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The Effects of Small versus Large-Scale Privatization on GDP Growth in EU Transition Economies

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Abstract

There have been many attempts to evaluate the impact of privatization on the economic performance of transition countries in Eastern Europe. While most studies have drawn general region-wide conclusions about its impact, the present study demonstrates that privatization has had contradictory impacts, depending on which country is concerned, and on whether small or large-scale privatization is considered. The analysis raises the issue of the dynamic effects of privatization and provides support for recent investigations claiming that certain factors, such as the quality of institutions and the amount of FDI stock in a country could override the effects of privatization on economic growth.

Keywords : privatization, GDP growth, transition economies, EU

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1. Introduction

After the collapse of communism in Eastern Europe, the economies of the so-called transition countries have been undergoing an unprecedented transformation, shifting from centrally planned to market-directed ones. This transformation has taken different paths in different transition countries, and as becomes obvious from a simple glimpse at economic statistics, they have achieved different levels of success, the sterling examples being the countries in Central Europe, with Central Asian countries scattered at the opposite end of the ladder. Naturally, the question of why some countries have been vastly more successful than others has been the object of much academic attention, and in this stream of research one of the most widely investigated issues has been the effect of economic reforms, such as price and trade liberalization and privatization, on economic growth as measured by the GDP. Of these, privatization that took place in EU member transition countries will be the main focus of this study. In particular, the effects of small-scale privatization and of large-scale privatization will be examined and compared.

2. Literature review

There exists a great amount of literature on the effects of free market reforms and liberalization on economic growth in transition countries. Empirical literature, in specific, dates back to around 1996 when economists thought that they had enough data to test hypotheses formally. Notable macroeconomic studies in the field include Berg et al. (1999), De Melo et al. (1996, 2001), Falcetti et al. (2002), Fischer et al. (1996a, 1996b), Havrylyshyn et al. (1999) and Hernández-Catá (1997). Additionally, Havrylyshyn (2001) provides a useful survey of the main literature up to the year 2000, and Djankov and Murrell (2002) have summarized microeconomic literature on the topic.

As far as EU member countries are concerned, privatization seems to have been most extensively studied in Poland, the Czech Republic, Slovakia, Hungary and East Germany. Studies related to the Baltic countries are somewhat less available, and ones focused on Bulgaria and Romania seem to be the most scarce. With a particular relevance to the present study are Gouret (2007), Falcetti et al. (2006) and Zinnes et al. (2001) discussed hereafter.

Starting chronologically, it can be said that most of the earlier studies argued that reforms are beneficial to growth. For example, Sunita, et al. (2002) and Anderson et al. (1996) justified this view by focusing on the productivity gains that result from privatization. In addition, Brada (1996), after evaluating the overall impact of the chief methods of privatization employed across Eastern Europe and the former Soviet Union in the first half of the 1990s, contended that privatization can stimulate small businesses and thereby lead to an increase in productive efficiency and act as a lure for foreign direct investment and speed the painful process of

restructuring industry. Further empirical studies also pointed to the fact that privatized enterprises outperform state enterprises. (Havrylyshyn and McGettigan, 1999) and several papers, including Havrylyshyn and van Rooden (2003), concluded that the early-stage policies of liberalization and small-scale privatization have been the main determinants of growth.

By the year 2000 a consensus had emerged on three points, according to Falcetti et al. (2006): "First, macroeconomic stabilization is necessary for recovery and growth. Second, although initial conditions do matter, their influence on growth is declining steadily over time. Third, the impact of structural reforms is strong and robust."

More recent investigations, however, have found ambiguous effects of reforms – Zinnes et al. (2001), who investigated the relationship between privatization and output behavior concluded that privatization does not have a significant impact, unless the budget constraint is hard enough and the legal and institutional framework of a country permits owners to control their firms. In the same vein, using EBRD transition indicators for large-scale privatization, governance and enterprises restructuring to assess reform, Falectti et al. (2002) found that although contemporaneous reforms affect growth negatively and lagged reform does so positively, the two impacts eventually cancel out. Furthermore, Falcetti et al. (2006) found strong, contemporaneous feedback effects from growth to reforms, concluding that reforms are followed by growth rather than the other way round, and that higher growth in turn encourages further reforms suggesting the possibility of a virtuous circle of reforms and growth proceeding in tandem.

