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Jan Fidrmuc

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Jan Fidrmuc, ZEI, Universität Bonn and CEPR

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Centre for Economic Policy Research
90–98 Goswell Rd, London EC1V 7RR, UK
Tel: (44 20) 7878 2900, Fax: (44 20) 7878 2999
Email: cepr@cepr.org, Website: www.cepr.org

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ABSTRACT

Economic Reform, Democracy and Growth during Post-Communist Transition*

This Paper explores interactions between growth, economic liberalization and democratization during transition. The results can be summarized as follows:

(1) Liberalization has a strong positive effect on growth during transition. This holds also when controlling for possible endogeneity of liberalization in growth.

(2) Democracy encourages liberalization – countries which introduced greater democracy subsequently progress further in economic liberalization too.

(3) Because of its reinforcing effect on liberalization, democracy has a positive overall impact on growth. Nevertheless, the marginal effect of democracy (after controlling for progress in economic liberalization) is negative during early transition.

(4) The progress in democratization in turn depends on past economic performance in a surprising manner – the relationship between past growth and subsequent democracy appears negative.

(5) Economic performance is an important determinant of electoral outcomes and, in particular, of support for reforms.

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Jan Fidrmuc
Center for European Integration Studies
Walter-Flex-Strasse 3
53113 Bonn
GERMANY
Tel: (49 228) 731 821
Fax: (49 228) 731 809
Email: JFidrmuc@uni-bonn.de

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NON-TECHNICAL SUMMARY

After the countries of Central and Eastern Europe and the former Soviet Union cast off communism, they generally set out (at least initially) to implement economic and political reforms simultaneously. This stands in contrast with previous successful transitions in countries such as Chile, South Korea and Taiwan (where political liberalization followed only after economic reforms were well under way), or the current transition in China (where economic liberalization unfolds with little simultaneous democratization). Nevertheless, despite the similarities at the outset, the 25 countries in transition subsequently displayed a large degree of variation in their approaches to economic liberalization and democratization, as well as in economic performance. While some countries sustained the momentum and succeeded in implanting important elements of democracy and the market economy, others essentially returned to being autocracies with overwhelming state interference in the economy. The countries in the region lived through economic collapses dwarfing the Great Depression, military aggression, civil wars, *coups d'état*, surges of crime and violence, but also resumption of growth and accelerating integration with Western Europe.

This variation of approaches and outcomes raises several important questions. Did democracy facilitate or constrain progress in economic liberalization? Was there a trade-off between democracy and growth? Did the countries that stalled or reversed the initial democratization gain in terms of their subsequent growth? Was there indeed a case for a *benevolent dictator* who would be in a better position to implement efficiency enhancing reforms while temporarily postponing democratization?

A priori, the answers to these questions are not obvious. Several studies have argued that democracy is a precondition for sustained long-term growth and economic prosperity because it guarantees the rule of law and contract enforcement. On the other hand, democracy introduces important political constraints that may affect the actions of the government and/or limit its ability to proceed with the needed but costly reforms (for example, by allowing for reform-minded governments to be toppled in democratic elections). Similarly, democracy may increase uncertainty about future policies, as a future government may not necessarily continue policies or live up to commitments of the current one. Overall, it is far from clear which of these factors is more important during the transition. The empirical evidence on the relationship between democracy and growth in market economies is mixed at best. For the transition economies, it is essentially non-existent.

The present Paper explores interactions between democratization, economic liberalization and growth during post-communist transitions in Central and Eastern Europe and the former Soviet Union. The results can be summarized as follows:

(1) Liberalization has a strong positive effect on growth during transition. This holds also when controlling for possible endogeneity of liberalization in growth (progress in liberalization does, however, appear to depend crucially on initial conditions).

(2) Democracy encourages liberalization (in the context of Granger causality, democracy *causes* liberalization). Countries that introduced greater democracy, subsequently progress further in economic liberalization too.

(3) Because of its reinforcing effect on liberalization, democracy has a positive *overall* impact on growth. Nevertheless, the *marginal* effect of democracy (after controlling for the progress in economic liberalization) was negative during the early part of transition.

(4) The progress in democratization in turn depends on past economic performance in a surprising manner – the relationship between past growth and subsequent democracy appears negative (further research may be necessary to illuminate this result).

(5) Economic performance is an important determinant of electoral outcomes and, in particular, of support for reform. Support for parties associated with reform falls with unemployment and increases with growth, and, somewhat surprisingly, inflation. Progress in economic liberalization lowers political support for reform parties, but the extent of democracy is positively correlated with support for reforms in elections.

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. Measured by the indices of political freedom and civil liberties published by the Freedom House (see www.freedomhouse.org), by 1993—two to three years after the transition began—the Czech Republic, Hungary and Slovenia attained the same extent of democracy as the United Kingdom or Germany. Although other countries did not democratize as rapidly as the three front-runners, they also made considerable progress. Between 1989 and 1991, the average of the two Freedom-House indices rose from 0.26 to 0.57, on a scale from zero (no democracy) to one (full democracy).

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—stands in sharp contrast with the experience of countries such as Chile, Taiwan and South Korea, where democratization followed only after economic liberalization proved successful, or with the current Chinese approach based on economic liberalization without democratization. In fact, the leading reformers in Central and Eastern Europe became democracies before even coming close to being market economies.

Ten years later, democracy and prosperity are far from being the norm in the former communist countries. Overall, the outcomes in terms of economic performance and political developments have been very diverse. While some countries have been successful in sustaining the reform momentum and eventually resuming growth, others experienced reform reversals, reemergence of authoritarian regimes and/or protracted economic decline. The objective of this paper is to analyze the mutual interactions between economic performance, economic liberalization and democratization during the transition. Has simultaneous introduction of economic and political reforms adversely affected the ability of the transition countries to proceed with economic liberalization—for example, by imposing political constraints on the speed of reform (see Roland, 2000)? Is there a trade-off between democracy and growth? Have the countries that postponed or reversed democratization been able to grow faster than the more democratic ones?

The literature offers an abundance of opinions but no consensus on the effect of democracy on economic growth. On the one hand, North (1991, 1993) argues that democracy is a precondition for sustained long-term growth and prosperity, because it guarantees protection and enforcement of property rights. Similarly, Rodrik (2000) posits that democracy leads to higher growth because it lower economic uncertainly, delivers better institutional outcomes and results in better response to adverse shocks (Rodrik, 1999, shows that democratic countries also pay higher wages). Minier (1998) finds countries that underwent democratization appear to grow faster than *ex-ante* similar countries not experiencing 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, 1999), but not robustly so (see Przeworski and Limongi, 1993). Barro explains the negative effect of democracy (beyond a moderate level) on growth by pointing out that democratic countries typically implement excessive redistribution programs. Democracy may also lead to inefficient policy outcomes, especially in case of economically costly policies. Fernandez and Rodrik (1991) show that rational voters may choose not to support efficiency-enhancing reforms because of individual uncertainty about 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) illustrate how war of attrition over asymmetric payoffs may lead to efficiency-enhancing reforms being delayed. Finally, governments facing elections may pursue policies that maximize the prospects of reelection, even if these are detrimental to long-term economic growth.

The experience of the post-communist countries can shed some new light on the relationships between democracy and growth. The transition process can be seen as a natural experiment, comprising a group of 25 countries starting-off with little or no democracy and being ex-ante similar (though not identical) in terms of economic development. Subsequently, the paths followed by individual countries in terms of economic and political liberalization diverged dramatically, with some introducing democracy and economic freedom essentially at level with Western Europe, and others reverting to authoritarian rule and central planning. By observing the variety of approaches to democratization as well as economic outcomes, one can infer new insights about the importance of democracy for economic performance.

