

**ACCOUNTING FOR INEQUALITY IN TRANSITION
ECONOMIES:
AN EMPIRICAL ASSESSMENT OF GLOBALISATION,
INSTITUTIONAL REFORMS, AND
REGIONALISATION**

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Abstract

We analyze the causes and mechanisms of inequality in transition economies of Central and Eastern Europe and the Commonwealth of Independent States after the break-up of the Soviet Union. First, we show that both economic globalisation – namely, imports, exports, and foreign direct investment – and institutional factors – namely, privatisation reforms, labour market liberalisation, and product market liberalisation – are strongly associated with within-country rises in inequality. However, some of these factors are intertwined. Second, the impact of globalisation on inequality is negative (positive) at low (high) levels of human capital. Third, human capital appears to exert a uniformly positive effect on inequality at different stages of globalisation. Fourth, trade integration with the European Union is correlated with rises in inequality.

JEL Classification: D63, F16, O33

Keywords: Inequality, Transition Economies, International Trade, Skill Biased Technological Change

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1 Introduction

Economies that have emerged from the disaggregation of the Soviet Republic have gone through processes of radical economic and institutional transformations since the 90's. These have encompassed globalisation – that is, increased trade and foreign direct investments (FDI) – regionalisation – namely, increased economic and political integration with the European Union (EU) – as well as a vast set of reforms of privatisation, and market and financial liberalisation. All of these processes have been accompanied by a progressive retreat of the State from its role of direct management of the economy, which was more pronounced in some countries than in others. At the same time, all these countries experienced a dramatic rise in income inequality, with the GINI index taking off from some of the lowest levels in the whole world during the 80's – around 20% – to levels several magnitudes higher.

The aim of this paper is to investigate the relationship of these factors with inequality, and increase the understanding of the underlying causal links. More specifically, we want to assess the quantitative impact of each of these factors, both in isolation from and in combination with each other. We shall also seek to compare the experience of countries that have joined the European Union from those that have not, in order to gauge the possible relevance of the process of European integration on economic performance. In other words, we want to assess the relevance of some institutional aspects connected with joining the EU on controlling inequality – such as the acquisition of better policy instruments on one hand, and the liberalisation and deregulation processes on the other.

The paper is organised as follows. Section 2 describes the general trends in economic, institutional changes and inequality for transition economies (TE). Section 3 reviews the theoretical and empirical literature on inequality, openness, and institutional change, focussing on studies on TE. Section 4 reports the results of our econometric analysis and Section 5 concludes.

2 General Trends in Economic, Institutional Changes and Inequality for Transition Economies

2.1 Evolution of the economic policy framework

During the Soviet period, the trade patterns of those countries that are now known as TE were highly inward-oriented. For decades, most of these countries constituted at various

degrees an almost unified trade and investment bloc that functioned separately from, had different rules from and had limited access to the rest of world markets. Trade was restricted and regulated by the Council for Mutual Economic Assistance (CMEA)³, the key central planning mechanism that decided how the countries traded with each other as well as with the rest of the world. Under the planning mechanism, imports and exports were co-ordinated and negotiated through bilateral agreements which obligated the signing governments to trade with each other specified quantities of particular goods. Prices, expressed in Transferable Rubles⁴, were also negotiated at the government-to-government level.

The political disintegration of the Soviet Union leading to the establishment of fifteen new independent states and the break-up of Yugoslavia into seven states resulted in a breakdown of the traditional links among economic units located in the territories of the new states: what had been domestic transaction in the same currency governed by the same laws became international trade. Therefore, after the break-up of the Soviet Union, one of the many changes that the TE experienced regarded the reintegration of those countries in the global economy and the shift from trading patterns established by central plan decisions to new patterns of trade determined by market forces.

Trade liberalisation has indeed been an integral part of the transition process undertaken by formerly centrally planned economies at the beginning of 1990s. At the outset of the transition, trade reforms have focused on measures to encourage and redirect countries' exports. In the immediate aftermath of the Soviet Union's dissolution, in fact, trade in the region essentially collapsed. This was due to several factors including the break-up of CMEA and the deep post-transformation recession with the consequent contraction of domestic demand. The first liberalisation measures consisted of phasing out the state foreign trade monopoly, allowing registered operators to carry out foreign trade transactions and freeing their access to foreign currencies for trade purposes. At the same time, most of the countries started to open, at different degrees, their economies to FDI (OECD, 2001). Even though substantial differences exist among the TE trade regimes, most of the countries in the region have now adopted liberal trade policies⁵. Tariff protection of domestic industry and agriculture is on average lower in comparison with developing countries (DCs) at similar

³ The CMEA was founded in 1949 by Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania and the Soviet Union.

⁴ The TR (transferable rubles) was an abstract unit of account, which had no physical presence.

⁵ Belarus, Turkmenistan, and Uzbekistan, are all characterised by very protectionist regimes, whereas recent WTO members like Armenia, Croatia, Georgia, the Kyrgyz Republic, and Moldova have very liberal trade regimes, especially when compared with developing countries at similar levels of per capita income. In between are some of the larger transition economies such as Russia and Ukraine.

levels of income and the extent of protection through non-tariff barriers appears to be no greater (World Bank, 2007).

There is significant diversity also in the extent to which different countries participate in regional trade agreement with the EU. In this respect, we can divide the TE into two sub-regional groups.

- EU New Member states (NMS). This includes the ten countries that recently acceded to the European Union⁶. All EU NMS have accepted the EU *acquis*⁷ in its totality and the related obligations. These include the adoption of the EU external tariffs and of all the EU regulations governing external trade, including the preferential agreements the EU has signed with many countries worldwide. On joining the EU, NMS became part of the EU single internal market. This means that free movements of goods and capital introduced already to a considerable extent under the Europe Agreements, is now fully applicable to all the new Member States.
- Commonwealth of Independent States (CIS) and South-East European (SEE) States. CIS are those countries that were created from the break-up of the Soviet Union⁸. Most of these countries established co-operation links with the EU within the framework of the ENP and of Partnership and Co-operation Agreements (PCA)⁹. The objective of the ENP is to share the benefits of the EU 2004 enlargement with neighbouring countries. It is also designed to prevent the emergence of new dividing lines between the enlarged EU and its neighbours. The vision is that of a ring of countries, drawn into further integration, but without necessarily becoming full

⁶ In particular, this group includes the eight countries that joined the EU in January 2004 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic and Slovenia) and the two countries that acceded to the EU in January 2007 (Bulgaria and Romania).

⁷ The term *acquis* is used in European Union law to refer the total body of EU laws, rules and regulations accumulated so far.

⁸ This group includes all the countries resulting from the disaggregation of the Soviet Union, except for the Baltic states. In particular, CIS countries are: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

⁹ The ENP covers all the European CIS states (with the exception of Russia) in the Caucasus and Eastern Europe. When the EU unveiled its ENP, Russia chose not to join, fearful of being dominated by the EU. Russia aspires to be an "equal partner" of the EU (as opposed to the "junior partnership", as Russia sees the ENP). Consequently, Russia and the European Union agreed to create four Common Spaces for cooperation in different spheres. In practice there are no substantial differences (besides naming) between the sum of these agreements and the ENP Action Plans (adopted jointly by the EU and its ENP partner states). The objective of the common economic space is to create an open and integrated market between the EU and Russia. This space is intended to remove barriers to trade and investment. The EU's cooperation objectives with the Central Asian countries are instead based on the Partnership and Cooperation Agreements (PCAs) in force with Kazakhstan, Kyrgyzstan and Uzbekistan and signed with Turkmenistan, and the Trade and Cooperation Agreement (TCA) with Tajikistan.

members of the European Union. PCA are basic commercial treaties which establish the adherence to basic commercial rules and in some cases provide Generalised System of Preferences treatments (GSP)¹⁰. SEE include the three countries – i.e. Croatia, Macedonia, and Serbia and Montenegro - that were created out of the disaggregation of Yugoslavia, and which, unlike Slovenia, have not yet joined the EU. However, these countries are either formal candidates, or have some prospects of acceding to the EU. With few exceptions, all these countries have already signed Association Agreements – which involve free trade arrangements in many sectors and preferential treatments in others – with the EU. For the purpose of our analysis, we shall consider these two groups as a single entity in the rest of the paper, and we will refer to them as ‘CIS & SEE’.

2.2 Trade, Institutional Reforms and Inequality Patterns

Trade liberalisation efforts and commercial agreements especially with the EU resulted in a significant increase of trade flows in the region over the last decade. Figure 1 illustrates such growth. NMS began with a wider share of trade over GDP than CIS & SEE at the beginning of the period, but the latter caught up towards the end of the ‘80s¹¹. During the 90s, NMS leapfrogged CIS & SEE in terms of trade share, but the difference is smaller than at the beginning of the ‘80s. In addition to trade openness, outward economic orientation also comprises FDI attracted by different countries. Figure 2 shows that since the 90’s the region has received an increasing amount of FDI. The fact that EUNMS were more capable of attracting FDI indicates the positive attitude of these countries towards foreign investors and, in parallel, a positive external assessment of the general economic environment by foreign investors in host countries.

Figure 3 and 4 plots the patterns for two of the institutional change measures that will be used in the rest of the paper. Share of workers in the private sector measures the percentage of workers active in the private vis-à-vis the public sector. It may thus be considered a measure of the degree of liberalisation in the labour market. This variable progressively increased over time from a value exactly equal to 0 in CIS & SEE in 1990, and 20% in NMS. The privatisation revenues variable offers a direct appraisal of the magnitude of

¹⁰ The GSP is a scheme – proposed by UNCTAD in 1968 – under which industrialised countries would grant trade preferences to developing countries. The European Community was the first to implement a GSP scheme in 1971. The EU’s GSP grants products imported from GSP beneficiary countries either duty-free access or a tariff reduction, depending on which of the GSP arrangements a country enjoys.

¹¹ Some caution is needed in the interpretation of these graphs. Trade data for the 80’s do not separate out intra-Soviet Union trade among regions which later became States. This implies that trade before the ‘80s is underestimated in the Post-Soviet Union bloc in comparison to the levels of trade in the ‘90s.

the selling of State enterprises. Even in this case, we can observe a steady upward trend, which is steeper for the NMS.

Another important feature of the trade patterns in the region is the prominent role of the EU as the major merchandise export destination and import origin market. Table 1 summarises the evolution of these shares for the different groups of countries. It is interesting to note that the share of exports going to the EU and of imports coming from the EU increased for NMS and SEE. However, the initial level of the EU share in merchandise exports and imports were relatively high. Instead, for CIS countries the EU is neither the major export destination market, nor the main import origin market. The larger geographic distance and the slower pace of economic agreements may be the reason for this fact.

