Towards Productive Welfare? A Comparative Analysis of 23 OECD Countries

John Hudson & Stefan Kühner

Department of Social Policy & Social Work, University of York, United Kingdom.

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Abstract

Numerous social policy analysts have suggested that globalisation and the emergence of more knowledge based economies have encouraged high income nations to shift away from a model of protective welfare focused on social rights and towards a model of productive welfare focused on social investment. However, much of the work in this area remains purely theoretical, not least because comparative social policy research has tended to focus on the measurement of social protection rather than social investment. Indeed, almost 20 years after its publication, Esping-Andersen's classification of welfare regimes - largely on the basis of social rights as measured by his decommodification index - still dominates the field. In this paper we explore the possibility of developing a complementary classification of welfare state types that incorporates both productive and protective elements of social policy. Using fuzzy set ideal type analysis, we explore data for a sample of 23 OECD countries in three time periods: 1994, 1998 and 2003. Our findings provide no more than very modest support for claims that welfare states are shifting from protective to productive modes of provision and, in many cases, we identify a shift in the alternative direction. In addition, we identify some nations that are clearly productive in their focus and others that manage to combine productive and protective features.

Key Words:

Welfare state typologies; fuzzy set ideal type analysis; productive welfare; productification.

Introduction

Debate on the question of how we might accurately and meaningfully classify the diverse welfare states found across the high income countries of the OECD is both long running and increasingly characterised by dissensus (see Abrahamson, 1999; Arts and Gelissen, 2002). While discussions of welfare state types often point back to Titmuss' (1973) classic distinction between 'residual', 'industrial achievement-performance' and 'institutional-redistributive' models of welfare, the modern literature has been fundamentally shaped by Esping-Andersen. His classic *Three Worlds of Welfare Capitalism* (Esping-Andersen, 1990) examined social rights, social stratification and the welfare mix in order to reduce the diversity of actual welfare states found in economically advanced capitalist nations into a smaller number of ideal types. Via extensive analysis of data and, especially, through the development of an innovative decommodification index that drew on administrative data about social security systems as a proxy for the strength of social rights, Esping-Andersen identified a trichotomy of ideal types that were not unlike those identified by Titmuss, but which he labelled as the liberal, corporatist and social democratic welfare regimes.

Despite (or, perhaps: because of) Esping-Andersen's prominence within this debate, his work has been strongly challenged by many scholars. Critiques have been varied in their focus, including suggestions that: some countries included in the study have been misclassified or misrepresented because their model of social rights was not captured in a social security focused decommodification index (e.g Castles and Mitchell, 1993); some key regions of the OECD have been largely omitted and therefore the classification is incomplete (e.g. Ferra, 1996, Holliday, 1999); the chosen indicators overlooked gendered dimensions of social policy and so failed to capture a key dimension of social stratification (e.g. Lewis, 1992); and, that the focus on social security means other key welfare state services such as housing (e.g. Kemeny, 1995) and health (e.g. Bambra, 2005) are missing from the analysis, so the picture of welfare types is partial.

For the most part, however, scholars have agreed (albeit: often implicitly) that the focus on social rights, social stratification and the welfare mix makes sense, but have argued that a wider conception of decommodification or stratification is needed. More recently, though, some have begun to challenge the focus on decommodification itself. Holden (2003), for instance, has argued that the increasingly widespread adoption of 'workfare' type policies represents a form of 'administrative recommodification' in which the state uses social policy interventions to enhance economic competitiveness and support the market. His argument builds upon more general claims that – in response to globalisation - states have shifted the emphasis of their social policies towards that of a supporting and subjugated role vis-à-vis economic policy (Jessop, 1999, 2000; Cerny and Evans, 1999; Evans and Cerny, 2003; Hudson and Lowe, 2004). Indeed, Evans and Cerny (2003) suggest the welfare state has been *replaced* by a 'competition state', with traditional social insurance type protections being gradually dismantled in favour of stricter and less generous workfare type policies. Jessop (2000) similarly argues that we have seen the death of the old style 'Keynesian Welfare National State' (KWNS) and the rise of the 'Schumpeterian Workfare Post-National Regime'

(SWPR) in which the state constrains social rights in the face of an increasingly competitive global economy. Though we do not have space here to articulate the fuller details of these perspectives, in many ways their implications for welfare state typologies is straightforward: those concerned with modelling welfare types need to pay much greater attention to active labour market policies (ALMPs), for a focus on social rights will not suffice if these theoretical claims are true.

On a similar note, others have argued that the emergence of a post-industrial, knowledge economy has led (or: will lead) states to place an increasing emphasis on social and human investment, through training activities as part of ALMPs or, more generally, by placing a greater emphasis on education policy (Castells and Himmanen, 2002; Midgley & Tang, 2001; Room, 2002). Indeed, Giddens' Third Way was largely founded on the view that 'wherever possible invest in human capital […] is a guiding theme of welfare reform, as well as of the actions government must take to react to the knowledge economy' (Giddens, 2000: 165). Room (2000; 2002) argues that a greater analytic focus on such dimensions of social policy is essential, not only because they are likely to form an increasingly important dimension of welfare state reform pathways in light of globalisation and the emergence of the knowledge economy, but also because the Marxian notion of labour commodification on which Esping-Andersen (1990) built was always intended to refer to both the economic consumption of labour by the market *and* the loss of workers' own opportunities for personal self-development as consequence of this. Ergo: decommodification ought to encompass an analysis of social policies that might be viewed as 'decommodification-for-self-development' as well as those that can be viewed as 'decommodification-for-consumption' (Room, 2000: 337).

Writing more broadly still, Castells and Himmanen (2002) have argued that some welfare states have adapted their structures in light of the emerging informational society. Yet, they argue that the nature of this change is far from unidirectional and they suggest that two of the leading candidates for the status of 'informational society' – the USA and Finland – are following quite different pathways in reforming their welfare states to account for this change. The USA, they argue, is following a largely free-market approach, with social protections kept to a minimum in order to reduce the burdens on business, but that Finland has adapted its strongly interventionist social policy frameworks in a manner that both maintains strong social protection and encourages the modernisation of its economy. Indeed, they argue that Finland has created an 'informational welfare state' in which strong social policies and a strong informational economy are symbiotically linked in a virtuous, reinforcing circle: on the one hand, high levels of education and training spending boost the human capital that feeds innovative R&D and generous unemployment insurance encourages entrepreneurs to pursue risky start-up ventures that have only a small chance of success; on the other hand, the high levels of growth provided by their high-tech economy makes costly welfare interventions easier to sustain.

In short, there is an increasing recognition that a deep understanding of welfare state types requires an analysis of both the traditionally protective functions of social policy *and* the productive functions concerned with

investment in human capital. Some theorists have already made tentative steps in this direction. For example, Room (2000) has offered us an illustration of how the 'self-development' component of decommodification might be operationalised and noted (2002: 48 & 43) that 'there can be no presumption' that 'human investment regimes' will be directly related to Esping-Andersen's three 'social protection' regimes. Both Powell and Barrientos (2004) and Vis (2007) include data on ALMPs in their explorations of welfare state types and both conclude it is of central importance, though for different reasons: Powell and Barrientos (2004) highlight its crucial role in confirming the enduring utility of Esping-Andersen's trichotomy of welfare regimes, while Vis (2007) concludes it helps to demonstrate radical shifts in social policy towards a new 'workfare' based type in some nations.

While these contributions are useful, more needs to be understood both about the importance of 'productive' functions for the classification of welfare states into ideal types and the relationship between the 'protective' and 'productive' functions of social policy. Indeed, much of the early critique of Esping-Andersen's (1990) approach emanated from those concerned with the East Asian nations, who often argued that Esping-Andersen had overlooked the key features of a fourth world of welfare located within the region in which 'productivist' economic goals drove social policy (Holliday, 1999). Significantly, while many such theorists have highlighted the distinctiveness of the East Asian model and, more specifically, the unusual nature of its 'productivist' bent – Holliday (1999) sees it as incompatible with strong social protection for instance – Esping-Andersen (1997: 181) has long argued that productivist social policies can be found elsewhere and even refers to 'Sweden's celebrated 'productivist' social policy' when dismissing Japan as a hybrid welfare state rather than an example of a fourth world of welfare he has overlooked.

