



# Economic reform, democracy and growth during post-communist transition

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## Abstract

The post-communist transition was associated with two specific phenomena. First, political liberalization was initiated simultaneously with economic reforms. Second, instead of a short J-shaped adjustment, most transition countries experienced deep and protracted recessions. Some analysts suggest that the early introduction of democracy was in fact harmful for economic growth. Similarly, proponents of reemerging authoritarian regimes claim that a strong hand is needed to restore order and reinvigorate the economy. This paper considers the stipulated trade-off between democracy and growth. The results suggest that democracy reinforces progress in economic liberalization, which, in turn, improves growth. Hence, democratization had a positive effect on growth during transition, albeit indirectly, through facilitating economic liberalization.

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## 1. Introduction

After the communist regimes collapsed throughout Eastern Europe and the former Soviet Union, they were replaced (at least initially) by relatively wide-ranging democracy. By 1993, barely 3 years into the transition, three frontrunners—the Czech Republic,

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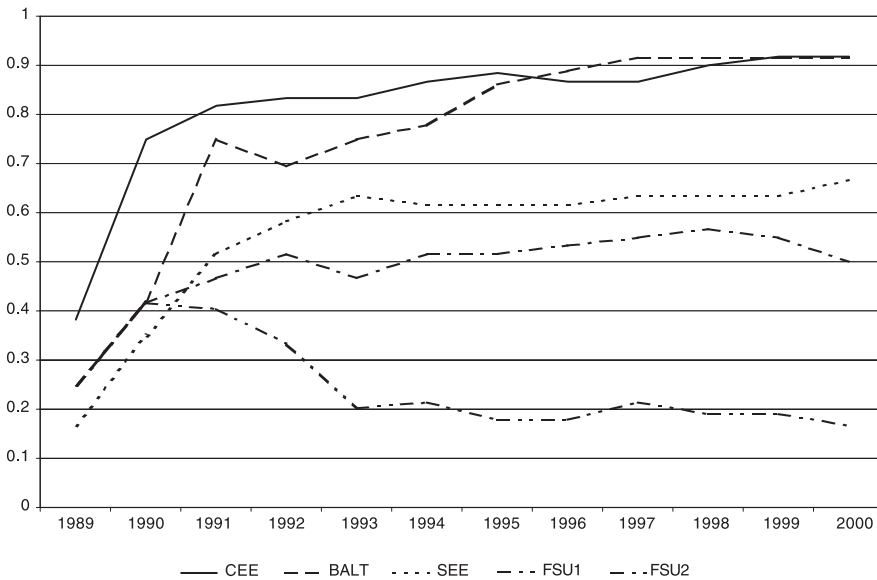


Fig. 1. Evolution of Democracy in post-communist Europe. Source: The Freedom House, own calculations. Notes: CEE: Czech Republic, Hungary, Poland, Slovakia and Slovenia. BALT: Estonia, Lithuania and Latvia. SEE: Albania, Bulgaria, Croatia, Macedonia and Romania. FSU1: Armenia, Georgia, Moldova, Russia and Ukraine. FSU2: Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

Hungary and Slovenia—attained a level of political freedom and civil liberties comparable to the United Kingdom, France or Germany. Although the other post-communist countries did not democratize so rapidly, they also made considerable progress (see Fig. 1). Between 1989 and 1991, the average democracy index rose from 0.26 to 0.57, on a scale from 0 (no democracy) to 1 (full democracy).<sup>1</sup> To put these figures in a perspective, the average transition country moved from being similar to Iran in terms of political freedoms and civil liberties to among the likes of Brazil in 2 years. Moreover, most post-communist countries succeeded in sustaining at least a moderate level of democracy, despite very turbulent economic and political developments, military conflicts or coup attempts.

The high speed of democratization reflected not only the desire of these countries' citizens to live in democracy, but also the encouragement or outright pressure from Western governments, international organizations and especially the European Union, which made democracy an explicit precondition for accession negotiations. This approach, simultaneous implementation of political and economic reforms (in fact, political reforms often even preceded the economic ones), stands in sharp contrast with the experience of countries such as Chile, Taiwan and South Korea, where democratization followed only

<sup>1</sup> This democracy index is based on the indicators of political freedom and civil liberties as reported by the Freedom House (see <http://www.freedomhouse.org>). These indicators are discussed in greater detail below. It should be emphasized, however, that the Freedom House indices only measure the extent of democracy in a given year. Obviously, the tradition of democracy, built up only gradually, is important as well.

after economic liberalization proved successful. More recently, China has so far shied away from political liberalization but implemented dramatic (albeit gradual) economic reforms and sustained impressive rates of growth over the past two decades.

Another specific feature of the post-communist transition has been the dramatic contractions of output experienced by all transition economies. The transformational recession was unexpectedly severe—cumulatively, output fell by between 15% and 75% (the two extremes being the Czech Republic and Georgia; see [Table 1](#)). Moreover, the subsequent recovery was only modest—12 years into the transition, most post-communist countries have not yet reached the level of output that they attained in 1989.

In this paper, I relate these two phenomena. Some analysts (see for example [Cheung, 1998](#)) have argued that the introduction of democracy during the highly turbulent period of transition may lead to inferior outcomes. Indeed, democracy and especially the threat of electoral backlash impose an important political constraint on the ability of the government to implement radical economic reforms (see [Roland, 2000](#)) and/or can give rise to inefficient policy choices. [Fernandez and Rodrik \(1991\)](#) show that rational voters may choose not to support efficiency-enhancing reform because of individual uncertainty about the resulting payoffs. Such a reform would be sustained *ex post* once implemented (for example, by a benevolent dictator) but would be rejected if subjected to a vote *ex ante*. Similarly, [Alesina and Drazen \(1991\)](#) argue that war of attrition over asymmetric payoffs may cause efficiency-enhancing reforms to be delayed.

Economic history, on the other hand, teaches us that democracies tend to outperform authoritarian regimes in the long term. [North \(1990, 1993\)](#) explains this stylized fact by pointing out that democracy ensures that property rights are guaranteed and is therefore a necessary precondition for sustained long-term growth. [Olson \(1993, 2000\)](#) develops a theory of democracy based on the notion of encompassing interest. Accordingly, broadly representative governments have a greater encompassing interest in the economy's development than either governments of relatively narrow elites or authoritarian rulers. Therefore, democracies tend to deliver policies favorable for sustaining growth and prosperity, impose lower rates of taxation and deliver more public goods. [Rodrik \(2000\)](#) in turn argues that democracy leads to higher growth because it lowers economic uncertainty, delivers better institutional outcomes and results in better response to adverse shocks.

The empirical evidence is mixed, however. [Minier \(1998\)](#) finds that the countries that democratized subsequently grow faster than *ex ante* similar countries that shied away from democratization. In contrast, empirical studies based on large cross sections of countries suggest that the relationship is negative ([Helliwell, 1994](#)) or hump shaped ([Barro, 1996, 1997](#)), but not robustly so (see [Przeworski and Limongi, 1993](#); [De Haan and Siermann, 1995](#)). [Tavares and Wacziarg \(2001\)](#) try to disentangle the effect of democracy on growth and conclude that democracy boosts growth because of its favorable effect on the accumulation of human capital and by reducing income inequality. On the other hand, democracy hinders growth because it adversely affects the accumulation of physical capital and because democratic countries tend to have greater governments. The overall effect then is moderately negative.

This inconclusiveness of theory and empirical evidence—and especially the possibility of democracy leading to inefficient policy choices and inferior outcomes—raises several

Table 1  
Countries in transition: indicators of economic performance, liberalization, democracy and initial conditions

