expenditure/ } \\ \text { GDP } \end{gathered}$ | Non-tax revenue/ GDP | Taxes on goods and services/GDP | Taxes on capital and profits/GDP | Other taxes/GDP | $\begin{gathered} \text { Social } \\ \text { security } \\ \text { taxes/GDP } \end{gathered}$ | Taxes on trade/GDP |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| C | 0.000269 | 0.001080 | 0.000242 | 0.000114 | 0.000081 | 0.000248 | 0.000214 | 0.000091 | -0.000268 |
|  | 0.02 | 0.00 | 0.06 | 0.13 | 0.61 | 0.01 | 0.02 | 0.66 | 0.48 |
| Level of Dep. Var. | 0.007821 | 0.004428 | 0.009413 | $-0.001666$ | 0.011336 | 0.008519 | 0.002390 | 0.011668 | 0.022972 |
|  | 0.00 | 0.01 | 0.01 | 0.50 | 0.20 | 0.06 | 0.06 | 0.01 | 0.01 |
| POLCONV | -0.000023 | -0.000404 | -0.000538 | -0.000185 | -0.000308 | -0.000165 | -0.000043 | -0.000154 | 0.000256 |
|  | 0.86 | 0.05 | 0.08 | 0.07 | 0.26 | 0.15 | 0.01 | 0.15 | 0.24 |
| Volatility of GDP | 0.077071 | 0.002006 | 0.015959 | 0.001396 | 0.001992 | 0.007939 | 0.000050 | 0.00574 | 0.007057 |
|  | 0.00 | 0.63 | 0.03 | 0.32 | 0.28 | 0.04 | 0.52 | 0.62 | 0.15 |
| Volatility of GDP * POLCONV | -0.061373 | 0.001751 | -0.025247 | 0.006298 | 0.000483 | -0.020640 | -0.002156 | -0.006891 | -0.023634 |
|  | 0.01 | 0.92 | 0.07 | 0.45 | 0.96 | 0.01 | 0.09 | 0.25 | 0.03 |
| $N$ | 1,463 | 1,464 | 1,581 | 1,694 | 1,783 | 1,786 | 1,762 | 1,319 | 1,778 |
| Number of Countries | 71 | 71 | 77 | 87 | 86 | 86 | 85 | 61 | 85 |
| Range of Years | 1971-98 | 1971-98 | 1971-98 | 1971-98 | 1971-98 | 1971-98 | 1971-98 | 1971-98 | 1971-98 |
| Adjusted $R$-squared | 0.64 | 0.50 | 0.60 | 0.12 | 0.07 | 0.58 | 0.66 | 0.30 | 0.24 |
| Relative to Mean of the Dependent Variable |  |  |  |  |  |  |  |  |  |
| Unconditional Impact* | -13.5\% | -37.2\% | -48.5\% | -110.7\% |  | -9.0\% | -99.7\% |  | -11.9\% |
| Impact* during GDP shock | -37.4\% |  | -58.9\% |  |  | -29.0\% | -121.0\% |  | -38.1\% |
| Relative to Standard Deviation of the Dependent Variable |  |  |  |  |  |  |  |  |  |
| Unconditional Impact* | -6.0\% | -14.2\% | -15.7\% | -2.3\% |  | -2.1\% | -24.8\% |  | -1.3\% |
| Impact* during GDP shock | -16.6\% |  | -19.0\% |  |  | -6.7\% | -30.1\% |  | -4.1\% |

[^9]coefficient on the level of the dependent variable is positive and significant at a $p$-value below 0.05 . In each equation, the coefficients on the country and time period dummy variables were jointly significant.

Turning to the variables of theoretical interest, countries scoring higher on the CHECKS2a and POLCONV indices had lower levels of policy volatility for capital expenditures, non-tax revenue, taxes on capital and profits, and other taxes. Countries with higher POLCONV scores also had lower volatility in goods and services expenditures, subsidies and transfers, and taxes on trade. The economic magnitude of these effects was substantial. Table 3 also presents the impact of a one standard deviation improvement in political institutions on the dependent variable as a percentage of both the mean and one standard deviation of that dependent variable. While the latter values are relatively small, the skewness of the dependent variable provides cause to consider the former scores as well. Here declines of between 7 and 23 percent and averaging 14 percent of the mean value (for CHECKS2a) and between 9 and 111 percent averaging 47 percent of the mean value (for POLCONV) are recorded.

With the exception of non-tax revenue, other taxes (CHECKS2a) and subsidies and transfers (POLCONV) each of these reductions in policy volatility was also larger in the presence of shocks to per capita income. The increase in the economic magnitude of the effect of the political institutions on policy volatility in the presence of a one standard deviation increase in the volatility of GDP was substantial, ranging from approximately 20 percent (capital expenditure when using POLCONV, and other taxes when using both measures) to over 300 percent (capital expenditure when using CHECKS2a and goods and service expenditure or taxes on trade when using POLCONV, and taxes on capital and profits when using both measures).

### 5.3 Discussion

The pattern of results speaks not only to the importance of institutional checks and balances on the discretion of policy-makers for the stability of a given policy regime but also to the relative strength of the two measures of political institutions and of the impact of such checks and balances or constraints on a range of different fiscal policies in periods of economic stability and upheaval. I discuss these three issues in turn.

Beginning with the comparison between CHECKS2a and POLCONV, note that the latter was significant in seven of the nine fiscal policies while the former only in four. Even where both are statistically significant, the economic magnitude of the effect is larger using the POLCONV measure although the relative magnitude of the effect in the presence of an average versus large macroeconomic shock is quite comparable. This pattern of results could derive from the larger time period for which POLCONV is
available thus yielding additional power in the empirical estimation or from the variation between the method of construction of the CHECKS2a measure and the theoretical arguments regarding the relationship between the political environment and the level of constraints faced by political actors noted above. The assumption that additional political parties in a governing coalition linearly add to the level of constraints seems especially problematic in this regard. Appendix Table A1 provides normalized scores for CHECKS2a and POLCONV as well as their normalized difference to allow for comparison of the face validity of these measures. On the basis of these theoretical arguments, the nature of the differences in scores highlighted in Appendix Table A1 and the econometric evidence in favor of POLCONV, the remainder of the discussion will focus on panel 2 of Table 3 where this measure is used to capture the level of constraints faced by policy-makers.

Volatility in social security taxes and value-added taxes exhibit little relationship to either of the measures of political institutions. By contrast, volatility in other (non-tax) forms of revenue and other taxes are both highly sensitive to political institutions. One could well imagine that these unconventional sources of (tax) revenue are more readily altered by a government facing a short-term need to raise funds and, also, more readily hidden from widespread public discourse. The relationship between political institutions and the volatility in taxes on trade while statistically significant was economically less significant. This could be due to the constraints imposed upon politicians by international institutions such as the World Trade Organization. The relationship between volatility in taxes on capital and political institutions is also significant but smaller in magnitude than volatility in other (tax) revenue. Here the alternative constraint of capital flight or non-investment likely moderates government's tendencies to alter the tax regime in an arbitrary or discriminatory manner.

