The Effect of Privatization on Economic Performance in Transitional Economies*

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1. Introduction

Many eastern European countries have reformed their economic systems from a planned economy to a market economy and some of them succeed, and the others fail. It seems that there are two ways to secure the transition. The one is to execute large-scale privatization as quickly as possible. The other is to advance privatization gradually. The gradualists emphasize the importance of institutions such as legal system and financial infrastructure, and they would think that without the institutional infrastructure, privatization might lead to asset stripping rather than wealth creation.

How privatization could affect economic growth depends not only on its scale as well as speed, but also on economic policy adopted by countries and how much a given political regime has a wide range of options. Countries in Central and Eastern Europe and the former Soviet republics don't have much a viable option, judging from recorded inflation levels and output losses. Given a severe breakdown in the central planning apparatus, they might not able to afford to postpone adjustment. In this case, it seems that rapid reform would be preferable to slow reform.

In our paper, we consider which approaches are best to secure the transition. We examine all the factors such as economic policies, initial conditions and quality of gover-

* This paper is based on the presentation at the 12th International Conference of the Japan Economic Policy Association held in Sapporo University 26-27 October 2013. We greatly appreciate the commentator's and participant's comments.
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nance in our estimation. We believe our paper has made some advances over earlier literature untangling the various factors affecting success in transition.

Economic growth theory insists that institutions are important factor for economic development. However since they have inherited from the past historical system as well as custom, they have been thought not to change so smoothly. Therefore, even if the reform of institution is demanded from the viewpoint of economic policy, it seems that it is very difficult to improve it. In fact, the institutional factors change very slowly over time in the developed countries. However judging from the experiences of developing and transition countries, institutions are much more malleable than initially thought. In fact, many countries have changed from the planned to the market economies. Thus we have seen the chance to observe large-scale institutional change.

When we look at the transition economies, economic growth of some countries have progressed further toward market economy and that of other countries have developed very slowly. In particular, when we compare the transition economies with Chinese economy, we would be forced to doubt the importance of the institution. Though the Chinese economic system has been said to change from planned economy to market economy, the fundamental institution in China has remained unchanged in many ways.

However, China's economic growth has showed the unparalleled height in recent years. Thus we are still unable to identify whether institution is really important or not, or which ones played dominant roles among institutions and why.

The transition from a planned economy to market economy in Eastern Europe and the former Soviet Federation occurred in around 1990. About two decades have passed since the event. The object of our paper is to evaluate to what extent institutions could contribute to economic performances in transition economies. In other words, to what extent do the differences in the institution, across countries and over time, help explain variations in economic performance?

In thinking about the change of social system, the resisting groups that are against the reform tend to appear. The old elites and rent seekers captured the political initiative and prevent the progress of the institutional reform. When we think about the effect of change in institution on the economies, it is important to consider the process of the transition. So,

we need to collect the panel data and do empirical analyses in terms of panel data.

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, 1997), 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.

Several studies have emphasized the variability in economic policies that would bring different economic performance such as economic growth and inflation. One of academic interests is the relationship between economic performance and the extent of liberalization. De Melo et al. (1996), who calculated an index of cumulative liberalization, were the first who identified a positive relationship between extents of liberalization and economic growth for 26 transition countries. Although there were no separate indexes for trade liberalization and privatization, as pointed out by Godoy and Stiglitz (2006), the variables were sufficiently correlated to make use of an aggregated index. Controlling for initial income per capita, and a dummy for regional tensions, they found that liberalization had a positive significant impact on average GDP growth for the period 1989-1994. Similar results were obtained by Selowski and Martin (1996), Sachs (1996) and Fisher, Sahay and Vegh (1996 a,b).

De Melo et al. (1997) provided the first comprehensive analysis of the effect of initial conditions on growth in 28 countries in transition, and they introduced the principal component analysis to the literature on the subject. This technique was subsequently used by Godoy and Stiglitz (2006)[1]. Based on various cross-section and panel regression, De Melo et al. (1997) concluded that initial conditions have great effects, both on economic performance and the speed of economic liberalization.

