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GLOBAL TRENDS IN INCOME DISTRIBUTION: LONG-RUN INFLUENCES ON INCOME INEQUALITY

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Centro de Pesquisas Econômicas da Amazônia

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Cadernos CEPEC

Missão e Política Editorial

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GLOBAL TRENDS IN INCOME DISTRIBUTION: LONG-RUN INFLUENCES ON INCOME INEQUALITY [1]

THOMAS OBST[2]

ABSTRACT

This paper provides a comprehensive overview of the development in income distribution and outlines its major long-term trends of 23 countries worldwide. These countries are clustered in four groups covering the core advanced, the Nordic, the emerging, and the least developed economies of the world. This paper applies different measures to analyse income distribution in three dimensions: national income, functional income distribution, and personal income distribution. Depending on the indicators applied the time period ranges between 1960 and 2012. The empirical analysis shows that increases in national incomes are most pronounced in the advanced economies. The emerging economies also exhibit an upward trend in national income, but it has been less substantial. The least developed economies, however, have been detached from this trend and remain isolated. Moreover, this paper illustrates that there has been an enormous re-distribution of income. During the last three decades, the labour share of income has declined in nearly all countries under study. This development went hand in hand with increased personal income inequality. Disposable income inequality and market income inequality have both increased over the past 30 years. Wage dispersion also rose substantially contributing to greater income inequality. Additionally, the escalation of top income shares as well as the expansion of low paid employment has led to a growing gap between the top and the bottom income earners. This analysis also presents important interlinks between greater income inequality, the fall of the wage share, and increasing wage dispersion.

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1. INTRODUCTION

Income inequality substantially increased after neoliberal policy reforms that were initiated in the 1980s (Hein and Mundt, 2012). Taking a first glance at the data one can observe that most OECD member countries have experienced rising income inequality and only a few exceptions prevail (OECD, 2008; OECD, 2011).

Several academic studies highlighted the multidimensional effects of high-income inequality on economic and human development. Income inequality can be harmful for stable economic growth and employment (Onaran and Galanis, 2012). It can intensify social inequality, for instance by diminishing access to public goods and by undermining democratic political processes (Stiglitz, 2012), or prevent people from the lower end of the income distribution to contribute to the accumulation process efficiently (Voitchovsky, 2011). Recent research (Berg et al., 2012) finds that sustained growth periods can be found primarily in countries with relatively low-income inequality.

Wilkinson and Pickett (2010) found in their well-known study comprising the 23 richest countries of the world that countries with higher inequality performed worse than those with lower inequality in a variety of social indicators (e.g. life expectancy, educational performance, or violence rates). Indeed, in 2012 and 2013 the World Economic Forum identified 'severe income disparity' as the number one global risk indicating that income inequality has reached unprecedented levels that threatens the well-functioning of economies and societies (Howell, 2013, p. 13). Recent analyses on wealth distribution shows that the world is divided into two groups: Almost half of the world's wealth is owned by the richest one per cent of the population with the other half going to the remaining 99 per cent[3].

This paper offers an empirical assessment of the developments in income distribution at a national and global level. It explores how the income distribution has developed between and within nation states, thereby addressing three research questions: Have we seen an adjustment of incomes on the global level? How did the income distribution evolve on a national level? What are the linkages between these developments? These questions are particularly relevant because while income levels were assumed to adjust on the global level[4] we might observe

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[3] Oxfam (2014) summarized the main findings of the Global Wealth Report conducted by Credit Suisse in 2013.
[4] Neoclassical growth theory for instance expected global convergence of income levels and hence viewed this to be one of the merits of globalization (Thirlwall, 2003).

increasing income gaps, at the national as well as international level. A phenomenon that does not have to be restricted to developed economies but might have also occurred in developing economies, although their average growth rates are often above those of advanced countries. Moreover, there is a general lack of studies on income inequality in developing countries.

This paper analyses four country groups, depending on the indicator used, between the early 1960s and the late 2000s. The first group consists of the OECD G7 countries, which represent the core of the advanced economies. The second group is constituted by the Nordic countries, which are often used as a benchmark for an equitable income distribution. The third group are Brazil, Russia, India, China, and South Africa (BRICS). They represent emerging economies commonly associated with average GDP growth rates above those of the advanced economies. The last group are Angola, Congo (Democratic Republic of the), Cambodia, Uganda, Zambia, Lao People's Democratic Republic, and Mozambique, which represent the least developed countries (LDCs) in our sample.

The empirical analysis draws on a series of statistics publicly available from different renowned databases (e.g. OECD, World Bank). However, data availability as well as differences in measurement techniques restricts the analysis of the BRICS and the LDCs, particularly if one tries to analyse long-term trends[5].

The novelty of this paper is that it looks at long-term trends in a vast number of countries and combines various dimensions of income distribution. Therefore, it offers empirical evidence on changes in income distribution as well as illustrates possible linkages between them.

First, this paper outlines major trends in national income around the globe. Second, it illustrates long-term trends in the personal income distribution and third, analyses changes in the wage dispersion as well as functional income distribution in the respective nation state. The final part concludes and derives some policy challenges.

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[5] The measurement of global inequality involves several issues concerning the robustness of cross-country comparison and time-series trend analysis. Household surveys are few and sometimes of questionable validity, and hence most studies have tried to estimate distribution using imaginative techniques. As a result, these issues have to be kept in mind when interpreting results for the emerging economies as well as the LDCs.

2. TRENDS IN NATIONAL INCOME

Emerging economies such as China or India have been associated with overall growth rates far above those in the advanced economies. Figure 1 in the Appendix provides annual average growth rates of real GDP in per cent between 1980 and 2012. It reveals an increasing gap between growth rates of the emerging market and the developing economies as well as those of the major advanced economies since the early 2000s. GDP growth rates in the emerging market and the developing economies also outperformed world GDP growth rates.

However, the crucial point is whether faster economic growth also translates into higher wage income for the majority of the population. Therefore, this part compares average levels of national income between the specified country groups. Moreover, it critically reviews the measurement of human and economic development.

Figure 1 below presents the overall trend in national incomes over the last 50 years. It estimates the un-weighted average values for the four country groups for each year. GDP is measured in constant international dollars (2005).

In the OECD G7 countries, GDP per capita has risen substantially over the last five decades. Starting with $ 10,000 in the early 1960s it has climbed up to roughly $ 36,000 in the late 2000s. In relative terms this constitutes an increase of roughly 72 per cent. The Nordic countries outperformed this trend. There, national income has grown from $ 15,000 to almost $ 50,000. This translates into an increase of 70 per cent in national income over the last 50 years. The financial crisis that started in the US in 2007 triggered a decline in these trends but income levels have stabilized and are showing an upward trend in both country groups again. In contrast to this, the BRICS as well as the LDCs are detached from these trends and income levels remain substantially lower then in the advanced economies. The BRICS show a slight upward trend accelerating in the 2000s. There, national income has grown from almost $ 1,400 in the early 1960s to $ 4,600 in the late 2000s constituting a relative increase of roughly 30 per cent. In the LDCs, however, GDP per capita has not changed significantly since the 1980s. Income levels rose from $ 326 in 1982 to $ 513 in 2012. In relative terms national income rose by 36 per cent over the last 50 years.

Figure 1: Development of national incomes, GDP per capita in constant prices (2005), 1960-20121)
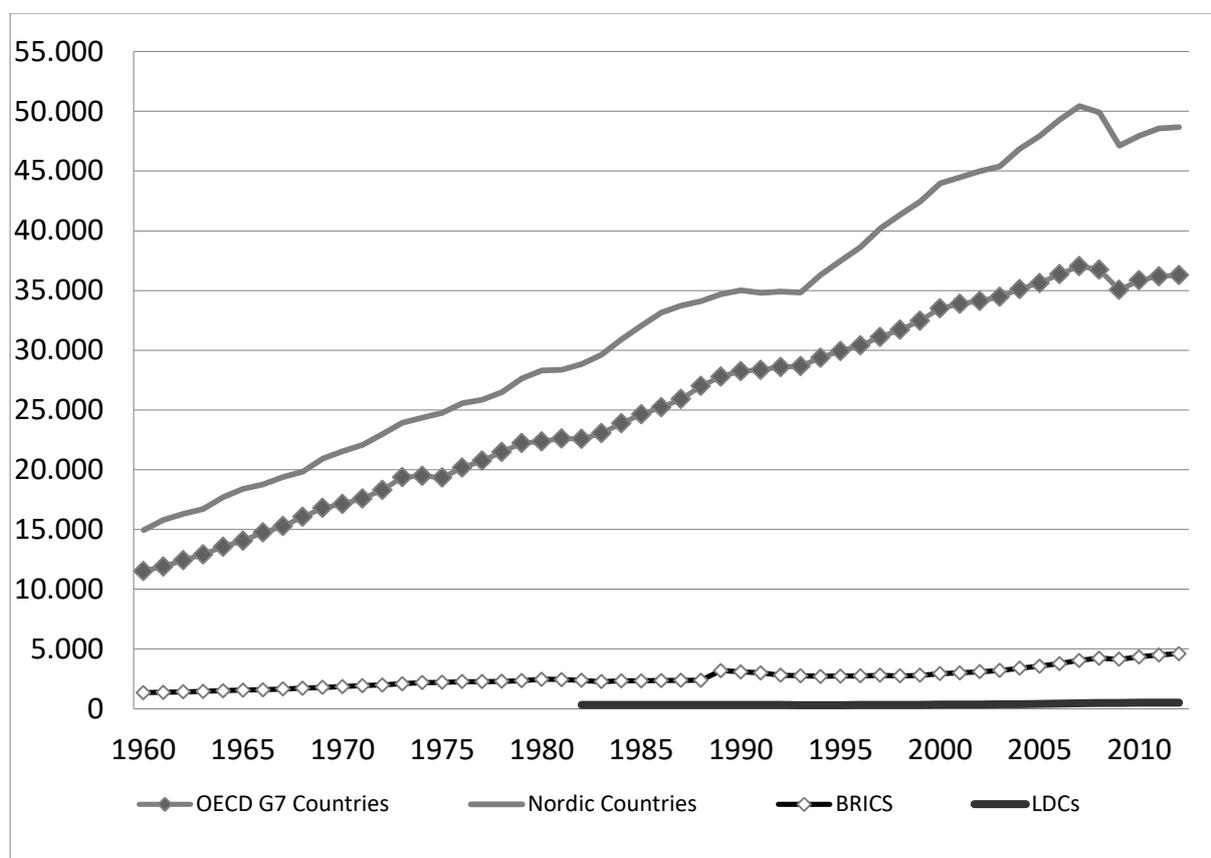
Note: GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.
[1] Data for Germany starts in 1970; Russia in 1989; Values for the LDCs refer to all countries according to the UN classification (47 countries, among them for example Angola, Bangladesh, Cambodia, Lao PDR, Mozambique, Uganda, and Zambia).
Source: World Bank Databank (2013). Author's calculations.

In order to better compare different countries of the world the concept of Purchasing Power Parities (PPP) can also be applied. PPP are based on a theory that suggests that exchange rates should also reflect differences in purchasing power among countries (Goodwin et al., 2009)[6]. The key argument of PPP is it takes into account that the cost of living standards vary among countries[7]. This is particularly relevant in terms of non-tradable services such as restaurants, taxi, cleaning services etc. In fact, Milanovic (2006) argued our interest in global inequality is based on the desire to compare living standards of different people. Hence, for this purpose PPP exchange rates are preferred.

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[6] Purchasing power parity between two countries' currencies is the nominal exchange rate at which a given basket of goods and services would cost the same amount in each country. Market exchange rates almost always differ from PPP.
[7] One well-known example is the BIG MAC Index published by THE ECONOMIST magazine.

Figure 2 below takes the previous indicator of GDP per capita in constant dollar market prices and adjusts it for PPP. Indeed, several significant changes occur in the national incomes of our four country groups. First, the average national incomes in the Nordic countries 'move down' significantly from almost $ 50,000 to $ 37,000. On average, prices of non-tradable services are much higher in the Nordic countries, which negatively affect purchasing power of per capita income. In contrast, the OECD G7 countries show only slightly lower levels. Nevertheless, the overall trends remain the same in both country groups. Second, the BRICS show a much more profound increase in national incomes when PPP is taken into account. The level of GDP per capita increased from $ 4,400 to almost $ 9,400 (47 per cent in relative terms) supporting the preliminary finding that an upswing also occurred in the emerging economies. This can be explained by the relatively cheaper non-tradable services such as travelling, restaurants etc. as compared to the advanced economies. The LDCs, however, still remain isolated from this general long-term trend.