The empirical results obtained with a sample of 25 transition economies suggest that, overall, democracy is good for growth because it reinforces economic liberalization (which in turn has a strongly positive effect on growth). However, the marginal effect of democracy

after controlling for progress in economic liberalization appears negative during the initial transition period. Hence, democracy alone, if unaccompanied by a correspondingly economic liberalization, harmed growth performance immediately after the collapse of communism.

The analysis then turns to exploring the effect of economic performance on political developments. While essentially all transition countries introduced at least a moderate level of democracy initially, the subsequent developments differed substantially—either because of the unwillingness of political elite to introduce and sustain wide-ranging democracy, or because the reform-minded government failed to sustain political support. Somewhat surprisingly, the progress in democratization during later transition (1994-98) appears negatively related to past growth (over 1990-93). Hence, the countries that experienced deeper output contractions early in the transition in turn implemented greater democracy—possibly because of political changes instigated by adverse economic outcomes.

The final part of the analysis looks closer at determinants of electoral outcomes (using a sample of 17 elections in 7 countries of Central and South-Eastern Europe). The support for pro-reform parties falls with unemployment, and increases with economic growth, output level (relative to 1989) and, somewhat surprisingly, inflation. Progress in economic liberalization, however, reduces the support for reforms, as the costs of reforms apparently go beyond deteriorating economic performance. In contrast, the level of democracy increases the support for reforms.

The next section takes stock of the main economic outcomes of the 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 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. Section 6 looks at one of the main sources of differences in political developments—electoral outcomes. Finally, section 7 concludes.

2 Explaining Growth Performance during Transition

The economic outcomes of transition have been very diverse: while some countries were able to resume growth after two to four years of recession, others experienced deep and protracted collapse of economic activity without much subsequent recovery. Table 1 reports

some basic indicators of economic performance for 25 transition countries. According to the official statistics, economic activity virtually collapsed in many post-communist countries. By 1998, real GDP shrank to between 25 and 83 % of the level attained in 1989 (Georgia and Uzbekistan, respectively, were the two extremes). The average cumulative output fall across the 25 countries listed in Table 1 was 42 %. The transition-induced contraction dwarfs that reported by the US during the Great Depression (34%). The output fall was also relatively long-lasting, the average duration of the depression was 5.6 years, 4.2 years in CEE and the Baltics and 7 years in the FSU. The subsequent cumulative increase of GDP was disappointingly small, 10 % on average. As of 1998, only in Poland and Slovenia exceeded the pre-transition (1989) level of output. In contrast, Russia, Ukraine, Moldova and Kazakhstan, reported essentially no recovery.

Insert Table 1 about here.

It is generally accepted that the official statistics exaggerate the severity of the output fall. The statistics directly measure the production of medium-sized and large firms, but only estimate the output of small firms which make up most of the new and growing private sector. Over-reporting under communism (for political reasons) and under-reporting at present (for tax purposes) also play a role. The official statistics only imperfectly estimate the transfer of economic activity from the official to the unofficial economy. In addition, part of the output fall may be due to elimination of unmarketable production, reduction of waste, and fall in inventories as the shortage economy turned into a surplus one. Nonetheless, even if overestimated by the official statistics, the reform-induced output fall in CEE and FSU was undoubtedly very severe.

Several theoretical explanations have been suggested to account for the output fall. Calvo and Coricelli (1993) blame the credit crunch—credit restrictions and high real interest rates—due to overly restrictive monetary policy. Blanchard and Kremer (1997), and Roland and Verdier (1999) develop supply-side explanations based on disorganization of production (supplier-buyer) relationships due to asymmetric information about outside options in bargaining, or search frictions and relation-specific investment, respectively. Hillman (1999) suggests that the output fall occurred because economic and political reforms were not accompanied by a change of political culture—the political culture of rent seeking remained in place, time and resources spent for rent-seeking activities even increased, thus precipitating the output fall.

The empirical literature, on the other hand, focused primarily on assessing the impact of the choice of reform strategy (shock therapy vs. more gradual reform) on economic performance during transition, spurred by the contribution of De Melo et al. (1996). They constructed annual liberalization indices for three broad areas of reforms—liberalization of internal markets, liberalization of external markets, and privatization/restructuring—for the individual transition countries over 1989-94. These indices are the basis for their measure of overall liberalization: the cumulative liberalization index (CLI), defined as the sum of yearly weighted-average indices (with weights 0.3, 0.3 and 0.4, respectively). Their conclusion is that greater liberalization was associated with higher growth and lower inflation (both averaged over 1993-94). Several subsequent studies reached similar conclusions (see Sachs, 1996; and Fischer et al., 1996, 1997; Selowsky and Martin, 1997).

In contrast, Åslund et al. (1996) found that the relationship between liberalization and average growth over 1989-95 turned out insignificant after including dummies for the ruble zone (including the Baltics) 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 performance of Central European countries.[1] Heybey and Murrell (1999), Krueger and Ciolko (1998) and Popov (2000) reach similar conclusions, using more elaborate analytical techniques. Krueger and Ciolko show that the level of liberalization (measured by the CLI) can indeed be explained by a simple regression containing 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. 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[2]).

Finally, Berg et al. (1999) evaluate the relative importance of initial conditions and progress in liberalization for growth performance and find that the initial output fall is attributable to initial conditions and macroeconomic instability whereas the effect of

[1] However, this result highlights an important problem inherent to the construction of the CLI. The FSU countries started liberalizing later and therefore their CLI is 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.

[2] 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.

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 Wolf (1999) who show that liberalization has a J-curve effect on output growth—a negative contemporaneous effect is more than compensated by subsequent gains (at one and two-year lags).

3 Liberalization, Initial Conditions and Growth

This section introduces the analytical framework and considers the relationship between liberalization and growth in a cross section of 25 transition countries. The progress in implementing economic reforms is measured by the liberalization index of de Melo et al. (1996) and the subsequent progress-in-transition indicators published by the European Bank for Reconstruction and Development (EBRD).[3] The two series have been linked up by Havrylyshyn et al. (1998) into a single time series covering the entire transition period.[4] There have been marked differences in the progress in liberalization among the post-communist countries.

Since my objective is to investigate longer-term patterns of growth rather than annual fluctuations, the analysis is based on averages of all variables over longer periods (cf. Havrylyshyn et al., 1998; Berg et al., 1999; and Wolf, 1999, who use annual data). This approach should minimize the *noise* component in the data, originating from measurement errors or short-term fluctuations caused by external factors. On the other hand, the major disadvantage is the lower number of degrees of freedom. To partially remedy this problem, I split the transition period into two sub-periods: 1990-93 and 1994-98. The analysis is then performed by running pooled regressions over both sub-periods. In addition, this allows separate analysis of growth determinants during early transition (when virtually all countries experienced dramatic output contractions) and the later period, characterized by stabilization and recovery (albeit not in all countries).

[3] 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.

[4] The resulting series thus covers 1989-98. I am grateful to Ron van Rooden for sharing their data with me.

As is standard in the empirical growth literature, I estimate most of the regressions with the growth rate of per-capita GDP as the dependent variable. Nevertheless, since the previous literature on growth patterns during transition typically used the growth rate of GPD, I present results with this dependent variable as well. The explanatory variables are the liberalization index, a proxy for initial conditions (distance from the country's capital to Brussels), a dummy for countries engaging in military conflicts, secondary school enrolment, and initial income per capita. I tried including also other variables typically found significant in the growth literature, in particular the investment rate, but they turned out insignificant.