Later, Godoy and Stiglitz (2006) investigated whether it is the speed of privatization, legal institutions or initial conditions that play the most important role in explaining the growth of the transition countries in the 1990s, while addressing problems of endogeneity and multicollinearity, and disentangling the issues of speed and level of privatization, which they pointed out as the major drawback of earlier studies on the subject. Their results suggest that, contrary to the earlier literature, the speed of privatization is negatively associated with growth, but at the same time their study confirms the conclusions of the few earlier studies that have found that the initial quality of institutions are very important for the subsequent economic performance, as measured by the total GDP growth rate for 1990 through 2001 for 23 transition countries, which they use as a dependent variable.

Godoy and Stiglitz (2006) rely on their data on initial conditions of the dataset compiled by Campos (1999), who went to great lengths to create four indexes measuring the different dimensions of good governance, which, as defined by Campos himself, is thought of having five critical institutional dimensions: (1) the executive, (2) the bureaucracy, (3) the rule of law, (4) the character of the policy-making process, and (5) civil society[2]. The Appendix 1 summarizes Campos' methodology, utilized later by Godoy and Stiglitz (2006): The methodology used to assess the initial quality of institutions in this paper is different and it is discussed in more detail in the following section.

3. The Present Study

We introduce quality of institution as one of important initial conditions. It is called "Initial conditions 2002" and it accounts for the quality of governance in the 23 transition countries covered in the analysis. This variable is a combination of the World Bank's Worldwide Governance Indicators. Based on a long-standing research program of the World Bank, the Worldwide Governance Indicators capture six key dimensions of governance:

- Voice and Accountability
- Political Stability and Lack of Violence

- Government Effectiveness
- Regulatory Quality
- Rule of Law
- Control of Corruption[3].

The data covers over 200 countries in the period between 1996 and present. Based on close to 40 data sources produced by over 30 organizations worldwide, such as Freedom House, Transparency International, the Economist Intelligence Unit, Reporters Without Borders, the EBRD and so on, the database has been updated annually since 2002 and has therefore been considered as the most comprehensive and authoritative method of measuring governance. Virtually all of the individual data sources underlying the aggregate indicators are, along with the aggregate indicators themselves, publicly available for free. Details on the underlying data sources, the aggregation method, and the interpretation of the indicators, can be found in Kaufmann, Aart Kraay and Massimo Mastruzzi (2010).

What is important is that these characteristics of institutions can be changed over time, and development performance in every country depends on the extent to which a given country's characteristics of governance can be changed over time.

Table 1 OLS regression of the average growth rate of per capita GDP on the institutional indicators

(Std. Err. adjusted for 23 clusters in id)

gdppcgrowth	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
va_est	-3.299056	2.341161	-1.41	0.173	-8.154326	1.556214
pv_est	.2680903	1.704724	0.16	0.876	-3.267291	3.803472
ge_est	3.129085	2.287126	1.37	0.185	-1.614125	7.872295
rq_est	-1.313193	1.507132	-0.87	0.393	-4.438794	1.812409
rl_est	-10.49617	3.549448	-2.96	0.007	-17.85727	-3.135061
cc_est	7.112772	2.167984	3.28	0.003	2.616647	11.6089
_cons	5.240102	.6960358	7.53	0.000	3.796612	6.683592
sigma_u	4.8693786					
sigma_e	5.024112					
rho	.4843639	(fraction of variance due to u_i)				

va_est=voice and accountability, pv_est=pditical stability and lack of vidence,
ge_est=government effectiveness, rq_est=regulatory quality
rl_est=rule of law, cc_est=control of corruption

Table 1 shows the results of fixed effect model in all the transitional economies. According to Table 1, rule of law as well as control of corruption are statistically significant, and affect the average growth rate of GDP per capita.