Figure 2: Development of national incomes, GDP per capita in constant prices (2005), adjusted for purchasing power parities, 1980-2012
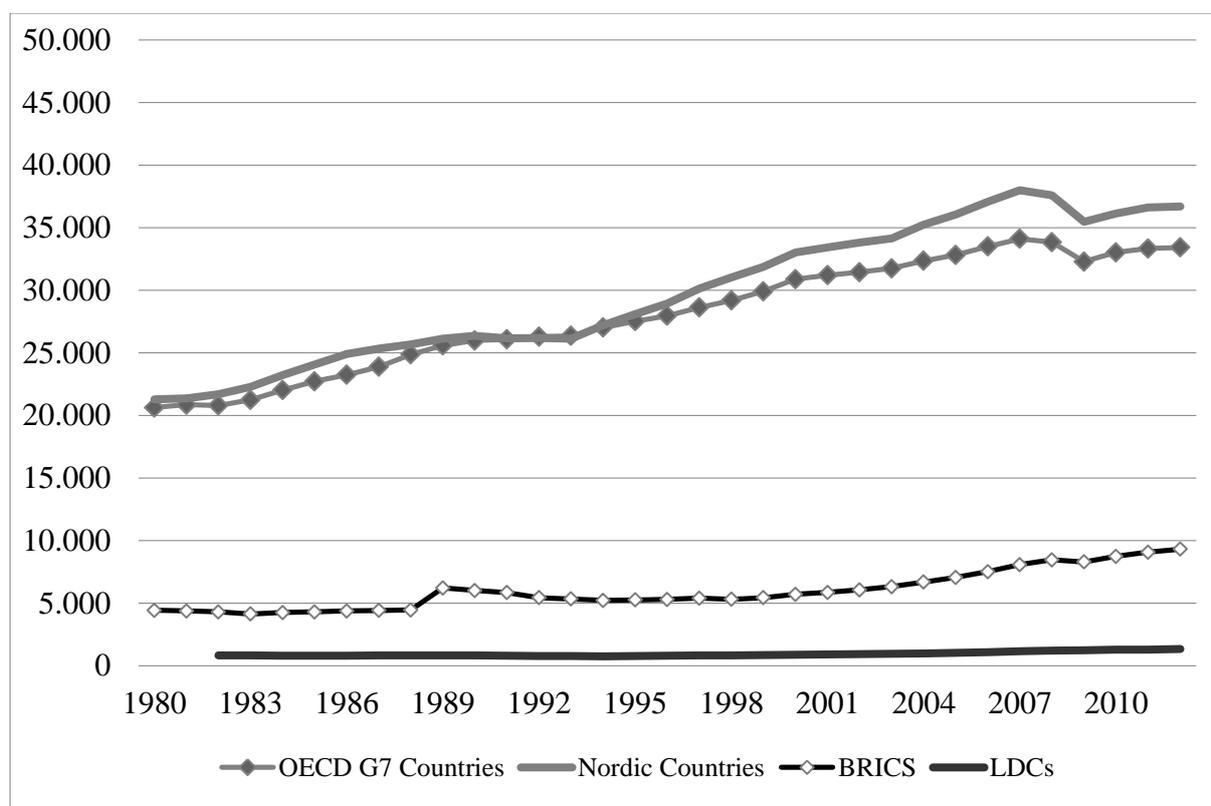
Taking a broader perspective, it is questionable whether economic development is sufficiently reflected in income indicators such as GDP per capita[8]. Stiglitz (2012) argued that while the US has experienced a substantial increase in incomes and now has the highest per capita income level in nominal terms worldwide, however, the persistent high inequality, the insufficient management of the health system, and the lack of public investment in infrastructure and education significantly undermine this rosy picture.

Income inequality can for example significantly alter the meaning of a rise in GDP per capita for the individual household[9]. Since GDP per capita is calculated as total GDP divided by the population, an increase of the top 1 or top 10 per cent of the income earners will also increase the average income level for this country. However, this change does not automatically imply

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[8] Sitglitz et al. (2009) presented a detailed report on the measurement of economic performance and social progress. The key proposal is a shift from the measurement of economic production to the measurement of people's wellbeing. It considers additional information that is required to construct more relevant indicators of social progress. One proposal is to integrate the information about the distribution of income, consumption and wealth and the average evolution of these elements.

[9] In fact, if income inequality increases enough relative to the increase in average per capita GDP, most people can be worse off even though statistics show us that average income is increasing (Stiglitz et al., 2009).

that incomes for an average household in the middle of the income distribution have improved. Therefore, it is more meaningful to also look at median incomes, i.e. the income of household in the middle of the income distribution. This will be further analysed in section 4.

Given the above mentioned issues one might want to use an alternative approach to measure economic and social developments.

The United Nations Development Program (UNDP) has developed a measure of 'human development', which aggregates data on income, health, and education (Stiglitz, 2012). The Human Development Index (HDI) combines three dimensions (health, education, living standards) based on four indicators (live expectancy at birth, mean years of schooling, expected years of schooling, gross national income per capita) (Khalid, 2013). One key argument of this index is that economic growth alone does not automatically translate into human development. Moreover, the complexity of human life enhancement can neither be captured by nor should be reduced to the calculation of GDP and its growth rate[10].

Indeed, as the analysis of this paper shows, faster economic growth rates in the emerging countries did not lead to lower income inequality in every country simultaneously but rather to different income trends. The Human Development Report 2013 concluded that while greater reductions have been made in the areas of education and health, global income inequality still remains high (Khalid, 2013, p. 3)[11].

Table 1 shows the unadjusted HDI[12] for the 23 countries analysed in this paper between 1980 and 2012. There are four categories ranging from 'very high human development' (dark grey colour) to 'low human development' (white colour). The rankings shown in the first column relate to the latest available year (2012). As expected, the OECD G7 countries appear in the first category of very high human development where Norway is leading the field. The United

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[10] There are also more obvious issues in terms of measurement of GDP. Unpaid domestic work and depletion of natural resources are not taken into account in an adequate manner (Goodwin et al., 2009).

[11] It also finds that previous public expenditures are positively correlated with current HDI indicating the important role of public spending in infrastructure, health and education (Khalid et al., 2013, pp. 7-8).

[12] The HDI is the geometric mean of normalized indices from the three above-mentioned dimensions: (I_{Life}1/3 * $I_{education}$1/3 * I_{Income}1/3). The indicators are transformed into indices using minimum and maximum values (goalposts) that take values between 0 and 1. The dimension index is calculated as: Actual Value – Minimum Value / Maximum Value – Minimum Value. Minimum values are 20 years for life expectancy and $ 100 GNI per capita gross national income for income. The highest geometric mean of the resulting indices for the time period under investigation (1980-2012) constitutes the maximum value. See appendix on technical notes in Khalid et al. (2013).

States, Germany, Japan, and Sweden are within the ten highest scores. Italy and the UK, however, are ranked much lower on the ranks 25th and 26th accordingly. In case of the emerging economies, only Brazil and Russia fall under the second category of 'high human development'. China, India, South Africa, and two of the LDCs (Lao and Cambodia) are placed in the medium category. The other LDCs show weak performances in the HDI and are hence at the bottom of the rankings.

Table 1: Human Development Index, all countries ranked, 1980-2012

HDI Rank (2012)	Country	1980	1990	2000	2005	2010	2011	2012
VERY HIGH HUMAN DEVELOPMENT								
1	Norway	0.804	0.852	0.922	0.948	0.952	0.953	0.955
3	United States	0.843	0.878	0.907	0.923	0.934	0.936	0.937
5	Germany	0.738	0.803	0.87	0.901	0.916	0.919	0.92
8	Sweden	0.792	0.823	0.903	0.905	0.913	0.915	0.916
10	Japan	0.788	0.837	0.878	0.896	0.909	0.91	0.912
11	Canada	0.825	0.865	0.887	0.906	0.909	0.91	0.911
15	Denmark	0.79	0.816	0.869	0.893	0.899	0.901	0.901
20	France	0.728	0.784	0.853	0.877	0.891	0.893	0.893
21	Finland	0.766	0.801	0.845	0.882	0.89	0.892	0.892
25	Italy	0.723	0.771	0.833	0.869	0.881	0.881	0.881
26	United Kingdom	0.748	0.784	0.841	0.865	0.874	0.875	0.875
HIGH HUMAN DEVELOPMENT								
55	Russian Federation	...	0.73	0.713	0.753	0.782	0.784	0.788
85	Brazil	0.522	0.59	0.669	0.699	0.726	0.728	0.73
MEDIUM HUMAN DEVELOPMENT								
101	China	0.407	0.495	0.59	0.637	0.689	0.695	0.699
121	South Africa	0.57	0.621	0.622	0.604	0.621	0.625	0.629
136	India	0.345	0.41	0.463	0.507	0.547	0.551	0.554
138	Lao People's Democratic Republic	...	0.379	0.453	0.494	0.534	0.538	0.543
138	Cambodia	...	...	0.444	0.501	0.532	0.538	0.543
LOW HUMAN DEVELOPMENT								
148	Angola	...	...	0.375	0.406	0.502	0.504	0.508
161	Uganda	...	0.306	0.375	0.408	0.45	0.454	0.456
163	Zambia	0.405	0.398	0.376	0.399	0.438	0.443	0.448
185	Mozambique	0.217	0.202	0.247	0.287	0.318	0.322	0.327
186	Congo (Democratic Republic of the)	0.286	0.297	0.234	0.258	0.295	0.299	0.304

Source: UNDP (2013).

As mentioned above, an essential element of human development is equality (Khalid, 2013). Greater income inequality can blur the picture significantly. Therefore, the HDI has to be adjusted taking into account the increase in income inequality.

This is provided by the database of the UNDP. Table 2 depicts the HDI adjusted for income inequality for the year of 2012. It shows that the countries are now ranked differently once inequality measures related to the three dimensions health, education, and income are introduced. The inequality-adjusted HDI (IHDI)[13] is estimated and leads to much lower values in human development on average. In Angola, for instance, the damage is particularly strong where a 43.9 per cent overall loss led to a much lower ranking and changed its position by minus 12. In contrast, adjusting for inequality in the Nordic countries led to an improved position in all cases and Norway remains number one. In case of the BRICS, estimates for only Brazil, China, and India could be made. These countries show diverse developments. Brazil for instance is significantly 'downgraded' by 12 positions. The results of the OECD G7 countries are also mixed. Germany remained in its previous ranking position (5), but Italy and France lost further ground. Strikingly, the adjustment for inequality led to a position change of minus 13 in case of the US. This relates to the argument put forward by Stiglitz (2012), that despite having the highest GDP per capita levels in the world, the severe increase in income inequality, a malfunctioning health system, and a lack of proper investment into education undermines the value of these achievements.

The HDI and IHDI therefore supplement the narrow focus of GDP growth rates and give a more realistic picture about living standards of an average household as well as about the actual human development progress in a given country.

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[13] The IHDI accounts for inequality in the distribution for each dimension across the population. It is computed as a geometric mean of the three dimensions indices adjusted for inequality discounting each dimension's average value according to its level of inequality. The IHDI is calculated in three steps drawing on Atkinson (1970) family of inequality measures to first estimate inequality in the three dimensions, adjusting the dimensions for inequality and finally combining the dimension indices to calculate the IDHI. The IHDI for each dimension is calculated as: (1 – Inequality measure) * Dimension Index. The combined IHDI is calculated as: $\sqrt[3]{}$ (Inequality adjusted index 1 * Inequality adjusted index 2 * Inequality adjusted index 3). Finally, the loss is estimated in percentage: 1 – IHDI / HDI. See appendix on technical notes in Khalid et al. (2013). The IDHI would equal the HDI if there were no inequality but falls further below the HDI as inequality increases. In this context, it implies the actual level of human development (Khalid et al., 2013).

Table 2: Inequality-adjusted HDI, 2012, re-ranking of countries

	Inequality-adjusted HDI	Overall loos (%)	Position Change (+/-)
Angola	0.285	43.9	(-) 12
Brazil	0.531	27.2	(-) 12
Cambodia	0.402	25.9	(+) 3
Canada	0.832	8.7	(-) 4
China	0.543	22.4	0
Congo (Democratic Republic of the)	0.183	39.9	(-) 1
Denmark	0.845	6.2	(+) 3
Finland	0.839	6	(+) 6
France	0.812	9	(-) 2
Germany	0.856	6.9	0
India	0.392	29.3	(+) 1
Italy	0.776	11.9	(-) 4
Japan	…	...	…
Lao People's Democratic Republic	0.409	24.7	(+) 4
Mozambique	0.22	32.7	(+) 5
Norway	0.894	6.4	0
Russian Federation	…	…	…
South Africa	…	…	…
Sweden	0.859	6.3	(+) 3
Uganda	0.303	33.6	(+) 3
United Kingdom	0.802	8.3	(+) 2
United States	0.821	12.4	(-)13
Zambia	0.283	36.7	(-) 2

Source: Khalid (2013).

