

# **Luxembourg Income Study Working Paper Series**

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## **Welfare Regimes and Structures of Inequality: A Comparative Fuzzy Set Analysis of 23 Countries**

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# **Welfare regimes and structures of inequality.**

## **A comparative fuzzy set analysis**

### **of 23 countries<sup>1</sup>**

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**Abstract:** Welfare states influence the social structure of societies as well as inequalities in various ways. The paper presented here discusses whether specific structures of inequality can be identified in different welfare regimes, i.e. whether specific population groups (elderly, unemployed, single parents and extended families) are affected by inequality in different degrees compared to the total population. Data of the Luxembourg Income Study (LIS) from the years 1990 to 2004 are used to perform a fuzzy-set-analysis for 23 countries. The hypothesis developed in the beginning can only be supported to some extent: A clear relation between welfare regimes and structures of inequality cannot be identified. One reason for this may be the increasing convergence of real-life welfare regimes, which complicates an empirically based discrimination and classification of countries into ideal types as well as an analysis of regime-specific influences on structures of inequality.

**Keywords:** welfare regimes, social inequality, fuzzy-set-analysis

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<sup>1</sup> Short version of the German paper „Wohlfahrtsregime und Ungleichheitsstrukturen. Eine Fuzzy-Set-Analyse zum Einfluss von Wohlfahrtsregimen auf Strukturen sozialer Ungleichheit“

# **C o n t e n t**

1. Introduction	3
2. Theoretical framework: Stratification as an element of welfare states	3
3. Research question and hypothesis	6
4. Existing research	7
5. Research design	13
6. Results	19
7. Conclusion	27
Literature	29
Appendix	33

## **1. INTRODUCTION**

Welfare states influence the social structure of societies and social inequalities in various ways (Lessenich 1994). But how do they do this and how are structures of inequality shaped in modern welfare states? Those are questions that are only insufficiently answered - especially when specific influences of different welfare regimes on structures of inequality are in focus. But which groups in society are underprivileged compared to the total population, and to which degree they are underprivileged is also the result of the different arrangement of welfare regimes.

The paper presented here wants to contribute to answering these questions by performing a fuzzy set analysis. The goal is to identify an empirical relation between different welfare regimes and specific structures of inequality. The analysis is based on data collected by the Luxembourg Income Study (LIS) database<sup>2</sup>, including 23 countries and four waves from 1990 to 2004.

Chapter 2 provides the theoretical framework and deals with stratification as an element of welfare states. It is followed by Chapter 3, which presents the research question and hypothesis, and Chapter 4, dealing with existing research on social inequality and welfare regime typologies. Chapter 5 shows a brief overview of the research design and is followed by Chapter 6, presenting the results of the analysis. The conclusion provides a résumé and shows possible subsequent research projects.

## **2. THEORETICAL FRAMEWORK: STRATIFICATION AS AN ELEMENT OF WELFARE STATES**

### *Stratification through the employment system*

The employment system still is the central core of societal organization and individual biographies in modern, functionally differentiated societies. In spite of diversification and flexibilization of paid work, the continuing long-term unemployment and alternative biographies beyond employment, the employment system still is of major importance for structuring societies (Lessenich 1994). Most people spent a long and important phase of their adult life being part of the employment system, which plays a major role in integrating people objectively and subjectively, directly and indirectly (Kronauer / Vogel / Gerlach 1993: 23). Success

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<sup>2</sup> Luxembourg Income Study (LIS) Database, <http://www.lisproject.org/techdoc.htm> (multiple countries; accessed from May 2010 to December 2010)

and failure in the employment system have a crucial impact on individual biographies and opportunities in life. The ones who don't succeed in the employment system become social outsiders burdening the society (Offe 1984: 8). Paid work not only has a central function for integrating the society, it is also the main evidence for economic and social integration for every individual and nearly the only social security (König 2002).

The benchmark for success in the employment system is set by the 'Normalarbeitsverhältnis'<sup>3</sup> - describing an unlimited full-time employment - which functions as a normative obligation for individuals and becomes even more important in times when work biographies become more diverse (Bonß 2002: 69; Pühr 2009: 27).

Exclusion from employment is one central element in the debate on social exclusion. For Berghman, exclusion from employment is one basic dimension of the exclusion from social participation (Berghman 1995: 90, in Mohr 2007: 28). Reißig identifies marginalization in and exclusion from the employment system as the core of the debate on social exclusion (Reißig 2010: 9). But a regular work biography with lifelong full-time employment can only be achieved by a decreasing number of individuals (id.), the idea that everybody can build their life upon paid work has become anachronistic (Engler 2005: 113, in Pühr 2009: 86). A growing number of individuals fails in the employment system and thus is vulnerable to poverty and social exclusion.

Participation in the employment system is of major importance for individuals. The ones who fail must fear social decline and exclusion, since paid work is the 'axis of life' (Beck 1986: 220, in Arnold 2001: 74) around which social integration, identification, recognition, participation and livelihood circulate. Thus, the employment system plays a major role in structuring social inequalities and the social structure of societies.

This being the case, one must ask how the employment system is and can be influenced by politics. The following paragraph discusses the influence of welfare states on the employment system, because the organization of the employment system is in fact considerably regulated through welfare states - and so are social inequalities.

#### *The regulation of the employment system in welfare states*

According to Lessenich, welfare state regulation is directed towards the employment system, and social security systems are attached to it or oriented towards it (Kohli 1989: 253, in Lessenich 1994: 224; Lessenich 1994: 225). This refers to functional models that explain

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<sup>3</sup> Cf. Bonß 2002.

social and welfare state policies by changes in the employment system and the ways of life in the course of industrialization and urbanization (Schmid 2002: 72). Esping-Andersen refers to the 'logic of industrialization'-perspective: "[...] the welfare state will emerge as the modern industrial economy destroys traditional social institutions" (1990: 13).

The development of capitalism creates the foundations for the formation of welfare states, which try - at least initially - to preserve social security as antipodes of the market. In this process the allocation principals of the employment system are mirrored - though modified - in the structural principals of state-run social security systems (Heinze et al. 1981: 220).

But welfare states not only act as a social security net. They have to be seen in a wider context - as welfare regimes<sup>4</sup>. Along with the construction of modern welfare states, their portfolio of tasks and duties increases, with differences between nations. Alongside the market and the welfare state, the family enters the 'welfare triangle', new stakeholders emerge and derived rights supplement welfare state policies next to the compensation of market failure. "Welfare regimes represent different ways of organizing not only the transfer sector, represented by social welfare policy, but also the productive sector of the capitalist economy." (Goodin et al. 1999: 5).

But welfare state policy not only encompasses the 'transfer-oriented welfare-state', but also the regulation of the socio-economic macro-constellation. "[The welfare state] is an active force in the ordering of social relations." (Esping-Andersen 1990: 23). In combination with market and family, welfare states form a 'triangle of welfare management', as Esping-Andersen states: "The welfare state is one among three sources of managing social risks, the other two being family and market." (Esping-Andersen 1990: 33). Hence, different welfare regimes may be distinguished through different arrangements of this triangle.

The core task of welfare states, the protection from a loss of paid work and income, too, covers more than simple transfer payments and social benefits. Kaufmann discriminates three institutional and problem complexes: 1. social policy in the productive sector (the regulation of employer-employee relationships), 2. social policy in the allocation sector (guaranteeing social security in case of a loss of income; the establishment of a system of 'secondary income allocation' financed by taxes and contributions), and 3. social policy in the reproductive sector (guaranteeing free or subsidized services and non-cash benefits, especially education, medical services and care) (Kaufmann 2003: 47-49).

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<sup>4</sup> "Regimes" refers to the ways in which welfare production is allocated between state, market, and households" (Esping-Andersen 1999: 73, cf. id.: 32-40 and id.: 1990: 2).

Welfare state policies are not limited to providing a complementary social security net for those who fall out of the employment system, they also include an a priori regulation of the employment system as well as state financed or subsidized services independent from the employment system. Thus, next to compensating inequalities resulting from unequal work incomes, welfare states contribute to the formation and structuring of inequalities by regulating the employment system and by exerting an independent stratifying influence (Lessenich 1994: 229; cf. Esping-Andersen 1990: 55-78). In the words of Esping-Andersen, the welfare state is “in its own right, a system of stratification” (1990: 23) and may pursue different aims, for example equality or the preservation of existing status distinctions.

Therefore, welfare states play a central role in allocating life chances and opportunities. Besides their stratifying influence, welfare states decide - via the regulation and the organization of the employment system - who can succeed in the employment system and which consequences one has to face in case of falling out of it (Lessenich 1994: 225).

So far it became clear that firstly: The employment system is of fundamental importance for social inclusion, for individual life chances and opportunities, for recognition, identification and economic and social security. Thus, it also plays a major role in the formation and structuring of inequalities. Secondly, it became clear that welfare states not only compensate inequalities originating from market failure, but that they also contribute to the formation and structuring of inequalities by regulating and organizing the employment system and by exerting a stratifying influence on social structure.

Based on these findings the following chapter presents the research question and hypothesis of the paper.