	Average growth			Lowest	GDP	Year lowest	Liberalization			Democracy			GNP p.c.	Distance from
	1990–2000	1990–1994	1995–1999	GDP <sup>a</sup>	level <sup>a</sup>	attained	index			index			(USD)	Brussels (km)
				1990–2000	2000	1990–2000	1989	1994	2000	1989	1994	2000	1989	
Albania	1.1	– 5.4	6.14	60.4	102.9	1992	0.00	0.34	0.49	0.00	0.58	0.42	1400	2427
Armenia	– 4.4	– 16.1	5.32	33.2	48.0	1993	0.04	0.16	0.48	0.25	0.58	0.50	5530	4167
Azerbaijan	– 5.0	– 15.6	2.54	37.0	51.7	1995	0.04	0.08	0.42	0.25	0.17	0.25	4620	4321
Belarus	– 1.1	– 6.8	3.12	62.7	85.1	1995	0.04	0.18	0.17	0.25	0.50	0.17	7010	1881
Bulgaria	– 3.0	– 5.6	– 1.96	63.2	70.3	1997	0.13	0.38	0.62	0.00	0.83	0.75	5000	2175
Croatia	– 1.7	– 8.7	4.28	58.6	79.1	1993	0.41	0.48	0.65	0.42	0.50	0.75	6171	1399
Czech Republic	– 0.3	– 2.6	1.34	85.2	95.8	1992	0.00	0.70	0.77	0.17	0.92	0.92	8600	913
Estonia	– 1.6	– 9.4	4.48	60.8	80.2	1994	0.07	0.59	0.76	0.25	0.75	0.92	8900	2508
Georgia	– 7.5	– 22.9	5.92	25.4	34.4	1994	0.04	0.11	0.56	0.25	0.33	0.50	5590	4193
Hungary	0.5	– 3.2	3.36	81.9	104.5	1993	0.34	0.64	0.83	0.58	0.92	0.92	6810	1412
Kazakhstan	– 3.2	– 7.6	– 1.24	61.3	68.5	1995	0.04	0.23	0.53	0.25	0.25	0.25	5130	6000 <sup>c</sup>
Kyrgyzstan	– 3.1	– 11.4	3.48	50.3	65.9	1995	0.04	0.45	0.54	0.25	0.58	0.25	3180	6000 <sup>c</sup>
Latvia	– 3.1	– 11.3	3.22	51.0	64.0	1995	0.04	0.53	0.64	0.25	0.75	0.92	8590	2197
Lithuania	– 3.5	– 11.6	3.24	53.3	64.1	1994	0.04	0.53	0.67	0.25	0.83	0.92	6430	1785
Macedonia	– 3.8	– 10.8	1.4	55.1	62.8	1995	0.41	0.42	0.57	0.42	0.58	0.58	3394	2225
Moldova	– 9.0	– 16.1	– 3.76	32.2	32.2	2000	0.04	0.33	0.53	0.25	0.50	0.67	4670	2233
Poland	2.4	– 1.4	5.78	82.2	127.0	1991	0.24	0.64	0.77	0.58	0.83	0.92	5150	1338
Romania	– 2.2	– 4.4	– 0.74	75.0	76.9	1992	0.00	0.39	0.56	0.00	0.58	0.83	3470	2234
Russia	– 4.0	– 8.8	– 1.58	55.9	62.3	1998	0.04	0.39	0.47	0.25	0.58	0.33	7720	2607
Slovakia	0.4	– 4.5	5.02	75.0	102.6	1993	0.00	0.66	0.72	0.17	0.75	0.92	7600	1223
Slovenia	1.3	– 2.2	4.2	82.0	114.2	1992	0.41	0.58	0.69	0.42	0.92	0.92	9200	1352
Tajikistan	– 6.0	– 13.5	– 1.24	39.2	47.1	1996	0.04	0.09	0.35	0.25	0.00	0.17	3010	6000 <sup>c</sup>
Turkmenistan	– 2.0	– 7.1	– 0.84	52.6	75.4	1997	0.04	0.03	0.10	0.25	0.00	0.00	4230	6000 <sup>c</sup>
Ukraine	– 7.9	– 13.1	– 5.5	36.6	38.8	1999	0.04	0.14	0.47	0.25	0.58	0.50	5680	2215
Uzbekistan	– 0.3	– 3.3	2.34	83.4	95.8	1995	0.04	0.30	0.31	0.25	0.00	0.08	2740	6000 <sup>c</sup>
Average	– 2.7	– 8.9	1.9	58.1	74.0		0.10	0.38	0.55	0.26	0.55	0.57	5432	2992

disquieting questions. Was there a trade-off between democracy and growth during transition? Did the introduction of democracy aggravate the transition-induced output contraction? Did the countries that postponed or reversed democratization in turn grow faster than the more democratic ones? Is there perhaps a case for a benevolent dictator who would implement efficiency-enhancing reforms while temporarily postponing democratization?

The results, nonetheless, are reassuring. Although the direct impact of democracy on growth is ambiguous (and highly dependent on the specific regression framework), democracy has a positive effect on progress in implementing market-oriented reforms. Economic liberalization, in turn, has a strong positive effect on growth. It is thus because of this reinforcing effect on economic reforms that democracy, indirectly, improves growth performance. On the other hand, the results also suggest that economic performance during transition and initial conditions affected the progress in democratization—countries that were more developed at the outset of transition and those that grew faster during transition in turn implemented greater degree of democracy.

The next section takes stock of the main economic outcomes of transition in 25 countries of Central and Eastern Europe (CEE) and the former Soviet Union (FSU) and briefly surveys the literature attempting to explain the differences in economic performance among the post-communist countries. Section 3 introduces the analytical framework and explores the relationship between economic liberalization and growth. Section 4 investigates the effect of democracy on growth and Section 5 analyzes the determinants of democracy during transition. Finally, Section 6 concludes.

## 2. Growth performance during transition

The economic outcomes of transition have been very diverse. All post-communist countries experienced dramatic contraction of economic activity at the outset of the reforms. Subsequently, however, transition paths diverged considerably, as Table 1 illustrates. Some countries reached the bottom of the transformational recession after 2–4 years and then recovered. Some, most notably Poland, grew at rather impressive rates subsequently, although others (e.g., Bulgaria, the Czech Republic and Romania) experienced a second dip later on. In contrast, most of the former Soviet Union countries experienced deep and protracted depression with little subsequent recovery. For Moldova

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Notes to Table 1:

Sources: EBRD Transition Report (various issues), De Melo et al. (1996, 1997), Freedom House, World Bank World Development Report 1996, Shell Route Planner.

Lowest GDP is the lowest level of GDP as percentage of the 1989 level attained between 1990 and 2000; p.c. stands for per capita. Liberalization index is unweighted mean of the eight EBRD indicators of progress in transition. Democracy index is average of political rights and civil liberties (reported by the Freedom House). Both indices range between 0 (no liberalization/democracy) and 1 (full liberalization/democracy). GNP per capita in 1989 is in US\$ at purchasing power parity as reported by De Melo et al. (1996). Distance from Brussels is road distances in kilometers. Distances indicated with <sup>e</sup> are estimates.

<sup>a</sup> 1989 = 100.

and Ukraine, the transition resulted essentially in a decade of continuous decline (at least according to the official statistics). At its lowest point, GDP in some countries fell to the neighborhood of one-third (Armenia, Moldova, Ukraine) and even as low as one quarter (Georgia) of the 1989 level. After stabilization, rapid recovery was the exception rather than the rule. By 2000, only four countries have exceeded the 1989 level of output, whereas the average transition economy was still barely at three-quarters of that level.

The official statistics, however, may exaggerate the true magnitude of the decline in output. The transition process induced a contraction in the state sector and expansion in the newly emerging private sector. However, whereas the output of large (mainly state-owned) firms is relatively closely monitored, the production of small private firms is often only accounted for by estimates. Over-reporting under communism (in order to meet targets stipulated by the central plan) and under-reporting at present (for tax purposes) also play a role. Furthermore, the official statistics fail to properly account for the transfer of economic activity from the official to the unofficial economy.<sup>2</sup> Finally, a part of the output fall may be due to elimination of unmarketable production, reduction of waste, as well as a fall in inventories as the shortage economy turned into a surplus one, all of which in fact bring about greater efficiency. Nonetheless, even if overestimated by official statistics, the reform-induced output fall in CEE and FSU was undoubtedly severe.

Several theoretical explanations have been suggested to account for the output fall. Among them, the most frequently cited are overly restrictive monetary policy and credit crunch (Calvo and Coricelli, 1993); disruption of supplier–buyer relationships due to asymmetric information about outside options in bargaining (Blanchard and Kremer, 1997) or search frictions and relation-specific investment (Roland and Verdier, 1999), monopoly pricing after price liberalization (Li, 1999); continued or even increased rent seeking when transition was not accompanied by a change of political culture (Hillman and Ursprung, 2000).