Consequently, a greater concern with the productive dimensions of welfare may not only help us to ascertain whether arguments about the refocusing of welfare in the post-globalisation era are empirically robust, but may also help us to answer the vexed question of where to locate the East Asian welfare states. In the remainder of this paper we begin by offering a methodological framework for analysing the balance between the productive and protective elements of welfare states, before proceeding to operationalise this framework through an analysis of 23 OECD nations at three different points in time (1994, 1998 and 2003). We then use our data to offer a systematic classification of these 23 welfare states according to their productive and protective features and, through analysis of data across three time points, address the question of whether it is possible to identify a shift towards productive welfare policies over the last decade or so. Before proceeding with this analysis, however, we must first spend some time analysing the methodological bases of previous attempts to classify welfare states into ideal types, for it is clear that methodological limitations have often prevented a deep analysis of the complex and often competing dimensions of welfare state activity.

Welfare State Modelling: Towards Multi-Dimensional Analysis?

Despite the criticisms aimed towards it, attempts to model welfare state types are still dominated by Esping-Andersen's (1990) approach and, though many useful innovations have been offered, none of the alternative classifications has quite reached the popularity of Esping-Andersen's original. Interestingly, while the earlier debate tended to focus on the broad picture of Esping-Andersen's theoretical focus or his (mis-)classification of specific nations, more recently the actual data used by Esping-Andersen has been subject to detailed scrutiny. In particular, Scruggs and Allan (2006) and Bambra (2006) have attempted to replicate the construction of Esping-Andersen's decommodification index in order to assess its robustness. In both cases, they have identified some not insignificant weaknesses in the scoring procedure, errors in the calculation and suggested revisions to the index in order to improve its reliability. Nevertheless, that they regarded undertaking such a laborious task worthwhile can be seen as an implicit verification of Esping-Andersen's underlying conceptual understanding of the welfare state. Moreover, their efforts also served to demonstrate that the membership of countries in either of the social democratic, conservative or liberal regime types remained rather robust even after recalculation. Similarly, other scholars who have set out to utilise alternative or innovative approaches to welfare regime analysis – for instance by utilizing more recent or additional data or by utilizing different statistical techniques for the analysis of the data - have often found, aside from some variations on the margins, similar clusters of countries as Esping-Andersen did in his original work (Shalev 2005, Powell and Barrientos 2004).

Partly this may be a function of the fact that the discussion surrounding Esping-Andersen's (1990) work centres very much on decommodification; indeed, this is arguably true of the focus of Esping-Andersen's own work. Yet, as we have noted above, there is an increasingly prominent view that the productive elements of welfare need to be analysed alongside the protective elements captured by the decommodification index. Significantly, even if we consider the other - sometimes overlooked - parts of Esping-Andersen's argument about the key constructs of welfare regimes – i.e. stratification and the public-private-family welfare mix – it is clear that his approach is not able account for the institutionalised, productive intent of welfare regimes because data on these elements is completely absent. Moreover, closer analysis of his work makes it clear that it would be almost impossible to incorporate such data into his study without a serious reconsideration of his methodological approach. Esping-Andersen (1990: 88) famously argued that his three welfare regimes could be read off a rank ordering of nations on data for each of his components (i.e. decommodification, stratification and welfare mix) and so he was able to side-step the question of how these different domains of welfare might be combined to produce a single, over-arching framework for welfare state classification[1].

Aside from the somewhat thorny question of whether the coincidence of similar findings in different domains should be reason enough for Esping-Andersen to abandon any attempt to present a consolidated 'welfare regime index', more recent research (Kühner, 2007b) on processes of welfare reform has uncovered different dynamics of social rights, stratification and policy

outcome indicators and thus puts a tentative question mark over the applicability of Esping-Andersen's view that all three elements of welfare regimes are so closely linked as to make analysis of one sufficient for classifying types. The question of how to combine an analysis of all three elements becomes, therefore, one of increasing relevance.

The significance of this methodological problem for future work comes clearer still if we are to consider how Esping-Andersen's analysis of the protective features of welfare might be combined with an analysis of the productive features of welfare. As noted above, Room (2002) is of the view that 'human investment regimes' are unlikely to bear a direct relationship to Esping-Andersen's 'social protection regimes'. If this is so, we cannot simply deduce from Esping-Andersen's decommodification scores or regime memberships how deep a nation's commitment to investing in human capital might be. Simply because Sweden was shown to have the highest decommodification score does not automatically imply that its productive intent is also very extensive. Similarly, simply because the United States was classified as a liberal welfare state with relatively lean social protection, does not automatically imply that its investment in human capital will be equally restrained. Indeed, even a very limited knowledge of the US case – famed for its relatively well resourced educational institutions – might lead one to believe such an approach is deeply problematic.

In many ways, these issues can be viewed as part of the broader so-called 'dependent variable problem' which deals with the particular issue of how to capture the multi-dimensional character of welfare states appropriately (see Green-Pedersen 2004; Kühner, 2007a). The dependent variable problem is as much a conceptual issue as it is a technical one and is concerned with selecting the most appropriate measures for the issue in hand. Emphasising decommodification on its own presents a one-dimensional view and thus is a potentially problematic approach to classifying welfare types. Other measures need to be utilised if we are to properly understand modern welfare state types.

Yet, as a measure of the protective components of the welfare state, decommodification is a reasonable one and has been seen to be generally robust. What is more problematic seems to be the question of how to combine the analysis of the decommodification index with measures of other components of the welfare state in instances when the ordering of nations do not correlate. Those looking to address this problem have adopted a range of statistical techniques to test regime hypotheses and allocate country membership to ideal types. For instance, Shalev (2005) uses factor analysis on more than a dozen indicators mentioned by Esping-Andersen (1990), while Powell and Barrientos (2004) utilize a cluster analysis to examine the memberships of welfare regimes on the basis of data similar to Esping-Andersen's and with new components such as the welfare mix and ALMP added in for good measure. Both techniques could be deployed in an attempt to analyse a dataset encompassing both productive and protective dimensions of welfare activity; while neither produces a straightforward ranking of nations akin to the decommodification index, both would offer a firm set of groupings that would be akin to the regimes Esping-Andersen identified. More straightforwardly, if the goal is to produce a ranking of nations, then an

aggregated additive index complied by adding together standardised (z-score) figures for each indicator could be a way forward. Room (2000) deploys this technique in developing a prototype 'human investment regimes' index. However, what all of these techniques have in common is that they rely on mean averages that can mask important elements of cross-national diversity. In particular, they are prone to outlier effects: i.e. if a country is exceptionally strong or weak in one dimension then this can have an undesirable impact on its classification; this is particularly so for additive indices - where a country that is average in both its productive and protective features could be ranked in the same place as qualitatively very different country that is very strong in its productive features but very weak in its protective features – but the problem can hamper cluster and factor analysis too. The recently developed fuzzy set ideal type analysis (see Kvist, 2006; Vis, 2007) can overcome these issues.

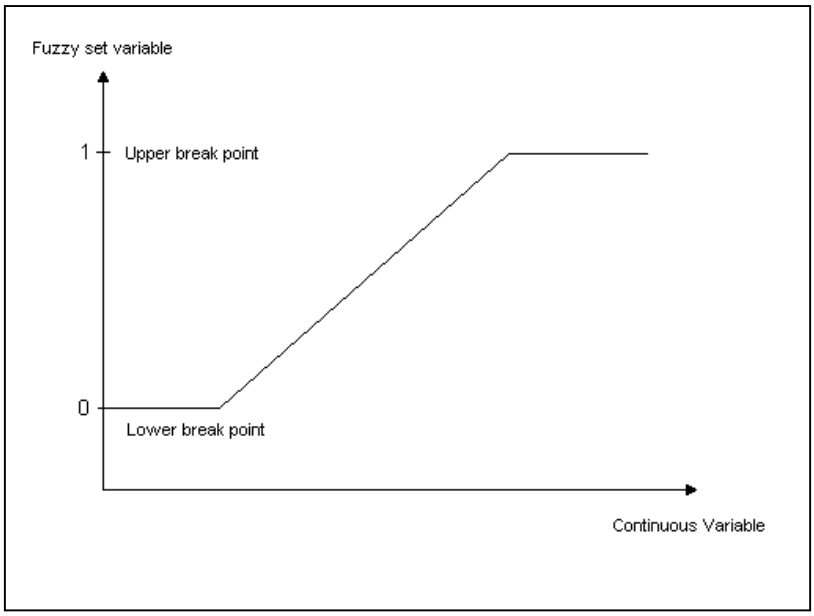
Fuzzy set ideal type analysis

Fuzzy set ideal type analysis has its origins in fuzzy logic and, more directly, in fuzzy set social science as articulated most extensively by Ragin (2000). Its starting point is that cases (in this instance: welfare states) are best understood as differing configurations of multiple, conceptually rooted, dimensions. 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. So, for instance, if a study is concerned with the generosity of welfare states and their redistributive intent, then these two concepts form the basis of two distinct sets and empirical analysis proceeds by establishing whether individual countries are members of both, one or none of these sets. Sets are 'fuzzy' in this approach because in the real world there are rarely 'crisp' boundaries: rather than falling into a simple dichotomy of 'generous' and 'not generous' types, welfare states are likely to have varying levels of generosity that fall between these two poles, and fuzzy set analysis reflects this by analysing cases on the basis of their graded, partial memberships of sets.