### **3. RESEARCH QUESTION AND HYPOTHESIS**

Following the findings presented so far, the central *research question* of this paper is *whether specific structures of social inequality can be identified in different welfare regimes*. The central *hypothesis* claims that exactly this is the case: *Welfare regimes influence the social structure of societies in a specific way and lead to the development of specific structures of social inequality*. This influence is exercised 1.) ex ante via the regulation and organization of the employment system, 2.) ex post via the compensation of inequalities resulting from market failure and 3.) via a stratifying influence of welfare regimes. In the words of Esping-Andersen: “If all welfare states participate in the process of social stratification, they do so differently” (Esping-Andersen 1990: 69). The

hypothesis presented here will be specified in chapter 5, where the research design is described. Beforehand, some remarks on existing research shall be made.

#### **4. EXISTING RESEARCH**

The following chapter presents existing research, firstly on social inequality, secondly on welfare regime typologies.

##### *Social Inequality*

Social inequality is a typical topic in sociology and social research. Empirical as well as theoretical work exists in great numbers, an exhaustive overview can't be given here<sup>5</sup>. Instead, the aim is to link social inequality to welfare state typologies and to systematically analyze the relation between both.

Even if one looks at empirical works solely, there is a great deal of literature dealing with social inequality. At first sight, it seems that inequalities have been discussed in greatest detail, reaching from numerous national and international comparative studies, work focusing on particular dimensions of inequality like education, income or wealth, or on poverty risk groups like elderly, children or immigrants, to studies discussing methodological aspects of social inequality research<sup>6</sup>. Besides the fact, that there is no scientific consensus on causes and developments of social inequality, there is a fundamental agreement on three points: 1.) there is a new 'horizontal' diversification of inequality that modifies structures of inequality in post-industrial societies, 2.) vertical inequalities persist and are still of great importance for the allocation of life chances and opportunities, which results especially from the centrality of the employment system and its unequal allocation of incomes, and 3.) national institutions like welfare states influence structures of inequality in specific ways (Mau / Verwiebe 2009: 177-178).

But viewing existing research on social inequality does not only show a huge amount of work dealing with various aspects, it also shows a lack of 'integrated' approaches that do not only concentrate on particular issues of social inequality, but try to combine more aspects of inequality and analyze them in a systematic and integrated way. Surely, there are lots of articles, books and volumes that deal with more than just one aspect of social inequality, but this usually happens in a chapterwise discussion of the particular aspects, but not in the attempt to

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<sup>5</sup> For theories and central works on social inequality cf.: Hradil 2001, Burzan 2007 and Müller / Schmid 2003.

<sup>6</sup> Cf. i.a.: studies dealing with single countries: Hradil 2001, Ferge, Clarke and Lindqvist (all in Gordon / Townsend 2000), comparative works: Hradil 2006, Mau / Verwiebe 2009 and Berthoud 2004, methodological works: Kohl 1992, Gordon / Townsend 2000, Andrefß 1998, Coulter 1989 and Krämer 2000, studies on particular poverty risk groups and dimensions of inequality: Barnes et al. 2002.



analyze and explain structures of inequality in an integrated, systematic approach. As stated above, there is a consensus on welfare state influences on social structure, nevertheless there is simultaneously a lack of knowledge on the relations between different welfare regimes and structures of inequality.

With the aid of a fuzzy set analysis, the paper presented here tries to contribute to filling this research gap. Before the research design is presented in detail in chapter 5, the following paragraphs deal with different welfare state typologies and existing research on the relations between different welfare regimes and social inequality.

### *Typologies of welfare regimes*

Literature on welfare state typologies is very extensive<sup>7</sup>, Schmid even calls comparative welfare state research an “academic growth sector” (2002: 69). Following Schubert, Hegelich and Bazant, important current research topics are 1.) the development of categories and clusters of welfare states, 2.) the analysis of deconstruction processes and 3.) the question of convergence or path dependency of welfare states (2008: 14-19). The following paragraph presents an extended version of Esping-Andersen’s *Three worlds of welfare capitalism*. Other typologies, e.g. the discrimination between the Bismarck- and the Beveridge-model of welfare or between productive and protective welfare cannot be discussed here<sup>8</sup>.

Esping-Andersen’s *Three Worlds* mark a cut in comparative welfare state research and are still dominant in scientific debates. Ullrich views the success of Esping-Andersen’s typology as a turning point in comparative research, according to Kohl it is a milestone (Ullrich 2005: 43; Kohl 1993: 67). Schubert, Hegelich and Bazant as well as Schmid classify Esping-Andersen’s work, that has been broadly discussed and cited, as outstanding and influential (Schubert / Hegelich / Bazant: 2008: 13; Schmid 2002: 82). The theoretical relevance of Esping-Andersen’s typology becomes apparent especially by viewing the variety of criticism and extensions that have been made to the *Three Worlds* (cf. i.a. Arts / Gelissen 2002; Bamba 2006; Kohl 1993 and Ullrich 2005). The following paragraphs present the core elements of Esping-Andersen’s welfare regime typology and add another fourth welfare regime type<sup>9</sup>.

As Esping-Andersen’s title suggests, he distinguishes between three *ideal* types of welfare regimes: a liberal, a social democratic and a conservative one. Compared to former ty-

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<sup>7</sup> Cf. i.a. for current comparative welfare state research: Schubert / Hegelich / Bazant (2008) and Schmid (2002).

<sup>8</sup> Cf. i.a.: Hegelich / Mayer 2008, Schmid 2002, Schmidt et al. 2007, Clarke / Langan / Williams 2001, Mitton 2008, Dingeldey 2006, Kuhnle 2002, Kim 2003, Priddat 2003, Arts / Gelissen 2002.

<sup>9</sup> If no other sources are cited, the paragraph is based on Esping-Andersen 1990, 1998 and 1999, Kohl 1993, Ullrich 2005: 43-49 and Schmid 2002: 82-92.

pologies, Esping-Andersen uses a more complex explanatory model and combines the power resources approach with structuralist and institutionalist approaches and similarly refers to political-ideological orientations and path dependencies. Each of the ideal types follows a distinct historic development path that leads to different arrangements of the welfare triangle between state, market and family. Esping-Andersen uses three dimensions to conceptualize the ideal types: de-commodification, stratification and the relation between state, market and family. These dimensions are measured with several indicators and constitute the three welfare regimes in their specific combination.

1) The *liberal welfare regime* shows a high degree of universalism, whereas social benefits and income replacement rates are low, means-tested and stigmatizing. The model follows traditional liberal work ethics, is minimally de-commodifying and produces - although fighting absolute poverty - equality in relative poverty. It fosters a market oriented differentiation of welfare and leads towards a dualism between market participants and the excluded. The range of welfare state activity is limited, the market is supported through state passivity and tax benefits. Factually, families have to function as a social safety net, although they are not in the center of welfare state policies, neither normatively nor factually.

2.) The *social democratic ideal type* aims - in contrast to the liberal one - to reach equality on the highest possible level. A high degree of universalism, combined with high income replacement rates, extensive social rights and a huge range of welfare state activity leads to a maximum in de-commodification. The state promotes emancipatory ideals and the maximization of individual liberty through a socialization of familial costs and the crowding out of the market. A high degree of reallocation of wealth contributes to the reduction of inequalities and a high public expenditure quota.

3.) In the *conservative ideal type*, the state acts basically subsidiary to the market and reproduces the market logic in its own systems of social security. The regime type is oriented at the working citizen and social insurance model and grants benefits dependent on the (former) employment status and income and perpetuates existing class and status divisions. Hence, redistributive effects are low. The strong position of the (catholic) church leads towards a normative dominance of traditional family models, families become the normative and factual core of welfare production and social security, whereas they are only partly supported by the welfare state.

As mentioned above, Esping-Andersen's typology has not only been widely discussed and cited, it has also been subject of a variety of criticism (cf. Arts / Gelissen 2002, Kohl 1993, Schmid 2002, Esping-Andersen 1999). Several authors have extended the *Three Worlds* by a

fourth regime type (cf. Arts / Gelissen 2002). The paper at hand, too, includes a fourth rudimentary regime type.

4.) Besides the liberal, social democratic and conservative *ideal* types, a fourth *rudimentary real type* is included, which is characterized as a catching-up welfare state with a low degree of universalism, low social benefits and a narrow range of welfare state activity<sup>10</sup>. Because of the dominance of traditional values and the (catholic) church the family is in the center of the welfare triangle. A dualism between market and state exists and the development of state-run social security systems is accompanied by a state-promoted growth of private insurance systems and a functional detachment of social policy and labor policy.

The classification of the mediterranean or rudimentary model of welfare as an *ideal* type with its particular historic development path and a distinct logic of welfare production has been widely discussed and also criticized (Arts / Gelissen 2002, Kohl 1993, Gal 2010, Lessenich 1994, Ferrera 1996). Because the author agrees with this criticism, the fourth welfare regime is defined not as an *ideal* type but as a rudimentary *real* type. It covers a range of southern European countries like Spain, Portugal and Greece as well as eastern European countries like Poland, the Czech Republic or Slovenia, that can be characterized as catching-up welfare states. Even if these countries orient themselves towards one of Esping-Andersen's ideal types, the real implementation in the form of welfare state institutions is only partly achieved. Since the differences between socio-political ideas of social order and their real implementation are greater than in other countries, the inclusion of the rudimentary real type in the typology used in this paper seems appropriate.