Turning to expenditure, the largest effects are recorded for volatility in capital expenditure where unconstrained governments are more likely to pursue costly white elephant projects whose benefits are largely political and for volatility in subsidies and transfers that offer a host of opportunities for favoring given sectors or other groups in an economy. The relationship between volatility in goods and services expenditure and political institutions is also statistically significant, if smaller in magnitude, suggesting that less of this category of expenditure is discretionary in nature.

Finally, with respect to the tradeoff between policy stability and gridlock, the results suggest substantial variation across various fiscal policies in the extent to which constraints are particularly binding during macroeconomic shocks. For example, the role of political constraints in limiting volatility in non-tax revenue and subsidies and transfers appears independent of any macroeconomic shock. In the case of other taxes and taxes on trade, while
constraints have a greater role in reducing policy volatility during macroeconomic shocks, the shocks themselves have no independent effect on policy volatility, making these results difficult to interpret. By contrast, in the case of goods and services expenditures, two-thirds of the effect of a given macroeconomic shock on expenditure may be impeded in countries with political constraints near the maximum observed level. The effect is even more striking in the case of capital expenditures and taxes on capital and profits where in countries with political constraints above 0.63 or 0.38 respectively, the macroeconomic shock's effect on the volatility of these policies is completely negated. While the normative implications of these findings are beyond the scope of this research, the results do point to an important tradeoff between the overall level of policy stability and the ability to respond to macroeconomic shocks.

## 6. CONCLUSION

The conventional wisdom that holds that political and institutional checks and balances that constrain policy-makers' discretion serve to limit policy volatility and thus encourage investment and economic growth appears well founded. In particular, non-conventional forms of revenue generation and capital expenditure appear particularly sensitive to the structure of a nation's political institutions. These results are robust to the use of country and time indicator variables and a covariance matrix that accounts for both heteroskedasticity of unknown form and serial correlation. Despite the longstanding theoretical arguments arguing for a causal link between political institutions and policy volatility, these are the first empirical results using a wide sample of countries and range of policies to demonstrate such an association.

The next step in the research agenda examining the impact of political institutions on economic outcomes should be to similarly isolate and examine other causal mechanisms through which political institutions could influence growth or investment. What sort of political institutions support a free media? What are the origins of judicial independence? What political structures provide better public services and policies? What political structures contain or even combat corruption? How do financial markets and their supporting institutional structures develop? Combining the findings of these various studies together will allow researchers, academics, and policy-makers a richer understanding of the complex dynamics that link political institutions and economic outcomes.
Appendix Table A1 Normalized Scores of CHECKS2a and POLCONV and Their Difference

| WB country name | CHECKS2a (normalized) |  |  |  |  | POLCONV (normalized) |  |  |  |  | Difference |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 75-79 | 80-84 | 85-89 | 90-94 | 95-97 | 75-79 | 80-84 | 85-89 | 90-94 | 95-98 | 75-79 | 80-84 | 85-89 | 90-94 | 95-97 |
| Afghanistan | -0.68 | $-0.74$ | $-0.73$ | $-1.05$ | -1.26 | $-0.66$ | $-0.68$ | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | $-0.01$ | 0.08 | 0.13 |
| Albania | -0.68 | -0.74 | $-0.73$ | 0.02 | 0.25 | -0.66 | -0.68 | -0.74 | 0.32 | 0.74 | 0.02 | 0.06 | -0.01 | 0.30 | 0.49 |
| Algeria | -0.68 | -0.74 | $-0.73$ | -1.05 | -0.76 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | 0.08 | -0.37 |
| Angola | -0.68 | -0.74 | $-0.73$ | -0.44 | 0.25 | -0.66 | -0.68 | -0.74 | $-0.52$ | $-1.13$ |  | 0.06 | -0.01 | -0.08 | $-1.38$ |
| Antigua and Barbuda |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Argentina | -0.30 | $-0.54$ | 0.93 | 0.94 | $-0.50$ | $-0.66$ | -0.46 | 0.40 | 1.18 | 1.19 | $-0.36$ | 0.08 | $-0.53$ | 0.24 | 1.69 |
| Armenia |  |  |  | 0.10 | 0.25 |  |  |  |  | $-1.13$ |  |  |  |  | -1.38 |
| Australia | 1.46 | 1.02 | 0.03 | -0.29 | 0.00 | 1.99 | 1.95 | 1.88 | 1.65 | 1.36 | 0.54 | 0.92 | 1.86 | 1.93 | 1.36 |
| Austria | -0.68 | -0.15 | 0.78 | 0.48 | 0.00 | 1.74 | 1.68 | 1.61 | 1.37 | 1.12 | 2.42 | 1.83 | 0.83 | 0.89 | 1.13 |
| Azerbaijan |  |  |  | -0.03 | -0.25 |  |  |  | -0.97 | -1.13 |  |  |  | -0.94 | -0.88 |
| Bahamas, The | 0.29 | 0.24 | 0.03 | -0.29 | $-0.50$ |  |  |  |  |  |  |  |  |  |  |
| Bahrain | -0.68 | -0.74 | -0.73 | -1.05 | $-1.26$ | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Bangladesh | -0.49 | 0.44 | 0.18 | -0.13 | -0.25 | -0.66 | -0.68 | -0.74 | 0.08 | 0.07 | -0.17 | -1.12 | -0.92 | 0.21 | 0.32 |
| Barbados | 0.29 | 0.24 | 0.03 | -0.29 | $-0.50$ |  |  |  |  |  |  |  |  |  |  |
| Belarus |  |  |  | -1.05 | 0.50 |  |  |  |  | $-1.13$ |  |  |  |  | $-1.63$ |
| Belgium | 2.62 | 2.00 | 1.83 | 1.55 | 1.50 | 2.01 | 2.04 | 1.98 | 1.74 | 1.48 | -0.62 | 0.03 | 0.14 | 0.19 | -0.03 |
| Belize |  | 0.24 | 0.03 | -0.29 | $-0.50$ |  |  |  |  |  |  |  |  |  |  |
| Benin | -0.68 | -0.74 | -0.73 | -0.59 | 0.00 | -0.66 | -0.68 | -0.74 | 0.67 | 0.86 | 0.02 | 0.06 | -0.01 | 1.26 | 0.86 |
| Bhutan | -0.68 | -0.74 | -0.73 | -1.05 | $-1.26$ | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Bolivia | -0.68 | 0.44 | 1.53 | 1.70 | 1.00 | -0.66 | -0.39 | 0.75 | -0.16 | 0.50 | 0.02 | -0.82 | -0.78 | -1.86 | $-0.50$ |
| Bosnia and Herzegovina |  |  |  |  | -0.76 |  |  |  |  |  |  |  |  |  |  |
| Botswana | 0.29 | 0.24 | 0.03 | -0.29 | $-0.50$ | 1.52 | 1.44 | 1.40 | 1.16 | 1.04 | 1.23 | 1.20 | 1.37 | 1.44 | 1.54 |
| Brazil | 2.23 | 2.79 | 1.53 | 1.25 | 1.00 | 1.40 | 1.54 | 1.87 | 1.44 | 0.89 | -0.84 | $-1.25$ | 0.34 | 0.19 | -0.11 |
| Brunei | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 |  |  |  |  |  |  |  |  |  |  |
| Bulgaria | -0.68 | -0.74 | -0.73 | 0.02 | -0.50 | -0.66 | -0.68 | -0.74 | 1.23 | 1.06 | 0.02 | 0.06 | -0.01 | 1.21 | 1.56 |
| Burkina Faso | -0.10 | -0.35 | -0.73 | -0.75 | -0.76 | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | $-0.56$ | -0.33 | -0.01 | -0.23 | -0.37 |