The empirical literature has focused primarily on the impact of the choice of reform strategy (shock therapy vs. gradual reform) on economic performance during transition. This focus was spurred by the initial contribution of De Melo et al. (1996). They constructed annual liberalization indices assessing transition economies' progress in three areas, liberalization of the internal markets, liberalization of the external markets and privatization and restructuring, between 1989 and 1994. These indices and the so-called cumulative liberalization index (CLI, the cumulative sum of the annual indices) were then used to explain economic performance. In their analysis, De Melo et al. found that greater liberalization was associated with higher growth and lower inflation (both averaged over 1993–1994). This finding inspired a host of subsequent contributions reaching similar conclusions (e.g., Sachs, 1996; Fischer et al., 1996, 1998; Selowsky and Martin, 1997). In contrast, Åslund et al. (1996) argued that the relationship between liberalization and average growth over 1989–1995 turns out insignificant after including dummies for the former Soviet Union and war-torn countries. Åslund et al. interpret this result as proving the overwhelming importance of initial conditions. Accordingly, favorable initial conditions explain both the greater progress in liberalization as well as better economic

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<sup>2</sup> Schneider (2002) estimated that the shadow economy on average amounted to 38% of the officially reported GDP in transition economies (compared to 17% in the OECD).

performance of Central European countries.<sup>3</sup> Heybey and Murrell (1999), Krueger and Ciolko (1998) and Popov (2000) put forward similar arguments, using more elaborate analytical techniques. Krueger and Ciolko show that the progress in cumulative liberalization (measured by the CLI) can indeed be explained by regressing it on a dummy for the FSU, GNP per capita as of 1988 and the ratio of exports to GDP. More importantly, they argue that the CLI is endogenous in output decline—countries that experienced lower contraction of output were able to liberalize faster. Heybey and Murrell estimate a system of simultaneous equations to show that there is in fact two-way causation between economic growth and the speed of liberalization (measured as the change in the annual liberalization index).<sup>4</sup>

Finally, Berg et al. (1999) evaluate the relative importance of the initial conditions and the progress in liberalization for growth performance and find that the initial output fall is attributable primarily to initial conditions and macroeconomic instability, whereas the effect of liberalization on growth was overwhelmingly positive. When considering separately the effects of liberalization on state and private sectors, they conclude that liberalization contributed to the contraction in the state sector, but this was more than compensated by the expansion in the private sector. This finding is similar to those of Havrylyshyn et al. (1998) and Wolff (1999), who show that liberalization has a J-curve effect on output growth—a negative contemporaneous effect that is more than compensated by subsequent gains (at 1- and 2-year lags).

### 3. Liberalization, initial conditions and growth

This section explores the relationship between liberalization and growth in a cross-section of 25 transition countries. The progress in implementing economic reforms is measured by the progress-in-transition indicators published by the European Bank for Reconstruction and Development (EBRD).<sup>5</sup> The resulting average liberalization index is highly correlated with the index originally compiled by De Melo et al. (which is available only through 1995). The analysis is performed with averages of all variables over 5-year periods (cf. Havrylyshyn et al., 1998; Berg et al., 1999; Wolff, 1999, who use annual data). This approach is chosen so as to minimize the noise present in the data, for example, because of measurement error or short-term fluctuations caused by external factors (a

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<sup>3</sup> However, this result highlights an important problem inherent to the construction of the CLI. The FSU countries started liberalizing later, and therefore, their CLIs are by definition lower. The ruble-zone dummy then proxies for cumulative liberalization and effectively divides the post-communist countries into groups with high and low cumulative liberalization. Given the small sample size (24 countries), the CLI itself then turns out insignificant.

<sup>4</sup> Heybey and Murrell (1999) rightly criticize the CLI because it reflects neither the level nor the speed of reform. The former is measured by the annual liberalization index, whereas the latter is captured by the change of the annual index. The more recent literature typically uses the annual liberalization index rather than the CLI.

<sup>5</sup> The EBRD publishes annually the following indicators: large-scale privatization, small-scale privatization, governance and enterprise restructuring, price liberalization, trade and foreign-exchange liberalization, competition policy, banking reform and securities markets. While the EBRD started to compile its indices only in 1994, it recently extended the series back to 1989. I am grateful to Libor Krkoska of EBRD for making this extended series available to me.



disadvantage, however, is the low number of degrees of freedom). To capture the changes in the course of transition of the underlying model of growth, identical regressions have been estimated for a sequence of 5-year moving-window periods between 1990 and 2000, i.e., 1990–1994, 1991–1995, ... and 1996–2000.

The dependent variable is the growth rate of GDP.<sup>6</sup> The list of explanatory variables combines those that are standard in the growth literature (initial per capita GNP, investment, government expenditure and secondary school enrollment) with those specific to the transition context (the liberalization index, dummy for countries stricken by military conflicts and the distance from Western Europe).

Initial conditions are proxied by the distance from Western Europe (measured as the distance between the country's capital and Brussels).<sup>7</sup> The distance measure is likely to be correlated with factors such as historical legacies, social, cultural and religious traditions, institutional factors as well as with economic development. In addition, it also reflects the cost of engaging in economic relations with Western Europe. The distance replaces the often-used dummy for the former Soviet Union. Unlike the FSU dummy, it provides a continuous measure of initial conditions: undoubtedly, the initial conditions in Estonia were dramatically different from those in, for example, Tajikistan. The liberalization index is negatively correlated with the distance from Western Europe; for example, the correlation coefficient for 2000 is  $-0.66$ . Hence, the further a country lies from Brussels, the more reluctant it was to implement radical economic reforms. A dummy for countries affected by military conflicts (Croatia, Macedonia, Armenia, Azerbaijan, Georgia and Tajikistan) is also included in the regressions to capture the disruption caused by wars and civil strife. The initial GNP per capita is in US\$ as reported by *De Melo et al. (1996)*.

Investment, government expenditure (both expressed relative to GDP and averaged over the relevant period), initial per capita income and school enrollment are all variables typically considered important determinants of growth performance (see *Barro, 1991; Levine and Renelt, 1992*). Initial income as a proxy for the level of development captures the convergence process—countries that are far from the steady state should grow at a faster rate. Investment in physical and human capital (the latter proxied by school enrollment) in turn determine the steady-state level of income. Finally, the ratio of government expenditure to GDP is included to capture the distortionary effect of taxation.

The results are reported in *Table 2*. The upper panel presents results for the full model. However, as the coefficients for investment and government consumption are mostly insignificant and often with the wrong sign, the lower panel reports results obtained for a reduced model, which omits these two variables.

*Table 2* shows clearly the changing patterns of growth over time. This is not surprising, given the dramatic systemic changes under way in these countries. Several variables only have a significant impact on growth in a few subperiods. Some of the variables that are usually found to be important determinants of growth in market economies are either insignificant (government expenditure) or even appear with the wrong sign (investment). The explanatory power of the model drops dramatically in the last two subperiods (1995–

<sup>6</sup> Results obtained with the rate of growth of per capita GDP are similar and are therefore not reported here.

<sup>7</sup> For Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, the distance to Brussels is estimated as 6000 km.