Furthermore, Godoy and Stiglitz (2006), who examined the role of initial conditions, legal institutions and privatization speed on GDP growth in 26 transition countries, showed that the speed of privatization (not to be confused with its level, which is the topic of this paper), is negatively associated with growth, and they underline the importance of legal institutions in the transition process.

Finally, Gouret (2007), just like Bennett et al. (2004), investigated the impact of different privatization methods in a panel data study involving more than 25 transition economies over the period of the 1990s and concluded that privatization has the most beneficial effect on a country's output if it is done through gradual sales of state property or using the method of management and employee buyout (MEBO), which was the case in most of the non-USSR transition countries, rather than through massive giveaways, as happened in most of the former USSR.

The present study differs from previous ones on three main points, including its more focused sample, its estimation methods using country clusters and dynamic models, and its focus, which is on privatization only, and not on indicators of transition progress in general.

3. Sample, data and estimation strategy

3.1 Sample

The majority of the empirical studies so far seem to have focused on all transition economies. However, considering that these countries are in fact vastly heterogeneous in terms of culture, economic structure, human development, resource endowment, politics and history among other aspects, the present study only focuses on the ones that have been able to transform their economies relatively successfully and which, as a partial result of this, have been able to join the EU, namely Bulgaria, the Czech Republic, Estonia, Lithuania, Latvia, Hungary, Poland, Romania and Slovakia. Furthermore, taking into account the split that existed between Soviet-style and independent communist regimes, countries like Slovenia and Croatia, which are part of or acceding to the EU, have not been included due to the significant differences between their relatively liberal economic background and that of the countries in the study, which all had Soviet-style economies.

3.2 Variables and data sources

Since this paper is focused on investigating the effects of privatization on GDP growth, two indices of privatization were used as independent variables – the small-scale privatization index (hereafter SSP) and the large-scale privatization index (hereafter LSP) provided by the European Bank for Reconstruction and Development (EBRD) to assess privatization in transition countries (1 is equivalent to the lowest level of privatization progress, 4.33 being the highest). Importantly, the fact that EBRD does not provide data on the Czech Republic, which is also the most advanced among the countries of interest, resulted in its exclusion from the analysis.

Other macroeconomic indicators used as control independent variables, were selected based on other studies. These include trade, proxied by the amount of imports and exports as percentage of GDP, as well as FDI, accounted for by using both the amounts of FDI stock and FDI inflows, all taken from the UNCTAD database. Other macroeconomic variables controlled for were the levels of unemployment taken from the IMF database, and urban population and employment levels, as well as gross enrollment rates in tertiary education rates taken from the World Bank database. Data on the GDP per capita, in purchasing power standards, which is used as a dependent variable throughout the regressions, was taken from the IMF database.

The panel data covers the period between the fall of the communist regimes in 1989 and the year 2008, which marked the beginning of the world economic crisis, and by which year all of the countries in the sample had already joined the EU.

3.3 Estimation model

In contrast to other studies which analyze the overall effect of privatization, the aim of this study was to

compare only the effects of SSP versus LSP, so the econometric model used for testing their effects was formulated as[1]:

$$GDPpc_{it} = \alpha + \beta_1 SSP_{it} + \beta_2 X_{it} + u_{it}, \, i = 1,\dots, 8, \, t = 1,\dots, 20.$$

and

$$GDPpc_{it} = \alpha + \beta_1 LSP_{it} + \beta_2 X_{it} + u_{it}, \, i = 1,\dots, 8, \, t = 1,\dots, 20.$$

where '$GDPpc_{it}$' is GDP per capita in purchasing power parity (PPP) terms, 'α' is a constant term, 'SSP' and 'LSP' are respectively the small and large-scale privatization indices provided by the EBRD, 'X' is a vector of other variables influencing growth (listed in section 3.2) and 'u' is the error term.

In this analysis, in contrast to other studies, the effects of SSP and the LSP were analyzed separately, and only the per capita PPP GDP was used as a dependent variable, instead of output like in Zinnes et al. (2001) and Gouret (2007) or an index of macroeconomic stability, like in Gouret (2007). SSP and LSP were analyzed separately because they are highly correlated on the one hand, and because it is interesting to compare their effects, on the other.

