localise

Local Worlds of Social Cohesion –

The Local Dimension of Integrated Social and Employment Policies

Deliverable 3.1

Patterns and Determinants of Income Inequality in a Regional-National-European Multilevel System

Project acronym: LOCALISE

Project full title: "Local Worlds of Social Cohesion. The Local Dimension of Integrated Social and Employment Policies"

Grant agreement no: 266768

Coordinating Organisation: CARL VON OSSIETZKY UNIVERSITAET OLDENBURG (CETRO)

Author: Martin Heidenreich

SEVENTH FRAMEWORK PROGRAMME

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Abstract: Social inequalities cannot be analyzed anymore only in the national context. The sociology of social inequalities has increasingly to deal with multiple territorial scales. Inequalities are increasingly generated and regulated in a regional-national-European and global multi-level system. On the basis of micro data it can be shown that the level and the unequal distribution of disposable income in the EU does not only depend on household characteristics, but also on regional economic and labour market structures, on national institutions, on the European integration and on the European and global opening of markets for capital, labour and goods. Despite the harsh criticism of the methodological nationalism of inequality research, the national level is empirically still the most important level of analysis. The national and the sub- and supranational determinants of income levels, and inequalities are analyzed on the basis of EU-SILC data for the period 2005-2010 by multilevel modelling.

Keywords: Income inequalities, European Union, methodological nationalism, economic structures, regions.

1. Introduction

Social inequalities have been analyzed so far almost exclusively in the national context or in an internationally comparative perspective (Kuznets, 1955, Alderson and Nielsen, 2002; Wilkinson and Pickett, 2009; Brandolini and Smeeding, 2009, OECD, 2011). There are compelling reasons for such a national frame of reference: Since the end of the 19th century, the national welfare state has become at least in Europe the central guarantor of social security (Castles et al., 2010). Even in a globalized world, the perception and articulation of social risks and inequalities as well as the public attempts to reduce them take place largely at the national level. Nation states are the largest known levels on which norms of equality and solidarity are effectively institutionalized. Social security benefits and taxes, unions and wage bargaining systems, education and training, public systems of interregional redistribution – all these institutions are mainly institutionalised at the national level (Esping-Andersen and Myles, 2009; Kenworthy, 2004).

However, in spite of the predominantly national framework of analysis, it is well-known that supra-national developments also shape the distribution of income and living opportunities of people. The determinants of social inequalities are not limited to the national arena to the same extent as in post-war period of the egalitarian capitalism which has been characterized by relatively closed national economies, by national wage-bargaining and educational systems, and by national welfare states (Kenworthy, 2004). The increasing differentiation within the national arena has been explained firstly by the globalization of goods, services, labour and capital markets which contributes to increasing within-nation differences (Alderson and Nielsen, 2002; OECD, 2011) and secondly by skill-biased technological change, i.e. by the increasingly important role of specific qualifications and skills which might explain an increasing wage differentiation and labour earnings inequality (Card and DiNardo, 2002). Complementary to increasing income inequalities at least in advanced

industrial countries, declining between-nation and thus global income inequalities have been observed (Firebaugh, 2003, Sala-i-Martin, 2006).

In addition to global trends, also the European Union (EU), which has promoted the economic, monetary and legislative integration of the European economies, have become an essential unit for the generation and regulation of income inequalities (Beckfield, 2006; Heidenreich, 2003). Similar to other authors, Beckfield (2009: 501) observes "a decrease in between-country income inequality (convergence) but an increase in within-country income inequality" which he explains by the political and economic integration in Western Europe. In particular, younger, well educated and internationally oriented groups of employees benefit from Europeanization and transnationalization processes (Fligstein, 2008). The economic integration and the regulatory harmonization in Europe thus has led at least until the European public debt crisis since 2010 to a convergence of the standard of living in the EU, but also to increasing national inequalities.

This discussion points to the necessity of opening up the previously mainly national framework of inequality research by taking into account European and global factors shaping not only earnings and income, but also other social inequalities. This indicates the necessity of a transnational inequality research, which do not compare only national patterns and dynamics of social inequality, but take into consideration also supranational factors. This reflects also the limits of the nation-states to effectively control the technological and economic factors shaping earnings inequality by regulating the effects of a cross-border competition, increasingly global production chains, migration dynamics and the financialisation of the economy.

However, below the global, the European and the national levels also the (subnational) regional level becomes an increasingly important arena which shapes the social situation and the welfare of the population. This is first of all the result of increasing economic differences between more or less successful regions even within the same state. Due to successful innovation regional systems and the presence of globally successful, but regionally embedded companies (for example the headquarters of multinational companies) some regional economies are much more successful than their national and international peers (Cooke et al., 2004). These regional differentiation processes challenge the ability of the state to ensure equal living conditions and indicates the necessity of an inequality research, which takes into consideration also subnational factors. These differentiation processes are usually attributed to differences in regional economic and labour market structures and the corresponding agglomeration effects in urbanized and service-oriented core regions (Geppert and Stephan, 2008). In addition, region may provide governance structures, an innovative milieu and "local collective competition goods" which enhance the innovativeness and competitiveness of regional companies thus enhancing regional competitiveness.

In addition to the economic role regions play in an open knowledge economy, they are becoming secondly an increasingly important arena for social and employment policies (Kazepov, 2010). Activation policies which aim at the integration of jobless people in the labour market by removing "options for labour market exit and unconditional benefit receipt

by members of the working-age population" (Eichhorst et al., 2008: 5) are increasingly organized at the local and regional level (Künzel, 2012). Social services which are useful for facilitating the labour market access of disadvantaged groups (low-skilled, migrants, lone parents, long-term unemployed, handicapped) will be organized and provided mostly at the local and regional level. Thirdly, also EU structural and cohesion policies focus strongly at the regional level and supports economic growth and an inclusive employment policy. The role of regions as an arena for economic and innovation policies as well as for social and employment policies show that regional actors, governance structures and characteristics might play an important role for social and also income inequality as well.

On a more general level, this demonstrates the necessity of inequality research to overcome the "methodological nationalism" of inequality research by taking into account the multiple geographical references of social inequality in a multiscalar perspective which analyses inequalities as the outcome of sociospatial processes which take place in distinct spatial units (Brenner, 2001: 604) – for example, but not exclusively the regional one, on which the following analysis will focus in the context of the European Union and the European nation-states.

In the following sections, I will shortly review the relevant literature and will propose the concept of multiscalar inequality spaces. (2). Then the role of the (subnational) regional level in the context of a regional-national-European-global multiscalar system will be discussed. The analysis will be limited to income inequality in order to facilitate this discussion and to exploit the available data. At first, the dynamics of between-state and within-state inequalities will be analysed on the basis of regional averages and inequalities of disposable income (3). Fourthly, the influence of regional economic and labour market structures, national institutions and supranational liberalization and regulation processes on regional patterns of income inequality and poverty will be discussed (4). Last but not least the influence of the economic and institutional context on the disposable household income and individual life satisfaction – as an indicator for the subjective perception of social inequalities – will be analyzed (5). The paper concludes with a short outlook on the perspectives of a multiscalar inequality research (6). The different forms of income inequality, the respective indicators, their social relevance, the corresponding hypotheses which will be developed in detail in the following sections and the contribution of the three chosen perspectives to a multiscalar inequality research are summed up in Table 1.

Table 1:Three different aspects of income inequality

Form of inequality	Focus	Indicators	Specific risks for social integration	Hypotheses	Contribution to a multiscalar inequality research
European-wide inequality of regional average disposable income and economic performance (section 3)	Differences between wealthy and poor regions within the same country and in Europe	Regional average GDP and average disposable income of households	National (and perhaps in the future also European) disintegration due to increasing interregional differences	Decrease of between-nation and increase of within-nation inequality (H1)	Relationship between national and European scales as a result of an increasing regional differentiation of regional income conditions
Regional inequality of disposable income (section 4)	Differences between wealthy and poor inhabitants within the same region	Regional Ginis, decile ratios or poverty rates	Regional disintegration due to increasing intraregional inequality	Regional, national and supranational context factors shape regional patterns of inequality (H2-H5)	Interaction of economic, institutional and economic conditions in shaping regional patterns of inequality
Rich and poor households in Europe (section 5)	Factors explaining the differences between wealthy and poor households and between satisfied and dissatisfied individuals	Equalized disposable income and individual life satisfaction	Social disintegration due to increasing differences between rich and poor individuals and households	Individual conditions and regional, national and supranational context shaping individual income opportunities and life satisfaction (H6-H8)	Interaction of individual situations and regional, national and supranational scales in generating and regulating individual income opportunities and life satisfaction

2. Scales of inequality

The egalitarian capitalism of the post-war period was the basis for both the methodological nationalism of inequality research as well as for the expectation of continuously decreasing income inequality: In the years following the Second World War, welfare benefits, strong unions, national patterns of collective bargaining, national educational systems, interregional redistribution and national economic policy, contributed to the reduction of national income inequality in advanced industrial countries (Kenworthy, 2004). The experience of a continuous reduction of income inequality was generalized in the inverted U-curve initially proposed by Kuznets (1955) who predicted a decrease in income inequality during the transition from a traditional industrial society to a wealthy, service-centred society. In addition, in the post-war period the nation state became the central frame of reference for the analysis of income inequality.

Since the 70s, both the ideas of decreasing within-nation inequality and the primacy of national frame of reference are eroded (Delhey and Kohler, 2006). First, the income

inequalities are again rising significantly in many states (see Brandolini and Smeeding, 2006). Instead of decreasing inequality a “great U-Turn” has been observed reversing the previous reduction of within-nation inequality – especially due to increasingly skill-intense technological developments and the globalization of the economy (OECD, 2011; Alderson and Nielsen, 2002; Firebaugh and Goesling, 2004).

