Looking Back to Convergence Trends and Inequality Developments in Central- and Eastern Europe: Almost Three Decades After the Transition

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1. Introduction

This chapter looks at trends in Central and Eastern European countries, exploring both convergence between these countries and the centre of the EU on the one hand and comparative inequality trends within some of the central/eastern European economies on the other. The region covered in the chapter includes the three Baltic States (Estonia, Latvia and Lithuania), the four Visegrad countries (Czech Republic, Hungary, Poland, Slovakia), in addition to Slovenia, Romania and Bulgaria[3]. For time series data the period covered stretches from the beginning of the '90s until the most recent available year). The aim of our paper is to answer the following questions:

- What patterns of income convergence and inequality developments can be identified for CEE countries that experienced a transition from non-democratic regimes and centrally planned economies to competitive markets and representative democracies?
- What kind of similarities and dissimilarities can be identified among these developments?
- Do the observed countries form a homogenous country grouping at any part of our observation period?
- What kind of similarities and dissimilarities can we identify with regard to the drivers behind societal changes in these countries?

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[2] Planned contribution, as Chapter 3 Income, Wealth, Employment and beyond: Central- and Eastern Europe to appear in Georg Fischer and Robert Strauss (editors) Income, wealth, consumption, wellbeing and inequality developments – The volume on Europe. The authors wish to thank Georg Fischer, Robert Strauss, Michal Brzezinski, Mihály Laki, Péter Mihályi, Wiemer Salverda, Krzysztof Zagórski and Jiri Vecernik, for their comments to an earlier draft. They bear no responsibility for this text, however.

[3] Although it would have been interesting and very special, the analysis of the case of the German Democratic Republic have fallen outside the scope of this paper.

The historic and social development of the countries studied in this chapter show important similarities. They have in common, for example, the socialist legacy[4], two or three waves of institutional adaptation processes and three major economic shocks for most of them.

As a first institutional change, the transition from command to market economy and from dictatorship to liberal democracy shall have to be mentioned. They all abandoned communism and adopted democracy and market economy around 1990. As Kornai (2006) describes, these countries experienced a transition that was unique in world history in the sense that it was a peaceful and at the same time remarkably fast process (which took 10-15 years) in the main direction of the economic and the political institutions of Western civilization. This process has not come about without sacrifices however: as the first of the shocks, the CEE economies experienced structural shocks and the resulting recessions at the beginning of the transition process. GDP shrunk by double digits in 1991 in almost all Central and Eastern European countries and the recession continued until the middle of the decade. The Baltic States were particularly heavily affected during this period. In the second half of the nineties the majority of transition countries recovered from recession and enjoyed growth rates above the EU average during the period preceding EU accession. Nevertheless, as second shock, most (though not all) of these countries were also affected by the crisis in Russia in the end of the nineties.

The second large institutional adaptation process was linked to the accession to the EU. The Central European transition countries (Poland, The Czech Republic, Slovakia, Hungary and Slovenia) and the three Baltic States (Estonia, Lithuania and Latvia) became members of the EU in 2004, while Bulgaria and Romania in 2007. Within this process a great deal of legal harmonization to the EU *acquis* had to be completed, implying similar procedures but varying extent of harmonization for the various countries and various fields.

Three countries, Slovenia, Slovakia and Estonia have also joined the Eurozone, making a large step towards a more complete integration of their economy into the EU.

The transition paths have also displayed important differences that had a deep impact on the outcomes in terms of income growth and inequality. The first to be mentioned is the historical heritage these countries brought with themselves into the process. For example, the Czech Republic and Slovenia had a level of economic development much closer to levels of EU15 countries – a fact that goes back in history, much before the socialist times. The CEE countries also differed in their economic structures, educational distribution, and, among others, in their ethnic heterogeneity as well.

And there were important differences in the transition process itself. In some of the countries the reforms have been faster, while other countries have adopted a more gradual approach. Poland was, at least at the beginning, an example of the „shock therapy" approach, which means the sudden release of price and currency controls, withdrawal of state subsidies, and

[4] Characterized, in economic terms, by severe shortages, miserable service deliveries, queuing, full, but very inefficient employment, very low levels of human capital investments and obsolete and uncompetitive economic structures, etc. The elimination of the so called „shortage economy", was, however, very speedy in most cases. (See the account by Kornai, 1995, for Hungary)

immediate trade liberalization[5]. In countries like Slovenia, Hungary or Romania reforms were introduced more incrementally. Reform strategies also differed in complementarity/substitutability of reforms, their possible reversibility in view of needed adjustments, and sustainability of their political economic conditions (Marangos, 2005).

The privatisation strategies adopted were also different at the beginning (between 1990 and 1995). For example, the Czech Republic, Latvia and Lithuania used primarily voucher-based distributional mechanisms in the privatisation process. In Estonia and Hungary state-owned capital was privatised to outsiders with large participation of foreign investors, while in Bulgaria a smaller role of foreign capital was observed. In Poland, Romania and Slovenia the main privatisation method was employee buy-out, while in Slovakia management buy-out was the most important (World Bank 2000)[6].

Overall, the broad similarities between institutional structures of liberal democracy and market economy, the chosen economic and social policies and institutions adopted in CEE countries differed to a significant extent. Bohle and Greskovits (2012) identify four types of capitalisms in the CEE countries. According to their theory the Baltic states are examples of a neoliberal institutional setup as they have small welfare states and relatively weak employee representation and protection. At the other extreme lies neo-corporatist Slovenia in which employee interest representation mechanisms are much stronger and welfare state programmes are more extensive and redistributive. In the middle lie the central European countries, characterized as cases of 'embedded neoliberalism'. They have quite substantial welfare provision and significant influence for representatives of social interests. A fourth type is defined as a 'nonregime' (eg. Romania and Bulgaria) where the conflicting objectives cannot be balanced, leading to social and political instability.[7]

In addition, as a recent development, one can also observe a diversion from the general European path (into which all the above types can still broadly fit) in case of at least two countries; first Hungary in 2010, then Poland in 2015 started diverging from the liberal

[5] The so called Balczerowicz-plan (a fast acceptance and implementation of ten core laws about privatization, fiscal, monetary and labour policies and institutions) have brought a relatively larger shock but then a fairly quick GDP recovery. Afterwards the Polish economic policy also became more eclectic and incremental.

[6] The actual country experiences were, however, more eclectic than it can be reflected in a typology like this. Poland, for example, also have had a (relatively short lived) "voucher privatization" program. Quite many government owned enterprises have been merged into few "investment funds" and buy options were made available at a low price to a broad circle of Poles. Then, given that these shares were small in value, the take-up was not full and quick concentration on secondary markets started – resulting larger piles of stock in hands of banks and specialized investors.

7 In a different classification, Myant and Drahokoupil (2011) classify the whole post-communist group (CEE, SEE and CIS countries) into five categories, from which the currently observed ten belong either to "FDI-based (second rank) market economies (V4 plus Slovenia) or to peripheral market economies (the Baltic republics, Romania, and Bulgaria). The rest of the five categories are the „oligarchic or clientelistic capitalisms" - a larger part of the CIS (Commonwealth of Independent States) region; „order states (other CIS states that underwent only very limited reforms); and remittance- and aid-based economies (a number of low-income countries in Eastern Europe and CIS).

democratic development paths, constraining checks and balances, limiting media freedom and the independence of the judiciary, altogether instituting autocratic tendencies in these countries and prompting fierce clashes between their countries and the European mainstream. János Kornai (2015) calls this as a U-turn in the Hungarian development, mentioning that re-centralization in the public administration, re-nationalization in the economy and the setback with respect to the overall checks and balances cannot but understood as a step backwards in the path earlier characterized the transition.

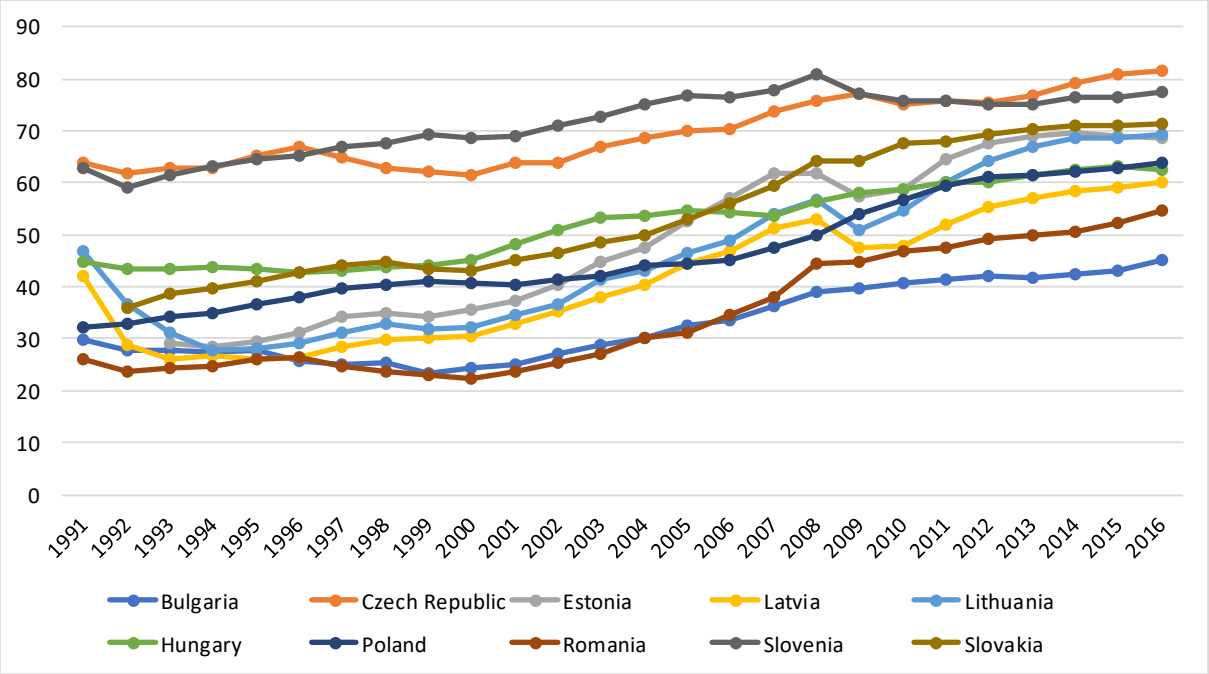
In what follows, we compare developments in these countries by focussing on economic convergence to EU15 countries, on distributional issues and on well-being and satisfaction of the population. The final section concludes.

