

# **New Dimensions of Welfare State Regimes in Advanced Democracies**

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## **I. Introduction**

In their article in the inaugural issue of *Socio-Economic Review*, Alex Hicks and Lane Kenworthy suggest that we would be best served to think of OECD welfare states as varying on two dimensions in contrast to the three (or more) “worlds” of welfare that are so often discussed in the literature (Hicks and Kenworthy 2003). They point out that there are a variety of practical and intellectual advantages to conceiving of welfare states along continuous dimensions and not as discrete regime types. Their analysis identifies two dimensions of welfare states. It then shows that important socio-economic outcomes are robustly connected to these different welfare state dimensions. In so doing, their paper refines our understanding of welfare state institutions and their impacts.

The paper builds on Hicks and Kenworthy's analysis in several ways. First, we provide some important corrections to the underlying data that is the basis their welfare state dimensions. These corrections have substantive impacts on our understanding of the dimensionality of industrial welfare states. Second, we provide much sought after longitudinal data on welfare state institutions, enabling us to investigate several important questions about change in the welfare states of post-industrial democracies. We find that the configuration of welfare state *dimensions* between circa 1980 and circa 2000 changes little. However, we do document movement within countries over time on at least one of these dimensions. Finally, we find evidence that the pattern of change on this dimension is closely correlated with the pattern of change in key social outcomes. That is, increases egalitarianism between the 1980s and the start of the twenty-first century are associated with increases in income redistribution *within and between* nations.

The remaining paper is organized as follows. In the next section we review and re-examine Hicks and Kenworthy's (hereafter HK) dimensional analysis of welfare states. Using an updated set of welfare state stratification indices and other scores for the period around 1980 and 2000, we recalculate the dimensionality of welfare states in eighteen post-industrial nations for both periods and compare our results to theirs. The third section examines how well our updated scores explain key social outcomes. The subsequent section examines change in welfare states buy comparing national changes on these measures between 1980 and 2000.

## II. Dimensions of the Modern Welfare State

**HK's dimensions of welfare.** In his elaboration of the worlds of welfare, Esping-Andersen provides data on seven welfare policy characteristics, each of which is considered to capture one of the three “worlds” of welfare (Esping-Andersen 1990). Universal access to social insurance benefits and equality in the level of social insurance benefits received capture the socialist dimension; the extent of means-tested benefits, prevalence of private pension provision, and amount of private healthcare spending tap the liberal dimension; and the prevalence of distinctive occupational pension funds and amount spent on pensions civil servant tap, respectively, the statist and corporatist elements of the conservative world. In *Three Worlds*, country scores for each characteristic in each world were summed to produce a country score for each of the three dimensions around 1980.

Esping-Andersen's suggested that each of these three dimensions was distinctive from the other two: almost all of the countries he examined ranked high on only one of the three dimensions. Moreover, countries tended to rank low scores on other dimensions. HK criticized Esping-Andersen for failing to show clearly empirically that the pattern of his country scores generated three distinct dimensions. To correct this problem, HK conducted a principal components analysis of national scores on each of three dimensions (i.e., socialist, liberal, and conservative), and found that there are, in fact, only two distinct dimensions, not three. In effect, their results indicated that country scores on the socialist and liberal world were negatively correlated, thus constituting opposite sides of the same dimension. That dimension was uncorrelated with the conservative dimension.

HK later demonstrate that other indicators of the three worlds of welfare also load on either a “liberal-progressive” or a “traditional conservative” dimension. Ultimately, they used scores from this principal components procedure to show in regression analysis that these two welfare state dimensions explained a considerable amount of cross-national variation in several social outcomes: reduction in income inequality, reduction in poverty, the degree of adult labor force participation and its growth, and, finally, female labor market equality, measured by gender wage gap and female employment rates.

**Welfare dimensions revisited.** Recent work raising questions about Esping-Andersen’s empirical indicators of welfare state stratification compels us to reassess and extend HK’s work. For example, Scruggs and Allan (2008) found several problems with the accuracy of Esping-Andersen’s measures of welfare state stratification circa 1980.<sup>1</sup> They also produce most of these welfare state measures for multiple time points. This information permits us now to evaluate comparative institutional change in the welfare state, and its effects, using common measures. We focus here on the same two time points used in the Scruggs and Allan paper, 1980, the reference year in *Three Worlds* (and hence the implicit reference point for much of the literature invoking that classification), and circa 2000.