In practical terms, fuzzy set analysis proceeds by assigning each case a score between 0 (fully out) and 1 (fully in) for each set being examined. However, rather than simply rescaling raw data via arithmetic computation, fuzzy set analysis demands that researchers reconsider their data from a conceptual viewpoint. So, for instance, as Kvist (2006: 174) notes, if an unemployment benefit replaces 100% of previous income it seems evident that this ought to be regarded as a full member of the 'generous welfare' set; however, such a system does not exist anywhere in the world and, based on substantive knowledge of cases, a researcher might suggest that, in practice, any unemployment benefit system replacing 90% or more of previous income can be viewed as a full member of the 'generous welfare' set and that variation above this cut off point means little for the analysis of sets. In other words, fuzzy set analysis requires researchers to consider how raw data relates to verbal descriptors of their concepts and to specify qualitative breakpoints at the top (fully in) and bottom (fully out) of their sets (see Kvist, 2006; Ragin, 2000). While Ragin (2000) outlines numerous techniques for

specifying the values between these two breakpoints, here we follow the most straightforward model, using the fs/QCA software to compute a continuous scale of values between these two breakpoints (see Fig 1 and Ragin et al, 2006).

Figure 1: Rescaling Data for Fuzzy Sets



When raw data is recalibrated in such a manner, we are left with a series of scores for each fuzzy set that can be interpreted in qualitative terms (see Table 2), with 0.5 representing the crucial cross-over point where a case begins to move from being more out of the set to being more in the set. However, for fuzzy set ideal type analysis, the scores for each fuzzy set tell us little: what matters more than the variations between nations in the values of these individual dimensions is how these *multiple* dimensions are differently configured across our sample of nations. Fuzzy set ideal type analysis uses fuzzy logic to explore these differing configurations in our nations. Accordingly, two key principles of logic are utilised to analyse combinations of sets: logical NOT (the negation principle, indicated by the symbol ~) and logical AND (the intersection or minimum principle, indicated by the symbol •)[2]. Together, these two principles can be used to calculate all logically possible combinations ('property spaces') of the multiple fuzzy sets being analysed: indeed, the number of possible property spaces is simply 2^k, where k = the number of fuzzy sets under consideration.

Building on an illustration used above, if we were aiming to capture the generosity (G) and redistributive intent (R) of welfare states, then with just two fuzzy sets we would have only four property spaces: generous and redistributive; generous and not redistributive; not generous and redistributive; and not generous and not redistributive. More importantly, with the property spaces identified, the logical NOT and AND operators can also be used to assign each case to a single property space on the basis of their combined fuzzy set scores[3]. The logical AND (or minimum principle) dictates that the

computation proceeds by using the lowest of the scores for each of the sets being combined: so, for instance, if Country A scores 0.8 in G but just 0.4 in R it receives a combined score of 0.4: if Country A is not redistributive, it cannot be a member of the generous and redistributive property space (G•R), no matter how generous it might be. The logical NOT (or negation principle) simply inverts scores for a given set (1-*n*): Country A's score of 0.4 for G becomes 0.6 for ~G: if Country A is not a member of the fuzzy set G then, logically, it *is* a member of the set NOT G. The negation principle is important when calculating the scores for property spaces where the absence of a dimension (in this case: not generous) is present: Country A's score for the property space ~G•R becomes 0.6 on this basis.

Fuzzy set ideal type analysis offers us a number of advantages over techniques that rely on the computation of statistical means. Firstly, and most importantly, it does not allow for compensation effects to mask the real extent of diversity. If a welfare state is 'weak' in one area, it cannot 'make up' for this by being 'very strong' in another area. Each component matters and cannot be overlooked because another dimension is especially strong or weak. Secondly, and on a similar note, the approach allows for the simultaneous analysis (and: measurement) of multiple dimensions and, crucially, handles these dimensions in a manner that emphasises, rather than ameliorates, difference: fuzzy logic allows us to classify nations on the basis of multiple, even conflicting, components. Finally, by forcing us to think about the links between the values of quantitative data and qualitative descriptors of key concepts, fuzzy set analysis offers a bridge between quantitative and qualitative approaches. In particular, by recognising that not all variation matters, fuzzy set analysis avoids the distorting effects of extreme values that can thwart some quantitative comparative analyses of welfare states.

Table 2: Interpreting Fuzzy Set Scores

1.00	fully in
0.83	mostly but not fully in
0.67	more or less in
0.50	neither in nor out
0.33	more or less out
0.17	mostly but not fully out
.00	fully out

Source: Ragin et al (2006)

Productive-Protective Fuzzy Set Ideal Types

To summarise our argument so far: we have suggested that, in constructing ideal types of welfare states, there is a need to add an analysis of the productive functions of social policy to the more usual emphasis on the protective functions; we have raised doubts about the ability of traditional quantitative techniques to handle such an endeavour in a meaningful fashion; and, we have suggested that fuzzy set ideal type analysis might offer us a

way forward. For the remainder of the paper, we will turn to an empirical analysis of the productive-protective dimensions of welfare, beginning with a specification of the concepts that will form the basis of our fuzzy sets and some detail on how we will operationalise them, before presenting both a contemporary and historical treatment of the data.

We have already argued at some length that welfare states ought to be increasingly viewed as combining both protective and productive functions. However, quite how these terms might best be interpreted is a moot point. Here, we have chosen to identify four fuzzy sets: two productive and two protective. The case for including an income protection set in our analysis of welfare state types needs hardly be made: it has formed the bedrock of welfare modelling (e.g. Esping-Andersen, 1990). But, rather than only looking at systems of income protection, we also include employment protection in our study – i.e. the extent to which nations protect employees from dismissal. Inclusion of this dimension is increasingly common in attempts to specify different welfare state types be they largely theoretical case study based treatments (e.g. Estevez-Abe, Iversen and Soskice, 2001) or primarily quantitative approaches (e.g. Powell and Barrientos, 2004). As for the productive elements, following Room (2000, 2002) we look at investment in education and, following others (including Vis, 2007 and Powell and Barrientos, 2004) labour market training – i.e. investment in human resources within and outside of the labour force. This gives us a total of 16 property spaces. Four of these are 'pure' ideal types. Countries which score high on each of the four fuzzy sets – education investment, training investment, income protection and employment protection – manage to combine both productive and protective elements successfully. This constitutes our productive-protective ideal type. Countries that score high on both productive sets (education and training investment), but do not make it into the protective set are purely productive ideal types. Equally, purely protective ideal types score high on income and employment protection but perform less well in education and training investment. Weak ideal types score low on both protective and productive fuzzy sets. The property spaces for these four ideal types are provided in Table 2.

We also identify several hybrid types; these are also relevant for our analysis. The respective property spaces are also provided in Table 2. Weak productive-protective types each score high only on one of the respective productive and protective fuzzy set variables – i.e. these cases show high education investment paired with either high income or high employment protection or high training investment with either high income or employment protection. Those countries that score high on both productive sets and also on one of the two protective fuzzy sets are labelled productive-plus types. If a country only scores high on one of the productive and none of the protective countries, we labelled it weak productive. Equally, those countries with high scores on both protective and one additional productive fuzzy set are labelled protective-plus types. Weak protective types score high on only one of the two protective fuzzy set variables.