| Burundi | -0.68 | -0.74 | -0.73 | -0.90 | -0.50 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | -0.07 | -0.62 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Cambodia | -0.68 | -0.74 | -0.73 | -0.44 | 1.75 | -0.66 | -0.68 | -0.74 | -0.81 | -0.73 | 0.02 | 0.06 | -0.01 | -0.37 | -2.49 |
| Cameroon | -0.68 | -0.74 | -0.73 | -0.13 | 0.25 | -0.66 | -0.68 | -0.74 | -0.47 | 0.05 | 0.02 | 0.06 | -0.01 | -0.34 | -0.20 |
| Canada | 0.29 | 0.24 | 0.03 | -0.29 | -0.50 | 1.97 | 1.93 | 1.84 | 1.62 | 1.37 | 1.68 | 1.69 | 1.81 | 1.90 | 1.87 |
| Cape Verde | -0.68 | -0.74 | -0.73 | -0.13 | -0.25 |  |  |  |  |  |  |  |  |  |  |
| Central African Republic | -0.68 | -0.74 | -0.73 | -0.59 | 0.25 | -0.66 | -0.68 | -0.74 | -0.65 | 0.42 | 0.02 | 0.06 | -0.01 | -0.06 | 0.17 |
| Chad | -0.68 | -0.74 | -0.73 | $-1.05$ | -1.01 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | $-0.01$ | 0.08 | -0.12 |
| Chile | -0.68 | -0.74 | -0.73 | 1.25 | 1.00 | -0.66 | -0.68 | -0.74 | 1.41 | 1.28 | 0.02 | 0.06 | -0.01 | 0.16 | 0.28 |
| China | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Colombia | 0.29 | 0.24 | 0.03 | -0.29 | -0.50 | 0.68 | 0.53 | 0.55 | 0.34 | 0.19 | 0.39 | 0.29 | 0.53 | 0.63 | 0.69 |
| Comoros | -0.68 | -0.74 | -0.43 | 0.48 | 0.75 | -0.66 | -0.68 | -0.74 |  |  |  | 0.06 | -0.31 |  |  |
| Congo, Dem. Rep. | -0.68 | -0.74 | -0.73 | -0.75 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | $-0.01$ | -0.23 | 0.13 |
| Congo, Rep. | -0.68 | -0.74 | -0.73 | -0.29 | 1.00 | -0.66 | -0.68 | -0.74 | -0.22 | -0.22 | 0.02 | 0.06 | -0.01 | 0.07 | -1.22 |
| Costa Rica | 1.26 | 0.83 | 0.03 | -0.29 | 0.25 | 1.67 | 1.59 | 1.52 | 1.09 | 1.04 | 0.41 | 0.76 | 1.49 | 1.37 | 0.79 |
| Côte d'Ivoire | -0.68 | -0.74 | -0.73 | 0.17 | 0.25 | -0.66 | -0.68 | -0.74 | -0.89 | -0.68 | 0.02 | 0.06 | -0.01 | -1.06 | -0.93 |
| Croatia |  |  |  | -0.29 | $-0.50$ |  |  |  | 0.37 | 0.25 |  |  |  | 0.65 | 0.75 |
| Cuba | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Cyprus | 1.26 | 1.22 | 0.78 | 0.48 | 0.25 | -0.02 | -0.01 | -0.22 | 0.87 | 1.09 | -1.29 | -1.23 | -0.99 | 0.39 | 0.85 |
| Czech Republic |  |  |  |  |  |  |  |  | 1.46 | 1.24 |  |  |  |  |  |
| Denmark | 0.68 | 2.20 | 2.28 | 1.40 | 1.50 | 1.74 | 1.68 | 1.61 | 1.37 | 1.12 | 1.07 | -0.52 | -0.67 | -0.03 | -0.38 |
| Djibouti | 0.29 | -0.35 | -0.73 | -0.90 | -0.50 |  |  |  |  |  |  |  |  |  |  |
| Dominican Republic | 0.29 | 0.24 | 0.93 | 1.25 | 1.00 | -0.11 | 0.56 | 0.55 | 0.62 | 1.27 | -0.40 | 0.32 | -0.38 | -0.62 | 0.27 |
| Ecuador | -0.68 | 1.22 | 0.78 | 0.48 | 0.25 | -0.24 | 1.53 | 1.43 | 1.14 | 0.89 | 0.44 | 0.31 | 0.65 | 0.66 | 0.64 |
| Egypt, Arab Rep. | 0.48 | 1.22 | 0.78 | 0.48 | 0.25 | -0.66 | $-0.68$ | -0.74 | -0.97 | -1.13 | -1.14 | -1.90 | -1.52 | -1.45 | -1.38 |
| El Salvador | 0.29 | -0.35 | 0.18 | 0.17 | 0.25 | 0.06 | -0.44 | 0.46 | 0.34 | 0.22 | -0.23 | -0.09 | 0.29 | 0.16 | -0.02 |
| Equatorial Guinea | -0.68 | -0.74 | -0.73 | -0.90 | -1.26 |  |  |  |  |  |  |  |  |  |  |
| Eritrea |  |  |  | -1.05 | -1.26 |  |  |  |  |  |  |  |  |  |  |
| Estonia |  |  |  | 0.48 | 0.25 |  |  |  |  |  |  |  |  |  |  |
| Ethiopia | -0.68 | -0.74 | -0.73 | -1.05 | -0.76 | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | 0.08 | -0.37 |
| Fiji | 0.29 | 0.24 | -0.28 | -0.13 | 1.75 |  |  |  |  |  |  |  |  |  |  |
| Finland | 3.40 | 3.57 | 3.04 | 2.01 | 3.51 | 1.74 | 1.68 | 1.61 | 1.37 | 1.12 | -1.66 | -1.89 | -1.43 | -0.64 | -2.39 |
| France | 2.82 | 1.22 | 4.39 | 2.93 | 0.25 | 1.86 | 1.76 | 1.59 | 1.38 | 1.11 | -0.95 | 0.54 | -2.80 | -1.55 | 0.86 |