To sum up, GDP per capita has risen substantially in the advanced economies where the Nordic countries have the highest income levels per head and hence provide the benchmark on the upper limit. The emerging economies followed this same trend to some extent but the overall income level remains much lower compared to the advanced economies. The least developed economies have been completely isolated from this development. The International Labour Organisation (ILO) presented these findings in a recent report (2013, pp. 7-11), which states that although real average wages rose faster in the emerging economies than in the advanced economies, absolute differences in income levels across different parts of the world remain considerable.

Although differences are measured in constant dollars and therefore are dependent on exchange rate fluctuations, they nonetheless point towards the persistence of wide gaps in

national income across the globe. Adjusting for PPP shows that the differences between the advanced and emerging economies become smaller.

GDP growth rates are one of the most important indicators in economics but fail to capture issues related to inequality. The UNDP provides a new way of measurement for human development by supplementing GDP per capita with increasing inequality in income, access to health, and education.

3. TRENDS IN PERSONAL INCOME DISTRIBUTION

This part compares the distribution of household income within and across countries. How has the distribution of household income changed over time? What are the long-term trends in the different country groups? Have we seen widening or narrowing income gaps?

The estimation of the personal income distribution is done in a multistage process. Market income is commonly defined as gross income before taxes and transfers (OECD, 2008). According to the recommendations made by the Canberra Group[14] market income should include all types of gross earnings such as gross income from dependent employment, gross income from self-employment, and gross income from private pensions or capital income (including rents, dividends or interest payments). Disposable income takes market income as the basis, subtracts direct taxes as well as employee's contribution to social insurance and then adds back social security benefits, income transfer or other cash income. This paper will rely on the Gini coefficient[15] to measure income inequality in market as well as disposable income. Increasing values of the Gini coefficient indicate higher inequality in the distribution of income (OECD, 2011). However, the Gini coefficient is a summary measure that indicates overall inequality in the income distribution. Further analysis of different parts (deciles) of the income distribution is conducted in section 4.

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[14] This is an expert group on household income statistics that regularly publishes Handbooks on Household Income Statistics. The 'Canberra Group' was established in 1996 at the initiative of the Australian Bureau of Statistics. It is comprised by experts in household income statistics from national statistical offices, government departments and research agencies from Europe, North and South America, Asia, Australia and New Zealand, as well as from a number of international organisations (United Nations, 2012).

[15] The Gini coefficient (Stiglitz, 2000; OECD, 2008) is a concentration coefficient of income that ranges from zero (perfect equality - when each share of the population gets the same share of income) to one (perfect inequality - when all income goes to the individual with the highest income). It is defined as the area between the Lorenz curve (which plots cumulative shares of the population against the cumulative share of income they receive) and the 45-degree line with perfect income equality.

Table 3 below shows the development of Gini coefficients in market income between the mid-70s and late 2000s. It further calculates the overall change of income inequality captured by that coefficient and reveals that personal income distribution has become more unequal in most of the countries under study. The analysis draws on two databases: The OECD database as well as the WIDER database. The latter one is the world income inequality database that stores information on developed and developing countries. The database itself draws on two other databases, one provided by the World Bank (Deininger & Square) and the other developed by the Luxembourg income study. The data for the LDCs is, however, incomplete and based on different measurement techniques and will therefore be discussed in a separate table at the end of this section[16].

In the OECD G7 countries, there is a clear upward trend in market income inequality between the mid-70s and late 2000s. In Italy, Japan, and the UK this long-rise trend in inequality has been most pronounced. Canada, Germany, and the US have experienced the same trend, even though to a lesser extent. France is the single exception to this pattern showing decreasing levels of market income inequality. Strikingly, in the Nordic countries we can observe a similar pattern of increasing levels of market income inequality, where Finland has experienced the largest increase and subsequently has reached a level of market income inequality that is comparable to the OECD G7 countries. Otherwise, the Nordic countries still comprise lower levels of market income inequality (values around 0.4) than in the OECD G7 countries on average (values around 0.5).

In the BRICS, the trends are more heterogeneous. Brazil has managed to reduce the gap in market incomes showing a strong reduction in market income inequality (reducing the Gini coefficient by 0.07 points). In contrast to this, Russia has experienced a strong increase in market income inequality over the last two decades when data was available. China saw a general upswing in market income inequality levels but the data was restricted until the early 2000s. There is a general lack of data for South Africa and India. Values for South Africa indicate a slight decrease in the beginning of the 1990s (after the end of Apartheid).

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[16] Milanovic (2006) criticizes the numerous assumptions (each country's distribution is log normal, GDP per capita gives the correct mean income leading to over-and underestimation) and finds it impossible to disentangle the separate effects each of these assumptions has on the results. In the same spirit, Anand and Segal (2008) point out the various sources of uncertainty, including gaps and errors in the underlying data which they believe leads to insufficient evidence to confidently determine the direction of change in the global interpersonal inequality in recent decades.

Table 3: Gini coefficient before taxes and transfers, mid-70s to late-2000s

Country	Mid-70s	Mid-80s	Around 1990	Mid-90s	Around 2000	Mid-2000s	Late-2000s	Change from earliest to most recent value available
OECD G7 countries								
Canada	0.385	0.395	0.403	0.43	0.44	0.436	0.441	0.06
France[1]		0.52	0.51	0.473	0.49	0.485	0.483	-0.04
Germany		0.439	0.429	0.459	0.471	0.499	0.504	0.07
Italy		0.42	0.437	0.508	0.516	0.557	0.534	0.12
Japan		0.345	...	0.403	0.432	0.443	0.462	0.12
UK	0.338	0.419	0.439	0.453	0.512	0.5	0.506	0.12
US	0.406	0.436	0.45	0.477	0.476	0.486	0.486	0.08
Nordic Countries								
Denmark	…	0.373	0.396	0.417	0.415	0.417	0.416	0.04
Finland	0.343	0.387	…	0.479	0.478	0.483	0.465	0.12
Norway	…	0.351	…	0.404	0.426	0.447	0.41	0.06
Sweden	0.389	0.404	0.408	0.438	0.446	0.432	0.426	0.04
BRICS								
Brazil	0.635	0.589	0.65	0.595	0.599	0.566	…	-0.07
Russia[2]			0.259	0.471	0.521	0.445	0.486	0.23
India	0.416	…	…	…	…	…	…	…
China	0.286	0.30	0.346	0.363	0.430	…	…	0.15
South Africa[3]	0.517[a]	...	0.63	0.59	...	...	...	0.07

Notes: OECD data - Gini coefficient refers to total population based on equivalised household market income WIDER data - Gini coefficient is based on market income with generally no adjustment for household size. Values cover urban as well as rural population. Author's own calculations.

[a] Refers to a value measured in 1959.

[1] Mid-1980s and around 1990 refer to data cited in Hein and Mundt (2012, table 2a, p.8).

[2] Late-2000s refers to a value in 2008 taken from OECD database.

[3] Gini values for around 1990 and mid-90s are income, gross, adjusted for household per capita,

Source: OECD (2013) for Canada, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Mexico, Sweden, UK, US. WIDER (2013) for Brazil, China, India, Russia, South Africa.

The next step is to include redistributive effects through tax and transfer payments, which can significantly reduce market income inequality. Generally speaking, although they have compensated rising market income inequality to a large extent in most countries, they did not prevent an overall increase of inequality over time. Table 4 shows the Gini coefficients for disposable incomes between the mid-1970s and late 2000s.

In the OECD G7 countries disposable income inequality has also risen on average but to a lower extent than market income inequality, which illustrates the buffer function of the above-mentioned taxes and social policies. The UK and the US show the weakest performances where governmental redistribution led to higher levels of disposable income inequality compared to the other G7 OECD countries. Again, France is the exception with decreasing inequality. The Nordic countries show much lower levels of disposable income inequality (around 0.25) than the OECD G7 countries (around 0.33). In contrast to the shown marked increases in market income inequality the governmental sector compensated for this increase to a significantly larger degree.

The BRICS experienced increasing income inequality in disposable income. In particular, China shows a strong increase in the Gini coefficient by 0.23 points remaining at a high level of 0.449 in the mid-2000s, which is higher than in the Anglo-Saxon countries. South Africa has experienced a marked increase in disposable income inequality since the mid-70s with values only slightly lower than those in market income[17].

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[17] However, the estimates are based on consumption and hence might be biased in capturing the redistributive effect of the governmental sector.

Table 4: Gini coefficient after taxes and transfers, mid-70s to late-2000s

Country	Mid-70s	Mid-80s	Around 1990	Mid-90s	Around 2000	Mid-2000s	Late-2000s	Change from earliest to most recent value available
OECD G7 countries								
Canada	0.304	0.293	0.287	0.289	0.318	0.317	0.324	0.02
France	..	0.3	0.29	0.277	0.287	0.288	0.293	-0.07
Germany	..	0.251	0.256	0.266	0.264	0.285	0.295	0.04
Italy	..	0.309	0.297	0.348	0.343	0.352	0.337	0.03
Japan	..	0.304	..	0.323	0.337	0.321	0.329	0.03
UK	0.268	0.309	0.354	0.336	0.352	0.331	0.342	0.07
US	0.316	0.337	0.348	0.361	0.357	0.38	0.378	0.06
Nordic Countries								
Denmark	..	0.221	0.226	0.215	0.226	0.232	0.248	0.03
Finland	0.235	0.209	0	0.218	0.247	0.254	0.259	0.02
Norway	..	0.222	..	0.243	0.261	0.276	0.25	0.03
Sweden	0.212	0.198	0.209	0.211	0.243	0.234	0.259	0.05
BRICS								
Brazil	…	…	…	…	…	…	…	
Russia			0.436	0.432	0.425	…	…	-0.01
India[1]	0.291	0.314	0.301	0.317	…	0.368	…	0.08
China	…	0.224	0.341	0.290[a]	0.390	0.449	…	0.23
South Africa	0.47	0.47	...	0.593	0.577[b]	...	...	0.11

Notes: OECD data: Gini coefficient refers to total population based on equivalised household market income. WIDER data: Gini coefficient is based on disposable income with generally no adjustment for household size. Values cover urban as well as rural population.

[a] Khan and Riskin 1998 (cited in WIDER 2013) find a much higher Gini value of 0.451 for disposable income.

[b] Gini value is related to consumption, which is closer to disposable than to market income, adjusted for household per capita.

[1] Gini values are related to consumption, which are closer to disposable than to market income, adjusted for household per capita.

Source: OECD (2013) for Canada, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Mexico, Sweden, UK, US. WIDER (2013) for Brazil, China, India, Russia, South Africa.

It remains difficult to find time series data for the LDCs. The WIDER database provides different Gini values for some of the LDCs. These are, however, based on different survey methods, different measurement techniques with different adjustments for households etc. Therefore, they can only provide a rough guide towards the evolution of personal income inequality in those countries. Due to a lack of data, the effect of government redistribution via the tax and transfer system can not be shown. The data illustrated in table 5 below is related to consumption expenditure that is closer to disposable than to market income.

The results for the LDCs also confirm the picture of a general upward trend in income inequality. The data presented here shows low to moderate increases in income inequality on average between the early 1990s and mid-2000s. The Gini coefficient increased by 0.07 points in Uganda, and increased by 0.08 points in Mozambique. Contrary, it declined in Zambia[18]. In general, Gini coefficient levels are around 0.45 in the majority of LDCs.

Table 5: Gini coefficients in the least developed economies, mid-70s to late-2000s

LDCS								
Country	Mid-70s	Mid-80s	Around 1990	Mid-90s	Around 2000	Mid-2000s	Late-2000s	Change from earliest to most recent value available
Angola	...	...	...	...	...	...	...	
Congo (Democratic Republic of)	...	...	...	...	...	...	...	
Cambodia	...	...	...	0.385	0.374	0.417	...	0.03
Lao	...	...	0.304	0.370	0.346	...	...	0.04
Mozambique	...	...	...	0.396	0.473	...	...	0.08
Uganda	...	...	...	0.391	0.448	0.457	...	0.07
Zambia	0.510[a]	...	0.391	0.497	0.448	0.508	...	-0.02

Note: Gini coefficient for urban as well as rural population, population coverage 'all'. Values are related to consumption or expenditure and adjusted for household per capita.
[a] Gini coefficient related to disposable income, no adjustment for household per capita.
Source: WIDER database (2013).

[18] However, the value in the mid-70s relates to a different income category and hence makes comparisons very fragile.

To summarize shortly, personal income inequality has been increasing markedly. This long-term trend can be observed in the developing as well as developed economies. Strikingly, no matter what country group is being studied, the same pattern holds true for supposedly more egalitarian countries such as the Nordic countries or emerging economies with higher GDP growth rates on average. There are only two countries that have managed to reduce income inequality – Brazil and France.