Scruggs and Allan’s criticism of Esping-Andersen’s stratification scores can be grouped into two broad classes. First, there appear to have been several editorial mistakes in aggregating the scores for individual “world of welfare” characteristics into what are conventionally referred to as the welfare state stratification scores. First, Belgium’s

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<sup>1</sup> In an earlier paper, Scruggs and Allan (2006) conduct a similar analysis of the decommodification index, and find other discrepancies (also see Bambra 2006).

conservative index score, 8, is greater than the sum of its two component scores, 6 (2 for corporatism and 4 for etatism). Second, the reported score for the United States, 0, is less than the sum of its corporatism and etatism scores. Third, Norway's reported socialist stratification score, 8, was higher than its component scores indicated (6).

The second class of revisions concerned discrepancies in the underlying values for the welfare state characteristics in question. For example, based on recent OECD data sources, Scruggs and Allan (2008) found that the reported means-tested spending in the Antipodes, United Kingdom, and Nordic countries was higher than Esping-Andersen reported, and much lower than he reported for Italy and Belgium.

The validity of principal components analysis, which HK rely on to derive their welfare state dimensions, is ultimately based on the accuracy of the underlying data. Thus, Scruggs and Allan's results raise questions HK's results. Moreover, because their welfare dimensions measures are *independent variables* in their regressions analysis, measurement problems associated with these scores may *biased*, not just inefficient, regression estimates (Gujarati 2003, 524-8).

How much, if at all, are HK's results affected by overcoming these two limitations? Table 1 provides the factor loadings from their paper (which we were able to reproduce with their replication data) using Esping Andersen's three welfare state stratification scores, along with the factors produced using Scruggs and Allan's correct welfare state stratification scores. Like HK, we find only two main dimensions using the standard eigen value limit of 1.0; and we find that the first dimension captures about 50% of the total item variance. However, our results diverge from their printed results in one important way. Our results suggest that it is the socialist and conservatism stratification

indices that load (negatively) together. Welfare state *liberalism*, not welfare state conservatism, loads separately on the second dimension.

Table 1 about here

Using new data available for 2002, we are also able to repeat the principal components analysis on the welfare stratification indices for a more recent period.<sup>2</sup> The final set of results in Table 1 displays the results of that analysis. While the conventional wisdom is that welfare state stratification patterns have changed little since the 1980s, these results suggest that this is false. We do find two principal welfare state dimensions; however, now welfare state *liberalism* loads negatively with the *conservative* stratification index on the first dimension. The rotated loadings are -.85 and .86. Meanwhile, the *socialism* index loads alone on the second dimension. Its rotated factor loading is .96 on that dimension, while the liberalism loading is -.33 and the conservative loading is -.31.

It is quite difficult to compare the factor scores for each country in 2002 with either of the results in 1980. One thing that is clear is that these results suggest that HK's socialist-liberal dimension is not present in industrial welfare states. That finding appears to be an artifact of measurement bias in the original source data. While it might be tempting to argue that the absence of a stable intercorrelation between the three indices

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<sup>2</sup> Details about these measures are in Scruggs and Allan (2008). They were unable to update one of original stratification measures: the extent of private pension spending in all pension spending. An OECD report gives information about the public pension share of retirement income in nine countries for the 1970s, 1980s, and 1990s (2001, p. 28). It suggests stability in this indicator.

means that each index is independent, that would be wrong, this statistical technique would indicate 3 distinct dimensions with eigen value greater than 1 if, in fact, the three worlds were independent of each other.

**Welfare dimensionality in an expanded set of indicators.** Hicks and Kenworthy, compute factor scores for their two welfare state dimensions from on a wider set of indicators than the three stratification measures discussed above. Citing Esping-Andersen's later work (1999), they add several additional features of welfare states to the mix, i.e., labor market regulation and family policy.<sup>3</sup>

For tapping labor market regulation they use three measures: a) spending on active labor market policy programs as a share of GDP; b) government employment as a share of all working age adults; and c) "state laborism," the factor scores of a principal components analysis of the government's union contract extension and the social security and payroll tax contributions share of GDP. For tapping family policy, HK use Wilensky's family labor force participation policy, which is the sum of scores for a) generosity of maternity and family leave policy, b) the generosity of public daycare subsidy and provision, and c) the flexibility of retirement policy.

For our replication, we used the above measures, but also added a in the construction of the state laborism index: "Employment Protection Legislation." We did this for two reasons.<sup>4</sup> First, such legislation constitutes an explicit intervention of the

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<sup>3</sup> We look only at the indicators in their "trimmed analysis" since this is the one they use in their regression analyses later in the paper.