Second, the explanatory power of the methodological nationalism is eroded especially by global economic integration processes, the political and economic unification in Europe and through regional differentiation processes. Social inequalities thus cannot be analyzed only in the context of nation-states. But this does not imply that the existing national, relatively closed "container spaces" are replaced by new supra- or subnational spaces. Inequalities are rather generated and regulated in a regional-national-European and global multi-level system. Inequality research thus is faced with the challenge of analyzing the relative weight and the differential impact of the respective territorial levels. The relevance of these levels depends also on the income-generating and regulating dynamics at these levels, for example the governance of economic processes and the institutionalization of norms of equality and solidarity. Besides national and European forms of redistribution, for example, activating employment policies and innovation-centred economic policies, which improve the employability of the labour force and the innovative capacity of the region through the provision of collective competition goods, may influence social inequalities at the regional level. It can therefore be expected that the national arena and its inequality-regulating institutions which have been at the core of the egalitarian capitalism of the post-war era, are challenged, modified, also partially be undermined by the economic integration processes on the European and global level and by the economic and labour market dynamics at the regional level.

A contribution to a transnational study of social inequalities therefore has to discuss the question of what factors determine different levels on which the level and the unequal distribution of disposable income in Europe. The aim of this paper therefore is to link the debates on the dynamics and regulations of inequalities relative importance of factors located at supra-and sub-national and national levels on the disposable income and its distribution. It can be expected that European regulatory structures and the opening of national labour, goods and capital markets in the context of Europeanization and globalization processes, shapes the unequal distribution of disposable income. In addition, regional economic and labour market structures and last but not least national institutions play a decisive role for the level and distribution of disposable income. Such a broader focus to inequality faces a significant epistemological obstacle because until now neither the EU or economic regions are designed as solidaristic communities or political spaces which contribute to the protection of people against the risks of illness, old age, childhood or unemployment and have the means and the responsibility for redistributing resources in order to increase the welfare of the population. Even if traditionally the local level was the most important level for providing care and support to the poor, the monopolization of welfare as the exclusive duty of the nation

state and the absence of regional or supranational networks and institutions of welfare provision impedes the analysis of inequality in sub- and transnational spaces.

However, if the existence of sub- and supranational dynamics and institutions is acknowledged, which shape the patterns of social inequality, it is still open how such an analysis of inequality "beyond the nation-state" can be conceived. The supra- or subnational spaces in which inequality is generated, regulated and articulated, do not simply replace existing national, largely closed "container spaces". Even if inequalities are produced and regulated in a regional-national-European and global multi-level system, this does not imply that only some additional layers besides the national one have to be added to previous analyses, because these layers are not independent from each other. Instead of the multi-level concept which does not specific the relationships between the different levels, the scale concept may be more helpful because it focuses on the social practices which are shaped by institutions, economic forces and other social processes situated at different, yet intertwined geographical levels. Brenner (2001: 605) analyses the territorial scaling of social relations as one dimension of societal structuration processes which are shaped on the one hand by the territorial organization of political power: "(T)he scalar differentiation of modern state power between national, regional and local tiers is closely intertwined with (a) its territorialization within self-enclosed boundaries, (b) the bounding of each of its scalar 'tiers' within territorially demarcated subnational jurisdictional units, and (c) the spatial centralization of state powers within a (national) territory." In the case of Europe, also the EU level has to be taken into account which is an additional arena for the regulation and liberalization of markets and perhaps even of transnational forms of solidarity. In addition, this spatial order which shapes the generation, the regulation and the articulation of social inequality, is intertwined both by economic dynamics, which is characterized by the complementary processes of regionalization and globalization: For example, multinational companies combine the advantages of global strategies with embeddedness in national and regional environments which contributes to the innovativeness of these companies by facilitating access to external competences and networks.

In three aspects, the concept of scalar differentiation might be attractive for inequality research: First, it challenges the taken-for-granted nature of national spaces as the necessary reference point for inequality research; secondly, it points to different, hierarchically ordered social arenas where inequality are produced, regulated and publicly addressed; and thirdly, it focuses the attention on the relationship between these different levels. In this way, a multiscalar concept of inequality might open the perspective for different actors and institutions, which contribute to social fairness, norms of equality and responsibility for the most vulnerable segments of society – actors which will not be necessarily situated within the classical institutions of egalitarian capitalism.

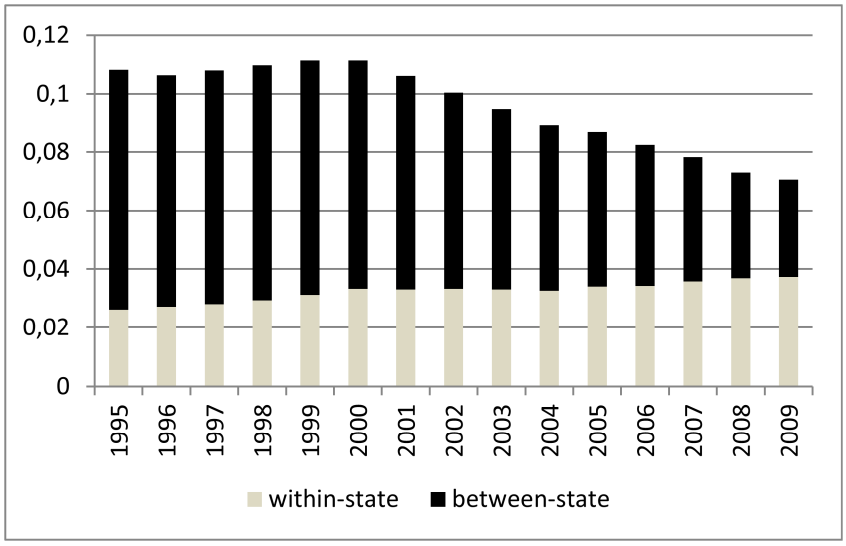
In the following, these supra-national, national and regional factors shaping social and especially income inequality will be discussed in detail taking the example of the evolution of within- and between-nation inequalities.

3. Regional economic and income dynamics within and between EU member states

In the following, the multiscalar structuration of inequality will be discussed taking the example of the relationship of global and European integration processes and national and regional income dynamics. On the one hand, economic integration and liberalization opens national spaces and thus may contribute to increasing inequality. On the other hand, the EU may contribute to the reduction of European-wide inequality through the Europe-wide integration and regulation of markets, and the supranational harmonization and coordination of national economic, employment and social policies. Following Beckfield (2009), it can therefore be expected that the economic and political integration of the EU will contribute on the one hand to increasing national income inequality and on the other hand to decreasing inequality in the EU as a whole (H1).

This hypothesis can be discussed on the basis of two different indicators for the regional income and welfare level, the average regional gross domestic product (GDP) and regional averages of disposable income in the EU from 1995 to 2009 (Heidenreich and Wunder, 2008). The GDP is an indicator of the regional economic performance. Disposable income takes into account the effect of taxes, transfer payments and income from property.

Figure 1: Regional inequalities of economic performance within- and between the EU member states (GDP, 1995-2009)



Own calculations of the Mean Logarithmic Deviation (MLD) on the basis of the gross domestic product (GDP) (in purchasing power parities per inhabitant) of 271 NUTS II regions in the 27 EU member states.

In the following, the average values for the 271 European NUTS II-regions will be used.[1] In this step, the internal inequalities within the regions, i.e. the inequalities between poor and rich households, therefore will be neglected.

Figure 1 shows a sharp decline of between-state regional inequalities whose share declines from 76 % (1995) to 47 % (2009) of total regional inequality in Europe. This is a clear effect of the monetary, economic, legal and political integration of the European Union which facilitated a stronger competition between European companies,

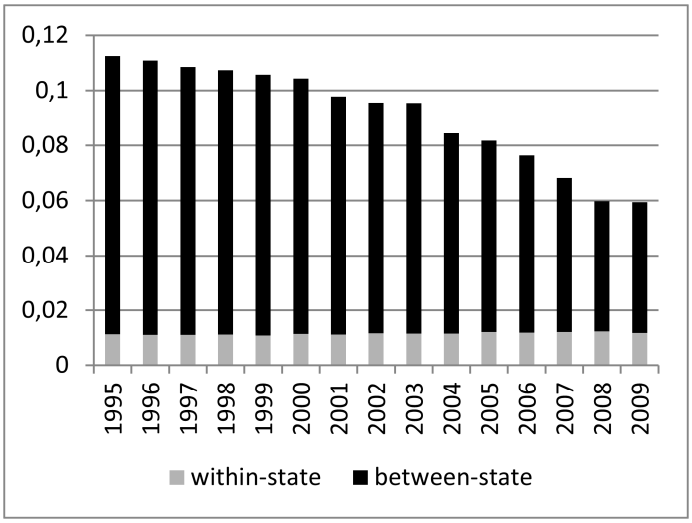
[1] The Nomenclature of Territorial Units for Statistics (NUTS) is a three-level hierarchical classification that provides a single uniform breakdown of territorial units for the production of regional statistics for the European Union.

but also a convergence of the level of economic performance. The economic and institutional integration of Eastern and Western Europe was also a major reason for the success of the postsocialist transformation processes in the Central European countries, which were offered already in 1993 the opportunity to accede to the EU – a promise which was fulfilled for 12 countries in 2004 and 2007. In addition, the monetary integration facilitated the economic convergence process also in the former EU member states, because the introduction of the common currency in 1999 for initially eleven and now 17 countries meant that the interest rates for these countries strongly converged until April 2010. This favoured a catch-up development especially of the Mediterranean countries. In 2010, however, this trend was abruptly reversed when the financial markets became aware of the public indebtedness crises especially in the Mediterranean member states.

In addition, Figure 1 also illustrates the relative and absolute increase of the regional inequalities within the EU member states – especially in Bulgaria, Romania, Hungary, Slovakia, and the Czech Republic, which are now the countries with the biggest regional inequalities. After the forced homogenization of national territory during the socialist industrialization policies, the formerly repressed regional heterogeneity is returning.