Appendix Table A1 Continued

|  | CHECKS2a (normalized) |  |  |  |  | POLCONV (normalized) |  |  |  |  | Difference |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| WB country name | 75-79 | 80-84 | 85-89 | 90-94 | 95-97 | 75-79 | 80-84 | 85-89 | 90-94 | 95-98 | 75-79 | 80-84 | 85-89 | 90-94 | 95-97 |
| Gabon | $-0.68$ | -0.74 | -0.73 | -0.29 | 0.25 | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | -0.69 | $-1.38$ |
| Gambia, The | 1.26 | 1.22 | 0.78 | 0.48 | -1.01 | -0.18 | -0.08 | -0.09 | -0.24 | $-1.13$ | -1.44 | $-1.30$ | -0.87 | -0.71 | -0.12 |
| Georgia |  |  |  | 0.48 | -0.25 |  |  |  | 1.04 |  |  |  |  | 0.56 |  |
| Germany | 1.07 | 1.02 | 0.78 | 0.48 | 0.25 | 1.93 | 1.87 | 1.82 | 1.58 | 1.33 | 0.86 | 0.85 | 1.05 | 1.10 | 1.08 |
| Ghana | -0.68 | 0.04 | -0.73 | -0.44 | 0.25 | -0.66 | -0.42 | -0.74 | -0.97 | -1.13 | 0.02 | -0.47 | -0.01 | -0.53 | -1.38 |
| Greece | 1.26 | 1.22 | 0.33 | 0.17 | -0.50 | 0.36 | 0.41 | 0.32 | 1.06 | 1.02 | -0.91 | -0.81 | 0.00 | 0.89 | 1.53 |
| Grenada | -0.10 | -0.74 | 0.03 | -0.29 | -0.50 |  |  |  |  |  |  |  |  |  |  |
| Guatemala | 1.26 | 0.44 | -0.13 | 0.17 | -0.25 | -0.66 | -0.68 | 0.21 | -0.14 | -0.04 | -1.92 | $-1.12$ | 0.34 | -0.31 | 0.21 |
| Guinea | -0.68 | -0.74 | -0.73 | -0.90 | -0.50 | -0.66 | -0.68 | -0.74 | -0.97 | -0.32 | 0.02 | 0.06 | -0.01 | -0.07 | 0.19 |
| Guinea-Bissau | -0.68 | -0.74 | -0.73 | -1.05 | 0.25 | -0.66 | -0.68 | -0.74 | -0.97 | -0.05 | 0.02 | 0.06 | -0.01 | 0.08 | -0.29 |
| Guyana | -0.68 | 0.04 | 0.03 | -0.29 | -0.50 | 0.24 | -0.68 | -0.74 | -0.39 | 1.01 | 0.93 | -0.73 | -0.77 | -0.11 | 1.51 |
| Haiti | -0.68 | 0.24 | -0.43 | 0.17 | 1.00 | -0.66 | -0.68 | -0.74 | -0.97 | -0.38 | 0.02 | -0.92 | -0.31 | -1.15 | -1.38 |
| Honduras | -0.68 | -0.74 | -0.73 | -0.29 | $-0.50$ | -0.66 | -0.24 | 0.09 | 0.06 | -0.12 | 0.02 | 0.50 | 0.82 | 0.35 | 0.38 |
| Hungary | -0.68 | $-0.74$ | -0.73 | 0.79 | 0.25 | -0.66 | -0.68 | -0.34 | 1.28 | 1.07 | 0.02 | 0.06 | 0.39 | 0.49 | 0.82 |
| Iceland | 0.87 | 1.61 | 0.33 | 0.02 | -0.50 | 1.71 | 1.65 | 1.59 | 1.35 | 1.09 | 0.84 | 0.04 | 1.27 | 1.33 | 1.60 |
| India | 0.68 | 0.44 | 0.03 | 1.25 | 2.76 | 0.61 | 0.66 | 0.43 | 0.73 | 1.18 | -0.07 | 0.22 | 0.40 | -0.51 | -1.57 |
| Indonesia | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | $-0.01$ | 0.08 | 0.13 |
| Iran, Islamic Rep. | -0.49 | 0.04 | 0.03 | 0.48 | 0.25 | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | -0.17 | -0.73 | -0.77 | -1.45 | $-1.38$ |
| Iraq | -0.68 | -0.74 | -0.73 | -0.59 | -0.50 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | -0.38 | -0.62 |
| Ireland | 0.87 | 0.83 | 0.48 | 0.48 | 1.00 | 1.64 | 1.59 | 1.53 | 1.32 | 1.09 | 0.77 | 0.76 | 1.05 | 0.84 | 0.09 |
| Israel | 1.84 | 1.42 | 3.94 | 2.78 | 0.25 | 0.83 | 0.77 | 0.77 | 1.07 | 1.14 | $-1.01$ | -0.64 | -3.17 | -1.71 | 0.89 |
| Italy | 0.09 | 3.96 | 2.59 | 2.47 | -1.26 | 1.69 | 1.65 | 1.58 | 1.36 | 1.08 | 1.60 | -2.31 | $-1.01$ | -1.11 | 2.34 |
| Jamaica | 0.29 | 0.24 | 0.03 | -0.29 | $-0.50$ | 0.40 | 0.18 | -0.16 | 0.05 | -0.70 | 0.11 | -0.06 | -0.19 | 0.34 | -0.19 |
| Japan | -0.68 | -0.74 | -0.58 | 0.63 | 0.75 | 1.82 | 1.75 | 1.67 | 1.47 | 1.23 | 2.50 | 2.50 | 2.24 | 0.84 | 0.48 |
| Jordan | -0.68 | -0.74 | -0.73 | -0.75 | $-0.50$ | $-0.66$ | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | -0.23 | -0.62 |
| Kazakhstan |  |  |  | -0.80 | 0.25 |  |  |  | -0.97 | $-1.13$ |  |  |  | -0.18 | $-1.38$ |
| Kenya | 0.29 | $-0.15$ | -0.73 | -0.44 | 0.25 | -0.66 | $-0.68$ | -0.74 | -0.45 | 0.14 | -0.95 | $-0.53$ | -0.01 | -0.01 | -0.10 |