<sup>4</sup> To get the scores, we simply ran a principal components analysis of the social security/payroll tax revenue, bargaining coverage extension and employment protection legislation. All three load very strongly on a single factor which explains >70% of

state into the employment relationship. Independently of contract extension, which universalizes terms of work negotiated by labor market actors, employment protection rules are more wholeheartedly “statist” efforts to raise the overall cost of employment. Second, though we do not reject it altogether, we believe that the measure of state contract extension- the difference between union density the percentage of employees covered by collectively bargained contracts-- may not accurately estimate “statism” in collective bargaining.<sup>5</sup>

To help ensure that our data for 1980 is comparable to the data we collected for the more recent period, we replicated HK’s data using our own measurements of the relevant variables going back to their original sources (and in some case to the sources of those sources), and to alternative sources for information. Due to some differences in data availability, we were forced to use data for 1985 for active labor market policy in 1980. We used total labor force (not total population aged 15-64) as the denominator for our government employment data. Since we were not able to reconstruct Wilensky’s index for a recent year, we used the same values in both periods. While some of our measures for circa 1980 are closely correlated with theirs, not all are. For conservative welfare state stratification ( $\rho=.85$ ), liberal welfare state stratification (.80), active labor

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common variance. Loadings for 1980 are .93,.81, .81, respectively for 1980. They are about the same for 2003, .90, .78, .87, with >70% of variance explained.

<sup>5</sup> HK’s logic is that when the state extends coverage to non-union workers “the collective bargaining aspirations of the union movement [are] enacted by state fiat” and reflect a “residue” of old solidarities (HK 2003, p. 41). While we agree that there is truth in this argument, our reading of discussions of development of collective bargaining and extension is that the statism implied by contract extensions may reflect the aspirations of trade unions, liberal legal traditions of equal protection, or the dominant level of collective bargaining as much as state intervention into the labor contract per se.<sup>5</sup> Moreover, by the same token, the universal extension of social insurance to non-unionized workers would be equally as statist.

market policy (.93) and government employment (.93) there is a reasonably close correlation; but socialist stratification (.55) and state laborism (.61) are only moderately correlated with each other.

**Replication Results.** Table 2 provides the results of a principal components analysis using the variables in HK for 1980. The first set of results simply repeats the analysis with their data. The second set repeats their analysis with our replication dataset. The third set shows results for circa 2002.

Table 2 about here

*HK data:* Our reanalysis of the HK data give results that are extremely close to their results, with almost all discrepancies likely due to rounding. The eigen values indicate that only the first two factors are much greater than 1.0, and that eigenvalue for a “third world” is low: .67. If we constrain the results to report vari-max rotated loadings for three factors, we do obtain results that are consistent with Esping-Andersen’s three worlds: on the first factor, socialist stratification loads strongly with government employment and weakly with family policy; on the second factor, conservative stratification loads strongly with state laborism and weakly with family policy; and, on the third factor, liberalism loads strongly (but negatively) with active labor market policies. In other words, the Esping-Andersen data is not totally inconsistent with a weak *tendency* towards three dimensions, it is just that the distinctiveness of the liberal and socialist dimensions is not very strong.

There is only one other real discrepancy between HK's published results (HK, p. 38-9, Table 5) and ours. In the HK paper, the family labor force participation policy factor loading mistakenly carries a *negative* sign for the second (conservative) dimension.<sup>6</sup> That entry should have a positive sign, and, corrected, suggests that *both* traditional social democratic and conservative welfare regimes have stronger family labor force participation policies.<sup>7</sup>

*Our data:* The main objection to the HK results is problems with the stratification indices. A principal components analysis of our replication dataset produces factor loadings that across our two time periods.<sup>8</sup> First, as with the HK results, we find that by conventional criteria there are only two unique dimensions of welfare states.<sup>9</sup>

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<sup>6</sup> We infer that this is an editorial error, because the individual country scores reported at the bottom of our table are nearly identical to those reported in HK's paper. A large difference in the actual score (+.57 versus -.54) would almost certainly have led to large differences in those country factor scores.

<sup>7</sup> This pattern is also supported by the results in HK's "full analysis", which showed that another family policy measure, the family labor force participation index, loaded positively (but moderately) on both of their welfare state dimensions.

<sup>8</sup> The consistency between 1980 and 2000 here contrasts with the earlier results in Table 1. This difference illustrates a potential problem with principal components analysis. Common loadings of particular measures on particular dimensions can be a function of what variables are included in the analysis, not just the quality of the underlying data.

<sup>9</sup> If we constrain the estimating procedure to produce three dimensions, there is weak evidence of a third dimension. For the 1980 data, the first dimension captures just over 40% of the variance, the second an additional 30-35%. (The third dimension only captures about 12%, which is not much better than the fourth dimension.) The pattern of common loadings, in the three dimension case, is similar to what we reported in the previous section, with one important exception to the HK data: family policy loads strongest on the conservatism/state laborism dimension. For the 2000 data, when we allow for three dimensions, the first dimension captures about 50% of the variance, the second less than 25%, and the third about 13%. In this case, the pattern factor loadings is not stable.