The comparison of the economic and income inequalities shows that the level of within-state regional inequalities of the disposable income is very stable – and it is much lower than the corresponding economic inequality (Figure 2). Welfare and tax policies succeed in effectively reducing regional inequalities within the European states – in spite of growing economic differentiation processes within the national territory. The share of within-state in total regional inequality has doubled from 1995 (10 %) to 2009 (20 %) only due to the sharp decline of between-state-inequality.

Figure 2: Regional inequalities of disposable income within- and between the EU member states (1995-2009)



Source: Own calculations of the Mean Logarithmic Deviation (MLD) on the basis of the disposable income (in purchasing power parities per inhabitant) of 271 NUTS II regions in the 27 EU member states.

In sum: While economic inequalities especially within the Central European member states are clearly increasing, regional inequalities between the European member states have been declining in an extraordinarily strong way – inequalities of disposable income even more than economic inequalities.

A very strong convergence process took place: For the purchase power adjusted values, a convergence rate even stronger than the convergence rate of 2% calculated by Barro and Sala-i-Martin (1992) and Armstrong (1995) can be calculated: 2.5% for the EU 27 and 2.7

% for the former member states (EU 15) (Table 2). The convergence of regional economic performance therefore continues both in the enlarged Union as well as in Western Europe.

Table 2: Regional convergence of the regional GDP per inhabitant in European NUTS2-regions (1995-2009; PPP, weighted)

Values in PPP	EU27	EU15
Observations	268	214
R-squared	0.66	0.36
Speed of convergence	0.025	0.027
Half-life period	27.3	25.6

Source: Own calculations of the absolute beta-convergence (cf. Barro and Sala-i-Martin, 1992: 230).

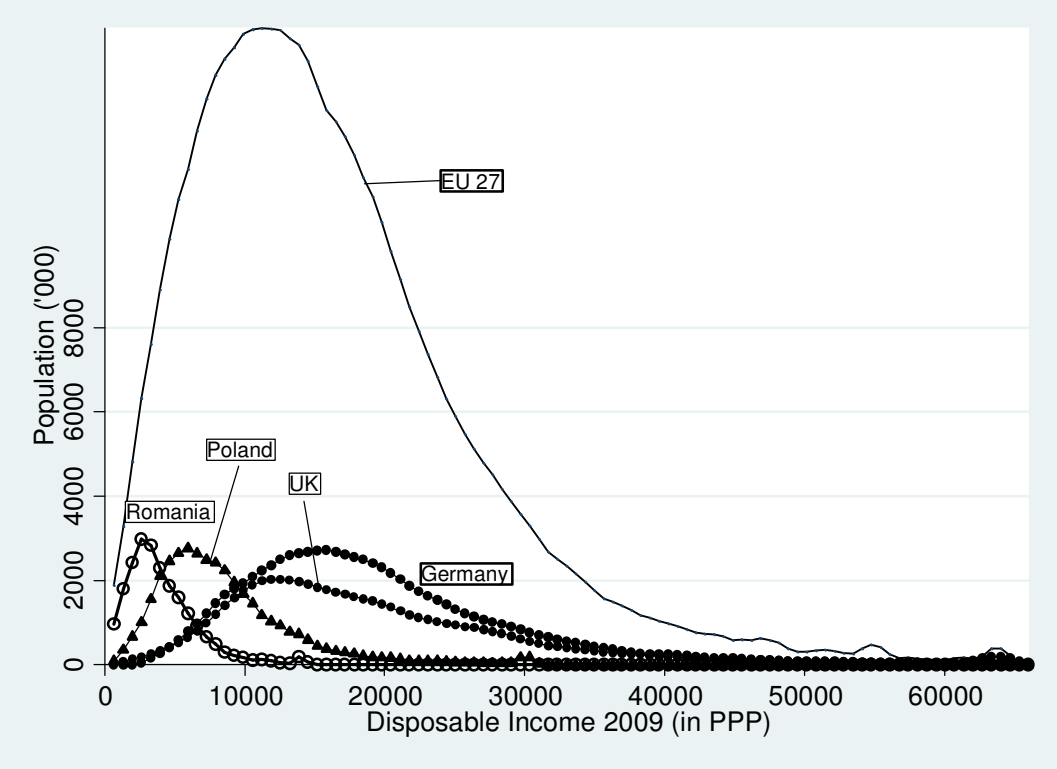
Since the middle of the 1990s, a strong reduction in the between-nation inequalities can be observed due to the catch-up processes in Eastern and in Southern Europe. The much lower and stable regional inequalities of the disposable income show the impact of the national welfare and employment systems, which can still decouple the increasing economic inequalities from the income distribution.

The previous discussion was based on regional average values of economic and income levels. Now, the assumption of a homogeneous income level within the European regions will be abandoned. In the following, the patterns of income inequality within the EU will be described on the basis of microdata. This analysis will be based on the EU-SILC data for the years 2005-2010 for the 27 countries (even if for 2005 and 2006 data for Malta, Romania and Bulgaria are not available).[2]

[2] EU-SILC (Statistics on Income and Living Conditions) is an EU-wide survey on income, poverty and living conditions in Europe which started in 2004, at first in 13 and in 2010 in 27 countries (including Norway and Liechtenstein, but in this year without Cyprus and Ireland). EU-SILC tries to unify and harmonize the concepts employed – for example the concept of disposable income – and the survey methods; it is based on uniform definitions and methodological minimum standards. It consists of a household questionnaire and an individual questionnaire for household members aged 16 years. It covers in detail the income and material living conditions of households in Europe.

Both the sampling and in data collection, the SILC data are still subject to considerable problems. In Germany, for example, Hauser (2007) points to considerable sampling problems caused by the under-representation of poorly integrated foreigners (especially Turks), younger children and lower-skilled residents. Also households with employed persons are under-represented, while house and apartment owners are over-represented. This is also a result of non-representative samples (Frick and Krell, 2010: 36). Despite the aforementioned methodological problems in terms of representativeness, accuracy, comparability and coherence, the EU-SILC data are currently the only available data source for comparative international and supra-national analysis of income and living conditions in the EU.

Figure 3: Income distribution in the European Union (EU27) and in Germany, the United Kingdom, Poland and Romania (survey year 2010)



Source: EU-SILC UDB 2010. The results of the 2010 survey relate to 2009 incomes.

Figure 3 gives an overview of the level and income inequality in Europe and in selected national states gives.[3] This figure is based on the income distribution of the European population. The figure shows for example that the German is much more egalitarian income structure (0.274) than the United Kingdom (gini = 0.313). But even the British income distribution is more egalitarian than the pan-European unequal distribution (Gini = 0.341). This figure is higher than the Gini-coefficient given at the Eurostat website for 2010 (0.305) which is calculated as the weighted mean of the national values. Table 3 compares these two ways of calculating income inequality and poverty. If income and poverty indicators are calculated as the weighted mean of national values, between-state inequalities as a major

[3] All the following calculations are based on the latest available versions of the EU-SILC data (e.g. udb_c10p_ver 2010-1 from 01-03-12). The different measures of inequality mentioned above have been calculated for the survey year 2010 – where the income data for 2009 were collected - for the EU-27 member states without Ireland and Cyprus. In all the cases we use the disposable income (HX090; reference year: mostly previous calendar year), the "new OECD" equivalence scale (HX050), the weighting factor (RB050) and the conversion rates and purchasing power parities proposed by EU-SILC and described in the corresponding manual. We ignore missing values and zero incomes and replace incomes that are higher than 99 % of the national population by an upper limit which corresponds to the 99th percentile. Similarly, a lower limit is applied for incomes below the first percentile. This top- and bottom-coding which reduces the effect of possibly spurious outliers might explain minor differences to the figures published by Eurostat.

source of inequalities in the EU are excluded. Such a decision is justified if the EU is considered to be a single market, but not as a society characterised by common standards of equality and solidarity. However, if an Europeanization of patterns and perceptions of inequality is assumed, European inequality has to take into account also the between-state inequality. In this case, the Gini-coefficient of the EU amounts to 34.1 % in 2009.

Table 3: Income inequality and poverty in the EU (2009) and the U.S.

2009; PPP	EU 15	EU 25	EU 27	USA
Income inequality, based on weighted national values (Gini)	0.288	0.287	0.289	
Income inequality (Gini)	0.293	0.321	0.341	0.38 (2008)
Income inequality (decile ratio)	3.918	4.694	5.660	5.5 (2004; LIS)
Poverty (60%; national thresholds)	16.0%	15.9%	16.2%	
Poverty (continental threshold)	12.2%	19.4%	23.6%	23.9% (2004; LIS)

Source: Own calculations on the basis of EU-SILC UDB 2010; OECD (2011: 24). http://www.lisdatacenter.org (Key Figures as of 23-Dec-2011). The usual figure for the inequality of Household Income in the USA - 0.467 (2009) – provided by the U.S. Census Bureau does not take into account taxes and contributions, the different composition of households and different purchase powers.

In contrast to the USA for which the OECD (2011) provides a value of 0.38 (2008), income inequality in the whole EU is still lower. Nevertheless, the idea of an egalitarian Europe and an unequal USA seems to be at least partially a statistical artefact, because Eurostat provides a lower value for pan-European income inequality and the U.S. Census Bureau a higher one.

In general it is believed that the relationship of within-state and between-state inequalities in the EU and in the USA is different: “In the United States, inequality is a matter of individuals; in the European Union, it is a matter of countries.” (Milanovic, 2011: 178) However, this is changing. The sharp decline of between-nation inequality in the EU which previously has been demonstrated on the basis of regional average values (Figure 2), can be observed also on the basis of the disposable income of European citizens (cf. Table 4): Only 5.8 % of the income inequalities in the EU-15 are between-country inequalities – in contrast to a fifth in the EU-25 and a third in the EU-27. In all the groups, the between-country inequality is strongly decreasing – in the EU-25 for example from 46.5 % (2005) of total income inequality to only 21.5 % (2010) and in the EU-15 from 8.7 % (1995) to 5.8 % (2010). In absolute terms however, within-state inequality increased in the last decade in most of the European countries (Table 4).