4. Data analysis

4.1 Pooled OLS and fixed-effects regressions

First, a correlation test was run to identify the presence of multicollinearity within the independent variables. Since no multicollinearity was identified, as a first step of the analysis of the panel data a pooled robust-standard errors OLS regression was performed to estimate the model. The results show a positive but non-significant effect of small scale privatization. Using LSP instead of SSP, as well as using the average of LSP and SSP, which is to say privatization as a whole, turns out to have no significant effects on GDP either. This is so far in line with more recent studies. Using the logarithms of the variables, however, shows positive effect for LSP alone (coefficient = .589, p =.002, table not shown here), while SSP has no significant effects.

To control for country-specific effects, the same model was calculated with a dummy variable for the Baltic states (Estonia, Lithuania and Latvia which share particular characteristics such as being significantly smaller than the other states and having been part of the USSR), and with a dummy variable for identifiably slower reformers (the Balkan states – Bulgaria and Romania). The dummy variable for the slow reformers, coded as 'Early reformer', splits the countries according to whether they had achieved a value of 3 on the index of SSP

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[1] For example, Gouret (2007) estimated the effects of privatization on macroeconomic performance in 25 transition countries in the period 1990 to 2001 by estimated a model which involved constructing an index of privatization progress combining EBRD's indexes for SSP, LSP and the share of the private sector of GDP.

by the year 1994. This was done in accordance with Bjørnskov (2011) who argued that the period spanning 1989-1994 was "a window of opportunity" and was therefore crucial for the subsequent development of these countries. Using this specification, the effect of SSL is reversed, becoming negative and highly significant:

Table 1. Pooled OLS regression showing the cross-country effects of SSP on GDP.

Linear regression				Number of obs = 135 F (10, 124) = 137.13 Prob > F = 0.0000 R-squared = 0.8826 Root MSE = 1540.3		
GDP per cap	Coef.	Robust Std. Err.	t	P > |t|	[95% Conf. Interval]	
SSP index	-897.47	165.22	-5.43	0.00	-1224.49	-570.45
Imp Exp %GDP	18.53	5.39	3.44	0.00	7.86	29.19
FDI inflows	31.94	45.02	0.71	0.48	-57.17	121.05
FDI stock	71.88	19.51	3.68	0.00	33.27	110.48
Tertiary enroll	154.16	16.06	9.60	0.00	122.37	185.94
Urban pop	-186.83	44.90	-4.16	0.00	-275.70	-97.95
Male empl rate	74.59	68.36	1.09	0.28	-60.72	209.89
Unempl	-163.66	42.62	-3.84	0.00	-248.02	-79.30
Baltic state	-2884.59	750.18	-3.85	0.00	-4369.40	-1399.78
Early reformer	4206.76	307.12	13.70	0.00	3598.88	4814.63
_cons	9596.81	6930.91	1.38	0.17	-4121.40	23315.02

The same test using LSP reveals LSP has no significant effects on GDP, unlike SSP. LSP+SSP, or privatization as a whole, has a similar effect to SSP alone.

Since the effect reversal carries the implication of the presence of a significant heterogeneity in the effects of SSL across countries, as a second step of the analysis a Hausmann test was run to identify whether a random or a fixed-effects model should be used in order to obtain more reliable results. Since the Hausmann test yielded a significant systematic difference in coefficients (p>.01), a fixed effects robust standard errors regression was run next:

Table 2. Fixed effects estimation of the effects of SSP on GDP.

