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Why Some Sectors of Transition Economies are less Reformed than Others? The Case of Research and Education

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Why Some Sectors of Transition Economies are less Reformed than Others? The Case of Research and Education[1]

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Abstract

We analyze university research and education in transition countries. University system differs from industry in the nature of product that it produces. University system is engaged in production of public goods rather than private goods. The sector also suffers from measurement problem. We argue that because of these factors reforms were slower in this sector leading to low productivity growth. Lobby groups succeeded to gain significant control inside administrative structures regulating the sector. The case studies from the Czech Republic and Slovakia provide the evidence in support of this argument.

Keyword: research, education, public good, transition, reform, productivity.

JEL Classification: I28, H11, P21, P5.

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Why Some Sectors of Transition Economies are less Reformed than Others? The Case of Research and Education

Pavel Ciaian and Jan Pokrivcak

Introduction

After the fall of the Communist regimes, the former centrally planned economies of the Soviet Bloc faced the choice on how to reform their economies. Most countries have chosen to introduce market mechanisms in most sectors of the economy. The main reform components introduced to support markets were privatization, restructuring of the state companies, market liberalization, and creation of institutional environment for property rights protection (Roland, 2000). There were differences between countries regarding the speed of reform (shock therapy versus gradualism) or regarding the sequencing of the reforms (Roland, 2001; Sachs, 1992).

After more than ten years of transition it was observed that most economies of Central and Eastern European Countries (CEECs) were significantly reformed, market economy institutions were created and price and trade liberalization took place. However, some sectors of the economy did not undergo significant market reforms. In particular this is the case of university system where reforms are lagging behind those undertaken in the industry.[1]

One possible explanation might be that university system differs from industry in the nature of product that it produces. University system is engaged in production of public goods rather than private goods. The sector also suffers from measurement

[1] Health care system faces similar problems.

problem. Measurement of the quality of research and education is more difficult than the measurement of the quality of output produced by for example industry. Has the nature of the product that university system produces affected the speed of reforms? Is it reflected in the lower growth rates of productivity of this sector than productivity growth in other sectors? These are important questions that need to be addressed. First, these questions are important from the theoretical perspective. Second, there are significant policy implications of these questions because understanding how characteristics of the sector influence productivity and reform path is important for policy makers.

In particular, this article has three objectives: a) to show that development of productivity in transition economies differs between sectors, the difference is due to the nature of product these sectors produce, i.e. private good or public good b) to show that the difference in productivities is due to difference in the degree of reforms of particular sectors, c) to explain why sectors producing public good are less reformed than industry or agriculture.

This paper is organized as follows. The next section discusses the output development during transition. We then introduce theoretical framework used in our analysis which is followed by an analysis of research systems during Communism. The fifth section explains reform path of the university system and how it is affected by market imperfections. The sixth and the seventh sections provide evidence on research productivity from the Czech Republic and Slovakia. The final section concludes.

Output Growth during Transition

Figures 1 and 2 show the development of Gross Domestic Product (GDP) in CEECs and former republics of the Soviet Union (FSU) during transition. The output development takes the shape of "U", i.e. decline in the first years of transition followed by subsequent increase. This shape of GDP growth was typical for all transition countries. After the third year of transition, the output in CEECs was down between 13% and 40% relative to 1989 pre-reform output. In the FSU the output decline was stronger and took longer. It reached the bottom, after the fourth year of transition. In 1995 relative to 1991 the output was down between around 18% and 64%.

There are several explanations for this initial output decline. The main factors were the disruption of old relations that were specific to planed economies (Blanchard and Kremer, 1997), Schumpeterian "creative destruction" and adjustment costs (Aghion and Blanchard, 1994), institutions (Roland, 2001; Rodrik, 2001), and initial conditions (Falcetti, Raiser, and Sanfey, 2002; de Melo, Denizer, Gelb, and Tenev, 2001).

Output started to grow after these initial adjustments (figure 1 and 2). The shift from state control to markets, led to rise in productivity. Markets created right incentives and liberalization led to tougher domestic and international competition. Companies were forced to increase efficiency. Market oriented reforms induced convergence of transition economies to developed economies. The convergence is faster in CEECs than in FSU. This is because reforms in CEECs succeeded to introduce better institutional environment in support of markets (Falcetti, Raiser, and Sanfey, 2002; de Melo, Denizer, Gelb, and Tenev, 2001; Berg, Borensztein, Sahay, and Zettelmeyer, 1999).

Not all sectors were reformed equally. Health care and university systems, for example, remained in most countries mostly unreformed[2]. The role of markets in health care and university system remained low relative to other sectors (OECD, 2000; OECD, 2005a and 2005b, World Bank, 2003).

Figure 3 shows the research output in economics and related sciences in selected transition countries and in two developed countries (the Netherlands and Austria). The figure shows total annual number of papers published in peer-reviewed journals. The data were extracted from Web of Science database.

Total research production and productivity have remained stagnant in CEEC and FSU over the transition period. There is not observed a trend that would indicate an increase in productivity. This is more pronounced given the fact that research in social sciences including economics was politically restricted during Communism (see next section). One therefore would expect high increase in research output during transition from its low pre-transition level. For comparison the research output in the Netherlands and Austria have been continuously increasing (figure 3). Furthermore, figure 4 reveals that transition countries tend to publish in low quality journals[3], i.e. in journals with low impact factor. In CEEC and Russia around 75% and 45% of papers, respectively, were published in low quality journals, while in the Netherlands and Austria it was 9% and 12%, respectively. In summary it can be argued that there is no convergence in research productivity as it was the case in other sectors.

[2] Agriculture is also lagging behind in reforms. This is due the accession of CEEC countries into the EU and adoption of EU's Common Agricultural Policy which is strongly regulated by the governments (Swinnen, 1996).

[3] We use Impact Factor as calculated by Thomson Scientific to measure the quality of journals.

Theoretical Framework

In markets where public goods are present the allocation of resources is inefficient. Private individuals under invest in provision of public goods. The main cause is inability of private sector to internalize all benefits (Hume, 1739; Hardin, 1968; Andreoni, 1988; Romer, 1990; Garadstein, 1992; Jones and Williams, 1998).