The initial conditions are proxied by the distance from country's capital to Western Europe (represented by Brussels).[5] The distance from Western Europe is intended as a measure factors such as historical legacies, social, cultural and religious traditions, level of economic development, quality of institutions or the rule of law. In addition, it also reflects the cost of engaging in economic relations with Western Europe. The distance replaces the commonly 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 Tajikistan. The liberalization index is negatively correlated with the distance from Western Europe: the correlation coefficient between the distance and the liberalization index for 1990-93 (1994-98) is –0.74 (–0.66). Hence, the further a country lies from Brussels, the more reluctant it was to implement radical economic reforms. In addition to distance from Western Europe, a dummy for countries affected by military conflicts (Croatia, Macedonia, Armenia, Azerbaijan, Georgia and Tajikistan) is also included in the regressions.

Overall, the impact of liberalization on growth (see Table 2) is positive and strongly significant. The regression reported in column 2 includes an interaction term between the liberalization index and the dummy for 1994-98. The coefficient on this interaction term indicates that liberalization has a stronger effect during the latter period. This is also confirmed by separate regressions for the two sub-periods (columns 5 through 8). The results in column 3 suggest that the relationship between liberalization and growth is a non-linear (U-shaped) one. Hence, liberalization worsens growth at low levels but accelerates it after a moderate level of liberalization has already been attained. Either no liberalization or complete liberalization is better than intermediate liberalization. The minimum effect of liberalization is

[5] For Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, the distance to Brussels is estimated as 6,000 km.

attained at value of liberalization index around 0.35-0.39, which is just above the level attained by Russia and Moldova. Once this minimum level has been exceeded, there are increasing returns to further liberalization. On the other hand, the linear relationship gives a slightly better statistical fit for the 1994-98 period (compare columns 7 and 8).

Insert Table 2 here.

Krueger and Ciolko (1998) and Heybey and Murrel (1999) argue that the liberalization index may be in fact endogenous in economic performance, in particular growth. Countries with more favorable economic performance may find it easier to implement costly 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, I instrument the liberalization index in Table 2B. The results are reported panel B of Table 2. To improve precision of estimation, the first-stage regressions are estimated with annual observations rather than period averages. The instruments used for the liberalization index in columns 9 through 11 are the lagged value of the liberalization index, initial GNP per capita, number of years the country spent under communism, the war dummy and a quadratic transition-time trend.[6] In columns 12 through 14, the lagged value of liberalization index is replaced by its value as or 1989 (the second set of instruments thus contains only pre-transition variables so as to completely rule out the endogeneity bias). With both sets of instruments, the estimated impact of liberalization on growth remains significant and positive—in fact, it turns out even stronger (compare, for example, columns 7, 11 and 14). Hence, liberalization has a positive and statistically significant effect on growth, which is apparently not due to endogeneity (although initial conditions clearly have played an important role in determining progress in economic liberalization).

The U-shaped relationship between liberalization and growth during the contraction period may be due to two effects. On the one hand, countries that postponed radical reforms or implemented them more gradually may have succeeded in avoiding some of the adverse effects experienced by the more reform-enthusiastic countries. Nevertheless, intermediate reforms apparently did not prevent disorganization (Blanchard and Kremer, 1997) from occurring eventually. On the contrary, the outcome of an intermediate reform is worse than that of either a full reform or no reform at all.

[6] Transition-time trend is zero before the start of transition (see Fischer and Sahay, 2000, Figure 1).

Several other factors besides liberalization have been important determinants of growth during transition. The effect of being farther from Western Europe appears negative, although it is usually not significant. Engagement in military conflicts, not surprisingly, is associated with substantially lower growth—by 8-10 percentage points annually. On the other hand, once the war is over, the affected countries grow more rapidly (by 3-5 percentage points annually) as they make up for the loss of output.

Secondary-school enrollment and the initial level of GNP are two of the variables typically found important in the economic growth literature—see, for example, Barro (1991), and Levine and Renelt (1992). The coefficient on initial GNP per capita is negative (but not always significant). The negative coefficient is consistent with the notion of conditional convergence, as predicted by the neoclassical growth theory—poor countries tend to grow faster (when controlling for other factors affecting growth). Secondary-school enrollment is positively correlated with growth, in particular during the later period. Other variables suggested by the growth literature, in particular primary-school enrollment and government expenditure, were generally not significant. In fact, if anything, government expenditure actually appears to have a positive effect on growth during transition (Campos, 1999, obtained a similar result). Investment (as a share of GDP) shows a significant and positive effect only during 1990-93, whereas it is insignificant and negative during the recovery (not reported). Tichit (1999) finds that investment has had positive effect on growth only in the CEE countries, whereas it insignificant in the FSU—this can explain the insignificant results for a cross section containing both CEE and FSU countries.

The regressions reported in Table 2 provide a rather good account of growth in the transition countries, with the adjusted R^2 ranging between 0.53 and 0.80. The most important explanatory variable is the liberalization index, which alone (along with the constant and dummy for 1994-98) produces an adjusted R^2 of 0.57 (0.60 when the interaction term for liberalization during 1994-98 is included) in the pooled regression. The distance from Brussels alone results in an adjusted R^2 of 0.52. The two war dummies yield an adjusted R^2 of 0.58. Secondary school enrollment and the initial GNP per capita yield adjusted R^2 of 0.46 and 0.44, respectively.

4 Democracy and Growth

The transition countries generally implemented, at least initially, economic and political liberalization simultaneously. This approach may have affected their economic performance in several ways. First, democracy brings about political constraints (see e.g. Roland, 2000) that may limit the progress in economic liberalization (in particular via voters' opposition to reforms) and, in turn, harm economic performance during transition. Second, democracy increases uncertainty, as future governments may not necessarily continue policies and honor commitments introduced by the previous government. On the other hand, as emphasized by North (1991, 1993) and others, democracy ensures that property rights are guaranteed and is therefore a necessary precondition for sustained long-term growth. Anecdotal and survey evidence, especially from the former Soviet Union, seems to support this point (see Shleifer, 1998). Yet, Castanheira and Popov (2000) argue that strong authoritarian regimes (e.g. China) are better able to guarantee the rule of law than weak democracies (e.g. Russia).

At first sight at least, democracy is seemingly associated with higher growth during transition. Table 1 reports indices of democracy based on the Freedom House indices of political rights and civil liberties.[7] The countries that introduced widest democracy achieved the best results in terms of economic performance. In contrast, some of the countries that implemented only moderate democracy (for example Russia, Ukraine and Moldova) saw their output plunge with little signs of subsequent recovery. This pattern is unlikely to be merely due to reverse causality (faster growing countries being able to introduce greater democracy) because democratization largely preceded resumption of growth in post-communist countries.

Although the 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 1990-98 is 0.66). They argue therefore that democracy facilitates economic liberalization and thus has a positive, albeit indirect, effect on growth. Nevertheless, they do not consider the direct effect.

[7] The index reported in Table 1 is the average of the two indices, rescaled to take values between zero (no democracy) and unity (full democracy).

Democracy appears to have a strong positive effect on growth when entered in a regression without controlling for the progress in liberalization (see Popov, 2000). However, the result is strikingly different when democracy is entered alongside liberalization, as shown in panel A of Table 3. The regressions control for the same variables included already in Table 2: the liberalization index, the distance from Western Europe, secondary school enrollment, the two war dummies, and initial GNP. The democracy index is based on the scores reported by the Freedom House, as explained above. As with the liberalization index, the indices used are the averages over the respective periods. Table 3 distinguishes between the *marginal effect* of democracy on growth (i.e. the effect after controlling for the progress in economic liberalization) reported in panel A and the *total effect* (i.e. accounting also for the indirect effect of democracy on growth through its effect on economic liberalization) in panel B.

Insert Table 3 here.