Table 2. Property spaces for productive-protective fuzzy ideal types

	Education investment (E)	Training Investment (T)	Employment Protection (L)	Income Protection (B)	Model
'Pure' Ideal types					
Productive-Protective	E (High)	T (High)	L (High)	B (High)	**(E•T•L•B)**
Productive	E (High)	T (High)	~L (Low)	~B (Low)	**(E•T•~L•~B)**
Protective	~E (Low)	~T (Low)	L (High)	B (High)	**(~E•~T•L•B)**
Weak	~E (Low)	~T (Low)	~L (Low)	~B (Low)	**(~E•~T•~L•~B)**
'Hybrid' Ideal Types					
Productive Plus	E (High)	T (High)	L (High)	~B (Low)	**(E•T•L•~B)**
	E (High)	T (High)	~L (Low)	B (High)	**(E•T•~L•B)**
Protective Plus	~E (Low)	T (High)	L (High)	B (High)	**(~E•T•L•B)**
	E (High)	~T (Low)	L (High)	B (High)	**(E•~T•L•B)**
Weak Productive-Protective	E (High)	~T (Low)	~L (Low)	B (High)	**(E•~T•~L•B)**
	E (High)	~T (Low)	L (High)	~B (Low)	**(E•~T•L•~B)**
	~E (Low)	T (High)	~L (Low)	B (High)	**(~E•T•~L•B)**
	~E (Low)	T (High)	L (High)	~B (Low)	**(~E•T•L•~B)**
Weak Protective	~E (Low)	~T (Low)	~L (Low)	B (High)	**(~E•~T•~L•B)**
	~E (Low)	~T (Low)	L (High)	~B (Low)	**(~E•~T•L•~B)**
Weak Productive	E (High)	~T (Low)	~L (Low)	~B (Low)	**(E•~T•~L•~B)**
	~E (Low)	T (High)	~L (Low)	~B (Low)	**(~E•T•~L•~B)**

Operationalising the Fuzzy Sets

We operationalise investment in education as public education spending (for all levels of education) as a share of total public social and education spending. We do not simply use education investment as a percentage of GDP, because we are interested in the relative importance of education effort compared to more protective elements of social budgets: if investment in human capital is becoming more important then we ought to see its share of the total budget rising – and for the overall share to be higher - in productively oriented welfare states. The first qualitative breakpoint 0, fully out of the set of education investment, is set at a share of 15 per cent. The second qualitative breakpoint for this fuzzy-set, fully in the set of education investment, is set at 25 per cent. Our conceptual rationale at this point is admittedly rather crude. Historically, social policy analysts have been concerned with five core sectors of policy (social security, health, education, social care and housing): equal emphasis would result in a 20 per cent share for each and our figures of 15 and 25 per cent represent an decrease or increase on this level by some 25 per cent. However, this crude justification is rooted in a substantive knowledge of the cases: consultation of mean averages and standard deviations for the data suggested that these breakpoints represent meaningfully boundaries for the set, being rough approximations of the mean

(20 per cent) and one standard deviation above (25 per cent) and below (15 per cent) the mean[4].

Similarly, we operationalise training investment as the expenditure for the training component of ALMP budgets as a share of the total ALMP budget. Both Powell and Barrientos (2004) as well as Vis (2007) emphasise ALMPs as a key variable of the welfare mix[5]. Similar to our education indicator, we are not interested in the total costs of training components of ALMP spending as a percentage of GDP. Rather, we emphasise the relative importance of (longer-term) training initiatives against (short-term) programmes designed to enhance employment exchanges and subsidized (protected) employment. The costs for running employment offices or subsidised employment programmes might be 'active' but it can be argued that they are not genuinenly 'productive' in the sense that their goal is not the direct enhancement of skills and qualifications. Refraining from ALMP data as a percentage of GDP has another advantage. Vis (2007) rightly stresses the necessity to standardize ALMP spending by the number of unemployed as this data is always a function of different levels of unemployed across time and space. By utilizing relative shares of disaggregated ALMP components, we cannot only sidestep this critical issue; to the contrary, while unemployment does have an impact on relative shares of training and job placement and job creation/security measures, these statistics entail substantive information on the preferred policy strategy in times of economic regress. The OECD SOCX database (2007) breaks ALMP into five principal components: expenditures for the running of employment offices, subsidized employment, labour market training, youth measures and measures for the disabled. For countries to have an equal focus on productive and non-productive elements, we would expect a 40:60 split of spending (employment offices and subsidized employment against labour market training, youth measures and measures for disabled). Our first breakpoint, fully out of the set of training investment, is thus 20 per cent, as the non-productive elements in such a case would be at least twice its 'equal' share. The second qualitative breakpoint, fully in the set of training investment, is set as 80 per cent. In this case, countries would spend equal to or less than half the 'equal' share for the non-productive elements. Again, mean averages and standard deviations of this measure were consulted to make sure that no upward or downward bias is created by using these cut-off points.

With regard to income protection, the OECD produces net replacement rates of unemployment benefits for many different income and family types. The respective rates can differ substantially. They also differ for different lengths of unemployment and according to whether social assistance payments are taken into account or not. To capture income protection, we utilize the net replacement rate of a single, long-term unemployed worker without any children at average production worker wage including social assistance payments. This is a comparably hard test, but it is – in our view – more adequate to measure the protective intent of a nation than looking at short-term replacement rates or replacement rates for two-earner families or lone parents, not least because some nations offer relatively strong short-term protection but relatively weak long-term protection. Although we use slightly different measures, we adopt the chosen breakpoints used by Kvist (2003:11)

and Vis (2007: 112) in their operationalisation of similar fuzzy sets. Both authors point to national income studies which show that maintenance of attained standards of living is not possible if an individual's income is reduced to 20 per cent or less. Our first break point, fully out of the set of income protection, is thus set at a replacement rate of 20 per cent. Both Kvist (2003) and Vis (2007) also point to the fact that most countries grant tax exemptions and allowances of around 10 per cent before decreases of unemployment benefits faze in. Net replacement rates of around 90 per cent can thus be viewed as fully generous. The second break point, fully in the set of income protection, is set at 90 per cent accordingly.

Finally, we follow the example of Vis (2007) for our employment protection set as well. The OECD Employment Policy Legislation Index is an additive index of the strictness of employment protection for both regular and short term employment. It is comprised of a total of 14 items; each item can reach a score of between 0 and 6 with higher scores signifying higher levels of strictness of employment legislation. Vis (2007) chooses the break points 0.5 (fully out) and 3.0 (fully in) according to the following rationale: a score in the additive index of 0.5 signifies a high score in a maximum of one of the 14 items included in the index – it should thus be relatively easy and relatively cheap for employers to dismiss workers in this case. A score of three or higher signifies a high score on a least half of the 14 items – it should thus be much harder – albeit not impossible – and relatively cost-intensive to dismiss workers within such legislative frameworks.

We set out to include as many OECD countries as possible for as long a time period as possible in this paper. Yet, data availability remains an issue. Thus, we have to be content with including a total of 23 countries in this paper: the classic 18 nations of Esping-Andersen's (1990) *Three Worlds* plus the three Southern European nations Greece, Portugal and Spain plus Korea and the Czech Republic. In the following, our fuzzy-set ideal type analysis is based on three points in time: 1994, 1998 and 2003. Ideally, we would have preferred to present data reaching back into the early 1980s, but none of the utilized indicators are actually available in a reliable fashion back to this point in time. (For a full list of data sources: see Appendix 1.)

Findings: Productive-Protective Fuzzy Set Ideal Types

Table 3 illustrates the fuzzy set memberships of the different productive-protective property spaces introduced above for the year 2003 (see Appendix 2 for the actual fuzzy set ideal type scores). Several countries in our sample are members of one of the four 'pure' ideal types according to our analysis. Finland is at the cross-over point for the productive-protective ideal type, which is interesting since it matches Castells and Himanens' (2002) thesis of the Finnish model being closest to what they call an 'informational welfare state' – i.e. managing to combine both productive and protective elements simultaneously. Further support for their thesis comes from the USA being placed strongly within our pure productive set, where it is joined by New Zealand. Significantly, the USA's fuzzy set membership score for this set is the highest across all the countries and all the property-spaces in our sample, stressing the strong balance of its welfare state toward productive features.

Both Belgium and Germany are members of the pure protective set, while Australia (along with the UK, which is at the cross-over point) is placed within the weak set according to our data.