The loadings for 1980 show a pattern that differs markedly from HK's results. This can be seen in the table by comparing the individual variable loadings on the two dimensions in the "Hicks-Kenworthy data", "Full Replication 1980" panels of Table 2. First, we find a primary "conservative-liberal" dimension with a "social democratic" second dimension in the revised data, not a primary socialist/liberal dimension. Our conservative-liberal dimension is marked by high conservatism, state labor market intervention, and strong family participation policies. Liberal stratification also loads negatively on this factor.

It is worth emphasizing that, in all countries, state policy plays a major role in enhancing family labor force participation policy, and that such policies are widespread in countries ranging from France and Belgium to Sweden and Norway. Moreover, these policies are weak in countries ranging from the United States and Switzerland to the Netherlands. If we compare this dimension to the second "conservative" dimension in HK (to which it is correlated at .89), we see large differences in the scores of six countries. France, the Netherlands and New Zealand all receive considerably lower scores. Sweden, Norway and Finland all receive higher scores.

The second dimension emerging from our results is associated with high socialist stratification (that is, universal social insurance with more "flat-rate" benefits), high government employment and high spending on active labor market policies. If we look at the factor scores, to some degree, this dimension resembles HK's first dimension. However, here the United Kingdom and Canada score much higher; Finland, Japan and Norway score much lower. The pattern of loadings in Table 2 labeled "Full Replication 2000" tells a similar story. There is a primary "conservative-liberal" dimension and a

secondary “social democratic” one. We discuss these results later when we talk about change in the fourth section of the paper.

### **III. The Effect of Welfare State Dimensions**

One of the purposes of this paper has been to re-evaluate the conventional assertions about the clustering of welfare state attributes. Central to developing this critique is challenging one of the foundations of contemporary welfare state scholarship. If we correct inaccuracies in the data to gauge the stratification patterns of countries’ systems of social insurance, we find patterns that conflict with both Esping-Andersen’s ideas about three distinct worlds of welfare and HK’s conceptions of a liberal-progressive and a conservative dimension of welfare institutions. We find that the most important distinction among states is between their “liberalism” and their “statism” (cum family policy), with the degree of egalitarian social insurance, government payroll and active labor market policies forming an independent dimension.

Having established a more empirically accurate understanding of what types of welfare state efforts are correlated, we should also ask whether and how our dimensions are at all related to outcomes that welfare states are designed to address. To find out, we followed HK’s lead, and examined the role of our welfare state dimensions in reducing inequality and relative poverty and in affecting employment rates.<sup>10</sup> We relied on their basic model specifications and control variables, but insert our corrected welfare state dimension scores. The dependent variables are: a) reduction in income inequality (pre and post fisc), b) reduction in the poverty rate (pre and post-fisc), c) the employment rate

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<sup>10</sup> HK looked at gender equality in the labor market, a topic that we do not deal with in this paper.

as a share of the 15-64 population, d) change in employment rate between the 1970s and 1980s and 1980s and 1990s. There are two observations per country: one for the 1980s and one for the 1990s. The controls in the two redistribution models are: pre-fisc inequality (or pre-fisc poverty rate), left government share, Christian Democratic government share, real GDP per capita, trade share of GDP, deindustrialization. The controls in the two employment models are left government share, Christian Democratic government share, real interest rates, growth of GDP, wage-setting coordination. All models include a dummy for the 1990s observations. All dependent and control variables are described in the appendix.

Table 3 provides three sets of regression estimates for each model.<sup>11</sup> The first uses 1980 measure of the factor scores for both time periods. This result is perhaps the most closely comparable to HKs results, since they did not have any estimates of change in these scores. The second set of results uses different factor scores for each country-year, using the 1980 weights and values as a benchmark.<sup>12</sup> That is, for each country, we use the 1980 score for the conservative-liberal and the egalitarian factors for the first observation, and the 2000 scores for the second. Finally, the third set of results resembles the second set, but we eliminate the control variables. This allows us to gauge the

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<sup>11</sup> It is not really appropriate to compare the “power” of our results with HK’s, or with any results utilizing Esping-Andersen’s measures welfare stratification. We are not claiming to have a better model or necessarily a more powerful explanation than they do. Our contention is that their results are incorrect because they were forced to rely on biased data. What our results can do is allow us to evaluate whether or not the actual patterns in these welfare state institutions, properly measured matter.

<sup>12</sup> It would not be appropriate to use the factor scores shown in Table 2 for the second time period (2000). Principal component analysis computes factor weights based on standardized variables. For example if all country scores on all measures declined by their standard deviation between 1980 and 2000, the factor scores computed for 2000 would be identical to the 1980 scores, even though all the countries would have registered a drop in both their statism and egalitarianism.

robustness of the relationship to the conditioning data, e.g., it checks that our estimates in the full model are not made larger and more significant by the controls variables.