Similarly, imperfect information may lead to inefficiencies due to adverse selection and moral hazard (Spence, 1973; Akerlof, 1970; Arrow, 1963).

The presence of public goods and imperfect information is often used to justify state involvement. In such cases state interventions might increase social welfare. State allocation of resources can eliminate the gap between optimal social level of investment and private sector invests.

University research and education is characterized by both the presence of public goods and asymmetric information. Because of the existence of public goods, private sector allocates fewer resources in research than it is socially optimal (Jones and Williams, 1998; Romer, 1990). The allocated resources by private sector not only may be small but also can be made too late (Gradstein, 1992). Gamer (1979) showed that because of imperfect information and measurement problem, job market for researchers may use improper screening criteria (the least costly ones) and therefore lead to Pareto inferior equilibrium. This affects not only research productivity but also the quality of research and the direction of science in which it develops. Wigger and Von Weizsacker (2001) showed that in the case of nonexistence of markets in which students can insure against educational risk (uncertain returns to education) and with risk-averse individuals, students will underinvest in education.

Because of these imperfections an extensive regulation of universities is observed. To overcome the problem of imperfect information state uses a regulatory

commission (office) that sets criteria for evaluation, collects information, and assists in policy implementation.

The existence of regulatory commission, however, affects relative costs and benefits for pressure groups. Pressure groups emerge because of the existence of public goods. Olson (1965) considers the size of the group and costs of communication among their potential members as crucial factors determining whether an interest group (or broadly a collective action) is formed. By creating the commission the state decreases the communication cost of pressure groups making lobbing activity cheaper.

Universities representatives are either members of the commission or commission cooperates with universities because universities have an information advantage. Contacts between the commission and universities becomes institutionalized which significantly reduces lobbing costs.

Moreover, the existence of a regulatory commission through which funds and other benefits are delivered to universities is a signal for universities to increase activity in order to increase the level of support. This can be achieved because universities are better informed than the commission and are therefore able to influence it.[4] The original intention of policy makers to increase efficiency by eliminating market failure is used by pressure groups to increase protectionist and redistributive state intervention.

The biggest beneficiaries are the existing universities which can use its privileged position to create barriers to entry into the university system by other subjects. The representatives of the existing universities therefore may lobby for the regulations that protect the existing universities, not all universities, i.e. existing and

[4] In similar context Acemoglu and Verdier (2000) show that in equilibrium with asymmetric information and with heterogeneous bureaucrats who collect information and implement polices by which state intervenes to correct market failures, there will appear corruption.

potential entrants. Entry of new universities would reduce the benefits of the regulation accruing to the existing universities as benefits are shared among more subjects (Stigler, 1971).

In other sectors of the economy which are not affected by the problem of public good and imperfect information like manufacturing there is no need to address market failure. Therefore regulatory commission is not created which makes costs of lobbing higher. Furthermore, nonexistence of regulatory commission sends a signal to market participants that no redistributory transfers are available. Because there is no government regulation that increases efficiency it is harder for pressure groups to obtain redistributory transfers.

From the above analysis it follows that in the presence of market failures pressure groups are more effective. The equilibrium amount of lobbing is higher leading to higher protection of the existing universities. The question that arises next is how this affects university reform in transition countries and the growth of productivity of the sector.

Garadstein (1993) showed that lobbing creates inefficiencies, but that state provision of public good frequently outperforms the private provision even in the presence of lobbing groups. Inefficiency generated by rent seeking incentives of lobbing groups in the case of public provision is smaller then inefficiency from free riding incentives in the case of private provision. However, in the presence of imperfect information and transaction costs this may not be the case. State intervention may be inefficient relative to market (Garadstein, 1992; Weisner, 1998). Additional inefficiencies may be caused by corruption which emerges where transfers are present (Acemoglu and Verdier, 2000).

Background – Research System during Communism

During Communism research was subject to strong political centralization. Basic research was concentrated in institutes of the Academy of Sciences while applied research was conducted by various institutes under the supervision of branch ministries (Ministry of the Economy, Ministry of Agriculture, etc.). Research at universities played a marginal role. The main purpose of universities was teaching and supplying qualified labour to the economy (Balazs, Faulkner, and Schimank, 1995; Moore, 1994).

Like other sectors research was also subject to central planning. Three or five-year central plans set research priorities and allocated resources to institutes and universities and to each research activity within them. Some research fields were strongly supported (e.g. physics). Fields with smaller political weight, such as social sciences, were underfunded (Balazs, Faulkner, and Schimank, 1995; Moore, 1994).

Each research institute (or state university) had to fulfill the centrally assigned plan. State monitoring was done through reporting. Research institutes (or departments within research institutes) produced reports where research output was presented. These reports had to be defended, normally in front of other research institutes. The fulfilment of the plan and hence the existence of the institute depended on the successful defence.

This institutional setting led to the collusion among institutes. The institutes did not have an incentive to reject reports of other institutes because of mutual interdependence and measurement problem. If an institute used hard criteria of evaluation of reports presented by other research institutes, then in the future other institutes would behave similarly. Institutes playing hard strategy could find their own

research reports rejected in the future.[5] Imperfect information and the stress on the political aspects of the research made hard playing institutes vulnerable to retaliation. Playing hard would therefore threaten the fulfilment of the research plan and eventually lead to the reduction of funds from the government and in the most extreme case even to the closing of the institute (Kamenicek, 2005).

Similar collusion existed with citations, which was used to measure the quality of research output. Mutual citations among institutes became widespread. Institutes for strategic reasons cited research output of other institutes irrespective of the quality of the cited research. In this way, institutes' citations were artificially increased, which was necessary in fulfilling the centrally assigned plan (Kamenicek, 2005).

This soft evaluation of research output became a norm in Communist countries. Probably this norm was stronger in social sciences where the measurement of quality is more difficult. In exact sciences (e.g. physics) this was less problematic because measurement of quality is easier especially if research findings are put in application.