2. Economic development and income convergence to EU15

2.1. Trends of economic convergence

First, convergence trends of CEE countries are described in terms of GDP/per capita. As Figure 1 shows all CEE countries have managed close the gap to average GDP levels of EU15 countries over the quarter of a century between 1990 and 2016. After the „transitional recession" of the beginning of the nineties a process of steady catch-up can be seen, which was slowed down by the international financial crisis and its consequences. In case of the Baltic states the economic crisis actually resulted in a temporary divergence from EU-15 levels of GDP per capita, while in other countries like Poland, Bulgaria or Romania the convergence process continued even during the crisis years. The pace of the convergence process during the 1990-2016 period has not been uniform, of course. Over the entire period the percentage point increase in relative GDP per capita levels has been more moderate in the Czech Republic and Slovenia (15-18 points increase between 1993 and 2016), which were already closer to average EU15 GDP levels at the beginning of the period. The convergence was also relatively slow in Bulgaria (15 points) and Hungary (20 points), while Romania, Poland, Latvia and Slovakia managed to increase relative GDP by cca 30 points and Estonia and Lithuania converged even faster (by 40 points).

Figure 1. Evolution of relative per capita GDP, PPS, EU15=100%



Source: Ameco database, European Commission

In a globalized world characterized by substantial mobility of capital and labour, the level of income actually available to the citizens of a country is better measured by gross national income (GNI) rather than GDP. GNI also includes net receipts from abroad of labour and of property income, plus net taxes and subsidies receivable from abroad. In Table 1. we show evolution of gross national disposable income (GNDI) which also includes current transfers, such as gifts, remittances in cash and kind received from abroad. We also show convergence in terms of actual individual consumption, which not only includes households' expenditure on consumption goods and services, but goods and services paid for by the government (eg. public education or health care) or non-profit organisations.

The convergence in terms of GNDI is similar to that observed in the case of GDP per capita for most of the countries included in the study. The most important difference can be seen in the case of the Czech Republic which by 2016 attained 82% of the EU-15 level in terms of GDP per capita but only 76% in terms of GNDI per capita. In case of Hungary and Slovenia convergence in case of GNDI is also somewhat slower in case of the GNDI. If we compare actual consumption we see that in Lithuania, Poland, Slovakia and Bulgaria convergence in terms of consumption has been faster to EU-15 average levels than in case of GNDI. The difference is most important in case of Lithuania, where the relative level of consumption increased by 46 percentage points between 1995 and 2016, while in case of GNDI a 40-point increase has been observed. On the contrary in case of Slovenia and Hungary convergence in terms of consumption is slower than in case of GNDI.

Table 1. Convergence in income and consumption (% relative to EU-15**)**

	GDP per head of population, (PPS: EU-15 = 100)				Gross National Disposable Income per head of population (PPS: EU-15 = 100)				Actual individual consumption (PPS: EU-15 = 100)			
	1993	2000	2008	2016	1993	2000	2008	2016	1995	2000	2008	2016
Bulgaria	28	24	39	45	28	25	39	46	28	26	41	50
Czech Rep.	63	62	76	82	64	61	71	76	58	57	65	72
Estonia	29	36	62	69	30	35	60	68	31	36	58	67
Latvia	26	31	53	60	27	32	54	61	30	33	53	62
Lithuania	31	32	57	69	33	33	57	69	33	37	65	79
Hungary	44	45	56	63	45	44	53	61	46	46	55	58
Poland	34	41	50	64	34	41	50	63	38	44	55	69
Romania	24	22	45	55	25	23	46	55	28	25	47	56
Slovenia	61	69	81	78	62	69	79	76	66	68	72	70
Slovakia	39	43	64	71	39	44	63	70	37	44	63	70

Source: AMECO database accessed 2018.04.03. GNDI: Bulgaria (1995)

Econometric studies that investigate real economic convergence between the CEE countries and the rest of Europe confirm that CEE countries have converged to more developed countries of Europe. Studies of beta convergence are based on the estimation of growth regressions, that investigate the relationship between the longer term growth rate of an indicator (e.g. per capita GDP at PPP) and its "initial" relative level (controlling for other factors). A significantly negative regression coefficient (beta) of initial development level indicates the existence of beta convergence, meaning that the growth rate of underdeveloped countries (regions) is higher than that of developed countries (regions).

Studies analysing the transition/pre-accession period generally show that CEE countries have managed to reduce the gap with EU15 countries after the years of transitional recession (Kornai 2006) in the early 1990s. Kočenda, Kutan and Yigit (2006), study real convergence for 8 CEE countries (Romania and Bulgaria are not included) in the pre-accession period. They find evidence that strong convergence is taking place towards the EU core and periphery countries. Convergence towards the core countries accelerates around year 2000 in the Czech Republic, Hungary and the Baltic countries. Studying growth regressions on quarterly data for the period 1995–2005 Reza and Zahra (2007) have confirmed the existence of absolute b-convergence with the EU15 for the whole CEE group.

An interesting issue is whether convergence has accelerated after accession to the EU. Próchniak and Witkowski (2013) find beta-convergence in per capita GDP among EU countries during the 1993-2010 period. They find faster convergence regarding the EU27 (5% per year) than among the EU15 countries (3%) which suggests a faster catch-up in case the CEE countries. They divide the time period studies in three sub-periods (1993-1998, 1998-2004, 2005-2010) but do not find significant difference in the pace of convergence between the sub-periods. Contrary to this finding, Böwer and Turrini (2010) find a significant impact of EU accession on the growth performance of CEE countries in a panel analysis after controlling for a series of institutional factors. This result thus suggests that EU accession per se had an impact on growth and the growth-enhancing effect of EU accession was not only working through the

promotion of institutional convergence. Their analysis also showed that EU accession had a growth-enhancing effect especially for those countries that had relatively low initial income levels, weak institutional quality and lower degrees of financial development. Similar results were obtained by Campos et al. (2014). The authors estimated the effect of accession to the EU by constructing synthetic counterfactuals and found that EU accession has increased economic growth in most CEE countries covered by the study (Romania and Bulgaria were not included). The biggest increase in growth rates was found in the Baltic states (2-3 pp per years), and growth rates of Slovenia, Hungary and the Czech Republic have increased by 1 pp.

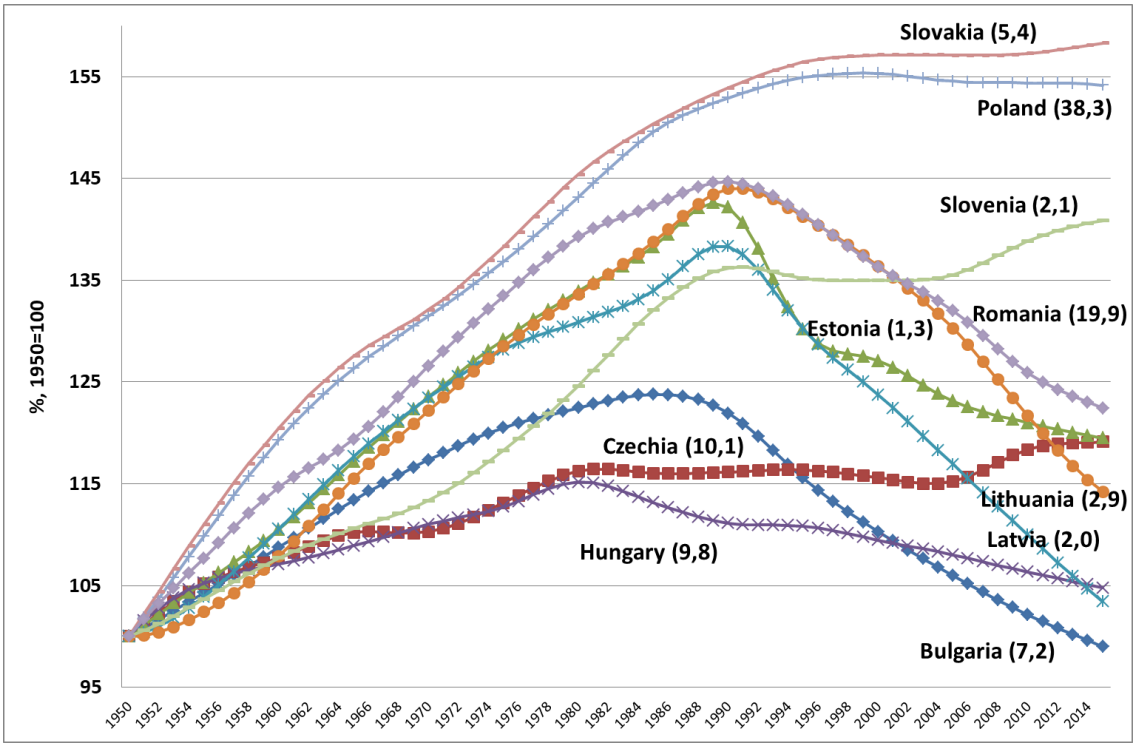
2.2. Determinants of growth in CEE countries

There is an extensive literature of determinants of growth in transition countries (for reviews of the early studies see Svejnar 2002, Campos and Coricelli 2002). In growth accounting exercises economic growth can be the result of an increase in the quantity of production factors (capital and labour) used in an economy or an increase in the productivity of the process by which the production factors are transformed into output. In the following sections developments of growth components will be presented, first by reviewing main trends in the evolution of the labour force and of capital, then by describing developments in productivity.