Table 3 about here

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Based on the first set results in Table 3, higher scores on both our statist and egalitarian dimensions are associated with greater income redistribution and lowered poverty. However, our results suggest that the relationship between dimensions of the welfare state and redistribution is weaker than HK’s results led us to believe. (Recall that all that differs between our models and theirs are the corrected dimension scores.) The reported adjusted R-squares in HK are .72 for reduction in inequality and .57 for reduction in poverty; ours are, respectively, .46 and .45. We also find that the relative effect of our two welfare dimension scores, at least as implied by their standardized coefficients, are more similar to each other than is the case in HK (Table 9 in their paper). In the case of the poverty reduction model, moreover, our estimate of the “statist-liberal” effect is relatively larger than the “egalitarian” dimension effect: .45: .67 versus .15: .88 in HK.

The first set of estimates for the employment model leads to similar conclusions. The egalitarianism dimension is predicted to have a modest positive effect, but that estimate has high uncertainty associated with it. Meanwhile, higher scores on conservative-liberal dimension are estimated to harm the employment rate, but by perhaps half of what HK's results indicated for their "traditional conservative" dimension. (Recall that all other respects save for the welfare state dimensions, our specification and data are identical to theirs.) With respect to the change in employment rate between the 1980s and 1990s, our model is slightly better than what is reported in HK, and our conservative-liberal dimension is a relatively stronger predictor of decline in employment growth than their traditional conservatism measure.

If we look at the second set of estimates, those employing the 1980 dimension score for the first time point country and the 2002 dimension score for the second time point, the results change in subtle, but important, ways. First, the explanatory power of the redistribution model is higher than in the first set. This is circumstantial evidence that within country *changes* in the welfare state institutions matter for changes in redistributive outcomes, a point we return to in the next section of the paper. Second, compared to the first set of results, the increase in the coefficient (and standardized coefficient) of the egalitarian dimension—8.21 (beta=.79) versus 3.65 (beta=.22)-- indicates that welfare retrenchments or expansions in this dimension explain changes in a countries outcomes. Comparing results for employment performance in an analogous way, we can infer that while countries that are more "statist" tend to have lower employment rates, retrenching on this dimensions does not appear to boost national

employment growth in the period we are looking at. The final set of estimates suggests that our estimates in the preceding panels are generally robust.<sup>13</sup>

#### **IV. A closer look at change over time**

An important question in the comparison of welfare states in recent years concerns institutional change and its impacts. Debates about the extent of change and its causes are well known. Quite often, scholars base their assessments on separate trends in a program or two.

In previous sections of the paper, we presented data aggregating a number of different institutional features of welfare state at two points in time. To recall, in our principal components analysis we found that the patterns of correlation between different welfare state attributes was not very different between 1980 and 2000. In the last section, we presented some evidence suggesting that changes in our egalitarian dimension of the welfare state (the universality and egalitarianism of programs, plus the extent of active labor market policy and public employment) is linked to substantive outcomes. In this section we provide some preliminary results of what our data suggests about welfare state change within countries.

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<sup>13</sup> In a footnote, HK note that they do not include neo-corporatism in their analysis, because, though they expect that it is relevant for redistribution (and we would add employment performance), it is too highly correlated with their welfare state dimensions. This correlation is all the more reason to include it in any proper evaluation of welfare state dimensions. As it turns out, we find only a moderate correlation between conventional measures of neo-corporatism (see Hicks 1999, 143) and our dimensions: between .45 and .65. As expected, including corporatism in the models does reduce the estimates for both of our dimensions by 30% to 50% , and raises the standard errors of these estimates, but they remain reasonably strong.

First, it is important to clear up a common misconception. The similar pattern of factor loadings that we found in our 1980 and 2002 data does not imply a very close correlation between *individual country* scores from one period to the next. That is an ecological fallacy. To see how, assume that the different aspects of welfare state that we have identified move together in lock step. (This would be akin to perfect institutional complementarity in the some of varieties of capitalism models.) Now assume that a country “retrenches” or expands one of our measured welfare state indicators. If the other indicators on that dimension follow, as they do by assumption here, the intercorrelation of the *indicators* can be unchanged.<sup>14</sup> Indeed, there may be considerable movement among many countries that is consistent with a similar set of correlations between these indicators.<sup>15</sup>

Figure 1 illustrates just how much countries moved on both of our dimensions between 1980 and 2002. For each country in the figure, there are two data points, one for each year, representing a location in the statist-liberalism dimension (defined by high welfare state conservatism, low means-testing, high state intervention into private labor markets) and egalitarian (high benefit universalism and equality, high levels of public employment, and extensive spending of active labor market policies) dimensions in 1980 and 2002. As the figure makes clear, most of the movement is on the left-right axis of the figure, which is the social/egalitarian dimension of welfare state structures. We see large

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<sup>14</sup> This begs the question of what causes any variable to change in a completely complementary system. But that is beside the point of the illustration.