Table 3. Fuzzy set ideal type country memberships (2003)

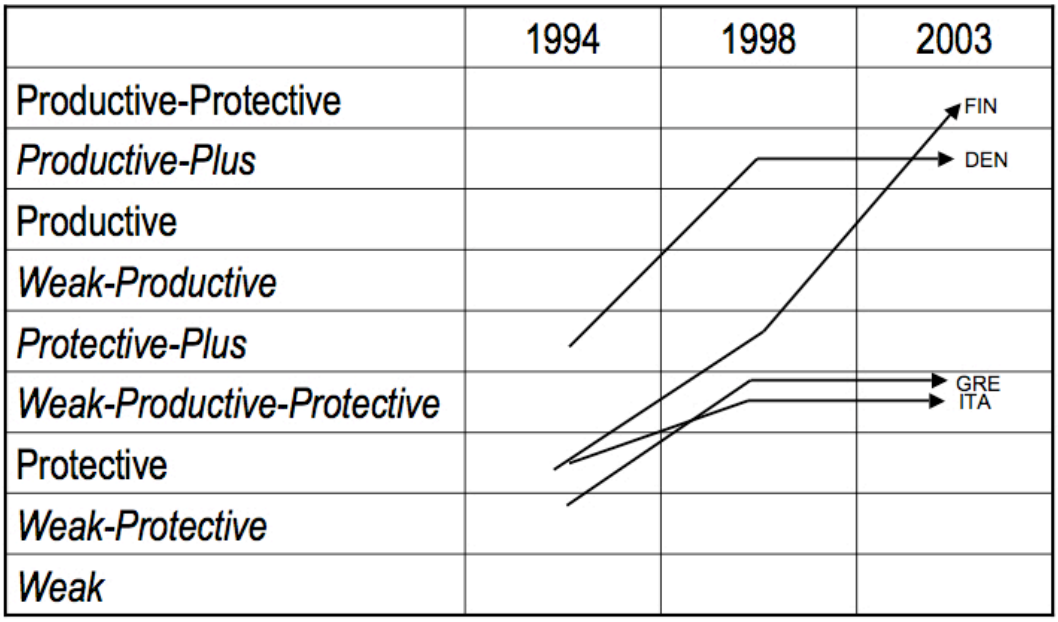
		Productive-protective: *Finland*		
	Productive plus: Denmark, Norway		**Protective plus:** Sweden, Netherlands, Austria, *Finland*	
Productive : United States, New Zealand		**Weak productive-protective:** Greece, Ireland, Switzerland, Italy, Korea		**Protective:** Belgium, Germany
	Weak productive: Canada		**Weak protective:** Spain, France, Czech Republic, Japan, Portugal, *United Kingdom*	
		Weak: Australia, *United Kingdom*		

Note: italicised countries are at the cross-over point (i.e. they score exactly 0.5)

A look the countries placed within our hybrid types yields some interesting additional findings. Denmark, Norway and Sweden all are very close to qualifying for membership in the productive-protective ideal-type. The former two countries are members of the productive-plus fuzzy set, while Sweden is a member of the protective-plus set, with Finland joining it at the cross-over point. Our fuzzy set analysis thus suggests that all four Scandinavian countries are – at least – very close to combining productive and protective elements in their respective welfare states equally. This is an important finding, for it is at odds with Holliday's (2000) argument that protective and productive features are mutually exclusive and the basis of different welfare state types. Indeed, our findings present an additional challenge to Holliday (2000) as neither of the two included East-Asian countries actually qualifies as a purely productive ideal-type. Rather, our data suggests that Korea is merely a member of the weak-productive-protective hybrid type alongside countries

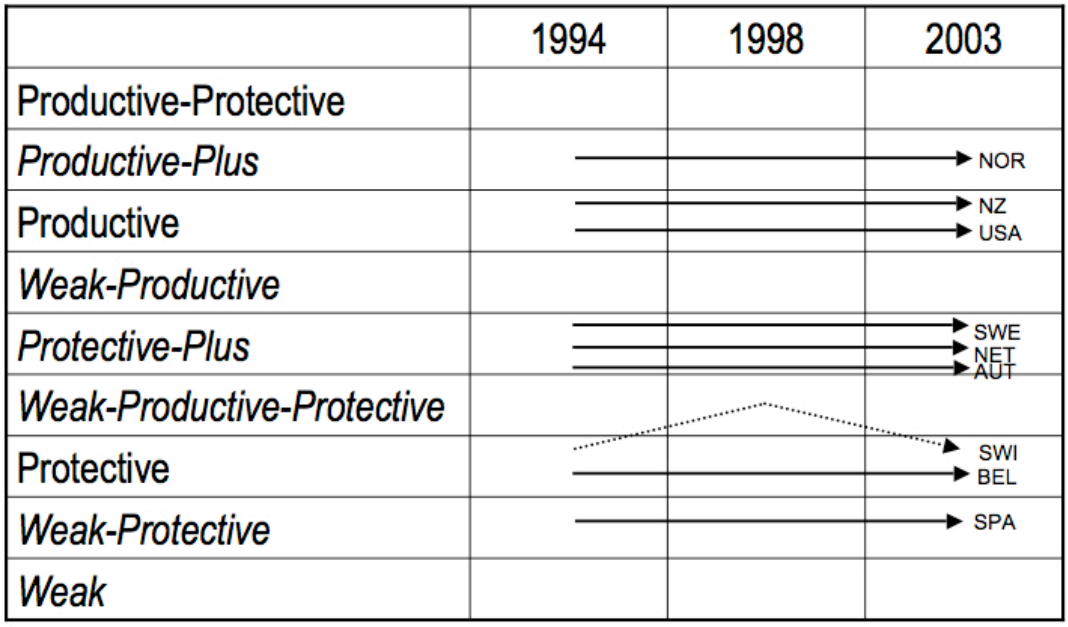
like Greece, Ireland, Switzerland and Italy. Japan is characterised by our data as a weak-protective hybrid alongside countries like Spain, France, Czech Republic and Portugal.

Fig 2: Fuzzy membership across time:
countries moving towards productive elements.



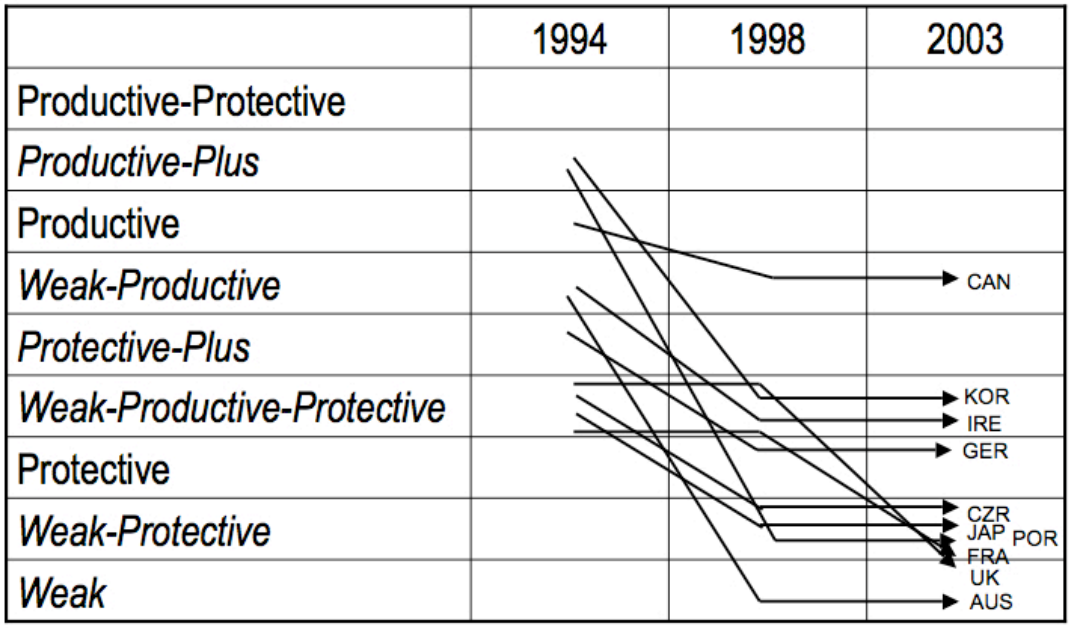
As for the analysis of country movements across time we only reach mixed evidence in regards to the body of literature suggesting significant regime change across the OECD. As is illustrated in Fig 2 only two countries in our sample, namely Denmark and Finland show a real shift towards productive welfare during the observed time period (1994-2003). Denmark moved from a protective-plus hybrid towards a productive-plus type as it significantly increased its emphasis on education spending while – at the same time – reducing the strictness of its employment legislation. Being a purely protective type in 1994, Finland gradually increased its relative investment into education and labour market training to become – at the cross-over point - a member of the productive-protective property space in 2003. Both Greece and Italy shifted towards the weak-productive-protective ideal type – albeit from different starting point of a much less developed welfare state with an emphasis primarily on employment protection.