Table 4: Inequalities of disposable income within and between nations in the EU (survey years 1995-2010, PPP, MLD)

	EU 15			EU 25			EU 27		
Survey year	Within nations	Between nations	Total	Within nations	Between nations	Total	Within nations	Between nations	Total
1995	0.168	0.016	0.184						
1996	0.152	0.015	0.167						
1997	0.142	0.017	0.159						
1998	0.140	0.015	0.155						
1999	0.141	0.012	0.153						
2000	0.135	0.014	0.149						
2001	0.133	0.014	0.147						
2005	0.141	0.010	0.150	0.146	0.126	0.271			
2006	0.139	0.009	0.148	0.143	0.095	0.237			
2007	0.144	0.011	0.155	0.144	0.092	0.236	0.149	0.131	0.280
2008	0.142	0.011	0.153	0.141	0.048	0.189	0.145	0.085	0.231
2009	0.145	0.008	0.153	0.143	0.039	0.182	0.146	0.071	0.218
2010	0.147	0.009	0.156	0.146	0.040	0.186	0.148	0.072	0.219
2010 (regions)	*0.143*	*0.012*	*0.156*	*0.142*	*0.044*	*0.186*	*0.144*	*0.075*	*0.219*

Source: ECHP; EU-SILC, own calculations. Sometimes missing values – e.g. for CY and IE in 2010. Figures in italics refer to the dcomposition of the income inequality in within-regional and between-regional inequality for the 98 subnational regions respective states for which regionalised data are available.

The mean logarithmic deviation can also be used to estimate the additional explanatory power of the region where the household is located (last row in Table 4). Even if EU-SILC provides regionalised data only for nine countries at the NUTS1-level (Austria, Belgium, Bulgaria, Greece, Hungary, Italy, Poland, Romania, and Sweden) and for four countries at the NUTS2-level (Czech Republic, Spain, France, Finland), together with the national data of the remaining countries this adds up to 98 "regions". In the case of the EU-15 countries, the between-regional variance amounts to 7.8 % of total income inequality – in comparison to the 5.8 % explained by the national affiliation which is a considerable increase. In the EU-27, the between-regional variety amounts to 34.2% - in contrast to the 32.9% explained by the

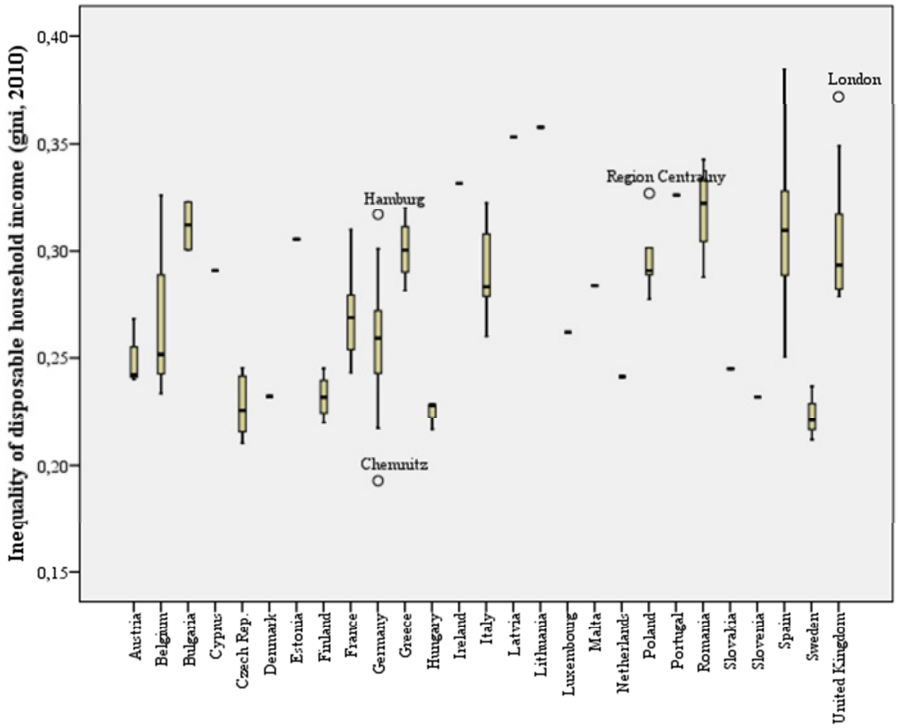
national affiliation. It can be retained: At least currently, income inequality in the former member states of the EU is no longer predominantly a matter of countries.

In conclusion: Total income inequality is still lower in the EU than in the US (0.34 versus 0.38 in 2008), but not as the often used figures (0.30 versus 0.47) would suggest. On the basis of regional average values and individual income data, it can be shown that economic inequality between EU member states is strongly declining. At least in the former EU member states, inequality is no longer determined by the nation-state where a person is living but predominantly by its individual characteristics and achievements and to some extent also by the region where the person lives. Within-state inequality however is increasing in 18 of the EU countries in the first decade of the new century, especially in Bulgaria, Lithuania, Denmark, Germany, Romania, Ireland and Italy. Hypothesis 1 thus has been fully confirmed. This is connected to growing interregional differences within the EU member states; inequality and poverty rates differ strongly within the same country. The level of income inequality thus is shaped by institutions and economic processes at the regional, national and European scale.

4. Structure and determinants of regional and national income inequality in Europe

Regions are not only characterized by different levels of income, but also by different distributions. Even within the same state, some regions are not only richer than others, but they are also characterized by different income distributions. Even in relatively egalitarian countries as for example in Germany, the inequality in Hamburg is much higher than in the whole country or especially in Chemnitz; the respective Ginis for 2009 are 0.32, 0.27 and 0.19. An in countries with very high levels of inequality as for example Spain or the UK, And the inequality in Wales or Northern England is much lower than in London (Gini = 0.28 resp. 0.37). While the inequality in the Spanish region of Navarra for example is only Gini (2009) = 0.25, it is 0.38 in Ceuta.

Figure 4: Regional inequality of disposable income in European NUTS2-regions (Gini; survey year 2010)



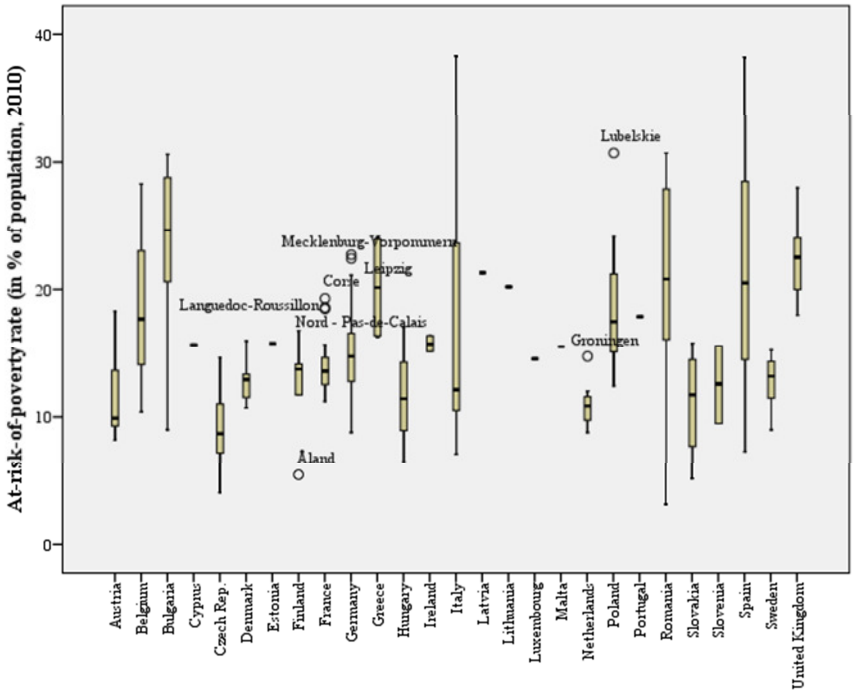
Source: Own calculations of the regional inequality of disposable income (Gini) on the basis of EU-SILC, the German Socio-Economic Panel Study (SOEP) and the British Households Below Average Income statistics (HBAI). The boxplot shows (1) the median (middle black line), (2) the middle 50% of scores, which is the shaded region, (3) top and bottom 25% of scores, which are the lines extending out of the shaded region, (4) outliers.

Figure 4 shows the variation of regional patterns of inequality within the same states for most of the bigger European countries. After having previously analysed the various average levels of regional income, we will discuss now the factors which shape the regional distribution of disposable income (measured by the Gini coefficients and the decile ratios) as far as they can be calculated on the basis of EU-SILC, the German Socio-Economic Panel Study and the British Households Below Average Income statistics.

In addition, Eurostat provides poverty rates, i.e. the regional shares of the households which earns less than 60 % of the national median incomes, for the European NUTS2- and NUTS1-regions. The box plot in Figure 5 illustrates the variation of regional poverty rates, which is much higher than the variation of the total regional inequality. The Italian region with the highest poverty rate is Sicily with 38.3 %, while Bolzano has only a poverty rate of 7.1 %. In Spain, the difference between the poverty rates of Extremadura and Navarra is also 31 percentage points. In Romania, Bulgaria, Poland, and Belgium the regional differences of the poverty rates are 15 % percentage points or higher. France and the UK are the two larger European countries with relatively low interregional differences – an indicator of a considerable territorial homogeneity at least in this dimension. In some of the more homogeneous countries, some outliers are marked in Figure 5: For example the East German

regions Leipzig and Mecklenburg-Vorpommern, the French Nord-Pas de Calais, Languedoc and Corse and the Dutch region of Groningen are characterized by relatively high poverty rates.

Figure 5: At-risk-of-poverty rate in European NUTS2-regions (in % of the population, survey year 2010)



Source: Eurostat. The boxplot shows (1) the median (middle black line), (2) the middle 50% of scores, which is the shaded region, (3) top and bottom 25% of scores, which are the lines extending out of the shaded region, (4) outliers.