Table 2  
Economic liberalization, initial conditions and growth

Period	1990–1994		1991–1995		1992–1996		1993–1997		1994–1998		1995–1999		1996–2000	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
Liberalization	23.328 (6.649)	<i>0</i>	24.118 (7.713)	<i>1</i>	25.594 (8.276)	<i>1</i>	23.615 (8.249)	<i>1</i>	19.961 (9.303)	<i>5</i>	11.211 (7.518)	<i>16</i>	3.227 (7.172)	<i>66</i>
Investment ratio (%)	0.104 (0.244)	<i>68</i>	0.078 (0.254)	<i>76</i>	−0.044 (0.198)	<i>83</i>	−0.113 (0.119)	<i>36</i>	−0.077 (0.111)	<i>50</i>	−0.050 (0.099)	<i>62</i>	0.041 (0.086)	<i>64</i>
Government expenditure (%)	0.073 (0.109)	<i>51</i>	0.041 (0.120)	<i>74</i>	−0.050 (0.131)	<i>71</i>	−0.046 (0.110)	<i>68</i>	−0.161 (0.125)	<i>22</i>	−0.024 (0.107)	<i>82</i>	0.017 (0.116)	<i>89</i>
Brussels (ths km)	0.006 (0.657)	<i>99</i>	−0.629 (0.776)	<i>43</i>	−1.416 (0.865)	<i>12</i>	−1.347 (0.723)	<i>8</i>	−1.579 (0.621)	<i>2</i>	−0.593 (0.610)	<i>35</i>	0.218 (0.787)	<i>79</i>
Secondary school enrollment	0.019 (0.137)	<i>89</i>	−0.010 (0.160)	<i>95</i>	0.106 (0.170)	<i>54</i>	0.291 (0.136)	<i>5</i>	0.342 (0.148)	<i>3</i>	0.281 (0.123)	<i>4</i>	0.178 (0.118)	<i>15</i>
War dummy	−5.969 (1.729)	<i>0</i>	−4.500 (2.222)	<i>6</i>	−3.009 (2.672)	<i>28</i>								
War dummy (lagged)							3.429 (2.614)	<i>21</i>	4.625 (2.355)	<i>7</i>	3.770 (1.850)	<i>6</i>	3.234 (1.451)	<i>4</i>
1989 GNP per capita (log ths \$)	−4.191 (2.172)	<i>7</i>	−5.782 (2.018)	<i>1</i>	−7.601 (2.185)	<i>0</i>	−5.745 (2.394)	<i>3</i>	−4.026 (2.287)	<i>10</i>	−2.745 (2.167)	<i>22</i>	−0.663 (2.224)	<i>77</i>
Constant	−12.390 (12.340)	<i>33</i>	−5.074 (13.257)	<i>71</i>	−3.514 (14.273)	<i>81</i>	−19.822 (11.997)	<i>12</i>	−20.395 (11.217)	<i>9</i>	−20.180 (8.706)	<i>3</i>	−15.555 (9.357)	<i>12</i>
R <sup>2</sup>	0.759		0.740		0.700		0.615		0.517		0.391		0.304	
	(8)		(9)		(10)		(11)		(12)		(13)		(14)	
Liberalization	21.707 (7.253)	<i>1</i>	22.493 (8.287)	<i>1</i>	23.032 (9.050)	<i>2</i>	21.463 (7.429)	<i>1</i>	16.128 (6.719)	<i>3</i>	7.462 (5.437)	<i>19</i>	0.509 (5.119)	<i>92</i>
Brussels (ths km)	0.182 (0.639)	<i>78</i>	−0.459 (0.796)	<i>57</i>	−0.979 (0.883)	<i>28</i>	−0.823 (0.662)	<i>23</i>	−0.660 (0.611)	<i>29</i>	−0.174 (0.508)	<i>74</i>	0.278 (0.454)	<i>55</i>
Secondary school enrollment	−0.037 (0.100)	<i>72</i>	−0.074 (0.110)	<i>51</i>	−0.021 (0.116)	<i>86</i>	0.150 (0.099)	<i>15</i>	0.187 (0.103)	<i>8</i>	0.157 (0.087)	<i>9</i>	0.124 (0.082)	<i>15</i>
War dummy	−6.770 (1.532)	<i>0</i>	−5.581 (1.779)	<i>1</i>	−4.211 (2.361)	<i>9</i>								
War dummy (lagged)							2.428 (2.194)	<i>28</i>	4.074 (1.966)	<i>5</i>	2.763 (1.364)	<i>6</i>	2.248 (1.021)	<i>4</i>
1989 GNP per capita (log ths \$)	−3.074 (1.564)	<i>6</i>	−4.738 (1.543)	<i>1</i>	−6.622 (1.923)	<i>0</i>	−4.891 (2.221)	<i>4</i>	−2.942 (2.430)	<i>24</i>	−1.633 (2.039)	<i>43</i>	0.279 (1.967)	<i>89</i>
Constant	−3.968 (7.575)	<i>61</i>	2.357 (8.890)	<i>79</i>	2.794 (9.984)	<i>78</i>	−13.603 (8.388)	<i>12</i>	−17.256 (8.980)	<i>7</i>	−12.439 (7.473)	<i>11</i>	−9.395 (7.016)	<i>20</i>
R <sup>2</sup>	0.721		0.715		0.671		0.615		0.495		0.313		0.216	

Estimated by OLS with heteroskedasticity-robust standard errors in parentheses and significance levels (in percent) in italics. The dependent variable is the growth rate of GDP. Liberalization is the liberalization index constructed by the EBRD. The war dummy equals 1 for Croatia, Macedonia, Moldova, Armenia, Azerbaijan, Georgia and Tajikistan. The initial per capita GNP is in purchasing power parity terms in US dollars. The distance from Brussels for Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan is estimated as 6000 km. Investment and government expenditure are in percent of GDP as reported by the EBRD. Secondary school enrollment is in percent of relevant-age population as reported by Denizer (1997).

1999 and 1996–2000). In fact, almost all variables lose their significance by 1996–2000. This may reflect the turbulence in the wake of the Russian exchange-rate crises of 1998, whose effects extended beyond Russia. Growth performance during the last years of the decade was apparently mainly driven by external forces rather than factors accounted for by our model.

The impact of liberalization on growth is positive and strongly significant, except for the last two periods. Nevertheless, the data show convincingly that for much of the transition period, progress in economic liberalization was an important determinant of growth. The effect of liberalization is substantial. A hypothetical centrally planned economy could improve its average growth performance by some 20–26 percentage points per annum if it liberalized completely (i.e., increasing the value of the liberalization index from 0 to 1).

Krueger and Ciolko (1998) and Heybey and Murrel (1999) argue that the liberalization index is endogenous in economic performance, in particular growth, because countries with relatively favorable economic performance find it easier to implement costly and unpopular reforms. If this is the case, then the coefficient estimated by OLS for the relationship between liberalization and growth will be biased. To control for the potential endogeneity bias, therefore, I instrumented the liberalization index. The results are reported in Table 3. To improve the precision of estimation, the first-stage regression has been estimated with annual observations rather than period averages (the instrumented liberalization index is then constructed again for the same 5-year periods as before). Finding good instruments for liberalization is no easy task. Eventually, the following were used: the 1989 value of the index of democracy (average of the measures of political freedoms and civil liberties reported by the Freedom House, see below for more details on construction of this index), initial GNP per capita, number of years the country spent under communism, war dummy and a quadratic transition-time trend.<sup>8</sup> With the liberalization index instrumented by various initial conditions and a time trend, the resulting index clearly cannot be endogenous in transition-period growth. Therefore, the coefficient obtained on this measure will be free of the endogeneity bias with respect to contemporaneous growth. With this procedure, the estimated impact of liberalization on growth remains significant and positive—in fact, it turns out even stronger (the estimated coefficient increases from 20–26 to 30–40). Moreover, the liberalization index now remains significant also in 1995–1999. Hence, the impact of liberalization on growth is indeed positive, and it is not due to endogeneity in economic performance (although initial conditions clearly have played an important role in determining progress in economic liberalization).

Initial conditions and the external environment also affect growth during transition. Being farther from Western Europe is associated with lower growth, although the relationship is often not significant. Engagement in military conflicts, not surprisingly, lowers growth. On the other hand, once the war is over, the affected countries tend to grow more rapidly as they make up for the loss of output.

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<sup>8</sup> The transition-time trend is set to zero before the start of reforms. The beginning of transition is selected according to Fischer and Sahay (2000; Fig. 1).

Table 3

Economic liberalization, initial conditions and growth: liberalization estimated with instrumental variables

Period	1990–1994		1991–1995		1992–1996		1993–1997		1994–1998		1995–1999		1996–2000	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)							
Liberalization	30.615 (6.419)	<i>0</i>	35.493 (7.662)	<i>0</i>	41.865 (8.092)	<i>0</i>	35.883 (9.785)	<i>0</i>	36.464 (11.182)	<i>1</i>	23.310 (10.739)	<i>5</i>	10.553 (11.322)	<i>37</i>
Investment ratio (%)	0.219 (0.186)	<i>26</i>	0.205 (0.204)	<i>33</i>	0.048 (0.178)	<i>79</i>	−0.114 (0.127)	<i>38</i>	−0.111 (0.094)	<i>25</i>	−0.091 (0.101)	<i>38</i>	0.022 (0.088)	<i>81</i>
Government expenditure (%)	0.111 (0.084)	<i>20</i>	0.066 (0.089)	<i>47</i>	−0.056 (0.100)	<i>59</i>	−0.088 (0.123)	<i>49</i>	−0.232 (0.145)	<i>13</i>	−0.090 (0.128)	<i>49</i>	−0.018 (0.130)	<i>89</i>
Brussels (ths km)	0.804 (0.530)	<i>15</i>	0.458 (0.574)	<i>44</i>	−0.049 (0.673)	<i>94</i>	−0.415 (0.676)	<i>55</i>	−0.642 (0.728)	<i>39</i>	−0.102 (0.746)	<i>89</i>	0.473 (0.887)	<i>60</i>
Secondary school enrollment	0.079 (0.103)	<i>46</i>	0.076 (0.124)	<i>55</i>	0.206 (0.119)	<i>10</i>	0.382 (0.115)	<i>0</i>	0.421 (0.124)	<i>0</i>	0.330 (0.120)	<i>1</i>	0.193 (0.113)	<i>11</i>
War dummy	−5.967 (1.537)	<i>0</i>	−4.594 (1.922)	<i>3</i>	−3.627 (2.255)	<i>13</i>								
War dummy (lagged)							1.559 (2.755)	<i>58</i>	2.676 (2.664)	<i>33</i>	2.608 (2.026)	<i>22</i>	2.933 (1.487)	<i>7</i>
1989 GNP per capita (log ths \$)	−5.470 (1.919)	<i>1</i>	−6.891 (1.898)	<i>0</i>	−8.695 (2.269)	<i>0</i>	−6.269 (2.600)	<i>3</i>	−4.847 (2.418)	<i>6</i>	−3.338 (2.254)	<i>16</i>	−1.032 (2.226)	<i>65</i>
Constant	−23.477 (9.641)	<i>3</i>	−20.414 (10.646)	<i>7</i>	−21.281 (10.217)	<i>5</i>	−32.086 (11.477)	<i>1</i>	−32.201 (11.853)	<i>2</i>	−27.359 (10.390)	<i>2</i>	−18.985 (9.605)	<i>7</i>
R <sup>2</sup>	0.830		0.837		0.814		0.664		0.587		0.438		0.333	

Estimated by OLS with heteroskedasticity-robust standard errors in parentheses and significance levels (in percent) in italics. The dependent variable is the growth rate of GDP. See Table 2 for explanations of variables.