Fixed-effects (within) regression				Number of obs = 135		
Group variable: country				Number ofgroups = 8		
R-sq: within = 0.8813				Obs per group: min = 10		
R-sq: between = 0.1553				Obs per group: avg = 16.9		
R-sq: overall = 0.6511				Obs per group: max = 19		
corr (u_i . Xb) = -0.1431				F (7, 7) = .		
				Prob > F = .		
		(Std. Err. Adjusted for 8 clusters in country)				
GDP per cap	Coef.	Robust Std. Err.	t	P > |t|	[95% Conf. Interval]	
SSP index	-715.37	223.89	-3.20	0.02	-1244.77	-185.94
Imp Exp %GDP	-0.83	6.28	-0.13	0.89	-15.69	14.03
FDI inflows	1.19	57.57	0.02	0.98	-134.93	137.32
FDI stock	78.78	16.49	4.78	0.00	39.78	117.78
Tertiary enroll	168.96	11.23	15.05	0.00	142.41	195.51
Urban pop	-232.77	279.35	-0.83	0.43	-893.32	427.78
Male empl rate	178.87	127.51	1.40	0.20	-122.65	480.39
Unempl	-199.88	67.39	-2.97	0.02	-359.25	-40.52
Baltic state	(omitted)					
_cons	8881.77	13169.25	0.67	0.52	-22258.55	40022.1
signa_u	2308.52					
sigma_e	1356.63					
rho	0.74	(fraction of the variance due to u_i)				

The fixed-effects estimation revealed a negative and this time significant impact of SSL on GDP. In contrast, LSP exhibited no significant effects. A differenced regression using first differences draws the same picture for both SSP and LSP:

Table 3. Differenced regression showing the cross-country effects of SSP on GDP.

Linear regression				Number of obs = 127		
				F (8, 118) = 12.36		
				Prob > F = 0.0000		
				R-squared = 0.3669		
				Root MSE = 520.89		
GDP per cap	Coef.	Robust Std. Err.	t	P > |t|	[95% Conf. Interval]	
D.SSP index	-706.24	139.22	-5.47	0.00	-962.14	-450.35
D.Imp Exp %GDP	-0.80	1.89	-0.42	0.67	-4.56	2.96
D.FDI inflows	8.88	13.76	0.65	0.52	-18.38	36.14
D.FDI stock	1.94	9.01	0.22	0.83	-15.89	19.78
D.Tertiary enroll	4.49	19.94	0.23	0.82	-34.98	43.98
D.Urban pop	-327.69	262.32	-1.25	0.21	-847.15	191.77
D.Male empl rate	83.95	52.39	1.60	0.11	-19.81	187.71
D.Unempl	-110.37	28.99	-3.81	0.00	-167.78	-52.96
_cons	781.42	104.98	7.44	0.00	573.52	989.31

To obtain more robust results, all variables were converted to logarithms and then the tests were performed again. The results were highly consistent with the ones obtained using the level data. The fixed effects model implies that whereas 1% increase in the SSP index leads to a 0.22% decrease in GDP (p = 0.075), LSP has no effect on GDP growth.

The analyses so far reveal an opposite effect of SSP to the one argued in favor of in most of the academic literature on the topic. Since this is quite striking, additional tests were run to check the robustness of the results before drawing any conclusions.

4.2 Accounting for differences among countries

To further investigate the issue of how the effects of SSP and LSP differ among countries, the panel data was split into three groups and a robust error pooled OLS regression using log variables was run separately for every group. The eight countries were divided into *Balkan countries* (Bulgaria and Romania, characterized with a lower GDP per capita than the other 6 countries, joined the EU 3 years later than the others, in 2007, and the only Orthodox countries in the sample), the *Baltic states* (Estonia, Latvia and Lithuania, characterized by having been part of USSR, all having very small populations and low population densities relative to the other sample countries, acceded to the EU in 2004), and the *Visegrad group* (Hungary, Poland and Slovakia, perceived as the most advanced of the CEEC countries being adjacent to Germany and Austria, joined the EU in 2004, historically referred to as "the Visegrad group").[2]

4.2.1　Bulgaria and Romania

The results show that while the SSP had no significant effect on GDP growth in the Balkan countries (p = 0.176), LSP had a very large and positive effect. It is also worth noting that neither FDI inflows nor FDI stock nor trade turned out to have any significant impact. The shedding of labor resulting from bankrupt industries (including privatized ones) is quite significant and negative as is observable from the effect of the variable 'log unemployment'.

Table 4.　Linear regression showing the effects of LSP on GDP using log variables.