2.2.1. Population trends and structure

As Figure 2 shows population growth declined considerably after 1990 in most of these countries. In case of countries like Slovakia, Poland population continued to grow albeit at a slower pace after the systemic change, while in a number of countries population has been actually declining during the decades following transition. The decline of the Hungarian population started already back in 1980 followed by very significant drops in Bulgaria, Romania and the three Baltic states after the systemic change. The source of the decline comes basically from two sources. First, there is a natural loss, due to the significant drop in total fertility rates and the still high mortality in most countries. However, outward migration has also increased almost everywhere. The target of this migration was, in the vast majority of cases, somewhere out of this region (EU15 countries, other European countries and outside Europe, mostly the US). A notable exception is the migration of ethnic Hungarians from Romania to Hungary, mostly in the first half of the eighties (contributing to a slowdown of the decline of the Hungarian population at the time.

Figure 2. Trends of total population in CEE countries, 1950=100 (population size in 2015, millions, in brackets)



Source: own calculations based on United Nations (2017). Population estimates from UN Population Division, Department of Economic and Social Affairs, last revision June, 2017.

Atoyan et al (2016) estimate that emigration was about an annual ½–1 percent of the 1990s population in the CEE countries and it has tended to speed up after various waves of the EU expansion in 2004 and 2007. According to their calculations, the cumulative emigration flows amounted to some 8 percent of the 1990 population of the respective countries. This has significantly reduced population growth where – from demographic reasons – it existed or worsened the process where there was already a decline for demographic reasons. Given that emigrants tended to be (on average) younger and higher educated than their home populations, emigration tended to exacerbate shortage of high skilled labour and, as such, constituted a brain drain and has lowered potential growth in CEE. Atoyan et al (2016 also argue that emigration may have contributed to a significant loss in productivity and competitiveness of the sending countries.

A more recent assessment of the intra-EU labour mobility (Fries-Tersch,et al, 2018) shows that there has been opposite trends in case of some larger „donor" CEE countries recently. While there was a continuous increase in outflows from Romania since 2012, outflows of nationals from Poland have decreased since 2012. Other countries with a high increase in outflows rates compared to 2009 are Hungary, Slovenia, Estonia and Croatia. The largest target countries were Germany, followed by the UK and for some countries (like Romanians, for example), Italy.

2.2.2. Capital accumulation in CEE countries

The reduction of capital stock was one of the characteristic features of the transition process in CEE countries (Campos and Coricelli 2002). This was partly due to depreciation of capital accumulated during the socialist period, but investment rates also declined in early years of transition from the very high levels characteristic of centrally planned economies. According to a study of the EIB (Bubbico et al. 2017) between 1995 and 2015 overall gross fixed capital formation in the five countries of Central and Eastern Europe (CEE) has fluctuated between 20% and 25% of GDP at levels slightly higher than the EU28 average. Investment declined during the crisis years from the pre-crisis peak of around 25% to just above 20% of GDP in 2013. In the Baltic states, Bulgaria and Romania GFCF evolved with stronger cyclical fluctuations: before the crisis investment rate went up to 33-35% of GDP and than it collapsed during the crisis years. In the Baltic states gross fixed capital formation dropped below 20% in the Baltic states and to 25% in the South-Eastern countries.

Before the economic crisis private capital inflows (i.e. cross-border loans, foreign direct investment and others) were exceptionally high in the CEE region, even by historical standards (Becker et al 2010). As a result, the share of national income spent on private investment was (well) above the EU average. The saving rate was low by international comparison, lagging behind the investment rate – often considerably so. This implies that, during the prosperous period between 1995 and 2007, rapid physical capital accumulation in CEE countries was to a large extent financed by external resources. With the onset of the crisis however, foreign private capital inflows declined sharply which resulted in a drop of the share of private investment in GDP, by as much as 15 percentage points in some countries. Moreover, there is very little sign of recovery, and the share of private investment is still below the EU average in most CEE countries (Bubbico et al. 2017).

Another important source of capital formation was public investment, which has been significantly higher in the CEE region than in the EU-28. Following the crisis, public sector investment declined in the Baltics and SEE countries while it has remained rather robust in CEE. Public investment has recovered after the crisis, especially in CEE countries, largely as a result of disbursement of EU funds.

2.2.3. Components and determinants of economic growth

Studies decomposing economic growth into the role of it's components (accumulation of capital, labour and increases in productivity) unanimously show that labour accumulation has had a relatively small role in economic growth in Eastern European countries (World Bank 2008, Burda and Severgnini 2009, Dombi 2013, Levenko et al. 2017, Kónya 2018). According to Burda and Severgnini (2009) in countries where labour accumulation played a more important role (eg. Estonia, Latvia, Romania in 1994-1999 period), it's contribution was actually negative. On the other hand, studies report different results about the role played by capital accumulation and productivity growth. According to World Bank (2008) or the EBRD Transition Reports (2013, 2017) the convergence process of transition countries is mainly driven by increasing total factor productivity and capital accumulation had a small effect. Market reforms helped to increase productivity by improving on the inefficient use of capital and labour under central planning. Consequently, the region's economies caught up to levels of

productivity that would normally be expected at similar level of development. The increase in productivity has slowed down in the CEE countries after the crisis. Between 2008 and 2014 the contribution of TFP growth to GDP growth has been negative in the Central European and Baltic countries (EBRD 2017).

Other studies however find more important role for capital accumulation. eg. results from Levenko et al. (2017) suggests that the growth of physical capital played an important role during the period between 1995 and 2016, although it was not the main source of growth. The contribution of TFP growth was quite significant in all the countries, on average 39% of output growth was accounted for by increases in productivity. In the Czech Republic and Slovakia however, the contribution from capital growth is more than one half of average output growth. Findings from Kónya (2018) on the V4 countries suggest that although increases in TFP were the main driver of growth in the 1998-2014 period, capital accumulation also played a role. Dombi (2013) on the other hand concludes that capital accumulation was the main driving force of growth in CEE countries.

According to the studies of early transition years (see Falcetti et al. 2006) three main type of factors have been identified as determinants of economic growth. First, the country's starting point has been found to have a strong effect on subsequent development. Fischer, Sahay, and Vegh (1996a), for example, show that growth is negatively and significantly associated with the initial level of national income. Second, credible macroeconomic stabilization programs were shown to be as a necessary condition for growth. Third, most early studies argue that reforms were beneficial for growth. Reforms included price or trade liberalization, small-scale privatization and also second-phase reforms that addressed other institutional characteristics in corporate governance, competition policy or financial institutions. The later literature – taking into account endogeneity of reforms and multicollinearity among different measures of reform – however has found the relation between reform and growth less robust.

Later studies also demonstrated the importance of openness. Eg. Kutan and Yigit (2009) study the convergence of CEE countries in labour productivity during the period between 1995 and 2006. According to their modelling framework productivity growth is the result of domestic innovation or technology transfers from more developed countries. They demonstrate that variables related to technology transfer from more developed countries (like FDI) have an important effect on productivity growth. Among variables related to domestic innovation, human capital had a significant positive effect on productivity growth, while R&D had no effect. The analysis also shows that the increase in productivity is higher when the productivity gap is larger which suggests convergence in technical efficiency. Using industry level data over the 1995-2005 period Bijsterbosch and Kolasa (2010) also find that FDI had a significant and positive on labour productivity (LP) in CEE countries (BG, RO not included). They also show that the effect of FDI on productivity seems to be increasing with absorptive capacity of the industry (measured by productivity differential vis-a`-vis the euro area) and with levels of human capital.

Some studies have directly analysed the impact of the institutional context. Eg. Schadler et al. (2006) analyse the growth experience of the NMS and other emerging market countries and finds that institutional quality is an important determinant of growth in addition to income

levels, population growth and investment. The results of a study by Havrylyshyn and van Rooden (2003) suggest that economic liberalization has a more significant impact on economic performance than do measures of the quality of the institutional environment, although the latter's importance is increasing over time.

As we have seen before many studies find acceleration of economic growth in CEE countries after accession to the EU. One possible channel through which this could happen is cohesion policy. There is no wide consensus among researchers on the effects of cohesion policy on regional growth and convergence[8]. Some studies use a regression framework and try to take into account specificities of the socio-economic environment where the programme has been implemented, like institutions, interaction of cohesion policy with other instruments or variables of local political economy. Other approaches try to identify the net effect of cohesion policies by comparing data on actual outcomes to a counterfactual which shows the outcomes that would have been observed in the absence of the policy. Eg. Becker et al. (2013) use a regression discontinuity design and exploit the GDP threshold in the definition of Objective 1 regions. Regions that were eligible for cohesion funds show higher growth rates compared to similar regions which were just above the GDP threshold and did not receive cohesion funds.

2.2.4. Wage convergence before and after the crisis

The increase in levels of productivity brought about increasing wages during the transition process. Oblath et al. (2015) show by econometric analysis that before the crisis, increases in labour costs were higher in countries with lower initial level of labour costs. They also conclude that convergence stopped during the crisis years. Galgóczi (2017) reaches similar conclusions: he finds that wage increases also slowed down after the crisis in most of the countries in the region- with the exception of Estonia, Lithuania and Bulgaria. In the Czech Republic, Poland and Slovakia wage increases were moderate until 2016. In Slovenia wages stagnated, while in Romania and Hungary decline in real wages were observed.

Despite the significant convergence over the 1995-2015 period, wages in CEE countries tend to be significantly lower than in the EU15 countries. Whether wages in CEE countries are too low relative to productivity levels is an issue of debate. Galgóczi (2017) argues that wages could be increased in CEE countries without putting cost competitiveness in danger. Oblath et al. (2015) argue however that relative real labour costs, roughly correspond to relative productivity levels in the EU. On the other hand, they agree that wages net of taxes and social security contributions are indeed relatively low in CEE countries. They argue that relatively low level of net wages in CEE countries might be explained by the relatively high per capita real level of government services provided to households.