Liberalization [IV] is the predicted level of the liberalization index based on the following first-stage regression with annual observations (heteroskedasticity-robust standard errors are in parentheses):

$$LI_t = 0.217 (0.37) + 0.150 (0.031) DI_{1989} + 0.023 (0.003) GNP - 0.0057 (0.0005) YrsCom - 0.057 (0.017) War + 0.111 (0.007) t - 0.006 (0.001) t^2 \quad [R^2 = 0.832]$$

where  $LI_t$  stands for the annual liberalization index,  $DI_{1989}$  is the democracy index as of 1989, GNP is the initial GNP per capita in thousands US\$, YrsCom is the number of years the country spent under communism, War is the conflict dummy and  $t$  is transition-time trend set to zero for years preceding the onset of transition. Transition time is defined following Fischer and Sahay (2000, Fig. 1).

Government expenditure does not have a significant impact on growth, although it turns out with the correct sign in most regressions. The result for investment is even more disappointing—it turns out with the wrong sign in most regressions (though it is never significant).<sup>9</sup> The coefficient on initial GNP per capita is negative and mostly significant. The negative coefficient is consistent with the notion of conditional convergence: poor countries tend to grow faster, after controlling for other factors affecting growth. Secondary school enrollment is positively correlated with growth only during the later periods.

#### **4. Democracy and growth**

The post-communist countries implemented, at least initially, economic and political reforms simultaneously. In some cases, political reforms even preceded the economic ones. [Table 1](#) and [Fig. 1](#) report values of a democracy index based on indicators of political rights and civil liberties reported annually by the Freedom House.<sup>10</sup> Reviewing the data, no clear pattern is obvious. On the one hand, Central European countries achieved relatively good growth performance and also implemented a wide degree of democracy. On the other hand, some of those countries that became moderately democratic (e.g., Moldova and Ukraine) eventually fared worse than countries which returned to authoritarian rule (e.g., Belarus and Uzbekistan).

Although the possibility of a trade-off between democracy and growth has been frequently alluded to in the transition literature and policy discussions, the effect of democracy on economic growth during transition has not been explicitly studied. Nevertheless, [De Melo et al. \(1996\)](#) and [Dethier et al. \(1999\)](#) observe that the extent of democracy among post-communist countries is positively correlated with the progress in economic liberalization (the correlation coefficient between annual values of the liberalization and democracy indices over 1990–2000 is 0.66). They argue, therefore, that democracy facilitates economic liberalization and thus has a positive, albeit indirect, effect on growth (they do not consider the direct effect, however).

The pattern of relationship between democracy and growth that one obtains empirically crucially depends on the regression setting. [Table 4](#) reports results obtained when democracy is added alongside the variables included in previous regressions. These results thus capture the marginal effect of democracy on growth, i.e., the effect after controlling for the progress in economic liberalization and without accounting for a possible relationship between liberalization and democratization.

Unlike the effect economic liberalization, the marginal impact of democracy on growth changes in the course of transition. It is negative in 1990–1994 and 1991–1995, but later becomes insignificant and eventually turns positive (albeit insignificantly so). Hence, after controlling for progress in economic liberalization, it appears that democracy actually

<sup>9</sup> Other studies report similar results, see for example [Campos \(2001\)](#), and [Wolff \(1999\)](#). [Tichit \(1999\)](#) finds that investment has a positive effect on growth only in the CEE countries, whereas its effect is insignificant in the FSU, which can explain the insignificant results for a cross-section containing both CEE and FSU countries.

<sup>10</sup> The index reported in [Table 1](#) is the average of the two indicators, rescaled to take values between zero (no democracy) and unity (full democracy).

Table 4  
Democracy and growth: marginal effect

Period	1990–1994		1991–1995		1992–1996		1993–1997		1994–1998		1995–1999		1996–2000	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
Liberalization	45.410 (8.827)	<i>0</i>	35.958 (11.213)	<i>1</i>	35.425 (13.540)	<i>2</i>	21.134 (13.451)	<i>14</i>	14.804 (12.318)	<i>25</i>	6.762 (9.469)	<i>49</i>	4.103 (10.122)	<i>69</i>
Democracy	–29.055 (7.988)	<i>0</i>	–18.346 (11.882)	<i>14</i>	–12.723 (13.903)	<i>38</i>	2.558 (11.160)	<i>82</i>	4.876 (8.559)	<i>58</i>	3.761 (6.096)	<i>55</i>	–0.767 (6.766)	<i>91</i>
Investment ratio (%)	0.088 (0.169)	<i>61</i>	–0.060 (0.208)	<i>78</i>	–0.180 (0.202)	<i>39</i>	–0.093 (0.140)	<i>52</i>	–0.059 (0.117)	<i>62</i>	–0.043 (0.102)	<i>68</i>	0.041 (0.090)	<i>66</i>
Government expenditure (%)	0.152 (0.090)	<i>11</i>	0.057 (0.115)	<i>63</i>	–0.069 (0.149)	<i>65</i>	–0.039 (0.128)	<i>77</i>	–0.120 (0.143)	<i>41</i>	0.010 (0.138)	<i>94</i>	0.011 (0.138)	<i>94</i>
Brussels (ths km)	–0.421 (0.416)	<i>33</i>	–1.271 (0.906)	<i>18</i>	–2.063 (1.301)	<i>13</i>	–1.205 (1.093)	<i>29</i>	–1.200 (0.948)	<i>23</i>	–0.280 (0.890)	<i>76</i>	0.155 (1.099)	<i>89</i>
Secondary school enrollment	–0.173 (0.116)	<i>16</i>	–0.156 (0.186)	<i>42</i>	0.018 (0.206)	<i>93</i>	0.311 (0.176)	<i>10</i>	0.380 (0.171)	<i>4</i>	0.303 (0.128)	<i>3</i>	0.174 (0.116)	<i>16</i>
War dummy	–9.542 (1.857)	<i>0</i>	–7.591 (3.083)	<i>3</i>	–4.983 (3.464)	<i>17</i>								
War dummy (lagged)							3.693 (3.441)	<i>30</i>	5.222 (3.151)	<i>12</i>	4.241 (2.500)	<i>11</i>	3.150 (1.724)	<i>9</i>
1989 GNP per capita (log ths \$)	–0.242 (1.651)	<i>89</i>	–2.883 (2.223)	<i>21</i>	–5.790 (2.549)	<i>4</i>	–6.041 (2.789)	<i>5</i>	–4.583 (2.688)	<i>11</i>	–3.096 (2.511)	<i>24</i>	–0.595 (2.290)	<i>80</i>
Constant	7.597 (10.749)	<i>49</i>	14.258 (20.156)	<i>49</i>	10.477 (24.961)	<i>68</i>	–22.546 (19.732)	<i>27</i>	–26.137 (16.250)	<i>13</i>	–23.846 (11.417)	<i>5</i>	–14.880 (10.887)	<i>19</i>
R <sup>2</sup>	0.871		0.794		0.726		0.617		0.524		0.400		0.305	
	(8)		(9)		(10)		(11)		(12)		(13)		(14)	
Liberalization	39.048 (7.639)	<i>0</i>	36.085 (9.057)	<i>0</i>	34.994 (12.659)	<i>1</i>	20.683 (12.154)	<i>11</i>	10.967 (10.027)	<i>29</i>	5.169 (6.844)	<i>46</i>	2.794 (7.737)	<i>72</i>
Democracy	–21.392 (6.659)	<i>1</i>	–17.173 (8.465)	<i>6</i>	–12.348 (10.163)	<i>24</i>	0.703 (8.328)	<i>93</i>	4.627 (6.727)	<i>50</i>	1.934 (4.283)	<i>66</i>	–1.970 (5.399)	<i>72</i>
Brussels (ths km)	–0.535 (0.518)	<i>32</i>	–1.319 (0.806)	<i>12</i>	–1.596 (0.998)	<i>13</i>	–0.791 (0.790)	<i>33</i>	–0.426 (0.728)	<i>57</i>	–0.075 (0.540)	<i>89</i>	0.171 (0.533)	<i>75</i>
Secondary school enrollment	–0.088 (0.077)	<i>27</i>	–0.152 (0.097)	<i>13</i>	–0.101 (0.134)	<i>46</i>	0.155 (0.139)	<i>28</i>	0.226 (0.132)	<i>11</i>	0.173 (0.095)	<i>9</i>	0.111 (0.086)	<i>22</i>
War dummy	–8.417 (1.494)	<i>0</i>	–7.135 (1.978)	<i>0</i>	–5.152 (2.481)	<i>5</i>								
War dummy (lagged)							2.461 (2.440)	<i>33</i>	4.317 (2.189)	<i>6</i>	2.872 (1.522)	<i>8</i>	2.141 (1.108)	<i>7</i>
1989 GNP per capita (log ths \$)	–1.214 (1.016)	<i>25</i>	–3.449 (1.210)	<i>1</i>	–5.819 (2.039)	<i>1</i>	–4.940 (2.356)	<i>5</i>	–3.340 (2.558)	<i>21</i>	–1.791 (2.191)	<i>42</i>	0.431 (2.045)	<i>84</i>
Constant	7.742 (6.647)	<i>26</i>	15.335 (10.371)	<i>16</i>	12.770 (13.754)	<i>37</i>	–14.172 (12.293)	<i>26</i>	–20.751 (11.555)	<i>9</i>	–13.735 (8.090)	<i>11</i>	–8.220 (7.393)	<i>28</i>
R <sup>2</sup>	0.818		0.791		0.707		0.615		0.502		0.317		0.220	