Significant additional distortions existed in terms of quality of research (and education). Research priorities were set centrally and were politically motivated. Only politically acceptable research topics or fields were supported. Social sciences were most negatively affected. The type of research conducted in Western countries was not allowed. The main role of research in social sciences was to support propaganda of the Communist regime, i.e. Marxism and Leninism.

Three main conclusions can be drawn from this analysis:

[5] This is a classical example of prisoners' dilemma game. The Nash equilibrium for one period game is to play hard strategy. This is the dominant strategy for all institutes. However, in an infinite game soft strategy is a Nash subgame-perfect equilibrium if discount rate is sufficiently close to one, meaning that future benefits have sufficiently high value to institutes. Institutes play so called trigger strategy. An institute cooperates (plays soft) until other institutes cooperate. Otherwise the institute stops cooperating. It plays hard strategy.

- Research skills were low in former communist countries because researchers operated under soft incentive environment.
- Knowledge was distorted because only politically allowed research could be conducted. The worst affected were social sciences. For example in economics staff at universities or research institutes did not have knowledge of market economics.
- Staff at universities did not have skills in research because their main activity was teaching.

Market Failures and Reform Path during Transition

With the fall of communism the central planning was abolished and market reforms were introduced. However, reforms lagged behind in sectors with public goods and large information asymmetries (e.g. health care, research, education), (OECD, 2000; OECD, 2005a and 2005b, World Bank, 2003).

University system remained reliant on the administrative regulation. This however facilitated the creation of lobby groups that aimed at preserving the status quo. Lobby groups succeeded to gain significant control inside administrative structures regulating the sector and thus to influence the path of reform in the direction that fitted their interests the best.

The role of history is crucial to understanding the reform path. The lobby group was formed from the representatives of former communist educational and research structures who had dominant positions in the sector after the fall of communism[6]. These people were used to operate under soft evaluation criteria in the past, during socialism. More importantly they were educated in Marxist economics

[6] Rigid tenure system helped the former communist professors to protect their positions after the changes of the social and economic system occurred.

which was strongly politically biased. Their past research was evaluated politically with little emphasis on scientific rigor. Because of these reasons the former communist economics elite preferred to maintain the status quo characterized by soft evaluation of research output. Their activity within the lobby group was directed towards achievement of this goal.

During the communist regime universities were specialized in teaching. This was the second reason why the representatives of former communist education and research structures were not interested to introduce hard evaluation criteria for research. Hard criteria would cause large loses to the existing state universities in the long-run. Existing state universities did not have qualified staff to conduct high quality research, because of their past specialization in teaching. As a result, the interest of the representatives of former communist educational and research structures was to maintain teaching as their main activity, while research was of secondary importance.

Finally, existing state universities would lose if free entry of new universities is allowed. Sharing the market with other competitors would lower average benefits. Through control of the commission the existing state universities succeeded to increase barriers to entry. Accreditation was the main barrier.[7] In this respect, the power of commission controlled by lobby group is large because it evaluates the new entrants and gives recommendation to the ministry on whether the new entrant fulfils the accreditation criteria. Through the control over the criteria the commission could restrict the entry.

[7] Kraft and Vodopoviec (2003) find that opposition of licensing bodies is a main barrier to entry of new private business schools in transition countries. This is because bodies include members of the established universities who are against increased competition.

Research and Education in Economics: A Case Study from the Czech Republic and Slovakia

The university system is dominated by state universities in the Czech Republic and Slovakia. In 2004 after 14 years of the beginning of transition there were eight state and only two private universities offering programs in economics and business in Slovakia. One of the two private Slovak universities AINova is not accredited in spite of the fact that its program in economics was praised by the World Bank as the best in Slovakia (Pleskovic, Anders, Bader, and Campbell, 2000). The other private university, City University Trencin was functioning on the US accreditation. Additionally, there are two major state-run research institutes in economics, i.e. Academy of Sciences and Research Institute of Food and Agricultural Economics. In the Czech Republic there are 33 faculties offering programs in economics and business. Of them 16 are private. However, in 2004 83% of all students in economics and business studied at state universities. Moreover, of all students studying at private universities 52% studied economics and business in 2004.

The university system in the two countries is regulated by the Czech Ministry of Education and the Slovak Ministry of Education, respectively. In both countries accreditation commissions assist the Ministries of Education. The accreditation commissions set evaluation criteria, collect data from universities, and analyze them. The Ministry of Education makes the final decision based on the recommendation of the accreditation commission. Based on accreditation commission‘s evaluations the state also allocates transfers to state universities. Universities (both private and state) which do not fulfil the accreditation commission’s criteria lose the accreditation.

Governments of the Czech Republic and the Slovak Republic select members of the accreditation commission from representatives of universities and research

institutes. Universities dominate the accreditation commission. In the current Slovak Accreditation Commission of total 21 members there are only 5 from the outside the university system. 6 members are from the established research institutes (e.g. Slovak Academy of Sciences) and the rest (10) are from state universities. For comparison, similar setting has the Czech Accreditation Commission. Total number of members is 21, of which 13 are from state universities, 4 from established research institutes (e.g. Czech Academy of Sciences) and 4 are outsiders.

For accreditation of masters and PhD programs the following criteria are evaluated in Slovakia:

- *Research*: Universities must prove that they perform internationally or nationally recognized continuous research activities. Universities must also prove that they actively participate in national or international research projects.
- *Infrastructure*: Universities must have satisfactory infrastructure (libraries, internet connection, etc.) necessary to perform teaching activities.
- *Staff*: Universities must have sufficient number of teaching staff, proportional to number of students and proportional to teaching hours.
- *State examination commission*: Universities must guarantee that in their state examination commission there is at least one member from outside the university and at least two members with the title of professors or associate professor.[8]

[8] In Slovakia, the Czech Republic, and other Central and East European Countries there are three types of academic titles. Assistant professor is the one with PhD degree. Assistant professors lead seminars. Associate professor (docent) gives lectures and examines students. To obtain associate professor degree the candidate must fulfill certain criteria set by university and evaluated by accreditation commission (see table 1 for Slovakia), defend his/her scientific work in front of the scientific committee, and to prove his/her teaching ability. Full professor (professor) gives lectures and examines students. Full professors must fulfill stricter criteria than associate professor (see table 1 for Slovakia) and again

– *Program quality guarantor*: The University must have qualified staff with the title professor (minimum one) who personally guarantees the program quality. The guarantor cannot be older than 65 years. The same professor cannot be guarantor of programs at two or more universities.

