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E-mail address: Hans.Pitlik@wifo.ac.at
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Hans Pitlik

Austrian Institute of Economic Research (WIFO)

Arsenal, Objekt 20

1103 Vienna

Austria

E-mail: hans.pitlik@wifo.ac.at

Summary

While economic policy liberalization is often a key to higher overall growth, reforms are often not implemented due to a fierce opposition from politically powerful prospective losers from reforms. In this respect, it is often claimed that economic crises can help overcome resistance to policy liberalization. Furthermore, political authorities not constrained by democratic checks and balances are often supposed to be more decisive and are thus expected to carry out market-friendly policy change in times of crises more easily. Rules of democratic participation and checks and balances may however also be good for policy reform, as they can serve as an institutional mechanism for peaceful conflict resolution (Rodrik 1999).

The paper investigates empirically the interaction between economic growth performance and political institutions in producing free-market reform. We explore whether political regime types shape systematically government policy responses to good or bad growth performance, employing panel econometric techniques and using recently updated data for economic reform and political institutions. Contrary to conventional wisdom we find that a bad growth performance is conducive to reforms in democracies, but not in autocracies. Democracies not only carry out more liberal economic policies in general, but they are also more responsive to economic growth crises. Democratic rule seems to be favorable for policy liberalization, but a very good growth performance weakens liberalization incentives considerably.

Abstract

The paper investigates empirically the interaction between economic growth performance and political institutions in producing free-market reform. In particular, we explore whether political regime types shape systematically government policy responses to good or bad growth performance, employing panel econometric techniques and using recently updated data for economic reform and political institutions. Contrary to conventional wisdom we find that a bad growth performance is conducive to reforms only in democracies, but not in autocracies. Democratic rule seems to be favorable for policy liberalization in general, but a very good growth performance weakens liberalization incentives considerably.

JEL classification: D78, P11, P21

Keywords: democracy, crisis hypothesis, market-oriented reform, political credibility

I. INTRODUCTION

Empirical studies regularly report robust evidence that an institutional environment supportive of economic freedom improves long-run growth performance (e.g. de Haan and Sturm 2000, Pitlik 2002, Weede and Kämpf 2002, Berggren 2003, de Haan, Lundstrom, and Sturm 2006, Doucouliagos and Ulubasoglu 2006). Not surprisingly, the problem of why, when, and under which circumstances, governments engage in market-oriented reforms, such as a liberalization of product and factor markets, an elimination of trade barriers, a stabilization from high inflation, a sustainable budget consolidation, fighting public sector corruption or improving property rights enforcement, has attracted enormous attention in the literature.

In that context, the relationship between political institutions, economic performance, and policy reform is of particular interest. Notably with respect to developing countries, there is a controversy about pros and cons of autocratic or democratic rule to implement economic policy liberalization. Another disputed question is whether economic crises promote major market-friendly policy changes, as is often hypothesized, or if, and under which conditions, a good state of the economy would be more favorable for economic reform implementation. See the surveys by Rodrik (1996) and Drazen (2000).

Most empirical studies have explored the links between democracy and liberalization, and between crisis and reform, separately. The purpose of this paper is to investigate more deeply the possible interaction between economic performance and democratic institutions in producing free-market reform. In particular, we aim to explore if the regime type shapes systematically government responses to good or bad growth performance, using new panel econometric techniques and recently updated data for economic reform and political institutions. Contrary to conventional thinking we find that a bad GDP growth performance stimulates reforms only in democracies. Democratic rule seems to be favorable for free-market reform in general and also in times of crisis, but a very good growth performance weakens liberalization efforts in democracies considerably. Section 2 briefly reviews the theoretical background and results of related studies. In section 3 we present our data and elaborate on some stylized facts. Section 4 shows results of our new empirical explorations, and section 5 presents robustness tests. The final section concludes.

II. SURVEY OF RELATED LITERATURE

While policy liberalization is often a key to higher overall growth, overcoming opposition of prospective losers from a policy change is at the heart of all political-economic problems of reform implementation. The Political Economy of Reform has produced two prominent ideas, a crisis hypothesis and a strong government-hypothesis. According to the first proposition, a very poor economic performance is supposed to stimulate market-friendly policy changes. In particular, crises make past policy failures visible, induce policy learning, help breaking up interest group resistance, and are therefore conducive to large-scale liberalization (Drazen and Grilli 1993, Krueger 1993). Second, the institutional framework of policy-making seems to be important. In this respect, political authorities not constrained by democratic checks and balances are said to be more decisive in reform implementation, as they do not depend on a compliance of numerous veto players, reform-opposing vested interests, or in the case of autocratic regimes on electoral majorities. Notably in times of poor economic performance unconstrained or autocratic rulers are expected to respond faster and more effectively (Alesina and Drazen 1991, Velasco 1998).

Both lines of reasoning can be challenged theoretically, though. First, hardships of adjustment to economic liberalization will be softened during good times (Bean 1998). Consequently, political opposition against reform may be weakened, and governments might be more willing to launch reforms in an economic upswing. Second, sustainability of policies and credibility of rulers appear to be a prerequisite for successful reform (e.g. Rodrik 1991). Governments knowing that their announcements regarding the future are not credible have no incentive to initiate reforms that only pay off if citizens believe their promises (Keefer 2004). Moreover, economic liberalization frequently requires a compensation of prospective losers from reform, even in autocratic regimes. Compensation promises are however always plagued by serious inter-temporal commitment problems (Fernandez and Rodrik 1989, Dixit and Londregan 1995, Acemoglu and Robinson 2001). Recent theoretical studies show that it may be perfectly rational even for unconstrained rulers to refrain from predation and stick to policy promises (Rodrik 2000, de Figuereido 2002, Dixit 2003, Azam et al 2005). For dictators it is yet hard to build up sufficient reputation to respect compensation agreements (North and Weingast 1989, Clague et al. 1996, Escribà-Folch 2007). Rules of democratic participation and checks and balances may then be good for policy reform, as they serve as an institutional mechanism for peaceful conflict resolution, increase accountability of rulers and foster credibility of political promises, especially in times of crisis (Rodrik 1999). This would also be

more in line with the conjecture that political liberties and economic freedom are fundamentally related (Friedman 1962).