| Korea, Dem. Rep. | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Korea, Rep. | 1.26 | 0.24 | 0.48 | 0.48 | 0.25 | -0.66 | -0.68 | -0.48 | 0.54 | 0.93 | -1.92 | -0.92 | -0.96 | 0.06 | 0.69 |
| Kuwait | -0.68 | -0.74 | -0.73 | -0.75 | -0.50 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | -0.23 | -0.62 |
| Kyrgyz Republic |  |  |  | -0.29 | 0.50 |  |  |  |  | -0.74 |  |  |  |  | -1.24 |
| Lao PDR | -0.88 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 |  | 0.06 | -0.01 | 0.08 | 0.13 |
| Latvia |  |  |  | 0.22 | 3.51 |  |  |  |  |  |  |  |  |  |  |
| Lebanon | -0.30 | -0.74 | -0.73 | -0.90 | $-0.50$ | -0.29 | -0.46 | -0.74 | -0.68 | -0.97 | 0.01 | 0.28 | -0.01 | 0.22 | -0.46 |
| Lesotho | -0.68 | -0.74 | -0.73 | -0.90 | -0.50 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | -0.07 | -0.62 |
| Liberia | -0.68 | $-0.74$ | 1.08 | -0.59 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | $-1.82$ | -0.38 | 0.13 |
| Libya | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Lithuania |  |  |  | -0.29 | -0.25 |  |  |  |  |  |  |  |  |  |  |
| Luxembourg | 1.26 | 1.22 | 0.78 | 0.48 | 0.25 | 1.71 | 1.65 | 1.58 | 1.37 | 0.89 | 0.45 | 0.43 | 0.80 | 0.89 | 0.64 |
| Macedonia, FYR |  |  |  | 0.48 | 0.25 |  |  |  |  |  |  |  |  |  |  |
| Madagascar | -0.68 | -0.15 | 0.78 | 0.48 | 1.00 | -0.66 | -0.68 | -0.74 | -0.63 | 0.17 | 0.02 | -0.53 | -1.52 | -1.11 | -0.83 |
| Malawi | -0.68 | -0.74 | -0.73 | -0.90 | 0.25 | -0.66 | -0.68 | -0.74 | -0.97 | 0.83 | 0.02 | 0.06 | -0.01 | -0.07 | 0.58 |
| Malaysia | 0.29 | 0.24 | 2.28 | 3.54 | 3.26 | 1.71 | 1.65 | 1.58 | 1.29 | 0.93 | 1.42 | 1.41 | -0.71 | -2.25 | -2.33 |
| Maldives | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 |  |  |  |  |  |  |  |  |  |  |
| Mali | -0.68 | -0.74 | -0.73 | -0.44 | 0.25 | $-0.66$ | $-0.68$ | $-0.74$ | -0.46 | -0.04 | 0.02 | 0.06 | -0.01 | -0.02 | -0.29 |
| Malta | 0.29 | 0.24 | 0.03 | -0.29 | -0.50 |  |  |  |  |  |  |  |  |  |  |
| Mauritania | -0.68 | -0.74 | -0.73 | -0.13 | 1.00 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | -0.84 | -2.13 |
| Mauritius | 1.84 | 2.00 | 1.68 | 1.70 | 0.75 | 0.62 | 0.47 | 0.37 | 0.21 | -0.60 | -1.23 | -1.53 | -1.31 | -1.50 | -1.35 |
| Mexico | 0.29 | 0.24 | 0.03 | -0.29 | -0.50 | -0.26 | -0.14 | -0.17 | -0.11 | 0.23 | $-0.55$ | -0.38 | -0.19 | 0.18 | 0.74 |
| Moldova |  |  |  | -0.29 | 0.25 |  |  |  | -0.97 |  |  |  |  | -0.69 |  |
| Mongolia | -0.68 | -0.74 | -0.73 | 0.48 | 0.25 | -0.66 | -0.68 | -0.74 | -0.41 | 0.89 | 0.02 | 0.06 | -0.01 | -0.89 | 0.64 |
| Morocco | -0.30 | 0.24 | 0.03 | -0.29 | -0.50 | -0.66 | -0.68 | -0.74 | -0.76 | -0.43 | -0.36 | -0.92 | -0.77 | -0.48 | 0.07 |
| Mozambique | -0.68 | -0.74 | -0.73 | -1.05 | 0.25 | -0.66 | -0.68 | -0.74 | -0.97 | -0.11 |  | 0.06 | $-0.01$ | 0.08 | -0.35 |
| Myanmar | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Namibia |  |  |  |  |  |  |  |  | 0.88 | 1.07 |  |  |  |  |  |
| Nepal | -0.68 | -0.74 | -0.73 | -0.59 | 1.00 | -0.66 | -0.68 | -0.74 | 0.01 | 0.10 | 0.02 | 0.06 | -0.01 | 0.60 | -0.90 |
| Netherlands | 3.01 | 0.44 | 0.03 | -0.13 | 0.75 | 1.81 | 1.71 | 1.67 | 1.49 | 1.10 | -1.20 | 1.28 | 1.65 | 1.63 | 0.35 |
| New Zealand | 0.29 | 0.24 | 0.03 | -0.59 | -0.50 | 1.59 | 1.56 | 1.49 | 1.21 | 1.05 | 1.30 | 1.32 | 1.46 | 1.81 | 1.56 |
| Nicaragua | 2.23 | -0.74 | 0.33 | -0.29 | -0.25 | -0.66 | -0.68 | -0.74 | 0.08 | 1.04 | -2.89 | 0.06 | -1.07 | 0.37 | 1.29 |

Korea, Dem. Rep
Appendix Table A1 Continued

|  | CHECKS2a (normalized) |  |  |  |  | POLCONV (normalized) |  |  |  |  | Difference |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| WB country name | 75-79 | 80-84 | 85-89 | 90-94 | 95-97 | 75-79 | 80-84 | 85-89 | 90-94 | 95-98 | 75-79 | 80-84 | 85-89 | 90-94 | 95-97 |
| Niger | -0.68 | $-0.74$ | $-0.73$ | $-0.75$ | 0.25 | -0.66 | $-0.68$ | -0.74 | -0.36 | $-1.02$ | 0.02 | 0.06 | $-0.01$ | 0.38 | -1.27 |
| Nigeria | -0.68 | 1.61 | -0.73 | -1.05 | -1.26 | -0.66 | -0.39 | -0.74 | -0.97 | -1.13 | 0.02 | -2.00 | -0.01 | 0.08 | 0.13 |
| Norway | 0.29 | 0.63 | 0.33 | 0.17 | -1.26 | 1.69 | 1.62 | 1.55 | 1.34 | 1.10 | 1.41 | 0.99 | 1.22 | 1.17 | 2.36 |
| Oman | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Pakistan | -0.10 | -0.74 | $-0.58$ | 0.33 | 1.25 | -0.66 | -0.68 | -0.33 | 0.20 | 0.70 | $-0.56$ | 0.06 | 0.25 | -0.13 | -0.55 |
| Panama | -0.68 | -0.74 | 0.78 | 0.48 | 0.25 | -0.66 | -0.68 | -0.74 | -0.97 | 0.33 | 0.02 | 0.06 | -1.52 | -1.45 | 0.09 |
| Papua New Guinea | 0.87 | 2.40 | 2.74 | 3.54 | 1.75 | 1.91 | 1.90 | 1.84 | 1.43 | 0.87 |  | $-0.50$ | -0.90 | -2.11 | -0.89 |
| Paraguay | 0.29 | 0.24 | 0.03 | 0.02 | 1.00 | -0.66 | -0.68 | -0.74 | -0.10 | 0.98 | $-0.95$ | -0.92 | -0.77 | -0.12 | -0.02 |
| Peru | -0.49 | 1.61 | 1.53 | 1.25 | $-0.50$ | -0.66 | -0.68 | 0.19 | -0.62 | -1.13 | -0.17 | -2.29 | -1.34 | -1.86 | -0.62 |
| Philippines | -0.49 | 0.24 | 0.18 | 0.17 | $-0.50$ | -0.66 | -0.68 | -0.21 | 1.04 | 1.23 | -0.17 | -0.92 | -0.39 | 0.87 | 1.73 |
| Poland | -0.68 | -0.74 | -0.73 | 1.09 | 1.00 | -0.66 | -0.68 | -0.34 | 1.30 | 1.12 | 0.02 | 0.06 | 0.39 | 0.21 | 0.12 |
| Portugal | 0.48 | 0.44 | -0.58 | $-1.05$ | $-1.26$ | 1.64 | 1.60 | 1.56 | 1.28 | 1.04 | 1.16 | 1.17 | 2.13 | 2.33 | 2.29 |
| Qatar | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 |  |  |  |  |  |  |  |  |  |  |
| Romania | -0.68 | -0.74 | $-0.73$ | 0.33 | 1.75 | -0.66 | -0.68 | -0.74 | 0.21 | 1.27 | 0.02 | 0.06 | -0.01 | -0.12 | -0.48 |
| Russian Federation |  |  |  | 1.25 | 1.00 |  |  |  |  |  |  |  |  |  |  |
| Rwanda | -0.68 | -0.74 | $-0.73$ | -0.59 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | $-0.38$ | 0.13 |
| Samoa | -0.68 | -0.35 | 0.03 | -0.29 | 0.75 |  |  |  |  |  |  |  |  |  |  |
| Saudi Arabia | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Senegal | -0.49 | 0.24 | 0.03 | -0.29 | $-0.50$ | -0.66 | -0.68 | -0.74 | -0.97 | -1.13 | -0.17 | -0.92 | -0.77 | -0.69 | -0.62 |
| Sierra Leone | 0.09 | -0.74 | -0.73 | -0.90 | -0.76 | -0.38 | -0.30 | -0.74 | -0.97 | -1.13 | $-0.47$ | 0.45 | -0.01 | -0.07 | -0.37 |
| Singapore | 0.29 | 0.24 | 0.03 | -0.29 | $-0.50$ | -0.66 | -0.66 | -0.66 | -0.85 | -0.98 | $-0.95$ | -0.90 | -0.69 | -0.56 | -0.47 |
| Slovak Republic |  |  |  | 0.48 | 1.00 |  |  |  | 1.31 | 1.12 |  |  |  | 0.83 | 0.12 |
| Slovenia |  |  |  | 2.01 | 1.00 |  |  |  |  |  |  |  |  |  |  |
| Solomon Islands | 2.23 | 2.20 | 0.78 | 3.54 | -0.50 |  |  |  |  |  |  |  |  |  |  |
| Somalia | -0.68 | -0.74 | $-0.73$ | $-1.05$ |  | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | $-0.01$ | 0.08 |  |
| South Africa | -0.68 | -0.74 | 0.03 | -0.29 | $-0.50$ | 0.33 | 0.00 | -0.26 | 0.13 | 1.30 | 1.02 | 0.74 | -0.28 | 0.42 | 1.80 |
| Spain | -0.68 | -0.74 | -0.28 | -0.29 | 0.00 | 1.55 | 1.70 | 1.63 | 1.41 | 1.15 | 2.23 | 2.44 | 1.90 | 1.70 | 1.16 |


