

## **Policy Brief of the Interim Report**

### **Impact of Trade Openness and Technology Transfers on Growth:**

#### **panel data investigation for transition economies**

**Roman Moskalyk**

Grant Number: R06-1701

The new growth theory predicts that a country's openness improves domestic technology, and hence an open economy grows faster than a closed economy through technological improvements. Though, the existing empirical literature does not provide clear evidence on relationship between openness and growth that might be explained by the fact that it rarely looks at the technological characteristics of openness. The research topic is even more underdeveloped in the context of the transition economies due to specific transitional factors and data limitation. Thus it can seem that there are not clear substantiation for strengthening of liberal trade policy and improvement of market access in developing countries and transition economies for growth enhancement purposes.

In this study we investigate the causal impact of technology intensive trade openness on productivity growth. For a group of 72 developing countries, including 18 transition economies, for the period of 1991-2005 we estimate equations that relate developing countries' total factor productivity (TFP) to technology intensive trade openness, international technology transfers, domestic R&D investments, foreign R&D stock, secondary school enrollment rates. We use panel data methods in combination with instrumental variable (IV) analysis to tackle with different endogeneity problems.

#### **Practical contribution of research**

The results of the study have practical application for trade policy of developing countries, including transition economies, in particular in elaborating the policy incentives to support foreign trade (imports) with highly technological partners and in technology-intensive products as well as to encourage technology transfers that are considered in our study as important sources of economic

growth. We found out that technology intensive trade openness has *economically* larger effects on TFP rather than overall trade openness. Also foreign R&D spillovers from developed countries to the South *positively and largely* affect TFP. Besides we could suppose that the domestic R&D expenditures are important for productivity growth. So we could recommend the policy instruments of developing countries combining incentives for both internal innovations and external technology transfers and R&D spillovers in order to stimulate productivity growth and hence output growth.

Our research results provide support for policy recommendations by the World Bank and WTO, meaning that governments of developing countries as well as transition economies should implement and follow sound trade liberalisation and fair market access rules as well as create favourable conditions for technology transfers from abroad. On receiving evidence from the research we are able to recommend introducing a set of concrete measures, in particular lowering import tariffs and refusing from import licensing requirements for technology-intensive goods; priority in harmonising standards and technical norms for technology-intensive goods with highly technological countries-partners; expansion of national treatment and transparency principles on government procurements in technology-intensive goods and services; use of favourable rules of origin practices; improvement of institutional framework in favour of attracting technology transfers from abroad, including implementation of the WTO commitments on intellectual property rights protection (TRIPS), harmonisation of requirements for registration of patents by non-residents and licensing procedures with a country's trade partners etc.

### **Contribution to the literature**

The research adds to the existing literature on openness and growth in four ways. First, it addresses not only general openness but also its nature such as its technological component. We proved that technology intensive imports' positive effect on TFP is larger than when we use overall imports. The overall trade openness (when both export and import components are employed) can have even negative relationship with productivity.

Second, we have primarily arguments that not only external but also internal R&D activity and spillovers become important for productivity growth in developing countries. It will be explicitly checked using the lagged values of R&D investments to GDP in growth regressions on the next stage.

Third, we introduce a set of appropriate time-varying variables as instruments for developing country's technology intensive trade openness to deal with endogeneity bias in estimating equation as, among others, value added in industry in highly innovative industrial countries weighted by the bilateral import shares of the developing country with each of these countries and international voice traffic (out and in minutes) in the developing country.

Forth, we investigate the issue for transition (including fSU) economies (not only for developing countries)—for which the accumulated empirical evidence is limited.