Table 2 shows the results of hausman test and the fixed effect model is more desirable than random effect model.

Table 2 Hausman test

	(b) FE	(B) RE	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
va_est	-3.299056	-1.629695	-1.669361	1.753683
pv_est	.2680903	.4346961	-.1666058	.9813134
ge_est	3.129085	.3933669	2.735718	1.619752
rq_est	-1.313193	1.330312	-2.643505	1.290457
rl_est	-10.49617	-5.102875	-5.39329	1.771646
cc_est	7.112772	4.018499	3.094272	1.294586

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 16.34
Prob>chi2 = 0.0120

Table 3 shows the result of the former Soviet Union. When we compare this case with Table 1, it is worth noticing that the effect of control of corruption is getting smaller. It seems that every country in the former Soviet Union thinks bribe would be subsumed in the calculation of transactions as kind of costs and smooth transactions would not be executed without it.

Table 3 Complete sample

gdppcgrowth	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
va_est	-4.661158	3.135558	-1.49	0.139	-10.85672	1.534409
pv_est	-.1246162	1.846966	-0.07	0.946	-3.774045	3.524813
ge_est	2.818466	3.689893	0.76	0.446	-4.472414	10.10935
rq_est	-2.423894	2.803974	-0.86	0.389	-7.964281	3.116493
rl_est	-8.238496	4.072019	-2.02	0.045	-16.28442	-.1925715
cc_est	5.959089	3.367555	1.77	0.079	-.6948814	12.61306
_cons	3.449554	1.756114	1.96	0.051	-.0203605	6.919469
sigma_u	7.1310088					
sigma_e	6.1548232					
rho	.57308114	(fraction of variance due to u_i)				

F test that all u_i=0: F(12, 150) = 2.05 Prob > F = 0.0237

Table 4 shows the result of the Central and Eastern Europe countries. When we compare this case with Table 1, the effect of rule of law as well as control of corruption is getting larger. It seems that since market mechanism seems to work to some extent, improvement of rule and proper behavior of individuals are becoming important factors.

Table 4 Central and Eastern Europe sample

gdppcgrowth	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
va_est	-1.704524	2.626013	-0.65	0.518	-6.906636	3.497588
pv_est	1.038061	1.496646	0.69	0.489	-1.926784	4.002905
ge_est	2.943296	2.661134	1.11	0.271	-2.328389	8.214982
rq_est	.4099818	2.018887	0.20	0.839	-3.589418	4.409382
rl_est	-14.59631	2.967015	-4.92	0.000	-20.47394	-8.718673
cc_est	7.565548	2.121951	3.57	0.001	3.361979	11.76912
_cons	5.455693	1.494186	3.65	0.000	2.495723	8.415663
sigma_u	3.3466958					
sigma_e	3.0783045					
rho	.54170019	(fraction of variance due to u_i)				

F test that all u_i=0: F(9, 114) = 2.41 Prob > F = 0.0153

The following statistical formulation shows the result of the Hausman test. This result means that it can't be refused strictly the hypothesis that random effect model is more desirable than fixed mode at the significance level of 5%.

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Test:  Ho:  difference in coefficients not systematic

            chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                    =          12.54
          Prob>chi2 =         0.0509
          (V_b-V_B is not positive definite)
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A principal component analysis showed that in spite of the large amount of inter-correlation, the independent variables load on two factors – the Worldwide Governance Indicators load on one principal component with a positive sign, and the European Bank of Reconstruction and Development (hereafter, EBRD) transition indicators load on another principal component with a positive sign. The Worldwide Governance Indicators also load with a negative sign on the principal component on which the EBRD indicator load. The results are not shown here for considerations of space.