The *marginal effect* of democracy on growth turns out insignificant in regressions spanning the entire period. Nevertheless, the effect appears negative and significant during the first part of transition, as reflected in the negative coefficient on an interaction term between the democracy index and a dummy for 1990-93 (column 2). This pattern is confirmed also in the separate regression for 1990-93, although only with a marginally significant coefficient (this can largely be attributed to the smaller sample size). Hence, after controlling for progress in economic liberalization, it appears that democracy lowered growth, at least during the early transition period. However, this does not necessarily imply that the overall effect of democracy on growth was also negative. As argued by De Melo et al. (1996) and Dethier et al. (1999), democracy may reinforce progress in economic liberalization and, because liberalization has a positive effect on growth, the total effect of democracy may in fact be positive. Panel B of Table 3 therefore investigates the overall effect of democracy. This is done by a two-step procedure.[8] First, the liberalization index is regressed on the democracy index. This yields the following estimates (t-statistics in parentheses):

1990-98: Liberalization = 0.185 (5.42) + 0.632 (12.45)*Democracy [Adj.R^2: 0.759]
1990-93: Liberalization = -0.111 (2.70) + 0.956 (15.34)*Democracy [Adj.R^2: 0.662]
1994-98: Liberalization = 0.393 (11.06) + 0.435 (8.78)*Democracy [Adj.R^2: 0.752]

[8] I am indebted to Sylviane Guillaumont for this suggestion.

Second, the residuals from the above regressions are used as an explanatory variable, denoted *residual liberalization*, alongside the democracy index. Residual liberalization measures liberalization beyond the level that can be explained by democracy.[9]

Applying this procedure, the *total effect* of democracy on growth (panel B of Table 3) appears positive and strongly significant. Nevertheless, the coefficient on the interaction term between the democracy index and the dummy for 1990-93 again indicates that the effect is less pronounced during the early period (this is also reflected in separate regressions for 1990-93 and 1994-98 reported in columns 10 and 11). Importantly, the effect of residual liberalization remains positive and mostly significant, i.e. liberalization beyond the level attributable to democracy is beneficial for growth.

In summary, democracy indeed has had a positive overall effect on growth during transition because of its positive impact on economic liberalization. However, democracy alone, when not accompanied by correspondingly far-reaching liberalization, has had a negative marginal effect on growth during the early transition period (1990-93). 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 election may pursue short-term political aims or implement policies that constrain actions of the future government (see Chapter 2 in Roland, 2000) even if the outcome of such actions is detrimental to economic performance. Both factors become less important during the later phase of the transition, as economic and political developments consolidate.

5 Determinants of Democracy

The previous section treated democracy as exogenous—assuming the post-communist countries can choose any level of democracy within the feasible range. However, democratization itself is an outcome of political processes (one of them being elections, the topic of the next section), which, in turn, may be affected by the ongoing economic

[9] 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.

developments as well as initial conditions. This therefore section explores the underlying determinants of democratization in the post-communist countries. 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, they also turn more democratic (see Lipset, 1959; Helliwell, 1994; Barro, 1996, 1999; Londregan and Poole, 1996)—a finding referred to in Political Science literature as the *Economic Development Thesis* (Burkhart and Lewis-Beck, 1994). Accordingly, since the post-communist economies experienced dramatic deteriorations in standards of living, one should expect the initial democratization to be reversed (indeed, this is the prediction formulated by Barro, 1996, for Hungary).

To test this prediction, Table 4 relates the extent of democracy attained during 1994-98 to the progress in liberalization, democracy and average growth rate, all pertaining to 1990-93. The regressions thus seek to determine the effect of economic performance as well as that of the initial progress in economic liberalization and democratization on the subsequent extent of democracy. I focus on democratization in the later transition period as the initial democratization was apparently largely exogenous (reflecting primarily the extent of popular discontent with communism and the ability of the former communists to retain power). As discussed above, after the initial democratization, the subsequent progress differed substantially, ranging from re-imposition of authoritarian regimes (as was the case in Belarus and much of Central Asia) to implanting democracy comparable to that in Western Europe. A question of particular interest is whether the countries that experienced more severe output fall responded by reversing the initial democratization—as implied by the economic development thesis.

Insert Table 4 here.

In fact, the effect of past growth on subsequent democracy turns out negative. In fact, the lagged average growth rate appears as the most significant determinant of subsequent democratization. The result is robust to omitting the liberalization and democracy indices from the regression. Moreover, regressions with contemporaneous average growth rates yield insignificant coefficients on growth both for 1990-93 and 1994-98 (not reported).

Column (5) reports regression results with the growth rate replaced by *residual growth rate* computed as the residual from regression relating growth during 1990-93 to contemporaneous liberalization (including squared term), democracy, distance from Western Europe, dummy for military conflicts and initial GNP (in log). This approach should

eliminate the possibility of bias stemming from the correlation between growth and the other explanatory variables included in Table 4 (see the discussion in sections 3 and 4). The coefficient estimated for *residual growth* thus measures the net effect of growth whereas the coefficients estimated for the remaining explanatory variables now measure their total contributions to progress in democratization—including any indirect impact they may exert on democracy via their effect on growth. Nonetheless, the effect of growth on democracy obtained using this procedure remains negative and significant, and of essentially the same magnitude as before. In summary, it appears that the effect of growth on the subsequent democratization is indeed negative, i.e. the deeper is the initial output fall, the greater is the subsequent extent of democracy.[10]

Though peculiar at first sight, this relationship may be due to the specific nature of the post-communist transition period. After initial democratization (which, as discussed above, was largely exogenously determined), countries that experienced deeper output fall in turn may have experienced more dramatic political transitions, with the government in place being replaced by a more reform-minded one. In contrast, countries that remained autocratic, but succeeded in avoiding excessive output fall (in particular Belarus and Uzbekistan), in turn stayed non-democratic. Nevertheless, further research may be necessary to shed additional light on this perplexing result.

The regressions summarized in Table 4 suggest that both lagged democracy and liberalization enhance subsequent democracy. Yet, it was argued in the preceding section (in line with Dethier et al, 1999, and de Melo et al., 1996) that the causality runs from democracy to liberalization. This question deserves greater attention. A simple Granger-causality test reveals that indeed democracy causes liberalization rather than the other way around. When regressing annual observations of the democracy index on the liberalization index, and vice versa, the following results obtain[11]:

$LI_t = 0.108\ (8.12) + 0.720\ (15.58) * LI_{t-1} + 0.166\ (3.73)\ DI_{t-1}$ [adj. R2 = 0.884]

$DI_t = 0.109\ (4.32) - 0.068\ (-1.37) * LI_{t-1} + 0.921\ (21.89)\ DI_{t-1}$ [adj. R2 = 0.771]

[10] Nevertheless, the opposite result is obtained in analogous regressions with annual rather than averaged data and one-year lags—growth appears to have a positive lagged effect on democracy (results are available on request). However, the magnitude of the effect is much smaller (one tenth of that reported in Table 4, in absolute value) and it is only significant in a regression spanning the entire transition period (1990-98). In separate regressions for 1990-93 and 1994-98, it turns out insignificant (and actually negative in the former).

[11] Heteroskedasticity t-statistics are in parentheses. The regressions are estimated with 224 observations, i.e. 9 years and 25 countries, with one observation missing (Macedonia in 1990). Because of the short length of the series, only one lag is included.

where LI_t and DI_t stand for liberalization and democracy indices, respectively. The results clearly show that whereas the lagged value of the democracy index is significant as a determinant of subsequent liberalization, the lagged value of the liberalization index *does not cause* subsequent democracy. The results are analogous when additional variables (initial per-capita GNP, years under communism, military conflict dummy and quadratic time trend) are included (not reported).

6 Economic Performance and Political Support for Reforms

After studying the inter-relationships between economic performance and political liberalization, I now turn to the mechanism ultimately determining policy choices—elections. Elections are the major feedback channel through which voters express their displeasure about past and current policies and, by choosing the government, select policies to be implemented in the future. Electoral outcomes generally reflect on a combination of economic and political factors. I focus on the economic components of the *voting function* (see Nannestad and Paldam, 1994, for an extensive survey of the recent literature).