In the following, we will discuss the regional, national, European and supranational context factors which shape these regional distributions of income inequality. On the basis of the existing literature, four hypotheses will be developed, which will then be tested for four different dependent variables (Gini, the decile ratios D9/D1 and D5/D1 and the poverty rate). The explaining variables which are explained in the appendix are mostly based on the EUROSTAT data available in the internet.

Regional economic and employment structures play a decisive role for regional patterns of income inequality. Especially the distinction between industrial and service regions may influence these patterns, as the high inequalities for example in Hamburg, Warsaw and London show (Figure 4). Nollmann (2006) describes the service sector as an important cause for increased national inequalities, because the internal heterogeneity of this sector in respect to the employment and income conditions is much bigger than in the industrial sector. While industrial workers are usually more unionized and covered by collective wage agreements - what is according to Kuznets (1955) a central reason of egalitarian wage structures – the service sector is characterized by huge income and

employment disparities between unskilled and skilled service workers. While many less demanding service activities particularly in trade and in personal services are low-paid, skilled knowledge workers for example in corporate and financial services are highly paid. Therefore, in contrast to the industrial sector, the internal heterogeneity of the service sector favours higher income inequality. A region characterized by either very high or very low incomes (prototypically: Financial and business services on the one side, personal services on the other side) may be characterized by higher inequality. A high proportion of employees in industry and public services, however, will be associated with lower inequality and higher incomes, because stronger trade union, collective agreements and labour law will improve income conditions and limit wage differentiation. The qualificational structure of the region might also affect inequalities. A high proportion of academic qualifications is associated with larger and a high proportion of medium qualifications rather with lower inequality (Nielsen, 1994).

In addition to the sectoral and qualification structures of a region, the regional labour market structure will also affect the distribution of disposable income. Kenworthy (2004) has shown, that a higher employment rate (especially of women) is the basis for a more egalitarian distribution. Even if a higher labour force participation rate might be associated with an expansion of low-wage activities, the disposable income of the household will increase, when more people per household have a job. More inclusive labour markets, i.e., a higher employment rate of women in particular, thus will be associated with a higher income and a lower inequality if households with low incomes will benefit overproportionally from additional employment opportunities (Kenworthy and Pontusson, 2005), while higher unemployment rates will increase inequalities.

The second hypothesis thus can be stated as follows: *More inclusive labour markets (e.g. indicated by higher female employment rates and lower unemployment rates), a high proportion of medium skills and a strong industrial sector will favour lower income inequality and lower poverty rates, while a higher proportion of higher-value activities (e.g. financial industry, business services) will lead to higher inequality and lower poverty rates (H2).*

National institutions such as a strong industrial relations system and a strong welfare state will favour egalitarian wage structures (Kenworthy, 2004). Thus, the third hypothesis is that *the core institutions of European welfare states - especially a high level of social security expenditures as an indicator for an advanced welfare state and strong trade unions contributes to a more egalitarian wage structure and lower poverty rates (H3).*

Thirdly, the globalisation of the economy – indicated for example by increasing capital flows, and international trade (Alderson and Nielson, 2002) – is supposed to lead to a growing within-nation income inequality – even if other authors deny the importance of these external factors and point to the primacy of domestic developments (Kenworthy, 2004; Nollmann, 2006; Korzeniewicz and Moran, 2005). A fourth hypothesis thus can be formulated as following: *The opening of national economies and the stronger integration in global goods, services, capital and labour markets (as indicated by a high international mobility of goods and capital) increases the pressure for a more differentiated, i.e. more unequal income structures (H4).*

A significant part of the effects of economic integration, on which this hypothesis focuses, is result of the European integration, since the EU is the most internationalized economy in the world: About two thirds of its external trade are among the EU-27 countries themselves. About half of all global foreign direct investments originate in EU member states and nearly half of all multinational companies in the world are located in the EU. Beckfield (2009: 490) shows that the economic integration of the EU (which he measures by the share of exports to other EU countries and by foreign direct investments) is associated with an increase in income inequality. In addition to the economic and monetary integration, the EU has also been transformed in a relatively uniformly regulated social and political field (Fligstein and Sweet, 2002; Fligstein, 2008). The legal and political integration of EU states is reflected in the community acquis and its ten thousands of legal acts. As indicators for this regulatory homogenization Beckfield (2009) uses the number of cases in which a national court requests a preliminary ruling from the European Court of Justice (Article 267 TFEU, ex-Art 234 EC, ex-type 177) and the number of infringement procedures (Article 258 TFEU), which are supposed to be negatively correlated with income inequality. Furthermore, the EU contributes by its agricultural, structural and regional policy to a (limited) supra-national redistribution of resources. In addition, the EU contributes also through the harmonization of legal regulations and social protection by soft governance instruments such as the Open Method of Coordination to a convergence of European employment and social policies (Heidenreich and Zeitlin, 2009). This policy contributed to an increase of employment rates (especially of female and older employees) and thus to higher household incomes (Kenworthy and Pontusson, 2005). Given the economic, legal, social and redistributive integration of Europe, the EU thus may have contributed to lower levels of income inequality.

The fifth hypothesis can therefore be formulated as follows: *The supranational integration in goods, services, capital and labour markets induced also by the Common Market and the monetary union as well as the European Employment Strategy, which aims at increasing employment rates, especially for women and older people contribute to higher income inequalities – a tendency which is however partially counterbalanced by an equalizing effect of the political integration of the EU and its redistributive policies (H5).*

These four hypotheses focus on the regional, national, and supra-national determinants of income inequalities. They will be tested empirically in the following (see table 5 and the Table in the appendix for a description of the variables and a summary of the expected effects).

Table 5: Determinants of national and regional income inequality (Gini, decile ratios, and poverty shares) (2005-2010) in the EU

	Gini (Empty model)	*Gini (complete model)*	*Gini (adjusted model)*	Decile ratio (D9/D1; adjusted model)	Decile ratio (D5/D1; adjusted model)	Poverty ratio (adjusted model)
Regional contexts	(1)	(2)	(3)	(4)	(5)	(6)
Gross domestic product (log.)		-1.342	-0.098	-0.932**	-0.270**	-7.776**
		(-1.333)	(-0.136)	(-4.949)	(-3.913)	(-5.374)
Industrial employment		-9.401**	-11.009**	-3.389**	-1.402**	-21.193**
		(-4.584)	(-5.408)	(-6.246)	(-6.873)	(-5.069)
Financial and business services		13.973**	10.982*	4.279**	0.470	-20.230*
		(3.317)	(2.359)	(3.547)	(1.025)	(-1.996)
Female Employment rate		-0.056*	-0.072**	-0.005	0.000	-0.298**
		(-2.084)	(-2.822)	(-0.785)	(0.162)	(-5.900)
Unemployment		0.083**	0.083**	0.020**	0.006**	0.169**
		(3.415)	(3.398)	(3.404)	(2.823)	(2.785)
Medium regional education		-0.032				-0.230**
		(-1.311)				(-5.099)
National context						
Social expenditures		-0.139**	-0.130**	-0.044**	-0.013**	0.240**
		(-3.197)	(-3.708)	(-5.215)	(-3.960)	(2.838)
Union density		-0.042	-0.066*	-0.009+	-0.003	-0.139**
		(-1.534)	(-2.494)	(-1.850)	(-1.483)	(-3.138)
Global economic integration						
Migration		-0.002				
		(-0.455)				
Foreign direct in-vestment		0.017				
		(1.044)				
Exports + imports ratios		-0.036				
		(-0.981)				
European market integration and regulation						
EU-share of foreign trade		-0.036				
		(-0.981)				
Structural and cohesion		0.206				

policy		(1.355)				
Constant	27.976**	51.873**	39.378**	14.905**	5.287**	127.391**
	(37.274)	(5.374)	(5.652)	(8.261)	(8.010)	(8.960)
Wald_chi2	-	127	113	129	100	463
Log-likelihood	-1717	-1569.345	-1674	-458	368	-2475
No.	872	837	872	858	858	865
$\psi^{(3)}$ (between-nation variance)	12.7	8.4	8.7	0.1	0.0	17.3
$\psi^{(2)}$ (between-region variance)	4.7	2.6	2.6	0.3	0.0	3.9
θ (residual variance)	1.7	1.5	1.7	0.1	0.0	14.2
„Between-State“ Intra-Class Correlation	0.663	0.669	0.672	0.248	0.235	0.488
„Between-region“ Intra-Class Correlation	0.910	0.207	0.868	0.830	0.792	0.599
AIC	3441	3173	3369	937	-714	4973
BIC	3461	3253	3422	989	-662	5030
Pseudo-R^2		0.658	0.608	0.562	0.537	0.626

+ p<0.10, * p<0.05, ** p<0.01; in parentheses: t-values. Source: Multi-level analysis based on regional and national inequality indicators calculated on the basis of EU-SILC UDB 2005-2010, SOEP, HBAI. Explaining variables provided by Eurostat.

„Between-nation“ intra-class correlation ($\psi^{(3)}/(\psi^{(3)} + \psi^{(2)} + \theta)$): Intra-class correlation for the same country, but different regions

„Interregional“ intra-class correlation ($(\psi^{(3)} + \psi^{(2)})/(\psi^{(3)} + \psi^{(2)} + \theta)$): Intra-class correlation for the same country and the same region

In Table 5, five models are shown with four dependent variables. The Gini and decile ratios are calculated on the basis of the EU-SILC, SOEP, and HBAI data, while the poverty rates are provided by Eurostat. The first three models explain the level of the regional and national Gini coefficients at first by calculating an empty model without explanatory variables (column 1), then a model with all the variables mentioned in H2-H5 and described in the appendix (column 2) and then an adjusted model only with the variables which have a significant effect on the Gini coefficient – with the exception of the GDP (column 3). The next three models differ by the third model by their independent variable: The total decile ratio (D9/D1) (column 4), the difference between the median and the lower decile (D5/D1) (column 5) and the poverty rate (column 6). In addition, we have tested additional variables which might have a specific effect on the poverty rate (e.g. the net replacement rate for the initial phase of unemployment or the level of minimum income protection for 2 adults and 2 children; cf. Nelson 2012). The strongest effect had the share of persons with an upper secondary and post-secondary non-tertiary education.