Apart from this important methodological distinction, in contrast to Godoy and Stiglitz (2006), where the effect of policy speed is measured by the absolute difference in small and large-scale privatization indexes between an initial and a final point in time, in our paper only the initial conditions are taken into consideration. For that purpose, instead of focusing on privatization only, several of the transition indicators for 2002 provided by the EBRD were used: Large scale privatization, Small scale privatization, Enterprise restructuring, Price liberalization, Trade & Forex system, Competition Policy, Banking reform & interest rate liberalization. The number of these indicators is reduced to one factor here by the principal factor analysis, and a new "cluster" variable is created as "Transit ~2002"[4].

Since this would help to solve to an extent the multicollinearity issue, the two principal components were used to construct the only two aggregate independent variables: the variable "Institutions2002" representing the initial quality of institutions, and the variable "Transition2002" representing the general transition progress in 2002. These two independent variables are still correlated with each other, but since they load on two different principal components, they were deemed as appropriate for the purposes of the analysis.

The indicators measure governance on a scale ranging from approximately -2.5 (weak) to 2.5 (strong governance performance). They are a compilation of the perceptions of a very diverse group of respondents, collected in large number of surveys and other cross-country assessments of governance. Some of these indexes capture the views of firms, individuals, and public officials in the countries being assessed. Others reflect the views of NGOs and aid donors with considerable experience in the respective countries, and still others are based on the assessments of commercial risk-rating agencies.

After cross-section data was compiled for the transition countries in the year 2002, six dimensions of governances are reduced to one dimension by using principal factor analysis. As a result, a new variable "Initial conditions" is created based on this factor. Its expected sign in the regressions is positive (the higher the score, the better the institutions, and therefore the faster the expected growth). In a study with a relatively small sample (n = 23), it is important to keep to the number of independent variables small in order to avoid biased results.

Once the independent variables are created by means of principal component analysis,

the basic equation of the analysis takes the following form:

$$GDPGROWTHpc_i = \alpha + \beta 1 Institutions2002_i + \beta 2 Transition2002_i + \varepsilon_i,\ i = 1,\ldots 23$$

Table 5 OLS regressions of institution and transition factors on the growth rate of per capita GDP

	Non-normalized		normdized	t	p
	coef.	s.e	Coef.		
const	5.153	.473		10.884	.000
institutionfacor1_1	-1.380	.605	**-.567**	**-2.283**	.034
transitionfactor1_1	.374	.601	**.154**	**.622**	.541

dependent variable: gdpgrowthavg02_11

Although, both "Institutions2002" and "Transition2002" were able to significantly predict the average GDP growth in the period, the signs of their coefficients are far from expected. Contrary to expectations, and in stark contrast to Godoy and Stiglitz (2006) and virtually all previous research, the coefficient of "Institutions2002" is negative, meaning that the better the quality of institutions of a transition country in 2002 is, the slower its annual real GDP growth per capita in the 2002-2011 period is (refer to Table 5).

In order to check for potential interaction effects, considering the existing correlation between the independent variables, a very basic OLS regression is run using only the institutionfactor1_1, but the results did not change (refer to Table 6) .

Table 6 OLS regressions of institution factor on the growth rate of per capita GDP

		Non-normalized		normalized	t	p
		Coef.	s.e	Coef.		
1	Const.	5.126	.402		12.764	.000
	institutionfactor1_2	-1.504	.411	**-.624**	**-3.663**	.001

Dependent variable: gdpgrowthavg02_11

According to the convergence theory, the poor countries tend to grow faster than rich countries. In order to check it in our model, the nominal GDP per capita in the year 2002 was included as an explanatory variable in the regressions, It turned out to have a very significant impact on the ensuring growth to an extent that it changes the effect of the initial quality of institutions to being insignificant(refer to Table 7).