In the Czech Republic the Czech Accreditation Commission has similar requirements like the Slovak accreditation commission. With respect to lecturers, the Czech accreditation commission stipulates that they are required to conduct research publishable in journals based outside home universities and/or as monographs.

From the above it follows that the accreditation criteria on research are vaguely defined by the accreditation commission. Decisions of the accreditation commission therefore cannot be checked by third party. Monitoring by third party is further weakened by the difficulty to measure the quality of research and/or education.[9]

Vague criteria and measurement problems enable the accreditation commission to restrict the entry of new private universities. Vague criteria evaluating research suit the state universities while potential new entrants mostly universities from Western Europe and the USA are discriminated against. Western universities have comparative advantage in research and clear and transparent criteria for evaluating research output as a prerequisite for accreditation would benefit them. On the other hand, soft criteria suit established state universities. Established state universities benefit from vague criteria for accreditation.

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defend his/her scientific and pedagogical work in front of the university scientific committee. The title professor is awarded by the president of the country.

[9] Niskanen (1994) argues that the measurement problem is one reason why bureaus emerge to provide products and services. This is because contracting is difficult and appropriate incentive scheme cannot be designed. However, the measurement problem makes it difficult to monitor and instruct the bureaucrats possibly leading to low efficiency of bureaucrats. An exogenous improvement in the measurement gives the opportunity to reduce the role of bureaucrats relative to markets in the provision of products and services.

While research criteria are set vaguely, there is a strict and quantitative criterion on the number of professors that universities have to have in order to get accreditation. Moreover, the professors have to possess degrees (professor or associated professor) that are specific to the Czech, Slovak and former Czechoslovak university system. The fulfilment of this criterion increases the costs of the foreign universities.

State universities are explicitly subsidized by the state. They are financed from the state budget while private universities are not. Because of subsidies, state universities have significant advantage over private universities which are financed from students' tuition fees. Financing of universities discriminates against private universities.

Assuming state universities and private universities provide the same quality of education, state universities are able to attract the best students. Private universities end up with residual demand, those students that are not accepted to state universities[10]. If the quality of education is the same at private and state universities rational students choose the one which is less costly. All students apply for cheaper state universities and private universities can accept only those students who are not accepted to state universities. The higher the capacity of state universities the lower is the residual demand for private universities. The demand for private universities is further reduced by imperfect credit and risk markets.

Average new entrant to the university market normally has no reputation for providing good quality of education; its reputation tend to be lower than the reputation of well-established state universities. This fact further reduces residual demand for private universities.

[10] In 2004 24 695 students applied to state economics universities in the Czech Republic of which 53% was accepted. This number indicates how large is the residual market for private universities. Regarding private universities, 2 166 students applied in the same year of which 99% was accepted.

The fact that private universities satisfy the residual market (low quality students) reduces their reputation relative to state universities. This is the well known problem of adverse selection.

In the current system the private universities would have to invest significant amount of funds into building a reputation of being a provider of high quality of education.

In summary, given this institutional setting of universities, one may expect low research productivity due to low competition (X-inefficiency) and due to distorted evaluation criteria (biased toward the interests of the state universities).

Research Productivity in the Czech Republic and Slovakia

The following section provides evidence on research productivity in the field of economics at the Czech and Slovak universities and research institutes. The Czech data come from Turnovec (2005) and Machacek and Kolcunova (2005) while the source of the Slovak data is Ciaian, Pokrivcak, and Rajcaniova (2005). Turnovec (2005) collected data on publications of full-time employees of Czech economics universities in journals included in the Web of Science and Econlit for the period of 1994 – 2003. Machacek and Kolcunova (2005) collected data on journal publications of Czech docents and professors that obtained the degree in the field of economics in the period of 1999- middle of 2005. They also used Web of Science. Ciaian, Pokrivcak, and Rajcaniova (2005) present data on publications of full-time employees of the Departments of Economics of Slovak universities and Economics research institutes for the period of 1990 – 2004 in journals included in Web of Science and Econlit.

The distribution of journal publications of the Czech and Slovak staff at universities and research institutes is similar with the distribution of the CEECs (figure 4), which is shown in figures 5 and 6. Figures show that more than 80% of research output produced by staff at economic universities and research institutes is published in low quality journals.

Further the Slovak data show that research institutes are more productive than universities. Two research institutes of the academy of sciences produce 43 % of all research publications, while remaining 44% was produced by 8 universities (21 faculties). The highest ranked university reached 21% of the level of the academy of sciences in production of research publications per capita. The next two in ranking reached between around 9 and 15% and the rest reached less than 3% of the Academy of Sciences research productivity.

The total research activity is significantly reduced if publications in domestic journals are not taken into account. Of all Slovak journal publications published in period between years 1990 and 2003, 86% are published in Slovak peer-reviewed journals. Similarly in the Czech Republic 79% percent of all peer-reviewed papers published in the period 1993-2004 were published in the Czech journals. This indicates that the majority of Czech and Slovak economists are not internationally competitive, unable to publish in highly ranked international journals. Also, publication in domestic journals is easier because the editorial boards are controlled by the representatives of Slovak or Czech research institutes and universities. For example, in the case of the journal *Ekonomicky Casopis* its editorial board consists of the members of the University of Economics in Bratislava and Academy of Sciences. Staff of these two institutes published around 90% of their total papers in *Ekonomicky Casopis*. Or if taking total papers published by all state universities and research

institutes in *Ekonomicky Casopis* during the whole period 1990-2004, the share of the University of Economics in Bratislava and the Academy of Sciences together is 87%.