Both the crisis hypothesis and the impact of the institutional framework of policy-making on economic policy reform have been the subject of a number of empirical studies. Recent investigations (Drazen and Easterly 2001, Pitlik and Wirth 2003, Heinemann 2004, IMF 2004, Abiad and Mody 2005, Hoj et al. 2006, Pitlik 2007) all find empirical evidence in favor of several versions of a crisis hypothesis, employing different indicators for economic crises and policy liberalization. Poor performance seems to encourage reform, although the size of reform-promoting effects is not always outstanding. Pitlik and Wirth (2003) additionally find a U-shaped relationship between growth performance and policy liberalization. It appears that a deep growth crisis is conducive to reform, but moderate economic downturns are not. Countries facing no crisis seem to have a higher propensity to liberalize economic policies than moderately poor performers. By construction of the crisis indicators most contributions however do not address the possibility that very good economic conditions may encourage liberalization, too.

Empirical support of the strong government-hypothesis appears mixed. Tsebelis (2002) finds that increasing the number of veto actors in a sample of Western parliamentary democracies impedes decisive political action. He does not refer to economic policy reform decisions, however. Veiga (2000), and Hamann and Prati (2002) conclude that less democratic and less fragmented governments stabilize earlier from high inflation episodes. Giavazzi and Tabellini (2005) show that countries which liberalize first the economy and then become more democratic observe a better performance in a sample of 140 countries. In contrast, de Haan and Sturm (2003) and Lundström (2005) report that democratic rule proves favorable for economic reform in a larger cross-section of developing countries. Pitlik and Wirth (2003) also reveal a positive link between economic liberalization and institutional constrains in a sample of developing and industrial economies. Most recently, Leonida et al. (2007), drawing on Acemoglu and Robinson (2006), find a non-linear relationship between democracy and reform, meaning that both autocratic and fully democratic regimes are more conducive to economic liberalization than semi-democracies.

The papers reviewed so far neglect interaction effects between economic crises and political institutions. This is the subject of a recent paper by Alesina, Ardagna, and Trebbi (2006). The authors explore implementation of fiscal consolidation and inflation stabilization policies in a panel analysis of OECD- and developing countries. In particular, they find that mounting fiscal deficits or a poor inflation performance increase the probability of reforms, defined as an improvement in budget balance and inflation rates. They also conclude that presidential

systems or unified governments with large majorities of parties in office are more likely to consolidate budgets and to stabilize from high inflation in times of deep crises. At first glance, this supports the strong government-hypothesis. Alesina, Ardagna, and Trebbi (2006) yet do not discriminate between more or less democratic regimes. Thus, presidential democracies and presidential dictatorships are said to face the same institutional restrictions on government action, which appears implausible.

III. DATA AND SOME STYLIZED FACTS

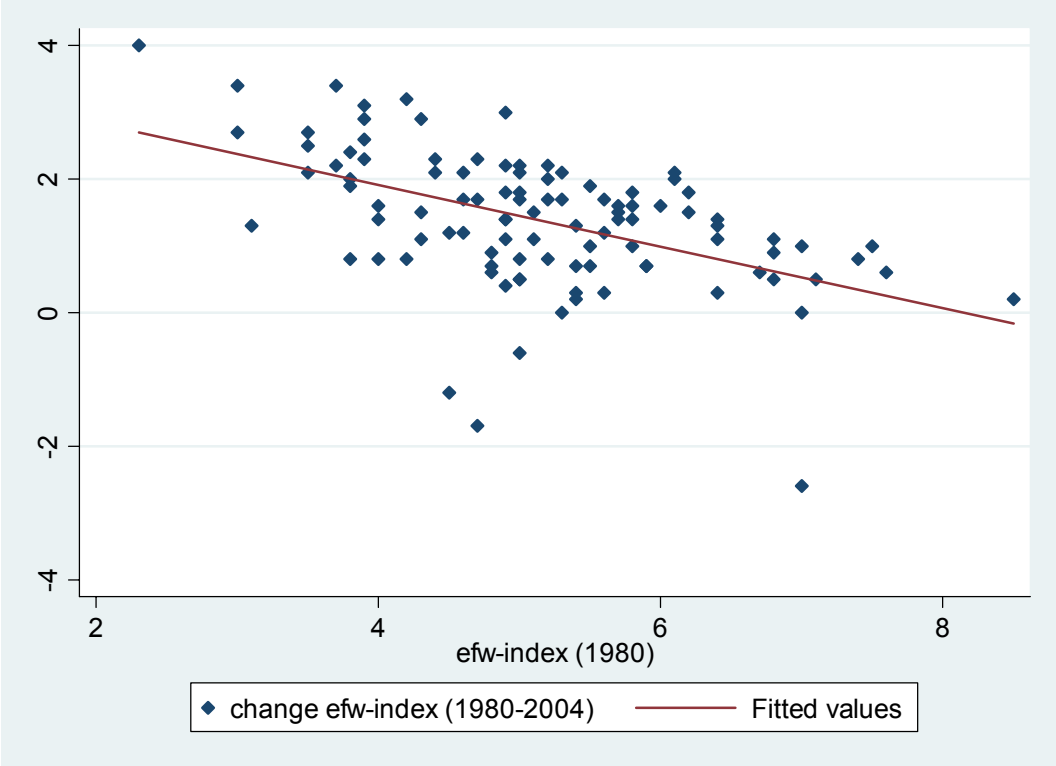
The focus of the paper is on the impact of growth performance, political institutions and their interaction effects on economic policy liberalization in a world-wide sample of developed and developing countries. We do not examine specific policies but instead look at a country's overall policy mix as measured by an aggregate liberalization index. The main reason is that growth performance depends on the interplay of many policies. Poor (or good) growth performance may hence be a driver not of particular reforms but of comprehensive policy changes.