| Sri Lanka | 1.46 | 0.63 | 0.78 | 0.48 | 0.25 | 0.32 | -0.10 | -0.16 | 0.22 | 0.54 | -1.13 | -0.73 | -0.94 | -0.26 | 0.29 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| St. Lucia |  | 0.24 | 0.03 | -0.29 | -0.50 |  |  |  |  |  |  |  |  |  |  |
| Sudan | -0.68 | -0.74 | 1.98 | $-1.05$ | -1.01 | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -2.72 | 0.08 | -0.12 |
| Suriname | 0.29 | $-0.54$ | 0.03 | 1.55 | 1.75 |  |  |  |  |  |  |  |  |  |  |
| Swaziland | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Sweden | 0.48 | 0.63 | -0.13 | 0.63 | $-1.26$ | 1.71 | 1.64 | 1.57 | 1.34 | 1.09 | 1.22 | 1.01 | 1.70 | 0.71 | 2.35 |
| Switzerland | 3.21 | 3.18 | 2.28 | 2.01 | 1.75 | 2.05 | 1.99 | 1.92 | 1.58 | 1.38 | -1.16 | -1.19 | -0.37 | -0.43 | -0.37 |
| Syrian Arab Republic | 0.29 | 0.24 | 0.03 | -0.29 | $-0.50$ | $-0.66$ | $-0.68$ | -0.74 | -0.97 | $-1.13$ | -0.95 | -0.92 | -0.77 | -0.69 | -0.62 |
| Tajikistan |  |  |  | -0.80 | 0.00 |  |  |  | -0.97 | $-1.13$ |  |  |  | -0.18 | -1.13 |
| Tanzania | -0.68 | -0.74 | -0.73 | -0.75 | 0.00 | $-0.66$ | $-0.68$ | -0.74 | -0.97 | $-0.58$ | 0.02 | 0.06 | -0.01 | -0.23 | $-0.58$ |
| Thailand | -0.10 | 0.24 | 1.68 | 2.01 | 3.51 | -0.37 | 1.13 | 1.27 | 0.65 | 0.88 | -0.27 | 0.90 | -0.41 | -1.36 | -2.63 |
| Togo | -0.68 | -0.74 | -0.73 | -0.75 | 0.25 | -0.66 | $-0.68$ | -0.74 | -0.97 | 0.04 | 0.02 | 0.06 | -0.01 | -0.23 | -0.21 |
| Trinidad and Tobago | 0.29 | 0.24 | 0.03 | -0.29 | 0.00 | 1.68 | 1.68 | 1.74 | 1.62 | 1.34 | 1.39 | 1.44 | 1.71 | 1.91 | 1.35 |
| Tunisia | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | -0.66 | $-0.68$ | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Turkey | 3.40 | -0.54 | -0.73 | -0.59 | 0.00 | -0.01 | -0.44 | 0.41 | 0.63 | 0.98 | $-3.41$ | 0.11 | 1.14 | 1.22 | 0.99 |
| Turkmenistan |  |  |  | 0.48 | 0.25 |  |  |  | -0.97 | -1.13 |  |  |  | -1.45 | -1.38 |
| Uganda | -0.68 | 0.04 | -0.58 | -1.05 | -0.76 | $-0.66$ | $-0.68$ | -0.74 | -0.97 | $-0.66$ | 0.02 | $-0.73$ | -0.16 | 0.08 | 0.09 |
| Ukraine |  |  |  | 1.25 | 0.25 |  |  |  |  |  |  |  |  |  |  |
| United Arab Emirates | -0.68 | -0.74 | -0.73 | -1.05 | -1.26 | 1.40 | 1.34 | 1.27 | 1.04 | 0.80 | 2.08 | 2.08 | 2.00 | 2.09 | 2.06 |
| United Kingdom | 0.48 | 0.24 | 0.03 | -0.29 | $-0.50$ | 1.64 | 1.56 | 1.49 | 1.25 | 1.01 | 1.16 | 1.32 | 1.46 | 1.54 | 1.51 |
| United States | 2.23 | 2.20 | 1.53 | 1.25 | 1.00 | 1.98 | 2.00 | 1.89 | 1.62 | 1.36 | -0.26 | -0.20 | 0.36 | 0.37 | 0.36 |
| Uruguay | -0.30 | -0.74 | 1.53 | 1.25 | 1.00 | -0.66 | $-0.68$ | 0.53 | 0.62 | 0.51 | -0.36 | 0.06 | $-1.00$ | -0.62 | -0.49 |
| Uzbekistan |  |  |  | -0.03 | -1.01 |  |  |  | -0.97 | -1.13 |  |  |  | -0.94 | -0.12 |
| Vanuatu |  | -0.74 | -0.73 | 0.48 | 1.25 |  |  |  |  |  |  |  |  |  |  |
| Venezuela | 0.68 | 1.81 | 0.63 | 1.70 | 1.00 | 1.77 | 1.62 | 1.62 | 1.36 | 0.95 | 1.09 | -0.19 | 0.99 | -0.35 | -0.05 |
| Vietnam | -0.68 | -0.74 | -0.73 | $-1.05$ | -1.26 | -0.66 | $-0.68$ | -0.74 | -0.97 | $-1.13$ | 0.02 | 0.06 | -0.01 | 0.08 | 0.13 |
| Yemen, Rep. | -0.68 | $-0.74$ | -0.73 | -1.05 | 0.25 |  |  |  | -0.97 | $-1.13$ |  |  |  | 0.08 | $-1.38$ |
| Yugoslavia, FR <br> (Serbia/Montenegro) |  |  |  |  |  | -0.66 | -0.68 | -0.74 | -0.97 | $-1.13$ |  |  |  |  |  |
| Zambia | -0.68 | -0.74 | -0.73 | -0.13 | 0.25 | -0.66 | $-0.68$ | -0.74 | -0.97 | 0.32 | 0.02 | 0.06 | -0.01 | -0.84 | 0.07 |
| Zimbabwe | 0.29 | 0.83 | 0.18 | 0.33 | 0.25 | -0.66 | -0.20 | -0.74 | -0.97 | -1.13 | -0.95 | $-1.03$ | -0.92 | $-1.30$ | $-1.38$ |