[8] This is partly due to the methodological difficulties inherent in studying the effect of such policy instruments (Crescenzi and Giua 2017). First, cohesion policy includes very different interventions in different local socio-economic contexts. In addition, EU financial resources are meant to be additional to national resources, which makes the effect of EU financing difficult to separate. There might also be important spill-over effects and indirect effects of the policy which are difficult to capture. It matters a lot what measures of cohesion policy are used in the analysis: eg. committed funds might be different from the money actually spent on the programme.

3. Evolution of income inequality in CEE countries

A major source on inequality we use is derived from the GINI project (on the project see Salverda et al, 2014, Nolan et al, 2014, on the database see Tóth 2014). The research design of GINI included in-depth case studies for the 30 participant (European and non-European) countries, of which, fortunately, all of our target countries in this chapter (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia) are represented[9].

For Gini coefficients, the preferred income concept, in accordance with the recommendations (see Canberra Group, 2011) generally accepted by the inequality researcher community is net disposable household income, equivalized to take differences in household size/composition into account. This is consistent with common practice in the measurement of income inequality and poverty by the European Union. The income sharing unit is the household while the unit of analysis for the computation of various indices is the individual member of the household. Household resources are assumed to be shared among household members and a correction for economies of scale of the household is assumed and implemented by means of equivalisation. For this historic time series, there is no preferred equivalence scale applied, leaving open the choice between the increasingly common square root of the number of persons in the household, the modified OECD scale that takes the number of adults versus children in the household into account, or a national set of equivalence scales[10]. Applying a strictly uniform scale would have required access to micro data in all countries, and we did not have this access.

3.1. Inequality trends

[9] Each study (available in Nolan et al, 2014) was undertaken by a team of national experts, including leading figures of the profession internationally and nationally. For some of the variables, it was possible to create a systematic collection of indicators and the resulting database was proven to provide a very useful starting point for a further development into a new and extensive set of data on inequality in a major rich country grouping in general, but also in CEE in particular, with a real value added compared to existing inequality datasets. (For further on this, see Tóth, 2014)

[10] In the GINI project, where the data collection was carried out via thematically harmonized country case studies, the full comparability with regard to the equivalence scales could not have been achieved. However, this does not cause any serious problems for the inequality measures (unlike for poverty comparisons, where it could be a problem for assessing poverty rates of families with various sizes).

To show the "big picture" of inequality trends in CEE countries, Table 2 presents countries in terms of their inequality levels during three different parts of the 30-year period scrutinised here: 1980-1984, 1996-2000 and 2006-2010. To smooth out measurement uncertainties and cyclical trends, values for the Gini coefficient are averaged for these periods.

As shown by Table 2, CEE countries for which data was available for the pre-transition times (figures in the table show 1980-1984 figures, averaged for the period) all appeared in the lowest inequality group, having a Gini value of below 0.25 Although the reliability of the income distribution statistics for periods of socialism is sometimes questioned, the impression of the seemingly homogenous low inequality group remains. The classical collection of inequality data for the regions by Atkinson and Micklewright (1992) is consistent with all these findings.

Table 2. Change in inequality levels (Gini coefficient values) of CEE countries, during three periods between 1980 and 2010

Gini coefficients	1980-1984	1996-2000	2006-2010
above 0.350		Estonia, Romania,	Latvia, Lithuania, Romania,
0.301 to 0.350		Hungary, Latvia, Lithuania, Romania, Spain,	Bulgaria, Estonia, Poland
0.251 to 0.300		Poland	Hungary
up to 0.250	Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Slovakia	Czech Republic, Slovakia, Slovenia	Czech Republic, , Slovakia, Slovenia,
no data	Romania, Slovenia		

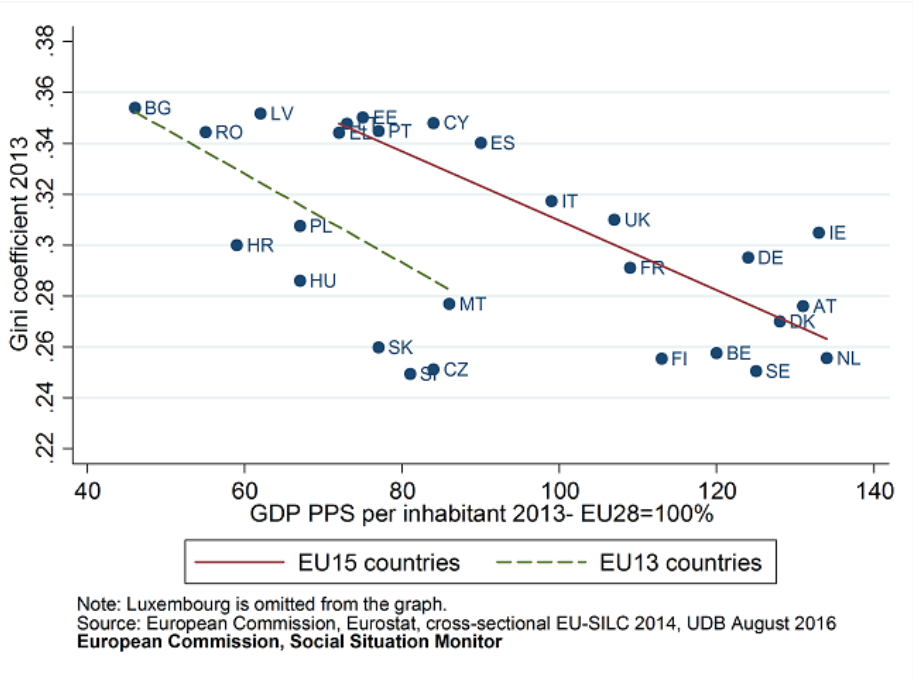
Source: GINI project database, see more details in Table A1.

While the group of CEE countries was very homogenous during the eighties, at least as far as the differences of their inequality levels are concerned, the first half of the nineties saw remarkable changes leading to great divergence in their inequality. This resulted in the evolution from a seemingly uniform country grouping stagnating behind the "iron curtain", with Gini figures between 0.20-0.25, to a very heterogeneous group with Gini figures ranging from 0.23 to 0.37. This means that by the time these countries joined the EU in the 2000s, they already represented different inequality regimes (see eg. Tóth and Medgyesi, 2011). A cluster of six countries: Estonia, Lithuania, Latvia on the one hand and Bulgaria, Romania and Hungary on the other, experienced a large (over 10 Gini points) increase in inequality in just a few years, while in the other group consisting Czech Republic, Slovakia, Poland, Slovenia the increase of inequality was much smaller.

3.2. Levels of inequality 25 years after transition

To compare most recent average income and inequality of these countries Figure 3 presents Gini indices of disposable equivalent incomes of households together with relative GDP levels. Among the CEE countries Latvia, Lithuania and Romania appear to be in the group with highest inequality levels (above 0.35 of Gini value), while the Czech Republic, Slovakia and Slovenia remained in the most equal end (still having a Gini of the value range lower than 0.25). There is clearly a large difference between the levels of economic development of the EU15 and CEE countries while the internal variance of inequality levels is similar in the two subgroups of the EU. Income inequality is relatively strongly and negatively related to GDP per head across the observed EU countries. The slope of the relationship is negative for both the EU15 countries and the New Member States[11].

Figure 3. GDP per capita (EU27=100) and inequality in equivalent household income 2013



Note: Luxembourg is omitted from the graph.
Source: European Commission, Eurostat, cross-sectional EU-SILC 2014, UDB August 2016
European Commission, Social Situation Monitor

Behind differences in inequality levels of net household income we can find differences in market income inequality and differences in the inequality-reducing effect of government redistribution. Market income inequality among the working age (16-64 years old) is not especially high in the transition countries. EU countries with the highest level of market income inequality are Southern European countries (Greece, Spain, Portugal) and also Ireland. The three Baltic states and Bulgaria and Romania have high levels of net income inequality mainly because of low level of inequality reducing effect of government redistribution, which decreases the Gini index by 14-16% only. Slovenia on the other hand has similar level of market income inequality but this is combined with the highest degree of inequality reducing effect of government transfers (38%). Low level of inequality in Slovakia and the Czech Republic is not

[11] Luxembourg is so much of an outlier that we left it out from the chart for reasons of convenience.

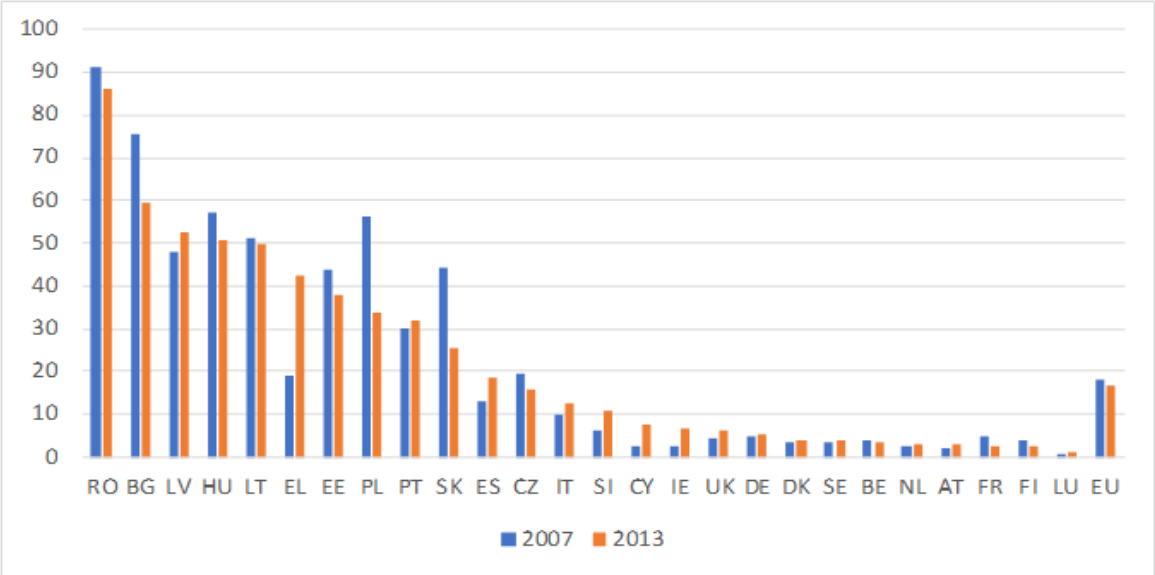
only result from government redistribution (21-28%) but also relatively low level of market income inequality (0.33-0.35 instead of 0.4 in other CEE countries.