Table 1 (p. 11) gives a brief overview of the four types of welfare regimes and the dimensions that are used to discriminate them. It also shows the classification of countries according to Esping-Andersen's original analysis (based on data around the year 1980) and a re-analysis conducted by Scruggs / Allan (based on data around the year 2000). These classifications show the similarities between ideal types and existing countries, but they do not put ideal types and real welfare regimes on one level. As Esping-Andersen states, each country has to be seen as a *mixed case* (Esping-Andersen 1990: 49). Furthermore, the inclusion of two points of time demonstrates the variance and changes in real world welfare regimes.

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<sup>10</sup> The characterization of the fourth rudimentary real type is based on Lessenich 1994. Cf. for further literature on the rudimentary / mediterranean model of welfare: i.a. Ferrera 1996, Gal 2010.

<b>Table 1: welfare regimes and structures of inequality</b>				
<i>dimensions and indicators</i>	<i>ideal types (Esping-Andersen)</i>			<i>rudimental real type (Lessenich)</i>
	<i>liberal</i>	<i>social democratic</i>	<i>conservative</i>	
<i>universalism</i>	high (citizenship model)	high (citizenship model)	low (working citizen model)	low, catching up
<i>income replacement</i>	low (means-tested minimal benefits)	high (equality on the highest level)	medium (tied to work and status)	low, catching up
<i>range of welfare state activity / social rights</i>	small	big	medium	low, catching up
<i>corporatism / etatism</i>	weak	weak	strong	strong, falling
<i>importance of market</i>	big	low	medium	medium
<i>importance of state</i>	low	big	medium	medium
<i>importance of family</i>	normatively low / factually high	normatively and factually low	normatively and factually high	normatively and factually high
<i>relation state - market - family</i>	states promotes market dominance	state crowds out market and family	subsidiarity, state crowds out market, but inherits market principles	dualism in social security between market and state, high importance of the family
<i>classification of countries</i>				
<i>Esping-Andersen</i>	USA, CH, CA, AUS, JP	SE, NO, FI, NL, DK	DE, AT, FR, IT	-
<i>Scruggs / Allan</i>	USA, CH, AUS, JP, CA, DK	SE, NO, IE, BE, UK, CA, DK	AT, FR, FI	-
<i>Lessenich</i>	-	-	-	PO, GR, ES
<i>theoretical degrees of discrimination of four poverty risk groups (cf. chapter 5)</i>				
<i>elderly</i>	high	low	rather low	rather high
<i>unemployed</i>	high	low	medium	rather high
<i>extended families</i>	high	low	medium	high
<i>single parents</i>	high	low	rather high	high
<p><b>Annotations:</b> italic = assignment to two welfare regime types. Countries, that can't be clearly assigned to one regime type: 1) Esping-Andersen: BE, IE, NZ, UK; 2) Scruggs / Allan: DE, IT, NL, NZ.</p> <p><b>Abbreviations:</b> AT = Austria, AUS = Australia, BE = Belgium, CA = Canada, CH = Switzerland, DE = Germany, DK = Denmark, ES = Spain, GR = Greece, FI = Finland, FR = France, IE = Ireland, IT = Italy, JP = Japan, NL = Netherlands, NO = Norway, NZ = New Zealand, PO = Portugal, SE = Sweden, UK = United Kingdom, USA = United States of America</p> <p><b>Literature:</b> Indicators and dimensions based on Esping-Andersen 1990, 1998 and 1999, Kohl 1993 and Lessenich 1994. Classification of countries based on Esping-Andersen 1990: 74 (corrections by Obinger / Wagschal 1998: 119), Scruggs / Allan 2008: 662, Lessenich 1994.</p>				

*Social inequality in different welfare regimes*

It has already been mentioned that there is a great number of publications dealing with social inequality or (comparative) welfare state research. At the same time, there is a lack of studies combining both aspects in an integrated and systematic approach. The following paragraph presents two works that try to combine both aspects.

In an article published in 2009, Castles analyzes the influence of specific social welfare expenditures on poverty and inequality. The analysis is based on the assumption that program-specific expenditures may have different influences on inequality and the results of redistribution. Castles' results show that there is a strong relation between the total social welfare expenditure and the expenditure for labor policies on the one side, and the poverty and inequality measures utilized<sup>11</sup>. Expenditure for health care and retirement/pensions has no significant impact on poverty and inequality, whereas a significant relation between the de-commodification index and expenditure for other services on the one side and the 50-percent-median for children and the total population on the other side can be found. Castles' analysis provides interesting findings and indications for further research, but he abstains from combining the discrimination of different kinds of social expenditure with different welfare regime types. Yet, exactly this would help to identify the specific influence of different welfare regimes on structures of inequality.

An impressive analysis of specific influences of different welfare regimes on inequalities offer Goodin et al. (1999 and 2000). Using a panel analysis including Germany (representing the conservative welfare regime), the Netherlands (representing the social democratic welfare regime) and the United States (representing the liberal ideal type), they analyze the development of poverty, income inequality and income stability from the 1980s to the 1990s. Their results show that the social democratic welfare regime in the Netherlands is "the best on offer" (Goodin et al. 2000: 1984). Poverty, income inequality and instability are lowest there. Additionally, state interventions are most effective in reducing poverty, income instability and inequality. In contrast to this, the USA as a liberal welfare regime show the highest values in these dimensions.

"Not only are *more people* poor in the liberal welfare regime than elsewhere, but they also tend to be *more deeply poor* (there are more people whose incomes fall below the poverty line; the 'poverty gap' is bigger). They also tend to be *poor more frequently* (the 'recurrence' of poverty is higher) and to *remain poor longer* (the 'poverty spells' last longer)."  
(Goodin et al. 2000: 177, accentuation in the original)

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<sup>11</sup> Poverty and inequality measures: Gini-Index, 50-percent-median for the total population, for children and for elderly.

The conservative regime type, represented by Germany, holds the middle position between the former two, being closer to the Netherlands than to the USA. Compared to the social democratic welfare regime, state interventions are less effective in a conservative welfare regime, but income stability is as big as in the Netherlands.

The panel analysis conducted by Goodin et al. offers useful results concerning the success of different nations in reducing poverty and inequality. But whether the three countries chosen allow a generalization of welfare regime types in general is questionable. Especially the classification of the Netherlands as belonging to the social democratic regime type is problematic, as Goodin et al. themselves admit. A second criticism concerns the fact that structures of inequality - meaning the discrimination of different population groups to different extents - within the different welfare regimes are not analyzed. The results do show that poverty and inequality in general are lower in social democratic welfare states than in conservative and liberal ones, but they give no indications on specific structures of inequality.

However, the typology of welfare regimes presented in the previous paragraphs suggests that there are differences in the discrimination of different population groups in the four welfare regime types because of their varying institutional arrangements. Esping-Andersen, too, states that “how risks are pooled defines, in effect, a welfare regime” (Esping-Andersen 1999: 33). Hence, when social policy implies the public management of social risks, then how exactly are the influences of different welfare regimes on structures of inequality? How are risks pooled? How disadvantaged are certain population groups compared to the total population? And what differences can be identified between the four welfare regime types? The following chapter 5 gives a brief overview of the research design, that is being applied to answer these questions.

## **5. RESEARCH DESIGN**

So far, the theoretical background, the research question and existing work on typologies of welfare regimes and social inequalities have been presented. It has become clear that there is a lack of integrated and systematic analysis of the relationship between different welfare regimes and specific structures of inequality. Using a fuzzy set analysis, the paper presented here wants to contribute to closing this research gap. Therefore, a brief overview of the research design is given now.

### *Poverty risk groups*

Different structures of inequality are to be distinguished by the degrees of discrimination of specific population groups compared to the total population. Thus, this analysis does not deal with inner-group inequalities, but tries to have a look at the whole society and group-specific disadvantages. Four poverty risk groups were chosen for the analysis: elderly, unemployed, extended families and single parents. These groups have one thing in common: They can only partly participate in the employment system due to old age or obligations in child care, and make their own living. The central role of the employment system for individuals has already been shown in chapter 2. If these groups are disadvantaged in the employment system, then they depend on external help from the family or welfare state institutions to make their living. Thus, differences in the institutional arrangement of welfare regimes can lead to different degrees of discrimination of these four groups. The following list gives an overview of the concrete operationalization of the groups:

- 1) *elderly*: persons over the age of 65
- 2) *unemployed*: persons with the employment status ‚unemployed‘
- 3) *extended families*: persons with more than two children under the age of 18 living in their household (irrespective of the parents‘ family status)
- 4) *single parents*: persons with at least one child under the age of 18 living in their household and the partnership and parenthood status ‚single head‘

### *Income as indicator for inequality*

The indicator for social inequality in this analysis is the household equivalence income according to the LIS equivalence scale. Income, respectively money, still plays the central role in the development of social inequalities: “It is first and foremost the *money*, that helps to raise one’s living standard and increase welfare in modern societies” (Hradil 2001: 211, accentuation in the original) and that helps to provide the preconditions for achieving other aims in life like security, health and good working and living conditions.

### *Hypotheses concerning the influence of different welfare regimes on structures of inequality*

The population groups and the indicator for social inequality in this analysis being defined, specific hypothesis regarding the discrimination of these groups in different welfare regimes have to be developed. The general hypothesis, that postulates that specific structures of inequality in different welfare regime exist, and the welfare regime typology have already

been presented. The following remarks and Table 1 (p. 11) use a five-level-scale of degrees of discrimination for each poverty risk group: high, rather high, medium, rather low and low.