Linear regression				Number of obs = 127 F (8, 118) = 12.36 Prob > F = 0.0000 R-squared = 0.3669 Root MSE = 520.89		
GDP per cap	Coef.	Robust Std. Err.	t	P > |t|	[95% Conf. Interval]	
logLSP index	0.34	0.10	3.31	0.00	0.13	0.56
logImp Exp %GDP	0.15	0.13	1.18	0.25	-0.11	0.40
logFDI inflows	0.00	0.05	0.09	0.93	-0.10	0.11
logFDI stock	-0.02	0.05	-0.46	0.65	-0.13	0.08
logTertiary enroll	0.45	0.09	4.83	0.00	0.26	0.65
logUrban pop	0.07	0.27	0.28	0.78	-0.47	0.62
logMale empl rate	0.82	0.56	1.46	0.15	-0.33	1.97
logUnempl	-0.38	0.05	-7.55	0.00	-0.49	-0.28
_cons	3.46	3.05	1.13	0.27	-2.78	9.70

2) Some authors, notably Berglof and Bolton (2002), refer to the more general phenomenon of differences in transition progress as the "great divide": Berglof and Bolton define the group of successful countries as the ones who acceded in 2004 and the rest, including Bulgaria, Romania, Russia and Ukraine, he concludes, are on the "wrong" side of the great divide.

4.2.2 The Visegrad group

In contrast to the Balkan countries, in Hungary, Poland and Slovakia both SSP ($p < 0.00$, coefficient $= -0.28$) and LSP ($p = 0.08$, coefficient $= -0.27$) had a negative effect, which puts the effects of these factors on the opposite end of the spectrum. Furthermore, FDI stock appears to have been crucial for GDP growth in the Visegrad group ($p < 0.00$, coefficient > 0.24 in both specifications), again in stark contrast to the Balkan countries. Overall, the only things that the two groups seem to have in common are the facts that tertiary education played a positive ($p < 0.00$, coefficient > 0.27), and unemployment – a negative role ($p < 0.00$, coefficient > -0.19) for GDP growth.

4.2.3 The Baltic States

Finally, in the Baltic States neither SSP ($p = 0.480$) nor LSP ($p = 0.172$) had any significant effect on GDP growth, in contrast to the Visegrad and the Balkan groups. However, just like the Visegrad group, and unlike the Balkan group, FDI stock seems to have been an important factor ($p < 0.02$, coefficient > 0.28). And just like in the other two groups, education ($p < 0.01$, coefficient > 0.41) and especially labor participation rates ($p < 0.01$, coefficient > 1.83) turn out to have influenced growth significantly in the expected positive direction. Interestingly, the level of urbanization ($p < 0.01$, coefficient > -7.28) is negatively and strongly related to GDP growth in the Baltics, possibly reflecting a declining agricultural production, as a result of uncompetitive production and migration to cities in search of better opportunities.

4.2.4 Summary of the effects of country-group specific pooled OLS regressions

Table 5. Summary of the effects of country-group specific pooled OLS regressions.

	Balkan	Vishegrad	Baltics
SSP	No effect	Negative	No effect
LSP	Positive	Negative	No effect

*(significance level: $p < 0.10$)

At this point, two conclusions are in line. First, privatization seems to have had more negative than positive effects on GDP growth when controlling for other important growth factors, and second, that the effects of privatization are country-specific. The latter conclusion might serve as a substantiation of the argument against pooling all transition countries together, as has been done in other empirical studies.

4.3 Dynamic panel data estimations

As further tests of robustness, and to account for the potential endogeneity of the independent variables, as well as for heteroskedasticity and autocorrelation, a robust dynamic panel data estimation, in which lagged

GDP is controlled for, was performed.[3] The dynamic equations take the following form:

$$GDPpc_{i,t} = \alpha GDPpc_{i,t-1} + \beta_1 SSP_{i,t} + \beta_2 X_{i,t} + \mu_{i,t} + \varepsilon_{i,t}, \ i = 1,\ldots, 8, \ t = 1,\ldots, 20.$$

and

$$GDPpc_{i,t} = \alpha GDPpc_{i,t-1} + \beta_1 LSP_{i,t} + \beta_2 X_{i,t} + \mu_{i,t} + \varepsilon_{i,t}, \ i = 1,\ldots, 8, \ t = 1,\ldots, 20.$$

where $GDPpc_{i,t}$ is the level of GDP (in per capita terms) of country i in year t, $GDPpc_{i,t-1}$ is its lagged value, $X_{i,t}$ is a vector of explanatory variables, $\mu_{i,t}$ is an unobservable country-specific effect, and $\varepsilon_{i,t}$ is the error term.