To quantify economic policy reform and the market-friendliness of a country's overall policy mix we make use of the aggregate Economic Freedom of the World-index (*efw*), compiled by Gwartney, Lawson, and Easterly (2006). The *efw*-index quantifies the degree of economic freedom in a country in a range from 0 (not free) to 10 (totally free) points, and covers a time span from 1970 to 2004 in intervals of five years (four years for the period 2000-2004). The index is calculated using most objective measures of liberalization of a nation's economic policy. Starting from a total of 37 sub-categories, variables are grouped into five major policy areas (size of government, security of property rights, sound money and price stability, freedom to exchange with foreigners, and regulation of credit, labor and business). The overall *efw*-index is an equally weighted average of these five components. An increase of the *efw*-score over a five year period signals a liberalization of economic policies on the whole. In its recent edition the *efw*-index covers a sample of 123 countries from all over the world.[1] In 2004, the highest *efw*-index scores are reported for Hong Kong (8.7 points) and Singapore (8.5), followed by the U.S., New Zealand and Switzerland (all 8.2). Least economically free nations are Myanmar (3.3) and Zimbabwe (3 points). Economic freedom has increased over past decades on average. Figure 1 illustrates a negative relationship between initial economic liberalization in 1980 and the change of the *efw*-index over 1980-2004. As can be seen easily,

[1] For the purpose of this study a chain-weighted index which corrects for limited data availability for some of the sub-components in some countries over time is employed.

countries that already attained a high degree of economic freedom in 1980 had less potential to further liberalize policies.

Figure 1: Change in economic freedom 1980-2004 and initial economic freedom 1980



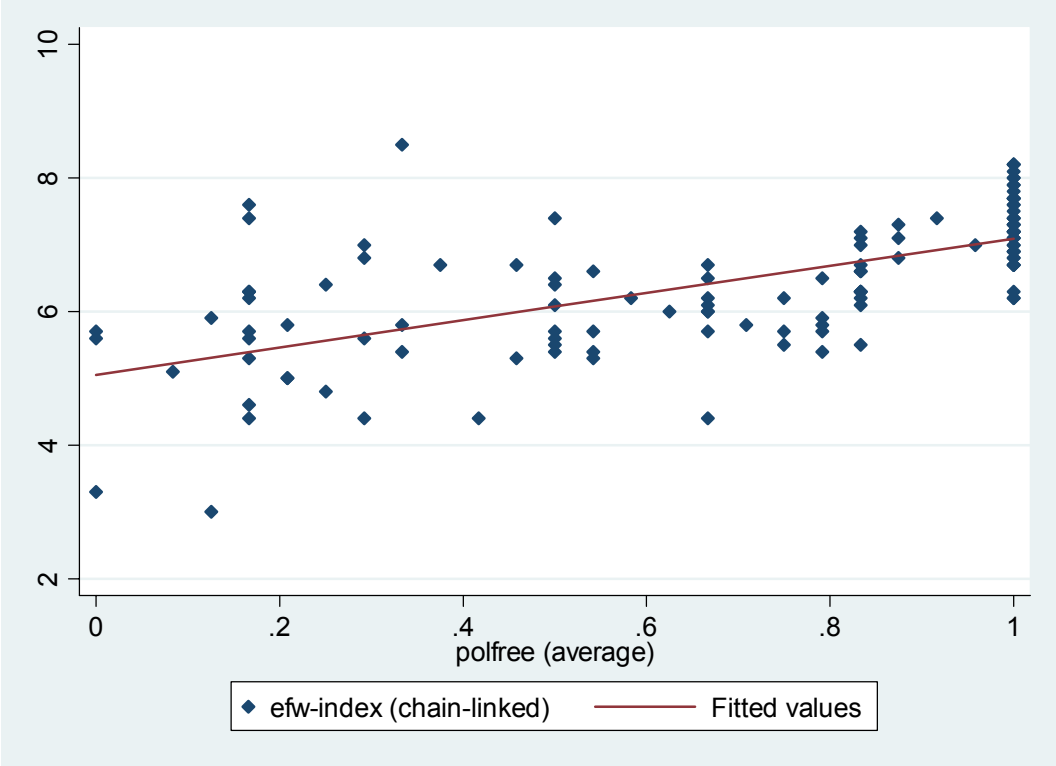
Growth performance is measured by average annual real per capita GDP growth over the respective five year-periods 1970-75, 1975-80, ..., 1995-2000, and a four-year-period 2000-2004, based on the Penn World Tables 6.2.[2] In our sample of high income-OECD-countries and developing countries for which Economic Freedom of the World-data are available, we have 798 country-period-observations, with an average annual per capita growth rate (over five year-periods) of 1.7 percent, and a median per capita growth rate of 1.9 percent.

For the purpose of our study, we employ two extensively used indicators for the degree of democracy. The variable *polfree* is an index of political rights, obtained from Freedom House (2006). It evaluates the rights to participate freely in the political process, including the rights to vote freely for distinct alternatives in legitimate elections, compete for public office, join parties and organizations, and elect legislators who have a decisive impact on policies and

[2] Data were retrieved from http://pwt.econ.upenn.edu/php_site/pwt_index.php. PWT data are compiled by Heston, Summers, and Aten (2006). In some cases of missing data we calculated average annual growth rates over four year periods only.

are accountable to the electorate.[3] Alternatively, we assess democracy by *polity*, an indicator of political liberties from the Polity IV-project (Marshall and Jaggers 2005).[4] The *polity*-index describes existence and fairness of a voting process. For ease of comparison, *polfree* and *polity*-indexes are re-coded on a 0-1-scale, higher values representing a higher level of democracy. As data are available on an annual basis, averages of *polfree* and *polity* over the respective time periods are used. The two indicators of democracy are highly correlated (r = 0.9 in our sample).

Figure 2: Economic freedom and democracy (polfree) in 2004



Figures 2 and 3 show a positive relation between the level of economic freedom in 2004 and respective democracy scores (averaged over 2001-2004). Among the group of 25 countries with the highest *efw*-scores in 2004, only 5 countries can be counted as not fully democratic.[5] That does not rule out the strong government-hypothesis, however. An explanation could be that unconstrained rulers respond quickly to crises but that a democratic political system is more favorable to sustained economic liberalization in general.

[3]We do not use the Freedom House civil rights-index which measures rule-of-law and absence from government interference, as both are both included (partially) in our dependent variable.

[4] In particular, we use the Polity 2 variable.