When analysing the potential labour market drivers of inequality change, Brzezinski (2018) found that in explaining the increase of Gini between 2008 and 2012 (statistically significant for Bulgaria, Estonia, Hungary and Slovenia), it was falling full time employment rate that played the biggest role. It was shown to be responsible for some 60-80 percent of market income Gini change in general, less for Hungary. The shift towards increased part-time employment during the recession had rather an inequality decreasing effect, if any.

When using relative income poverty measures people with low income are identified in comparison to the citizens of the country. Using the 60% of median equivalised income as poverty threshold we have a picture that is similar to the case of inequality: the Baltic states together with Bulgaria and Romania have relatively high income poverty rates compared to other EU member states, with percentage of poor equal or higher than 22%. Relative income poverty in Poland is close to the EU28 average (17.3% in 2016), while in other CEE countries it is lower than that. Countries with higher rate of relative income poverty generally have deeper poverty as well, that is the poor on average are further away from the poverty threshold (see Lelkes and Gasior 2018). Outliers to this general tendency are Slovakia, Bulgaria and Romania where the relative poverty gap is higher than would be predicted on the basis of their poverty rate, while in case of the Baltic states the reverse is true.

Measures of economic inequality and relative income poverty show relative differences between individuals, households and various social groups of a given country. However, a joint cross-country comparison of relative economic development and convergence can be more balanced with an inclusion of absolute poverty rates in the analysis, where the poverty threshold is identical across countries. This can be done via the establishment of an all-European poverty rate (with the assumption of a pan-European income distribution). The share of the population below the all European poverty line would then jointly show inequality within countries in the context of the relative economic differences between countries. This is shown for 27 member states and for the years 2007 and 2013 on Figure 4.

Figure 4. Percentage of people with incomes lower than 50% of EU median income



Source: own calculation based on EU-SILC UDB 2008, 2014

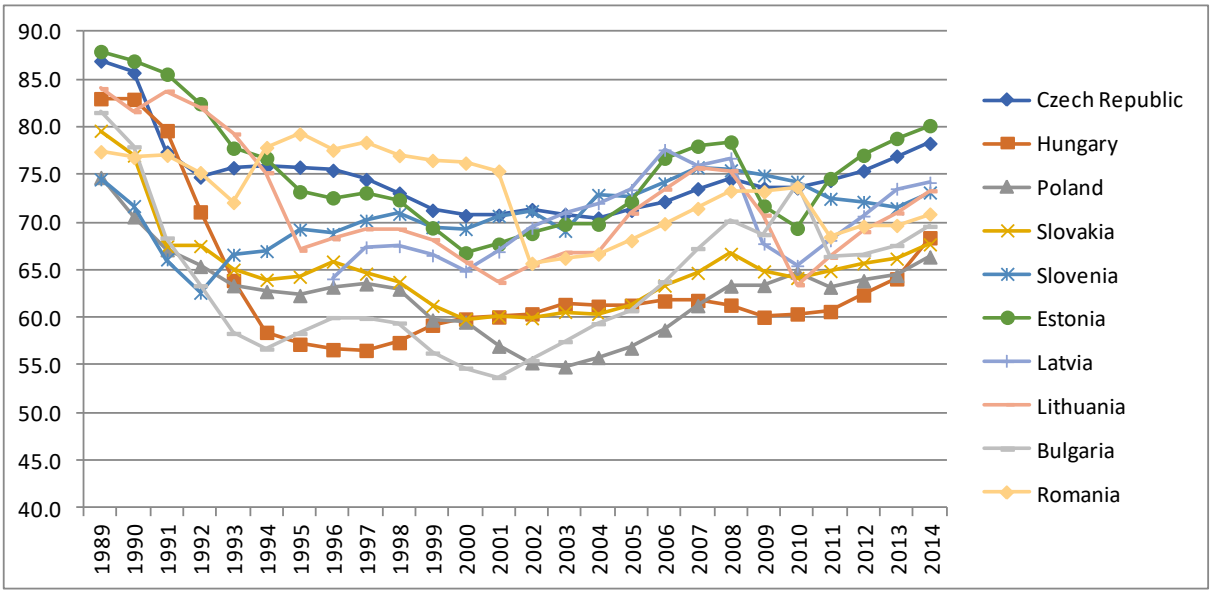
From the cross-country comparisons, it is seen that by all-European relative income poverty thresholds (set, for this purpose, at 50% of the all-European net median equivalent income at purchasing poverty standards), the majority of the Romanian, Bulgarian, Latvian, Lithuanian and Hungarian population would belong to the bottom category in 2013. It can also be seen that even during the years of the economic crisis the percentage of the poor defined on EU-wide poverty threshold has declined in some CEE countries, most importantly in Poland and Slovakia.

3.3.Explanations of inequality change: similar driving forces during the transition process

Additionally to country-specific studies some studies have presented comparative analyses of changes in inequalities in Eastern European countries since the beginning of the transition process. For a very careful analysis of trends in earlier years of transition see Flemming and Micklewright (1999). Milanovic (1999), The World Bank (2000), Mitra and Yemtsov (2006) give an in-depth analysis of the driving forces behind the evolution of income inequalities in these countries. Perugini and Pompei (2015) reviews evidence on trends and drivers of inequality while Heyns (2005) reviews aspects of increasing inequalities such as inequalities related to gender, age, region of residence, etc. Some studies use an inequality decomposition framework to uncover driving forces behind inequality change (eg. Milanovic 1999), while others such as Milanovic and Ersado (2012) or Bandelj and Mahutga (2010) analyse determinants on country-panel data. Studies on the determinants of inequality change during the early years of transition point to the role of declining employment, increasing wage inequality, increasing role of capital income and declining inequality-reducing effect of government taxes and transfers.

During the economic recession in the early transition years, employment decreased dramatically in CEE countries, while unemployment and inactivity were on the rise (see Figure 5). The income situation of households which lost employment deteriorated tremendously and this gave rise to a form of inequality previously unknown to them; namely, inequality between those in employment and those working age people who were out of the labour market. Employment recovered to some extent in most of the CEE countries after the transformational recession: during the growth years between the end of the nineties until the recession struck in 2009 most countries have seen increasing employment rates. But still in 2014 the employment ratio is considerably lower than at the beginning of the transition process.

Figure 5. Employment rate among persons aged 15-59 (employed persons as % of the population of the same age)



Source: Transmonee 2016 database, UNICEF.

Moreover, inequalities between those in employment were also rising during the first phase of transition. As described by Rutkowski (2001), at the beginning of the transition period the Gini coefficient of earnings inequality fell in the 0,16-0,27 range in these countries. In the first half of the nineties inequality of earnings increased by 4-6 Gini points. During the second half of the decade, earnings inequality continued to increase in six out of nine countries covered by the data (Table 3).

Table 3: Evolution of earnings inequality in CEE countries during the nineties (Gini coefficients)

	1989-1990	1993-1994	1998-1999
Bulgaria	0,213	0,250	0,292[a]
Czech Republic	0,198	0,257	0,258
Estonia	0,250	nd.	0,380
Latvia	0,249[c]	0,282	0,331
Lithuania	n.d.	0,391	0,353
Hungary	0,268	0,315	0,349[b]
Poland	0,205	0,257	0,293
Romania	0,156	0,229	0,357
Slovenia	0,222	0,273	0,306

Source: Rutkowski (2001), based on data from UNICEF, Transmonee database.

Note: monthy wages (and bonuses) of full-time employees based on company surveys, nd.=no data. Data are from the first available year in the given interval. a: data from 1996, b:data from 1997, c: data from 1991.

One important factor in increasing earning disparity was an increasing wage premia for educated labourers (eg. Rutkowski 2001). In the Czech Republic the wage premium of tertiary

education (compared to those with primary education) increased from 38% to 58%[12] between 1988 and 1992 (Vecernik 2001) and then increased further to 74% by 1996. Sakova described similar increase in the case of Slovakia (Sakova 1996). In Slovenia men with tertiary degree earned 72% more than those with a primary degree in 1987, and the wage premium increased to 94% by 1991 (Orazem és Vodopivec 1997). In Hungary the wage premium of men with tertiary degree (base: upper secondary) increased from 51% to 82% between 1986 and 1992 (Kertesi és Köllő 2002). In Poland the return to one year of schooling increased from 5% to 7,3% (Rutkowski 2001).

The role of education as a driving force behind inequality change can be analysed in the frame of supply and demand for skills. The latter is driven by technology change as new technologies require higher skills while, depending on the availability (supply) of higher skills in the market, the premium for higher education may be larger or smaller. In the CEE countries the importance of education in determining employment opportunities and wages was rising despite the significant expansion of education that occurred. We illustrate this increase in supply of skilled labour by comparing if the share of higher educated in older cohorts (55-74 year olds in 2016) with the similar share in younger cohorts (25-54 year old since 2016) shows the followings:[13]

- the share of the higher educated among the older cohorts is the highest in the three Baltic states (34,6%, 26,7% and 24,6% in Estonia, Lihuania and Latvia, respectively) while it is the lowest in Romania (8,5%), followed by Slovakia (13,6%), Poland (14,1%), Czech Republic (14,2%).
- The difference in higher education attainment rates between the two cohorts (which can be considered as an indicator of the dynamics of higher education expansion in the observed countries) is shown to be the largest in in Poland (33,9% as compared to 14,1%) and in Romania (19,8% as compared to 8,5%)
- however, despite the assumed high growth rates in Romania, the share of the higher educated in the 25-54 year old age group is still the lowest in Romania (when compared to the rest of the CEE countries).
- with the spectacular change in Poland (and, to a slightly smaller change in Slovenia), the share of higher educated in Poland and in Slovenia is now relatively close to the level in the Baltic states (rates ranging between 34% to 43% in this five country group), with Slovakia, Czech Republic, Hungary and Bulgaria in the range of 25-30% and Romania still lagging behind with a rate of 19,8%.