As is well-known, including a lagged dependent variable in a panel framework is problematic and the simple within-groups estimator is biased due to the correlation between the lagged dependent variable and the error term (i.e. due to autocorrelation). Therefore, the results from the autocorrelation test developed by Arellano and Bond (1991) were also taken into account. However, since none of the outputs displayed significant evidence of serial correlation in the first-differenced errors, the tests were considered statistically valid. The same tests were run using a non-robust specification, with the Sargan test of overidentifying restrictions to control for serial correlation, and the results turned out to be highly consistent with the robust ones. The ones reported hereafter are the results obtained from the robust standard error specification.

4.3.1 Dynamic model: Baltics

The dynamic robust standard errors one-step model for the Baltic countries displayed no significant effects for SSP on GDP growth. On the contrary, LSP displayed positive contemporaneous effects ($p = 0.00$, coefficient = 828.46) and negative effects for the first lag ($p = 0.00$, coefficient = -315.71). The second lag showed no significant effects ($p = 0.57$).

Table 6. The effect of LSP on GDP in Baltic countries: dynamic panel-data estimation.

Arellano-Bond dynamic panel-data estimation				Number of obs = 36		
Group variable: country				Number of groups = 3		
Time variable: year				Obs per group: min = 9		
				Obs per group: avg = 12		
				Obs per group: max = 14		
Number of instruments = 37				Wald chi2(2) = 3.49		
One-step results				Prob > chi2 = 0.17		
			(Std. Err. Adjusted for clustering on country)			
GDP per cap	Coef.	Robust Std. Err.	z	P > |z|	[95% Conf. Interval]	
GDP per cap						
L1.	1.07	0.19	5.62	0.00	0.69	1.45
L2.	-0.32	0.25	-1.27	0.20	-0.80	0.17
LSP						
.	828.46	15.53	53.36	0.00	798.03	858.89
L1.	-315.71	89.81	-3.52	0.00	-491.74	-139.68
L2.	-197.45	346.73	-0.57	0.57	-877.03	482.14

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3) The corresponding command in Stata is 'xtabond'.

4.3.2 Dynamic model: Balkans

When applied to the Balkan states, the model showed negative contemporaneous effect of SSP (p = 0.00, coefficient = -52.69), positive effect for the first lag (p = 0.02, coefficient = 115.03) and a negative effect for the second lag (p = 0.00, coefficient = -177.02), none of which coincide with the results obtained for the Baltic states. In any case, the effects of SSP on Balkan economies did not turn out to be very large. As for LSP, its contemporaneous effect proved negative (p = 0.00, coefficient = -140.68), whereas the first and second lags had no significant effects (p = 0.99 and 0.29, respectively).

Table 7. The effect of SSP on GDP in Balkan countries: dynamic panel-data estimation.

Arellano-Bond dynamic panel-data estimation				Number of obs = 34		
Group variable: country				Number of groups = 2		
Time variable: year				Obs per group: min = 17		
				Obs per group: avg = 17		
				Obs per group: max = 17		
Number of instruments = 35				Wald chi2(2) = 5.34		
One-step results				Prob > chi2 = 0.02		
			(Std. Err. Adjusted for clustering on country)			
GDP per cap	Coef.	Robust Std. Err.	z	P > |z|	[95% Conf. Interval]	
GDP per cap						
L1.	1.20	0.04	30.85	0.00	1.13	1.28
L2.	-0.31	0.13	-2.30	0.02	-0.57	-0.05
SSP						
.	-52.69	6.29	-8.38	0.00	-65.01	-40.37
L1.	115.03	49.78	2.31	0.02	17.48	212.59
L2.	-177.02	38.19	-4.63	0.00	-251.87	-102.16

4.3.3 Dynamic model: Visegrad

The results for the Visegrad states showed large positive contemporaneous effects of SSP (p = 0.00, coefficient = 610.26), and negative effects for both the first lag (p = 0.00, coefficient = -411.23) and the second lag (p = 0.00, coefficient = -256.25). LSP, on the other hand, only showed effects for the first lag, and these effects were negative (p = 0.00, coefficient = -294.24).