Table 1: Directions of trade per region (Shares)

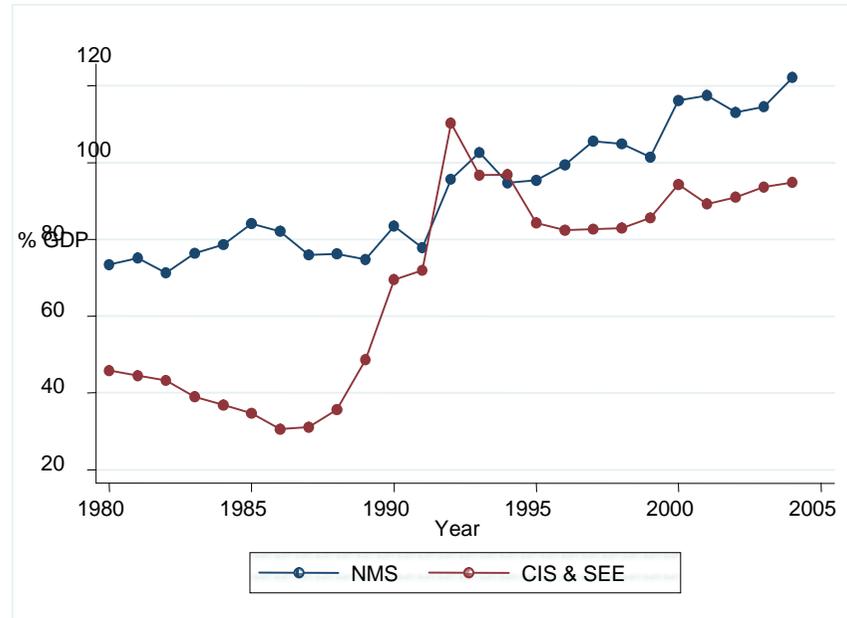
		<i>Share of total world merchandise exports (%)</i>			<i>Share of total world merchandise imports (%)</i>		
	Year	Region	EU-15	Others	Region	EU-15	Others
CIS	1993	21.0	46.2	32.8	27.7	42.9	29.4
	1996	47.7	32.5	19.8	47.9	28.7	23.4
	2000	47.6	33.6	18.8	39.0	33.1	27.9
	2003	39.3	39.6	21.1	37.8	34.8	27.4
SEE	1993	30.9	53.9	15.2	22.8	47.9	29.3
	1996	27.7	59.3	13	24.3	52.0	23.7
	2000	28.4	61.2	10.4	24.6	61.1	14.3
	2003	27.9	62.2	9.9	22.2	63.7	14.1
NMS	1993	27.5	61.7	10.8	25.3	62.6	12.1
	1996	25.1	65.1	9.8	26.1	64.1	9.8
	2000	25.5	65.3	9.2	19.9	68.6	11.5
	2003	23.7	65.4	10.9	22.1	67.5	10.4

Source: IMF Directions of Trade Statistics (IMF, 2006)

In the same period over the last decades inequality increased significantly in the area. Figure 5 plots the evolution of the Gini indexes for individual countries (Panels 5a and 5b), and for the two groups of NMS and CIS & SEE (Panel 5c). All TE started in the 80's with extremely low levels of inequality. In nearly all the countries for which data are available, GINI indexes were below 30% before the 90's. The rise in inequality in the subsequent years has been dramatic. Countries such as Romania, Bulgaria, and Belarus, seemed to have experienced an extremely steep upward trend in inequality, which in some cases have been concentrated in few years. In some other countries, like Poland and Macedonia, the upward trend has been spread over the years. In a few countries, like Armenia, Albania, and Belarus, the evolution of inequality seems to follow an inverse-U pattern akin to a Kuznets curve, in spite of the time spanned by our dataset being very short. Figure 5c shows clearly that CIS & SEE countries ended up on average with a significantly higher level of inequality than NMS

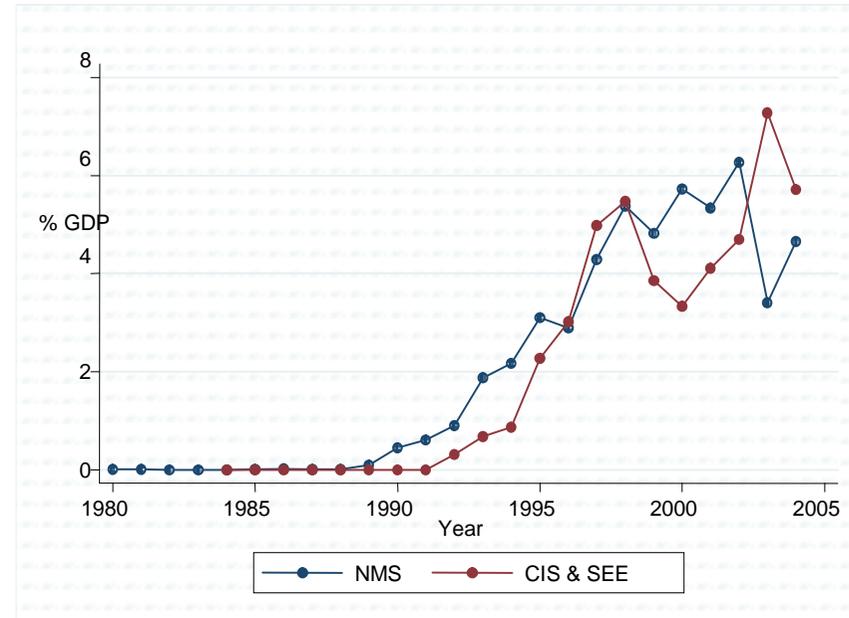
during the 2000s. Section 4.5 seeks to establish whether this is due to the action of a specific mechanism or to a more general governance failure in the former group of countries.

Figure 1: Evolution of Total Trade as a percentage of GDP per region



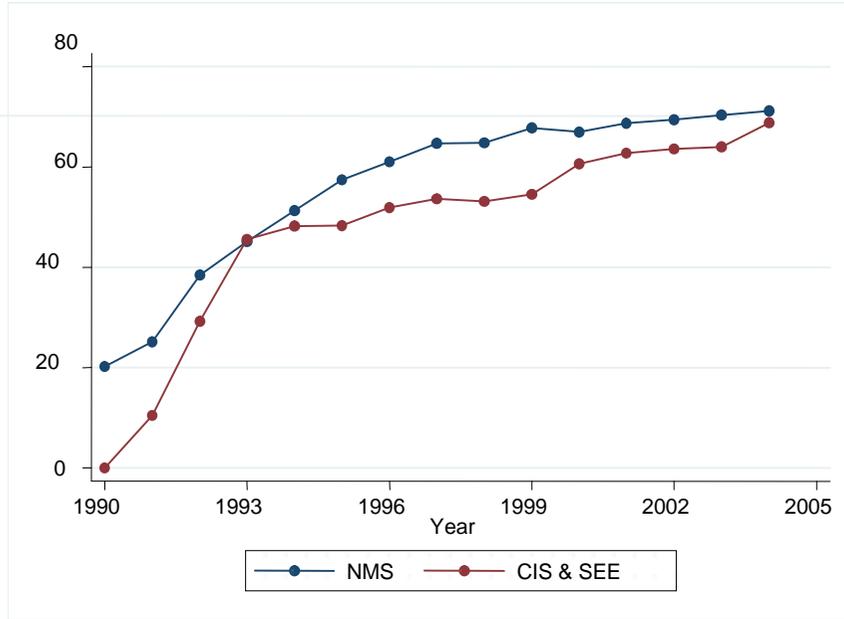
Source: World Development Indicators (World Bank, 2007)
Note: GDP expressed in Purchasing Power Parity (PPP)

Figure 2: Evolution of FDI as a percentage of GDP per region



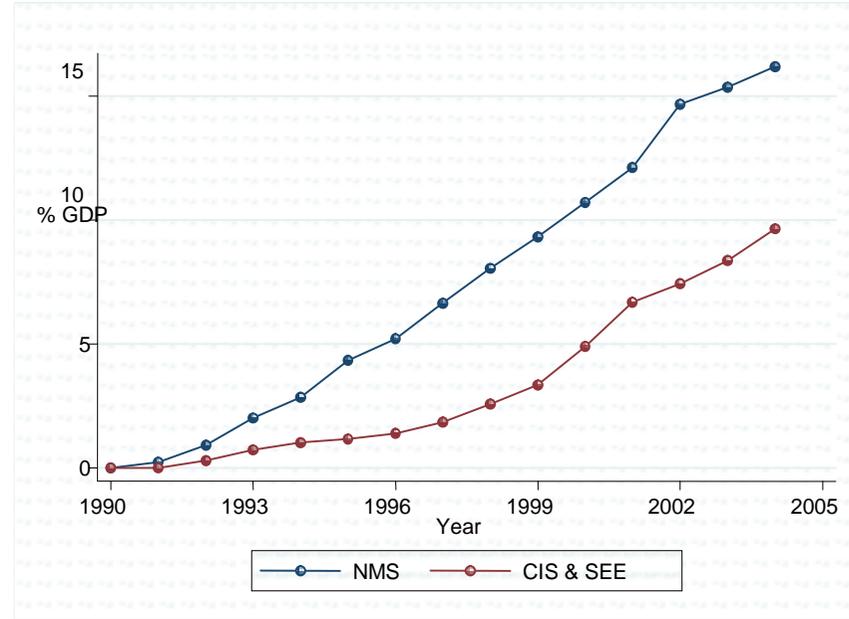
Source: FDI/TNC Database, UNCTAD (2007)

Figure 3: Employees in Private Sector as a Share of Total Employees per region



Source: Authors' elaborations from WDI (World Bank, 2007)
 Note: GDP expressed in Purchasing Power Parity (PPP)

Figure 4: Privatisation Revenues as a Percentage of GDP per region



Source: FDI/TNC Database, UNCTAD (2007)
 Note: GDP in Purchasing Power Parity (PPP)