[5] Non-democratic Singapore ranks second on the *efw*-scale. No democracy scores are available for Hong Kong

Figure 3: Economic freedom and democracy (polity) in 2004

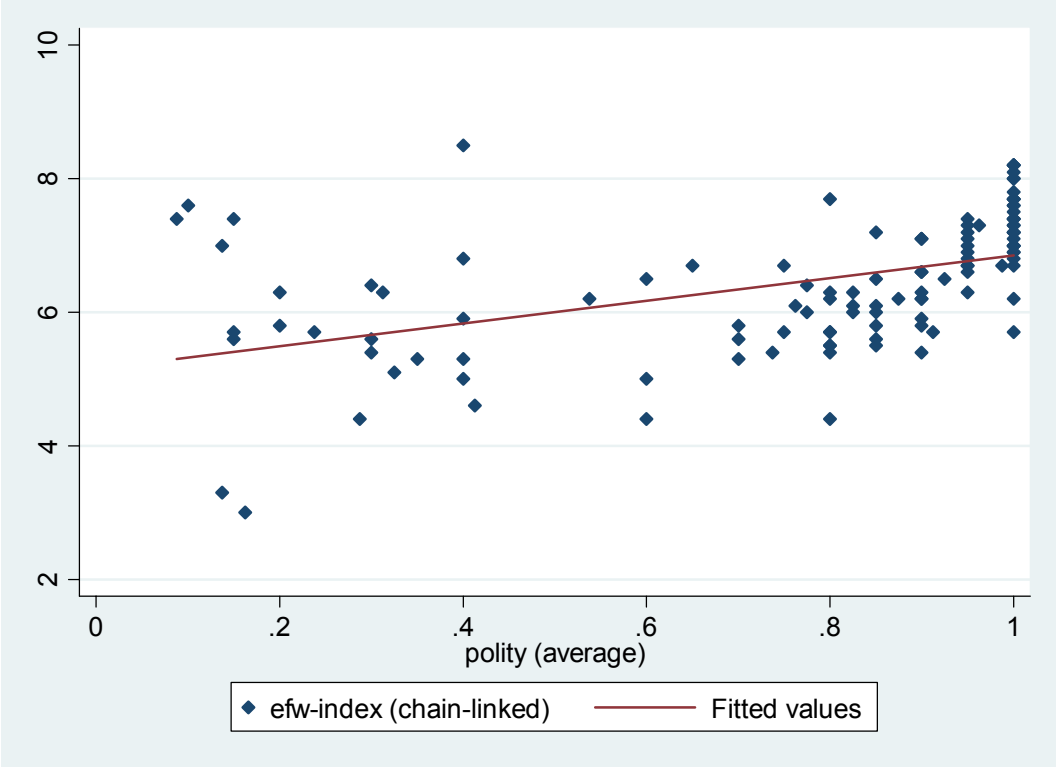


Table 1 gives a first impression about potential links between economic policy reform intensity, as measured by a change in the economic freedom-score (Δ *efw*) over a five-year-period, and initial economic freedom, growth performance and average level of democracy. In a first step, we sorted all country-period-observations for all variables into three distinct groups, considered 'high', 'medium', and 'low'. Assignment of labels follows a simple scheme: If an observation is in the 75th percentile of the sample, it is coded 'high', and if it is located in the 25th percentile, it is coded 'low'. Otherwise it is coded 'medium'.

As expected, intensity of policy liberalization Δ *efw* is stronger if economic freedom at the start of the period is low, *et vice versa*. Simple correlation tests show statistical significance of the relationship. This again points to a convergence of economic policies.

In the group of observations with high contemporary growth rates (growth >3.2 percent p.a.), the mean change of economic freedom (Δ *efw*) is +0.42 points. Bad growth performers show on average an increase of only Δ *efw* = +0.13 points. At first glance, this appears to support a hypothesis that good growth performance is also good for reform. However, the reverse may also be the case, if ambitious reforms cause higher growth rates. Using contemporary growth rates we hence face a problem of endogeneity. With respect to per capita growth lagged one period, results seem to support the crisis hypothesis. On average, the group of countries with the worst growth performance observed an increase of the *efw*-index of +0.39 in the

following period. Good growth performers liberalized policies in the subsequent period by +0.1 points. Note, however, that standard deviations within the growth categories are exceptionally high.

Table 1: Intensity of economic policy reforms Δ efw over several categorical variables

Variable	Obs	Mean	Std. Dev.	Min	Max	corr.
efw (t-1)						
high	143	0.04	0.44	-2.9	1.2	-0.14**
medium	372	0.19	0.66	-2.3	2.2	-0.07
low	175	0.47	0.85	-2.1	3.1	+0.21**
growth						
high	159	0.42	0.68	-1.9	2.4	+0.15**
medium	358	0.20	0.59	-2.3	2.6	-0.05
low	167	0.13	0.75	-2.9	3.1	-0.09*
growth (t-1)						
high	176	0.09	0.55	-2.3	1.6	-0.12**
medium	327	0.22	0.55	-1.9	2.3	-0.02
low	175	0.39	0.87	-2.9	3.1	+0.15**
polfree						
high	199	0.27	0.51	-1.9	1.8	+0.03
medium	336	0.27	0.72	-2.3	3.1	+0.05
low	148	0.11	0.74	-2.9	2.3	-0.09*
polfree (t-1)						
high	160	0.29	0.43	-1.3	1.8	-0.00
medium	306	0.32	0.73	-2.9	3.1	+0.05
low	163	0.23	0.65	-1.3	2.3	-0.05
polity						
high	171	0.24	0.48	-0.8	1.8	+0.01
medium	344	0.31	0.72	-2.1	3.1	+0.11**
low	129	0.03	0.75	-2.9	2.2	-0.15**
polity (t-1)						
high	162	0.23	0.48	-0.8	1.8	-0.00
medium	314	0.32	0.71	-1.8	3.1	+0.12**
low	169	0.08	0.75	-2.9	2.3	-0.14**

Notes: "high" observations are located in the fourth quartile and "low" observations are located in the first quartile of the sample. Asterisks **, and * indicate significance of correlations at the 1 percent level and at the 5 percent level, respectively.

For democracy indicators results are mixed, and there is not too much difference in results using a contemporary or a one period-lagged value. Yet, results for contemporary institutions may be plagued by endogeneity and reverse causality if economic and political liberalization are driven by the same unknown factors. In general it appears that low democracy scores are associated with less liberalization, compared to country observations ranked high on a democracy scale. Again, variation of *Δ efw* within categories is considerable.