In terms of market income inequality Gini values are larger and quite homogenous. In terms of disposable income inequality, however, cross-country differences remain significant indicating the important but diminished role of different welfare regimes that work quite differently and hence show distinct redistributive outcomes (Obst, 2013).

The analysis widely applied values measured before the outbreak of the financial crisis in 2007. In a recent study, the ILO (ILO, 2013a) showed that income inequalities have narrowed somewhat in the majority of the emerging as well as LDCs but continued to widen in the advanced economies after the crisis (2010 onwards).

4. TRENDS IN WAGE INEQUALITY

In recent years, a great deal of literature has been written on the issue of increasing wage dispersion in OECD countries (Atkinson et al., 2011). According to the OECD (2011), a rise in household income inequality has largely been driven by changes in the distribution of wages and salaries that account for 75 per cent of household incomes among the working-age population. Therefore, wage dispersion can significantly alter market income inequality. This section gives an overview of long-term trends in wage distribution. Has the distribution of wages become more polarised?

A common method to analyse the entire wage distribution is to compare the decile ratio of the top 10 per cent to the bottom 10 per cent of full-time or equivalent wage earners[19], i.e. the D9/D1 ratio. Percentile ratios have the advantage that they provide a measure of income inequality at specific points of the income distribution and are hence gauging the width of

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[19] Depending on the country this refers to gross or net earnings of all full-time workers. Including earnings of part-time workers or self-employed would lead to higher levels of earnings inequality (OECD, 2011, pp. 167-191). Country differences remain in terms of population coverage and definitions across countries (OECD, 2011, p. 105). However, the issue is less relevant in assessing data over time. It is still possible to draw meaningful conclusions about changes over time (ILO, 2013a).

income distribution (OECD, 2012). The ratio outlines how many times more the 10 per cent best-paid workers earn than the 10 per cent least-paid workers.

Figure 3 shows the development of wage dispersion for the OECD G7 countries between the early 1970s and the late 2000s. It reveals an overall widespread and significant increase in wage dispersion in most advanced economies. The increases were particularly marked in the US and the UK. In the US, for instance, the wage gap between the richest and poorest 10 per cent widened most significantly from 3.7 times in the 1970s to almost 5 times in the 2000s. Wage dispersion also widened in Germany, but to a lower extent. Whereas the top 10 per cent earned 2.8 times more than the bottom 10 per cent in the 1980s, they earned roughly 3 times more in the 2000s. There are only two exceptions to this trend, namely France and Japan. The decile ratio did not change in Japan and even declined in France from 3.5 times in the 1970s down to less than 3 times in the 2000s.

Surprisingly, overall wage dispersion also remained almost unchanged in Italy, even though they experienced marked increases in market income inequality as shown in table 3. As a result, there are other factors that must have caused the increase in market income inequality in the case of Japan and Italy.

Figure 3: Nominal wages, the 9th percentile (D9) in relation to the 1st percentile (D1) in OECD G7 countries, 1970-2011 [1)]
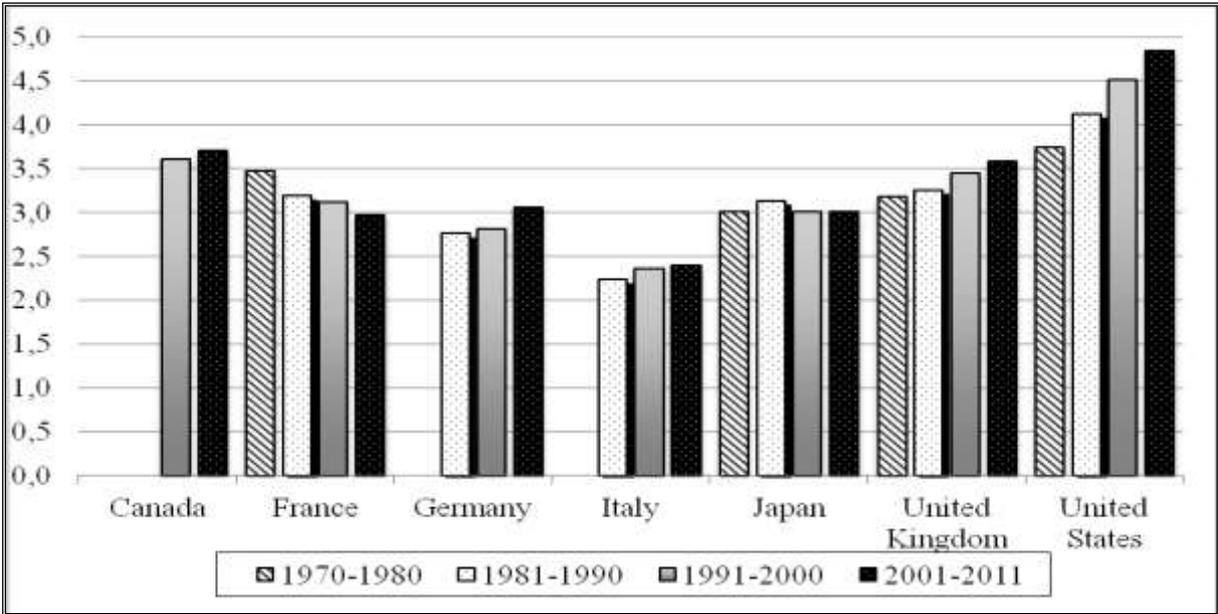
Note: Average values are calculated for each decade. Values relate to gross monthly earnings of full-time dependent employees.
[1)] The data for Germany is based on the German Socio-Economic Panel (SOEP) micro data that provides information on all household members, consisting of Germans living in the Old and New German States, Foreigners, and recent immigrants to Germany. The Panel was introduced in 1984.
Source: OECD (2013); OECD (2011). Author's calculations.

The trend towards greater wage inequality, although more moderate, can also be observed in the Nordic countries. Figure 4 below depicts the average values for the last four decades. Despite the conventional view that associates the Nordic countries with low levels of wage inequality we can observe an overall increase in wage dispersion starting in the 1980s. In Denmark, this increase has been most pronounced with the decile ratio increasing from 2.1 in the 1980s up to 2.7 in the 2000s. The same pattern holds true for Sweden and Norway (despite limited data). Finland is the exception containing wage inequality between the 1970s and the 2000s. This is puzzling since market income inequality rose significantly over the same time period (to an even much larger extent compared to the other Nordic countries). Overall, the distance between the richest 10 per cent and the poorest 10 per cent remains on significantly lower levels compared to the OECD G7 countries.

Figure 4: Nominal wages, the 9th percentile (D9) in relation to the 1st percentile (D1) in Nordic countries, 1970-2011
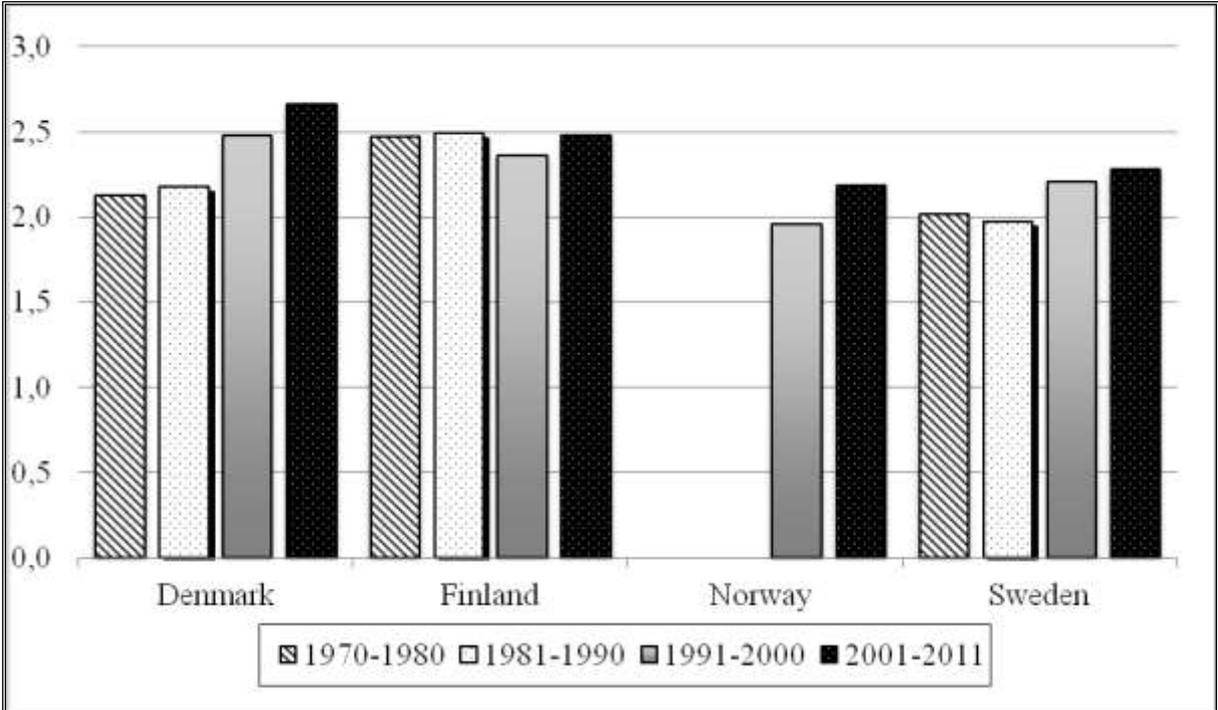
Note: Average values are calculated for each decade. Values relate to gross earnings of full-time dependent employees.
Source: OECD (2013); OECD (2011).

It is useful to look closer at different parts of the income distribution. The ratio of median earnings to the 1st decile, short the D5/D1 ratio, reveals developments in the lower half of the income distribution (OECD, 2008). Figure 5 applies this ratio for the OECD G7 countries

between the early 1970s and late 2000s. Increasing (decreasing) values indicate a loss (gain) of the lowest 10 per cent compared to the middle-income group.

The strongest increases in wage dispersion occurred in the United States and Germany. This implies that low-income earners lost in comparison with middle-income groups. In the other countries, however, the D5/D1 ratio declined or stayed constant. It declined considerably in France and moderately in Japan indicating that the lowest 10 per cent gained in relation to the middle-income groups. There is no trend observable in Canada, Italy, and the UK. People at the median of the income distribution used to earn 2 times more than people on the bottom end of the income distribution in the case of Canada in the 1990s as well as in the 2000s. They still earn 1.5 times more in Italy and roughly 1.8 times more than the bottom 10 per cent in the UK.

Figure 5: Nominal wages, the 5th percentile (D5) in relation to the 1st percentile (D1) in OECD G7 countries, 1970-2011
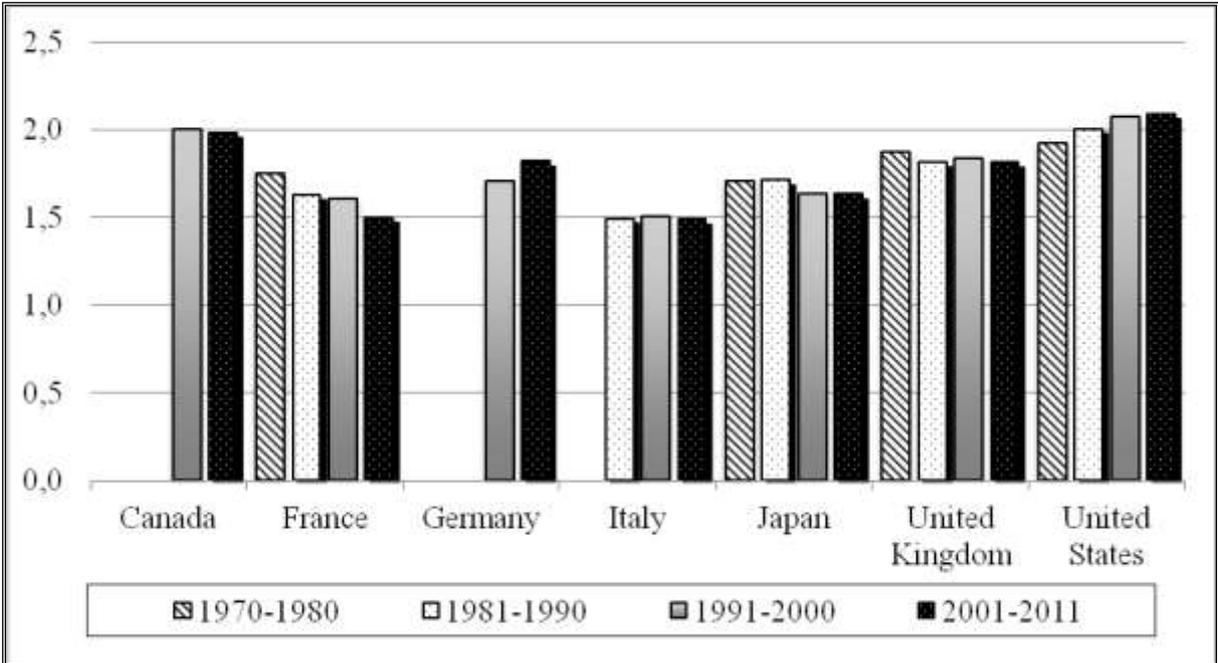
Note: Average values are calculated for each decade. Values relate to gross earnings of full-time dependent employees.
Source: OECD (2013).