Fig 3: Fuzzy membership across time: stable countries.



While these findings may be loosely read as a confirmation of some of the claims of the 'competition state' literature, the vast majority of observed countries do not show comparable shifts. To the contrary, a substantial proportion of the countries in our sample remained stable throughout the 1994-2003 time period – i.e. they retained membership of one specific ideal-type (see Fig 3). To borrow from Vis' (2007) vocabulary, we could also say that our data suggest that these countries featured no radical and regime-specific changes. Furthermore, Fig 4 illustrates that the remaining countries actually did not move towards but away from the more productive ideal types. Korea, Canada, Portugal are mentionable at this point in particular. All of these countries were members of either the productive-plus or purely productive ideal types in 1994 but shifted – according to our data – towards mainly protective types afterwards. These findings are obviously surprising to say the least if we consider the library of contributions to the literature seeing a productive shift in welfare in times of fiscal austerity and increased global competition.

Fig 4: Fuzzy membership across time: countries moving away from productive elements.



Given the commonplace claims that Korea provides an illustration of a productivist welfare state – indeed, former Korean President Rho invoked similar rhetoric himself in his speeches (Hwang, 2006) – it is worth reflecting on why our data appear to suggest that it has shifted away from a productive emphasis. Firstly, it is worth emphasising that Korea's extraordinary emphasis on education spending is perhaps the most striking feature of its welfare state; it is fully within the education set at each point of our analysis, but does not gain 'additional points' in our approach for being the clear leader in the OECD here. This is significant, for its active labour market spending has shifted considerably over time and dragged it out of the second of our productive sets and our approach does not allow its high score in education to compensate for this. With regard to the ALMP spending, Korea was in the set in 1994, but dropped out in 1998, largely due to a huge increase in the use of subsidised employment in response to the 1997 economic crash (Hwang, 2006). These subsidies are being phased out over time and it may well be that Korea will rejoin the productive-plus set in time. It is perhaps worth adding that Korea's reasonably strong labour market protections place it firmly within this dimension of our protective set, a feature that has perhaps been too readily overlooked in discussions of the case. While it is some way from being in our income protection set, if its recent expansion of social security continues it may be a candidate for the productive-protective set in the future.

While several authors have brought forward arguments for a fourth 'Southern European' welfare regime (e.g. Ferrera, 1996), our findings provide some limited support for this thesis. In fact, it is striking that all the Mediterranean countries – including France – possess relatively high degrees of membership of the employment protection set (in fact France, Spain and Portugal are fully in this set for 2003, while Greece and Italy are in the set at all time points). Equally, none of these countries are members of the income protection set, with most fully out or nearly fully out of this set. Beyond this, however, there is

variation in the grouping in terms of their productive features with some joining the weak-productive-protective set on the basis of their employment spending (e.g. Greece and Italy). Portugal was a member of our productive-plus set in the 1990s, but was a member of the weak-protective set in 2003; *prima face*, this is the most radical shift in 'types' in our sample, but seems in part likely to be a consequence of the relative underdevelopment of some of its welfare provisions in the 1990s: expansion of social security and health programmes has reduced the overall share of spending taken by education and taken it out of this set. Meanwhile, its ALMP spending has shifted because of greater use of job subsidies, taking it marginally out of this set. While it is productive scores in both education and training are close to being within the set, it seems likely that its changing membership reflects a genuine shift towards protective features in the Portugese social policy agenda rather being a mere artefact of our data.

Finally, it may be worth briefly reflecting on those countries within our weak type: Australia and, in 2003, the UK (albeit at the cross-over point). Their placement within this set should not be taken to mean that the countries are retrenching or have ineffective social policies. Rather, they are in the unusual position (in 2003) of failing to join any of our sets. In a sense, they are equally balanced welfare states in terms of their emphasis on protective and productive features and could be alternatively labelled as something like 'weak-weak-productive-protective'. Here, they contrast with most of the other Anglophone nations who place a clear emphasis on productive welfare strategies. In some ways, it may be that Australia and the UK are trying to steer a middle course between the productive emphasis of their Anglophone cousins and the protective course of the continental European nations; here they share much with the Scandinavian nations, but their low scores in each of the productive-protective sets reflect the strong path dependent traditions of the liberal welfare regime's minimalist outlook. Indeed, in both countries, raw data indicate important expansions of provision have taken place in some areas (though not, we should add, in terms of benefit generosity, which has weakened in both case). In the UK's case, ALMP expenditure has fluctuated considerably, with its radical movements on this indicator in part a reflection of the influence of short-term policy measures and initiatives in this sector. Both countries' ALMP scores are significantly reduced by rising administrative costs in this field, perhaps in part a reflection of their attempts to introduce a mixed economy of provision in this sector.

Conclusion

Examining the productive and protective dimensions of welfare states via fuzzy set ideal type analysis offers a rich picture of social policy stability and change, diversity and difference. While there are always genuine questions to be asked about the appropriateness of the cut-off points used to determine membership of sets, the ultimate test of any application of fuzzy set analysis comes in whether the categorisations help us to understand the cases we are analysing and whether they make sense when applied to those cases (Ragin, 2000). We believe that to be the case here, for not only do the groupings cohere when matched with common classification such as Esping-Andersen's

(1990) classic trichotomy, but deviations can be easily explained and other potential groupings (e.g. a Mediterranean and 'weak' set) identified too. We are firmly of the belief that the technique offers us a more coherent set of groupings than would be provided by a more straightforward cluster analysis (see Appendix 2).

More importantly, the analysis provides us with some theoretically significant findings. By identifying strongly productive types in some of the Anglophone countries – the USA, New Zealand (and, less so, Canada) – the approach emphasises the strengths of these welfare states while most alternative classifications have pointed mainly to the weaknesses in their protective components.

Added to this, we have shown that the combination of productive and protective features is possible, though it is by no means an easy task to achieve such a balance. Our analysis provides considerable support for Castells and Himmanens' (2002) claims that Finland and the USA form the basis of competing ideal types of a new human investment focused welfare state. We should add too that the other Scandinavian nations are not far behind Finland and may soon join it in the productive-protective set. This is an interesting finding and is largely consistent with the arguments Benner (2003) has made about the adaptations of the Scandinavian model in response to the modernising pressures of the knowledge economy.

The position of the East-Asian welfare states is interesting too. Much as Esping-Andersen (1997) argued in response to critics of his approach, Japan does not have any special claim to be an illustration of fourth ideal type on the basis of its productivitst orientation: indeed, as Esping-Andersen (1997) suspected, its claims to be productivist are much weaker than those of some of the Scandinavian nations. Korea can – or, rather, could – have made a stronger claim to be so, but changes over time have (temporarily perhaps) eroded such arguments.

Finally, our analysis does not provide much more than mixed evidence to support claims that welfare states are moving away from their protective functions and towards productive ones. Many of the countries in our sample are better classified as being protective, rather than productive, in their orientation and, moreover, in the limited time-frame we have analysed, far from moving towards productive welfare, many more have, in fact, moved away from it.

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Appendix 1: Data Sources

Variable:	Notes:	Sources:
Education investment: Total government education spending (all levels of education, all types of transactions) as share of total public and mandatory private social & total education spending	Data for Austria: 1995, 1998, 2003	*OECD Education at a Glance, OECD Social Expenditure Database*, own calculations. All sources accessed through OECD statistics portal at http://www.oecd.org
Training investment: Total public and mandatory private active labour market spending (ALMP) MINUS spending on employment services and administration MINUS spending on subsidized employment as a share of total ALMP spending	Data for Italy: 1994, 1998, 2001	*OECD Social Expenditure Database*, own calculations. Accessed through OECD statistics portal at http://www.oecd.org
Income protection: Net replacement rates for long-term single unemployed with no children; earning average production worker (APW) wage; after tax and including unemployment benefits, social assistance, family and housing benefits in the 60th month of benefit receipt.	Comparability of 2003 and 1994-1998 rates: the OECD stresses that for some countries, calculation models have been revised in line with clarifications received from country experts. This constitutes a break in the time-series and needs to be kept in mind when interpreting observed changes.	*OECD Tax Benefit Models*, accessed at http://www.oecd.org
Employment protection: Overall Employment Protection Legislation Index (EPL Version 1)	No data available for 1994; 1990 and 1998 EPL 1 scores were used to calculate 1994 scores.	*OECD Employment Outlook*, own calculations. Accessed through OECD statistics portal at http://www.oecd.org