Economic reforms were associated with substantial worsening of standards of living in the short term. Support for radical economic reforms quickly dissipated in most of the post-communist countries. The intensity of political backlash against the reforms apparently has been related to the extent of adverse effects of the reforms, in particular unemployment (see Fidrmuc, 2000a,b). A good example of this relationship is the Czech Republic, where the pro-reform parties remained in power as long as unemployment remained low.

The relationship between economic performance and the support for reforms has been explored mainly theoretically so far (see, for example, Rodrik, 1995). Empirical analysis has been scarce up to date, primarily because of the lack of appropriate data. Recent empirical work includes Warner (1997), Brainerd (1999), Hayo (1999) and Fidrmuc (2000a,b). The approach utilized in the present paper is similar to that of Fidrmuc (2000b), but instead using regional data, the analysis is based on a cross section of 17 elections in seven countries of Central and South-Eastern Europe: the Czech Republic, Slovakia, Hungary, Poland, Romania, Bulgaria, and Slovenia. I limit the analysis only to this subset of countries because they are at least moderately democratic (any analysis of electoral outcomes would be meaningless in non-democratic countries, which then excludes most of the former Soviet Republics), data for

them are easier to come by, and classification of parties according to their political orientation is relatively straightforward.

Table 5 presents results. The dependent variable is the share of votes received in each election by parties categorized along two dimensions: their political orientation (pro-reform parties, and left wing/nationalist parties), and incumbency (this follows Fidrmuc, 2000b). The election results are regressed on variables measuring economic performance: unemployment rate, growth rate, index of output relative to the level attained in 1989 and the inflation rate. In addition, the regressions reported in the lower part of Table 5 include also the liberalization and democracy indices. All variables pertain to the election year.[12] The regressions are estimated by OLS with heteroskedasticity robust standard errors. Using the logit transformation for the dependent variable yielded virtually identical results.[13]

Insert Table 5 here.

The results for economic-performance variables reveal a pattern similar to the findings of Fidrmuc (2000a,b). Regressions where parties are classified according to their political orientation yield very high explanatory power (with adjusted R^2 of 0.6 or higher). In contrast, regressions with parties classified according to incumbency yield adjusted R^2 of only 0.3-0.4. Hence, categorization of parties according to their political orientation is apparently better suited for the analysis of factors underlying voting behavior in the transition countries.

The empirical results suggest that economic performance has had strong bearing on electoral outcomes. Unemployment reduces the support for pro-reform parties, and increases the support for left wing and nationalist parties. One percentage point of unemployment transforms into a gain of nearly two percentage points for the left-wing and nationalist parties, and a corresponding loss for the reformers. Economic growth shows positive effect on the votes for pro-reform parties and negative effect on the votes for left wing and nationalist parties (however, both effects are only (marginally) significant in the regressions that include also the indices of liberalization and democracy). Similarly, the higher is the level of real output compared to 1989, the greater is the support for pro-reform parties and the lower the support for left-wing and nationalist parties.

The effect of inflation is somewhat surprising—apparently, inflation increases support for the pro-reform parties and reduces support for the left wing and nationalist parties.

[12] Choosing the year prior to the election delivered worse quality of statistical fit.

[13] The logit transformation corresponds to converting the dependent variable into the following form: log [V/(1-V)], where V is the vote share for a particular party (cf. Greene, 1997, p. 895).

A plausible explanation is that the support for pro-reform parties rises when inflation is high, as these parties have established a record of reigning in inflation.

The magnitude of these effects is economically (and politically) significant. Pro-reform parties lose on average one percentage point in support for each half a percentage point increase in the unemployment rate or a reduction in the growth rate by three percentage points. Left wing and nationalist parties gain correspondingly. Hence, an increase in the unemployment rate by 4 percentage points—as was for example the case in the Czech Republic between elections in 1996 and 1998—transforms into a vote loss of 8 percentage points for the reformers. On the other hand, every 100 percentage-point increase in the inflation rate expands the votes for the pro-reform parties by four percentage points.

Controlling for the effects of liberalization and democracy on electoral outcomes improves the quality of statistical fit (except for the regression according to incumbency). The results illustrate a somewhat peculiar pattern. The support for pro-reform parties is inversely related to liberalization but positively related to democracy. Both effects are economically significant. Importantly, the vote gain from democratization is greater that the vote loss from economic liberalization. An increase in the value of the democracy index by 0.1 (recall that both indices range between 0 and 1) transforms into a gain of four percentage points for the pro-reform parties. The same increase in the liberalization index reduces the vote for the pro-reform parties by 3.5 percentage points. This empirical finding goes counter the argument put forward by some analysts, who argue that the governments implementing wide-ranging reforms need to be *shielded* from political backlash caused by adverse short-term effects of the reforms. On the contrary, democracy-minding reformers are apparently *rewarded* by higher political support (which, however, does not make them immune to political backlash, which can still occur in response to the adverse effects of the reforms). The effect of liberalization and democracy on the support for left wing and nationalist parties is positive, but essentially insignificant (perhaps because of the correlation between the two indices, as the effect turns out significant when only one index is included).

Greater liberalization brings about lower support for the pro-reform parties, even after controlling for the main adverse effects of the reforms—unemployment, output fall and inflation. Hence, adverse effects of economic reforms apparently go beyond those accounted for by basic economic statistics. A plausible interpretation is that the greater is liberalization, the larger is the fraction of the electorate affected by transition-related redistribution of rents

and changes in relative social and economic position. This is likely to be the case at least in the short term, whereas the favorable effects of the reform generally accrue later.

Regression with parties classified according to incumbency result in worse statistical fit than regressions according to parties' political orientation. This is analogous to the findings reported by Fidrmuc (2000b). Only unemployment rate and output level are significant and have the expected signs. Growth is insignificant and even has the wrong sing. Finally, greater democracy makes the government more likely to be toppled in an election (although the effect is barely marginally significant).

The stronger results when parties are classified according to their political orientation rather than incumbency suggest that the patterns of political support are rather stable over time and independent of the parties' incumbency status. Hence, voters' support is associated with the political orientation of individual parties (and thus the policies that the parties are expected to deliver) rather than the past performance of the party or coalition currently in office. The former pattern of voters' support—*clientelistic voting* (Nannestad and Paldam, 1994)—implies that voters tend to associate themselves with a party that best represents their interests. It contrasts with the latter pattern—*retrospective voting*—which is the pattern typically observed in developed countries, where voters punish the government for bad economic performance by voting for the opposition.

7 Conclusions

The present paper documents and analyzes several important inter-relations between economics and politics during the post-communist transitions in Central and Eastern Europe and the former Soviet Union. The results can be summarized as follows: (1) Liberalization has a strong positive effect on growth during transition. This holds also when controlling for possible endogeneity of liberalization in growth. (2) Democracy encourages liberalization, countries which introduced greater democracy subsequently progress further in economic liberalization too. (3) Because of its reinforcing effect on liberalization, democracy has a positive overall impact on growth. Nevertheless, the marginal effect of democracy (after controlling for progress in economic liberalization) is negative during early part of transition. (4) The progress in democratization in turn depends on past economic performance in a surprising manner—the relationship between past growth and subsequent democracy appears negative. Further research may be necessary to illuminate this result. (5) Economic

performance is an important determinant of electoral outcomes and, in particular, of support for reforms. Support for parties associated with reforms falls with unemployment and increases with growth, output level relative to 1989 and, somewhat surprisingly, inflation.

Hence, there are merits to simultaneous democratization and liberalization—democracy facilitates liberalization, which, in turn, improves growth performance. This is an important lesson for many non-democratic developing countries as well as the transition economies that still remain autocratic (e.g. China, Belarus, Serbia—at least until recently) or those that may now be reversing the initial democratization (Russia under president Putin) in the hope of improving economic performance. Yet, 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 does not appear to be an alternative that would be favorable to growth.