Estimated by OLS with heteroskedasticity-robust standard errors in parentheses and significance levels (in percent) in italics. The dependent variable is the growth rate of GDP. See Table 2 for explanations of variables. Democracy is the average index of political rights and civil liberties according to the Freedom House and normalized so that it ranges between zero and unity.

hindered growth during the early transition period. However, this does not necessarily imply that the overall effect of democracy on growth was negative. As argued by [De Melo et al. \(1996\)](#) and [Dethier et al. \(1999\)](#), democracy may reinforce progress in economic liberalization and so, because liberalization has a positive effect on growth, the total effect of democracy may in fact be positive.<sup>11</sup> [Table 5](#) reports regression results obtained when the liberalization index has been omitted. The estimated effect of democracy indeed changes dramatically—it is now insignificant in the early subperiods and significantly positive during 1993–1997 and 1994–1998 (and marginally significant in 1995–1999).

The disparity between the results reported for democracy in [Tables 4 and 5](#) can be attributed to the strong correlation between the two indices. The positive coefficient on the democracy index can in fact capture the impact of economic liberalization on growth rather than the true relationship between democracy and growth. This possibility is explored in [Table 6](#), which investigates the overall effect of democracy. This is done by a two-step procedure.<sup>12</sup> First, the liberalization index is regressed on the democracy index. This yields the following estimates (with standard errors in parentheses):

1990–1994:	Liberalization =	– 0.112	(0.035)	+ 0.594	(0.064)*	Democracy	[Adj. R <sup>2</sup> : 0.763]
1991–1995:	Liberalization =	– 0.021	(0.039)	+ 0.557	(0.070)*	Democracy	[Adj. R <sup>2</sup> : 0.738]
1992–1996:	Liberalization =	0.069	(0.040)	+ 0.533	(0.066)*	Democracy	[Adj. R <sup>2</sup> : 0.753]
1993–1997:	Liberalization =	0.132	(0.042)	+ 0.531	(0.064)*	Democracy	[Adj. R <sup>2</sup> : 0.771]
1994–1998:	Liberalization =	0.181	(0.045)	+ 0.513	(0.065)*	Democracy	[Adj. R <sup>2</sup> : 0.768]
1995–1999:	Liberalization =	0.219	(0.043)	+ 0.495	(0.062)*	Democracy	[Adj. R <sup>2</sup> : 0.778]
1996–2000:	Liberalization =	0.229	(0.044)	+ 0.506	(0.062)*	Democracy	[Adj. R <sup>2</sup> : 0.788]

Second, the residuals from the above regressions are used as an explanatory variable, denoted residual liberalization, alongside the democracy index. In this way, residual liberalization measures only liberalization beyond the extent that can be attributed by democracy.<sup>13</sup> The results are reported in [Table 6](#).

Applying this procedure, the total effect of democracy on growth appears insignificant during the early subperiods and then turns positive and significant (although only marginally so in the upper panel of [Table 6](#)) in 1993–1997 and 1994–1998. The

<sup>11</sup> [Dethier et al. \(1999\)](#) stop short of testing for causality between liberalization and democracy. Nevertheless, a simple Granger causality test reported in the next section confirms that indeed democracy causes liberalization rather than the other way around.

<sup>12</sup> I am indebted to Sylviane Guillaumont for this suggestion.

<sup>13</sup> Relating liberalization to democracy as well as a number of other variables (distance from Western Europe, log initial GNP per capita, dummy for wars and secondary school enrollment) and then using a measure of residual liberalization with the contribution of democracy removed produced essentially the same results.

Table 5  
Democracy and growth: direct effect

Period	1990–1994		1991–1995		1992–1996		1993–1997		1994–1998		1995–1999		1996–2000	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
Democracy	3.371 (8.847)	<i>71</i>	3.527 (9.826)	<i>72</i>	7.971 (9.648)	<i>42</i>	15.431 (6.325)	<i>3</i>	14.498 (6.305)	<i>4</i>	7.862 (4.844)	<i>12</i>	1.822 (4.740)	<i>71</i>
Investment ratio (%)	−0.097 (0.292)	<i>74</i>	−0.086 (0.346)	<i>81</i>	−0.086 (0.312)	<i>79</i>	−0.019 (0.149)	<i>90</i>	−0.034 (0.122)	<i>78</i>	−0.033 (0.098)	<i>74</i>	0.044 (0.083)	<i>61</i>
Government expenditure (%)	0.110 (0.148)	<i>47</i>	0.101 (0.145)	<i>50</i>	−0.019 (0.153)	<i>90</i>	−0.001 (0.114)	<i>99</i>	−0.026 (0.126)	<i>84</i>	0.053 (0.107)	<i>63</i>	0.033 (0.119)	<i>78</i>
Brussels (ths km)	−0.771 (0.714)	<i>30</i>	−1.576 (0.956)	<i>12</i>	−2.027 (1.342)	<i>15</i>	−0.913 (0.962)	<i>36</i>	−0.602 (0.897)	<i>51</i>	0.025 (0.844)	<i>98</i>	0.353 (0.995)	<i>73</i>
Secondary school enrollment	0.101 (0.172)	<i>57</i>	0.107 (0.208)	<i>62</i>	0.250 (0.227)	<i>29</i>	0.440 (0.178)	<i>3</i>	0.462 (0.161)	<i>1</i>	0.325 (0.128)	<i>2</i>	0.183 (0.114)	<i>13</i>
War dummy	−6.959 (2.642)	<i>2</i>	−6.077 (3.033)	<i>6</i>	−3.774 (3.020)	<i>23</i>								
War dummy (lagged)							4.171 (3.198)	<i>21</i>	6.044 (3.133)	<i>7</i>	4.648 (2.374)	<i>7</i>	3.378 (1.635)	<i>6</i>
1989 GNP per capita (log ths \$)	−2.861 (3.384)	<i>41</i>	−4.853 (2.992)	<i>12</i>	−7.601 (2.886)	<i>2</i>	−7.018 (2.710)	<i>2</i>	−5.387 (2.846)	<i>8</i>	−3.327 (2.618)	<i>22</i>	−0.708 (2.388)	<i>77</i>
Constant	−13.331 (14.495)	<i>37</i>	−7.331 (17.553)	<i>68</i>	−9.065 (19.293)	<i>65</i>	−33.920 (15.606)	<i>5</i>	−36.138 (15.121)	<i>3</i>	−26.965 (10.914)	<i>3</i>	−16.306 (10.553)	<i>14</i>
R <sup>2</sup>	0.614		0.599		0.576		0.539		0.486		0.385		0.297	
	(8)		(9)		(10)		(11)		(12)		(13)		(14)	
Democracy	2.026 (6.013)	<i>74</i>	1.270 (6.687)	<i>85</i>	5.232 (7.082)	<i>47</i>	12.008 (4.989)	<i>3</i>	11.161 (4.511)	<i>2</i>	4.997 (3.506)	<i>17</i>	−0.200 (3.425)	<i>95</i>
Brussels (ths km)	−0.831 (0.642)	<i>21</i>	−1.707 (0.850)	<i>6</i>	−1.828 (1.084)	<i>11</i>	−0.755 (0.758)	<i>33</i>	−0.301 (0.689)	<i>67</i>	0.000 (0.532)	<i>100</i>	0.228 (0.514)	<i>66</i>
Secondary school enrollment	0.001 (0.114)	<i>100</i>	0.009 (0.125)	<i>94</i>	0.105 (0.136)	<i>45</i>	0.294 (0.122)	<i>3</i>	0.300 (0.114)	<i>2</i>	0.204 (0.089)	<i>3</i>	0.125 (0.078)	<i>12</i>
War dummy	−7.667 (1.890)	<i>0</i>	−6.897 (2.037)	<i>0</i>	−5.014 (2.399)	<i>5</i>								
War dummy (lagged)							2.491 (2.384)	<i>31</i>	4.484 (2.150)	<i>5</i>	3.004 (1.475)	<i>6</i>	2.231 (1.056)	<i>5</i>
1989 GNP per capita (log ths \$)	−2.902 (2.144)	<i>19</i>	−4.501 (1.824)	<i>2</i>	−6.680 (1.905)	<i>0</i>	−5.525 (2.152)	<i>2</i>	−3.814 (2.441)	<i>14</i>	−1.988 (2.152)	<i>37</i>	0.328 (2.022)	<i>87</i>
Constant	−0.698 (9.953)	<i>95</i>	4.902 (11.656)	<i>68</i>	0.553 (13.596)	<i>97</i>	−22.403 (11.589)	<i>7</i>	−25.109 (11.082)	<i>4</i>	−15.433 (8.255)	<i>8</i>	−9.048 (7.287)	<i>23</i>
R <sup>2</sup>	0.580		0.575		0.555		0.544		0.479		0.305		0.216	