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## REFERENCES

Ahn, S. and P. Hemmings, 2000, Policy influences on economic growth in OECD countries: an evaluation of the evidence. OECD Economics Working Paper.
Aizenman, J. and N. Marion, 1993, Policy uncertainty, persistence and growth. Review of International Economics 1, 145-163.
Alesina, A. and R. Perotti, 1994, The political economy of growth: a critical survey of the recent literature. World Bank Economic Review 8, 351-371.
-_ and G. Tabellini, 1988, Credibility and politics. European Economic Review 32, 542-550.
-_, S. Ozler, N. Roubini, and P. Swagel, 1996, Political instability and economic growth. Journal of Economic Growth 1, 189-211.
Alt, J. E. and R. C. Lowry, 1994, Divided government and budget deficits: evidence for the States. American Political Science Review 88, 811-828.
Baba, S. A., 1997, Democracies and inefficiency. Economics and Politics 9, 99-114.
Barro, R., 1991, Economic growth in a cross section of countries. Quarterly Journal of Economics 106, 407-444.
-_, 1996, Democracy and growth. Journal of Economic Growth 1, 1-27.
Beck, T., G. Clarke, A. Groff, P. Keefer, and P. Walsh, 2001, New tools and new tests in comparative political economy: the database of political institutions. World Bank Economic Review 15, 165-176.
Bekaert, G., C. Harvey, and C. Lundblad, 2001, Does financial liberalization spur growth? NBER Working Paper No. 7763.
Birchfield, V. and M. Crepaz, 1998, The impact of constitutional structures and collective and competitive veto points on income inequality in industrialized democracies. European Journal of Political Research 34, 175-200.
Bleaney, M. F., 1996, Macroeconomic stability, investment and growth in developing countries. Journal of Development Economics 48, 461-477.
Boix, C., 2001, Democracy, development and the public sector. American Journal of Political Science 45, 1-17.
Bollerslev, T., 1986, Generalized autoregressive conditional heteroscedasticity. Journal of Econometrics 31, 307-327.
Borner, S., A. Brunetti, and B. Weder, 1995, Political Credibility and Economic Development (St. Martin's Press, New York).
Brunetti, A., 1997, Political variables in cross-country growth analysis. Journal of Economic Surveys 11, 163-190.
-_, 1998, Policy volatility and economic growth: a comparative, empirical analysis. European Journal of Political Economy 14, 35-52.

- and B. Weder, 1994, Political credibility and economic growth in less developed countries. Constitutional Political Economy 5, 23-43.
- and -_, 1997, Investment and institutional uncertainty: a comparative study of different uncertainty measures. International Finance Corporation Technical Paper.

Butler, C. K. and T. H. Hammond, 1997, Expected modes of policy change in comparative institutional settings. Political Institutions and Public Choice Working Paper No. 97 (Michigan State University's Institute for Public Policy and Social Research).
Campos, N. F. and J. B. Nugent, 1998, Investment and instability. CERGE-EI Working Paper No. 128.
Clague, C., P. Keefer, S. Knack, and M. Olson, 1996, Property and contract rights under democracy and dictatorship. Journal of Economic Growth 1, 243-276.
Collier, P. and J. W. Gunning, 1999, Why has Africa grown slowly? Journal of Economic Perspectives 13, 3-22.
Dixit, A., 1996, The Making of Economic Policy: A Transaction Cost Politics Perspective (MIT Press, Cambridge, MA).
-_, G. Grossman, and E. Helpman, 1997, Common agency and coordination: general theory and application to government policymaking. Journal of Political Economy 105, 752-769.
Driscoll, J. C. and A. C. Kraay, 1998, Consistent covariance matrix estimation with spatially-dependent panel data. Review of Economics and Statistics 80, 549-560.
Durham, J. B., 1999, Economic growth and political regimes. Journal of Economic Growth 4, 81-111.
Dyck, A. and L. Zingales, 2001, Why are private benefits of control so large in certain countries and what effects does this have on their financial development? National Bureau for Economic Research Working Paper No. 8711.
Esfahani, H. S. and M. T. Ramirez, 2003, Institutions, infrastructure and economic growth. Journal of Development Economics 70, 443-477.
Frankel, J. A. and D. Romer, 1996, Trade and growth: an empirical investigation. NBER Working Paper No. 5476.
Franzese Jr., R. J., 2002, The positive political economy of public debt: an empirical examination of the OECD postwar debt experience. Unpublished manuscript, University of Michigan.
Froot, K. A., 1989, Consistent covariance matrix estimation with cross-sectional dependence and heteroskedasticity in financial data. Journal of Financial and Quantitative Analysis 24, 333-355.
Greene, W. H., 1997, Econometric Analysis (Prentice-Hall, Englewood Cliffs, NJ).
Gurr, T. R., 1999, Polity III: political structures and regime change, 1800-1998 [computer file] (Boulder, CO: Center for Comparative Politics [producer], InterUniversity Consortium for Political and Social Research [distributor]).
Hallerberg, M. and S. Basinger, 1998, Internationalization and changes in tax policy in OECD countries: the importance of domestic veto players. Comparative Political Studies 31, 321-352.
Hammond, T. H. and C. K. Butler, 1996, Some complex answers to the simple question, "Do institutions matter?": aggregation rules, preference profiles, and policy equilibria in Presidential and Parliamentary systems. Political Institutions and Public Choice Working Paper No. 96 (Michigan State University's Institute for Public Policy and Social Research).
Heller, W. B., 2001, Political denials: the policy effect of intercameral partisan differences in bicameral parliamentary systems. Journal of Law, Economics and Organization 17, 34-61.

- and M. D. McCubbins, 1996, Politics, institutions and outcomes: electricity regulation in Argentina and Chile. Journal of Policy Reform 1, 357-388.
Henisz, W. J., 2000, The institutional environment for economic growth. Economics and Politics 12, 1-31.

Knack, S. and P. Keefer, 1995, Institutions and economic performance: crosscountry tests using alternative institutional measures. Economics and Politics 7, 207-227.
Levine, R. and D. Renelt, 1992, A sensitivity analysis of cross-country growth regressions. American Economic Review 82, 942-963.