Finally, economic performance is an important determinant of political processes, and in particular electoral outcome. Hence, while radical reforms generally give rise to better economic performance in the long term, the need to sustain sufficient political support for their continuation requires careful balancing of costs and benefits of reforms and in particular their effects on different socio-economic groups.

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Table 1 Countries in Transition: Indicators of Economic Performance, Liberalization, Democracy, and Initial Conditions

	Avg. Growth 1990-98	Avg. Growth 1990-93	Avg. Growth 1994-98	Output Fall 1990-98	Output Recovery 1990-98	GNP p.c. [USD] 1989	Liberal. Index 1990-93	Liberal. Index 1994-98	Democr. Index 1990-93	Democr. Index 1994-98	Dist. Fr. Brussels [km]	Sec.Sch. Enrollm [Denizer]	Pop. Growth 1990-93	Pop. Growth 1994-98
Albania	-0.77	-8.83	5.68	60.38	26.02	1400	0.40	0.63	0.479	0.517	2427	79	-0.40	0.98
Armenia	-7.06	-22.98	5.68	31.00	9.84	5530	0.25	0.57	0.479	0.483	4167	85	1.73	0.33
Azerbaijan	-8.04	-14.53	-2.86	36.96	6.65	4620	0.16	0.45	0.313	0.250	4321	83	1.41	1.08
Belarus	-2.43	-5.35	-0.10	62.69	15.06	7010	0.17	0.41	0.479	0.250	1881	92	0.31	-0.23
Bulgaria	-4.37	-7.40	-1.94	63.69	2.23	5000	0.58	0.63	0.729	0.783	2175	71	-1.17	-0.51
Croatia	-2.43	-12.35	5.50	58.58	17.94	6171	0.69	0.75	0.500	0.500	1399	80	0.06	-1.20
Czech Rep.	-0.36	-3.65	2.28	85.24	10.54	8600	0.68	0.83	0.854	0.917	913	89	-0.07	-0.07
Estonia	-2.68	-11.23	4.16	60.76	14.98	8900	0.49	0.80	0.646	0.867	2508	92	-0.99	-0.91
Georgia	-9.76	-25.80	3.08	25.38	7.42	5590	0.23	0.55	0.354	0.483	4193	82	-0.04	0.01
Hungary	-0.41	-4.78	3.08	81.89	13.36	6810	0.73	0.84	0.854	0.917	1412	81	-0.25	-0.35
Kazakhstan	-5.14	-6.38	-4.16	61.26	0.00	5130	0.22	0.58	0.375	0.250	6000[e]	90	0.35	-1.10
Kyrgyzstan	-4.84	-9.25	-1.32	50.39	9.99	3180	0.25	0.70	0.500	0.483	6000[e]	88	0.87	0.94
Latvia	-4.67	-14.33	3.06	50.97	8.27	8590	0.40	0.72	0.625	0.850	2197	92	-0.93	-1.09
Lithuania	-4.08	-12.05	2.30	53.47	12.12	6430	0.45	0.74	0.688	0.900	1785	78	0.26	-0.15
Macedonia	-5.32	-13.05	0.86	55.11	4.09	3394	0.68	0.67	0.563	0.600	2225	80	-0.83	0.78
Moldova	-10.98	-12.33	-9.90	32.36	0.00	4670	0.26	0.62	0.375	0.567	2233	81	-0.01	-0.23
Poland	1.98	-3.05	6.00	82.21	34.94	5150	0.76	0.81	0.833	0.900	1338	83	0.32	0.11
Romania	-2.77	-6.45	0.18	74.99	1.10	3470	0.40	0.65	0.396	0.717	2234	80	-0.43	-0.22
Russia	-6.14	-7.80	-4.82	55.89	0.00	7720	0.31	0.67	0.563	0.567	2607	92	0.13	-0.22
Slovakia	0.22	-6.83	5.86	74.97	24.67	7600	0.66	0.79	0.771	0.733	1223	96	0.13	0.25
Slovenia	0.57	-4.08	4.28	82.04	21.95	9200	0.73	0.79	0.729	0.917	1352	80	-0.41	0.15
Tajikistan	-8.61	-12.18	-5.76	39.19	2.78	3010	0.15	0.41	0.313	0.067	6000[e]	73	2.13	1.62
Turkmenistan	-8.32	-4.50	-11.38	41.99	1.76	4230	0.09	0.31	0.188	0.000	6000[e]	70	4.64	1.82
Ukraine	-10.29	-10.63	-10.02	36.76	0.00	5680	0.13	0.52	0.563	0.583	2215	80	0.20	-0.74
Uzbekistan	-1.12	-3.08	0.44	83.36	6.23	2740	0.16	0.54	0.208	0.050	6000[e]	94	2.18	1.83
Average	**-4.31**	**-9.71**	**0.01**	**57.66**	**10.08**	**5432**	**0.401**	**0.640**	**0.535**	**0.566**	**2992**	**83.64**	**0.37**	**0.12**

Sources: EBRD Transition Report (various issues), de Melo et al. (1996, 1997), Freedom House, World Bank World Development Report 1996, Shell Route Planner.
Notes: Output Fall is the lowest level of GDP attained between 1990 and 1998, with 1989=100. Output Recovery is the cumulative increase in GDP (in percent) since reaching the lowest level. GNP per capita in 1989 is in US$ at purchasing power parity as reported by de Melo et al. (1996). Liberalization Index is unweighted mean of the indices constructed by de Melo et al., as extended by Havrylyshyn et al. (1998). The index ranges between zero (no liberalization) and one (complete liberalization). Democracy Index is average of political rights and civil liberties (reported by the Freedom House), respectively, ranging between zero (no democracy) and one (complete democracy). Distance from Brussels is road distances in kilometers. Distances indicated with [e] are estimates rather than actual distances. School enrollment is according to Denizer (1997) and relates to early 1990s. Population growth is from Campos (1999).

Table 2A Economic Liberalization, Initial Conditions and Growth

Period:	**1990-98**	**t-stat**	**1990-98**	**t-stat**	**1990-98**	**t-stat**	**1990-98**	**t-stat**	**1990-93**	**t-stat**	**1990-93**	**t-stat**	**1994-98**	**t-stat**	**1994-98**	**t-stat**
Growth Rate of:	GDPpc		GDPpc		GDPpc		GDP		GDPpc		GDPpc		GDPpc		GDPpc	
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
Constant	-7.438	-0.68	-2.335	-0.21	11.409	1.11	18.264	1.64	1.853	0.14	16.048	1.46	-15.582	-0.88	-4.777	-0.22
Dummy 1994-98	4.160	2.92	-8.479	-1.64	3.937	3.937	3.926	2.85								
Liberalization Index	12.941	4.08	8.752	2.57	-41.252	-4.75	-51.148	-5.44	12.467	2.83	-40.539	-2.98	22.675	3.13	-5.222	-0.14
Liberalization Squared					56.998	5.84	66.337	6.40			58.712	4.09			23.339	0.72
Liberalization 1994-98			20.657	3.12												
Dist. fr. Brussels [ths km]	-0.356	-0.83	-0.145	-0.30	-0.427	-1.16	-0.194	-0.51	0.528	0.91	0.037	0.08	-0.796	-1.47	-0.837	-1.63
Sec. School Enrollment	0.1389	1.57	0.097	1.39	0.175	2.89	0.164	2.79	0.005	0.06	0.088	1.36	0.225	2.73	0.251	2.53
War Dummy	-8.404	-4.02	-9.011	-4.49	-9.346	-5.80	-9.529	-5.73	-9.831	-5.31	-10.037	-6.71				
War Dummy (lagged)	2.865	1.55	4.056	2.44	4.725	2.65	4.981	2.93					4.567	2.92	4.834	2.82
1989 GNP p.c. [log, ths $]	-1.908	-1.47	-1.957	-1.61	-3.275	-3.00	-3.779	-3.11	-1.930	-1.25	-3.183	-2.93	-1.939	-1.00	-2.527	-1.17
Adj.R^2	0.705		0.757		0.802		0.793		0.606		0.735		0.546		0.530	
Joint Sign. Liberalization					0.000		0.000				0.000				0.003	
Number of observations	50		50		50		50		25		25		25		25	
Min/Max effect at:					0.36		0.39				0.35				0.11	