In the Nordic countries, the distance between the bottom 10 per cent and the middle-income group increased only slightly as illustrated in figure 6 below. However, absolute levels are generally much lower than in the OECD G7 countries. In Denmark, for instance, the D5/D1 ratio increased from 1.4 to slightly above 1.5. In contrast, Finland shows a declining trend from above 1.5 in the 1970s down to 1.4 in the 2000s. Norway shows a slight increase

between the 1990s and the 2000s. In Sweden, a significant trend is not observable, ratio levels remained more or less constant.

Figure 6: Nominal wages, the 5th percentile (D5) in relation to the 1st percentile (D1) in Nordic countries, 1970-2011
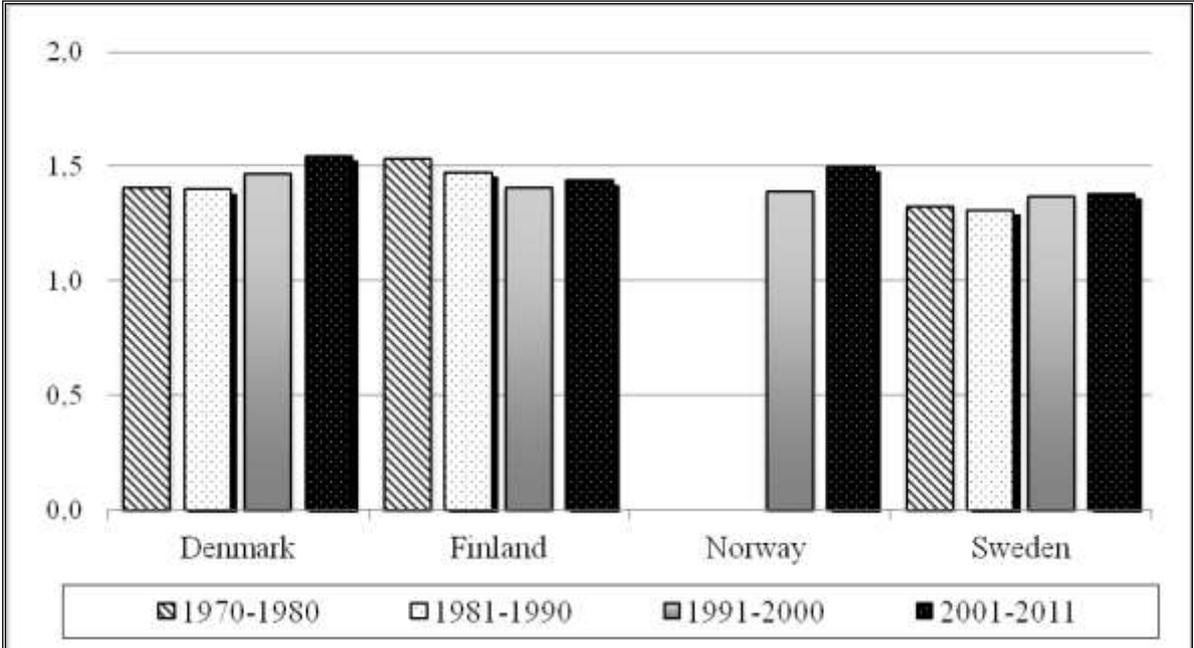
Note: Average values are calculated for each decade. Values relate to gross earnings of full-time dependent employees.
Source: OECD (2013).

The brief analysis shows that while the entire wage distribution widened considerably, the difference between the bottom 10 per cent and the middle-income group increased at a slower pace or stayed constant. Therefore, it can be expected that developments in the upper half of the income distribution must have been even more pronounced and hence caused greater wage dispersion. Therefore, to complete the analysis of the income distribution, the following figures compare the top 10 per cent of income distribution to the middle-income groups applying the D9/D5 ratio.

Figure 7 below looks at the developments in the upper half of the income distribution for the OECD G7 countries between the 1970s and 2000s. It shows that, in most countries, the middle-income groups have lost ground relative to the top 10 per cent. The strongest increases occurred in the US and the UK. While wage inequality increased in the upper and lower half of the income distribution in the United States, increasing wage dispersion primarily occurred in the upper half in the case of the UK. In Germany, the D9/D5 ratio did not change indicating that widening wage dispersion was primarily caused by developments in the low-wage sector.

Indeed, focusing on developments at the bottom end of the income distribution the measurement of the so-called low pay incidence (less than two-thirds of gross median earnings of all full-time workers) reveals a significant increase of the low wage sector in Germany (see Appendix Figure 2).

Canada shows a slight increase but the data was only available for two decades. In France, the top 10 per cent still earn roughly 2 times more than people in the middle-income groups and hence have not improved their position. The levels in Japan slightly increased but no significant trend can be observed. Italy shows a slight increase from 1.5 times in the 1980s up to roughly 1.6 times in the late 2000s. However, this has not altered overall wage dispersion as was shown above.

Figure 7: Nominal wages, the 9th percentile (D9) in relation to the 5th percentile (D5) in OECD G7 countries, 1970-2011
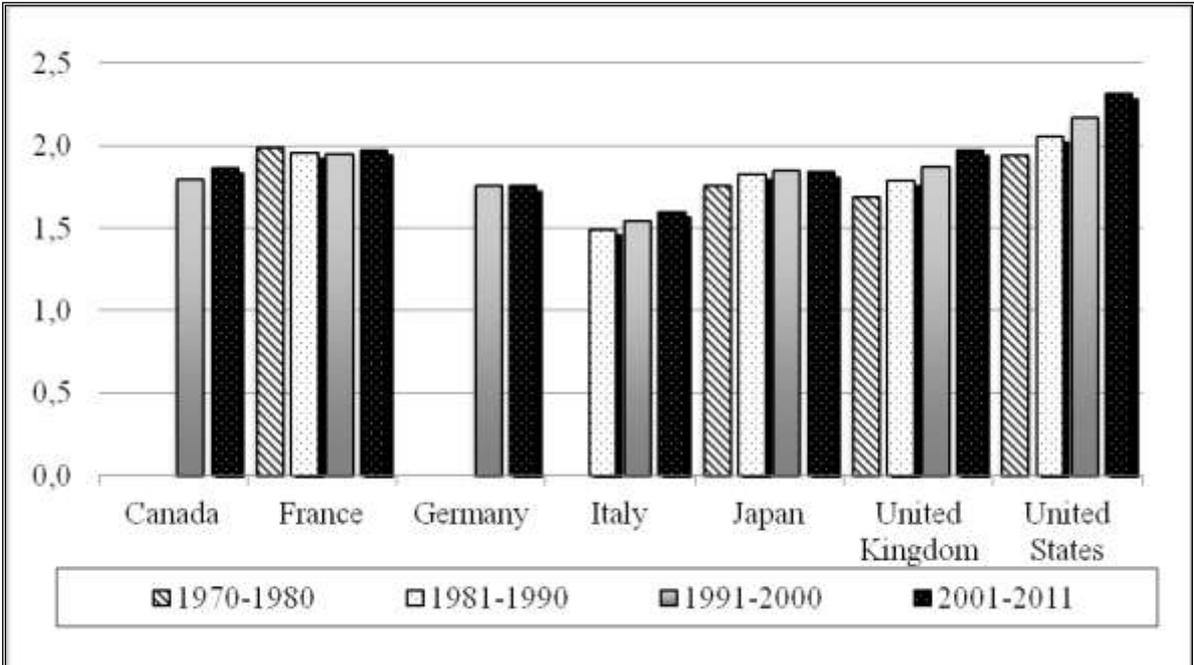
Note: Average values are calculated for each decade. Values relate to gross earnings of full-time dependent employees.
Source: OECD (2013).

Figure 8 below looks at the same ratio applied to the Nordic countries between the 1970s and 2000s. In Finland and Norway there is no significant trend observable. Therefore, the increase in the overall income distribution in the case of Norway might have been caused by changes in the lower half of the income distribution. The ratio values for Sweden and Denmark

increased indicating that the income gap between the top 10 per cent and the middle-income group has widened. Therefore, the increase in the D9/D1 ratio might be attributed to developments in the upper half of the income distribution since the D5/D1 ratio did not show any significant trends. In Denmark, both ratios showed moderate increases triggering higher overall wage dispersion.

Figure 8: Nominal wages, the 9th percentile (D9) in relation to the 5th percentile (D5) in Nordic countries. 1970-2011
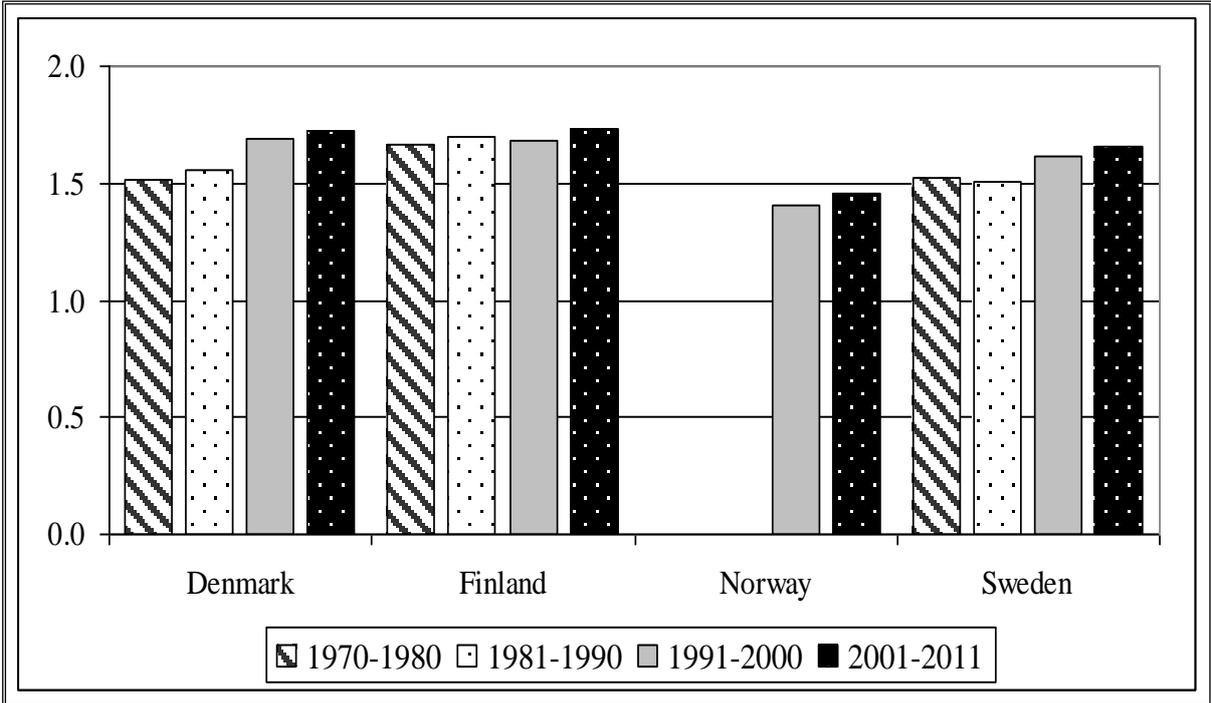
Note: Average values are calculated for each decade. Values relate to gross earnings of full-time dependent employees.
Source: OECD (2013).

How does the picture for the emerging economies and LDCs look like? Reliable time series data in these countries is very restricted. However, the OECD (2011) report provided some data points for the BRICS (except Russia).

Figure 9 below shows the D9/D1 ratio for the early 1990s as well as late 2000s. The straight dotted line illustrates the OECD average (full-time workers across 23 countries). According to this figure, the D9/D1 ratios are significantly higher compared to the OECD average. Brazil and South Africa underwent a marked compression of that ratio. They nearly halved overall wage dispersion between the early 1990s and late 2000s. Nevertheless, the top 10 per cent earn more than 7 times than the bottom 10 per cent in Brazil and even more than 24 times

than the bottom 10 per cent in South Africa. India experienced a substantial increase in overall earnings inequality where the top decile earns 12 times more than the bottom decile in the late 2000s. For China, data is only available for the late 2000s showing a higher overall wage dispersion than on OECD average for the D9/D1 ratio.