1.) In the *liberal welfare regime type*, high degrees of discrimination for all population groups are expected due to the low benefits, a small range of welfare state activity and little social rights. All four groups, that are only partly able to participate in the market and employment system, are expected to be affected by discrimination in a liberal, market-oriented welfare system. Although absolute poverty should be low due to basic but universal social security systems, discrimination in relation to the total population is expected to be high because of the minimally de-commodifying effects.

2.) Low degrees of disadvantage are expected to occur in the *social democratic welfare regimes*. The high degree of universalism, high benefits and pronounced social rights lead to a maximum of de-commodification and help to protect individual liberty and independence from market incomes.

3.) A more complicated structure of inequalities is expected in the *conservative welfare regime type*. Social security systems are tied to the former (employment) status, leading to rather low discrimination for elderly compared to the total population. Benefits for unemployed, too, are tied to their former employment status, so inequality structures of the employment system are reproduced on a lower level. Hence, a medium discrimination for unemployed is expected. The situation of unemployed in a conservative welfare regime should be better than in a liberal one, but worse than in social democratic welfare regimes. The same goes for extended families: Despite the normative dominance of traditional (family) values, they are only partly object and target of welfare state policies, so a medium degree of discrimination is expected. For single parents a rather high degree of discrimination is expected, since they don't comply with traditional values on family and education. Compared to the high degree of discrimination in liberal welfare regimes, a rather high degree is expected in conservative welfare regimes due to the greater range of welfare state activity and more social rights.

4.) In the fourth type of welfare regimes, the *rudimental real type*, high degrees of disadvantage are expected for single parents and extended families. Extended families, again, don't comply with traditional values and families in general face a huge burden because of the central position in the welfare triangle, but at the same time don't receive much support by the welfare state. Elderly and unemployed should receive more support by the developing social security systems. Due to the mix of private and public insurance systems and the catching-up-status of public systems they should only be discriminated rather high.



Table 1 (p. 11) provides an overview of the typology of welfare states and the expected degrees of disadvantage.

### *Fuzzy set analysis: principles and appliance*

So far, poverty risk groups have been defined, income as indicator for social inequality has been chosen and detailed hypothesis have been developed. The tool that will be used to test these hypotheses is the fuzzy set analysis. The fuzzy set analysis is a rather young method of social science research, having its origins in fuzzy logic and in fuzzy set social science, made prominent especially by Ragin<sup>12</sup>. Fuzzy set analysis is ideally suited for developing and testing typologies. It combines a case-sensitive approach with the use of ‚hard‘, quantitative data and thus allows for a robust analysis of structures of social inequality. The principles and appliance of a fuzzy-set-analysis can only be described briefly, for more detailed information see Ragin 2000 and Schneider / Wagemann 2007.

At first, “researchers begin by specifying the key dimensions that are the focus of analysis and then proceed by viewing each of these dimensions as a ‘set’ in which the cases can have varying degrees of membership” (Hudson / Kühner 2009: 36). The analysis of structures of inequality uses the degrees of discrimination / equality of the four population groups as four independent dimensions. For the determination of membership scores, limits for ‘fully in’ and ‘fully out’ have to be for each dimension<sup>13</sup>. A fuzzy score of 1 for ‘fully in’ in the dimension equality is defined as the median income of the total population, resembling total equality between the poverty risk group and the total population, the fuzzy score 0 for ‘fully out’ is defined as 60 percent of the median income in the total population, a poverty indicator commonly used in poverty research and recommended by Eurostat. A hypothetical example may clarify this explanation (cf. Table 2, p. 18): If the median income in the total population in a country is 15.000 € (=‘fully in’ for the dimension equality, fuzzy score: 1) and the median income of elderly is 10.000 €, then a fuzzy score of 0.17 will be calculated. 9.000 € would correspond with the fuzzy score 0 or ‘fully out’. In this example, fuzzy scores have to be interpreted as indicating the membership in the dimension ‘equality of the population group ‘elderly’ in country x’<sup>14</sup>. The same income values can also be used for showing the membership in

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<sup>12</sup> Cf. i.a. Ragin 2000 and Hudson / Kühner 2009.

<sup>13</sup> General advice for defining ‘fully in’ and ‘fully out’ can’t be given. Depending on the research question the researcher has to define the fuzzy scores of 1 and 0 based on proper knowledge of his data and research topic. The definition of ‘fully in’ and ‘fully out’ is crucial for the results of the fuzzy-set-analysis.

<sup>14</sup> The fuzzy score of 0.5 represents the crucial crossover point that decides whether a case has to be seen rather as a member or rather not as a member. Countries scoring 0.5 are to be seen as members as well as non-members. If fuzzy score greater than 1 or smaller than 0 would be calculated (because of extremely low or high

the dimension ‘discrimination of the population group ‘elderly’ in country x’, then the median income in the total population would resemble the fuzzy score 0 for ‘fully out’, 9.000 € would resemble the fuzzy score 1 for ‘fully in’, the fuzzy score for 10.000 € would be 0.83.

After the calculation of fuzzy scores in the different dimensions, the second step is the combination of these fuzzy scores and the construction of fuzzy set ideal types. In the analysis presented here, fuzzy scores for four different dimensions for each country are calculated, showing the degrees of equality of the four poverty risk groups. If four dimensions are used,  $2^4=16$  different combinations of memberships in these dimensions are possible. In a last step, membership scores in these fuzzy set ideal types have to be calculated using the following logic: for each fuzzy set ideal type, a country receives the lowest membership score obtained in a single dimension of this fuzzy set ideal type. Using this method, membership scores for each fuzzy set ideal type can be calculated, allowing to assign each country to a specific ideal type (the one with the biggest membership score). Furthermore, the method mirrors the real world ‘fuzzy-ness’ and allows a case-sensitive interpretation of results. (cf. Table 2, p. 18)

Now, the hypothesis on specific structures of inequality developed before can be expressed in fuzzy set ideal types. Social democratic welfare regimes are expected to resemble the fuzzy set ideal type E·F·U·S, for liberal and rudimental welfare regimes the combination  $\sim E \cdot \sim F \cdot \sim U \cdot \sim S$  is expected. In conservative welfare regimes four fuzzy set ideal types (E·F·U· $\sim$ S, E·F· $\sim$ U· $\sim$ S, E· $\sim$ F·U· $\sim$ S, E· $\sim$ F· $\sim$ U· $\sim$ S) may occur due to the two ‘medium’ discrimination degrees, that allow membership as well as non-membership in two dimensions. (cf. Table 3, p. 19)

### *Data and Variables*

The fuzzy set analysis conducted here is based on a set of 23 countries and four waves between 1990 and 2004 (cf. Table A1, Appendix). Elderly have been identified by the variable *page*, extended families by the variables *d27* and *ppnum*, single parents by the variables *pparsta* (only for 2000 and 2004) and unemployed by the variable *pumas* (if the variable *pumas* was not available, the variables *pclfs*, *plfs* or *punemp* had to be used).

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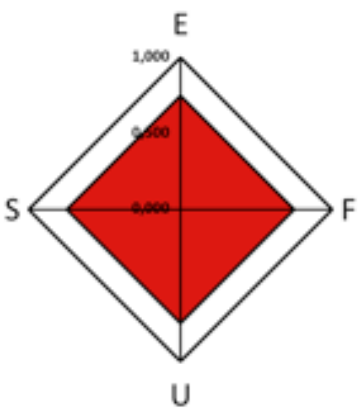
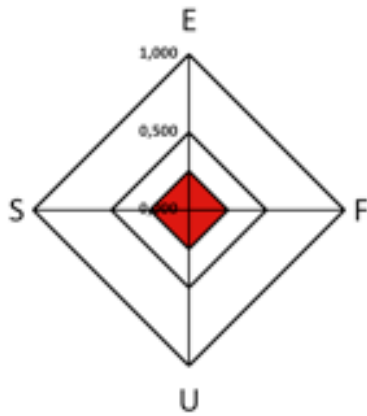
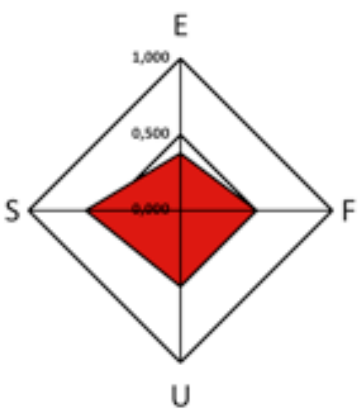
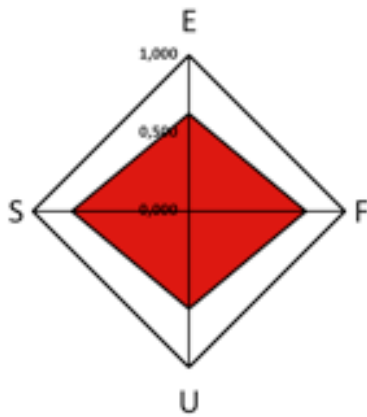
income values) the fuzzy scores would be limited to 1 and 0, fuzzy scores greater than 1 or smaller than 0 are not allowed in fuzzy set analysis. Nevertheless, in this paper ‘raw’ fuzzy scores will sometimes be used for the presentation of results concerning the discrimination of the four poverty risk groups, but not for the presentation of the results of the fuzzy set analysis.