IV. EMPIRICAL EVIDENCE

1. Model and estimation method

The paper aims at identifying the impact of the interplay of growth performance and political institutions on overall economic policy liberalization. The model to be estimated is given by

$$\Delta\, efw_{i,t} = \beta_1 efw_{i,t-1} + \beta_2 gw_{i,t-1} + \beta_3 pol_{i,t-1} + \beta_4 (gw_{i,t-1} \cdot pol_{i,t-1}) + \beta_5 X_{i,t-1} + u_{i,t} \quad (1)$$

$$\Delta\, efw_{i,t} = efw_{i,t} - efw_{i,t-1} \quad (2)$$

$$u_{i,t} = \eta_i + \mu_t + \varepsilon_{i,t} \quad (3)$$

where *i* is a country-index, *t* represents a respective five-year-time period, *efw* is the economic freedom-score, *gw* is a measure of GDP per capita growth performance, *pol* is one of the institutional variables for democratic constraints (*polfree*, *polity*), and *X* is a vector of control variables to be discussed below. The term $u_{i,t}$ can be decomposed into unit fixed effects η_i, fixed time effects μ_t, and an error term $\varepsilon_{i,t}$. Time effects control for (unknown) external reform pressures which affect all countries similarly, and inclusion of unit effects is justified by unobserved country heterogeneity. As economic liberalization $\Delta\, efw$ is calculated by first differencing the *efw*-index (2), we can re-write (1) as

$$\begin{aligned} efw_{i,t} = {} & (1+\beta_1) efw_{i,t-1} + \beta_2 gw_{i,t-1} + \beta_3 pol_{i,t-1} + \beta_4 (gw_{i,t-1} \cdot pol_{i,t-1}) \\ & + \beta_5 X_{i,t-1} + \eta_i + \mu_t + \varepsilon_{i,t} \end{aligned} \quad (4)$$

(4)

In order to minimize problems of endogeneity and reverse causality, all explanatory variables enter with a lag of one period. Estimating (4) we expect that $1 > (1+\beta_1) > 0$, which means that intensity of economic policy reform $\Delta\, efw$ is negatively related to the pre-period level of economic freedom $efw_{i,t-1}$.

In our basic model specification, growth performance $gw_{i,t-1}$ in the previous period is simply measured by real GDP per capita *growth* over the respective period. Institutional covariates $pol_{i,t-1}$ (*polfree*, *polity*) measure the strength of democratic restrictions. As we are interested in the impact of growth performance conditional on institutions, or democracy conditional on growth, we include a multiplicative interaction term ($gw_{i,t-1} \cdot pol_{i,t-1}$). Hence, the effect of pre-period growth on subsequent economic policy liberalization is given by

$$\frac{\partial\, efw_{i,t}}{\partial\, gw_{i,t-1}} = \beta_2 + \beta_4 \cdot pol_{i,t-1} \quad (5)$$

and the impact of political institutions is

$$\frac{\partial efw_{i,t}}{\partial pol_{i,t-1}} = \beta_3 + \beta_4 \cdot gw_{i,t-1} \tag{6}$$

If there are no significant interactions between growth performance and political institutions, $\beta_4 = 0$, and the total effect of economic growth performance and political institutions is captured exclusively by β_2 and β_3.

To keep the model parsimonious, we only include the log of real GDP per capita (*GDP*) and the log of trade openness (*trade*) as further control variables in the basic specification. Trade openness is measured by the sum of imports and exports over GDP (in percent). Data are from the Penn World Tables 6.2. We expect coefficients of *GDP* and *trade* to show a positive sign.

The most popular way in Political Economy to account for fixed effects is a simple within group-transformation (Baltagi 1995, pp. 11-12). This procedure however makes it impossible to estimate the impact of (almost) time-invariant variables, e.g. a democracy score. Moreover, a within effects-estimator cannot account for level effects of covariates. Important cross-country information is therefore disregarded. A further econometric problem is related to the dynamic character of the model. Inclusion of a lagged dependent variable in the presence of unit fixed effects leads to endogeneity bias in short panels (Nickell 1981). Reverse causality and endogeneity are also a matter for growth and democracy indicators.

The system GMM-estimator developed by Blundell and Bond (1998) and Bond (2002) deals with these problems by employing instrumental variables.[6] System GMM combines equations in first differences with equations in levels, using lagged first differences as instruments in the levels equations and lagged levels as internal instruments in difference equations.[7] Estimates in the next sub-sections are based on a one step-system estimator, with robust standard errors. The validity of additionally included instruments is tested by means of a Hansen-test of overidentifying restrictions. Consistency of estimates requires that error terms are not second-order serially correlated, so we report P-values of Arellano-Bond-AR(2)-tests.

[6] One might also consider using the first difference GMM-estimator of Arellano and Bond (1991). However, this estimator does not solve the problem of losing cross-section information. Blundell and Bond (1998) additionally report that the Arellano/Bond-estimator performs poorly in the presence of persistent variables because lagged levels of the series provide weak instruments for subsequent changes.

[7] Democracy scores and interaction terms are treated as endogenous. All other explanatory variables enter the regressions with a lag of one period and are treated as pre-determined. To keep the number of instruments as small as possible, we restricted the use of internal instruments to a lag of 3 (endogeneous) or 1 (pre-determined variables).

2. Results

Table 2 reports results of our basic model specifications. Columns (1) to (4) show results where democracy is measured by *polfree*, in columns (5) to (8) democracy is measured by *polity*. We run regressions for a full sample of countries for which all data are available, and a smaller sample, from which 23 high-income OECD-countries are excluded.

As expected, the lagged *efw*-index is significantly related to contemporary *efw*-scores. A coefficient of 0.7 indicates considerable policy persistence. Policy reforms usually go slowly, and liberalization is often observed only gradually. GDP per capita shows expected positive signs in all regressions, but most of the time it is not statistically significant.[8] Trade openness seems not related to economic liberalization. Hansen-tests and AR(2)-tests indicate validity of our specifications.