The data confirm that, first, the division of labour between academy and university still prevails. Universities concentrate on teaching while institutes of the academy of sciences specialize in research. Staff of established state universities has lack of skills for research. Second, there are still significant barriers to entry of new private universities. Third, universities operate under soft evaluation criteria because the criteria are controlled by the state universities through the accreditation commission.

Calculating the overall productivity by degree, figure 7 reveals for Slovakia that average number of publications per staff members is less than one (Ciaian, Pokrivcak, and Rajcaniova, (2005)). In the case of the Czech Republic the same situation holds, average number of publication per staff member is 0.85 (Turnovec, 2005). There is also high variation in productivity among staff members. Around 80% of staff with a PhD degree or higher at Slovak universities do not have a single journal publication (figure 8). In the Czech Republic of all docents and professors who got the degree in the period 1999- middle of 2005 more than 70% did not have a single publication in peer-reviewed journals (Machacek and Kolcunova, 2005).

Conclusions

After more than ten years of transition most economies of CEEC are significantly reformed. Some sectors of the economy remain, however, unreformed. In particular this is the case of university system.

Total research production and productivity have remained stagnant in CEEC and FSU over the transition period.

University system is engaged in production of public goods rather than private goods. The sector also suffers from quality measurement problem. Because of these imperfections an extensive regulation of universities is observed.

The regulatory body (accreditation commission) sets criteria for evaluation, collects information, and assists in policy implementation. The existence of regulatory commission, however, affects relative costs and benefits for pressure groups. By creating the commission the state decreases the communication cost of pressure groups making lobbing activity cheaper.

Universities representatives are either members of the commission or commission cooperates with universities because universities have an information advantage. Contacts between the commission and universities becomes institutionalized which significantly reduces lobbing costs.

Moreover, the existence of a regulatory commission through which funds and other benefits are delivered to universities is a signal for universities to increase activity in order to increase the level of support. The original intention of policy makers to increase efficiency by eliminating market failure is used by pressure groups to increase protectionist and redistributive state intervention. The existence of regulatory commission sends a signal to market participants that redistributory transfers are available. Because of government regulation that increases efficiency it is easier for pressure groups to obtain redistributory transfers. In the presence of market failure pressure groups are more effective.

In CEEC the role of history is crucial to understanding the reform path. After the fall of communism a lobby group was formed from the representatives of former communist educational and research structures. These group of people were used to operate under soft evaluation criteria in the past, during socialism. More importantly

they were educated in Marxist economics which was strongly politically biased. Their past research was evaluated politically with little emphasis on scientific rigor. Because of these reasons the former communist economics elite preferred to maintain the status quo characterized by soft evaluation of research output.

The lobby group installed via the accreditation commission barriers to entry to the university market by other subjects and slowed down university reform.

The evidence from the Czech Republic and Slovakia shows that the accreditation commission which is composed from representatives of state universities and established research institutes succeeded to maintain their dominant position and set evaluation criteria fitting their interests. This institutional setting led to low university research productivity. The organization of research still retains its communists features whereby research is almost monopolized by central research institutes and universities are engaged mainly in teaching.

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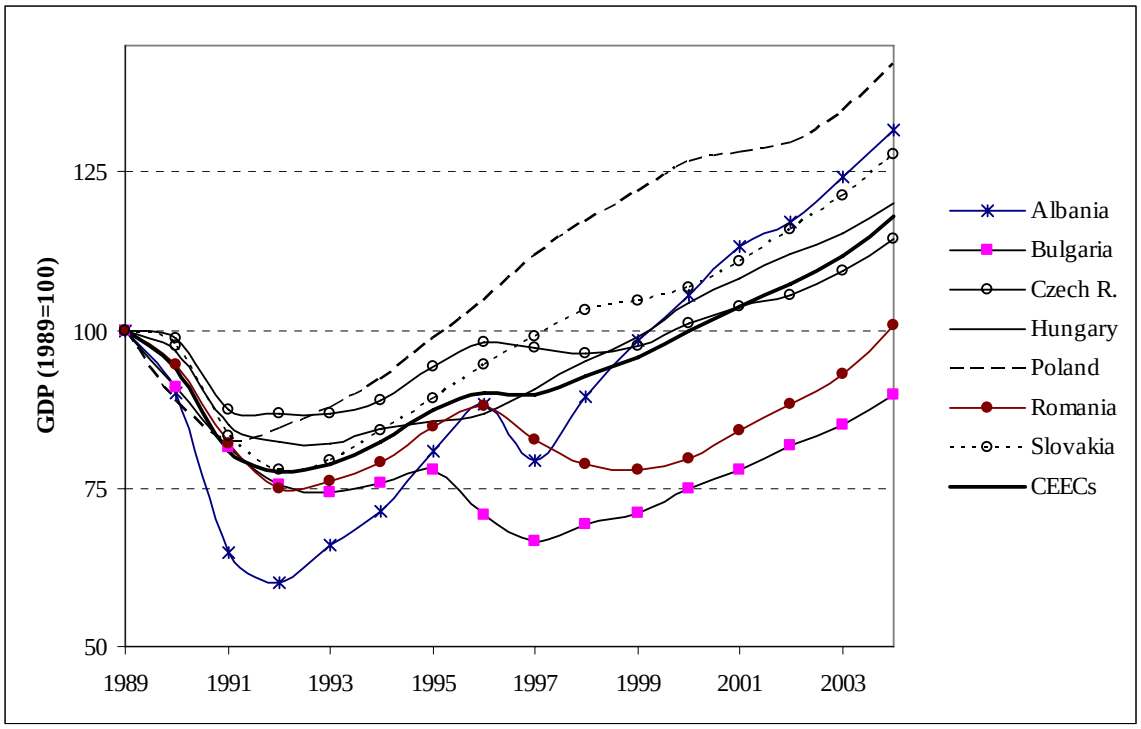
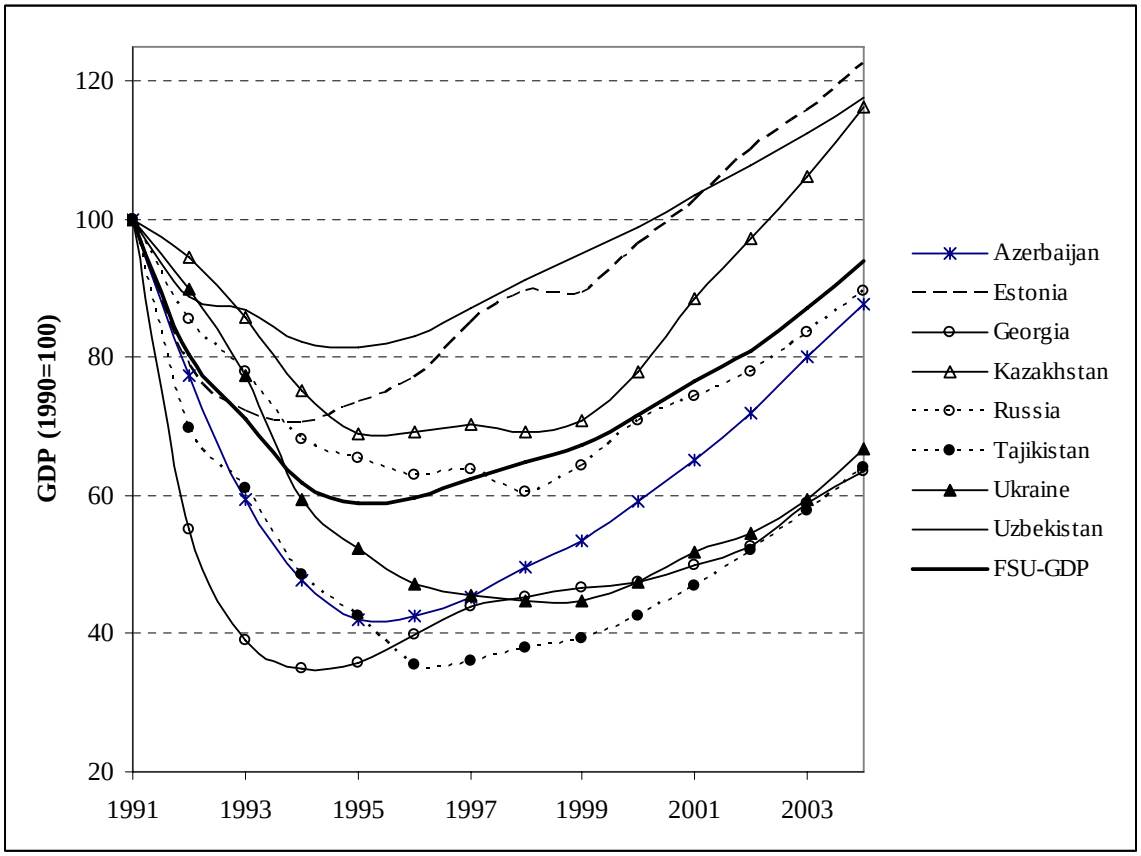
Figures and Tables