<sup>15</sup> We are not arguing that the stability in the factor analysis means that there is perfect complementarity in our welfare state dimensions. But imperfect intercorrelation between the different indicators means that there are many scenarios in which changes in individual countries on individual indicators can produce an absence of change in the underlying pattern of indicator intercorrelation..

movements of several countries in both directions on the egalitarian dimension. The big movers towards greater egalitarian are Japan Finland, Norway, and Denmark. The big changes toward less egalitarianism in the period are the Netherlands, New Zealand, Sweden, and the United Kingdom.

Figure 1 here.

It is striking that, in 2002, the Scandinavian countries in our group score highest on the egalitarian dimension. Finland scores higher in 2002, but lower than several countries. Perhaps surprisingly, Ireland also moves in a more “egalitarian” direction. (Its welfare state became more universal and equal, but less generous.) Perhaps none of the countries that our results suggest experienced significant liberalization in this period comes as a surprise. Even Sweden is widely regarded as having made cutbacks, albeit from a very high starting point. (Its score may also be a victim of reversion to the mean.)

Accounting for this pattern of change is another matter. It is striking that *increased* egalitarianism is limited almost exclusively to the Nordic countries, while decreased egalitarianism is limited overwhelmingly to the Anglo-American countries. But what may be more striking in our results is that conventional claims about which countries belong to which groups would seem to be more true *today* (or in 2002 at least) than they were in 1980. Moreover, the pattern and timing of this change may challenge some conventional claims about what drives welfare institutions, including some path dependent types of explanations.

Do we see consequences of welfare state change within countries on social outcomes. Figures 2 and 3 show some suggestive evidence for it. Figure 2 plots the *within country change* in income redistribution against changes in our egalitarianism scores between 1980 and 2000.<sup>16</sup> A greater increase (decrease) in the egalitarian welfare state dimension score between 1980 and 2000 is associated with a larger increase in income redistribution. The relationship is especially strong with respect to change in poverty reduction and change in egalitarianism. Of course, the very limited number of cases precludes us from fully control for confounding factors. We do find that this effect remains even after controlling for the beneficial effects of economic growth in the period.

Figure 2 and 3 here

## V. Conclusion

In conclusion, we emphasize two things. First, there is an emerging empirical basis suggesting that we revise somewhat our operating assumptions about how welfare state programs cluster, and how we should classify them. If we look at countries' recent past, one could argue that we have been laboring under some misconceptions about which countries are similar to each other. If one accepts these widely-believed criteria of welfare state structure, the United Kingdom and New Zealand were more similar to Sweden and Denmark in their overall welfare state structure in 1980 than *either* Finland or Norway were. Since the changes have been more recent, perhaps how we account for

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<sup>16</sup> Although the measure of the cause technically post-dates the measured effect, it is not unreasonable to assume that the change in the measured period is a good approximation of the change for the shorter period.

the difference should look more at events in recent decades. Second, and perhaps underscoring the first point, there is evidence that recent changes within countries' welfare states does matter for substantive outcomes.

## **Appendix**

### **Sources of additional welfare state dimensions**

*Welfare State Stratification Scores* (Socialist, Conservative, Liberal): Esping-Andersen (1990), Scruggs and Allan (2008)

*Active labor market policy* programs as a share of GDP. *OECD Social Expenditure Database*.

*Public employment* share of the labor force OECD.Stat Beta

*Family Policy: Labour Force Participation Policy*. Wilensky (1990)

*State Laborism*

State Contract Extension. Collective Bargaining Coverage minus union density. Union Density from OECD [data](#). Collective Bargaining Coverage. [CESifo DICE database](#), Traxler (1996, 2004)

Social security and payroll tax contribution. *OECD Revenue Statistics* (OECD.Stat Beta)

Employment Protection Legislation. (OECD 2004) 1980s are values based on early/mid 1980s estimates only, not late 1980s data points.

### **Sources of Additional Data in Regression Analysis**

All of these are taken from the Hicks and Kenworthy (n.d.) Replication dataset.

*Dependent Variables*

Inequality Reduction. Difference between pretax-pretransfer gini and posttax-posttransfer gini divided by pretax-pretransfer gini. Measured in the mid-80s and mid-90s.

Poverty Reduction. Difference between pretax-pretransfer relative poverty rate and posttax-posttransfer relative poverty rate divided by pretax-pretransfer relative poverty rate. Measured in the mid-80s and mid-90s. Poverty rate is measured as below.