Table 2: Basic model specifications

	Dependent variable: efw-score							
Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	full sample		sample without high-inc. OECD		full sample		sample without high-inc. OECD	
efw	0.68	0.70	0.71	0.72	0.68	0.70	0.71	0.73
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
growth	0.01	0.04	0.00	0.04	0.01	0.04	0.00	0.05
	(0.337)	(0.009)	(0.630)	(0.011)	(0.600)	(0.009)	(0.737)	(0.007)
polfree	0.74	0.76	0.74	0.75				
	(0.002)	(0.003)	(0.003)	(0.006)				
growth*polfree		-0.08		-0.09				
		(0.011)		(0.008)				
polity					0.65	0.59	0.63	0.53
					(0.001)	(0.000)	(0.004)	(0.002)
growth*polity						-0.09		-0.10
						(0.002)		(0.001)
GDP	0.06	0.08	0.05	0.05	0.12	0.16	0.13	0.13
	(0.579)	(0.400)	(0.630)	(0.620)	(0.213)	(0.040)	(0.199)	(0.106)
trade	-0.09	-0.10	-0.04	-0.03	-0.02	-0.03	-0.02	0.02
	(0.371)	(0.212)	(0.703)	(0.696)	(0.805)	(0.736)	(0.864)	(0.817)
Observations	619	619	481	481	633	633	487	487
Number of coid	120	120	97	97	114	114	93	93
No. instruments	65	75	65	75	76	89	76	89
Hansen-Test	0.309	0.292	0.312	0.252	0.239	0.315	0.382	0.345
AR2-test	0.302	0.446	0.297	0.498	0.563	0.757	0.451	0.747

Notes: All explanatory variables enter with a lag of one period. GDP and trade enter in logs. Estimated by One Step-System GMM. All estimates include a constant, time and country fixed effects. Robust P-values in parentheses.

Looking at the variables of our special research interest, we find a statistically significant and positive impact of democracy on economic policy liberalization throughout all specifications.

[8] At least in part this can be explained by collinearity between *efw*-scores, democracy scores and (log) of GDP per capita. Dropping GDP per capita does not change results for our variables of interest.

Pre-period GDP per capita growth is not related to reforms in equations (1), (3), (5) and (7), as long as interaction effects with political variables are not included.

Columns (2), (4), (6) and (8) illustrate results if an interaction of lagged GDP growth with lagged democracy scores enters regressions. Interaction terms are statistically significant and coefficients have a negative sign. Coefficients for *growth* now also become significant and positively related to liberalization. Including interaction terms thus reveals that the effect of growth performance on economic policy liberalization is conditional on democracy. Consider equation (6) for purpose of illustration. The impact of growth performance on policy reform in the subsequent period is given by

$$\frac{\partial\, efw_{i,t}}{\partial\, gw_{i,t-1}} = 0.04 - 0.09 \cdot polity_{i,t-1}. \qquad (7)$$

In fully democratic societies (*polity* = 1), the marginal impact of a 1 percentage point increase of lagged GDP per capita growth is negative (-0.05). In fully autocratic regimes (*polity* = 0) the impact of higher growth on economic policy liberalization is positive (+0.04). In semi-democratic regimes, with a *polity*-index about 0.5, good or bad growth performance does not affect policy liberalization in the subsequent period. Hence, the impact of pre-period growth on reform intensity differs by political regime type. Only democratic governments seem to respond to growth crises with a liberalization of economic policies. Although these effects are statistically significant, they are economically not of overwhelming importance, however.

Using equation (6), for example, we can also derive the impact of democracy on reform as

$$\frac{\partial\, efw_{i,t}}{\partial\, polity_{i,t-1}} = 0.59 - 0.09 \cdot growth_{i,t-1}. \qquad (8)$$

Most important in our context is that the positive impact of a democratic regime is reinforced if a country observed bad growth performance in the preceding period. This result contradicts the strong government-hypothesis and is more in line with the expectation that democracy is good for reform, especially in times of economic crises. Results of estimates for a sample without high-income OECD-countries are qualitatively and quantitatively nearly unchanged.

Summing up so far, there appears to be a kind of conditional growth crisis effect on economic policy liberalization. Democracies seem to respond to bad growth performance with more intense reforms than autocratic regimes. A very good growth performance in the preceding period, however, reduces the propensity of democratic regimes to liberalize in the subsequent period.

V. ROBUSTNESS ANALYSIS

1. Alternative measurement of democratic constraints

Any proposed index of democracy should only be interpreted as an ordinal scale (de Haan and Siermann 1996). To test the robustness of our findings we therefore replace in a first step our normalized democracy scores *polfree* and *polity* by simple indicator variables. Democracy dummy variables are constructed as follows: A country is assigned a '1' if its democracy score (averaged over the time period) exceeds 0.5, otherwise the democracy indicator is '0'. Results are shown in table 3, columns (1) to (4). Again, coefficients of democracy are positive and significant. Pre-period per capita growth is statistically significant only if interactions with democracy dummies are included in the regressions. Hence, results of our analyses in the preceding section are unaffected.

Table 3: Robustness tests with alternative indicators for democracy

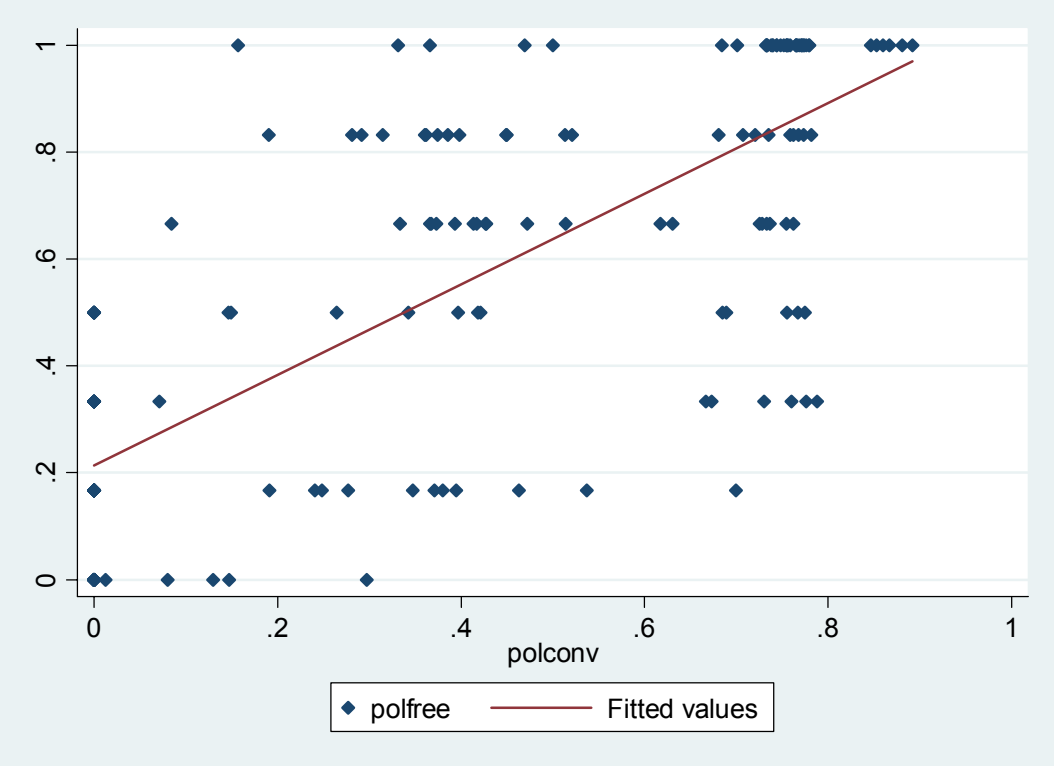
	Dependent variable: efw-score					
Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)
efw	0.69	0.74	0.66	0.70	0.72	0.73
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
growthpc	0.01	0.03	0.01	0.03	0.01	0.03
	(0.530)	(0.023)	(0.507)	(0.025)	(0.535)	(0.037)
polfreedum	0.44	0.42				
	(0.000)	(0.000)				
growthpc*polfreedum		-0.06				
		(0.001)				
politydum			0.34	0.34		
			(0.005)	(0.001)		
growthpc*politydum				-0.07		
				(0.002)		
polconv					0.58	0.49
					(0.012)	(0.013)
growthpc*polconv						-0.09
						(0.007)
GDP	0.12	0.11	0.19	0.21	0.09	0.14
	(0.192)	(0.113)	(0.031)	(0.005)	(0.354)	(0.101)
trade	-0.13	-0.12	-0.06	-0.05	-0.09	-0.13
	(0.207)	(0.129)	(0.551)	(0.522)	(0.430)	(0.237)
Observations	619	619	633	633	648	648
Number of coid	120	120	114	114	118	118
No. instruments	65	75	76	89	76	89
Hansen-Test	0.134	0.150	0.215	0.235	0.168	0.284
AR2-test	0.332	0.474	0.561	0.659	0.741	0.651