- and S. Zervos, 1998, Stock markets, banks and economic growth. American Economic Review 88, 537-558.
——, N. Loayza, and T. Beck, 2000, Financial intermediation and growth: causality and causes. Journal of Monetary Economics 46, 31-77.
MacIntyre, A., 2001, Institutions and investors: the politics of the financial crisis in Southeast Asia. International Organization 55, 81-122.
Mankiw, N. G., D. Romer, and D. N. Weil, 1992, A contribution to the empirics of economic growth. Quarterly Journal of Economics 107, 407-437.
Mauro, P., 1995, Corruption, country risk and growth. Quarterly Journal of Economics 110, 681-712.
Nelson, M. A. and R. D. Singh, 1998, Democracy, economic freedom, fiscal policy and growth in LDCs: a fresh look. Economic Development and Cultural Change 46, 677-696.
Newey, W. K. and K. D. West, 1987, A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. Econometrica 55, 703-708.
Nordhaus, W., 1975, The political business cycle. Review of Economic Studies 42, 169-190.
North, D. C., 1990, Institutions, Institutional Change, and Economic Performance (Cambridge University Press, New York).
and B. R. Weingast, 1989, Constitutions and commitment: the evolution of institutions governing public choice in seventeenth century England. Journal of Economic History 49, 803-832.
Olson, M., 1965, The Logic of Collective Action: Public Goods and the Theory of Groups (Harvard University Press, Cambridge, MA).

1982, The Rise and Decline of Nations (Yale University Press, New Haven, CT).
——_, 1993, Dictatorship, democracy and development. American Political Science Review 87, 567-576.
Persson, T., 2001, Do political institutions shape economic policy? NBER Working Paper No. 8214.
—— and G. Tabellini, 1999, Political economics and public finance. NBER Working Paper No. 7097.
Pindyck, R. S., 1991, Irreversibility, uncertainty and investment. Journal of Economic Literature 29, 1110-1148.
Poterba, J., 1994, State responses to fiscal crises: "natural experiments" for studying the effects of budgetary institutions. Journal of Political Economy 102, 799-821.
Przeworski, A. and F. Limongi, 1993, Political regimes and economic growth. Journal of Economic Perspectives 7, 51-69.
Quinn, D. P. and J. T. Woolley, 2001, Democracy and national economic performance: the search for stability. American Journal of Political Science 45, 634-657.
Rajan, R. G. and L. Zingales, 1998, Financial dependence and growth. American Economic Review 88, 559-586.
Ramey, G. and V. A. Ramey, 1994, Cross-country evidence on the link between volatility and growth. NBER Working Paper No. 4959.

Rodrik, D., 1999, Where did all the growth go? External shocks, social conflict and growth collapses. Journal of Economic Growth 4, 385-412.
-_, 2000, Institutions for high-quality growth: what they are and how to acquire them. Studies in Comparative International Development 35, 3-31.
Roller, L.-H. and L. Waverman, 2001, Telecommunications infrastructure and economic development: a simultaneous approach. American Economic Review 91, 909-923.
Roubini, N. and J. Sachs, 1989, Political and economic determinants of budget deficits in the industrial democracies. European Economic Review 33, 903-937.
Sachs, J. and A. Warner, 1995, Economic convergence and economic policies. NBER Working Paper No. 5039.
Sala-i-Martin, X., 1997, I just ran a million regressions. American Economic Review 87, 178-183.
Scully, G. W., 1988, The institutional framework and economic development. Journal of Political Economy 96, 52-62.
Severn, L., 1998, Macroeconomic uncertainty and private investment in LDCs: an empirical investigation. Mimeo, The World Bank.
Tanzi, V. and H. Davoddi, 1997, Corruption, public investment and growth. IMF Working Paper No. 97/139.
Treisman, D., 2000, Decentralization and inflation: commitment, collective action or continuity. American Political Science Review 94, 837-857.
Tsebelis, G., 1995, Decision-making in political systems: veto players in presidentialism, parliamentarism, multicameralism and multipartyism. British Journal of Political Science 25, 289-325.
Weingast, B., 1993, Constitutions as governance structures: the political foundations of secure markets. Journal of Institutional and Theoretical Economics 149, 286311.

Wittman, D., 1989, Why democracies produce efficient results. Journal of Political Economy 97, 1395-1424.
Zelner, B., 2000, Research note: a panel implementation of the Newey-West robust covariance matrix estimator. Unpublished manuscript, Georgetown University.


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[^1]:    ${ }^{1}$ One exception is the qualitative analysis of the East Asian crisis by MacIntyre (2001).

[^2]:    ${ }^{2}$ Certain investors favored by an autocratic regime may experience supranormal returns but, on average, returns to investment will lower under such a regime.

[^3]:    ${ }^{3}$ See Heller (2001) for an alternate set of theoretical arguments and empirical evidence highlighting the potential in Parliamentary democracies for party discipline to dominate logrolling, thus allowing for a negative relationship between bicameralism and budget deficits.

[^4]:    * $\mathrm{PNG}=$ Papua New Guinea.

[^5]:    ${ }^{4}$ Both of the measures described here combine the theoretical constructs of collective and competitive veto points. That is, both measures seek to consider both the number of independent veto points and the distribution of preferences within certain veto points. Birchfield and Crepaz (1998) present theoretical arguments and empirical analysis in the context of income inequality that demonstrates important differences between these two categories. Such extensions in the context of policy volatility are left for future research.

    Similarly, both of these measures take indirect account of electoral rules and procedures in so far as they influence the number and distribution of party preferences represented within and across veto points. More nuanced analyses of such factors are, however, also left for future research.
    ${ }^{5}$ The opposition is defined as the largest opposition party in Presidential regimes and the three largest opposition parties in Parliamentary regimes.

[^6]:    ${ }^{6}$ This adjustment accounts for the difference between procedural and substantive vetoes by considering the potential for preference alignment among the actors that control veto points (Heller and McCubbins, 1996).

[^7]:    7"This covariance matrix estimator is consistent in the presence of within-unit serial correlation up to a specified lag and heteroskedasticity of unknown form. Compared with the alternative procedure of estimating one or more $\operatorname{AR}(n)$ terms, the use of the robust covariance matrix estimator has several advantages. First, it is computationally simpler. Not only does it easily accommodate autocorrelation that is of higher order than one, but it also simplifies estimation of models that are nonlinear in the parameters. ... Second, the robust covariance matrix estimator does not rely on an assumption that the different cross-sectional units share common autocorrelation parameters. Failure to make this assumption in the estimation of $\operatorname{AR}(n)$ models creates a need to estimate many additional parameters, which reduces the efficiency of the point estimator. Third, it is not necessary to drop observations from one or more time periods when using the robust covariance matrix estimator. The estimator differs from the original Newey-West version in that it is constructed for use in a panel setting rather than a conventional time-series setting (see Driscoll and Kraay (1998) and Froot (1989))" (Zelner, 2000).

[^8]:    Notes: Coefficient estimates for country and year fixed effects are not reported but are jointly significant in each specification.
    *Impact is calculated as the percentage of a mean (standard deviation) change in the measure of policy volatility predicted by a one standard deviation improvement in CHECKS2a.

[^9]:    Notes: Coefficient estimates for country and year fixed effects are not reported but are jointly significant in each specification.
    *Impact is calculated as the percentage of a mean (standard deviation) change in the measure of policy volatility predicted by a one standard deviation improvement in POLCONV.