Notes: Estimated by OLS with heteroskedasticity robust t-statistics, for the 25 countries included in Table 1. Dependent variable is the growth rate of GDP per capita (GDPpc), or the growth rate of GDP. Columns (1) through (4) are estimated with observations for 1990-93 and 1994-98 pooled together. The liberalization index is the average annual liberalization index over the respective period, as constructed by de Melo et al. (1996) and extended by Havrylyshyn et al. (1998). Liberalization 1994-98 is an interaction term between the liberalization index and the dummy for 1994-98. The conflict dummy equals one for Croatia, Macedonia, 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 6,000 km. Secondary school enrolment is according to Denizer (1997), in percent. Joint Significance Liberalization is the joint significance level of the liberalization index and its squared value. Minimum/Maximum effects refer to the level where the effect of liberalization reaches its minimum or maximum in the non-linear specification.

Table 2B Economic Liberalization, Initial Conditions and Growth: Liberalization Estimated with Instrumental Variables

Period:	**1990-98**	**t-stat**	**1990-93**	**t-stat**	**1994-98**	**t-stat**	**1990-98**	**t-stat**	**1990-93**	**t-stat**	**1994-98**	**t-stat**
Growth Rate of:	GDPpc		GDPpc		GDPpc		GDPpc		GDPpc		GDPpc	
	(9)		(10)		(11)		(12)		(13)		(14)	
Constant	6.427	0.61	19.632	1.62	-21.395	-1.23	5.339	0.47	17.208	1.30	-25.186	-1.46
Dummy 1994-98	1.768	1.18					2.026	1.48				
Liberalization Index	-29.365	-2.87	-52.121	-2.63	28.103	3.79	-28.193	-2.94	-36.682	-2.07	34.092	4.95
Liberalization Squared	48.758	4.45	74.249	3.66			48.288	5.06	57.587	3.22		
Dist. fr. Brussels [ths km]	-0.021	-0.05	-0.112	-0.20	-0.263	-0.45	-0.058	-0.15	-0.066	-0.11	-0.074	-0.15
Sec. School Enrollment	0.173	3.08	0.083	1.49	0.256	3.62	0.230	3.49	0.071	1.22	0.390	5.63
War Dummy	-9.518	-5.58	-10.218	-6.60			-9.180	-5.26	-9.963	-6.11		
War Dummy (lagged)	4.978	2.65			5.079	3.03	4.207	2.12			4.769	2.53
1989 GNP p.c. [log, ths $]	-3.082	-2.75	-3.222	-2.81	-2.196	-1.13	-3.562	-2.80	-3.192	-2.42	-3.588	-1.73
Adj.R^2	0.800		0.723		0.576		0.782		0.692		0.549	
Joint Sign. Liberalization	0.000		0.000				0.000		0.000			
Number of observations	50		25		25		50		25		25	
Min/Max effect at:	0.30		0.35				0.29		0.32			

Notes: Estimated by OLS with heteroskedasticity robust t-statistics, for the 25 countries included in Table 1. See also Notes to Table 2A. Joint Significance Liberalization is the joint significance level of the liberalization index and its squared value. Minimum/Maximum effects refer to the level where the effect of liberalization reaches its minimum or maximum in the non-linear specification.

The liberalization index has been instrumented by its lagged value (columns 9-11) or its initial value as of 1989 (columns 12-14), initial GNP, years under communism, conflict dummy, and quadratic time trend (using annual observations for 1990-98). The first-stage regressions (with heteroskedasticity-robust t-statistics in parentheses) are:

Columns 9-11:

$LI_t = 0.343\ (5.72) + 0.607\ (7.85)\ LI_{t-1} + 0.010\ (2.53)\ GNP - 0.004\ (4.43)\ YrsCom - 0.014\ (0.93)\ War + 0.053\ (3.63)\ t - 0.006\ (4.32)\ t^2$ [adjusted $R^2 = 0.875$]

Columns 12-14:

$LI_t = 0.514\ (9.29) + 0.151\ (3.15)\ LI_{1989} + 0.024\ (6.54)\ GNP - 0.008\ (11.08)\ YrsCom - 0.012\ (0.74)\ War + 0.168\ (19.05)\ t - 0.015\ (13.82)\ t^2$ [adjusted $R^2 = 0.813$]

where *LI* stands for the annual liberalization index, LI_{1989} is the value of this index attained in 1989, *GNP* is the initial GNP per capita, *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, Figure 1).

Table 3A Democracy and Growth: Marginal Effect

Period:	**1990-98**	**t-stat**	**1990-98**	**t-stat**	**1990-98**	**t-stat**	**1990-93**	**t-stat**	**1994-98**	**t-stat**	**1994-98**	**t-stat**
Growth Rate of:	GDPpc		GDPpc		GDP		GDPpc		GDPpc		GDPpc	
	(1)		(2)		(3)		(4)		(5)		(6)	
Constant	11.284	1.10	8.308	0.75	15.876	1.32	12.312	1.25	5.044	0.22	-14.138	-0.82
Dummy 1994-98	4.024	3.05	-1.828	-0.55	-0.965	-0.27						
Liberalization Index	-40.846	-4.73	-26.635	-2.36	-39.631	-3.32	-35.507	-2.78	-35.069	-0.71	16.307	1.61
Liberalization Squared	56.046	5.83	44.886	4.04	57.663	4.97	57.623	4.40	39.248	1.07		
Democracy	0.854	0.22	1.423	0.38	-0.029	-0.01	-8.016	-1.56	8.269	1.13	4.861	0.90
Democracy 1990-93			-8.709	-2.05	-7.203	-1.58						
Dist. fr. Brussels [ths km]	-0.385	-0.82	-0.357	-0.75	-0.196	-0.41	-0.120	-0.25	-0.475	-0.72	-0.567	-0.87
Sec. School Enrollment	0.176	2.95	0.162	2.92	0.152	2.75	0.089	1.22	0.339	2.54	0.267	2.91
War Dummy	-9.274	-5.40	-10.109	-5.77	-10.263	-5.93	-10.732	-6.61				
War Dummy (lagged)	4.791	2.54	4.910	2.70	5.042	2.82			5.602	2.77	4.912	2.90
1989 GNP p.c. [log, ths $]	-3.340	-2.96	-2.724	-2.16	-3.231	-2.30	-2.388	-2.20	-3.803	-1.54	-2.453	-1.23
Adj.R^2	0.798		0.802		0.789		0.739		0.525		0.530	
Joint Sign. Liberalization	0.000		0.000		0.000		0.000		0.167			
Number of observations	50		50		50		25		25		25	
Min/Max effect at:	0.36		0.30		0.34		0.31		0.447			

Notes: Estimated by OLS with heteroskedasticity robust t-statistics, for the 25 countries included in Table 1. See also Notes to Table 2. Democracy Index is the based on the average of political rights and civil liberties according to the Freedom House and normalized so that it ranges between zero and unity (see Notes to Table 1). The indices used in the regressions are the averages for the respective periods. Joint Significance Liberalization is the joint significance level of the liberalization index and its squared value. Minimum/Maximum effect refers to the level where the effect of liberalization reaches its minimum or maximum in the non-linear specification.

