

**UNECE COMMITTEE
FOR TRADE, INDUSTRY AND ENTERPRISE DEVELOPMENT**
Annual Forum, 24-25 May 2005, Geneva

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24 May 2005

Can knowledge be the next source of comparative advantage of transition economies?

The role of ICTs in industrial restructuring, and the next wave of outsourcing

Introduction

A significant number of transition economies (e.g. in Central Europe) have been among the main beneficiaries of recent waves of outsourcing. As international trends continue to enable 'global sourcing', where should those countries find new comparative advantages when outsourcing moves 'further East' ?

On average, transition economies seem to enjoy factor endowments characterized by a high level of education, and a tradition of success in knowledge-intensive areas. Could this be a sustainable basis for their insertion in the emerging global information economy ?

Measuring Globalization

Since year 2000, A.T. Kearney has been computing a 'globalization index' resting on four pillars (four '*wheels of globalization*'), namely economic integration (including trade and finance), political engagement, information technology, and personal contacts. The index comprises 62 countries, which together account for 96 percent of the world's gross domestic product (GDP) and 85 percent of the world's population. (slide 1)

If, using the ATK index, one separates technological factors of globalization (percentage of population on line, number of Internet hosts per capita, number of secure servers per capita) from the non-technological ones (trade, capital flows, tourism flows), a striking and contrasted vision of globalization emerges: whereas 'non-technological globalization' seems to have reached a plateau, 'technological globalization' seems on the contrary to still be in its initial 'accelerating phase'.

A first conclusion is hence that the current wave of globalization is more 'technology-driven' (one could even venture to say 'IT-driven') than it is trade-driven or investment-driven. (slide 2)

How do transition economies fare in this environment ?

In the 2004 index (2003 data), two transition economies were part of the 'Top 20' global economies (the Czech Republic, in 14th place, and Slovenia, in 19th place). The Czech Republic managed this respectable ranking without a strong 'Technology wheel'. (slide 3)

In the 2005 index (2004 data), a third transition economy (Croatia) became a member of the 'Top 20'. The Czech Republic now ranks 15th, Croatia 16th and Slovenia 20th. Like the Czech Republic, Croatia managed this ranking without a strong 'Technological wheel'. (slide 4)

Measuring Knowledge as a tool for competitiveness

Knowledge, and its application, is now acknowledged to be one of the key sources of growth in the global economy. The increasing importance of knowledge has created both a challenge and an opportunity for developing countries. If properly adapted to circumstance and effectively deployed, knowledge can be a key driver of development. To create and sustain an effective knowledge economy, countries must put in place appropriate arrangements to stimulate, encourage and grow knowledge practices and to become more knowledge-competitive.

Framework for the Knowledge Economy

The program has developed the following framework consisting of four pillars to help countries articulate strategies for their transition to a knowledge economy (KE): (1) An economic and institutional regime that provides incentives for the efficient use of existing and new knowledge and the flourishing of entrepreneurship., (2) An educated and skilled population that can create, share, and use knowledge well, (3) A dynamic information infrastructure that can facilitate the effective communication, dissemination, and processing of information and, (4) An efficient innovation system of firms, research centers, universities, consultants and other organizations that can tap into the growing stock of global knowledge, assimilate and adapt it to local needs, and create new technology. (slide 5)

The World Bank's knowledge assessment methodology (KAM) rests of a set of 80 structural and qualitative variables that serve as proxies for the aforementioned four pillars that are critical to the development of a knowledge economy. The comparison is undertaken for a group of 128 countries which includes most of the developed OECD economies and over 90 developing countries. Those variables are divided into five 'clusters' or sub-groups, covering the following components: (1) performance indicators, (2) Economic Incentive and Institutional Regime, (3) Education and Human Resources, (4) Innovation

system, and (5) Information Infrastructure. The following variables are used to describe each of those five components:

- (1) *Performance Indicators* - annual GDP growth and human development index.
- (2) *Economic Incentive and Institutional Regime* - Tariff and non-tariff barriers, Regulatory quality, and Rule of law .
- (3) *Education and Human Resources* - Adult literacy rate (percentage 15 and above), Secondary and tertiary enrolment rates, Adult literacy rate,
- (4) *Innovation system* - Researchers in R&D, Patent applications granted by the US Patent and Trademark Office (USPTO), and scientific and technical journal articles.
- (5) *Information Infrastructure* - Telephones per 1,000 population, Computers per 1,000 population and Internet users per 10,000 population. (slide 6)

How do transition economies fare in this environment ?

An 'aggregated version' of the KAM indicators provides a 'Knowledge Economy Indicator' (KEI) which provides a rough measure of how well endowed a particular country is to compete in a knowledge economy.

On a scale of 0 to 10, most economies in transition rank between 4 and 8, i.e. generally above average. (slide 7)

In Europe, Central Europe (Poland, the Czech Republic, Slovakia, Hungary, Slovenia), the Baltic States and Russia rank higher (6 to 8) than other transition economies (4 to 6).