Table 7 OLS regressions of institution factor and initial value on the growth rate of per capita GDP

		Non-normalized		normalized	t	p
		Coef.	s.e	Coef.		
1	Const.	6.343	.700		9.064	.000
	institution1_3	-.546	.520	-.227	-1.050	.306
	GDPnom2002	.000	.000	-.464	-2.151	.044

Dependent variable: gdpgrowthavg02_11

An additional pooled OLS regression including initial EBRD transition indicators, the initial quality of institutions and the initial level of GDP once again show that the effects of initial GDP levels do override the effects of institutions and other transition indicators, such as privatization and price policies (refer to Table 8).

Table 8 OLS regressions of institutional ,transition factors and initial value on the growth rate of per capita GDP

		Non-normalized		normalized	t	p
		Coef.	s.e	Coef.		
1	Const.	6.402	.695		9.206	.000
	institution1_3	.010	.628	.004	.015	.988
	GDPnom2002	.000	.000	-.460	-2.178	.043
	transition1_2	-.857	.551	-.354	-1.555	.137

a. Dependent variable: gdpgrowthavg02_11

We introduce new variables such as periods of communism (yearscomm) and the change of foreign direct investment (changefdif). As a result of that, the coefficients of institution and transit are insignificant. However, periods of communism, nominal GDP in 2002 and change of foreign direct investment flow are significant. So, given institutions, the average growth rate depends on the other conditions, in particular on the change in foreign direct investment rather than the institutions (refer to Table 9).

Table 9 OLS regressions of the variable of Table 8, years of communism and growth rate of direct investment on the growth rate of per capita GDP

gdpgrowth~11	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
institu~2002	-.8119845	.6292556	-1.29	0.215	-2.145947	.5219778
transit~2002	.5834675	.4451749	1.31	0.208	-.360261	1.527196
yearscommr~e	.0869406	.0296861	2.93	0.010	.0240088	.1498724
gdpnom2002	-.0002935	.0000838	-3.50	0.003	-.0004711	-.0001159
changefdif~s	-.1889944	.0651474	-2.90	0.010	-.3271006	-.0508882
_cons	.9639557	1.672053	0.58	0.572	-2.580639	4.508551

4. The Transition-Country Uniqueness

The unexpected results of the analysis can be said to have some important implications about the dynamics of development in transition countries, basically showing a reversal of trend after the end of the 1990s, which in turns points to the declining role of institutions in economic trends. Importantly, it should be borne in mind that as this study concerns transition countries exclusively, and that no generally valid conclusion about the effect of the quality of institutions on economic development could be extracted on a more than regional level.

After all, 'transition' countries are known as such namely due to their special characteristics, combining features from both the so-called developing and developed countries, and many commonsensible expectations, such as the one that better institutions should naturally lead to more rapid economic growth, have to be reconsidered and possibly dispensed with. Probably some of the lack of Western-style capitalist logic that the Communist system was so notorious for still has not died out completely in transition countries, especially as far as their institutions are concerned. With this said, an interesting

path for future research would be to investigate the differences between transition countries and the other two major country groups – developed and developing.

Finally, considering the fact that many of the citizens of transition countries with objectively better institutions, such as the transition countries that are now part of the EU, are as dissatisfied by the institutions of their homeland as are citizens of transition countries with objectively worse institutions, the question remains whether it is the actual quality of institutions, or rather, the citizens' expectations of and perceptions about those intuitions, that ultimately matter for the economic dynamics of a country. As is well known, economic crisis are based mainly on speculations, and there is no reason to say economic growth is not. Thus, investigating the differences in the effects of people's and firms' perception of institutions as compared to the actual performance of institutions in transition countries would be another interesting route for future research.

Conclusions

This paper put forward a set of institutional and transitional indicators to allow a first mapping of transitional economies during the transition from centrally planned to a market economy. In that case, the concept of governance played an important role. The panel data set constructed for this paper seems to allow a mapping of the process of institution and transition building, and seems able to highlight differences in this respect over time and between Central and Eastern European and former Soviet Union countries. The rule of law is found to play the most dominant role among many indicators.