Appendix 2: Fuzzy Set Ideal Type Scores

Australia	1994	1998	2003
Productive-Protective	0.23	0.19	0.04
Productive	0.38	0.19	0.04
Protective	0.20	0.26	0.24
Weak	0.20	**0.55**	**0.56**
Productive-Plus	*0.34*	*0.19*	*0.04*
Protective-Plus	*0.23*	*0.26*	*0.24*
Weak-Productive-Protective	*0.34*	*0.28*	*0.28*
Weak-Protective	*0.20*	*0.28*	*0.28*
Weak-Productive	***0.62***	*0.45*	*0.44*
Austria			
Productive-Protective	0.16	0.40	0.19
Productive	0.16	0.30	0.19
Protective	**0.50**	0.45	0.39
Weak	0.32	0.30	0.38
Productive-Plus	*0.16*	*0.32*	*0.19*
Protective-Plus	***0.50***	***0.55***	***0.57***
Weak-Productive-Protective	*0.32*	*0.32*	*0.43*
Weak-Protective	*0.32*	*0.32*	*0.39*
Weak-Productive	*0.32*	*0.30*	*0.38*
Belgium			
Productive-Protective	0.11	0.03	0.07
Productive	0.11	0.03	0.07
Protective	**0.52**	**0.50**	**0.64**
Weak	0.14	0.34	0.32
Productive-Plus	*0.11*	*0.03*	*0.07*
Protective-Plus	*0.28*	*0.09*	*0.36*
Weak-Productive-Protective	*0.28*	*0.09*	*0.33*
Weak-Protective	*0.48*	***0.50***	*0.33*
Weak-Productive	*0.14*	*0.09*	*0.32*
Canada			
Productive-Protective	0.11	0.08	0.06
Productive	**0.54**	0.36	0.29
Protective	0.11	0.08	0.06
Weak	0.11	0.22	0.36
Productive-Plus	*0.14*	*0.11*	*0.11*
Protective-Plus	*0.11*	*0.08*	*0.06*
Weak-Productive-Protective	*0.14*	*0.11*	*0.11*
Weak-Protective	*0.11*	*0.11*	*0.11*
Weak-Productive	*0.46*	***0.64***	***0.64***
Czech Republic			
Productive-Protective	0.00	0.00	0.00
Productive	0.00	0.00	0.00
Protective	0.30	0.34	0.26
Weak	0.30	0.44	0.44
Productive-Plus	*0.00*	*0.00*	*0.00*
Protective-Plus	*0.32*	*0.26*	*0.26*

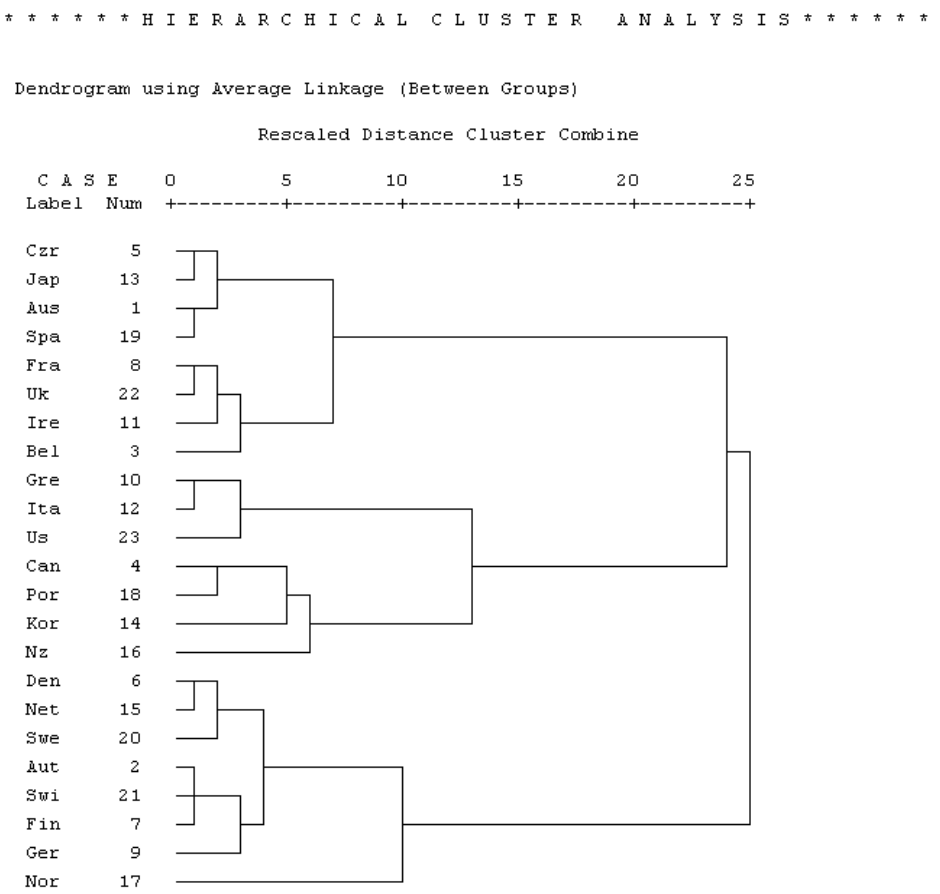
Weak-Productive-Protective	***0.56***	*0.26*	*0.26*
Weak-Protective	*0.30*	***0.56***	***0.56***
Weak-Productive	*0.44*	*0.26*	*0.26*
Denmark			
Productive-Protective	0.37	0.37	0.37
Productive	0.16	0.20	0.18
Protective	0.18	0.05	0.21
Weak	0.16	0.05	0.18
Productive-Plus	*0.37*	***0.63***	***0.63***
Protective-Plus	***0.55***	*0.36*	*0.27*
Weak-Productive-Protective	*0.45*	*0.36*	*0.21*
Weak-Protective	*0.18*	*0.05*	*0.21*
Weak-Productive	*0.16*	*0.20*	*0.18*
Finland			
Productive-Protective	0.12	0.24	**0.50**
Productive	0.12	0.24	0.39
Protective	**0.59**	0.42	0.49
Weak	0.16	0.34	0.39
Productive-Plus	*0.12*	*0.24*	*0.40*
Protective-Plus	*0.41*	***0.58***	***0.50***
Weak-Productive-Protective	*0.32*	*0.36*	*0.40*
Weak-Protective	*0.32*	*0.36*	*0.40*
Weak-Productive	*0.16*	*0.34*	*0.39*
France			
Productive-Protective	0.15	0.18	0.19
Productive	0.06	0.01	0.00
Protective	0.30	0.20	0.42
Weak	0.06	0.01	0.00
Productive-Plus	*0.15*	*0.18*	*0.19*
Protective-Plus	*0.46*	*0.20*	*0.28*
Weak-Productive-Protective	***0.54***	***0.58***	*0.28*
Weak-Protective	*0.30*	*0.42*	***0.58***
Weak-Productive	*0.06*	*0.01*	*0.00*
Germany			
Productive-Protective	0.00	0.00	0.00
Productive	0.00	0.00	0.00
Protective	0.49	**0.53**	**0.53**
Weak	0.00	0.20	0.18
Productive-Plus	*0.00*	*0.00*	*0.00*
Protective-Plus	***0.51***	*0.47*	*0.47*
Weak-Productive-Protective	*0.07*	*0.21*	*0.31*
Weak-Protective	*0.07*	*0.21*	*0.31*
Weak-Productive	*0.00*	*0.20*	*0.18*
Greece			
Productive-Protective	0.00	0.00	0.00
Productive	0.00	0.00	0.07
Protective	0.00	0.00	0.00
Weak	0.00	0.00	0.07
Productive-Plus	*0.00*	*0.00*	*0.07*
Protective-Plus	*0.00*	*0.00*	*0.00*