In the first model, the regional and national intra-class correlations amount to 66 % and 91 %. National characteristics thus explain two-third of the total variance, while the additional explanatory contribution of regional factors can be estimated as 24%.The income distributions thus differ considerably from country to country, but also between the regions.

In the complete model, all of the variables which refer to the economic integration and political regulation at the European and global level have no significant effect on regional inequality. These variables are excluded from the next models. In addition, the average economic performance of the region and the share of employees with a medium qualification have no effect. In the following, they are only included when they have a significant effect on the patterns of regional inequality. This strategy following the suggestion of Hans (2006: 25) which advises the exclusion of non-significant variables - also in order to increase the degrees of freedom of the model. The third model explains the regional patterns of inequality by four significant indicators for the regional economic and employment structure and two significant variables for the national institutional context. This model explains 61 % of the total variance.

At the regional level, it turns out that a high regional *economic performance* contributes to lower deciles ratios of income inequality (which are bottom- and top-sensitive), but not to a lower Gini which is more sensitive to changes in the middle of a distribution. Richer regions therefore seem to effectively reduce poverty. A higher share of *industrial employment* is strongly correlated with lower inequality and lower poverty rates. The employment share of *financial and business services* is correlated with higher levels of income inequality. This might be explained by the higher wages of professionals in these services. However, these regions are characterised by lower poverty rates because these often metropolitan regions will be in general wealthier – which means that the regional level of income is higher than the national one. As expected on the basis of Kenworthy (2004), a higher share of *female employment* is correlated with lower inequality and poverty rates in nearly all dimensions since a higher employment rate of women is associated with a higher household income especially of poorer households. Vice versa unemployment is one of the strongest predictors for a higher regional inequality. In sum, a higher employment rate of women, a lower unemployment rate, a higher regional proportion of industrial workers and a lower regional weight of financial and business services are associated with more egalitarian wage structures – as expected in hypothesis 2. The regional economic performance and the educational level of the labour force had the expected effects on regional poverty rates, but not on the overall inequality indicated by the Gini.

At the national level, the *welfare state* has the expected effect on egalitarian patterns of income – as predicted by Kenworthy (2004). *Union density* has the expected negative effect on inequality and poverty rates. Income inequality is significantly lower in most industrialized regions which can be explained by a stronger collective interest representation and a more egalitarian wage structure in industry. Hypothesis H3 is fully confirmed.

The model shows that indicators of the *economic integration* (foreign direct investments, foreign trade) have no effect on the structure of regional and national inequalities. In contrast to Alderson and Nielsen (2002) and similar to Nollmann (2006) and

Kenworthy (2004) this supports the assumption that the globalization of the economy has no direct influence on income inequality, because global challenges are shaped by national and European decisions and structures. H4 thus has to be rejected. Also hypothesis H5 which focuses on the effects of political and legal integration of Europe has to be rejected because the European share of foreign trade and also the European regional policies (indicated by the funds assigned to the structural and cohesion funds in percent of the regional GDP) has no significant effect on regional inequality.

In conclusion: The distribution of income and poverty varies even between the regions of the same country. These pattern of regional income inequality can be explained not only by national institutions (especially national welfare policies and strong unions), but also by the regional economic and labour market structure. Egalitarian income patterns can be observed in regions with a higher share of industrial employment, a lower share of financial and business services, a high female employment rate and a low unemployment rate. Hypotheses H2 and H3 thus can be in general confirmed, while H4 and H5 has to be rejected.

5. Economic and institutional contexts of income levels and life satisfaction: The individual and subjective dimension of income inequality

In the next step, we will leave the regional income levels and distributions and turn to the level of individual households and persons. The question is if and to what extent the level of disposable income and also general life satisfaction is shaped by regional economic and labour market structures, national institutions, European regulations and the openness of national labour, capital and goods markets. Similar to the previous hypotheses H2-H5 which aimed at the explanation of regional patterns of inequality, the following hypotheses H2'-H5' try to explain the levels of disposable income by reference to regional, national and global scales.

Regional economic and employment structure: Previously, it has been shown that advanced services are linked to greater inequality. But it can also be expected that they are linked to higher disposable incomes due to better income opportunities in urbanized and service-oriented core regions. Even if many less demanding service activities particularly are low-paid, many service jobs for example in financial and business services are highly paid. The qualificational structure of the region will also affect income levels: the higher the share of skilled persons, the higher the income will be. The corresponding hypothesis is: Inclusive labour markets, a skilled population and a higher proportion of higher-value activities (industry, financial industry, business services, and public service) will be associated with a higher disposable income (H2').

National institutions such as a strong industrial relations system and an advanced welfare state will also contribute to higher income levels (H3').

Thirdly, in general it is assumed that the globalization and liberalization of the economy leads to higher income levels: *The opening of national economies and the stronger integration in global goods, services, capital and labour markets (as indicated by a high international mobility of persons, goods and capital) provides for a new income opportunities (H4').*

Similarly, it can be expected that that economic integration of the EU as well as the monetary integration of the euro area leads to an intensification of competition in the EU, thus contributing to higher income levels: *The supranational integration in goods, services, capital and labour markets induced also by the Common Market and the monetary union as well as the European Employment Strategy, which aims at increasing employment rates, create new income opportunities (H4').*

These four hypotheses will now be tested empirically (see table in the appendix for a summary of the expected effects). In addition, characteristics of individual households (the age of the head of household, the highest level of education, the number of children, men, employees and the proportion of retired persons and persons born abroad or with a foreign passport) are included as control variables.

Table 6: Determinants of disposable income in the EU (households; survey year 2010)

	Empty model (EU-27)	Household factors (EU-27)	Complete model (EU-27)	Revised model (EU-27)	Former member states (EU-15)	Euro area (EA17)	New member states (NMS-12)
Household-related variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age (head of household)		319.28**	328.77**	328.81**	487.94**	409.22**	15.23*
		(42.40)	(42.18)	(42.19)	(42.82)	(38.07)	(2.14)
Age (squared)		-2.57**	-2.65**	-2.65**	-4.01**	-3.29**	-0.08
		(-34.28)	(-33.99)	(-33.99)	(-34.53)	(-30.44)	(-1.10)
Highest level of education attained		3948.37**	4004.88**	4004.61**	4584.55**	4572.38**	2694.17**
		(157.50)	(154.72)	(154.73)	(126.99)	(132.81)	(105.19)
Number of children		-1224.45**	-1254.20**	-1253.98**	-1652.65**	-1460.77**	-771.30**
		(-62.16)	(-61.84)	(-61.83)	(-55.05)	(-53.06)	(-42.93)
Single parents		-25.50**	-25.50**	-25.50**	-30.41**	-30.46**	-14.59**
		(-27.96)	(-27.26)	(-27.26)	(-22.49)	(-23.52)	(-17.05)
Retired persons		35.11**	34.95**	34.95**	44.01**	45.53**	19.34**
		(43.37)	(41.64)	(41.65)	(34.66)	(38.72)	(27.02)
Foreigners		-24.03**	-23.95**	-23.96**	-25.70**	-27.79**	-7.80**
		(-33.24)	(-32.60)	(-32.62)	(-25.57)	(-29.58)	(-10.08)
Males in household		13.81**	14.44**	14.44**	17.06**	16.94**	7.95**
		(22.41)	(22.59)	(22.59)	(18.63)	(19.43)	(13.31)
Employees in household		71.73**	73.11**	73.12**	85.18**	82.67**	50.64**
		(117.36)	(116.18)	(116.18)	(93.59)	(95.71)	(87.84)
Regional labour market and economic structures							
Industrial employment			14.25				
			(0.42)				
Trade, restaurants, transport			-35.19				
			(-0.75)				
Financial and business services			239.36**	154.35**	216.77**	219.03**	165.24**
			(3.90)	(4.35)	(5.61)	(5.24)	(3.75)
Public and personal services			108.40+	88.13*	114.55**	125.69**	-75.57
			(1.85)	(2.32)	(3.00)	(3.36)	(-1.08)
Employment rate			219.85*	115.41**	123.65**	130.92**	-32.79
			(2.01)	(4.08)	(4.42)	(4.64)	(-0.73)

Female employment rate			-103.65				
			(-1.33)				
Unemployment			-26.25				
			(-0.43)				
Medium education			-0.07				
			(-0.30)				
High education			-0.36				
			(-1.19)				
National context							
Social expenditures			520.03**	590.46**	458.20*	650.96**	532.89+
			(4.78)	(6.85)	(2.51)	(8.59)	(1.66)
Union density			12.57				
			(0.55)				
Global economic integration							
Migration			101.09+	110.06*	-28.83	86.02+	110.20
			(1.81)	(2.34)	(-0.42)	(1.85)	(1.44)
Foreign direct investment			27.63**	32.19**	42.68**	30.77**	501.47
			(3.19)	(4.28)	(5.12)	(4.60)	(1.25)
Foreign trade			-0.56				
			(-0.02)				
European market integration and regulation							
EU-share of foreign trade			16.45				
			(0.33)				
Preliminary ruling			18.59				
			(0.65)				
Infringement procedures			202.29	280.49*	300.50*	168.17*	288.29
			(1.07)	(2.28)	(2.40)	(2.03)	(0.66)
Constant	14480.50**	-7193.54**	-36480.71**	-37123.42**	-39818.97**	-44583.09**	-10986.54
	(11.39)	(-5.60)	(-5.96)	(-16.03)	(-6.44)	(-18.49)	(-1.50)
Wald_chi2		63043	62084	61990	42057	43610	30981
Log-likelihood	-2194863	-2165092	-2088634	-2088638	-1351353	-1326654	-711854.2
No.	209274	209064	201382	201382	128342	126905	73040
$\psi^{(3)}$ (between-nation variance)	38800000	39400000	1895551	2576307	1136792	454719	3779918
$\psi^{(2)}$ (between-region variance)	2602826	1328010	681940	708212	577850	661127	91402