Figure 1. GDP development in CEECs



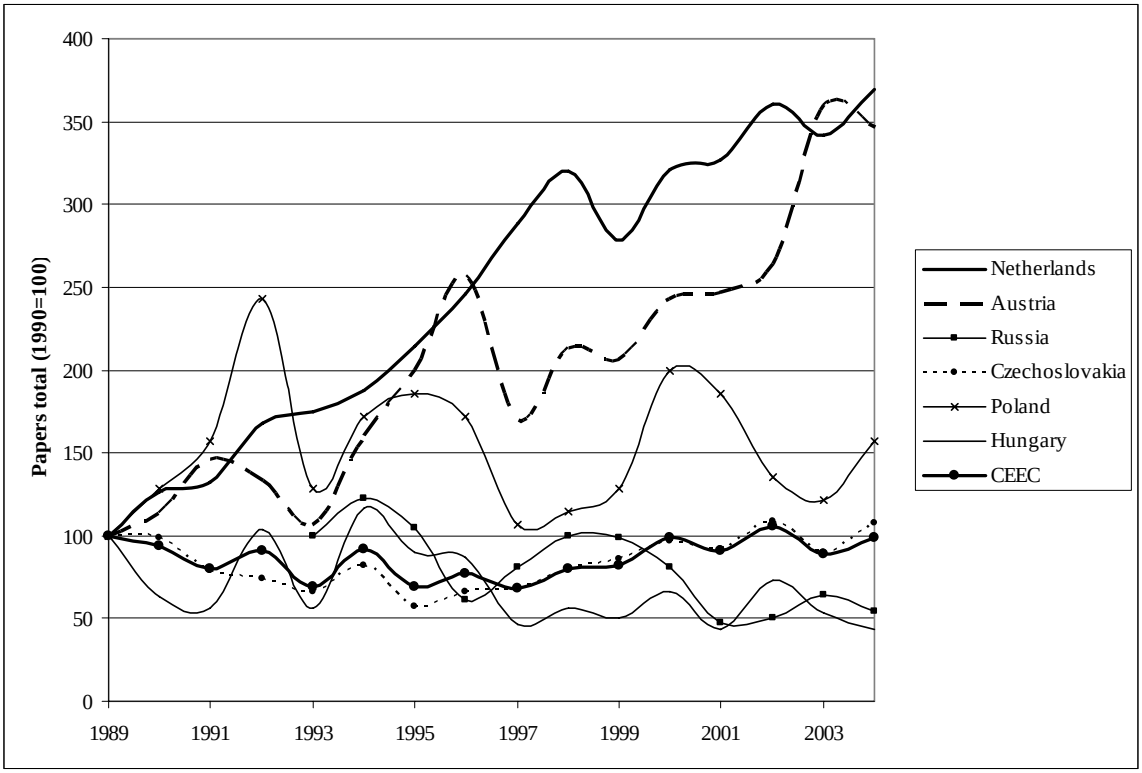
Source: United Nations
Notes: CEECs include Albania, Bulgaria, Czech R., Hungary, Poland, Romania and Slovakia.