Employment Rate: Total employment as a percentage of the population age 15 to 64. Measured as averages over 1980-89 and 1990-99.

Change in Employment Rate: Average for current period minus average for previous period.

*Control Variables*

Pre-fisc inequality: Measured in the mid-80s and mid-90s from Luxembourg Income Study income data.

Pre-fisc poverty: Measured in the mid-80s and mid-90s from Luxembourg Income Study income data.

Left Government: Left party cabinet portfolios as a percentage of all cabinet portfolios. Measured as averages over 1980-89 and 1990-95.

Christian Dem Government: Christian democratic cabinet portfolios as a percentage of all cabinet portfolios. Measured as averages over 1980-89 and 1990-95.

GDP per capita: Level of real GDP per capita, with purchasing power parities used to adjust currencies. Measured in 1980 and 1990.

Trade: Exports plus imports as a percentage of GDP. Measured as averages over 1980-89 and 1990-99.

Deindustrialization: Measured as 1960 level of employment in manufacturing and agriculture as a share of total employment minus 1980-89 average level and 1960 level minus 1990-95 average level.

Interest rates: Real long term interest rates measured as averages over 1980-89 and 1990-99.

Growth rate: Measured as averages change in GDP over 1980-89 and 1990-99.

Wage Setting: Index with five categories, highest implied most organized/centralized. Measured as averages over 1980-89 and 1990-99.

Table 1: Principal Component Analysis of Welfare Stratification Indices

<b>Factor Loadings</b>	<i>Using Three Worlds data for 1980</i>		<i>Using Scruggs and Allan data for 1980</i>		<i>Using Scruggs and Allan data 2002</i>	
	Dimension 1	Dimension 2	Dimension 1	Dimension 2	Dimension 1	Dimension 2
Social Democracy	<b>0.84</b>	-0.4	<b>0.93</b>	-0.19	0.00	<b>0.96</b>
Liberalism	<b>-0.85</b>	-0.38	-0.04	<b>0.96</b>	<b>-0.85</b>	-0.33
Conservatism	-0.01	<b>0.96</b>	<b>-0.75</b>	-0.54	<b>0.86</b>	-0.31

Source: Authors analysis using principal components analysis with varimax rotation. The data from *Three Worlds* is taken from Hicks and Kenworthy (2003, Table 2). The Scruggs and Allan data for both years is taken from Table 5 of their 2008 article.