Figure 5a: Evolution of Gini Index per country – NMS region

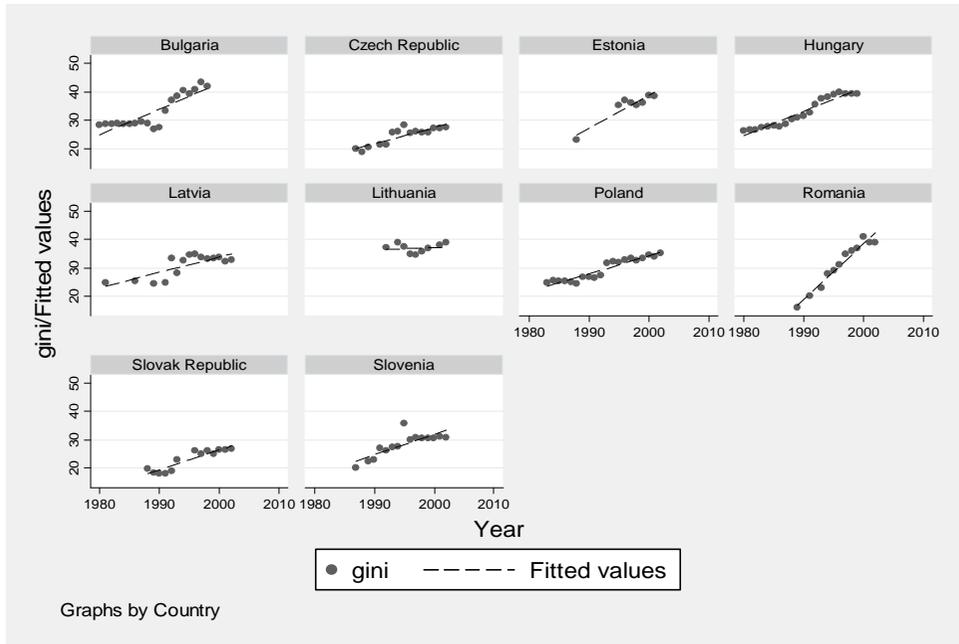


Figure 5b: Evolution of Gini Index per country – CIS & SEE region

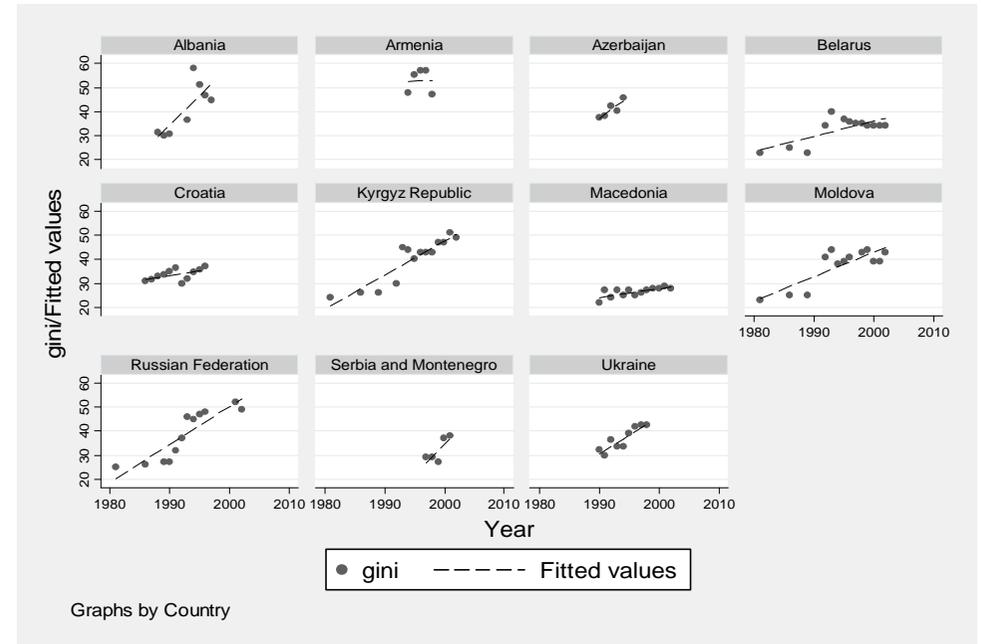
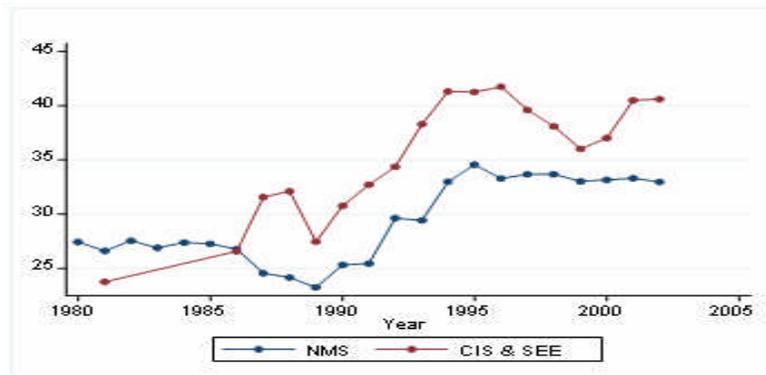


Figure 5c: Evolution of Gini Index per region



Source: WIID/WIDER (2007) and EHII/UTIP *Galbraith and Kum, 2003)

3 Theoretical and empirical background

This section outlines the theoretical and empirical background for the econometric analysis of section 4. First, we focus on the theoretical mechanisms linking international openness with wage inequality. We broaden the standard Heckscher-Ohlin (HO) framework to allow for differences in the technologies adopted by countries. Section 3.2 describes the theoretical role played by other factors in shaping the inequality outcome in the region. Transition countries underwent in fact radical changes in their political and economic structure and it is thus important to consider the role of what we refer to as ‘institutional factors’ as well. In what follows we consider the process of privatisation, labour market liberalisation and price liberalisation. Finally, section 3.3 presents the results of some previous empirical works aiming at identifying the various causes of the recent rise in income inequality in TE.

3.1 International openness and inequality

3.1.A Global or local validity of the Stolper Samuelson theorem?

The standard model used by economists to analyse the effect of trade on the relative returns to different factors of production is the HO model, which builds on the Ricardian theory of comparative advantages by predicting patterns of trade and production based on the factor endowment of a trading region. In its simplest version, as reported in Wood (1994), the model assumes two factors of production – skilled and unskilled labour¹² - and two countries, the North (developed countries) and the South (developing countries), each producing two goods (skilled and unskilled labour-intensive). Other assumptions in the model are perfectly competitive markets and identical production functions with freely available technology across countries. The related predictions in terms of the distributive consequences of trade openness are well known and have often been invoked to justify trade liberalisation in the developing countries. According to what is also known as the Stolper-Samuelson (SS) theorem, greater openness should increase the relative demand and prices for unskilled labour and lead to a less unequal distribution of wages in low and middle income/low-skilled labour-abundant countries.

¹² Wood (1994) justifies the omission of capital and land from the skilled-unskilled labour model, arguing that “*machines and raw materials are internationally traded with low transport costs, buildings are reproducible and financial flows tend to equalize interest and profit rates. Apart from infrastructure, labour is, thus, the only internationally immobile factor of production. [...] The North South difference in relative supply of the two distinct immobile factors (skilled and unskilled labour) provides the main basis for international trade?*” [Wood, 1994: pp 41].

However, some important critiques have been levelled towards the HO theoretical framework. In particular it has been argued that the HO model and the SS theorem are based on several assumptions that are too restrictive to describe the real world (e.g. Cline, 1997). If the model is generalised to account for (a) several countries – rather than just two - at different stages of development, and for (b) these countries adopting different technologies, then the distributional consequences of trade become unpredictable and may differ from those one would anticipate on the basis of a simplistic North-South interpretation of the SS theorem.

Even retaining the central assumptions of the HO model, the inclusion of many countries implies that factor abundance should be assessed in relation not to the world as a whole, but only with respect to the group of countries that have similar endowment proportions and produce the same ranges of goods. These countries are said to constitute a ‘*cone of diversification*’ (Davis, 1996). What matters for the distributive consequences of trade liberalisation is the relative position of the country amongst the other countries within its own cone. In fact, a developing country may be considered as “unskilled abundant” in global terms, but this may not be true in relation to other DCs. If factor abundance is defined in a *local* sense, the distributional consequences of trade can be the exact opposite of what we expect in a traditional HOSS framework.

This argument is particularly important for middle-income countries (MIC), such as most of TE which are likely to be relatively unskilled-labour-abundant in comparison with high-income trading partners and relatively skilled-labour-abundant in comparison with low-income ones. Thus, when TE opened to trade, they had to face the competition of labour-intensive manufacturing from low-wage labour-abundant low-income countries, and this may affect and change their comparative advantages in labour intensive exports¹³. Indeed, in this context trade liberalisation may cause the contraction of either highly skilled-intensive sectors (replaced by imports from DCs) or of unskilled-intensive sectors (replaced by imports from low income countries), so that the overall impact of liberalisation cannot be determined *a priori*.

¹³ Wood (1997) proposes this argument to explain the dramatic increase of income inequality that Latin American countries have experienced starting from the mid-80s. Cornia (2003), too, underlines the importance of this argument in explaining the increase in inequality that many MIC have experienced during the 90s. He stresses that, as a consequence of the entry into the world market of low-skill manufactures from China, Indonesia and other exporters with substantially low wages, the formal sector of MIC “no longer has a comparative advantage in labour-intensive exports and either it informalises its production via a long chain of subcontracting agreements or shifts production towards skill-intensive exports. In both cases, wage inequality is likely to worsen” [Cornia, 2003, p.605].

Feenstra and Hanson (1996, 1997) extend this argument and develop a model where there is a continuum of goods ordered along a ladder whose steps are characterised by different levels of skill intensity. The model assumes the production of a simple final good that requires a *continuum* of intermediary goods with varying proportions of skilled and unskilled labour. They assume that the developing region has a comparative advantage in the unskilled labour intensive stages of the production, whilst the developed region is more efficient in the skilled labour intensive parts. Investment and trade liberalisation would shift the production of intermediate inputs (through trade and FDI) from developed to developing countries. While such products would be characterised as unskilled-labour-intensive from a developed country perspective, they appear to be skilled-labour-intensive from a DC point of view. In this way, the average skill intensity and skilled labour demand increase both in the North and in the South, inducing a rise in the skill premium in both areas.

These models – Davis (1996), Feenstra and Hanson (1996) – are directly derived from the HO and SS approach, since they borrow the central idea that the return to factors of production is conditional on their relative distribution among countries (Arbache, 2001). However, they stress that factor endowments and factor intensity are *relative* concepts. Other theoretical streams of literature depart radically from the HOSS framework by relaxing the key HO assumption of identical technologies among countries and considering the dynamic effects of trade.

3.1.B The role of technology

If the hypothesis of identical technologies among countries is dropped and one assumes that developed countries and DCs differ in their technology levels and that openness facilitates technology diffusion from North to South, then the final impact of trade in terms of demand for labour and relative wages also depends on the skill intensity of the transferred technology relative to that currently in use. There are many empirical studies showing the skill-biased nature of technological change in the developed economies (see, for instance, Berman *et al.* 1994; Autor *et al.* 1998; Machin and Van Reenen, 1998; Piva and Vivarelli, 2002 and 2004). Without necessarily assuming that developed countries transfer their “best” technologies to the DCs, it is quite reasonable to expect that transferred technologies are relatively skill-intensive, i.e. more skill-intensive than those in use domestically before trade liberalisation. Indeed, to the extent that technology upgrading is linked to international openness, trade liberalisation may

increase the demand for skilled labour in DCs too, reversing the prediction of the SS theorem.

Robbins (1996 and 2003) has called the effect of in-flowing technology resulting from trade liberalization the ‘skill-enhancing trade (SET) hypothesis’. His idea is that trade liberalization accelerates the flow of physical capital (and embodied technology) to the South, inducing rapid adaptation to the modern skill-intensive technologies currently used in the North. The resulting increased demand for skilled labour may then lead to a widening of wage and income dispersion in DCs.

There is an extensive literature stressing that economic opening may in fact expose DCs to new ideas and technologies (see e.g. Keller, 2001, and Hoeckman and Javoricik, 2006). Different channels have been identified as key vehicles of technological transfer. We focus here on import, export and FDI channels¹⁴.