Table 3B Democracy and Growth: Overall Effect

Period:	**1990-98**	**t-stat**	**1990-98**	**t-stat**	**1990-98**	**t-stat**	**1990-93**	**t-stat**	**1994-98**	**t-stat**	**1994-98**	**t-stat**
Growth Rate of:	GDPpc		GDPpc		GDP		GDPpc		GDPpc		GDPpc	
	(7)		(8)		(9)		(10)		(11)		(12)	
Constant	-3.897	-0.38	-0.869	-0.08	2.925	0.22	-6.848	-0.64	-8.165	-0.46	-7.725	-0.45
Dummy 1994-98	4.820	3.31	-9.049	-2.44	-10.004	-2.36						
Residual Liberalization	9.961	2.47	20.796	4.22	20.651	3.94	17.213	3.85	14.870	1.15	16.307	1.61
Res. Liberalization Sqrd.	16.967	1.08	27.522	1.95	29.028	1.92	35.741	1.76	56.207	0.32		
Democracy	13.815	3.23	19.099	3.48	18.811	3.36	9.130	1.60	12.825	2.46	11.947	2.87
Democracy 1990-93			-20.015	-4.71	-21.412	-4.23						
Dist. fr. Brussels [ths km]	0.000	0.00	-0.112	-0.20	0.121	0.21	0.703	1.09	-0.498	-0.69	-0.567	-0.87
Sec. School Enrollment	0.142	1.65	0.111	1.89	0.092	1.37	0.012	0.18	0.276	2.86	0.267	2.91
War Dummy	-8.022	-3.60	-10.631	-5.22	-10.853	-4.95	-11.331	-5.35				
War Dummy (lagged)	3.714	2.05	4.496	2.64	4.492	2.73			5.083	2.88	4.912	2.90
1989 GNP p.c. [log, ths $]	-2.679	-2.02	-1.580	-1.17	-1.774	-1.10	-1.056	-0.88	-2.610	-1.26	-2.453	-1.23
Adj.R^2	0.712		0.771		0.730		0.617		0.505		0.530	
Joint Sign. Liberalization	0.048		0.000		0.000		0.001		0.131			
Number of observations	50		50		50				25		25	
Min/Max effect at:	-0.29		-0.38		-0.36		-0.24		-0.132			

Notes: Estimated by OLS with heteroskedasticity robust t-statistics, for the 25 countries included in Table 1. See also Notes to Table 2. Democracy Index is the based on the average of political rights and civil liberties according to the Freedom House and normalized so that it ranges between zero and unity (see Notes to Table 1). The indices used in the regressions are the averages for the respective periods. Joint Significance Liberalization is the joint significance level of the liberalization index and its squared value. Minimum/Maximum effect refers to the level where the effect of liberalization reaches its minimum or maximum in the non-linear specification.

Table 4 Determinants of Democracy 1994-98

Dependent Variable	**1994-98**	**t-stats**	**1994-98**	**t-stats**	**1994-98**	**t-stats**	**1994-98**	**t-stats**	**1994-98**	**t-stats**
Democracy Index	(1)		(2)		(3)		(4)		(5)	
Constant	-0.107	-0.26	0.307	0.60	-0.324	-0.87	0.230	0.51	0.014	0.03
Liberalization 1990-93	0.623	3.45			0.919	6.10			0.150	0.79
Democracy 1990-93	0.512	2.39	1.034	4.50					0.815	2.68
Growth 1990-93	-0.027	-6.87	-0.019	-5.03	-0.030	-6.31	-0.015	-2.43		
Residual Growth 1990-93									-0.021	-2.38
Distance from Brussels [ths km]	-0.024	-1.35	-0.047	-2.11	-0.031	-1.68	-0.118	-6.81	-0.043	-1.81
War Dummy	-0.342	-5.42	-0.200	-5.22	-0.419	-5.56	-0.235	-2.97	-0.046	-0.91
1989 GNP p.c. [log, ths $]	0.004	0.10	-0.034	-0.57	0.049	1.19	0.071	1.29	0.023	0.51
Adj.R^2	0.906		0.856		0.885		0.672		0.814	

Notes: Estimated by OLS with heteroskedasticity robust t-statistics, for the 25 countries included in Table 1. See also Notes to Table 2. Democracy Index is based on the average of political rights and civil liberties according to the Freedom House and normalized so that it ranges between zero and unity (see Notes to Table 1). The indices used in the regressions are the averages for the respective periods. The liberalization index is from de Melo et al. (1996), as extended by Havrylyshyn et al. (1998). The democracy is based on indices of political freedoms and civil liberties reported by the Freedom House. *Residual Growth* is the component of the overall growth rate that cannot be attributed to the influences of economic liberalization, democracy, wars or initial conditions. It is determined as the residual from the following regression (heteroskedasticity-robust t-statistics in parenthesis):

$Grpc_{90\text{-}93}$ = 13.650 (1.43) - 31.659 (2.42) *$LI_{90\text{-}93}$ + 53.164 (3.90) *$LI_{90\text{-}93}^2$ - 7.953 (1.51) *$DI_{90\text{-}93}$ - 0.036 (0.07) *Dist - 11.019 (6.61) *War - 1.773 (1.66) *GNP [Adj.R^2 0.741]

where *Grpc* stands for the growth rate of per-capita GDP, *LI* is the liberalization index, *DI* is the democracy index, *Dist* measures the distance from Brussels, *War* is the dummy for military conflicts, and *GNP* is the log of 1989 GNP.

Table 5 Economic Performance and Election Results

	Pro-reform Parties	t-stats	Left wing + Nationalists	t-stats	Incumbents	t-stats
Constant	8.736	0.84	39.338	3.42	1.720	0.09
Unemployment Rate	-1.966	-5.86	1.943	4.18	-1.103	-3.21
Growth Rate	0.381	1.40	-0.265	-0.90	-0.349	-1.01
Output [1989=100]	0.492	4.43	-0.086	-0.79	0.488	2.46
Avg. Inflation	0.040	8.08	-0.030	-5.01	0.004	0.46
Adj. R^2	0.785		0.646		0.365	
	Pro-reform Parties	**t-stats**	**Left wing + Nationalists**	**t-stats**	**Incumbents**	**t-stats**
Constant	12.444	2.03	23.098	2.52	12.051	0.67
Unemployment Rate	-1.979	-5.64	1.939	4.25	-1.095	-3.03
Growth Rate	0.364	1.59	-0.445	-1.92	-0.212	-0.57
Output [1989=100]	0.379	4.43	-0.200	-2.72	0.612	2.48
Avg. Inflation	0.037	10.46	-0.030	-9.02	0.005	0.73
Liberalization Index	-34.788	-2.97	12.766	0.84	3.787	0.19
Democracy Index	40.113	3.27	19.880	1.31	-29.328	-1.48
Adj. R^2	0.815		0.687		0.316	

Notes: Estimated by OLS with heteroskedasticity robust t-statistics. Number of observations is 17. The parties are classified along two dimensions: pro-reform vs. left-wing and nationalists, and incumbent vs. other (not reported). Average vote shares are 35.6% for the pro-reform parties, 48.6% for the left wing and nationalists, and 32.8% for the incumbent. The dependent variable is the share of votes for parties in the respective category in elections in the Czech Republic (1992, 1996, 1998), Slovakia (1992, 1994, 1998), Hungary (1994, 1998), Poland (1993, 1997), Romania (1992, 1996), Bulgaria (1991, 1994, 1997), and Slovenia (1992, 1996). All explanatory variables pertain to the election year. See the Notes following Table 1 for definitions of individual explanatory variables.

Source of election data: Berglund et al. (1998).