Figure 9: Earnings inequality in the BRICS, D9/D1 decile ratio, early 1990s and late 2000s
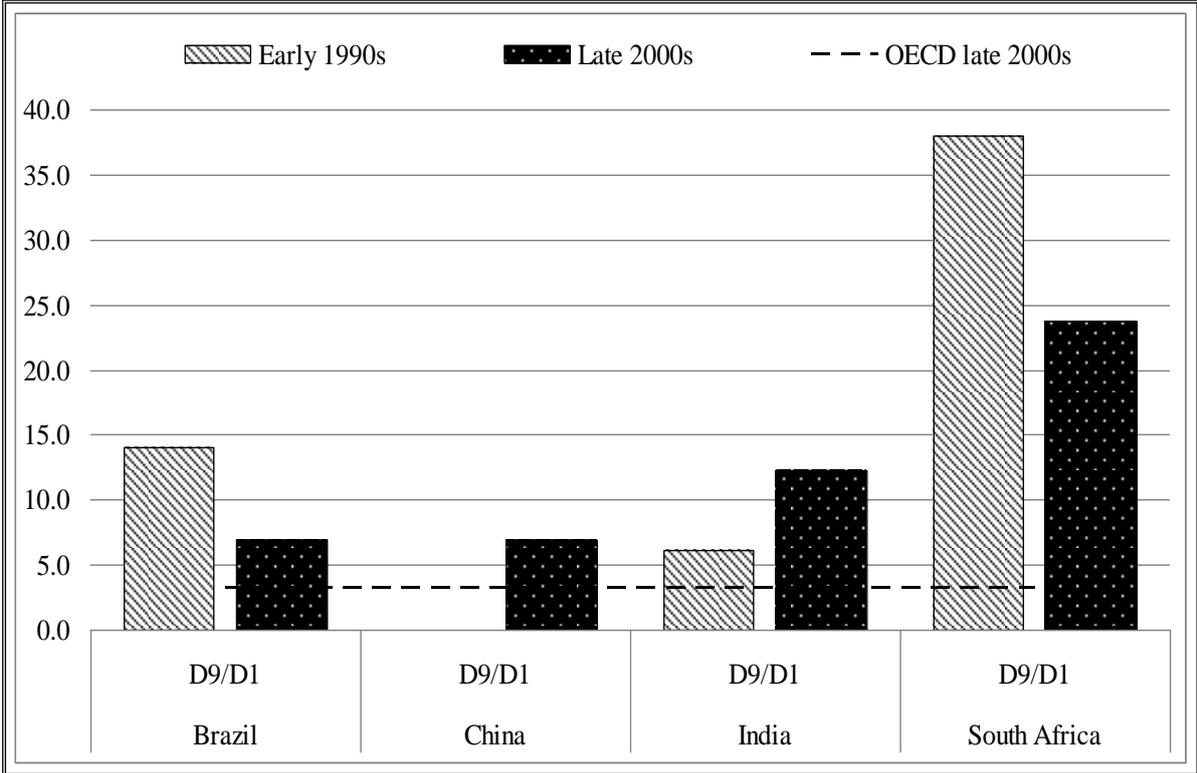
Source: OECD report (2011, figure 0.7, p. 58). Own illustration.

As mentioned above, the D5/D1 ratio indicates what happened in the lower half of the income distribution. It can be seen in figure 10 below, that low-income earners, for instance, in India lost in comparison to middle-income groups. Additionally, inequality also increased in the D9/D5 ratio indicating a surge in high incomes compared to median incomes in India. In contrast to this, South African and Brazilian people at the bottom end of the income distribution moved closer to people at the median of the income distribution. This contributed to the overall decline in wage dispersion in these countries.

Figure 10: Earnings inequality in the BRICS, D9/D5 and D5/D1 decile ratio, early 1990s and late 2000s
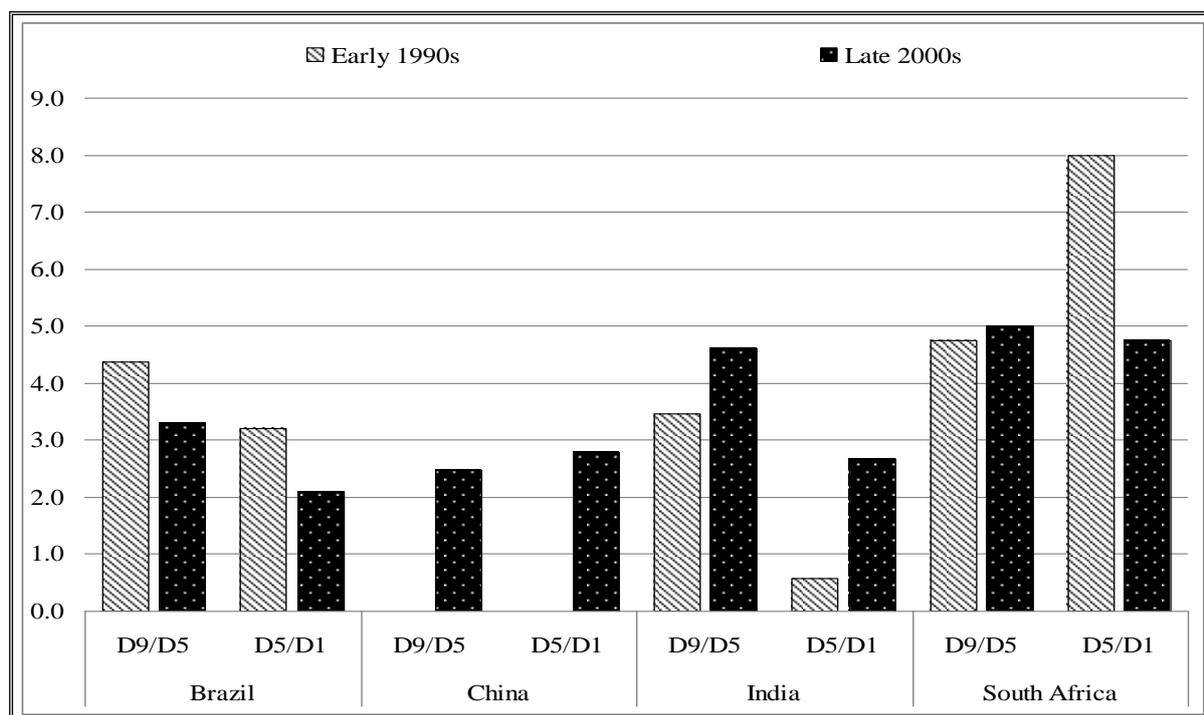
Source: OECD report (2011, figure 0.7, p. 58). Own illustration.

To sum up briefly, the majority of countries under study have experienced greater wage dispersion. The only countries that showed a declining trend in the decile ratio were France, Brazil, and South Africa. There was no significant trend observable in Finland and Japan. The trends towards greater wage inequality have grown particularly fast since the 1980s. While the widening wage gap has affected the entire wage distribution, disparities increased even faster in the upper half. The OECD (2011) also found that earners in the top 10 per cent have left the middle-income earners behind more rapidly.

Indeed, the evolution of top incomes has been well documented by a number of studies (Atkinson et al., 2011; Alvaredo et al., 2013). The authors examine the top income shares for more than 20 countries and conclude that over the last three decades top income shares have increased substantially in Anglo-Saxon countries and in emerging economies such as India and China as well. However, they have not changed significantly in continental Europe countries (Germany and France) and Japan (Atkinson et al. 2009, cited in Rodriguez and Jayadev, 2010, pp. 24-25). This increase has been primarily caused by an unprecedented surge in wage income; therefore scholars speak of the 'working rich'. The magnitude of this change is truly substantial having a noticeable effect on overall income inequality (Alvaredo

et al., 2013). In the US, the top 1 per cent more than doubled their share in total annual income from below 10 per cent in the mid-1970s to above 20 per cent in the late 2000s.

In some countries, there is evidence of increasing polarization of wages, suggesting that the size of the middle-income group has shrunk[20]. The ILO (ILO, 2013, pp. 31-33) draws this conclusion for the majority of advanced economies over the last two decades. However, results are not uniform across the observed countries. A decrease in the middle-income group could be observed for instance in the US, Germany, or India. In contrast, the size of wage earners in the middle of the income distribution increased in Denmark, France, and the UK.

5. THE FALL IN THE LABOUR INCOME SHARE

Long-held conventional wisdom stated that material progress would benefit labour and capital equally. This axiom of stability has been challenged over the last decades. Analysing factor shares aids the comparison of returns to the activity of labour versus returns to ownership and hence illuminate how the benefits of economic growth and the losses of stagnation are distributed (Rodriguez and Jayadev, 2010). In other words, we may care about how different economic activities are rewarded in our society.

This part outlines and interprets the trends in functional income distribution. The labour income share is defined as compensation of employees measured as a share of total income. This is equal to 1 minus profits measured as a share of total income. Therefore, the functional income distribution is the distribution of national income between capital and labour. The labour share responds to trend growth rates of real wages and productivity (ILO 2013a, p. 41)[21]. The wage share falls, relative to the capital income share, when the growth in total GDP exceeds the growth in total labour compensation[22]. Conversely, if real wages grow faster than productivity the labour share increases.

The measurement of the functional income distribution involves several issues. Glyn (2009) provides an overview on the current state of research methodology. Technically speaking, the

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[20] A combination of shrinking or stable D5/D1 and an increase in D9/D5 indicates a deterioration of wage earners in the middle of the distribution relative to the other two groups (ILO 2013, p. 30).

[21] This paper uses labour's income share and wage share synonymously. Labour's share refers to the fraction of national income that goes to labour. It is usually calculated as the wage share corrected for earnings of the self-employed and also called 'adjusted wage share'.

[22] This is a purely technical definition but no assessment of the theoretical debate of the determination of the functional income distribution.

share of labour is the ratio of income from employment to total income. Compensation includes contributions to social security (employee and employer), which constitutes a significant part of the return from working. It is also preferable to measure labour's share of GDP at factor cost[23] so that it can be identified with pre-tax income from property (Glyn, 2009). Since Johnson (1954, cited in Duenhaupt, 2013, p. 2) it has become best practice to assign two thirds of proprietor's income to the wage share, leaving one third to the profit share.

As we have seen in the previous section, wage dispersion has increased substantially over the last decades (OECD, 2011). Labour income shares are affected because they include every level of income, from low-paid to high-paid workers. Moreover, households receive income from different sources: Wages are said to be the most important source but households can also receive capital income from dividend or interest payments, which can blur the picture (Duenhaupt, 2011).

Figure 11 shows the indices[24] of the adjusted wage share in the OECD G7 countries between 1960 and 2012. The labour share is measured as compensation per employee as a share of GDP at current factor costs per person employed. The wage share thus includes incomes from dependent as well as self-employed work and GDP excludes indirect taxes and includes subsidies. The analysis for the LDCs is not possible due to a lack of reliable data.
Most OECD G7 countries exhibit a clear long-term downward trend, after the labour's share peaked in the mid-1970s or early 1980s. Short-run fluctuations can be explained with the underlying business cycle[25].

Germany, France, Japan, and Italy show a marked decline in the labour income share. In Italy it fell by roughly 15 per cent in total including a slight recovery since the early 2000s. As we have seen in the previous section, wage dispersion did not increase in Italy and hence did not

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[23] GDP at factor costs adds indirect taxes to non-labour income and subtracts subsidizes from GDP at market prices.

[24] The conversion of the values of the wage share to indices avoids differences in the levels of the wage share due to methodological differences among the countries in calculating the adjusted wage share (Onaran and Galanis, 2012). In line with the purpose of this paper, it also gives a more meaningful comparison of time series trends.

[25] Labour's share in national income behaves countercyclical. It tends to increase during a recession and declines during the recovery process. One reason is that in a recession, profits are lower and hence the labour share rises automatically. Another one is that during a recession GDP is shrinking but the labour force (and hence labour income) more or less stay in place (labour hoarding) and wages need time to adjust.

cause greater market income inequality. Therefore, this significant fall in the labour share might be the driving force of the observed marked increase in the Gini coefficient (0.12). The index values in France and Germany peaked in the early 1980s around levels of 105 but fell considerably afterwards. In both countries, the fall is roughly 15 per cent until the outbreak of the financial crisis in 2007. In France, this is an interesting finding because, as we have seen above, it was the only country of the advanced economies where decreasing market income inequality as well as declining D9/D1 decile ratios occurred. Nevertheless, a significant shift from labour to capital income also took place in France. In Japan, the labour share decreased markedly during the 1960s and recovered by the late 1970s. However, since the late 1970s the labour income share fell substantially by almost 20 per cent. This partly explains why market income inequality increased, even though wage dispersion remained stable. In Japan, the significant re-distribution from labour to capital appears to be the main driving force behind the observed substantial increase in the Gini coefficient in market income inequality[26].