Increasing wage premium in a context of increasing supply of skilled labour suggests that in these countries demand for skilled labour has been increasing rapidly. The relative demand for skilled labour increased during the period of structural changes and transformational recession, and also during the period of economic growth which followed. Foreign direct investment brought about a significant technological modernization of production processes.

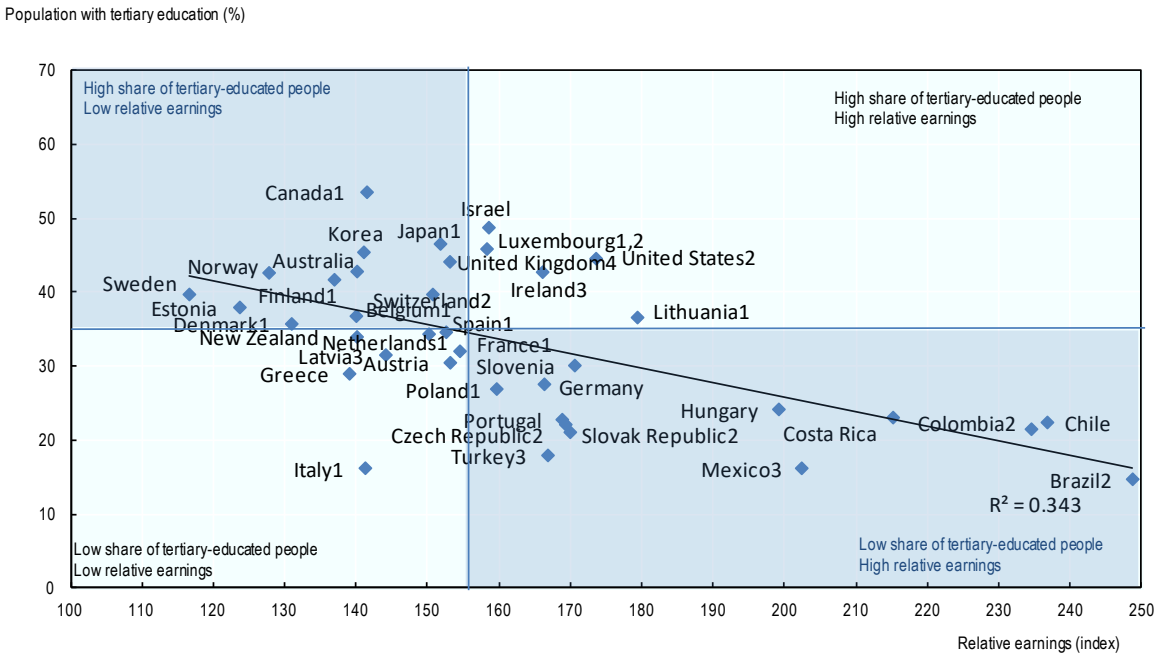
[12] Estimates from Mincer-regressions.

[13] Data for these calculations come from Eurostat http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_the_population_by_level_of_educational_attainment,_by_selected_age_groups_and_country,_2016_(%25).png

Technological change increased demand for young educated labour, while employment prospects worsened for the poorly educated and older cohorts with obsolete human capital.

Overall, in 2015 the wage premium for skilled labour tends to be highest among the CEE countries in Hungary, the other three Visegrad countries and Slovenia, where the share of the higher educated is relatively low (in the range of 20 to 30 per cents). At the same time, in case of the two Baltic states represented in the figure (Latvia and Estonia) the share of the higher educated is higher and the wage premium for them is lower than in the other countries[14].

Figure 6. Relative earnings of tertiary-educated workers and their share of the population (2015, 25-64 year-olds with income from employment; upper secondary education = 100)



Note: Tertiary education includes short-cycle tertiary, bachelor's, master's, doctoral or equivalent degrees

1.) Year of reference differs from 2015. Refer to the source table for details.
2.) Index 100 refers to the combined ISCED levels 3 and 4 of the educational attainment levels in the ISCED 2011 classification.
3.) Earnings net of income tax.

Source: OECD (2017). Table A6.1.

Regression based decompositions of income inequality between households also show that in general, the CEE countries cluster among those where education plays a relatively important role in defining household inequality (Medgyesi 2014). In Bulgaria, Hungary and Romania, the variance of incomes explained by education is around 20 percent markedly higher than in countries with a much better education composition of the population (Sweden, Denmark or

[14] Mysiková and Vecernik (n.d.) found that returns to education are higher in the new member states than in the old member states. However, while in the old member states they found the expected negative relationship between education returns and the proportion of tertiary-educated in the active population, this relationship was not confirmed in CEE countries. Rather, in CEE it was the job vacancy rate that had a significant negative impact on returns to tertiary education.

Austria). In addition to these three outstanding shares variance explained by education, most CEE countries belong to the league where the role of education in inequality is central.

Labour market differences were not only increasing by educational attainment, but region and ethnicity have also become important variables of differentiation. Many of the CEE countries are in effect multi-ethnic societies. A sizeable minority of Roma ethnicity lives in countries like Bulgaria, Romania, Hungary, Slovakia and the Czech Republic, while in the Baltic states an important Russian minority is present. In case of the Roma problems of labour market integration have been described by FRA (2014). This is partly explained by lower educational attainment and lower regional development levels among the Roma, but Kertesi and Kézdi (2011) find evidence of labour market discrimination against the Roma in Hungary. a substantial rise in the unexplained wage gap over this period. Lower employment and lower wages among the Roma result in poverty rates that are much higher compared to the non-Roma in the respective countries. Wage differences by ethnicity were shown to emerge after 1990 in Estonia, where an ethnic wage gap appeared in early 1990s and reached to around 10–15% of the mean wage in favour of Estonian-speaking workers over Russian-speaking workers.

When the focus of analysis is shifted from the wage distribution to that of household income inequalities several modifying factors come into the picture, such as capital and transfer incomes and also household structure. Structural change of the economy contributed to rising income inequality also by shifting the composition of incomes: the proportion of self-employment incomes, entrepreneurial incomes and capital incomes has risen, while the share of labour income has fallen.

During this 20 year-period the share of wages in GDP has been declining the most in Poland and Hungary but also Estonia and Latvia experienced declining trends. Studies show that the share of wages in GDP is lower in CEE countries compared to the Eurozone countries (see Podkaminer 2013 or Galgóczi 2017). Although this is true on average, there are significant differences between the countries of the region. In Slovenia the wage share declined between 1995 and 2015, but it remains the highest by far in the region exceeding also the Euro area average. The high wage share in Slovenia may reflect that country's particularly low level of FDI and also it's unique system of corporatist labour management. Romania is also a special case as the wage share is much lower than elsewhere – and does not really seem to be declining consistently.

This is partly due to the decrease in employment, but also to the emergence of the private sector (World Bank, 2000). The removal of legal restrictions on private ownership and entrepreneurship has led to the emergence of new small, private firms in industry and services. Privatization of formerly state-owned firms has resulted in the formation of national economic elites of corporate business owners. This has contributed to increasing income inequality, since self-employment and entrepreneurial income is more unevenly distributed than wages. Moreover, these activities often depend on an individual's access to assets (property, but also information), which thus reinforce initial inequalities.

3.3. Differences of country experiences of inequality developments

Decline in employment, increasing wage inequalities, increasing educational wage premia, increasing role of property income were common driving forces of inequality change in CEE

countries in early years of the transition process. Despite these common forces there have been differences in policies (eg. speed of reforms, welfare state arrangements) and outcomes of different countries, which we summarise below.

Among the Baltic countries, Estonia and Lithuania underwent the largest rise in inequality, with a close to thirteen point Gini increase in Estonia over just two years between 1990 and 1992 - and an almost ten point Gini increase in Lithuania between 1990 and 1993. Several factors make these extreme changes more plausible than they might seem at first sight. The most fundamental difference between these countries' stories concerns the speed of the transition to a market economy. Masso et al. (2014) emphasizes that the transition was exceptionally fast in Estonia - followed by the largest inequality increase among the three countries. The differences in speed of privatization and liberalization were reflected in labour market developments although the largest unemployment shock occurred in Latvia, which had the highest level of industrialisation in the Soviet era, leading to major shocks in redundancies when transforming to a market economy. Finally, its exceptionally low educational premium before the transition (with the higher educated at only 108% of the national average wage while the lower educated were at 97%) was changed by an exceptionally fast differentiation of pay by education in the first half of the nineties. Equally interesting, though, is the divergence between the inequality paths of the three countries after they had reached their local peaks. While in Estonia a consistent inequality decline occurred, Lithuania witnessed a continued increase albeit at a reduced pace. Latvia, as opposed to the other two Baltic states, has climbed up rather gradually from the position of being one of the most equal European countries around 1990 to the most unequal by 2010 (see Masso et al, 2014). In fact, in the second half of the nineties it was Estonia where inequality was highest in Europe; at the end of the last decade, however, Latvia "took the lead".

The cluster of transition countries following a second inequality trajectory cover Czech Republic, Poland, Slovakia and Slovenia. The cases of Slovenia and of the Czech Republic deserve special attention though. These two countries were able to avoid large inequality shocks throughout the transition process[15]. To understand the immediate reasons, one has to understand economic and social policies adopted and as well as the way transition has proceeded. In Slovenia the low inequality is largely attributable to the relatively efficient tax and social policy measures in redistributing incomes (Filipovic and Ignjatovic, 2014). In Czech Republic the role of tax and transfer policies can also be emphasized (Kahanec et al, 2014) – the transfers of the pension system for the older population and taxes for the working-age population. For Poland, the transition resulted in an inequality increase but the magnitude of 5 Gini points remains relatively modest by "eastern standards" (Letki et al, 2014). The Slovak development parallels the Czech one, albeit with a break in the series that lifted inequality on a higher level (Kahanec et al, 2014).