We would like to emphasize that institutions do change over time. This is very remarkable contrast with the view of path-dependency. In other words, institutions are by no means as immutable and unchangeable as that view has suggested. This means that selection of policies has much greater possibility of being able to contribute to economic development than often assumed.

Notes

1 Our paper depends on De Melo et al.' s paper "Circumstance and Choice: The Role of Initial Conditions and Policies in Transition Economies" (1997) and Godoy and Stiglitz' s paper "Growth, Initial Conditions, Law and Speed of Privatization in Transition Countries: 11 Years Later" (2006).

2 In a system displaying good governance, according to Campos, "the executive branch of government should be accountable for its actions. The quality of the bureaucracy should be high and "imbued with a professional ethos" such that it is efficient and capable of adjusting to changing social needs. The legal framework should be appropriate to the circumstances and command broad consensus. The policy-making process should be open and transparent so that all affected groups may have inputs into the decisions to be made. And civil society should be strong so as to enable it to participate in public affairs."

3 Data on Worldwide Government Indicators lacks for comparability over time and space. For example, the WGI "Control of Corruption" for Eastern Europe and Central Asia has 23 different combinations of sources, but only four pair of countries ratings are based on a common set of sources.

4 Refer to the Appendix 2

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Appendix 1

Dimension measured	Number of indices used	Names of the indices and sources
(2) bureaucracy	2	"Bureaucratic quality" indicator taken from International Country Risk Guide (ICRG).*
		"Regulation" index taken from Holmes, Johnson and Kirkpatrick (1997, 1998).**
(3) the rule of law	3	"Rule of law tradition" indicator taken from ICRG.
		"Property rights" index taken from Holmes, Johnson and Kirkpatrick (1997, 1998).
		"Rule of law" index taken from Karatnycky, Motyl and Shor (1998).***
(5) civil society	3	"Civil liberties" index taken from Gastil (now Freedom House).
		"Political rights" index taken from Gastil (now Freedom House).
		"Civil society" indicator taken from Karatnycky, Motyl and Shor (1998).
(1) accountability of the executive (4) transparency → merged into ("accountability and transparency")	4	"Political process" taken from Karatnycky, Motyl and Shor (1998).
		"Independent media" taken from Karatnycky, Motyl and Shor (1998).
		"Risk of government repudiation of contracts" indicator taken from ICRG.
		"Risk of expropriation" indicator taken from ICRG.

* International Country Risk Guide (various years), some data available at the Economic Growth page from www.worldbank.org.

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Appendix 2

Country	Change of large scale privatization index between 1990-2001	Change of large scale privatization index between 2002-2009	Change of small scale privatization index between 1990-2001	Change of small scale privatization index between 2002-2009
Albania	2.00	0.67	3.00	0.00
Armenia	2.00	0.67	2.33	0.33
Azerbaijan	1.00	0.00	2.33	0.00
Belarus	0.00	0.67	1.00	0.33
Bulgaria	2.67	0.33	2.67	0.33
Croatia	2.00	0.33	3.33	0.00
Czech Republic	n.a.	n.a.	n.a.	n.a.
Estonia	3.00	0.00	3.33	0.00
Georgia	2.33	0.67	3.00	0.00
Hungary	3.00	0.00	3.33	0.00
Kazakhstan	2.00	0.00	3.00	0.00
Kyrgyzstan	2.00	0.67	3.00	0.00
Latvia	2.00	0.67	3.33	0.00
Lithuania	2.33	0.67	3.33	0.00
Macedonia	2.00	0.33	3.00	0.00
Moldova	2.00	0.00	2.67	0.33
Poland	2.33	0.00	3.33	0.00
Romania	2.33	0.33	2.67	0.00
Russia	2.33	-0.33	3.00	0.00
Slovakia	3.00	0.00	3.33	0.00
Slovenia	2.00	0.00	3.33	0.00
Ukraine	2.00	0.00	2.33	0.33
Uzbekistan	1.67	0.00	2.00	0.33