Import flows can contribute to the international transfer of technology by providing DCs’ local firms access to new embodied technologies and by creating opportunities for *reverse engineering*. Many recent contributions have analysed empirically how imports act as a channel for transferring technologies and knowledge affecting productivity and fostering technological change (see for example, Coe and Helpman, 1995; Coe *et al.*, 1997; Mayer, 2000; and Barba-Navaretti and Solaga, 2002).

Exports may also induce productivity growth and technological upgrading. One reason lays in the *learning-by-exporting* argument, according to which exporting causes efficiency gains. Breaking into foreign markets allows firms to acquire knowledge of international best practice. Moreover, foreign buyers often provide their supplier with technical assistance and product design in order to improve the quality of imported goods, and they may transmit to their supplier located in DCs the tacit knowledge acquired from other suppliers located in advanced countries. The second mechanism is based on the *quality-upgrading* argument: exporters may be pressured by their foreign clients to produce according to quality standards that are higher than those prevailing in the domestic market. In this sense, export activity may lead to an upgrading of average product quality, which in turn generates demand for a better qualified workforce.

FDI are also very important channels for the international technology diffusion. The theories of Multinational Enterprises generally emphasize the importance of technology as a firm’s specific advantage that is to be exploited above. Hymer (1976) has been one of the first contributions to point out the idea that FDI represent not simply a transfer of

¹⁴ Other channels are the direct trade in knowledge through technology purchase or licensing and the labour turnover and movement of people.

capital, but also the transfer of a “package” in which capital, management, and new technology are all combined. Indeed, FDI can be important conduits for the transfer of technology in terms of both the more productive techniques embodied in the capital goods and the upgrading of the skills of the local labour force. They can hence facilitate the transfer of knowledge to technologically backwards countries that would need several times to produce the same technology independently.

3.2 Institutional Factors and Inequality

There are three mechanisms of what may be considered ‘institutional’ factors that will be considered as possible causes of inequality in the next section. These are privatisation, product market liberalisation, and labour market liberalisation.

3.2.A The Impact of Privatisation

As for the former factor, Edwards (2006) uses a neo-classical framework to discuss the distributional consequences of the privatisation process. The thrust of the model is the over-capitalisation of the economy at the expense of consumption, due to the policy-makers objectives of steady industrial expansion. The readjustment following this inefficient allocation of resources should lead to a fall of capital and, in the presence of full employment, to a fall in output, too. The impact on income distribution between capital-owners and wage-earners is however difficult to determine. On the one hand, the fall in capital should reduce the marginal productivity of labour – and thus gross wage rates should also fall. On the other hand, the shutting down of inefficient activities and the lower capital depreciation should free resources in the economy and reduce taxation, so that net wages may in fact rise. The picture is further complicated by the fact that scrapped capital may be reinvested abroad, thus increasing the income share accruing to capital-owners. The exact magnitude and direction of these distributional changes are thus difficult to quantify, as they ultimately depend on the structure of the economy both before and after the reforms.

Another class of models describe the privatisation process as correcting misallocations of capital across sectors. The transfer of capital from formerly protected sectors to more efficient ones should in principle be beneficial to the economy and to wages (Edwards, 2006). This is particularly true when the heavily subsidised energy sector had a large weight in the economy (Gros and Jones, 1991). Other models arrive at opposite conclusions for the short run by removing the assumption of costless factor mobility (Blanchard, 1997, Castanheira & Roland, 2000). Privatisation reforms are typically

modelled as the cutting back of a formerly subsidised sector, which is progressively replaced by a higher-productivity sector. Due to factor mobility costs and other adjustment frictions, though, the factors laid off in the inefficient sector cannot find immediate reemployment in the other sector. This further compounds the economy growth rate due to Keynesian multiplier effects. Consequently, the transition will be characterised by a marked recession and high unemployment. These short-run costs are nevertheless going to be reversed in the long run by higher wage and GDP levels.

Edwards (2006) builds on both approaches, and proposes a more sophisticated model characterised by heterogeneous firms. Its main idea is that under the Soviet-style planned economy soft budget constraints and lack of competition allowed firms to produce even when *de facto* they were making losses. The result was that more efficient firms indirectly subsidised the running of firms that could not break even. Privatisation reforms are thus modelled as the introduction of a system whereby firms that do not break even are shut. Under some assumptions over the capital-labour elasticity of substitution, this reform has non-neutral distributional effects. Abstracting away from reallocation adjustment costs, the more efficient firms will expand employment and production, whereas the least efficient firms will shut. Under efficient labour markets, it is demonstrated that these adjustment will bring about a fall in real gross wages. Even in this case, whether net wages and net domestic production actually decrease depends on capital depreciation and on the scope for re-investing capital abroad. The numerical simulations conducted point to a permanent fall in workers' income as a result of privatisation in most cases, so that a sizeable redistribution of income to the new capital-owners is likely to occur. The author also points out that this result is more likely to obtain in economies such as the CIS, where trade is costly, labour is scattered in remote communities and old, Soviet monopolies are harder to be replaced. NMS may instead enjoy the advantages on output of attracting FDI from abroad – particularly Western Europe.

3.2.B The Impact of Labour Market Liberalisation

While the theoretical account of the impact of privatisation focused on the functional distribution of income among capital-owners and wage-earners, approaches studying the influence of labour market reforms concentrate on earnings inequality. Indeed, many scholars argue that the most important force driving inequality upwards has been the increased inequality in labour earnings. This increase seems to derive both from a widening in the dispersion of wages and from the growth of non-wage incomes associated with self employment and entrepreneurial activities. On the one hand, the

emergence of the private sector has changed the process of wage setting by introducing a tighter link between productivity and wages, causing a departure from the highly compressed wage structure in place during the Soviet Union period.

A general rise in the returns to education following liberalisation also seems to have played a central role in the growth of wage dispersion. This is true especially for Central and Eastern Europe and the Baltic states. Rising educational premiums seem to have played only a minor role in the CIS, probably because of the low market value of the stock of knowledge inherited from the Soviet Union.

However Cornia (1996) stresses that other factors significantly contributed to the increased wage dispersion. Earnings inequality appears to have risen also because of the fall in the minimum wage, the expansion of a highly inequitable informal sector, mounting wage arrears, and a surge of inter-industry wage dispersion which favoured workers in politically influential sectors and penalised workers in sectors like health, education and agriculture.

Moreover, the share of self employment and entrepreneurial incomes has grown in all TE, due to the elimination of legal restrictions on private ownership and activities. This increase was about 5 to 10 percent in Central and Eastern Europe (with the exception of Poland) and the Baltic states, 20 to 35 in Russia, Moldova and Ukraine and more than 50 percent in the poorest republics of the Caucasus and Central Asia (World Bank, 2000a). These new sources of income are associated with greater inequality, since – unlike wages – are “critically tied to an individual’s access to assets (including knowledge and information) and are thus often conditioned by initial assets or incomes” (World Bank, 2000a, p. 153).

Boeri and Terrel (2002) emphasize the role of labour markets institutions in determining different distributive outcomes in Central and Eastern European Countries (CEECs) and CIS. In the CEECs the explosion of wage inequality has been in fact mitigated by institutions imposing wage floors. This has implied in the CEECs a greater employment rather than wage adjustment compared with the CIS, where labour market adjustments basically occurred through price rather than quantity.

3.2.C The Impact of Price Liberalisation

Another factor contributing to the increase in inequality after the transition has been the high inflation rate which followed the prices liberalisation. Nearly all socialist economies (with the exception of Czechoslovakia) embarked on the process of transition with a substantial monetary overhang. Thus where prices were liberalised they jumped

up, sometimes by factors of two or three (Flemming and Micklewright, 2000). This caused the erosion of real values of the arrears on pension and social benefits in several countries. Since the arrears were mostly concentrated in the bottom part of the distribution, the high inflation resulted in the cut of real wages in a highly inequality-enhancing fashion (Mitra and Yemstov, 2006). Finally, the significant fall of output during the first years of transition determined a decline of the revenues from collected taxes. This decline, associated with the increasing needs of the still state-funded social protection, resulted in a great increase of poverty among the most vulnerable social groups.

3.3 Empirical Evidence for Transition Economies

Surprisingly enough, the role of globalisation, trade (and investment) liberalisation in shaping the dynamics of income distribution during the transition is an issue that received considerably little attention within economic analysis. Possibly because of lack of data, to the best of our knowledge no empirical work has assessed the impact of globalisation on TE as a whole.

Cornia and Kiiski (2001) evaluate the impact of liberalisation reforms on WCII over a sample of 32 developing and transitional economies for the years 1980–95. The paper is not centred on TE, but some conclusions may all the same be drawn. They derive a synthetic index of policy reforms which also includes trade liberalisation measures. They then regress the variation of this index over the changes in income inequality. The regression analysis tentatively suggests that while the reform package had an overall inequality-enhancing effect, this was more pronounced in the economies of the former Soviet bloc (but not of Central Europe), probably because of their institutional weakness and the lower quality of the policies introduced. This general result suggests that the impact of globalisation might vary according to the economic and institutional development of the opening countries.

In fact, as we stressed above, liberalisation reforms may worsen income distribution if the increased trade flows and outsourcing entail a technological upgrading which may shift the relative demand of labour towards more skilled workers. Moreover, when TE opened their economy to global markets they had to face the competition from both low-wage countries characterised by low production costs and from more efficient firms in the developed countries. This has caused the closure of many domestic firms with

negative consequences in terms of employment which are more likely to harm unskilled labour. However, in countries with relative good institutions, absorption capacity and economic development – like many CEECs countries – aperture may also offer new opportunities to catch-up with the developed world, to generate new jobs and to redistribute economic gains.

According to this line of argument, the descriptive work by Yudaeva (2002) presents different stylised facts to show that the quality of institutions is an important factor affecting the results of globalisation in TE. She argues that, according to the traditional trade theory, trade liberalisation should lead to an increase in incomes of exporting sectors and a decrease in income in those sectors where import progressively substitutes domestic production. In this way globalisation can raise inequality by increasing the wedge between incomes in the two sectors. This process seems to be particularly harmful for countries characterised by weak institutions, since they are not able to redirect their exports from the extractive sectors to manufacturing industries, as the CIS experience reveals. In this sense, she argues that CIS countries – in contrast to active ‘globalisers’, like CEECs – have ‘globalised’ “passively”. Trade flows did actually increase in CIS, but – due to poor contract enforcement – manufacturing production has failed to become an export sector. This led to a bias in the economy towards over-expansion of the natural resources extraction sectors. Yudeava presents detailed evidence revealing that in resource-rich countries, such as Kazakhstan, other industrial sectors rather than oil have almost disappeared since the beginning of transition. Resource-poor countries, like Armenia, have instead experienced a substantial increase in the share of agriculture in GDP. The common thread is that bad institutions created obstacles to exports and therefore to the production of more complex industrial goods, intensifying the de-industrialisation of their economy. As it is stressed also by Mihaly (2006), the growing and practically uncontrolled exports of oil, diamonds and different raw materials facilitated capital flight, which provided enormous benefits to the new business elite in the resource-rich countries. Moreover, in CIS countries income inequality between the exporting and importing sectors is not compensated by inter-sectoral labour mobility or a well functioning social security system.