Table 8. The effect of SSP on GDP in Visegrad countries: dynamic panel-data estimation.

Arellano-Bond dynamic panel-data estimation						
Group variable: country			Number of obs = 47			
Time variable: year			Number of groups = 3			
			Obs per group: min = 13			
			Obs per group: avg = 15.67			
			Obs per group: max = 17			
Number of instruments = 48			Wald chi2(2) = 20.05			
One-step results			Prob > chi2 = 0.00			
			(Std. Err. Adjusted for clustering on country)			
GDP per cap	Coef.	Robust Std. Err.	z	P > |z|	[95% Conf. Interval]	
GDP per cap						
L1.	1.33	0.19	6.93	0.00	0.95	1.71
L2.	-0.44	0.22	-1.96	0.05	-0.88	0.00
SSP						
.	610.26	72.89	8.37	0.00	467.39	753.12
L1.	-411.23	106.39	-3.87	0.00	-619.74	-202.71
L2.	256.25	74.16	-3.46	0.00	-401.61	-110.89

Table 9. Summary of the effects of different variables in the dynamic models.

	Batlics		Balkans		Visegrad	
	Contemp.	Lagged	Contemp.	Lagged	Contemp.	Lagged
SSP	No effect	No effect	Negative	Ambiguous	Positive	Negative
LSP	Positive	Negative	Negative	No effect	No effect	Negative

5. Discussion

5.1 Discussion of results obtained from dynamic models

Relative to the other variables in the model, privatization seems to have less clear and consistent effects. From the tests so far, it is visible that privatization as a whole has had a rather negative effect on GDP growth in the Visegrad countries. Small-scale privatization alone seems to bring about a momentary positive effect, which, however, becomes negative in a longer run. In the Baltic countries the situation is almost identical, though it is large rather than small-scale privatization that displays a momentarily positive effect. This might be due to the rather small size of these economies, where the privatization of a large-scale enterprise might have had a more direct and immediate effect on GDP than in the rest of the countries in the sample. The results obtained for the Visegrad group and the Baltics could also be attributed to a simultaneity issue discussed by Falcetti et al. (2006). In this train of thought, assuming that it is economic growth that drives future privatization rather than the other way round, the fact that if each year is considered in isolation privatization and GDP growth are in fact positively correlated, can be accounted for easily.

Another consideration that could help explain the negative relationship is the fact that at the time when most

of the privatization took place in the fast reformer countries (the early 1990s), most of them actually experienced negative GDP growth rates (except Poland), and later when GDP started to grow, the privatization process had largely been completed and therefore privatization indices remained unchanged. This suggests a transition from negative to no effect to a potentially positive effect, which seems to be supported by the data analysis. Indeed, comparing the effects of privatization with one versus two lags reveals that, at least in the Visegrad group, a quadratic effect of privatization seems to be an adequate explanation – it appears that the most negative effect is for the first and not the second lag of the SSP and LSP variables, meaning that there might be a period of structural adjustment lasting about a year, bringing about short-term negative effects that wear off subsequently, potentially turning into positive ones.

In fact, graphing the change in total privatization versus the change in GDP per capita shows a quadratic trend which is very slight in fast reformers and well expressed in slower reformers.[4] The observed clear-cut quadratic relationship between privatization progress and GDP growth in the Balkan countries (especially in Bulgaria) could be attributed to the slower pace of the reforms[5], and the ambiguous effect of privatization obtained from the regressions might be then explained both by the quadratic trend itself and by the presence of an intervening variable, such as the quality of institutions.

5.2 The qualitative dimension of privatization

Brada (1996) stresses that while the extent of privatization is crucial for transition success, the abilities of new owners are equally important, because in case privatization fails to provide effective corporate governance, economies would not be moving toward capitalist systems in the conventional sense, but rather toward some form of non-state socialism or corporatism. Additionally, Popov (2001) argues that strong institutions are more important than the speed of reforms. These arguments basically take into consideration the qualitative, rather than the quantitative dimension of privatization, which is very hard to measure, but which might well be the reason for the existing discrepancy between the fast and the slow reformers, reflected in the latters' lower GDP per capita nowadays and also in the fact that they joined the EU 3 years later than the fast reformers.