Estimated by OLS with heteroskedasticity-robust standard errors in parentheses and significance levels (in percent) in italics. The dependent variable is the growth rate of GDP. See Table 2 for explanations of variables.



Table 6  
Democracy and growth: total effect

Period	1990–1994		1991–1995		1992–1996		1993–1997		1994–1998		1995–1999		1996–2000	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
Residual liberalization	45.410 (8.827)	<i>0</i>	35.958 (11.213)	<i>1</i>	35.425 (13.540)	<i>2</i>	21.134 (13.451)	<i>14</i>	14.804 (12.318)	<i>25</i>	6.762 (9.469)	<i>49</i>	4.103 (10.122)	<i>69</i>
Democracy	–2.067 (5.270)	<i>70</i>	1.699 (7.864)	<i>83</i>	6.159 (8.743)	<i>49</i>	13.776 (7.323)	<i>8</i>	12.477 (6.860)	<i>9</i>	7.107 (5.106)	<i>18</i>	1.309 (4.933)	<i>80</i>
Investment ratio (%)	0.088 (0.169)	<i>61</i>	–0.060 (0.208)	<i>78</i>	–0.180 (0.202)	<i>39</i>	–0.093 (0.140)	<i>52</i>	–0.059 (0.117)	<i>62</i>	–0.043 (0.102)	<i>68</i>	0.041 (0.090)	<i>66</i>
Government expenditure (%)	0.152 (0.090)	<i>11</i>	0.057 (0.115)	<i>63</i>	–0.069 (0.149)	<i>65</i>	–0.039 (0.128)	<i>77</i>	–0.120 (0.143)	<i>41</i>	0.010 (0.138)	<i>94</i>	0.011 (0.138)	<i>94</i>
Brussels (ths km)	–0.421 (0.416)	<i>33</i>	–1.271 (0.906)	<i>18</i>	–2.063 (1.301)	<i>13</i>	–1.205 (1.093)	<i>29</i>	–1.200 (0.948)	<i>23</i>	–0.280 (0.890)	<i>76</i>	0.155 (1.099)	<i>89</i>
Secondary school enrollment	–0.173 (0.116)	<i>16</i>	–0.156 (0.186)	<i>42</i>	0.018 (0.206)	<i>93</i>	0.311 (0.176)	<i>10</i>	0.380 (0.171)	<i>4</i>	0.303 (0.128)	<i>3</i>	0.174 (0.116)	<i>16</i>
War dummy	–9.542 (1.857)	<i>0</i>	–7.591 (3.083)	<i>3</i>	–4.983 (3.464)	<i>17</i>								
War dummy (lagged)							3.693 (3.441)	<i>30</i>	5.222 (3.151)	<i>12</i>	4.241 (2.500)	<i>11</i>	3.150 (1.724)	<i>9</i>
1989 GNP per capita (log ths \$)	–0.242 (1.651)	<i>89</i>	–2.883 (2.223)	<i>21</i>	–5.790 (2.549)	<i>4</i>	–6.041 (2.789)	<i>5</i>	–4.583 (2.688)	<i>11</i>	–3.096 (2.511)	<i>24</i>	–0.595 (2.290)	<i>80</i>
Constant	2.513 (10.422)	<i>81</i>	13.502 (20.008)	<i>51</i>	12.914 (25.615)	<i>62</i>	–19.765 (20.749)	<i>36</i>	–23.451 (17.266)	<i>19</i>	–22.362 (12.218)	<i>9</i>	–13.939 (11.511)	<i>25</i>
R <sup>2</sup>	0.871		0.794		0.726		0.617		0.524		0.400		0.305	
	(8)		(9)		(10)		(11)		(12)		(13)		(14)	
Residual liberalization	39.048 (7.639)	<i>0</i>	36.085 (9.057)	<i>0</i>	34.994 (12.659)	<i>1</i>	20.683 (12.154)	<i>11</i>	10.967 (10.027)	<i>29</i>	5.169 (6.844)	<i>46</i>	2.794 (7.737)	<i>72</i>
Democracy	1.815 (4.903)	<i>72</i>	2.944 (5.824)	<i>62</i>	6.305 (6.190)	<i>32</i>	11.681 (5.273)	<i>4</i>	10.258 (4.866)	<i>5</i>	4.493 (3.619)	<i>23</i>	–0.556 (3.573)	<i>88</i>
Brussels (ths km)	–0.535 (0.518)	<i>32</i>	–1.319 (0.806)	<i>12</i>	–1.596 (0.998)	<i>13</i>	–0.791 (0.790)	<i>33</i>	–0.426 (0.728)	<i>57</i>	–0.075 (0.540)	<i>89</i>	0.171 (0.533)	<i>75</i>
Secondary school enrollment	–0.088 (0.077)	<i>27</i>	–0.152 (0.097)	<i>13</i>	–0.101 (0.134)	<i>46</i>	0.155 (0.139)	<i>28</i>	0.226 (0.132)	<i>11</i>	0.173 (0.095)	<i>9</i>	0.111 (0.086)	<i>22</i>
War dummy	–8.417 (1.494)	<i>0</i>	–7.135 (1.978)	<i>0</i>	–5.152 (2.481)	<i>5</i>								
War dummy (lagged)							2.461 (2.440)	<i>33</i>	4.317 (2.189)	<i>6</i>	2.872 (1.522)	<i>8</i>	2.141 (1.108)	<i>7</i>
1989 GNP per capita (log ths \$)	–1.214 (1.016)	<i>25</i>	–3.449 (1.210)	<i>1</i>	–5.819 (2.039)	<i>1</i>	–4.940 (2.356)	<i>5</i>	–3.340 (2.558)	<i>21</i>	–1.791 (2.191)	<i>42</i>	0.431 (2.045)	<i>84</i>
Constant	3.371 (6.479)	<i>61</i>	14.577 (10.298)	<i>17</i>	15.177 (14.206)	<i>30</i>	–11.450 (13.029)	<i>39</i>	–18.761 (12.136)	<i>14</i>	–12.600 (8.131)	<i>14</i>	–7.579 (7.725)	<i>34</i>
R <sup>2</sup>	0.818		0.791		0.707		0.615		0.502		0.317		0.220	

Estimated by OLS with heteroskedasticity-robust standard errors in parentheses and significance levels (in percent) in italics. The dependent variable is the growth rate of GDP. See Table 2 for explanations of variables. Residual liberalization is the residual from regressions of liberalization on democracy, i.e., the extent of liberalization that cannot be attributed to democracy.

coefficients on the democracy index obtained in this way are lower than the ones reported in [Table 5](#). This suggests that the estimated effect of democracy on growth when liberalization is omitted is indeed exaggerated because of omitted variable bias.

The results reported in [Table 6](#) confirm that implementing wide-ranging democracy indeed did not hurt the post-communist countries' growth performance. On the contrary, democratization improved their growth performance, at least in the later part of the transition period, because of its positive effect on economic liberalization. However, democracy alone, when not accompanied by correspondingly far-reaching liberalization, may have had a negative effect on growth during the early part of transition. The negative marginal effect can be ascribed to two factors (at least). First, democracy is associated with greater political uncertainty, as democratic governments are faced with political backlash in the wake of short-term adverse effects of the reforms. Such uncertainty may reduce the incentives for economic agents to engage in long-term profit-seeking activities. Second, governments facing elections may pursue short-term political aims or implement policies that constrain actions of the future government even if the outcome of such actions is detrimental to economic performance. Both factors become less important during the later phase of transition, as economic and political developments consolidate. Importantly, the effect of residual liberalization remains positive and mostly (at least marginally) significant. Hence, liberalization that goes beyond the level that is attributable to democracy is beneficial for growth.