Remark: Two of the three transition economies ranked among the 'Top 20' of the ATK index (CZE, SLO) are also among the better performers of the WB's Knowledge index. No data was available for Croatia. (slide 8)

Using the 'cobweb' view of the KAM, one can draw interesting conclusions about what separates a national economy from another one, in terms of their respective 'knowledge pillars'. (slide 9)

For example, Hungary and Slovakia differ significantly in areas like Innovation, R&D, literacy rates (where Slovakia is doing better than Hungary), and also in internet usage or trade openness (in which Hungary scores better). However, when compared to an 'outsider economy' (like China), the situation of those two countries look suddenly very similar. (slide 10)

The same conclusion can be drawn from comparing the KAM scores of Moldova and Bulgaria, for example: although Bulgaria looks more 'knowledge-ready' than Moldova on most accounts, the two economies look fairly close to one another once compared to a 'top scorer' such as Finland. (slide 11)

Using the KAM approach to compare the situation of countries with radically different economic, legal and social environments (such as Germany, Mexico and Kazakhstan for example) reveals strong correlations within 'sub-sets' of indicators. This suggests that policy decisions are important in channeling national energies towards specific pillars of the knowledge economy. (slide 12)

Measuring 'network readiness'

Since 2001, the World Economic Forum (initially with Harvard University, then with INSEAD and *infoDev*) has published an 'NRI ranking' of a growing number of national economies. The Networked Readiness Index is defined as the degree of preparation of a nation or economy to participate in and benefit from ICT developments. Using relatively sophisticated econometric and data analysis methods, the NRI currently ranks 104 countries for which the values of 71 variables are collected.

How do transition economies fare in this environment ?

In 2005, 16 transition economies appeared in the NRI: out of those 16, 6 were in top 52, and 9 in bottom 52. One of the areas in which transition economies scored higher is that of 'Availability of scientists and engineers' (12 in the top 52 - SLK #11 – and 5 in the bottom 52). Transition economies generally did not rank well vis-à-vis variables such as 'Technological sophistication' (5 in the top 52 (EST 30, then CZE, SLK, HUN, SLO), and 10 in the bottom 52) or 'Sophistication of financial markets' (3 in the top 52 (EST, HUN, LIT) and 14 in the bottom 52).

In other words, transition economies rank higher than average in the 'human dimension of knowledge' and lower than average in its 'technologico-financial' dimensions. (slide 13)

Over time (comparing KAM from 1995 to the latest year available), Eastern and Central European countries seem to have started to 'fill the gap' vis-à-vis more advanced economies (e.g. OECD). They are definitely doing better than world average, and their 'KEI performance' can be compared to that of East Asia. Poland seems to stay ahead of the pack. (slide 14)

This picture is even more striking (and to the advantage of Eastern and Central Europe) for the 'Education' cluster. (slide 15)

As far as information infrastructures are concerned, however, Eastern and Central Europe is not doing as well. (slide 16)

This can partly be explained by the situation of Internet connectivity, in which most of Eastern and Central Europe is still lagging, under the compounded effect of high prices and low rates of connectivity.

Pricing dynamics, however, seem to show that, under proper policy decisions (especially regarding the regulatory and competition environment), those countries have the possibility to catch up rapidly with OECD countries. (slide 17)

Apart from the emergence of competitive markets for telecommunications and data services, another important way in which transition economies can accelerate their integration in the knowledge economy is to identify and develop ways to stimulate usage of information infrastructure, hence generating significant economies of scale and additional incentives for investors.

Because those economies come from a tradition of 'heavy government' and an almost 'all-encompassing' public sector, one way in which they can contribute to the growth of demand for internet-based services is through 'e-government'.

Indeed, e-government emerges as the typical area in which governments can fully play their role of leader while generating the usage which will contribute to lowering prices and enhancing connectivity. (slide 18)

The path followed by the 'top performers' of network-readiness shows that their governments have been both 'leaders' and 'facilitators' of their own information revolution. While allowing the private sector (and local governments' to assume functions traditionally reserved to central governments (acting as facilitators), such governments have also accepted to play new and important roles in formulating a vision and a strategy regarding the future role of their respective countries in the emerging global information economy (hence playing a real 'leader' role). (slide 19)

Some policy-related observations and conclusions

- ECE was a major beneficiary of outsourcing (near-shoring as opposed to off-shoring)
- Labor cost equalization (especially through UE integration) will diminish attractiveness of ECE as outsourcing territory (Eastward migration in two waves, continental and extra-continental)
- High level of education, tradition in high-tech (engineering, technical universities) indicate that knowledge-intensive activities could be resilient source of CA for transition economies

The knowledge economy is an opportunity not to be missed by transition economies, especially those who were the first beneficiary of the outsourcing wave. (slide 20)

Then, what is missing ? (priorities for action)

Transition economies must take advantage of their strong human capacities (education, knowledge, skills, culture, entrepreneurship) by developing their information infrastructure, their network readiness and the IT-intensity of their economies.

To help such efforts, the following areas are top targets for improvements:

- Culture of innovation and risk (VC/right to fail)
- Rule of law/governance (perceptions vs reality)
- More champions (e.g. Estonia in e-government)
- New roles for government and private sector

(slide

21)

The A,B,C,D,E of e-based competition summarize much of the above :

A for Access - Infrastructure, costs, competition/regulation

B for Basic Skills (human resources) - Basic education, vocational training, entrepreneurship

C for Content - Local value, languages, and generally content able to generate value for both local (e.g. SMEs) and foreign users

D for Desire, i.e. local will to reform, adapt and change, and

E for Excellence, because in a 'flat world' successful competitors will show superior abilities to in-source knowledge, outsource high costs, and retain excellence.

In today's rapidly changing world, we all live in transition economies. Maybe, those who first knew the pain and the excitement of being transition economies can share a lesson or two with the rest of us. The emergence of a global information economy is certainly an opportunity for them to show and lead the way in more than one respect.

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