Notes: All explanatory variables enter with a lag of one period. GDP and trade enter in logs. Estimated by One Step-System GMM. All estimates include a constant, time and country fixed effects. Robust P-values in parentheses.

A further objection may be that there exists considerable institutional variation both within democracies and within autocracies. Political regimes differ by the strength of institutional constraints on the executive. Presidential or parliamentary regimes, unicameral or bicameral systems, federal or unitary states, or countries with majority voting rule or proportional

representation, are characterized by a differing number of veto points although they may observe the same level of democracy. Regardless of the rules of democratic participation, an increasing number of effective veto players can block policy change and reduce decisiveness, or can contribute to commitment to maintaining a given policy and credibility of reforms (Cox and McCubbins 2001, Tsebelis 2002).

Figure 4: Democracy score (polfree) and political constraints index (polconv) in 2004



To capture such effects in democratic as well as in autocratic regimes, we include the variable *polconv*, provided by Henisz (2000), in our analysis. This variable measures the degree of institutional constraints on the executive regardless of the level of democracy. It is derived from a simple spatial model of politics including five possible veto points: the executive, one or two legislative chambers, the judiciary and autonomous sub-central governments. Veto actors are counted only if they act independently. In calculating the index, Henisz takes into account the fragmentation of legislatures and diverting policy preferences of veto actors. The index ranges from 0 to a theoretical maximum of 1. Higher index-values indicate stronger constraints on the executive to change policies autonomously. In contrast to democracy indicators used beforehand, *polconv* shows more variation over time, as it depends heavier on specific political conditions in a country. Figure 4 illustrates that the democracy score *polfree* and the political constraints index *polcon* in 2004 are

correlated positively, but that there is substantial institutional variation within democratic and autocratic regimes with respect to the number of effective political constraints.

Columns (5) and (6) in table 3 report findings of estimates using *polconv*. All results obtained from the previous set of regressions are qualitatively unchanged. Thus, we are quite confident that our results do not depend on the democracy indicator employed. We also confirmed that our results hold if we include contemporary democratic constraints instead of lagged values (not reported).

2. Non-linearities in the effects of growth performance

A further point of interest is related to the impact of exceptionally good or bad growth performance on economic policy liberalization. On the one hand, the crisis hypothesis states that only severe downturns increase the likelihood of reform. On the other hand, it may also be the case that only outstandingly high short-run growth rates encourage governments to undertake politically risky reforms that pay off primarily in the longer run. To test these hypotheses, we follow the division of the sample into three distinct groups of high, medium, and low growth, as explained in section 3. While there is no correlation between *highgw* and the lagged *efw*-index (r = 0.04), bad growth performance (*lowgw*) is significant and negatively related to the lagged *efw*-score (r = -0.3). To avoid problems of multi-collinearity due to an increasing number of interaction terms, the effects of lagged *highgw* and *lowgw* dummy and interaction terms on policy liberalization are examined separately. Results are reported in table 4. To economize on space we show only results for *polfree* and *polconv*.

Once again, in estimates without interaction of growth performance and political institutions we find no effect of growth performance on policy liberalization. Higher democracy scores and stronger constraints on the executive show a significant and positive relation to the *efw*-index, thus confirming our previous results (see columns (1), (3), (5), and (7)). Looking at the *highgw* equations (1) to (4), we again observe that a very good growth performance is helpful to economic reform, but not in fully democratic regimes as indicated by negative coefficients of interaction terms. See columns (2) and (4). Extremely good short run growth performance appears to strengthen reform forces notably in less democratic countries.

In the *lowgw* equations (5) to (8), we find again a kind of conditional crisis hypothesis. While bad growth performance in the preceding period *per se* does not show an impact on economic policy reform in the subsequent five years, introducing interaction terms shows that more democratic regimes with stronger institutional restrictions on executive action respond more likely to growth crises with a liberalization of economic policy. In contrast, in autocratic regimes a negative effect of growth crises on policy liberalizations seems to dominate.

Table 4: Non-linear effects of growth performance on reforms?