In comparison, the decline in the Anglo-Saxon was more moderate. In the UK, the wage share remained relatively stable mainly fluctuating with the business cycles but it also fell by roughly 8 per cent between the mid-1970s and late 2000s. In the US, it fell by around 10 per cent between the early-1970s and late-2000s. However, a correction of the wage share for top incomes, which have steeply increased particularly in the US and the UK, would provide a more realistic picture[27]. For the countries where data is available it can be seen that excluding the rise in top incomes lowers the labour share considerably (see OECD 2012, p. 115)[28]. Therefore, the labour shares in Anglo-Saxon countries were more stable due to the escalation in top incomes and hence illustrate how personal and functional income distribution are interlinked. Interestingly, even though wage shares picked up again since the Great Recession (which is due to the tendency of the wage share to move countercyclical as described above) in the US, wage shares simply continued to fall[29].

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[26] Research shows that capital income is usually more unevenly distributed than labour income. The OECD (2011) finds that capital income has increasingly gone to richer households since the 1980s.

[27] Duenhaupt (2011) argued that top incomes are closer to profits than to wages and hence need to be removed from the calculation of the labour share. Top managers for instance receive large parts of their remuneration as stock options or bonus payments. In national accounts, stock options are counted as compensation of employees. Stock options rather represent a capital transfer than compensation of employees.

[28] Once top earners' income is excluded the drop of the labour share appears greater, particularly in Canada and the US.

[29] Stiglitz (2012) argues that the short-term focus of corporations induced managers to let go workers and increase productivity, more than in other countries, that might explain the continued fall of the wage share during the crisis.

Figure 11: Adjusted wage share as a percentage of GDP at current factor costs, OECD G7 countries, Index 1960 = 100
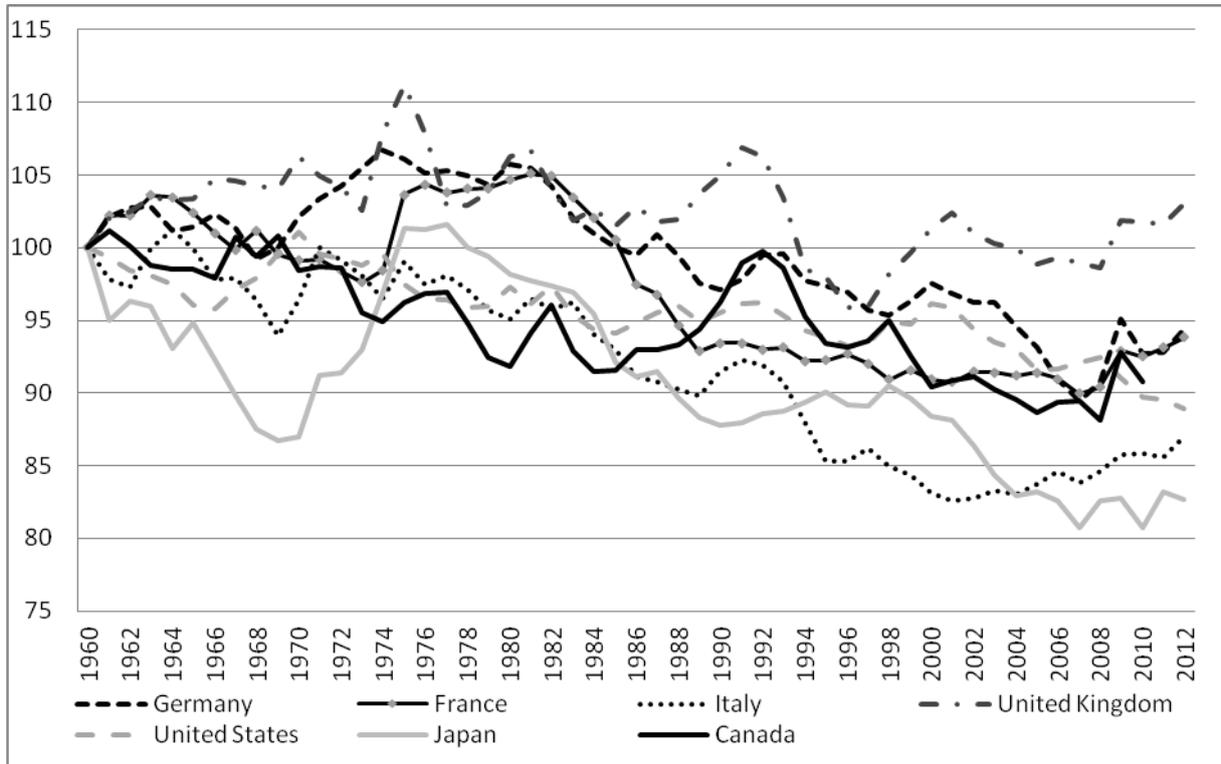
Note: Data for Germany is linked between 1960 and 1990.
Source: AMECO Online 2013. Author's own calculations.

The Nordic countries show a similar trend (see figure 12). Wage shares increased until the late 1970s or early 1980s followed by a sharp decline afterwards, with Denmark being the exception to the overall trend. The wage share has fallen dramatically in Finland as well as in Norway. Between the mid-1970s and mid-2000s the decline exceeds 20 per cent in Finland and 25 per cent in Norway. Again, in Finland the substantial redistribution from labour towards capital income thus might explain greater market income inequality since the decile ratio of wage dispersion remained stable. In Sweden, the wage share peaked in the late 1970s, followed by a sharp decline of roughly 15 per cent until the mid-1980s and then fluctuated with the business cycle. Denmark is the exception, where the wage share actually increased moderately over the last 5 decades.

Figure 12: Adjusted wage share as a percentage of GDP at factor costs, Nordic Countries, Index 1960 = 100
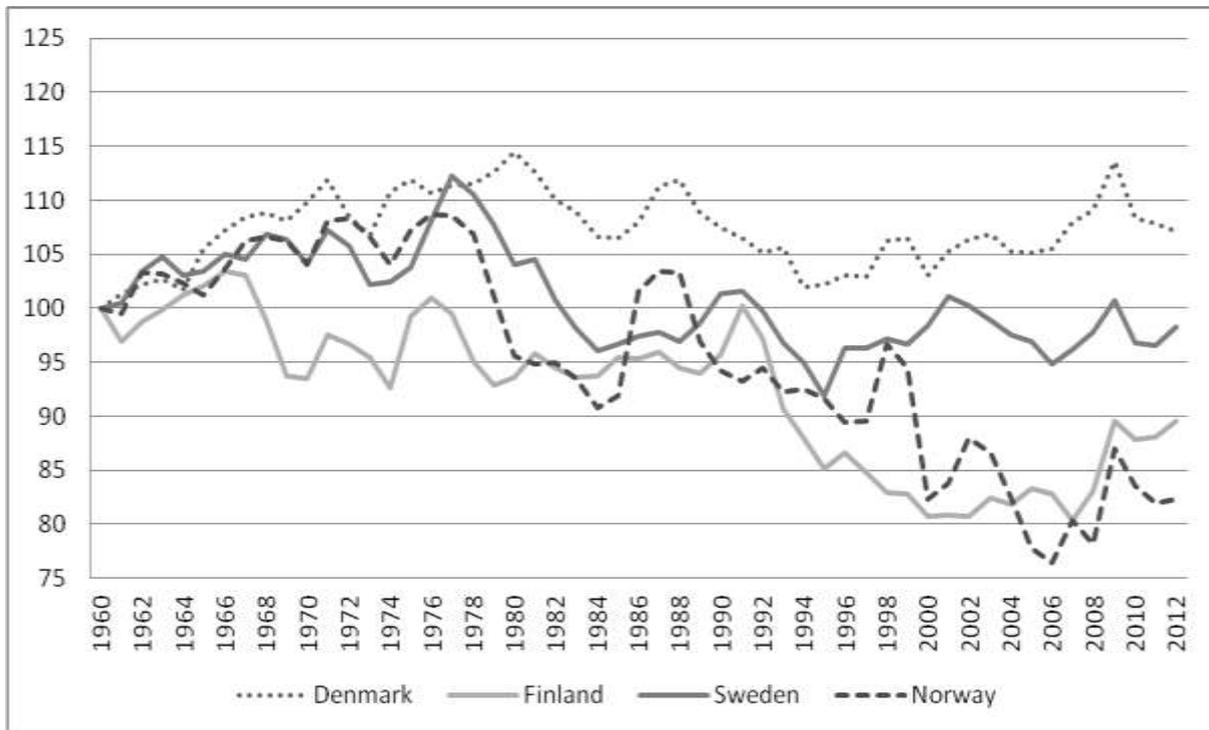
Source: AMECO Online 2013. Author's own calculations.

These findings are echoed in one of the recent OECD studies. In their analysis, the authors calculated the median labour share for 26 developed economies and found that it fell considerably from 66.1 per cent to 61.7 per cent between 1990 and 2009 (OECD 2012, p. 113). Moreover, the decline in labour's share of income is not restricted to only the developed countries and instead is of global nature. In an extensive econometric study that covered 129 countries from 1950 to 2005, Rodriguez and Jayadev (2010) found that the labour share decreased in nearly all regions of the world simultaneously since the mid-1980s[30]. By the same token, the ILO World of Work Report (2011) found that the decline in the wage share was even more pronounced in emerging and developing countries.

Figure 13 below depicts new estimates for three countries of the BRICS that are based on different data sources and calculation methods. Onaran and Galanis (2012) calculated the labour income share for China, India, and South Africa. This paper draws on their

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[30] The authors obtained a dataset of over 2000 country-year observations relying on data provided by the United Nations national accounts database as well as the UNIDO database which collects data for the manufacturing sector in various countries. The negative trend in the labour share remains robust applying different decompositions of the dependent variable (compensation of employees, wages and salaries, per capita income levels, Human Development Index, dividing data into quintiles, etc.).

calculations. The data for China and South Africa is a compilation from various sources and links different series[31]. The estimations for India also reflect a particular calculation method.

In the emerging countries, here represented by China, India, and South Africa, the wage share declined considerably[32]. In China, the initial improvement starting in the late 1970s was reversed around 1990 and further declined afterwards resulting in an overall decline of roughly 15 per cent. In India, the wage share has consistently fallen since the 1970s, and accelerated after the early 1990s leading to the most pronounced decline of more than 20 per cent in the index value. The labour income share in South Africa has been decreasing since the 1980s and continued to decline after the end of Apartheid in the 1990s as well totalling to a decrease of over 15 per cent.

Figure 13: Adjusted wage share as a percentage of GDP at factor costs, selected BRICS, 1970-2007
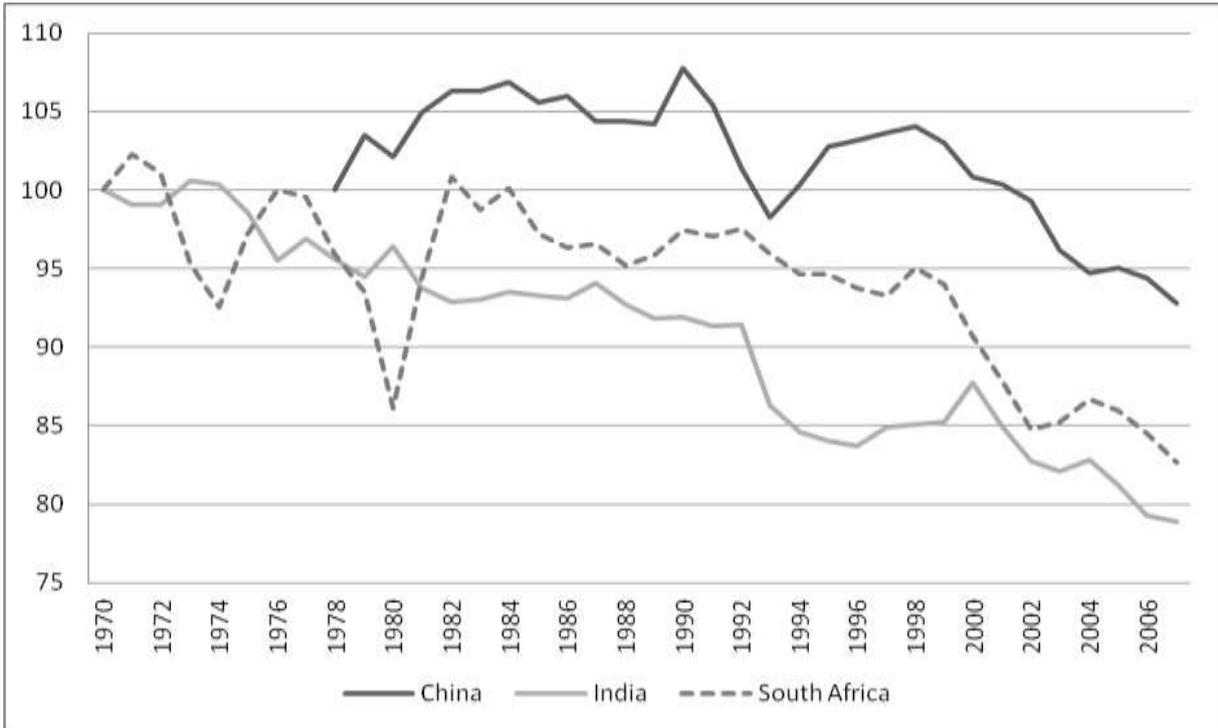
Note: Data for China starts in 1978.
Source: (Onaran and Galanis, 2012). Own illustration.