Figure 2. GDP development in Former Soviet Republics



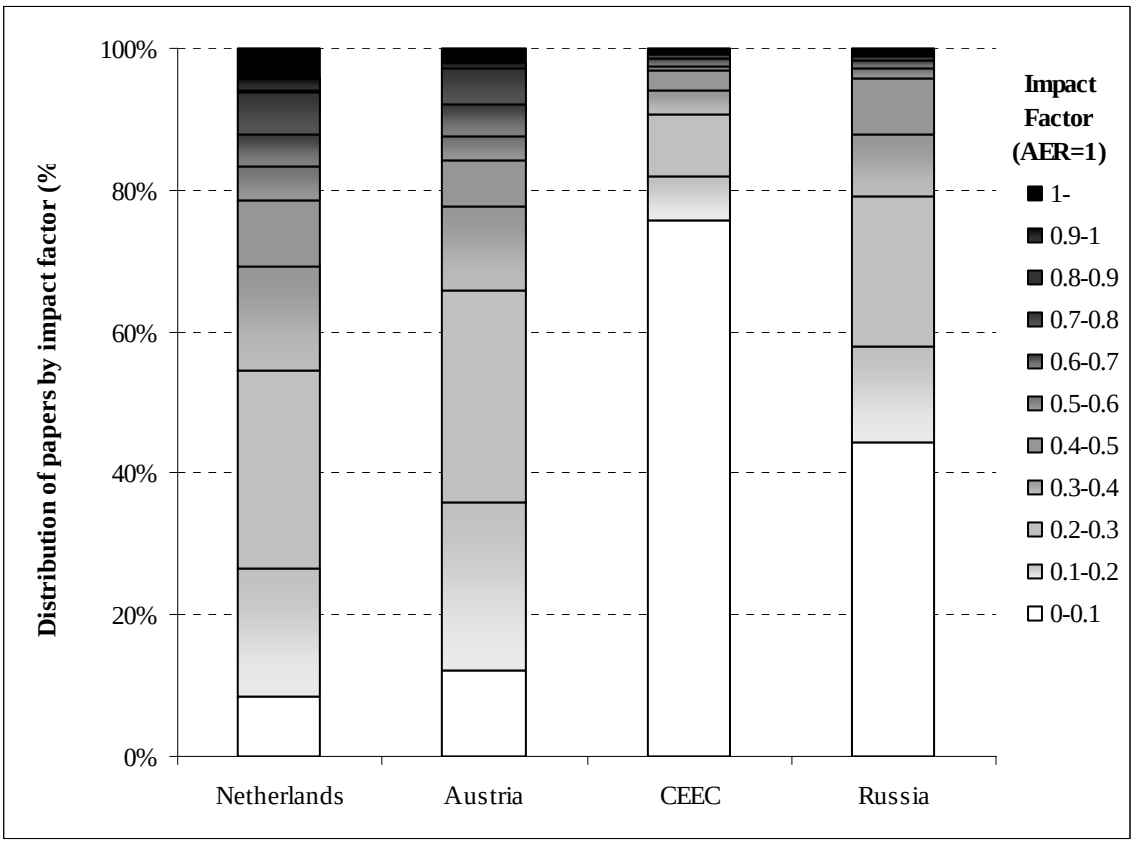
Source: United Nations
Notes: FSU includes Azerbaijan, Estonia, Georgia, Kazakhstan, Latvia, Lithuania, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Belarus, and Kyrgyzstan

Figure 3. Research output in transition countries and in the Netherlands and Austria*



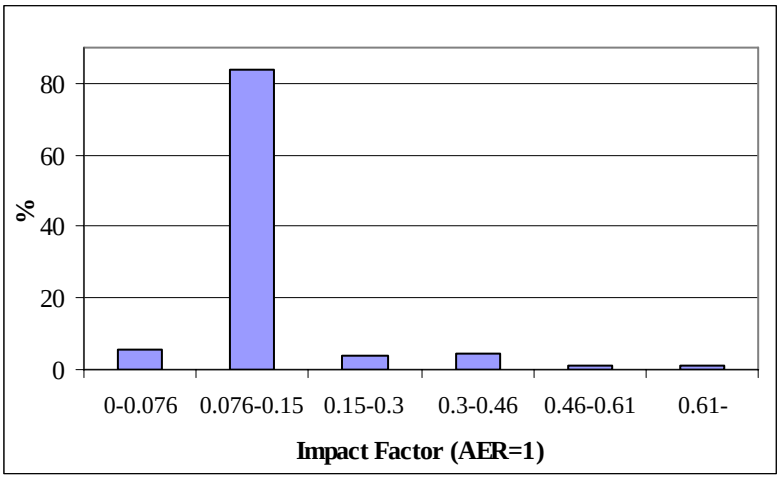
Source: Web of Science database and own calculations
Notes:
*For Russia 100 in 1993
CEEC includes Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia, and Slovenia

Figure 4. Distribution of publications by quality for period 1990-2004*



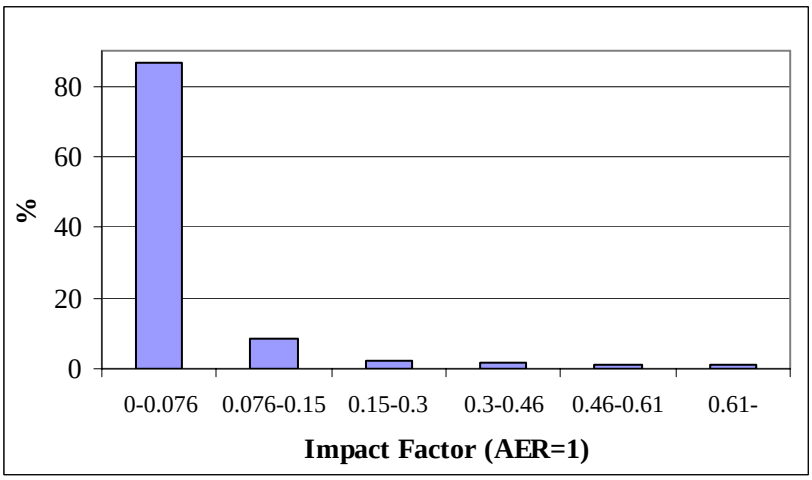
Source: Web of Science database and own calculations
Notes:
A darker colour indicates high impact factor (or higher quality), while white colour indicates low impact factor.
AER – American Economic Review
*For Russia the data are for the period 1993-2004.
CEEC includes Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia, and Slovenia