Mynbaev *et al.* (2006) show that in Kazakhstan wages in mining, gas and other mineral resource sectors – which are the sectors responsible for the bulk of exports and the main recipient of FDI – are the highest. They argue that trade liberalisation has worsened income distribution by increasing the wage gap between workers employed in

exporting and non-exporting sectors. By the same token, globalisation seems to have increased the gender wage gap because of the low mobility of women into the highly paid positions in western *oblasts*¹⁵ and mining sectors created by FDI and fostered by exports. Their econometric estimates also reveal that FDI had a positive inequality-enhancing impact on the skill gap and interpret this result as evidence in favour of the SBTC hypothesis.

Evidence for CEECs countries is more abundant than for CIS, although even in this case the focus is often on specific countries rather than on the whole group. Egger and Stehrer (2003) study the effects of trade in both intermediate and final goods and of multinational presence on the skilled-to-unskilled labour wage-bill ratio in 14 2-digit manufacturing industries in the Czech Republic, Hungary and Poland over the 1993-1999 period. They find that both intermediate goods exports and imports exhibit a positive impact on the unskilled workers' wage bill in absolute terms as well as relative to the wage bill of the skilled workers. However, their results also show that the final goods exports have a negative significant effect on the absolute and relative wage bill of the unskilled workers, and this effect is greater than the positive effect of intermediate exports. This indicates that final goods production is more skill-intensive than intermediate goods production. Since trade in intermediate inputs is generally associated with vertical FDI, the authors argue that outsourcing in CEECs uses unskilled workers more intensively and argue that this result is consistent with the expectation of the standard HO trade theory (see section 3.1.A). Their results also show that the increase in the share of multinational firms does not have any significant impact on the relative wage bill.

Bruno *et al.* (2004) analyse the impact of globalisation on the same three countries, but focusing only on the role played by FDI. In particular, they investigate whether and to what extent the increasing inflow of FDI has affected wage inequality by changing the composition of labour demand between skilled and unskilled workers in the Czech Republic, Hungary and Poland. Their results show that in the Czech Republic and Hungary, FDI do not exert a significant impact on the relative demand for skilled labour. However when they estimate a wage equation, they find that FDI have a positive and significant impact on the skill premium. They conclude that FDI did not contribute to worsen wage inequality on the quantity side, i.e. through favouring relative demand shifts.

¹⁵ The oblasts are the administrative units according to which Kazakhstan is divided. The share of foreign capital vary significantly across the oblasts. The western oblasts are those where the foreign capital share and average wages are the highest.

However, FDI impacted on the price side, by affecting the rise in the skill premium through the active role played by multinational firms in the general process of economic transformation that characterised the transition towards the market. This has pushed the labour market from a compressed and rigid wage structure towards forms of wage determination more typical of a decentralised market economy. For Poland the scarce effect of FDI on relative labour demand is confirmed, while evidence does not support a direct effect of FDI on the skill premium. The authors think that this result is probably due to the slower pace of the transition to a market economy that characterised this country in comparison with the Czech Republic and Hungary.

However, this finding is not corroborated by the study of Skuratowicz (2001) who finds that in Poland FDI have worsened wage distribution by increasing wage differentials between skilled and unskilled workers. Another analysis of the Polish case carried out by Goh and Javorcik (2005), though, shows that income inequality declined in Poland after trade liberalisation. They use firm-level data to examine the impact of tariff changes on the industry wage structure. The analysis of Poland's trade reforms during the 1990s reveals that the country embarked on a rapid process of trade liberalisation in preparation to accession to the EU. According to their results, a decrease in an industry tariff was associated with higher wages being earned by workers employed in that industry, controlling for worker characteristics and geographic variables. The positive relationship between tariff declines and wage increases is explained arguing that trade liberalisation led to increased competitive pressures in industries, forcing firms to restructure and improve their productivity. This mechanism is particularly stringent in the context of a transition economy, like Poland, where local firms were sheltered from any kind of competition until 1990. Increased productivity at the firm level then resulted in higher wages. Since liberalisation in Poland was more pronounced in industries with larger shares of unskilled labour, they conclude that trade reforms increased the returns to unskilled workers relative to skilled workers, contributing to a decline in inequality.

As far as institutional factors are concerned, the empirical literature is even scainter than that analysing the impact of globalisation. According to Milanovic (1998) higher dispersion of wages was the main factor behind the increased inequality in transition countries and was responsible for the rise of between 3.5 and 8 Gini points in Eastern Europe up to 15 points in Russia. A number of studies indicate that the returns to education increased substantially in the transition period (e.g. Rutwoski (1996) for Poland; Jones and Kato (1997) for Bulgaria; Sorm and Terrel (2002) for the Czech

Republic; Pastore and Verashchagina (2006) for Belarus; Delteil *et al.* (2004) for Hungary). Fleisher *et al.* (2004) underline that such increase was especially sharp in the early years of transition.

In sum, the empirical works reviewed here do not provide clear evidence on the link between international openness and income inequality in the transition countries. However, they suggest that a sudden liberalisation could be harmful for the most vulnerable groups of population if not accompanied by the building of domestic capacities

4 Econometric Analysis of Determinants of Inequality in Transition Economies

4.1 The Econometric Specification

The aim of this section is to illustrate and discuss the empirical model we use to estimate the determinants of inequality in TE. In particular, we are interested in identifying the specific role played by both globalization and institutional factors. Our sample comprises the 10 NMS, the 12 CIS countries plus 3 SEE States¹⁶. The temporal length of the database, which starts in the 1990 and ends in 2004, enables us to gather a decent number of observations within each country – although even in this case lack of observations prevent in most cases to have a complete series of data.

Our econometric specification is expressed as follows:

$$GINI_{it} = \alpha_i + \beta_1 GLOB_{i,t-1} + \beta_2 INSTIT_{i,t-1} + \sum_k \gamma_k X_{itk} + \varepsilon_{it} \quad (1)$$

where i and t denote country and time period, respectively; GINI is the Gini Index; GLOB is a set of globalization variables (alternatively imports, exports and FDI as a share of GDP); INSTIT is a set of institutional variables (alternatively privatisation revenues as percentage of GDP, private employment as percentage of total employment, private employment as percentage of GDP); all these regressors take on a value lagged of one year to address possible problems of co-causation and endogeneity.

¹⁶ However, in most cases, lack of data considerably reduces the sample size.

X_k is a set of control variables that will be discussed below; α_i is the idiosyncratic individual and time-invariant country's fixed effect and ε_{it} the usual error term. All variables are expressed in natural logarithms. All standard errors are robust to heteroskedasticity using the Huber–White correction.

Since we are interested in the within-country dimension of inequality, we shall use a Least Square Dummy Variable (LSDV) estimator which relies on the variability of data within-country. Therefore, the influence of the various independent variables has to be understood as taking place *over time* within a country, rather than across countries. The use of an LSDV estimator allows us to wipe out all time-invariant country-specific characteristics that are likely to affect the inequality patterns. Moreover, the use of the LSDV estimator overcomes the possible problems in data comparability across countries (see below).

All the series used in the regressions have been tested for unit root using the test developed by Maddala and Wu (1999)¹⁷. This is a non-parametric panel data unit root test which is based on N independent tests on the N individuals and combines the observed significance levels. The test assumes that all series are non-stationary under the null hypothesis against the alternative that at least one series in the panel is stationary. In our case, we always reject the null hypothesis of unit root at the one percent level of significance.

Although our dynamic specification permits us to ignore time invariant factors, we still have to include some time-varying controls. Firstly, the dynamics of within-country income inequality can be affected by per-capita GDP levels, that is, by the stage of development of a given economic system. According to Kuznets (1955), the relationship between inequality and economic development follows an inverted-U pattern with inequality rising at the initial stages of development and then falling. Kuznets's original model mainly looks at the early stages of a country's development and industrialisation, and explains the downward trend in terms of migration from the rural/agricultural to the urban/industrialised sector. A similar mechanism has been recently applied to developed and MICs. The factors underlying the rising and decreasing trends in inequality are in this case an SBTC and the ensuing rise in skilled labour supply triggered by the skill premium increase (e.g. Aghion *et al*, 1999; Aghion and Howitt, 1997). Empirically, Sukiassyan (2007) finds evidence supporting a Kuznets dynamics being at work in TE. Barro (2000)

¹⁷ The test has been implemented in Stata using the `xtfisher` command developed by Scott Merryman.

also supports the Kuznets hypothesis in a larger sample of countries. We have thus inserted both a linear and a quadratic term of GDP per capita in our specification.

Secondly, education should also be taken into account as an important factor mediating the impact of our explanatory variables on inequality. The introduction of this variable also allows us to test the theories illustrated in section 3. An increase in education should imply an increase in the skilled labour supply, a decrease in the relative skilled/unskilled wage and an overall decrease in income inequality. A steady increase in the supply of skilled labour might keep the relative skilled/unskilled wages constant, even in the presence of skill-biased technological change. However, different mechanisms may be at work. A country's absorptive capacity (Arrow, 1969; Abramovitz, 1986; Verspagen, 1991) – which is partly determined by the skill level in the workforce – may be an important factor in activating FDI and technology flows. This may lead to a *positive* correlation between human capital and inequality. These contrasting implications are tested in the next sections.

4.2 Description of the dataset

The data used in the analysis originate from different sources that have been merged in an original and unique database. The sources for the data for inequality are the WIDER-WIID¹⁸ (World Institute for Development Economics Research, 2007) and the Estimated Household Income Inequality (Galbraith and Kum (2003)) datasets. All observations for the Gini index within each country come from the same source and the same measurement, which ensures the direct comparability of inequality across time within each country. For most of the countries, the Gini index is calculated over labour earnings. However, different sources have been used across countries, which prevent the full cross-country comparability of these measures. Table 3 in the Appendix gives the complete list of countries, reports the initial, final, and mean values for the GINI index, as well as its change in the period considered, and the income definition used in each country. Data on international trade (import and export) and data on GDP are gathered from the World Development Indicators (WDI) (World Bank, 2007). In order to identify trade patterns with the EU and DCs separately, we also use the IMF Direction of Trade Statistics database (2006). Data on the institutional and economic policy variables are taken from the European Bank for Reconstruction and Development (EBRD) dataset.

¹⁸ The WIID is the World Income Inequality Database, developed by the WIDER (the World Institute for Development Economic Research, based at United Nation University in Helsinki).

Finally, data on schooling are gathered from the Barro-Lee database (See Barro and Lee, 1996 and 2001), which provides information on educational attainment over five-year intervals¹⁹. We construct a measure of skill for the workforce of each country as the ratio between the number of workers with secondary education and the sum of workers with primary or no education. In order to match these data with our annual observations on inequality, we interpolated the data available, under the hypothesis that the yearly increase is constant over time for the missing periods.