<b>Table 2: fuzzy set ideal types</b>				
<i>fuzzy set ideal types</i>			<i>welfare regime</i>	<i>example</i>
1	$E \cdot F \cdot U \cdot S$	0 ...	social democratic	0,000
2	$E \cdot F \cdot U \cdot \sim S$	1 disadvantaged poverty risk group	conservative	0,000
3	$E \cdot F \cdot \sim U \cdot S$			0,000
4	$E \cdot \sim F \cdot U \cdot S$			0,125
5	$\sim E \cdot F \cdot U \cdot S$			0,000
6	$E \cdot F \cdot \sim U \cdot \sim S$	2 disadvantaged poverty risk group	conservative	0,000
7	$E \cdot \sim F \cdot U \cdot \sim S$		conservative	0,125
8	$E \cdot \sim F \cdot \sim U \cdot S$			0,750*
9	$\sim E \cdot F \cdot U \cdot \sim S$			0,000
10	$\sim E \cdot F \cdot \sim U \cdot S$			0,000
11	$\sim E \cdot \sim F \cdot U \cdot S$			0,125
12	$\sim E \cdot \sim F \cdot \sim U \cdot S$	3 disadvantaged poverty risk group		0,125
13	$\sim E \cdot \sim F \cdot U \cdot \sim S$			0,125
14	$\sim E \cdot F \cdot \sim U \cdot \sim S$			0,000
15	$E \cdot \sim F \cdot \sim U \cdot \sim S$		conservative	0,250
16	$\sim E \cdot \sim F \cdot \sim U \cdot \sim S$	4 ...	liberal, rudimental	0,125
<i>example</i>		<i>median income in €</i>	<i>fuzzy scores for the dimension equality</i>	<i>,negative' fuzzy score</i>
<i>total population</i>		20.000	1	0
<i>60%-median total pop.</i>		12.000	0	1
<i>elderly (E)</i>		19.000	0,875	0,125
<i>unemployed (U)</i>		11.000	0	1
<i>extended families (F)</i>		13.000	0,125	0,875
<i>single parents (S)</i>		18.000	0,75	0,25

**Annotations:** Capital letters indicate the membership in the dimension equality. The symbol ‘~’ indicates non-membership in this dimension.

**Abbreviations:** E = elderly, F = extended families, U = unemployed, S = single parents.

\* single membership scores for elderly (E=0.875), extended families (~ F=0.875, negative fuzzy score because of ‘~’), unemployed (~U=1) and single parents (S=0.75). The lowest score of 0.75 gives the membership score in the fuzzy set ideal type.

<b>Table 3: radar charts for fuzzy set ideal types</b>	
<i>Structure of inequality in liberal welfare regimes</i> (fuzzy set ideal type: $\sim E \cdot \sim F \cdot \sim U \cdot \sim S$ )	<i>Structure of inequality in social democratic welfare regimes</i> ( $E \cdot F \cdot U \cdot S$ )
	
<i>Structure of inequality in conservative welfare regimes</i> ( $E \cdot \sim F \cdot \sim U \cdot \sim S$ , $E \cdot F \cdot U \cdot \sim S$ , $E \cdot \sim F \cdot U \cdot \sim S$ , $E \cdot F \cdot \sim U \cdot \sim S$ )	<i>Structure of inequality in rudimentary welfare regimes</i> ( $\sim E \cdot \sim F \cdot \sim U \cdot \sim S$ )
	
<p><b>Annotations:</b> zero point = ‘fully in’ in the dimension equality, end points of the axis = ‘fully out’ in the dimension equality. Axis from the top clockwise: elderly, extended families, unemployed, single parents.</p> <p><b>Abbreviations:</b> EA = Esping-Andersen; SA = Scruggs / Allan, country abbreviations: see table A1</p>	

## 6. RESULTS

The realization of the fuzzy set analysis produces a huge amount of data and results. Since not all of these results can be discussed in detail, only central findings are presented in the following paragraphs. The degrees of discrimination of the four poverty risk groups in all countries and for all points of time can be found in figures A1 to A4 and table A1 (cf. Appendix). Each figure shows the median income of one poverty risk group in percentage of the me-

dian income of the total population (being 100 percent). These results build the foundation for the fuzzy set analysis and the testing of the hypotheses developed before.

#### *Testing for coherent country clusters*

A systematic approach for testing whether specific structures of inequality can be found in different welfare regimes is offered in figures 1 and 2 (p. 21). Here, average fuzzy scores for all poverty risk groups in social democratic, liberal, conservative and rudimental countries following the country classification by Esping-Andersen and Scruggs/Allan have been calculated, furthermore the figures show the standard deviations and minimum and maximum fuzzy scores. Thus, the figures not only allow a comparison of average scores, but also give an answer to the question whether countries belonging to the same welfare regime form coherent clusters. The smaller the standard deviation, the more coherent is the cluster of countries belonging to the same regime type, so a systematic relation between the degree of discrimination and welfare regime type is probable.

When testing clusters according to the country classification by Esping-Andersen, social democratic countries form coherent clusters with standard deviations (in the following ,SD‘) below 0.15 for single parents and extended families, but not for elderly and unemployed. Liberal countries show a coherent cluster for extended families, elderly and single parents, but not for unemployed. Conservative countries only show one coherent cluster for elderly, rudimental countries show coherent clusters for single parents and extended families.

The results look slightly different if the country classification by Scruggs/Allan is used. Social democratic countries show no coherent cluster, liberal and conservative countries show coherent clusters only for single parents and extended families.

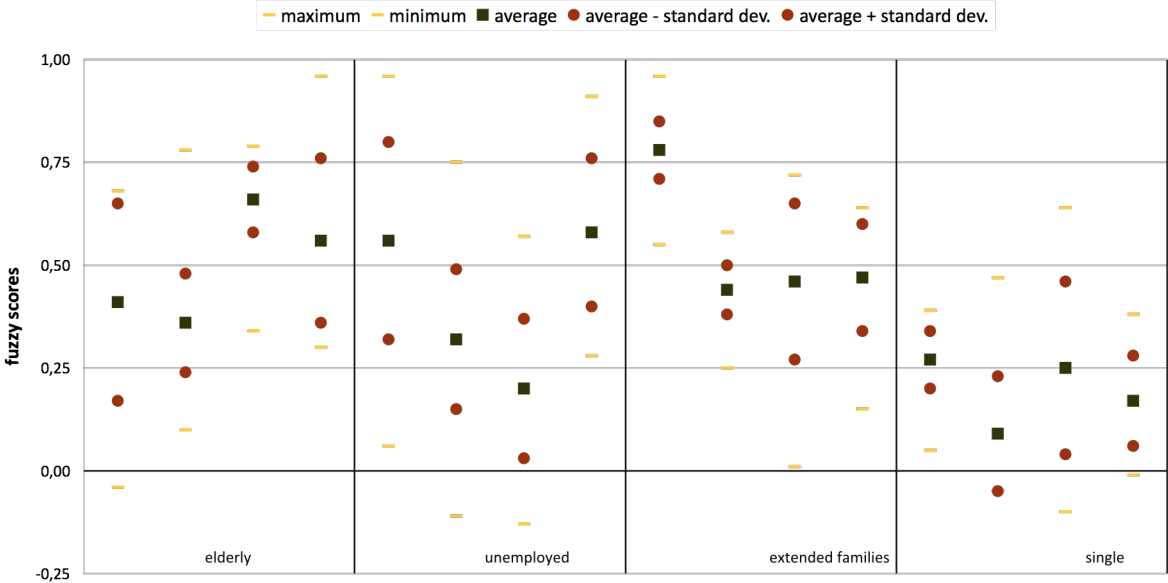
In total, the country classification by Scruggs/Allan shows less coherent clusters than the classification by Esping-Andersen, supporting Scruggs/Allan’s findings in their re-analysis of Esping-Andersen’s *Three Worlds*: real world welfare regimes seem to move away from Esping-Andersen’s ideal types more and more and form mixed cases (Scruggs / Allan 2008). This statement is also supported by the average standard deviation over all poverty risk groups, that is 0.15 for Esping-Andersen’s classification and 0.17 for Scruggs / Allan’s classification.

Table 4 (p. 22) gives an overview of the hypothesis developed in chapter 5 concerning specific structures of inequality in different welfare regimes and the empirical results. The theoretical degrees of discrimination of the four groups are contrasted by the average fuzzy scores that have been calculated. The country classification by Esping-Andersen confirms 9

out of 16 hypothesis, the classification by Scruggs/Allan 10 out of 16. Noticeable is that most unconfirmed hypothesis deal with the social democratic welfare regime. When interpreting this table, one has to keep in mind that average fuzzy scores are used here, ignoring whether *coherent* clusters were found earlier.