## **5. Determinants of democracy**

The previous section argued that democracy improves growth performance because it reinforces progress in economic liberalization. However, the analysis so far revealed only that progress in liberalization and democracy are correlated. This section therefore investigates more closely the nature of the relationship between democracy and liberalization during transition and, more generally, the factors that affect the progress in democratization. Columns (1) and (2) of [Table 7](#) report the results of a simple Granger-causality test involving democratization and economic liberalization. Because of the relatively short time series, the test is only performed with one lag. The regression results indicate that the lagged value of the democracy index is indeed a significant determinant of liberalization, but the lagged value of the liberalization index does not determine democracy. Hence, in the sense of Granger causality, democracy indeed causes liberalization rather than the other way around.

The rest of [Table 7](#) tests the impact of other potentially important determinants of the progress in economic and political liberalization. Although essentially all post-communist countries initially moved towards greater democracy, later on, significant differences emerged, with several countries in fact reversing some of the previously implemented reform measures (this was, most notably, the case in Belarus and much of Central Asia). Democratization is an outcome of political processes, which, in turn, may be affected by the ongoing economic developments as well as initial conditions. A standard finding on the relationship between democracy and economic performance is that democracy is positively correlated with economic development—as countries become more affluent,

Table 7  
Determinants of liberalization and democracy

Period	Liberalization		Democracy		Liberalization		Democracy		Liberalization		Democracy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Lagged liberalization	0.836 (0.025)	<i>0</i>	−0.066 (0.043)	<i>13</i>	0.836 (0.025)	<i>0</i>	−0.056 (0.042)	<i>19</i>	0.855 (0.029)	<i>0</i>	−0.113 (0.047)	<i>2</i>
Lagged democracy	0.136 (0.022)	<i>0</i>	0.940 (0.034)	<i>0</i>	0.138 (0.022)	<i>0</i>	0.888 (0.043)	<i>0</i>	0.125 (0.022)	<i>0</i>	0.908 (0.043)	<i>0</i>
Lagged growth									−0.002 (0.000)	<i>0</i>	0.002 (0.001)	<i>0</i>
GNP per capita (log, ths)					−0.002 (0.007)	<i>77</i>	0.063 (0.024)	<i>1</i>	−0.005 (0.006)	<i>43</i>	0.063 (0.023)	<i>1</i>
War dummy									−0.048 (0.010)	<i>0</i>	−0.017 (0.033)	<i>60</i>
Constant	0.029 (0.007)	<i>0</i>	0.082 (0.019)	<i>0</i>	0.032 (0.011)	<i>1</i>	0.002 (0.031)	<i>95</i>	0.036 (0.011)	<i>0</i>	0.019 (0.031)	<i>54</i>
R <sup>2</sup>	0.942		0.816		0.942		0.824		0.948		0.831	
	(7)	(8)	(9)	(10)	(11)	(12)						
Lagged liberalization	0.855 (0.029)	<i>0</i>	−0.086 (0.043)	<i>5</i>	0.855 (0.028)	<i>0</i>	−0.115 (0.041)	<i>1</i>	0.854 (0.028)	<i>0</i>	−0.120 (0.043)	<i>1</i>
Lagged democracy	0.124 (0.024)	<i>0</i>	0.767 (0.062)	<i>0</i>	0.102 (0.023)	<i>0</i>	0.734 (0.057)	<i>0</i>	0.109 (0.021)	<i>0</i>	0.815 (0.055)	<i>0</i>
Lagged growth	−0.002 (0.000)	<i>0</i>	0.002 (0.001)	<i>1</i>	−0.002 (0.000)	<i>0</i>	0.002 (0.001)	<i>2</i>	−0.002 (0.000)	<i>0</i>	0.002 (0.001)	<i>2</i>
GNP per capita (log, ths)	−0.005 (0.006)	<i>40</i>	0.032 (0.018)	<i>8</i>	−0.002 (0.007)	<i>80</i>	0.089 (0.021)	<i>0</i>	0.000 (0.007)	<i>100</i>	0.094 (0.025)	<i>0</i>
Distance Brussels (ths)	0.000 (0.002)	<i>93</i>	−0.036 (0.008)	<i>0</i>								
War dummy	−0.048 (0.010)	<i>0</i>	−0.016 (0.029)	<i>58</i>	−0.049 (0.010)	<i>0</i>	−0.020 (0.030)	<i>50</i>	−0.049 (0.010)	<i>0</i>	−0.025 (0.030)	<i>41</i>
Years of planning					−0.001 (0.000)	<i>3</i>	−0.005 (0.001)	<i>0</i>				
Dummy for FSU									−0.016 (0.007)	<i>3</i>	−0.094 (0.023)	<i>0</i>
Constant	0.038 (0.016)	<i>2</i>	0.242 (0.052)	<i>0</i>	0.084 (0.023)	<i>0</i>	0.377 (0.063)	<i>0</i>	0.046 (0.011)	<i>0</i>	0.076 (0.031)	<i>1</i>
R <sup>2</sup>	0.948		0.857		0.949		0.870		0.948		0.851	

The regressions cover 1990–2000 (275 observations). Estimated with annual observations by OLS, with heteroskedasticity-robust standard errors in parentheses and significance levels (in percent) in italics. See Table 2 for explanations of variables.

they also become more democratic (see [Lipset, 1959](#); [Londregan and Poole, 1996](#))—a finding referred to in the Political Science literature as the Economic Development Thesis ([Burkhart and Lewis-Beck, 1994](#)). Accordingly, since the post-communist economies experienced dramatic deteriorations in their standards of living, one should expect the initial democratization to be reversed (this is, in fact, the prediction formulated by [Barro, 1996](#), for Hungary).

Indeed, as column (4) of [Table 7](#) shows, countries that were at a higher level of economic development at the outset of transition indeed implemented greater degree of democracy (in contrast, after controlling for lagged democracy and liberalization, the initial per capita GNP is not significantly related to the progress in economic liberalization). Similarly, economic growth tends to reinforce democracy. By contrast, the impact of growth on economic liberalization appears, surprisingly, negative, although this might be due to the correlation between economic liberalization and growth, as the regression already controls for lagged liberalization.<sup>14</sup> Hence, it appears that favorable economic performance facilitated political reforms but did not have much bearing on the progress in economic liberalization.

Initial conditions and external environment appear to be important as well. Being further East significantly slows down progress in democratization but does not affect economic liberalization. The former Soviet Union countries generally implemented a lower degree of democracy and progressed less enthusiastically in economic reforms. The legacy of central planning is similar, the longer a country stayed under central planning, the less it progressed in economic as well as political liberalization. Being involved in a military conflict, interestingly enough, had an adverse effect only on the progress in economic liberalization but not on democratization.

## 6. Conclusions

The most important result of the paper at hand is the finding that the introduction of relatively wide-ranging democracy did not in fact adversely affect the transition countries' growth performance. The effect of democracy on growth appears ambiguous when democracy is directly included in growth regressions. Depending on whether the regression equation also controls for the progress in economic liberalization, the impact of democracy on growth can appear positive or negative during transition. Nevertheless, democracy reinforces economic liberalization, which in turn leads to better growth performance. When this relationship between democracy and economic liberalization is accounted for, the effect of democracy on growth appears either positive or insignificant—depending on the period considered (it is insignificant at the outset of transition and significantly positive later).

One can only speculate why democracy encourages liberalization. The lack of democracy can shield political elites from opposition and popular backlash. This may help them implement efficiency-enhancing reforms, but it also facilitates rent seeking

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<sup>14</sup> When lagged liberalization is omitted, lagged growth indeed appears with positive sign and is significant in the regression for liberalization (and it remains positive but no longer significant in the one for democracy).

(Hillman and Ursprung, 2000) and may lead to inefficient institutions and policies becoming locked in (Hellman, 1998). Democracy is clearly not a necessary condition for high growth (see Intrilligator, 1998)—as the examples of Chile and China illustrate. Nevertheless, as the experience of the post-communist transition countries illustrates, democracy results in policies and institutions that facilitate economic reforms and create an environment that is favorable to growth.

Hence, there are merits to simultaneous democratization and liberalization—democracy facilitates liberalization, which, in turn, improves growth performance. This is an important lesson for those transition economies that remain autocratic (e.g., China, Belarus, until recently, Serbia), those that may now be reversing the initial democratization (e.g., Russia under president Putin) in the hope of improving economic performance, as well as developing countries that may contemplate introducing greater democracy. However, democratization alone is not the key to growth; it is through its positive impact on economic liberalization that it improves growth performance. A centrally planned democracy would be even less conducive to growth than an autocratic market economy.

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