Summary statistics of the data included in the regressions are presented in Table 2.

Table 2 : Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
GINI INDEX	254	32.81	7.94	16.00	57.93
FDI (%GDP)	342	2.81	4.36	-0.17	46.02
IMPORTS(%GDP)	339	49.45	17.35	12.99	93.27
EXPORTS(%GDP)	339	43.02	17.19	7.22	90.76
PRIVATE EMPLOYMENT SHARE	325	47.20	23.95	5.00	80.00
PRIVATISATION REVENUES (GDP SHARE)	296	5.45	7.15	0.00	35.10
PRIVATE SECTOR VALUE ADDED SHARE	205	55.75	20.24	0.00	81.40
HUMAN CAPITAL	153	0.81	0.49	0.16	1.91
GDP PER CAPITA (PPP)	346	7292	3938	1220	19244

4.3 The Inequality-Globalisation Link

Table 4 confirms the relevance of the globalisation link in accounting for the rising trend of inequality in TE. In the specification each component – export, import, and FDI – is strongly significant in predicting the level of inequality (Table 4: column 1, 3, 5). Of the three factors, import is the variable having the strongest impact on inequality, whereas FDI has the least strong effect.

In order to understand the relationship between the globalisation variables and inequality, we have included in the regressions the interaction terms of these three variables with our human capital index. This consists of the ratio between the share of the workforce having acquired secondary education and those having acquired primary or no education at all. The inclusion of this index restricts the analysis to 9 out of 20 countries, so the results are not closely comparable to those illustrated above. In spite of

¹⁹ In particular, the data used here refer to the educational attainment of the population aged 25 and over.

this, the three variables maintain a significant and positive sign when they enter directly the regression.

Interestingly enough, the interaction term between the globalisation variables and the human capital index is positive for all them, significant for FDI, and strongly significant for Exports and Imports. This implies that the inequality-enhancing effect of either variable is magnified as the other variables increases. In this regression, the overall impact on inequality of a variable X is given by $\beta_X + \beta_{X \text{int} Y}(Z)$, where β_X is the coefficient for the direct impact of the variable X , $\beta_{X \text{int} Z}$ is the coefficient for the interacted term, and Z is the values taken by the variable with which X has been interacted. In order to quantify exactly the impact of a variable on inequality, we have to consider the maximum and minimum values of the variable with which it has been interacted.

Figure 6 offers a diagrammatical representation of this exercise for the globalisation variables and the human capital index. Figure 6a plots the value of the impact of each globalisation variable – namely, $\beta_{GLOB} + \beta_{HK \text{int} GLOB}(HK)$, where $GLOB = \{EXPORT, IMPORT, FDI\}$ - at the minimum, mean, and maximum value that the human capital index takes in our sample. This Figure clearly shows the presence of different effects of globalisation in relation to different degrees of human capital. For all of the three globalisation variables considered, the impact of increases of globalisation on inequality is *negative (positive)* at *low (high)* levels of human capital. For levels of human capital close to its mean, the impact of globalisation is greater than zero, particularly for Imports. It is also apparent that trade variables appear to have a stronger impact on inequality than FDI. Figure 6b shows the impact of human capital for varying degrees of the three globalisation variables – namely, it plots the coefficient $\beta_{HK} + \beta_{HK \text{int} GLOB}(GLOB)$. The human capital index appears to have an inequality-enhancing effect at almost all of the globalisation levels. Only for an apparently small region where imports and exports are close to their minimum levels does human capital have a negative impact on inequality.

These findings point to a coexistence of the various theoretical ideas outlined in section 3.1. The change of sign in the impact of globalisation indicates that the implications of the SS theorem hold when a country is relatively poor in human capital. On the contrary, the arguments underlying the skill-enhancing trade hypothesis, the learning-by-exporting hypothesis, and – to a more limited degree – the technological spillovers associated with multinational activities, seem to hold at high levels of human

capital. This suggests the possible existence of a structural break in the economy associated with different levels of absorptive capacity (Arrow, 1969; Abramovitz, 1986; Verspagen, 1991). When a country's absorptive capacity – in terms of human capital - is low, then it is plausible that trade and FDI occur within unskilled-intensive sectors of the economy, thus benefiting unskilled workers. However, when a country's skilled workforce exceeds a minimal threshold, then it is possible that the increased absorptive capacity induces an SBTC through trade and FDI channels, which has an inequality-enhancing effect²⁰.

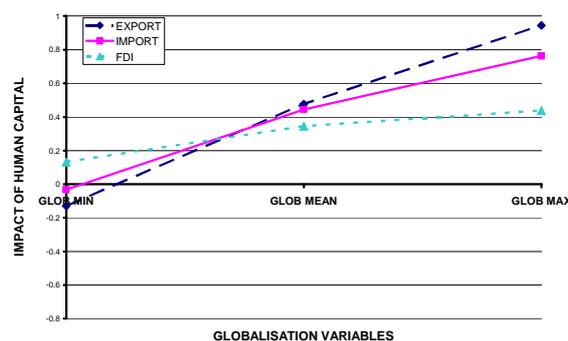
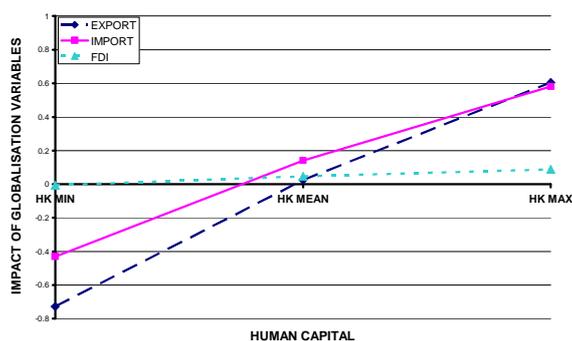


Figure 6a: Impact of Globalisation on Inequality at varying levels of Human Capital Figure 6b: Impact of Human Capital on Inequality at varying levels of Globalisation

Figure 6: Joint impact on inequality of globalisation variables and human capital

The picture that emerges from our analysis for our sample of TE is thus one of a double 'regime' of globalisation, associated with a threshold in human capital. This picture is nevertheless to be complemented with the overall positive impact of human capital on inequality that we also observe. This result is generally not predicted by the theories outlined in section 3.1. In fact, the emphasis of these theories is mainly on increases in skilled-labour *demand* triggered by an SBTC, and the consequent rise in relative wages that it brings about. Within this context, increases in human capital should be associated with rises in skilled labour *supply*, thus they should have an inequality-*decreasing* effect. The (overall) positive impact of human capital on inequality can instead be explained again turning on the idea of absorptive capacity. It is in fact plausible that increases in human capital may *anticipate* – rather than follow behind – trade in skilled-intensive goods, and the setting-up of multinational firms specialised in skilled-intensive production. The reason is that only when a sufficient level of absorptive capacity has

²⁰ Replacing the human capital index with the ratio of workers having acquired *tertiary* education and all other workers does not lead to significant results in other regressions we have conducted (not reported).

been established in a DC, can both investment from abroad and the creation of trade-oriented skilled-intensive activities be profitable²¹.

Another concurring explanation for the same piece of evidence is in terms of the cones of diversification theory (see section 3.1.A). As a country's workforce increases its human capital and specialises in more skilled-intensive sectors, it is likely to suffer from the competition of less developed countries. The import from these countries may thus substitute domestic unskilled-intensive production, thus leading to further increases in inequality. In the analysis presented in section 4.5, we show that this is indeed the case.

Finally, it is worth noting that coefficients for the terms for the GDP and GDP square become significantly different from zero in all regressions including the interaction term. However, the signs are opposite to those implied by a Kuznets relationship.

4.4 The Inequality-Institutional factors link

As mentioned above, TE have been characterised by major institutional changes that have gone along with the process of globalisation. In this section we shall try to disentangle the relative importance of the two effects. We have used the same econometric models as above to assess the impact of various institutional factors on inequality.

First, the process of privatisation of State enterprises appears to have been significantly correlated with inequality increases. The volume of revenues accruing to governments from the selling of State enterprises – expressed as a ratio of GDP – (PRIVATISATION REVENUES (GDP SHARE)) is positively related with inequality levels (Table 5, column 1). A second institutional process that TE has gone through is that of labour market liberalisation. We have used the share of workers over the total that is employed in the private sector (PRIVATE EMPLOYMENT SHARE). This variable is able to measure the switches of workers from the public sector to the private sector. This variable, too, is strongly significant with a positive sign, and its elasticity is in fact the highest among the various institutional factors (Table 5, column 3). A third institutional factor is product market liberalisation. We have deployed the share of the private sector into the overall value added produced by an economy as a proxy (PRIVATE SECTOR

²¹ It is worth noting that in other regressions we have conducted (not reported) the positive impact of human capital on inequality occurs even for values of human capital lagged for several years.

VALUE ADDED SHARE). This variable is also strongly significant and has a positive sign (Table 5, column 5).

Moreover, we have analysed the interaction effects of these variables with our human capital index. Consistently with the findings for the globalisation variables, some of these institutional factors appear to exert the largest inequality-enhancing effects at the highest levels of human capital, although this is strongly significant only for labour market liberalisation. Even in this case, this is counterintuitive if one thinks at rises in skilled labour supply as having primarily the effect of reducing the wage premium. However, this result may be construed in terms of the ascending phase of a Kuznets-like curve (see discussion in section 4.1), with skilled labour demand growing faster than skilled labour supply. As a result, more skilled workers are associated with a higher number of high-wage recipients in a phase of widening wage disparities, and thus higher overall inequality. Whether increases in skilled labour force will lead to a decreasing trend in the future remains to be seen.

The effect of state enterprises privatisation does not appear to be affected by the composition of the workforce in terms of human capital, which may point to this sector being still relatively sheltered from the rest of the economy in terms of skill premium differentials (see Delteil *et al.*, 2004, for the case of Hungary). Likewise, the interaction term with human capital is only weakly significant for product market liberalisation.

We also wanted to investigate the capacity of the government in controlling inequality through economic policy. The results of the analysis are reported in Table 6. First, we looked at the monetary policy analysing the relationship between inequality and inflation and the real interest rate. Inflation is strongly significant and has a positive sign when entering the regression alone (Table 6, column 1). This may point to the fact that inflation is associated with periods of high macroeconomic turbulence, with little control of the government over the inequality variable. The real interest rate variable is not significant when entered on its own (Table 6, column 2). However, when the two variables enter the regression together, inflation remains significant but its sign becomes negative (Table 6, column 3). This may be explained by thinking that the introduction of the real interest rate helps to control explicitly for the macroeconomic turbulence component, in particular for what concerns financial markets. As a result, once this effect is sieved out, the component of inflation that is directed towards regulating the economy can be discerned. The negative sign implies that inflationary policies may have been used by governments to reduce inequality.