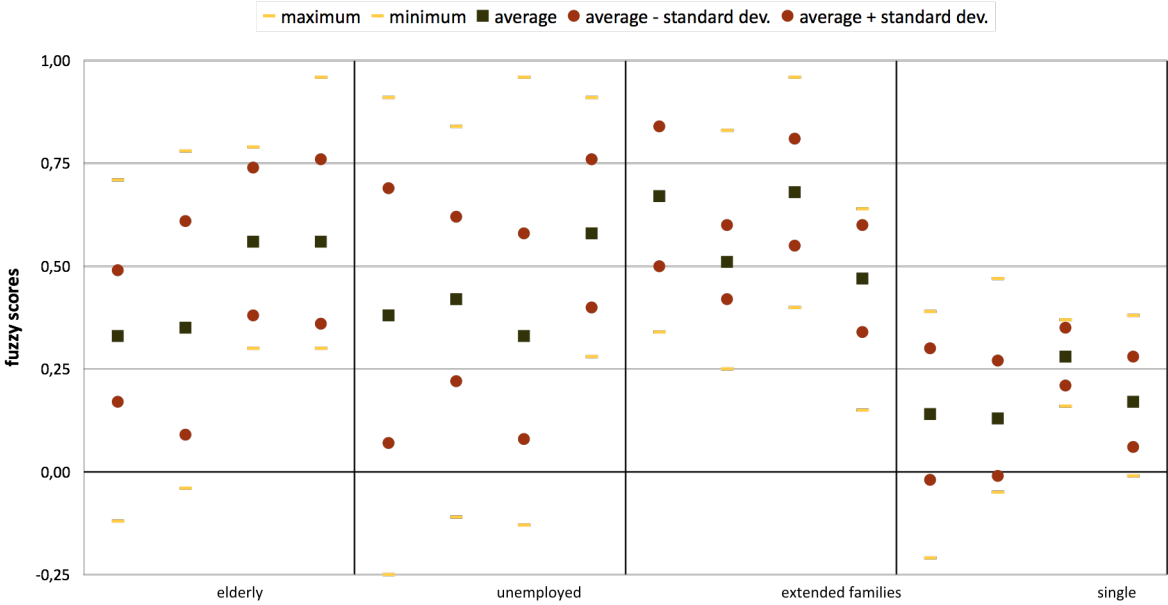
**Figure 1:**

**Testing Esping-Andersen's welfare regimes (country classification according to Esping-Andersen)**



**Figure 2:**

**Testing Esping-Andersen's welfare regimes (country classification according to Scruggs / Allan)**



<b>Table 4: Theoretical and empirical degrees of discrimination</b>												
	<i>liberal</i>			<i>social democratic</i>			<i>conservative</i>			<i>rudimental</i>		
	<i>Hyp.</i>	<i>EA</i>	<i>SA</i>	<i>Hyp.</i>	<i>EA</i>	<i>SA</i>	<i>Hyp.</i>	<i>EA</i>	<i>SA</i>	<i>Hyp.</i>	<i>EA</i>	<i>SA</i>
E	high 0.25	rather 0.36	rather 0.35	low 0.75	<u>rather</u> 0.41	<u>rather</u> high 0.33	rather 0.625	rather 0.66	medium 0.56	rather 0.375	medium 0.56	medium 0.56
U	high 0.25	rather 0.32	rather 0.42	low 0.75	<u>medium</u> 0.56	<u>rather</u> 0.38	medium 0.50	<u>high</u> 0.20	rather high 0.33	rather 0.375	<u>rather</u> 0.58	<u>rather</u> 0.58
F	high 0.25	<u>medium</u> 0.44	<u>medium</u> 0.51	low 0.75	low 0.78	rather 0.67	medium 0.50	medium 0.46	rather 0.68	high 0.25	<u>medium</u> 0.47	<u>medium</u> 0.47
S	high 0.25	high 0.09	high 0.13	low 0.75	<u>high</u> 0.27	<u>high</u> 0.14	rather 0.375	high 0.25	high 0.28	high 0.25	high 0.17	high 0.17

**Annotations:** high = 0.25, rather high = 0.375, medium = 0.50, rather low = 0.625, low = 0.75 ; underlined = unconfirmed hypothesis (hypotheses are not confirmed if there is a difference of 2 or more gradations between real and theoretical discrimination)

**Abbreviations:** E = elderly, U = unemployed, F = families, S = single parents, Hyp. = hypothesis, EA = country classification according to Esping-Andersen, SA = country classification according to Scruggs / Allan

### Radar charts

Another possible way of presenting the data that were gained are radar charts. These charts provide a good visual impression of structures of inequality, showing whether real world structures of inequality match with expected structures and whether discrimination is high or low, symmetric or asymmetric. Table 3 (p. 19) shows radar charts that display the expected structures of inequality in different welfare regime types, table A2 (cf. Appendix) shows radar charts for all countries and waves.

Since not all radar charts can be discussed here, three countries shall be chosen to demonstrate the possibilities of this kind of illustration. Austria, Canada and Belgium all score close to the average fuzzy score of 0.40. But a brief look at the radar charts demonstrates the loss of information produced by the calculation of average fuzzy scores over all countries and population groups. The structures of inequality in these three countries are, despite similar or equal average fuzzy scores, very different. In Austria, especially unemployed are discriminated, in Canada it is single parents, whereas Belgium discriminates unemployed, elderly and single parents to a large degree, but extended families not at all. This comparison between empirical and theoretical structures of inequality is useful to show how good theoretical expect-

tations and real world results match. Belgium, for example, shows how big differences between expected and empirical structures of inequality are.

### *Fuzzy Set Analysis*

Finally, tables 5 and 6 (p. 24-25) show the results of the fuzzy set analysis. Since single parents could only be analyzed in the years 2000 and 2004, two fuzzy set analysis have been conducted: one including all four poverty risk groups, but only including the years 2000 and 2004, and one including all four points of time, but only including elderly, extended families and unemployed.

Each table shows the membership scores for all countries and points of time. A comparison between expected fuzzy set ideal types in different welfare regimes and the real allocation of countries shows that clear and coherent cluster according to welfare regime types often cannot be found. Many liberal and rudimental nations belong to the expected fuzzy set ideal type ( $\sim E \cdot \sim F \cdot \sim U$ ;  $\sim E \cdot \sim F \cdot \sim U \cdot \sim S$ ), most of the social democratic ones do not belong to the expected combination ( $E \cdot F \cdot U$ ;  $E \cdot F \cdot U \cdot S$ ). Conservative nations mostly match with the expected combinations (because of the expected 'medium' discrimination of unemployed and extended families, four fuzzy set ideal types match with the hypothesis, making a correct classification more probable). The two rudimental welfare states Spain and Greece are classified, as expected before, as belonging to the combination  $\sim E \cdot \sim F \cdot \sim U$  or  $\sim E \cdot \sim F \cdot \sim U \cdot \sim S$ .

Since more than half of the hypotheses could not be confirmed, the mismatches for many nations are not surprising. Altogether, a relatively broad distribution of countries over all fuzzy set combinations can be seen, clear country clusters according to welfare regimes cannot be identified. The clearest cluster is formed by liberal nations, that mostly match with the expected fuzzy set ideal type.



<b>Table 5: fuzzy set analysis (I)</b>								
<i>fuzzy set ideal types</i>	1990	1995	2000	2004	<i>country classifications according to EA / SA</i>			
					<i>s</i>	<i>l</i>	<i>c</i>	<i>r</i>
<i>0 disadvantaged poverty risk groups</i>								
<i>E · F · U</i> <i>social democratic / conservative</i>	es .63 tw .58 ca .50 lu .54 fr .51	se .68 ca .53 hu .51			1 / 3	2 / 2	1 / 1	1
<i>1 disadvantaged poverty risk groups</i>								
<i>E · F · ~U</i> <i>conservative</i>	de .55	fr .66 si .56	fr .63 de .62 lu .58	lu .74 de .72 si .53 at .59 nl .55	1 / -		6 / 3	
<i>E · ~F · U</i> <i>conservative</i>	ch .55	es .51				1 / 1		
<i>~E · F · U</i>	dk .77 fi .70 se .57 at .57 ca .50	dk .72 no .68 gr .60 nl .57 tw .52	dk .78 se .62 tw .57 nl .51	dk .64 se .61 ch .50	11 / 9	2 / 6	1 / 1	1
<i>2 disadvantaged poverty risk groups</i>								
<i>~E · F · ~U</i>	nl .61 be .52 ie .51	be .62 ie .55 fi .52	be .79 no .71 ie .64 ch .52 fi .66	fi .66 no .54 tw .53	5 / 5	1 / 1	/ 4	
<i>E · ~F · ~U</i> <i>conservative</i>	us .64 it .55	it .72 us .61 pl .61 at .60 de .55	it .65 pl .62 hu .59 at .54 ca .54 si .51	pl .72 it .66 ca .58 hu .52	- / 2	4 / 4	7 / 2	
<i>~E · ~F · U</i>				ch .50		1 / 1		
<i>3 disadvantaged poverty risk groups</i>								
<i>~E · ~F · ~U</i> <i>liberal / rudimental</i>	au .64 uk .63	uk .66 au .59	es .65 uk .65 au .57 gr .52 us .51	es .61 uk .58 au .56 us .52 ie .51 gr .51	- / 1	10 / 6		4

**Annotations:** The columns on the right side show, how many countries are classified correctly following Esping-Andersen and Scuggs / Allan.  
Example: Out of the 8 countries that score highest in the fuzzy set ideal type  $E \cdot F \cdot U$  (es, tw, ca, fr, se, ca, 2 times hu), Esping-Andersen assigns one country to the social democratic, two to the liberal, one to the conservative and one to rudimental welfare regime.  
**Abbreviations:** EA = Esping-Andersen, SA = Scuggs / Allan, s = social democratic, l = liberal, c = conservative, r = rudimental, E = elderly, F = extended families, U = unemployed,