Both in Bulgaria and (to a lesser extent) in Romania the increase in inequality has taken place in two waves. In Bulgaria, the dynamics of this process derive from a complex interplay of GDP growth and decline, incomes and pension policies and migration, as it is described by

[15] There is a series break in Slovenia between 2004 and 2005 – with no effect on trends. (Fig 2 in Filipovič and Ignjatović, 2014).

Tsanov et al, 2014. The peculiar pattern of Romania is associated with non-transparent privatization practices, state capture, corruption and shadow economy activities[16], together with effects exerted by migration on inequality, while at the same time social policies are inefficient in tackling increases in inequality (Precupetu and Precupetu, 2014).

The Hungarian story of inequality development is, different from the rest, like its transition. Given that the transition, at least in terms of liberalization of the economy, started earlier than in other countries (Tóth 2008, Fábián et al. 2014), the transition shock seems to be smaller, at least for the final outcomes for inequalities. Overall, the increase of inequality was relatively smaller in Hungary. On the one hand, there were strong forces at work towards inequality increase: tough bankruptcy laws resulted in large job destruction, there was an insufficient job supply for the low skilled and badly designed active labour market policies did not help preventing marginalization of masses of the low educated. On the other hand, various social policies, most notably, passive labour market instruments, social assistance and early retirement provisions provided some shelter for those at the lower end of the labour market. The combined effect was smoother increase of inequality on the short run and a very low level employment equilibrium (due to a massive financing of inactivity) on the long run..

4.Convergence in well-being

In earlier sections we have reviewed trends in average income and the distribution of income in CEE countries over the past 25 years. In the following section we describe evolution and convergence in terms of well-being indicators. First, we describe the evolution of distributionally-adjusted mean income then we discuss the evolution of life expectancy and subjective life satisfaction in CEE countries.

4.1.Distributionally-adjusted income growth

The report by Stiglitz et al. (2009) proposes to take into account distributional changes when evaluating social progress. We compare the evolution of average household income with indicators of social progress that are sensitive to the distribution of income as well. From the various potential measures (see Jenkins 2012) we choose an indicator of distributionally adjusted mean income (This index can be expressed as the product of real mean income and an index of income equality that lies between 0 and 1. This means that an increase in income inequality will reduce the growth in the distributionally adjusted mean, while a reduction will increase it. In the case of the index proposed by Amartya Sen, the equality index used in the formula is 1 minus the Gini coefficient).

[16] Normally, the shadow economy should not directly appear in net incomes, of course. However, if there is an over time variation in the way the various surveys can capture these items this volatility can be reflected in the inequality trends as well.

Table 4. Change in GDP per capita and Sen-index (%, beginning of period=100%)

	Change in GDP per capita (%, beginning of period=100%)					Change in Sen-index (%, beginning of period=100%)				
	1990-1996	1996-2004	2004-2008	2008-2013	1990-2013	1990-1996	1996-2004	2004-2008	2008-2013	1990-2013
Bulgaria	85	134	134	102	155	79	138	117	99	127
Czech Rep.	100	121	121	96	141	97	115	127	96	136
Estonia	81	171	125	102	177	68	174	132	97	150
Hungary	89	140	110	93	129	84	140	114	89	119
Latvia	55	183	138	111	155	49	169	136	115	131
Lithuania	63	171	138	100	148	54	172	133	101	125
Poland	117	138	122	115	225	109	136	122	116	210
Romania	96	128	136	102	169	87	117	138	102	144
Slovakia	96	133	135	113	195	88	131	139	111	179
Slovenia	101	136	119	82	136	94	138	120	80	125

Source: Real GDP at constant 2011 national prices (in mil. 2011US$) and population data from Penn World Tables 9.0. Data for Gini index of income inequality for 1990-2008 GINI project database (see Table A1. for details) and for 2008, 2014 EU-SILC. The Sen-index is calculated as GDP per capita*(1-Gini).

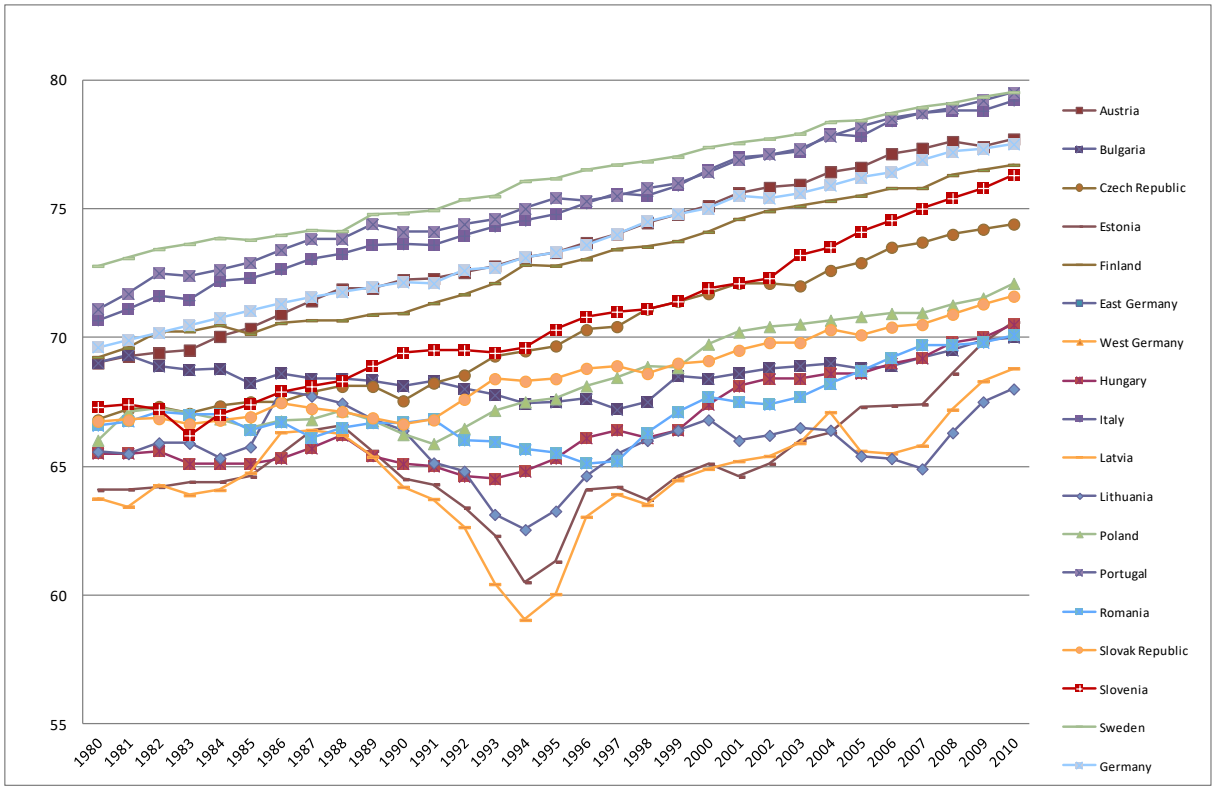
Table 4 compares change in GDP per capita and change in the Sen index in selected periods. Differences in the change of the two indicators arise in periods when there is an important change in income inequality. Eg. in the early transition years (1990-1996) GDP per capita declined in seven of the CEE countries and in the same time inequality increased, which causes a stronger fall in the value of the Sen-index compared to that of GDP per capita. Between the mid-nineties and the start of the economic crisis (periods 1996-2004, 2004-2008) and also in the last period studied (2008-2013) difference between the change in the two indicators are moderate, since in most of the countries changes in income inequality where smaller. Most important exceptions are Romania and Latvia in the 1996-2004 period and Bulgaria in the 2004-2008 period. In these cases inequality increased during periods of economic growth and thus the increase in the Sen-index is smaller than in case of the GDP per capita. Interestingly, in some cases (eg. I Estonia between 2004-2008) inequality actually declined so the Sen-index increased more than GDP per capita.

4.2. Life expectancy

Figure 7 shows the evolution of life expectancy in CEE countries. The figure shows that the period of transformational recession has halted the process of increasing life expectancy in many transition countries. In the Baltic states life expectancy dropped dramatically (by 5-7 years) during the 1987-1994 period, but also Romania, Bulgaria, Hungary, Poland and Slovakia have seen episodes of declining life expectancy during this period. Since the mid- nineties life expectancy has been growing in CEE countries, but convergence to EU15 countries seems to take place only in case of Slovenia and the Czech Republic. In case of other CEE countries the

increase in life expectancy seems to be similar or lower compared to EU15 countries, which means that there is no decline in the life expectancy gap.

Figure 7. Evolution of male life expectancy at birth in CEE and selected EU15 countries



4.3. Life satisfaction

Life satisfaction in CEE countries declined sharply during the years of the transformational recession (Easterlin 2009). After these early transition years high unemployment and cutback of welfare programmes resulted in slow recovery of life satisfaction despite improving GDP. Multivariate studies comparing transition countries with OECD countries show the existence of a happiness gap: individuals living in transition countries show significantly lower level of life satisfaction even after controlling for a large set of determinants of life satisfaction, such as gender, age, income etc (see Guriev and Zhuravskaya 2009, Gruen and Klasen 2012). Guriev and Zhuravskaya (2009) discuss several potential causes of the happiness gap, such as increased inequality, deterioration of public goods, increase in volatility of incomes and uncertainty and the depreciation of human capital.