Consequently, if the quality of reforms is more important than speed, it makes sense to consider how privatization differed in more versus less successful reformers. Gouret (2007) classified privatization methods into three main categories and in his study encompassing 25 transition countries he found that of all types of privatization, the one effected by gradual sales had in fact the most positive impact on economic growth. The second best type of privatization proved to be MEBO (management and employee buyout) and the one with

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4) Not included here for space considerations.
5) To give a better idea, as far as SSP is concerned, the Visegrad group and Baltics had achieved a score of 3.7 by 1994, whereas the Balkan countries achieved that score significantly later – Bulgaria in 2000 and Romania in 1999. (EBRD)

the least positive impact on GDP was found to be massive giveaways. Additionally, Gouret found that the difference between the former two methods is muted when cumulative FDI per capita is accounted for. Finally, he concluded that methods of privatization leading to a permanent change in the ownership structure of the economy might have different effects on the *output* level, but not on the annual *growth* rate.

The findings in the present study indeed confirm the lack of relation between methods of privatization and GDP growth, but they are inconsistent with Gouret's hierarchy of privatization methods, as some of the fast reformers in fact use massive giveaways (Lithuania and Latvia), while the slow reformers use MEBO (Romania) and gradual sales (Bulgaria). This takes us back either to the simultaneity issue, or to the issue of an intervening variable, such as the quality of institutions. In this connection, Gouret's research implies that the intervening variable might not be institutions, but rather FDI, which seems to be confirmed by the present study. Considering that FDI and the amount of reforms are positively correlated[6], and that FDI has barely positive effects in the Balkan countries (in contrast to the other two groups), it might be posited that the investors interested in investing in the region chose the early reformers, which benefitted from it, in contrast to slow reformers.

5.3 Potential problems with the estimations

Finally, it should be mentioned that data on GDP can lack precision in transition economies due to the substantial size of the informal sector. Hernández-Catá (1997), Johnson et al. (1997) and Kaufmann and Kaliberda (1996) express suspicions that the official national accounts in transition countries underestimate the output by a substantial margin. In the same vein, Bartholdy (1997) discusses the issue of how when reporting GDP statistics weak statistical agencies overemphasized the existing large industries, many of which reduced output drastically or shut down, and failed to include new businesses in the formal data. Hence, any interpretations of the effects of privatization on GDP growth should be taken with a grain of salt even though statistics tend to be more reliable in the countries that joined the EU as compared to other transition countries.

An additional problem concerning the validity of the dynamic estimations is that after the commonly used augmented Dickey-Fuller test was performed for the dependent variable, both differenced and non-differenced, for every panel of the data (not reported here), it turned out that data on GDP per capita is non-stationary. In fact, this confirms a well-known trend: a good amount of existing research (Rapach, 2002) indicates that real GDP per capita levels are non-stationary in general, and that using panel unit root tests instead of times-series ones does not make a practical difference. Indeed, the STATA module 'madfuller' confirmed that series under consideration are realizations of I(1), or non-stationary, stochastic processes. Therefore, the results obtained from the dynamic tests cannot be considered completely unequivocal.

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6) Not correlated highly enough to suggest problems of multicollinearity in the analyses above though.

5.4 Conclusions

In contrast to earlier studies and generally consistent with the conclusions of more recent studies, which find that privatization has no impact on economic growth if a set of institutional structures is not in place, and that privatization *per se* is not enough to generate macroeconomic performance gains, the main findings and conclusions of this study are the following: first, privatization does have different effects in different countries; second, an increase in privatization has (at least short-term) negative effects on GDP growth; third, large and small scale privatization are not very different in their effects on GDP; fourth, privatization methods might influence industrial output but not GDP as a whole; fifth, the quality of institutions and the amount of FDI might override the effects of privatization, making it a net negative contributor to growth; and sixth, there is a quadratic relationship between privatization progress and GDP growth combined with a lagged effect that turns from negative to neutral or positive in the long run.

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