θ (residual variance)	75200000	57800000	59600000	59600000	81800000	70300000	17100000
Between-state ICC	0.33	0.40	0.03	0.04	0.01	0.01	0.18
Between-region ICC	0.36	0.41	0.04	0.05	0.02	0.02	0.18
AIC	4389734	4330210	4177328	4177317	2702746	2653348	1423748
BIC	4389775	4330344	4177635	4177521	2702941	2653543	1423932
Pseudo-R^2		0.416	0.670	0.667	0.569	0.626	0.599

+ p<0.10, * p<0.05, ** p<0.01; in parentheses: t-values. NMS: New Member States. Source: Own calculations (multi-level analysis; xtmixed) based on EU-SILC UDB 2010 and European contextual data (mostly provided by Eurostat). Between-State ICC: „Between-nation" intra-class correlation (ψ(1)/(ψ(1) + ψ(2) + θ)): Intra-class correlation for the same country, but different regions; between-region ICC „Interregional" intra-class correlation ((ψ(1) + ψ(2))/(ψ(1) + ψ(2) + θ)): Intra-class correlation for the same country and the same region

At first, the level of disposable income in the survey year 2010 is analyzed without any explanatory variables, to determine the explanatory value of the different territorial levels for the explanation of the disposable income (Table 6, column 1). The aim is to divide the total variance between the household, the regional and the national levels. The "between-nation" intra-class correlation reported in Table 5 is a measure of the variance that is attributable to the national level. It turns out that the proportion of variance which can be assigned to the differences between the EU countries is about one-third of the total variance. Two-thirds of the variance thus has national causes, i.e. they are either due to the peculiarities of the households or the region. The incomes in a country thus are much more similar than within the EU as a whole – a result, which confirms the usefulness of a multilevel analysis. By including the regional level, the proportion of the explained variance increases from 33% to 36% (2005-08), thus by about three percentage points. This "inter-regional" intra-class correlation indicates the similarity of income for different households in the same country and in the same region. The amount of disposable income thus differs both between the observed EU countries and between regions within a country. Even if the additional explanatory value of the regional level is small, it is statistically significant, as it has been tested with a likelihood ratio-test (Rabe-Hesketh and Skrondal, 2005: 226). The null hypothesis that regions do not have a significant additional effect on the income levels can therefore be rejected. The regions are therefore statistically significant, but empirically subordinate level for the explanation for the income level.

In the next step, the effects of household-related factors on the income levels are taken into account (Table 6, column 2). The results come up to the expectations: With increasing age of the head of household, the disposable income increases at first strongly, then more slowly. The higher the educational level and the proportion of men, employees and pensioners in the household are, the higher the disposable income. Single parents and families with many children or a migration background have a lower income. These effects can be observed consistently in the different subregions of the EU, i.e. in the 15 former member

states of the EU (column 5), in the Euro area (column 6) and in the 12 new member states which acceded in 2004 or 2007 to the EU (column 7).

Contrary to the expectations, the proportion of *industrial employment* at the regional level is not positively correlated with the level of disposable income – perhaps a result of the increasing role of the service sector which reduces the income benefits of industrial regions. Likewise, the share of employees in trade, transportation and restaurants has no income effect. A higher proportion of *employees in business and financial services and public and personal services* are associated with significantly higher household incomes (with the exception of the new member states). This can be interpreted as the result of excellent income opportunities in wealthy service regions. As expected on the basis of Kenworthy (2004), a higher regional *employment rate* is associated with a higher disposable income (with the exception of the 12 new EU member states). The additional employment of household members thus increases household incomes. Since such an increase is mainly the result of a higher labour force participation of women, which might explain that a higher female employment rate does not have an additional significant effect. Contrary to expectations, the influence of the *qualificational level* on the disposable income has no significant effect – at least not when the employment share of employees in business and financial services and public services is taken into account. The aspects of hypothesis H2' which refer to the role of the service sector and the employment rate thus can be confirmed.

Among the *national institutions*, only the share of social expenditures has a positive impact on household income, which supports the thesis of Garrett and Mitchell (2001) that welfare benefits have a compensatory function as expected by (H3'). Union density does not have a direct influence on the income level.

Two indicators for a *greater openness of national goods, capital and labour markets* have a significant positive impact on the level of disposable income. High immigration and high level of foreign direct investments – but not high export and import ratios - are positively correlated with income - an indication of the better allocation of resources linked with FDI and migration. However, the significant positive effect of migration can be observed mostly in the Euro area, but not in the former and the new member states. It can be stated that in particular the free movement of capital is positively associated with higher income levels (H4').

Surprisingly, a high share of imports from and exports to other EU countries is not associated with a positive income effect. It is possible that a strong concentration of foreign trade on the EU is a defensive strategy, which is more important for example for the Czech Republic, Slovakia and Austria than for Germany and Sweden. The legal integration of the EU has no clear impact on the household income: It is not significant both for the number of preliminary rulings and infringement procedures, but positive for the latter one in all subregions of the EU. The hypothesis H5' therefore has to be rejected.

In comparison with the model in column (2) which includes only household-related factors, the non-explained variance of the model in column (4) at the national level is reduced by 93.5% (from 39.4 million to 2.6 million), at the regional level by 46.7%. The model (4)

explains a significant share of intra-and inter-state income differences in the EU. The level of the disposable income thus is determined not only by household-related factors, but also by national institutions and national and regional economic and labour market structures.

In conclusion: Especially the regional labour market and economic structures have a significant impact on the income level as expected by the third hypothesis: A higher employment rate and a higher proportion of more sophisticated services, but also an advanced welfare state and high levels of foreign direct investment are associated with a higher income. However, the proportion of variance explained, which is additionally explained by the regional level, is rather low (4%; Table 6, column 4). As previously stated, the proportion of between-nation variance is considerably higher (33%). This indicates that also the regional and "market integration" indicators are shaped mostly by national factors and decisions (an indication of the interaction between different territorial dimensions). Even if the indicators for the European integration process do not have a clear additional impact on the income level, it can be retained that especially the movement of capital, but also the movement of people has a positive impact on the income level.

Last but not least, it will be discussed how regional inequalities influence the human well-being of the population. The question is if and to what extent individual living conditions are shaped not only be individual circumstances but also by regional and national patterns of inequality. Our hypothesis is that besides the standard set of socio-demographic control variables a) also the regional level shapes the life satisfaction of the Europeans and b) that this influence can be explained by the inequality of the living conditions (H6). This hypothesis focuses on the link between the subjective well-being and the previously discussed objective patterns of income inequality.

In order to test this hypothesis, the fourth wave of the European Value Study will be used which has been conducted in 2008/09 in 47 European countries respective regions. In the following, only the 40,465 interviews which were conducted in the 27 EU member states will be analysed. As usual in the field of happiness studies (cf. Delhey 2010), we use as dependent variable life satisfaction (“How satisfied are you with your life?”) measured on a 1-to-10 response scale from “dissatisfied” (1) to “satisfied” (10). Similar to Delhey (2010), we use as independent variables at the individual level gender, age, age squared, education, income, and self-rated health. Biological sex is measured in the European Value Study in v302. Female sex has been coded as 2 and male sex as 1. The variable age measures biological age in years. Household income is provided as the (logarithmic) value of the monthly household income in Euros (corrected for purchasing power parity), the educational level of the respondent is classified according to the one digit ISCED scale, the self-rated health is measured by a (recoded) 1-to-5 response scale from “very good” (5) to “very poor” (1). By taking into account the NUTS2-region where the interview was conducted, these data at the individual level could be linked with the previously discussed regional and national indicators for income and labour market inequality.

The results of the corresponding multi-level models are summarized in Table 7. The first model analyses the structure of life satisfaction in the EU-27 without explanatory

variables (column 1). The between-nation variance amounts to 6.9% of the total variance. By taking into account the NUTS2-region where the interview was conducted, the "between-region" heterogeneity of life satisfaction is taken into account. The estimated intra-class correlation between life satisfaction in different regions of the same country is 2.5 percentage points higher. Therefore, to some extent, regions shape also the subjective well-being of the Europeans – even if more than 90 % of the life satisfaction is still shaped by individual circumstances.

In the next model, 44 % of life satisfaction is explained by age, sex, income, educational level and health (column 2): Younger persons are in general more satisfied than older ones – with a particular rock-bottom in the middle of the life; women are more satisfied than men; persons with a higher education and a higher income are happier than other persons. And the strongest influence on well-being has the subjective perception of one's state of health.

Table 7: Individual and contextual factors influencing general life satisfaction in EU countries (2008-09)

General life satisfaction	Empty model	Individual model	Individual and contextual factors
Age (respondent)		-0.019**	-0.019**
		(-5.346)	(-5.364)
Age (squared)		0.000**	0.000**
		(8.827)	(8.833)
Sex (f=2; m=1)		0.118**	0.118**
		(5.333)	(5.334)
Monthly household income (PPP)		0.416**	0.413**
		(25.420)	(25.242)
Educational level (ISCED)		0.033**	0.034**
		(3.574)	(3.584)
Health status		0.810**	0.809**
		(59.469)	(59.385)
Regional employment rate			-0.019**
			(-2.639)
Regional employment rate			-0.073**
			(-5.497)
Union density			0.010**
			(3.006)
Constant	7.206**	3.931**	5.395**
	(61.797)	(29.546)	(9.569)

Wald_chi^2	.	5500	5568
Log-likelihood	-86488.28	-64109.09	-64090.25
No.	40215	30951	30951
ψ(3) (between-nation variance)	0.328	0.106	0.082
ψ(2) (between-region variance)	0.118	0.098	0.074
θ (residual variance)	4.280	3.650	3.650
„Between-State“ Intra-Class Correlation	0.069	0.028	0.021
„Between-region“ Intra-Class Correlation	0.094	0.053	0.041
AIC	172985	128238	128207
BIC	173019	128322	128315
Pseudo-R^2	-	0.4395	0.4502

+ p<0,10, * p<0,05, ** p<0,01. In parenthesis: t-values

Source: Own calculations based on the regional data provided by Eurostat and EVS (2011): European Values Study 2008, 4th wave, Integrated Dataset. GESIS Data Archive, Cologne, Germany, ZA4800 Data File Version 3.0.0 (2011-11-20).