<b>Table 6: fuzzy set analysis (II)</b>						
fuzzy set ideal types	2000	2004	country classifications according to EA / SA			
			s	l	c	r
<i>0 disadvantaged poverty risk groups</i>						
$E \cdot F \cdot U \cdot S$ social democratic						
<i>1 disadvantaged poverty risk groups</i>						
$E \cdot F \cdot U \cdot \sim S$ conservative						
$E \cdot F \cdot \sim U \cdot S$						
$E \cdot \sim F \cdot U \cdot S$						
$\sim E \cdot F \cdot U \cdot S$						
<i>2 disadvantaged poverty risk groups</i>						
$E \cdot F \cdot \sim U \cdot \sim S$ conservative	fr .63 de .62 lu .58 ch .52	lu .74 de .72 at .59 nl .55 si .53	1 / -	- / 1	3 / 2	
$E \cdot \sim F \cdot U \cdot \sim S$ conservative						
$E \cdot \sim F \cdot \sim U \cdot S$	it .64					
$\sim E \cdot F \cdot U \cdot \sim S$	dk .74 se .62 tw .57 nl .51	dk .64 se .61 ch .50	5 / 4	1 / 3		
$\sim E \cdot F \cdot \sim U \cdot S$						
$\sim E \cdot \sim F \cdot U \cdot S$						
<i>3 disadvantaged poverty risk groups</i>						
$\sim E \cdot \sim F \cdot \sim U \cdot S$						
$\sim E \cdot \sim F \cdot U \cdot \sim S$		ch .50				
$\sim E \cdot F \cdot \sim U \cdot \sim S$	be .79 fi .66 ie .64 no .61 ch .52	fi .66 no .54 tw .53	4 / 5	1 / 1	- / 2	
$E \cdot \sim F \cdot \sim U \cdot \sim S$ conservative	hu .59 at .54 ca .54 pl .51 si .51	ca .58 pl .53 it .52 hu .52	- / 2	2 / 2	1 / 1	
<i>4 disadvantaged poverty risk groups</i>						
$\sim E \cdot \sim F \cdot \sim U \cdot \sim S$ liberal / rudimental	es .65 uk .65 au .57 gr .52 us .51	es .61 au .56 uk .58 us .52 gr .51 ie .51	- / 3	4 / 4		4

**Abbreviations & Annotations:** cf. Table 5

### *Summary and interpretation*

The central aim of this paper was to analyze systematically whether specific structures of inequality can be found in different welfare regime types. To realize a fuzzy set analysis, a huge amount of data was collected, offering many possibilities for analyzing inequalities in a comparative perspective. However, a clear relation between specific structures of inequality and welfare regime types could not be found. As table 4 (p. 22), shows, nearly one half of the hypotheses developed before could not be confirmed and only few coherent country clusters along welfare regime types could be identified (cf. figures 1 and 2, p. 21). Especially the positive influence of social democratic welfare regimes on the reduction of inequalities has been overestimated in the hypotheses, whereas rudimental welfare states have been underestimated in compensating discrimination. Despite the high degree of universalism, high social benefits and extended social rights, the discrimination of poverty risk groups in social democratic welfare regimes cannot be reduced as much as expected. In contrast, rudimental welfare states do not score as “bad” as expected, despite the fact that their welfare state institutions are still in a catching-up status.

If no clear relation between welfare regimes and structures of inequality can be found, then the question is: What are the reasons for this finding? A probable explanation is the convergence of real world welfare regimes. Esping-Andersen’s ideal types can only be found in decreasing clarity in real world welfare regimes. This finding corresponds to the results of Scruggs/Allan’s re-analysis of Esping-Andersen’s ideal types using new data from the year 2000.

“As with earlier reexaminations of the index of de commodification, we find that this research design produces considerably less empirical support for coherent welfare regime types. First, many countries are miscategorized. Perhaps more fundamental, there is little evidence that countries score strongly on only one dimension.” (Scruggs / Allan 2008: 663).

Bambra’s revision of Esping-Andersen’s de commodification index provides similar results (Bambra 2006). Consequently, the lack of a clear relationship between structures of inequality and welfare regimes could result from difficulties in classifying real world welfare regimes as liberal, social democratic or conservative ideal type. The bigger the difference between ideal types and real types, the more mixed real welfare regimes become, and the harder it is to identify a robust empirical influence of different welfare regime ideal types on structures of inequality.

## 7. CONCLUSION

Using a fuzzy set analysis, a relatively new approach in social science, the paper presented here tried to explore the relations between different welfare regime types and specific structures of inequality. Therefore, data for 23 countries and four points of time from the year 1990 to the year 2004 collected by the Luxembourg Income Study (LIS) Database were analyzed. The underlying theoretical background of the paper was presented in chapter 2, claiming that welfare regimes exert great influence on the social structure and the structure of inequalities in societies. Hence, different welfare regime types were expected to exert different influences and lead to different structures of inequality.

Esping-Andersen's *Three Worlds* typology was used for discriminating a liberal, a social democratic and a conservative welfare regime ideal type. The typology was extended for a rudimental real type. Following Esping-Andersen's claim that welfare regimes exert a stratifying influence on social structure, 16 hypothesis were developed describing different structures of inequality that are expected to result from different institutional arrangements in the four welfare regime types.

The structures of inequality were analyzed by comparing the median income of four poverty risk groups - elderly, unemployed, extended families and single parents - to the median income in the total population. By that, a typology of 16 different fuzzy set ideal types could be developed and membership scores for each country in these fuzzy set ideal types were calculated.

The results of the fuzzy set analysis in table 5 and 6 and the illustration of the gathered data in figures 1 and 2 show no clear relation between welfare regime types and structures of inequality. Countries belonging to the same welfare regimes type mostly do not form coherent clusters when analyzing structures of inequality and almost one half of the hypothesis could not be confirmed. The results might point into the expected direction, meaning that the degrees of discrimination are generally the lowest in social democratic countries and the highest in liberal ones, but coherent country clusters are only rarely found.

The reason for these findings might be the convergence of real world welfare regimes due to internationalization and europeanization. The classification of countries as liberal, social democratic or conservative welfare regime becomes, as Scruggs/Allan (2008) and Bamba (2006) have shown, more difficult, real world welfare regimes increasingly become mixed cases. Hence, an empirical identification of regime-specific influences on structures of inequality is complicated. Without a doubt, Esping-Andersen's typology continues to be an important theoretical guideline in comparative welfare state research, but researchers should be very

careful when using the labels 'liberal', 'conservative', 'social democratic' or 'rudimental' for real world welfare regimes.

Furthermore, it has to be questioned how big the influence of welfare states on structures of inequality really is. Welfare states doubtlessly exert a stratifying influence, but inequalities also emerge from market and family relations. A deeper analysis of the relations and power balance between market, family and welfare state may help identify how big the influence of each of these parts of the welfare triangle on inequalities is. It is possible that welfare states lose influence due to their often proclaimed deconstruction, so that inequalities emerging from market and family become more important.

These and many other questions resulting from the analysis presented in this paper offer rich possibilities and links for further research dealing with the relations between welfare regimes and structures of inequality.

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## **Online Sources**

*Eurostat* (2011): Main tables „Income, social inclusion and and living condition“:

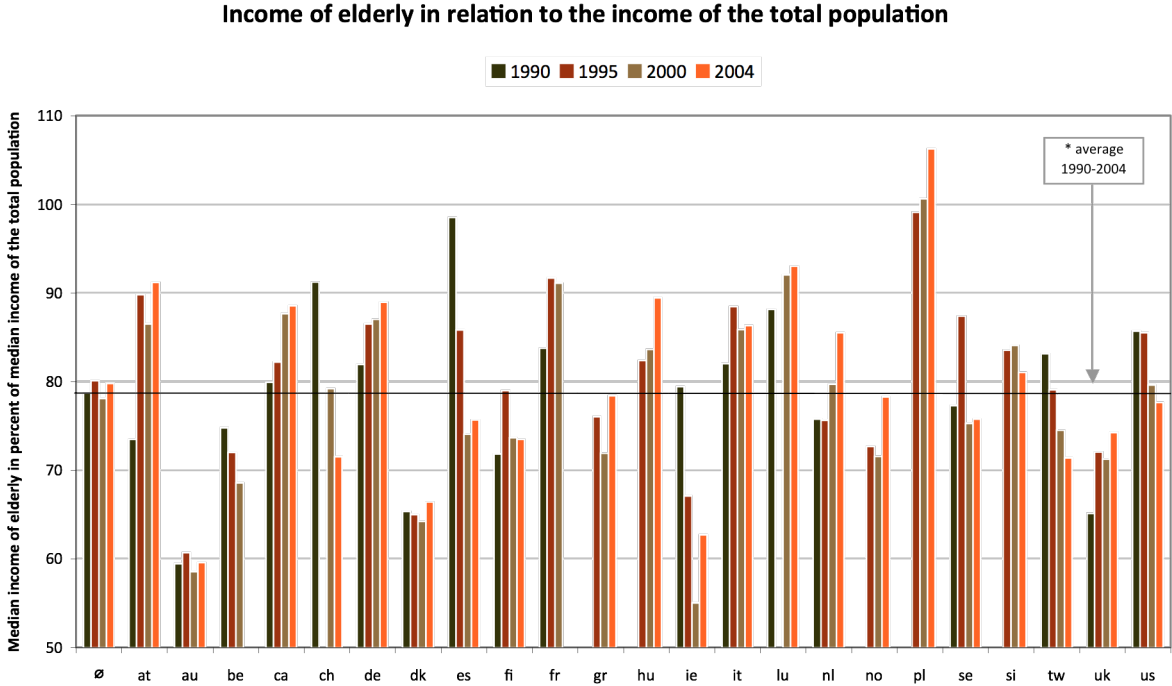
[http://epp.eurostat.ec.europa.eu/portal/page/portal/income\\_social\\_inclusion\\_living\\_conditions/data/main\\_tables](http://epp.eurostat.ec.europa.eu/portal/page/portal/income_social_inclusion_living_conditions/data/main_tables) (last opened: Jan. 3, 2011)