We have kept both monetary policy variables in the regressions that analyse the fiscal policy instruments. This is done in order to control for the effects of periods of macroeconomic turbulence. Public expenditures seem to have been rather ineffective in affecting inequality. The overall expenses in the public sector (GOVT. EXPENSES (GDP SHARE)) – which include both investments and consumption - have a negative sign but are not significant (Table 6, column 4). The public sector consumption component (GOVT.GENERAL CONSUMPTION (GDP SHARE)) has instead a positive significant sign, but it lacks statistical significance, too. What is more surprising, though, is that the expenditures in social benefits (SOCIAL BENEFITS EXPENDITURES (GDP SHARE)) do have a statistically significant impact on inequality, but this goes in the direction of *increasing* inequality (Table 6, column 5). The same is true to the share of overall taxation over GDP (TAXES REVENUES (GDP SHARE)) (Table 6, column 6) – and it could not be otherwise given the high degree of correlation between the two variables, which exceeds 0.96.

One may think that an increase of the weight of the public sector in the economy has been detrimental to these economies, and has thus led to further increases inequality. More likely, in spite of the regressors entering the econometric model with a one-year lag, it is possible that these results are due to co-variation or co-causation between inequality and the fiscal variables, without any direct causality link between them. This is especially likely to have been the case in the first phases of the liberalisation programmes, where in some cases taxation massively increased. In the case of social benefits, the positive sign of the relationship may simply reflect the fact that higher volumes of social benefits had to be spent during periods of higher inequality. It also has to be stressed that, being the GINI indexes we use mainly based on gross earnings (see Table 3), fiscal policy is less likely to directly affect the measure of inequality than if a measure based on disposable income were used. Even so, the analysis indicates a general inability of the government in using fiscal policy to reduce inequality.

Table 7 enables us to analyse the relationship and the relative importance of trade and institutional factors by introducing both variables as regressors. Firstly, privatisations seem to have had an independent effect on inequality in relation with exports, but they seem to mediate the impact of both imports and FDI. In fact, when these variables both enter as regressors, imports and FDI are no longer significant (Table 7, columns 1, 2, 3). The result for FDI is not surprising, and can be accounted for by the simultaneity with which the two processes must have been conducted. Since a substantial part of the

privatised capital went into foreign hands, the two variables are likely to be strictly correlated. What is more surprising is instead the loss of significance of the Import variable. An interpretation for this result may be derived from Barlow and Radulescu (2005), who argue that trade liberalisation promotes privatisation because the reduction in rent seeking facilitates the entry of small businesses into trading activities. As in the case of FDI, if the processes happened simultaneously, only one variable would retain a significant impact in our regression. However, their result only applies to small-scale privatisation rather than large-scale one, where the governments are more likely to have cashed in substantial amounts of revenues. Most importantly, one would expect to find that parallel results for Exports and Imports – which are nevertheless not separated out in Barlow and Radulescu’s analysis. Instead, Exports remain significant, and in fact their elasticity is more than twice as great as that of privatisation (see Table 7, column 1). More analysis is needed on this issue.

Secondly, both Exports and Imports lose significance when matched with our product market liberalisation proxy, that is, the value added in the private sector as a share of the GDP (Table 7: columns 4, 5). This result clearly points to the fact that increased trade has been closely associated with the expansion of the domestic private sector, and the associated rise in profits. Conversely, FDI maintain a significant and positive effect on inequality, though only weakly. This points to a different timing of FDI and the expansion of the domestic private sector (Table 7: column 6).

Finally, all globalisation variables regain a significant impact on inequality when matched with our proxy for labour market liberalisation, that is, the share of workers employed in the private sector. The latter variable, too, remains strongly significant and positive (Table 7: column 7-9). This result points to the fact that, unlike the previous two institutional variables, labour market liberalisation and globalisation variables have had largely independent influences on inequality. This is surprising because globalisation processes clearly impinged more upon private rather than public employment, so one would expect that their impact of inequality varied in relation to different degrees of liberalisation in the former. Even in this case, a more in-depth analysis is needed, although admittedly this puzzling result may be due to the indicator used being an imperfect proxy for labour market liberalisation.

4.5 Comparing the performance of EU New Member States with that of other countries

The second goal of this paper is to analyse the relevance of the process leading to join the EU on a country's economic performance. Ideally, the questions we would like to answer are: 'In which measure has joining the EU helped a country in attaining a better performance with respect to inequality?' and 'How differently have the various mechanisms of inequality illustrated above affected the set of EU-accession countries vis-à-vis the others?' The first question can only be addressed indirectly within our dataset, because we do not have a variable measuring explicitly the degree of institutional integration with the EU. In what follows we shall mainly deal with the second question, although some tentative conclusions may be drawn for the first question, too.

Firstly, we have tried to assess whether trading with the EU may have had an inequality-enhancing effect. Since trade generally exerts an important influence on inequality, we construct an index given by the ratio between trade with the EU and that with the US. As the US is a country comparable to the EU in terms of level of development and technological advancement, this index captures the specificity of trading with the EU in relation to a similarly advanced country. This index of EU Trade has a significant positive influence on inequality for both Exports (EU/US EXPORTS) and Imports (EU/US IMPORTS) (Table 8, columns 1, 3). Moreover, this is true in particular for NMS, rather than the CIS & SEE (Table 8, columns 2, 4).

This result may point to a specific inequality-enhancing effect of trading with the EU, in relation to the trading with another developed country like the US, which holds in particular for NMS. This may be due to the fact that the regulations imposed by the EU in terms of commodities characteristics and production processes, which applied in particular to NMS, forced these countries to skill-intensive technology innovations that had an inequality-enhancing effect. Likewise, NMS may have been prompted to import capital machinery from EU in order to fulfil this requirement, which might account for the positive impact of imports from the EU on inequality. Further research is needed to clarify the underlying mechanisms of these effects.

It is also interesting to note that imports from other DCs have had an inequality-enhancing effect (Table 8, column 7), which is uniform across the two sets of countries (Table 8, columns 8). This is consistent with the idea that TE have a 'cone of diversification' typical of middle-income countries (see section 2), so that imports of unskilled-intensive commodities from DCs crowd out domestic production of the same commodities, thus increasing inequality. According to the results presented in section 4.3,

it is also likely that TE acquired this position only gradually through time, because the observed negative impact of inequality for low levels of human capital appears typical of unskilled-labour abundant countries. Exports to DCs do not seem to have significant effects (Table 8, columns 5, 6).

Whether the different mechanisms of inequality had different effects in the two groups of countries is investigated in Table 9. The variable of interest here is the interaction term between the NMS dummy and the relevant variable. This would signal a significant effect in one group with respect to the other. The only case in which this is the case is for FDI (Table 9, column 3), which indicates that FDI had a significantly larger inequality effect in the NMS rather than in the CIS & SEE. However, no significant effect can be found for the other variables.

The absence of a significant difference between the two sets of countries may be considered puzzling. Inequality has grown faster in the latter group, so one may perhaps have expected that some of the mechanisms analysed had a wider impact in the CIS & SEE in comparison to the NMS. In fact, this does not turn out to be the case in our analysis. There may two explanations for this result.

Firstly, one may think that the mechanisms considered had a larger *scale* effect in the CIS & SEE vis-à-vis the NMS, but did not have a different *marginal* effect. That is, opening to trade may *per se* have a larger impact on inequality in CIS, but acceleration in trade may lead to similar results in the groups of countries. This would be consistent with the results we find. One may for instance think that a lack of governance capacity by CIS countries may be responsible for this larger scale effect in CIS & SEE. That is, opening to trade may rise *ceteris paribus* more inequality in this group because of a lower governance quality in these States. However, other analyses we have conducted (not reported) using indicators of corruption, political stability, governance effectiveness, do not show any significant differences between the two sets of countries.

An alternative explanation is that the higher inequality growth is not linked specifically to the mechanisms we have analysed, but rather to the sectoral structural adjustments processes reported in section 3.3. In particular, the specialisation of some of the CIS economies into the extractive sector may have caused a one-off increase in inequality, which is not further affected by acceleration in trade. Even in this case, a more in-depth analysis is required to fully unravel these issues.

5 Conclusions

The purpose of this paper has been to analyse the causes of inequality for the set of TE that emerged from the collapse of the Soviet Union. In particular, we showed that both sets of causes that may be referred to as economic globalisation – namely, import, export, and FDI – and institutional factors – namely, privatisation reforms, labour market liberalisation, and product market liberalisation – are strongly correlated with within-country inequality increases. The conjoint analysis of the two sets of factors has helped gain some insight on the relationship between the two sets of factors. In all cases, the institutional factors maintain their significant impact on inequality even when coupled with globalisation factors, whereas in some cases this is not true for the latter. This does not necessarily point to a better explanatory power of institutional factors, but more likely signals that some of the globalisation mechanisms of inequality were ‘by-passed’ by domestic institutional reforms in order to show their effects on inequality.

In order to gain a better understanding of the possible mechanisms that triggered inequality, we have also introduced an index of the level of human capital of the workforce into the analysis. The results point to the existence of a significant interaction between such a measure and the globalisation factors in particular. First of all, the impact of globalisation has an inequality-decreasing (increasing) effect at low (high) levels of human capital. This points to the existence of two different ‘regimes’ of globalisation, being its impact consistent with the SS theorem at low levels of human capital, and with the alternative SET hypothesis at high levels. Secondly, human capital appears to exert a uniformly positive effect on inequality at different stages of globalisation. This points to the relevance of a country’s absorptive capacity in triggering the processes of technological spillovers through the international channel, and to the progressive shift in the ‘cone of diversification’ in international trade. Similar effects are also observed when interacting human capital with institutional factors, although at smaller significance level and less comprehensively.

We also tested the impact of integration with the Europe Union by studying the effect of an index that normalises trade with the EU with trade with the US. The results clearly point to a significant inequality-enhancing effect of this index, which may be accounted for in terms of a skill-biased technological upgrade that countries joining the EU had to undertake. Finally, policy variables have somehow counter-intuitive effects, which may be suggestive of the inability of these countries in controlling their economic policy instruments.