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[31] There is a strong lack of time series data for the number of self-employed. Despite the lack of precise data the adjusted wage share is applied. Ignoring the labour income of the self-employed would imply a serious underestimation of the labour income share in the developing countries (Onaran and Galanis 2012, pp. 3-4).

[32] Guerriero (2012, pp. 9; 51-52) estimated the labour share for Russia taking the compensation per employee divided by the value added finding that the wage share declined from 0.74 in the 1970s down to 0.66 in the 2000s.

Table 6 below shows the average values of the last five decades. Almost all countries under investigation show a decline, more or less pronounced, over the last 5 decades. Comparing the fifth decade (2001-2011) with the second decade (1971-1980) it becomes obvious that the wage share has fallen in all countries. According to the different average decline rates three groups can be distinguished: The decreases in the labour income share are particularly strong in India, Japan, and Norway. Here, wage shares have fallen by more than 10 per cent of GDP.

A second group that includes the majority of the countries follows them: Finland, France, Germany, Italy, South Africa, and Sweden show a fall of slightly below 10 per cent of GDP. The third group is constituted by Canada, China, Denmark, the US as well as the UK where labour shares fell slightly less than 5 per cent of GDP. Given the above mentioned issues with correcting the wage share for managerial top incomes (in the case of Canada, US, and UK) this implies that only Denmark and China show a more moderate decline in the wage share and hence should be treated as special cases that need further analysis. Indeed, all other countries have to be viewed as having undergone a substantial shift in redistribution from labour income to capital income.

Table 6: Wage share in percentage of GDP, average values over the decades, 1960 – 2011

Average values and Change between periods	1. 1960-1970	2. 1971-1980	3. 1981-1990	4. 1991-2000	5. 2001-2011	Change (5.-1.)	Change (5.-2.)	Change (5.-3.)
OECD G7 countries								
Canada	70.44	67.94	66.16	67.39	63.80	-6.64	-4.14	-2.36
France	73.92	74.10	72.68	67.36	66.72	-7.21	-7.39	-5.97
Germany	67.85	70.17	67.71	66.49	64.06	-3.79	-6.12	-3.65
Italy	72.64	72.23	68.96	64.88	62.34	-10.30	-9.90	-6.62
Japan	72.95	76.00	73.49	70.15	65.72	-7.22	-10.28	-7.77
United Kingdom	72.74	74.17	72.73	71.59	71.35	-1.40	-2.82	-1.39
United States	69.97	70.06	68.44	67.18	65.47	-4.50	-4.59	-2.97
Nordic Countries								
Denmark	67.00	70.75	69.95	66.70	68.42	1.42	-2.33	-1.53
Finland	74.96	72.58	71.58	66.95	63.18	-11.78	-9.40	-8.40
Norway	66.10	67.42	61.72	58.81	52.70	-13.40	-14.72	-9.02
Sweden	74.40	76.28	72.46	67.91	68.10	-6.30	-8.17	-4.36

BRICS countries								
China		58.07	60.05	58.59	54.79		-3.28	-5.26
India		89.01	84.86	79.04	74.30		-14.71	-10.56
South Africa		69.49	69.17	68.20	61.35		-8.14	-7.82

Source: AMECO online (2013); Onaran and Galanis (2012). Author's calculations.

To sum up, there has been a clear decline in the wage share for all countries since the early 1980s onwards. The data for the 1960s and 1970s show that this has not always been the case. During these two decades that mostly belonged into the era that is often referred to as the 'Golden Age of Capitalism' wage shares peaked in the late 1970s or early 1980s. After that, the decline was significantly more pronounced and has led to lower levels of wage shares compared to the 1960s. This long-term trend of redistribution towards capital income has also occurred in the emerging economies and was thus not limited to the advanced economies. In other words, the fall in the labour share is a global phenomenon.

6. CONCLUSION

This paper started with three research questions related to the empirical analysis of long-term trends in income distribution. A global analysis was attempted by categorizing 4 country groups that represent economies at a distinctly different stage of economic development, ranging from advanced to least developed countries.

Concerning the first question 'Have we seen an adjustment of incomes on the global level?' the analysis has shown that widening income gaps between different regions of the world remain persistent. National incomes primarily accelerated in the advanced economies. The Nordic countries provide the highest GDP per capita income on average. The BRICS also experienced an increase in national income, particularly since the late 1990s. Including the adjustment for PPP this increase is even more pronounced. The LDCs, however, remain largely isolated from this trend. The HDI and IHDI provide a more detailed indicator that takes developments in inequality (e.g. income or education) into account. It thus might provide a more realistic picture of what happened to the living standards of average households in a given country.

How did the income distribution evolve on a national level? One of the key findings is the clear downward trend in the labour share and the simultaneously growing inequality in personal income distribution. Within country interpersonal inequalities have grown over the

last three decades in the majority of countries around the globe. An important exception is Brazil in the emerging economies. In the advanced economies, only France was able to reduce market and disposable income inequality over the last three decades. Therefore, the dominant pattern is increasing income inequality.

Analysing the functional income distribution has shown that there is a clear secular downward trend in the wage share between the early 1980s and the Great Recession in 2008/09. It thus constitutes a structural break in the development of income distribution. Moreover, it is a global phenomenon that could be observed in the advanced as well as in the emerging economies.

Wage dispersion is a significant contributor to greater market income inequality and has increased in most countries under study over the last four decades or so. The labour force has become increasingly more divided between the 'working rich' and the 'working poor', which is associated with a 'hollowing out' of the middle-income groups. However, country developments are more heterogeneous compared to the evolution of the wage share. In several countries, wage dispersion has not been the main driving force behind greater market income inequality.

What are the linkages between these developments? The increase in personal income inequality is interlinked with the decline in the wage share as well as the widening in income gaps. The increasing separation between the working rich and the working poor has also contributed to the fall in the labour income share. On the other side, an escalation in top (wage) incomes led to a stabilisation of the wage share, for instance in the UK. Widening wage dispersion and falling wage shares in the emerging countries show that higher economic growth does not automatically translate into enhanced economic (and human) development. It is also at discontent with the prevailing mainstream theory of 'trickle-down' economics.

In some cases, however, greater personal income inequality could not be explained by greater wage dispersion. Instead, it might have been driven by a significant redistribution from labour to capital such as in Italy, Japan, and Finland. France is an exceptional case that experienced a substantial fall in the wage share despite lower market income inequality and stable wage dispersion. Denmark showed a marked increase in overall wage dispersion but the labour

income share actually increased over the last 5 decades. These individual country outcomes need further analysis of the actual causes behind the increasing income inequality.

There are limitations in the data analysis of this paper. These issues primarily relate to the BRICS and LDCs. There is a clear lack of reliable data in most of the countries under investigation that makes the comparison less robust. This paper focused on renowned international databases that follow a consistent methodology in their estimations of income inequality. This meant that in some cases fewer data points were made available. However, the general trend appears to hold true even when looking at only two or three decades of time-series analysis.

The analysis has shown why income inequality is back on the economic research agenda. Economic policy recommendations need to integrate long-term trends in income distribution into the macroeconomic framework.

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Figure 1: Annual average real GDP growth rates in per cent, 1980-2012
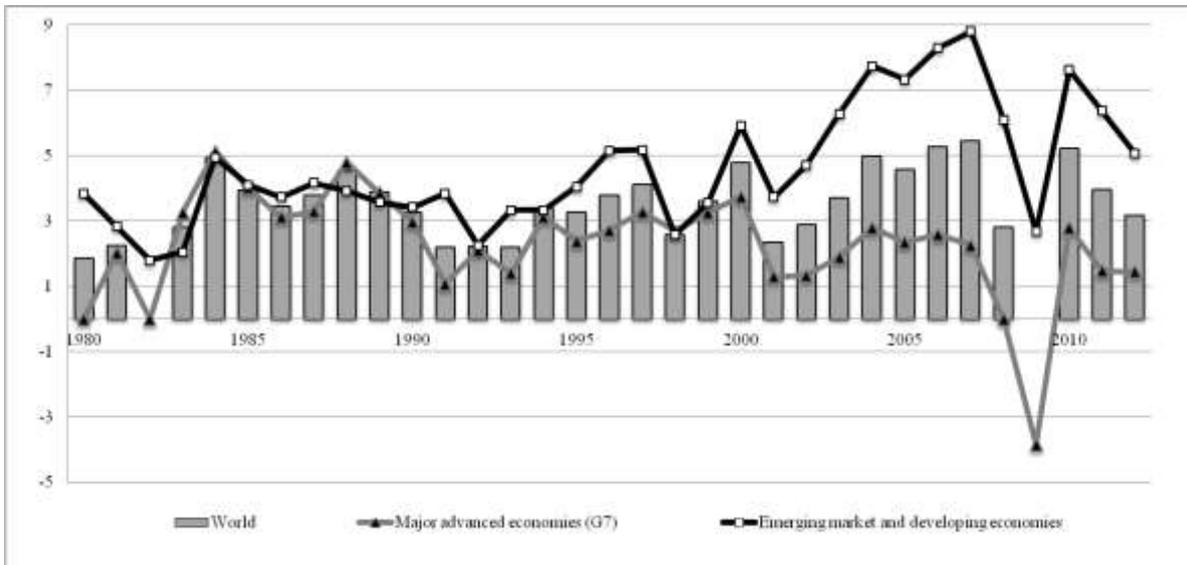
Note: The group of emerging market and developing economies includes 151 countries that are not classified as advanced economies. From the chosen country groups of this paper this includes all BRICS as well as LDCs.
Source: IMF World Economic Outlook Database (April 2013). Own illustration.

Figure 2: Low Pay Incidence in selected countries, 1970-2012
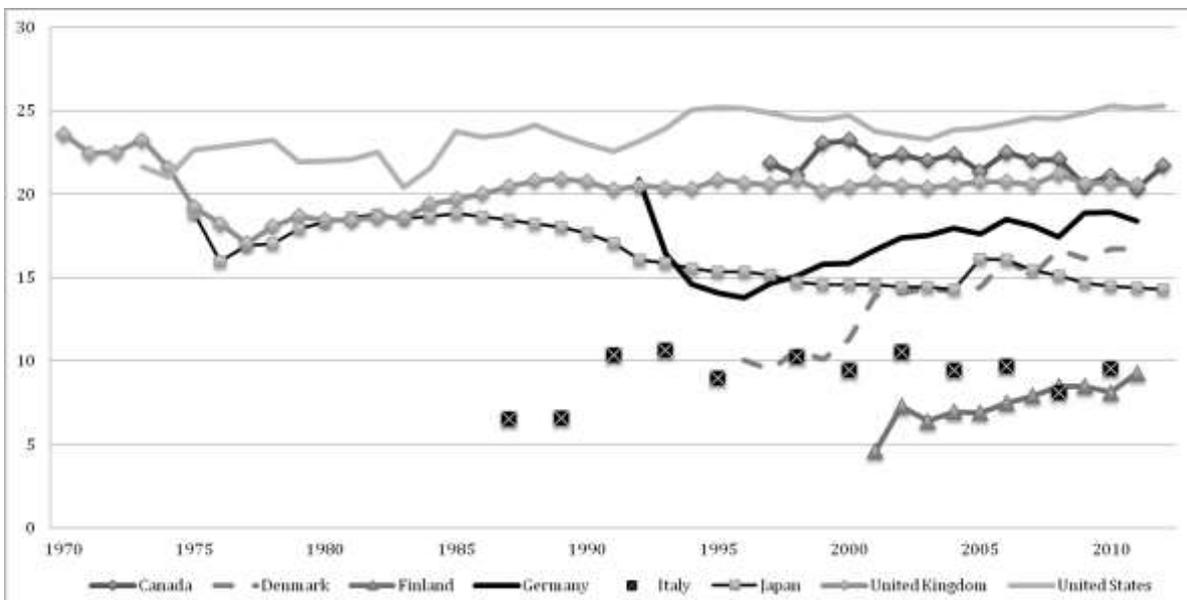
Note: Less than two-thirds of gross median earnings of all full-time workers.
Source: OECD (2013). Own illustration.