Guriev and Zhuravskaya (2009) finds negative effect of income inequality on life satisfaction among transition countries and suggests that increasing inequality is partly responsible for the life satisfaction gap between transition and non-transition countries. Although people in post-socialist countries are willing to accept higher inequalities after transition than before the fall of communism (Austen 2002, Gijsberts 2002, Kelley and Zagorski 2004, Medgyesi 1997), the increase in inequality is still considered a negative consequence of transition to market economy. This is demonstrated by the study of Grosfeld and Senik (2010) who find decreasing inequality aversion during first years of transition in Poland, but show that increasing inequality

decreases life satisfaction in later years. Guriev and Zhuravskaya (2009) conclude that taking into account increased inequality, the deterioration of public goods, increased uncertainty and the depreciation of human capital explains lower levels of life satisfaction in transition countries.

More recent studies have reported about decreasing life satisfaction gap between the East and the West. Vecernik and Mysikova (2015) concluded that life satisfaction, due to stagnation in old member states and improvement in the new member states, converged (although the findings drawn from different suveys in the post-crisis period do seem somewhat inconsistent. Guriev and Melnikov (2017) in a more recent paper also confirm the closure of the „transition happiness gap".

5.Conclusion

The period between 1990 and 2015 has been a period of intense social change in the CEE countries. These countries abandoned the socialist system and have adopted political and economic institutions of the global West in two steps, first during the transition years and then with the accession to the EU. CEE countries experienced two major recessions during this period, first during the early years of transition than the economic crisis of 2009. Despite these periods of recession CEE countries managed to reduce their disadvantage compared to EU15 countries in many aspects.

Key common feature of the pre-crisis growth model in countries of the region was deep economic and institutional integration to the EU. Prior to the crisis, countries enjoyed significant capital inflows with FDI being the most important component. The capital stock was upgraded with more productive assets allowing for technology transfers to CEE countries. Resulting higher incomes generated more domestic demand and domestic investment. The EU provided an important anchor for the institutional development of these countries and was not only a major source of private capital but also public investment via the cohesion funds contributed to the economic development of the region.

This development process however is not without tensions. Inequality increased in all CEE countries during the early years of transition. While certain regions (eg. capital cities), sectors (eg. domiated by multinationals) and social groups (the young, more educated) were able to reap the benefits of the development process, other groups remained left behind. The crisis has exacerbated these tensions as unemployment increased and government transfers were cut by austerity programmes. Frustration in social groups more affected by the crisis increased which was exploited by populist parties.

There were important differences between the experiences of CEE countries. Some of the more successful countries in terms of income convergence, the Baltic states were also those with the biggest increase in income inequality. Slovakia or Poland on the other hand were able to achieve high levels of GDP growth without an excessive increase in income inequality. The Czech Republic and Slovenia which were relatively more developed at the start of the transition process recorded slower convergence to EU15 levels of income but recorded only moderate

increase in inequality during the period studied. We conclude that large social transformations (like the socioeconomic transition in CEE countries) have had very significant effects on inequality developments. However, the magnitude of the impact depends heavily on country-specific factors.

Although the CEE countries have returned to the path of convergence after the economic crisis the countries face important problems which might constrain future growth. Emigration and low fertility will result in a decline of the active age population, while the percentage of dependent populations is likely to increase in the future. Levels of FDI and private investment remain at a low level since the crisis, which might also threaten future growth prospects. Increasing economic growth via raising productivity will also be more difficult as these countries are now closer to the productivity frontier.

One possible avenue to sustain development is to make growth more inclusive. Investment and productivity increase should also reach to less developed regions of the country and less developed sectors of the economy (eg. the SME sector). Human capital investment has to be increased especially in social groups (eg. the Roma) which have difficulties integrating the labour market. Development of Early Childhood Education and Care institutions should help labour market integration of women with small children. EU funds have to be channelled to investments in human capital and productive infrastructure with long-term benefits and serious efforts should be made to constrain possibilities of rent seeking and corruption.

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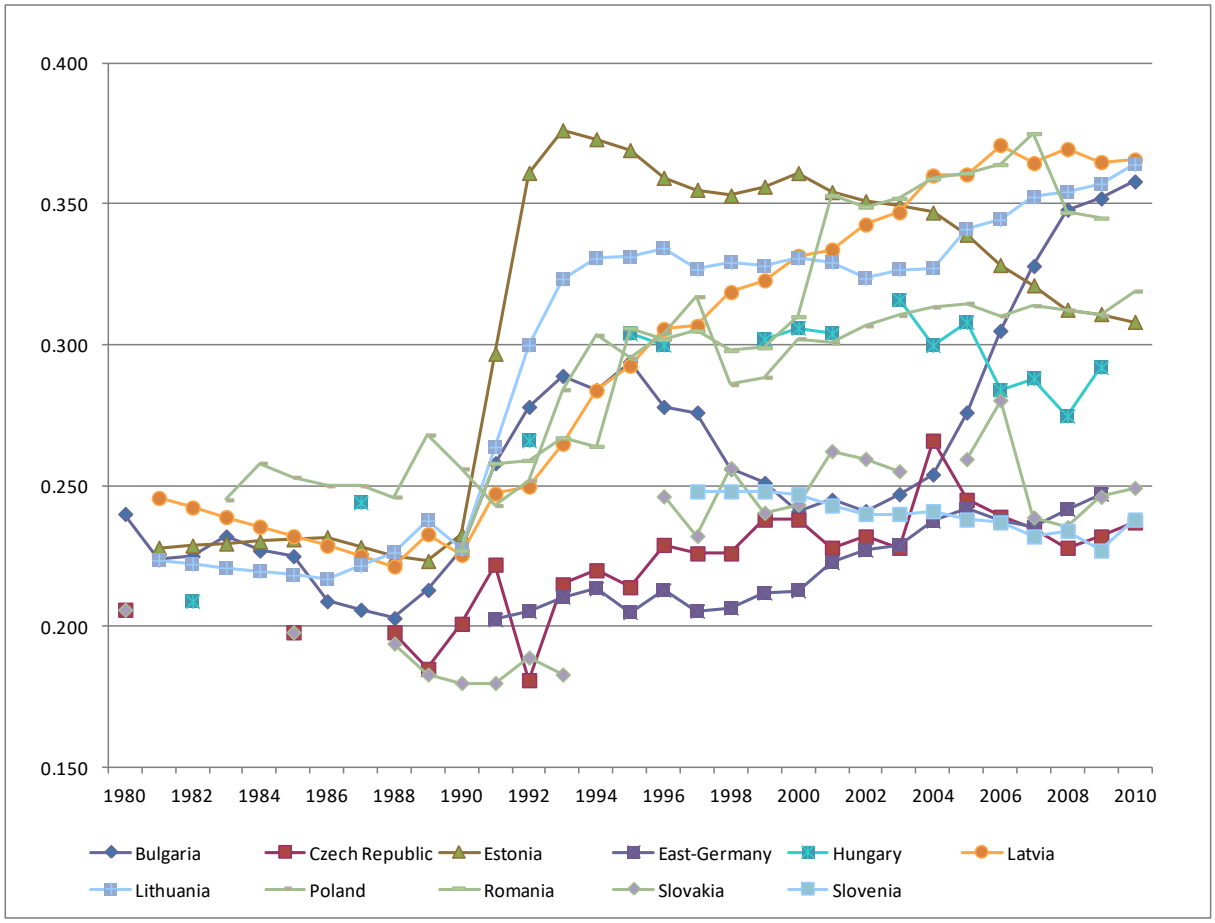
Annex

Figure 3. Evolution of the Gini index of equivalent household income



Source: Tóth, 2014, based on GINI project database, see more details in Table A1.

Table A1. Sources for inquality data on CEE countries in GINI project database

Country	Reference (see details in reference list)	Data source	Note
Bulgaria	Tsanov, Ivanova, Panteleeva and Bogdanov	1980-2010: SWIID, Version 3.1.	Equivalent net income per household member.
Czech Republic	Kahanec, Guzi, Martišková and Siebertová	1988: Atkinson and Micklewright (1992); 1989-1994 Cornia (1994); 1995-2002 Transmonee (2004), 2003 Transmonee (2005), 2005-2010 country team calculations based on EU-SILC; 2004: LIS	Units of analysis is household (after 1993) or person (up to 1992). Household income equivalized since 2005. Income defined as disposable income (monetary disposable income before 1989).
Estonia	Masso, Espenberg, Masso, Mierina and Philips	1981-2010: SWID	Disposable equivalised household income.
Germany (East)	Corneo, Zmerli and Pollak	1991-2009: SOEP, calculations of the German GINI team	Equivalent net household income.
Hungary	Fábián, Gábos, Kopasz, Medgyesi, Szivós and Tóth	1982, 1987: Hungarian Central Statistical Office income survey; 1992, 1995, 1996: Hungarian Household Panel; 1999–2009: TÁRKI Household Monitor, EU-SILC	
Latvia	Masso, Espenberg, Masso, Mierina and Philips	1981-2010: SWID	Disposable equivalised household income.
Lithuania	Masso, Espenberg, Masso, Mierina and Philips	1981-2010: SWID	Disposable equivalised household income.
Poland	Letki, Brzeziński and Jancewicz	1983-1989: Atkinson and Micklewright (1992), 1990-1992: Szulc (2000), 1993-2010: Brzezinski et al.	Before 1989: per capita incomes, then equalized household incomes. Original OECD equivalence scale, which assigns the weight, of 0.7 to every adult household member beyond the first one and the weight of 0.5 to every child. Two breaks in the series: in 1993 and in 1997.
Romania	Precupetu and Precupetu	1990-2009: NIS	
Slovakia	Kahanec, Guzi, Martišková and Siebertová	1980, 1985, 1988 Atkinson and Micklewright (1992); 1989-1992: Cornia (1994); 1993: Milanovic (1998), 1996-2002: Transmonee (2004); 2003: Transmonee (2005); 2005-2010 calculations by the GINI team of Slovakia, based on EU-SILC	Unit of analysis is person, income defined as disposable income (monetary disposable income before 1989). Household income equivalized since 2005.
Slovenia	Hrast and Ignjatović	1997-2010: SORS	Disposable net household income. Before 1997: there is no official data on Gini coefficients.