# Appendix

	<i>country &amp; abbreviation</i>		<i>Wave III</i>	<i>Wave IV</i>	<i>Wave V</i>	<i>Wave VI</i>	<i>welfare regimes</i>	
							<i>Esping-Andersen, Lessenich</i>	<i>Scruggs / Allan, Lessenich</i>
1	at	Austria	1987	1995	2000	2004	conservative	conservative
2	au	Australia	1989	1995	2001	2003	liberal	liberal
3	be	Belgium	1988	1995	2000	-	<i>unclear</i>	social dem.
4	ca	Canada	1991	1997	2000	2004	liberal	liberal / social dem.
5	ch	Switzerland	1992	-	2000	2004	liberal	liberal
6	de	Germany	1989	1994	2000	2004	conservative	<i>not clear</i>
7	dk	Denmark	1992	1995	2000	2004	social dem.	liberal / social dem.
8	es	Spain	1990	1995	2000	2004	rudimental	rudimental
9	fi	Finland	1991	1995	2000	2004	social dem.	conservative
10	fr	France	1989	1994	2000	-	conservative	conservative
11	hu	Greece	-	1995	2000	2004	rudimental	rudimental
12	gr	Hungary	-	1994	1999	2005	-	-
13	ie	Ireland	1987	1995	2000	2004	<i>not clear</i>	social dem.
14	it	Italy	1989	1995	2000	2004	conservative	<i>not clear</i>
15	lu	Luxembourg	1991	-	2000	2004	-	-
16	nl	Netherlands	1991	1994	1999	2004	social dem.	<i>not clear</i>
17	no	Norway	-	1995	2000	2004	social dem.	social dem.
18	pl	Poland	-	1995	1999	2004	-	-
19	se	Sweden	1992	1995	2000	2005	social dem.	social dem.
20	si	Slovenia	-	1997	1999	2004	-	-
21	tw	Taiwan	1991	1995	2000	2005	-	-
22	uk	UK	1991	1995	1999	2004	<i>not clear</i>	social dem.
23	us	USA	1991	1994	2000	2004	liberal	liberal

**Annotations: -**

**Figure A1:**

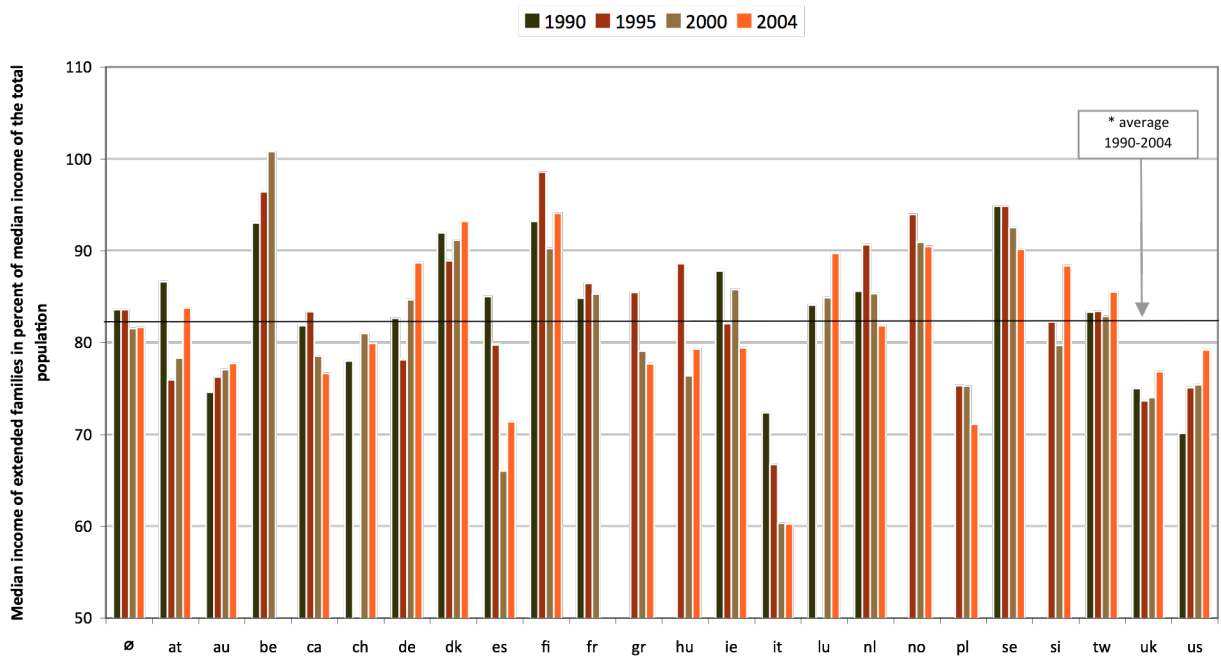


**Figure A2:**



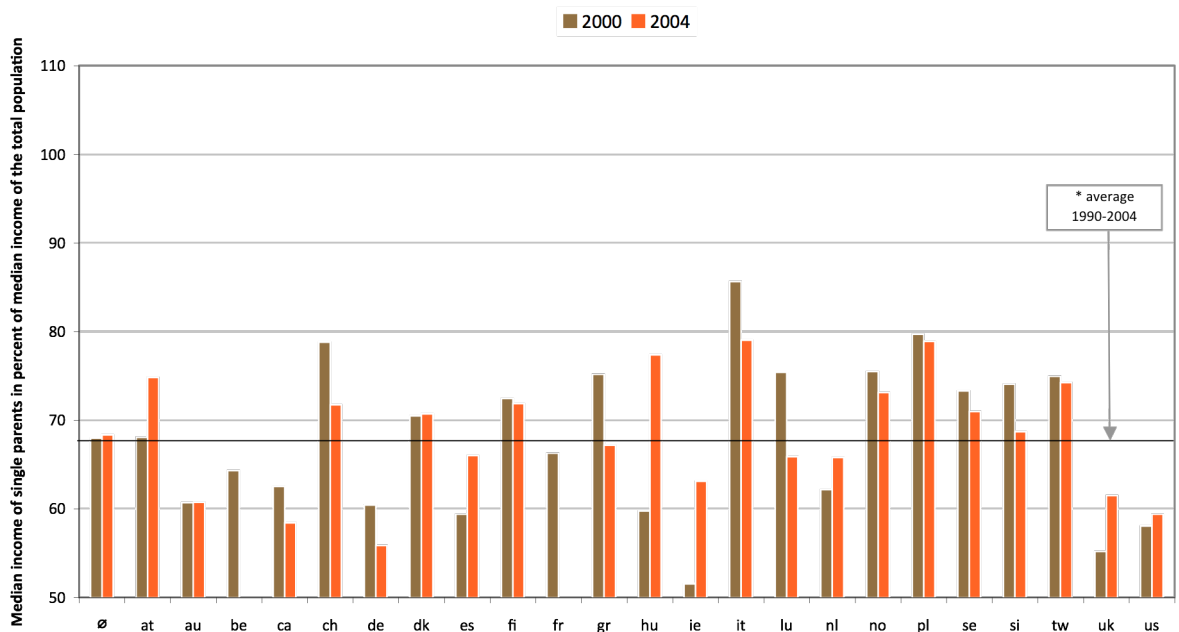
**Figure A3:**

**Income of extended families in relation to the income of the total population**



**Figure A4:**

**Income of single parents in relation to the income of the total population**







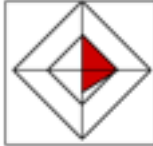






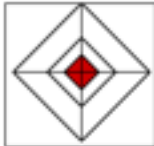

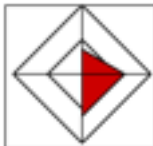




**Table A2: radar charts**

	<i>Wave III to IV</i>				<i>expected structures of inequality</i>	
	<i>1990</i>	<i>1995</i>	<i>2000</i>	<i>2004</i>	<i>EA</i>	<i>SA</i>
<i>at</i>						
<i>au</i>						
<i>be</i>				-	-	
<i>ca</i>						
<i>ch</i>		-				
<i>de</i>						-
<i>dk</i>						
<i>es</i>						
<i>fi</i>						

**Table A2: radar charts**

<i>fr</i>				-		
<i>gr</i>	-					
<i>hu</i>	-				-	-
<i>ie</i>					-	
<i>it</i>						-
<i>lu</i>		-			-	-
<i>nl</i>						-
<i>no</i>	-					
<i>pl</i>	-				-	-
<i>se</i>						

**Table A2: radar charts**

<i>si</i>	-				-	-
<i>tw</i>					-	-
<i>uk</i>					-	
<i>us</i>						

**Annotations (see example on the right side):** zero point = 'fully in' in the dimension equality, end points of the axis = 'fully out' in the dimension equality. Axis from the top clockwise: elderly, extended families, unemployed, single parents.

*Scores for single parents only for 2000 and 2004.*

**Abbreviations:** EA = Esping-Andersen; SA = Scruggs / Allan, country abbreviations: see table A1