Weak-Productive-Protective	*0.14*	***0.50***	***0.70***
Weak-Protective	***0.86***	***0.50***	*0.30*
Weak-Productive	*0.00*	*0.00*	*0.07*
Ireland			
Productive-Protective	0.17	0.17	0.23
Productive	0.33	0.20	0.23
Protective	0.17	0.17	0.25
Weak	0.37	0.28	0.34
Productive-Plus	*0.26*	*0.20*	*0.23*
Protective-Plus	*0.17*	*0.17*	*0.25*
Weak-Productive-Protective	*0.26*	***0.68***	***0.64***
Weak-Protective	*0.26*	*0.28*	*0.34*
Weak-Productive	***0.63***	*0.32*	*0.36*
Italy			
Productive-Protective	0.00	0.00	0.00
Productive	0.00	0.10	0.04
Protective	0.00	0.00	0.00
Weak	0.00	0.12	0.42
Productive-Plus	*0.00*	*0.10*	*0.04*
Protective-Plus	*0.00*	*0.00*	*0.00*
Weak-Productive-Protective	*0.49*	***0.71***	***0.58***
Weak-Protective	***0.51***	*0.29*	*0.42*
Weak-Productive	*0.00*	*0.12*	*0.42*
Japan			
Productive-Protective	0.00	0.00	0.00
Productive	0.00	0.00	0.00
Protective	0.30	0.26	0.26
Weak	0.34	0.39	0.46
Productive-Plus	*0.00*	*0.00*	*0.00*
Protective-Plus	*0.30*	*0.26*	*0.15*
Weak-Productive-Protective	***0.63***	*0.40*	*0.15*
Weak-Protective	*0.34*	***0.60***	***0.54***
Weak-Productive	*0.37*	*0.39*	*0.15*
Korea			
Productive-Protective	0.00	0.00	0.00
Productive	0.39	0.18	0.39
Protective	0.00	0.00	0.00
Weak	0.00	0.00	0.00
Productive-Plus	***0.61***	*0.18*	*0.47*
Protective-Plus	*0.00*	*0.00*	*0.00*
Weak-Productive-Protective	*0.09*	***0.61***	***0.53***
Weak-Protective	*0.00*	*0.00*	*0.00*
Weak-Productive	*0.09*	*0.39*	*0.39*
Netherlands			
Productive-Protective	0.04	0.19	0.42
Productive	0.04	0.19	0.22
Protective	0.04	0.06	0.18
Weak	0.04	0.06	0.18
Productive-Plus	*0.04*	*0.19*	*0.35*
Protective-Plus	***0.77***	***0.65***	***0.58***

Weak-Productive-Protective	*0.23*	*0.35*	*0.35*
Weak-Protective	*0.04*	*0.06*	*0.18*
Weak-Productive	*0.20*	*0.20*	*0.22*
New Zealand			
Productive-Protective	0.14	0.15	0.34
Productive	**0.62**	**0.62**	**0.58**
Protective	0.09	0.00	0.00
Weak	0.09	0.00	0.00
Productive-Plus	*0.38*	*0.38*	*0.39*
Protective-Plus	*0.14*	*0.15*	*0.34*
Weak-Productive-Protective	*0.27*	*0.24*	*0.39*
Weak-Protective	*0.09*	*0.00*	*0.00*
Weak-Productive	*0.27*	*0.24*	*0.42*
Norway			
Productive-Protective	0.32	0.46	0.46
Productive	0.08	0.12	0.17
Protective	0.23	0.01	0.00
Weak	0.08	0.01	0.00
Productive-Plus	***0.68***	***0.54***	***0.54***
Protective-Plus	*0.25*	*0.30*	*0.28*
Weak-Productive-Protective	*0.25*	*0.30*	*0.28*
Weak-Protective	*0.23*	*0.01*	*0.00*
Weak-Productive	*0.08*	*0.12*	*0.17*
Portugal			
Productive-Protective	0.00	0.00	0.08
Productive	0.00	0.00	0.00
Protective	0.00	0.00	0.08
Weak	0.00	0.00	0.00
Productive-Plus	***0.75***	***0.74***	*0.46*
Protective-Plus	*0.00*	*0.00*	*0.08*
Weak-Productive-Protective	*0.25*	*0.27*	*0.48*
Weak-Protective	*0.04*	*0.10*	***0.52***
Weak-Productive	*0.00*	*0.00*	*0.00*
Spain			
Productive-Protective	0.14	0.06	0.10
Productive	0.00	0.03	0.00
Protective	0.14	0.06	0.12
Weak	0.00	0.03	0.00
Productive-Plus	*0.27*	*0.32*	*0.10*
Protective-Plus	*0.14*	*0.06*	*0.12*
Weak-Productive-Protective	*0.48*	*0.38*	*0.24*
Weak-Protective	***0.52***	***0.62***	***0.76***
Weak-Productive	*0.00*	*0.03*	*0.00*
Sweden			
Productive-Protective	0.16	0.46	0.40
Productive	0.05	0.30	0.30
Protective	0.32	0.42	0.21
Weak	0.05	0.30	0.21
Productive-Plus	*0.16*	*0.32*	*0.36*
Protective-Plus	***0.68***	***0.54***	***0.60***

Weak-Productive-Protective	*0.16*	*0.32*	*0.36*
Weak-Protective	*0.16*	*0.32*	*0.21*
Weak-Productive	*0.05*	*0.30*	*0.30*
Switzerland			
Productive-Protective	0.13	0.00	0.26
Productive	0.13	0.00	0.29
Protective	0.26	0.26	0.26
Weak	0.28	0.32	0.30
Productive-Plus	*0.13*	*0.00*	*0.29*
Protective-Plus	*0.26*	*0.26*	*0.26*
Weak-Productive-Protective	***0.64***	*0.35*	***0.63***
Weak-Protective	*0.28*	***0.65***	*0.37*
Weak-Productive	*0.36*	*0.32*	*0.30*
United Kingdom			
Productive-Protective	0.04	0.04	0.10
Productive	0.23	0.22	0.19
Protective	0.04	0.04	0.10
Weak	0.36	0.33	**0.50**
Productive-Plus	*0.23*	*0.22*	*0.19*
Protective-Plus	*0.04*	*0.04*	*0.10*
Weak-Productive-Protective	***0.59***	***0.52***	*0.42*
Weak-Protective	*0.41*	*0.33*	***0.50***
Weak-Productive	*0.36*	*0.48*	*0.42*
United States			
Productive-Protective	0.00	0.00	0.00
Productive	**0.66**	**0.68**	**0.74**
Protective	0.00	0.00	0.00
Weak	0.22	0.00	0.00
Productive-Plus	*0.00*	*0.00*	*0.00*
Protective-Plus	*0.00*	*0.00*	*0.00*
Weak-Productive-Protective	*0.00*	*0.00*	*0.00*
Weak-Protective	*0.00*	*0.00*	*0.00*
Weak-Productive	*0.34*	*0.32*	*0.26*

Appendix 3: Cluster Analysis of Raw Productive-Protective Variables



Standard hierarchical cluster analysis – based around our raw (i.e. non-fuzzy) indicators for education, ALMP, EPL and income protection – identifies three clusters:

> (1) Norway, Germany Finland, Switzerland, Austria, Sweden, Netherlands and Denmark.
>
> (2) Greece, Italy, USA, Canada, Portugal, Korea and New Zealand.
>
> (3) Czech Republic, Japan, Australia, Spain, France, UK, Ireland and Belgium.

One simple illustration of the weakness of cluster analysis compared to fuzzy sets comes with the close association (according to cluster analysis) of Greece, Italy and the USA – they are amongst the first groups to be joined together by the approach, but in fuzzy set terms are seen as being very different: the USA's main feature is its strong emphasis on education (it is fully in this set), while Greece and Italy are clearly out of this set. By contrast, strong employment protection is a (arguably the) key feature of Greece and Italy, but the USA is fully out of this set. In stark contrast to fuzzy set analysis, cluster analysis pays no attention to the conceptual significance of such variations in the data.

Footnotes

[1] There was, for instance, no parallel of the decommodification index for the other two components of welfare regimes or, indeed, an attempt to offer a consolidated welfare regime index that drew together data from each of the relevant components.

[2] it is also possible to utilise the logical OR (the union or maximum principle), but this is not relevant in this instance.

[3] Or, in rare cases, to multiple property spaces when it is exactly half in a number of sets because it scores 0.5, thus placing at the cross-over point representing exactly half in, and half out, a set.

[4] This use of standard deviations is similar to Esping-Andersen's scoring procedure for his decommodification index.

[5] Interestingly, while the former highlights high levels of ALMP spending as a characteristic of social democratic welfare regimes, with ALMP spending as a share of GDP being particularly high in Scandinavian countries, Vis (2007) conceptualises ALMP spending as a measure of activation and thus essentially as an indicator of the workfare dimension of contemporary welfare states. Apart from Switzerland (1985 and 2002) and Denmark (1995 and 2002) none of the countries are actually classified as 'generous workfare' states by Vis (2007: 114-115).