In the next step, the correlation of numerous regional and national indicators with life satisfaction has been tested. Most of these variables had no significant effect: Neither regional nor national inequality, poverty or deprivation or the educational level of the population or the industrial structure of the region or the level of social expenditures had any significant impact of subjective well-being impact. This does not mean that contextual factors can be neglected. But to a large extent, they are taken into consideration at the individual level: Individual income for example has a highly significant effect on life satisfaction – and this income is (as previously shown) strongly influenced by the national and regional context. Only three of the previously discussed indicators have a significant effect: The regional employment and unemployment rates have a negative effect on life satisfaction and the national union density a positive one. The strongest effect was the effect of the unemployment rate which can be explained not only by the general fear of unemployment, but also by the specific situation in 2008/09 – in the middle of a deep financial and banking crisis which led to a sharp decline of industrial production. This particular situation might explain also the strong role assigned to unions, because it highlighted the vulnerability of many wage earners. The negative influence of a high employment rate on individual life satisfaction is somewhat surprising and might indicate high work pressure and stress which reduces life satisfaction – at least when individual income is taken as a constant. As always when microdata are used, the additional explanatory value of these contextual indicators is however very limited: The explained variance increases only 1 percentage point.

In sum: Regional labour market and economic structures have a significant impact not only on the patterns of regional inequality, but also on the disposable income of the European households: A higher employment rate, a higher proportion of industrial jobs, more

sophisticated services and also more migrants and advanced welfare provisions are associated with a higher income. Subjective well-being can be explained mostly by the individual living situation of the respondent, mainly by his or her age, sex, income, education and health. Most of the influence of the regional and national level on life satisfaction is indirect, mediated by these variables. However, some direct effects of the employment and unemployment rates and the union density on life satisfaction can be observed.

6. Summary and Outlook

The methodological nationalism of inequality research assumes that the social relations and institutional structures that shape the distribution of living and income opportunities can be analyzed mostly within the boundaries of a nation-state. This assumption is challenges by supranational regulations, by the Europeanisation and globalisation of markets and by the regional differentiation of national economies and social relations. A key challenge for the sociology of social inequality is thus the investigation of multiple spatial references (*scales*).

As a contribution to such an inequality research, which takes into account the various scales on which income inequalities are generated, regulated and articulated, we have at first analyzed the development of within- and between-nation inequality. Both on the basis of the regional average incomes and for the equivalised disposable income of European households, it has been shown that economic and income inequality between EU member states is strongly declining, while within-state income inequality however is increasing in most of the EU countries. This shows that inequality is not only shaped by national institutions, but to a large extent also by European processes of convergence and subnational processes of differentiation.

In the following, it has been analysed in detail how regional, national and supranational scales shape regional and national patterns of income inequality in Europe and disposable income levels. We discussed especially the importance of (1) regional economic and labour market structures, (2) national institutions, (3) global and European market integration processes, and (4) European regulations.

First, selected aspects of regional economic and labour market structures (in particular a high level of employment, and higher shares of employment in industry and in business-related and financial services) have a positive impact on the income level. A high proportion of industrial workers is particularly important for egalitarian income structures.

Secondly, despite the criticism of the methodological nationalism the national level is particularly important for the income level and its distribution. Through a multilevel analysis of individual and household-related income data, we are able to show that the level of disposable income in the enlarged EU is still strongly influenced by national factors. Especially important in this respect are welfare policies, market integration and national policies shaping regional economic and labour market structures. The welfare state, the qualificational level of the population, the proportion of industrial employees and partially also the trade unions, i.e.

the traditional institutions of an industrial society, play an essential role for the equalization of income structures.

Thirdly, the global processes of economic integration which are particularly intense in Europe influence the level, but not the unequal distribution of disposable income. In particular, the increasing cross-border mobility of people and foreign direct investments are associated with higher incomes.

Fourthly, the European integration processes (for example the legal integration) does not promote more egalitarian income structures. The amount of disposable income is not directly shaped by EU policies.

Income inequality can therefore not be analyzed solely in the national context. Rather, they are generated and regulated in a regional-national-European and global multi-level system. Each of these levels contributes to the generation and regulation of social inequalities: The regional level is important for the analysis of the sectoral structure and labour market structures which influence the level and unequal distribution of disposable income. At the national level, decisions on market integration and on wage bargaining, education and redistributive policies shape the income levels and patterns of inequality. Economic integration processes in Europe and the world lead to increased competition. This does not have a significant influence on patterns of inequality, because until now national institutions can effectively compensate and regulate the effects of economic globalization. The European level contributes partially to the harmonization and regulation of inequality dynamics. In place of a homogeneous national space, in the socio-cultural, economic, political and geographical boundaries are largely congruent, social inequality thus is increasingly shaped in on the one hand more regionalized, on the other hand, transnational social spaces. At the subjective level of individual life satisfaction this is not yet taken into account – even if a clear effect of high employment and low unemployment rates and a high union density on life satisfaction can be shown. A key challenge for the sociology of social inequality is therefore the investigation of multiple territorial frames of reference. This paper is written as a contribution to such a perspective. However, in the future also other dimensions of inequality besides income (deprivation, employment, education, health, accommodation, participaton …) should be discussed in such a multiscalar perspective.

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Appendix table A1: Explained and explaining variables. Definitions, data sources and expected and observed effects

Variables	Definitions	Expected Effects		Observed effects	
		Level	Ine-qual-ity	Level	Inequ ality
Disposable income (in PPP)	Equalized income per household, calculated on the basis of the new OECD-scale of equivalence in purchase power parity (PPP)				
Gini (in %)	Inequality of disposable household income per equivalent adult (in %)				
Decile ratio (D9/D1)	Inequality of disposable equalized income measured by the ratio of the lowest value of the richest tenth of the population to that of the highest value of the lowest tenth				
Decile ratio (D5/D1)	Inequality of disposable equalized income measured by the ratio of the median income of the population to that of the lowest decile				
Poverty rate	Percentage of people with an equivalised disposable income below 60% of the national median equivalised disposable income				
Household-related variables					
Age (head of household)	Age of the person responsible for the accommodation (Variable HB080)	+		+	
Highest level of education attained	Education of household member with the highest qualification(3: high (ISCED 5-6); 2: medium (ISCED 3-4); 1: low (ISCED 0-2))	+		+	
Number of children	Number of household members living together at least with one parent and which are younger than 18 years or between 18-24 years and economically dependent	-		-	
Single parents (%)	Single adults living together with at least one dependent child; yes: 1; no: 0)	-		-	
Retired persons (%)	Number of household members older than 64 years or receiving (early) retirement benefits (in % of all adults in the household)	+		+	
Foreigner (%)	Number of adult household members with a foreign nationality or born abroad (in % of all adults)	-		-	
Males in household (%)	Number of adult males in the household (in % of all adults)	+		+	
Employees in household (%)	Number of employees in household (in % of all adults)	+		+	
Regional labour market and economic structures					
Gross domestic product (log.)	Market value of all final goods and services produced within a region or country in a given period (per capita, in purchase power parity) (log.)		-		(-)
Industrial employment (%)	Employment share (percent of total employment) in industry (NACE C-F)	+	-	0	-
Trade, restaurants, transport (in %)	Employment share (percent of total employment) in wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; hotels and restaurants; transport, storage and communication (NACE G-I)	0		0	

Financial and business services (in %)	Employment share (percent of total employment) in financial intermediation; real estate, renting and business activities (NACE J-K)	+	+	+	(+)
Public and personal services (in %)	Employment share (percent of total employment) in public administration and defence, compulsory social security; education; health and social work; other community, social and personal service activities; private households with employed persons (NACE L-P)	+		+	
Employment rate (%)	Proportion of number of employed persons to the population aged 15 to 64	+		+	
Female employment rate (%)	Proportion of number of employed women to the female population aged 15 to 64	+	-	0	-
Unemployment rate	Number of people unemployed as a percentage of the labour force. The labour force is the total number of people employed plus unemployed	-	-	0	-
Medium education (in %)	Population aged 15 and over having completed upper secondary and post-secondary non-tertiary education – ISCED levels 3-4 (in % of the economically active population 15 years and over)	+	-	0	0
High education (%)	Population aged 15 and over having completed a tertiary education – ISCED levels 5-6 (in % of the economically active population 15 years and over)	+	+	0	0
National context					
Social expenditures (%)	Social benefits and social transfers in kind in percent of the market income	+	-	+	-
Union density (%)	Share of dependent employed who are members of a trade union (Visser et al. 2009)	+	-	0	-
European market integration and regulation					
EU-share of foreign trade	Share of other EU countries in the exports and imports of the respective country (%)	+	+	0	0
Preliminary ruling	Preliminary ruling (Art. 267 TFEU; ex-Art. 234 EG; ex-Art. 177) (per year per country)	+		0	
Infringement proceedings	Infringement proceedings (Art. 258 TFEU) (per year per country)	+		(+)	
Structural and cohesion policy	Allocation to structural and cohesion funds (2007-2013 by NUTS2-region; in % of regional GDP)		-		0
Global economic integration					
Migration	Average number of emigration and immigration (per 1,000 inhabitants)	+	+	+	0
Foreign direct investments (%)	Average value of direct investment inflows and outflows in percentage of the GDP	+	+	+	0
Foreign trade	Imports and exports of goods and services in percentage of the GDP	+	+	0	0

Sources: EU-SILC; Eurostat-data bases for regional and national data (http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes); European Court of Justice, Annual report 2011). Expected and observed effects on the income levels and the patterns of income inequality: +: positive correlation; -: negative correlation; 0: no significant relationship.