	Dependent variable: efw-score							
Explantory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
efw	0.69	0.70	0.70	0.71	0.69	0.69	0.71	0.71
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
highgw	0.07	0.27	0.05	0.25				
	(0.297)	(0.064)	(0.493)	(0.053)				
polfree	0.78	0.87			0.68	0.48		
	(0.001)	(0.001)			(0.004)	(0.030)		
highgw*polfree		-0.38						
		(0.059)						
polconv			0.71	0.80			0.74	0.35
			(0.002)	(0.000)			(0.001)	(0.114)
highgw*polconv				-0.50				
				(0.012)				
lowgw					-0.04	-0.27	-0.03	-0.19
					(0.583)	(0.067)	(0.715)	(0.096)
lowgw*polfree						0.44		
						(0.094)		
lowgw*polconv								0.47
								(0.117)
GDP	0.04	0.02	0.07	0.06	0.09	0.11	0.06	0.11
	(0.697)	(0.845)	(0.442)	(0.520)	(0.420)	(0.298)	(0.475)	(0.179)
trade	-0.10	-0.06	-0.01	-0.00	-0.10	-0.16	0.01	-0.09
	(0.283)	(0.499)	(0.949)	(0.981)	(0.326)	(0.094)	(0.924)	(0.408)
Observations	619	619	648	648	619	619	648	648
Number of coid	120	120	118	118	120	120	118	118
No. instruments	65	75	75	87	65	75	75	86
Hansen-Test	0.306	0.230	0.205	0.346	0.123	0.083	0.120	0.102
AR2-test	0.274	0.374	0.715	0.774	0.264	0.336	0.716	0.797

Notes: All explanatory variables enter with a lag of one period. GDP and trade enter in logs. Estimated by One Step-System GMM. All estimates include a constant, time and country fixed effects. Robust P-values in parentheses.

VI. CONCLUSION

Economic policy reform is a conflict-ridden political process. Policies beneficial for society as a whole are often not implemented due to a fierce opposition from politically powerful prospective losers from reforms. In this respect, it is often claimed that a very poor economic performance can help overcome resistance to economic policy liberalization. Furthermore, political authorities not constrained by democratic checks and balances are often supposed to be more decisive and are thus expected to carry out market-friendly policy change in times of crises more easily. Rules of democratic participation and checks and balances may however also be good for policy reform, as they serve as an institutional mechanism for peaceful conflict resolution (Rodrik 1999).

In the paper we investigate empirically the interaction between economic growth performance and political institutions in producing free-market reform. Employing 'Economic Freedom of the World'-data as a measure of policy reform for a sample of up to 120 countries

over the period 1970-2004, it is shown that political regime types shape systematically government policy responses to economic growth performance. In line with several other contributions we find that democratic rule is favorable for reform in general. Contrary to conventional wisdom we also find that a bad growth performance is conducive to liberalization not in autocratic political regimes, with only few institutional restrictions for government action, but only in democracies. Thus we observe a kind of conditional growth crisis effect on economic policy liberalization. This result supports Rodrik's notion that democratic institutions are superior in producing a reasonable policy adjustment in times of crisis. Analyses also show that a very good growth performance weakens liberalization efforts in democratic regimes. This is what we would have expected: If short-run growth rates are high, there is no political necessity to change policies, although cost of reform adjustment may be much lower during an economic upswing.

From a political point of view, the most important message of the paper is that there is no need for autocratic rule to implement economic policy reform in times of crises. Democracies not only carry out more liberal economic policies in general, but they are also more responsive to economic growth crises.

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Appendix

Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
efw	815	5.74	1.29	1.7	9.1
Δ efw	690	0.23	0.67	-2.9	3.1
polfree	753	0.61	0.26	0	1
polfreedum	753	0.58	0.50	0	1
polity	761	0.62	0.36	0	1
politydum	761	0.60	0.49	0	1
polconv	780	0.43	0.32	0	0.89
growth	798	1.65	3.17	-13.5	12.3
lowgw	798	0.25	0.43	0	1
mediumgw	798	0.50	0.50	0	1
highgw	798	0.25	0.43	0	1
GDP (log)	755	8.67	1.11	5.88	10.83
trade (log)	801	4.02	0.68	1.93	6.02

Correlation matrix

	efw	Δ efw	growth	polfree	polfreedum	polity	politydum
Δ efw	0.2649	1.0000					
	0.0000						
growth	0.2906	0.1363	1.0000				
	0.0000	0.0004					
polfree	0.5210	0.0938	0.1509	1.0000			
	0.0000	0.0142	0.0000				
polfreedum	0.4126	0.1159	0.1386	0.9041	1.0000		
	0.0000	0.0024	0.0002	0.0000			
polity	0.4831	0.1364	0.1278	0.9213	0.8772	1.0000	
	0.0000	0.0005	0.0005	0.0000	0.0000		
politydum	0.4146	0.1552	0.1054	0.8458	0.8255	0.9377	1.0000
	0.0000	0.0001	0.0040	0.0000	0.0000	0.0000	
polconv	0.5920	0.1332	0.1746	0.8355	0.7385	0.8351	0.7649
	0.0000	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
growth	0.2906	0.1363	1.0000	0.1509	0.1386	0.1278	0.1054
	0.0000	0.0004	0.0000	0.0000	0.0002	0.0005	0.0040
lowgw	-0.3381	-0.0941	-0.7302	-0.2453	-0.2123	-0.2214	-0.1988
	0.0000	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000
highgw	0.1152	0.1553	0.6696	-0.0345	-0.0234	-0.0471	-0.0386
	0.0011	0.0000	0.0000	0.3494	0.5254	0.1989	0.2932
GDP (log)	0.6647	-0.0075	0.2169	0.6541	0.5142	0.5428	0.4660
	0.0000	0.8506	0.0000	0.0000	0.0000	0.0000	0.0000
trade (log)	0.3650	0.0716	0.0916	0.1009	0.0499	0.0174	0.0080
	0.0000	0.0612	0.0097	0.0060	0.1745	0.6358	0.8264

	polconv	growth	lowgrowth	mediumgr.	highgrowth	GDP (log)	trade (log)
growth	0.1746	1.0000					
	0.0000						
lowgw	-0.2356	-0.7302	1.0000				
	0.0000	0.0000					
highgw	-0.0199	0.6696	-0.3311	-0.5793	1.0000		
	0.5834	0.0000	0.0000	0.0000			
GDP (log)	0.6387	0.2169	-0.2962	0.2134	0.0507	1.0000	
	0.0000	0.0000	0.0000	0.0000	0.1663		
trade (log)	0.1180	0.0916	-0.0408	-0.0491	0.0975	0.2463	1.0000
	0.0011	0.0097	0.2501	0.1657	0.0059	0.0000	

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