Table 3: Sources for Gini Indexes

Country	Mean	Std. Dev.	Max	Min	Source	Definition
Albania	44.68	9.82	57.93	30.69	EHII	*
Armenia	52.91	4.99	57.18	47.26	EHII	*
Azerbaijan	40.88	3.29	45.68	37.71	EHII	*
Belarus	35.30	1.95	40.00	34.00	WIDER	Gross Earnings
Bulgaria	38.02	4.97	43.34	27.34	EHII	*
Croatia	34.41	2.54	37.10	30.05	EHII	*
Czech Republic	25.58	2.16	28.20	21.20	WIDER	Gross Earnings
Estonia	36.76	1.44	38.90	35.30	WIDER	Disposable Income
Hungary	37.29	3.00	40.01	31.57	EHII	*
Kyrgyz Republic	43.82	5.55	51.00	30.00	WIDER	Gross Earnings
Latvia	32.26	2.90	34.90	24.70	WIDER	Gross Earnings
Lithuania	36.98	1.64	39.00	34.50	WIDER	Gross Earnings
Macedonia	26.38	1.94	29.00	22.00	WIDER	Net Earnings
Moldova	41.10	2.28	44.00	38.00	WIDER	Gross Earnings
Poland	31.76	2.95	35.30	26.50	WIDER	Disposable Income
Romania	32.55	6.90	41.00	20.00	WIDER	Gross Earnings
Russian Federation	42.56	8.53	52.00	27.00	WIDER	Gross Earnings
Serbia and Montenegro	32.00	5.10	38.00	27.00	WIDER	Disposable Income
Slovak Republic	23.57	3.55	26.70	18.00	WIDER	Disposable Income
Slovenia	29.25	3.16	35.80	22.80	WIDER	Gross Earnings
Ukraine	36.80	4.75	42.36	29.88	EHII	*

Notes: The EHII is a collection of measures of Estimated Household Income Inequality and is built combining the information in the Deninger and Squire (D&S) data with the information in the UTIP-UNIDO data. In the D&S data Gini coefficients originate from different sources refer to a variety of different income and population definitions. The EHII is built following a two-step procedure. First, the D&S measure of inequality (in Gini coefficients) is regressed on the UTIP-UNIDO measures of income dispersion in manufacturing sector, and on a matrix of conditioning variables including dummies for the three types of data source (income/expenditure, household/per capita, gross/net). Then EHII is computed using the same exogenous variables, where the intercept and coefficients are the deterministic parts extracted from the first-step estimation. The UTIP-UNIDO Database is assembled by the University of Texas Inequality Project (UTIP) and includes two measures of inequality. See Galbraith and Kum (2003) for a detailed explanation of this procedure.

Table 4: Impact of globalisation on inequality

	1	2	3	4	5	6
Constant	10.24**	77.05***	4.616	62.05***	5.59	-6.101
	4.8	15.5	4.42	14.7	5.82	22.1
GDP	-1.599	-16.31***	-0.363	-12.99***	-0.457	2.057
	1.1	3.38	1.02	3.2	1.3	4.84
GDP SQUARE	0.0863	0.893***	0.0163	0.707***	0.0253	-0.109
	0.063	0.18	0.059	0.17	0.072	0.27
EXPORTS	0.166***	0.243***				
	0.045	0.061				
IMPORTS			0.212***	0.307***		
			0.046	0.075		
FDI					0.0407***	0.0619***
					0.0047	0.015
HUMAN CAPITAL INDEX		-1.575***		-1.111**		0.345***
		0.43		0.45		0.082
INTERACTION EXPORT - HUMAN CAPITAL INDEX		0.559***				
		0.12				
INTERACTION IMPORTS - HUMAN CAPITAL INDEX				0.425***		
				0.13		
INTERACTION FDI - HUMAN CAPITAL INDEX						0.0392**
						0.016
Observations	205	96	205	96	150	66
Number of country	20	9	20	9	19	9
R-squared	0.11	0.52	0.18	0.48	0.36	0.69

Notes: See section 4.2 for sources and description of the dataset. Robust standard errors are reported under the coefficient estimates.

Table 5: Impact of institutional factors on inequality

	1	2	3	4	5	6
Constant	1.333	-32.07*	10.44	-60.25**	1.19	10.1
	5.72	18.2	7.09	24	4	18.7
GDP	0.681	7.938*	-1.866	13.72**	0.347	-1.636
	1.31	4.01	1.58	5.28	0.9	4.05
GDP SQUARE	-0.0492	-0.444*	0.111	-0.751**	-0.0173	0.09
	0.075	0.22	0.087	0.29	0.05	0.22
PRIVATISATION REVENUES (GDP SHARE)	0.0613***	0.0901***				
	0.013	0.013				
PRIVATE EMPLOYMENT SHARE			0.226***	0.323***		
			0.026	0.043		
PRIVATE SECTOR VALUE ADDED SHARE					0.172***	0.225***
					0.014	0.027
HUMAN CAPITAL INDEX		-0.124		0.199		0.106
		0.25		0.16		0.13
INTERACTION PRIVATISATION - HUMAN CAPITAL		0.00297				
		0.0053				
INTERACTION PRIVATE EMPLOYMENT - HUMAN CAPITAL				0.00603***		
				0.002		
INTERACTION PRIVATE VALUE ADDED - HUMAN CAPITAL						0.00459*
						0.0023
Observations	145	61	127	66	194	84
Number of country	19	9	17	8	20	9
R-squared	0.34	0.63	0.44	0.68	0.61	0.72

Notes: See section 4.2 for sources and description of the dataset. Robust standard errors are reported under the coefficient estimates.

Table 6: Impact of economic policy on inequality

	1	2	3	4	5	6	7
Constant	10.72**	5.874	6.955	-5.426	4.537	-4.952	-4.372
	4.58	9.1	9.07	17.4	9.06	8.89	8.09
GDP	-1.646	-0.659	-0.763	2.178	-0.827	1.812	1.681
	1.06	2.03	2.01	3.84	1.99	1.97	1.81
GDP SQUARE	0.0925	0.0442	0.0429	-0.129	0.0454	-0.0945	-0.0878
	0.061	0.11	0.11	0.21	0.11	0.11	0.1
INFLATION	0.0194***		-0.0181**	-0.0270**	-0.0123	0.0146	0.0123
	0.0047		0.0089	0.013	0.01	0.011	0.013
REAL INTEREST RATE		0.00281	-0.00052	0.000563	0.00043	0.0292***	0.0298**
		0.0089	0.0086	0.02	0.0093	0.0086	0.012
GOVT. EXPENSES (GDP SHARE)				-0.00892			
				0.15			
GOVT.GENERAL CONSUMPTION (GDP SHARE)					0.128		
					0.084		
SOCIAL BENEFITS EXPENDITURES (GDP SHARE)						0.0483***	
						0.0094	
TAXES REVENUES (GDP SHARE)							0.0652***
							0.019
Observations	199	88	87	40	85	66	66
Number of country	20	18	18	12	18	15	15
R-squared	0.12	0.08	0.11	0.16	0.13	0.4	0.36

Notes: See section 4.2 for sources and description of the dataset. Robust standard errors are reported under the coefficient estimates.

Table 7: Joint impact of globalisation and institutional variables on inequality

	1	2	3	4	5	6	7	8	9
Constant	-4.128	-3.755	-0.837	-0.928	-1.043	4.748	5.054	2.452	5.609
	4.27	4.11	-4.75	3.97	4.21	4.06	4.46	4.1	6.67
GDP	1.828*	1.784*	1.225	0.915	0.969	-0.346	-0.618	-0.0297	-0.588
	0.98	0.95	-1.08	0.9	0.94	0.92	1	0.91	1.48
GDP SQUARE	-0.113**	-0.111**	-0.0825	-0.0535	-0.057	0.0177	0.0396	0.00342	0.0353
	0.056	0.054	-0.061	0.051	0.053	0.052	0.056	0.051	0.081
EXPORTS	0.106***			0.0245			0.0909**		
	0.038			0.035			0.042		
IMPORTS		0.0575			-0.00532			0.140***	
		0.055			0.042			0.038	
FDI			-0.00028			0.0127*			0.0249**
			-0.0082			0.007			0.012
PRIVATISATION REVENUES (GDP SHARE)	0.0469***	0.0480***	0.0538***						
	0.0082	0.0091	-0.0096						
PRIVATE SECTOR VALUE ADDED SHARE				0.136***	0.140***	0.122***			
				0.015	0.015	0.025			
PRIVATE EMPLOYMENT SHARE							0.128***	0.138***	0.0877***
							0.018	0.015	0.023
Observations	129	129	124	183	183	145	117	117	103
Number of country	19	19	19	20	20	19	16	16	15
R-squared	0.38	0.33	0.34	0.53	0.53	0.41	0.43	0.46	0.28

Notes: See section 4.2 for sources and description of the dataset. Robust standard errors are reported under the coefficient estimates.

Table 8: Impact of Trade Patterns in NMS and CIS & SEE

	1	2	3	4	5	6	7	8
Constant	6.962*	6.733*	7.873**	7.683*	8.356*	8.309*	5.521	4.126
	3.53	3.96	3.91	4.02	5	4.96	4.77	4.81
GDP	-0.768	-0.656	-1.013	-0.883	-1.049	-1.035	-0.447	-0.0598
	0.8	0.9	0.89	0.92	1.13	1.12	1.08	1.1
GDP SQUARE	0.0451	0.0353	0.06	0.0483	0.0575	0.0561	0.0231	-0.00415
	0.046	0.051	0.051	0.052	0.064	0.064	0.061	0.063
EU/US EXPORTS	0.175***	0.0456						
	0.028	0.035						
INT. EU/US EXPORTS - NMS		0.254***						
		0.042						
EU/US IMPORTS			0.106***	0.0365				
			0.025	0.022				
INT. EU/US IMPORTS - NMS				0.289***				
				0.067				
EXPORTS TO DCs					0.0255	-0.0345		
					0.031	0.04		
INT. EXPORTS TO DCs - NMS						0.035		
						0.068		
IMPORTS FROM DCs							0.0528**	0.0207
							0.022	0.023
INT. IMPORTS FROM DCs - NMS								0.122
								0.077
Observations	183	183	183	183	176	176	176	176
Number of country	20	20	20	20	20	20	20	20
R-squared	0.32	0.48	0.17	0.38	0.01	0.02	0.04	0.07

Notes: See section 4.2 for sources and description of the dataset. Robust standard errors are reported under the coefficient estimates.

Table 9: Impact of globalisation and institutional factors in NMS and CIS & SEE

	1	2	3	4	5	6
Constant	10.01** 4.8	4.909 4.31	3.685 5.36	0.956 6.21	1.324 3.97	9.195 8.5
GDP	-1.549	-0.423	-0.0234	0.818	0.321	-1.572
GDP SQUARE	0.0829 0.063	0.0191 0.058	0.000716 0.067	-0.06 0.082	-0.0161 0.05	0.0942 0.11
EXPORTS	0.115** 0.053					
ExpLag_NMS	0.103 0.09					
IMPORTS		0.189*** 0.062				
ImpLag_NMS		0.0496 0.097				
FDI			0.0133 0.0099			
FdiLag_NMS			0.0353*** 0.011			
PRIVATE EMPLOYMENT SHARE						0.134 0.096
PRIVATE EMPLOYMEN SHARE_NMS						0.114 0.1
PRIVATE SECTOR VALUE ADDED SHARE					0.169*** 0.017	
PRIVATE SECTOR VALUE ADDED SHARE_NMS					0.00577 0.028	
PRIVATISATION REVENUES (GDP SHARE)				0.0422** 0.021		
PRIVATISATION REVENUES (GDP SHARE)_NMS				0.0319 0.024		
Observations	205	205	150	145	194	127
Number of country	20	20	19	19	20	17
R-squared	0.12	0.18	0.41	0.36	0.61	0.45

Notes: See section 4.2 for sources and description of the dataset. Robust standard errors are reported under the coefficient estimator.

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