Figure 5. Distribution of publications in the Czech Republic by quality for period 1993-2004



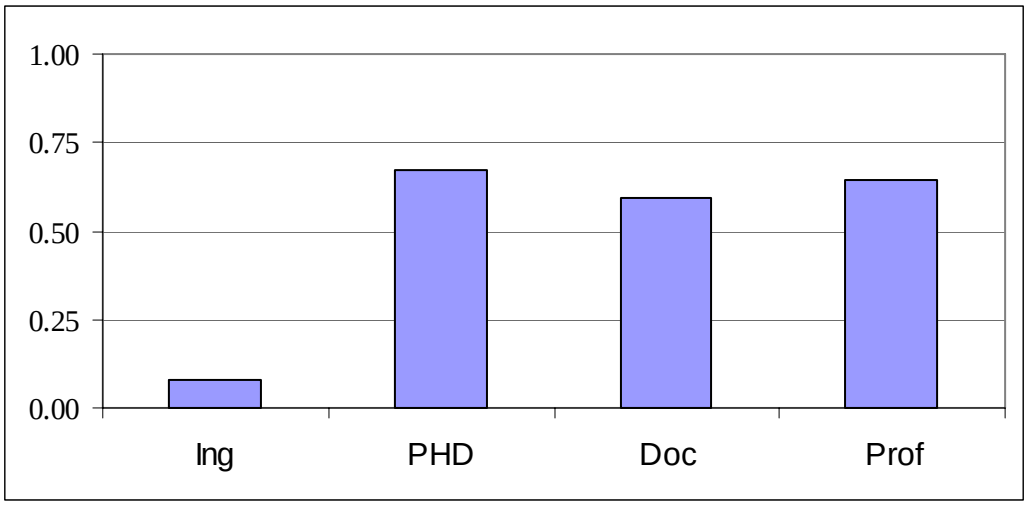
Source: Web of Science database and own calculations

Figure 6. Distribution of publications in Slovakia by quality for period 1990-2004



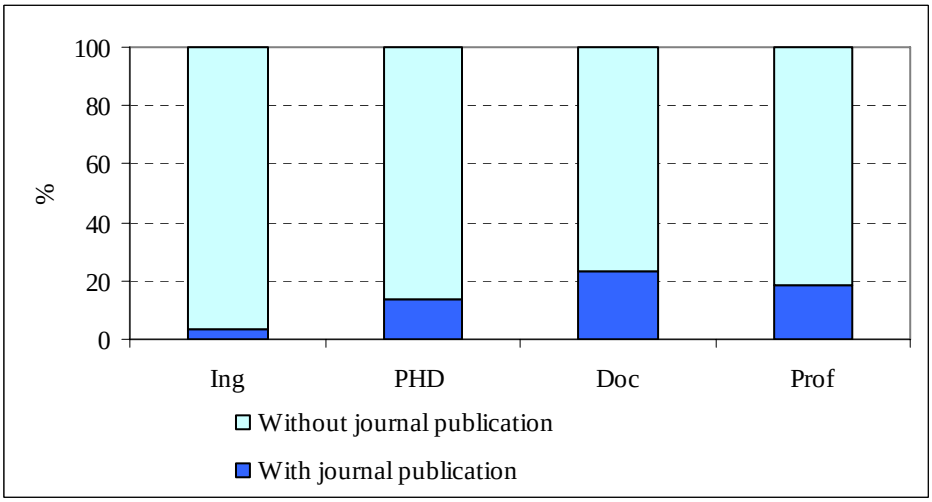
Source: Web of Science database and own calculations

Figure 7. Journal publications per staff member in Slovakia for period 1990-2004



Source: Web of Science database and own calculations

Figure 8. Distribution of staff between those with and those without journal publication in Slovakia for period 1990-2004



Source: Web of Science database and own calculations

Table 1. Requirements for obtaining associate professor (docent) and full professor (professor) at selected universities in Slovakia.

	EU		UMB		SPU		UK	
	doc.	Prof.	doc.	prof.	doc.	prof.	doc.	prof.
A. Journal publications*	**15**	**25**	**35**	**75**	**15**	**28**	**15**	**25**
Peer reviewed	*1*	*2*	–	–	*1*	*3*	–	–
Foreign	–	–	*5*	*10*	–	–	*2*	*5*
Domestic	–	–	*20*	*45*	–	–	–	–
Other	*14*	*23*	*10*	*20*	*14*	*25*	–	–
B. Monographs	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**
C. Conferences and proceedings	**10**	**20**	–	–	**12**	**25**	**3**	**5**
Foreign	*2*	*5*	–	–	*4*	*10*	–	–
Domestic	*8*	*15*	–	–	*8*	*15*	–	–
D. Books	–	–	–	–	–	–	–	–
Foreign	–	–	–	–	–	–	–	–
Domestic	–	–	–	–	–	–	–	–
Book chapters	–	–	–	–	*1*	*2*	–	–
E. Citations	**12**	**30**	**30**	**70**	**30**	**50**	**30****	**50*****
Foreign	*2*	*5*	*10*	*20*	–	–	–	–
Domestic	*7*	*20*	*20*	*50*	–	–	–	–
Other	*3*	*5*	–	–	–	–	–	–
F. Lecture notes	**3**	**6**	**1**	**3**	**4**	**8**	–	–
G. Other publications	**7**	**20**	**2**	**5**	–	–	–	–

EU- University of Economics, Bratislava
UMB- Matej Bel University
SPU- Slovak Agricultural University
UK- Comenius University
Notes:
* For UMB a UK this category includes journals and proceedings.
** or 10 foreign citations
*** or 20 foreign citations