Table 2: Factor loadings for the full welfare state analysis

Eigen Value for Factor	<i>Hicks and Kenworthy's data*</i>				<i>Replicated data and EPL for 1980</i>				<i>Replicated data and EPL for 2002</i>			
	Traditional Conservative		Progressive-Liberal		Dimension 1		Dimension 2		Dimension 1		Dimension 2	
	2.1		3.0		2.91		2.30		3.57		1.5	
Social Democracy	-0.22	[-.27]	<b>0.82</b>	[.81]	-0.14		<b>0.84</b>		-0.19		<b>0.87</b>	
Liberalism	-0.32	[-.28]	<b>-0.72</b>	[-.74]	<b>-0.72</b>		-0.34		<b>-0.75</b>			-0.20
Conservatism	<b>0.93</b>	[.93]	-0.11	[-.06]	<b>0.84</b>		-0.43		<b>0.83</b>			-0.15
Active Labor Market Po	0.17	[.17]	<b>0.74</b>	[.75]	0.27		<b>0.79</b>		0.47			<b>0.71</b>
Government Employme	-0.24	[-.29]	<b>0.89</b>	[.88]	0.02		<b>0.85</b>		0.27			<b>0.76</b>
State Laborism*	<b>0.87</b>	[.87]	-0.02	[.03]	<b>0.88</b>		-0.01		<b>0.92</b>			0.02
Family Policy	0.57	<b>[-.54]</b>	<b>0.65</b>	[.68]	<b>0.80</b>		0.37		<b>0.85</b>			0.44
	France	1.77 [1.77]	Sweden	2.59 [2.57]	France	1.33	Sweden	2.34	France	1.92	Denmark	2.39
	Germany	1.38 [1.39]	Denmark	1.50 [1.44]	Belgium	1.32	<b>UK</b>	1.35	Austria	1.24	Sweden	1.59
	Belgium	1.31 [1.29]	Norway	1.25 [1.24]	Italy	1.20	Denmark	1.07	Belgium	1.05	Norway	0.97
	Austria	1.24 [1.26]	Finland	0.54 [.55]	Germany	1.05	Norway	0.46	<b>Finland</b>	0.82	Belgium	0.59
	Italy	1.16 [1.21]	Belgium	0.35 [.42]	Austria	0.98	Belgium	0.43	<b>Sweden</b>	0.80	Ireland	0.53
	Netherlands	0.56 [.57]	UK	0.31 [.26]	<b>Sweden</b>	0.84	<b>Canada</b>	0.38	Italy	0.7	Canada	0.44
	Finland	0.31 [.28]	New Zealand	-0.03 [-.06]	Finland	0.74	New Zealand	0.3	<b>Germany</b>	0.63	Finland	0.21
	Norway	-0.03 [-.10]	Ireland	-0.06 [-.06]	Norway	0.49	Netherlands	0.27	Norway	0.57	UK	0.21
	Ireland	-0.07 [-.07]	Germany	-0.11 [-.04]	<b>Netherlands</b>	0.10	Ireland	0.25	Netherlands	0.23	New Zealand	-0.19
	Sweden	-0.45 [-.58]	Netherlands	-0.14 [-.11]	Japan	-0.32	France	-0.24	Japan	-0.34	France	-0.2
	New Zealand	-0.56 [-.56]	France	-0.15 [-.06]	Ireland	-0.51	Australia	-0.32	UK	-0.57	Netherlands	-0.21
	Japan	-0.69 [-.62]	Austria	-0.38 [-.31]	<b>Denmark</b>	-0.66	<b>Finland</b>	-0.37	US	-0.59	Germany	-0.25
	UK	-0.83 [-.85]	Canada	-0.52 [-.58]	UK	-0.75	<b>Germany</b>	-0.49	Denmark	-0.82	Australia	-0.51
	US	-0.92 [-.85]	Australia	-0.73 [-.79]	US	-0.75	Switzerland	-0.58	Ireland	-0.89	Austria	-0.89
	Denmark	-0.95 [-1.02]	Switzerland	-0.93 [-.98]	Switzerland	-1.07	Austria	-0.67	Switzerland	-0.91	Italy	-0.91
	Switzerland	-0.98 [-.94]	Italy	-0.97 [-.91]	<b>New Zealand</b>	-1.11	Italy	-0.84	New Zealand	-1.09	Switzerland	-0.93
	Australia	-1.12 [-1.08]	US	-1.18 [-1.23]	Australia	-1.38	US	-1.39	Australia	-1.16	US	-1.39
	Canada	-1.14 [-1.11]	Japan	-1.33 [-1.37]	Canada	-1.5	Japan	-1.95	Canada	-1.59	Japan	-1.43

\* Hicks and Kenworthy's reported results are in brackets

Table 3: Regression Results

	<i>Time invariant dimensions</i>				Different Dimension scores for 1980s and 1990s				Alternative Specification			
	Inequality Reduction	Poverty Reduction	Employment rate	Change in Employment rate	Inequality Reduction	Poverty Reduction	Employment rate	Change in employment rate	Inequality Reduction	Poverty Reduction	Employment rate	Change in employment rate
D1: Conservative/Liberal	4.64 *	3.44	-2.81 **	-1.78 **	3.32 *	3.97 +	-2.29 *	-1.48 **	3.07 +	6.57 ***	-2.34 **	-1.14 **
Beta	0.47	0.23	-0.36	-0.49	0.32	0.26	-0.29	-0.41	0.3	0.43	-0.3	-0.32
D2: Egalitarian	6.97 ***	3.65	0.9	-0.39	8.21 ***	8.75 +	0.81	-0.67 +	6.96 ***	10.59 ***	1.17 +	-0.99 *
Beta	0.65	0.22	0.12	-0.11	0.79	0.55	0.1	-0.19	0.67	0.67	0.15	-0.28
Pre-fisc	14.07	1.95 +			37.8	1.14						
Left government	6.20	-1.94	2.07	1.92	6.2 +	-0.68	2.3	1.93				
Christian Dem Governr	-5.20	9.7	-14.9 **	4.85 +	3.7	15.4	-16.1 **	3.55 +				
GDP per capita	0.46	-0.13			0.41	0.23						
Trade	-8.8	25.7 +			-9.2	11						
De-industrialization	5.1	110 +			2.78	104.4 +						
Interest Rates			1.62 +	-0.63			-1.79 +	-0.64				
Growth			-2.93 +	0.44			-3 +	0.36				
Wage-setting			2 *	0.12			1.65 +	0.03				
90s dummy	0.48	-11.0 +	1.67	1.47 +	-1.18	-8.9 +	1.88	1.56				
Adjusted R2	0.46	0.45	0.35	0.13	0.60	0.57	0.33	0.11	0.52	0.61	0.10	0.13
n	28	28	36	36	28	28	36	36	28	28	36	36

+-- t-score>1

\* p<.10

\*\* p<.05

\*\*\* p<.01

Figure 1: Changes in the Welfare State Space: 1980 to 2000

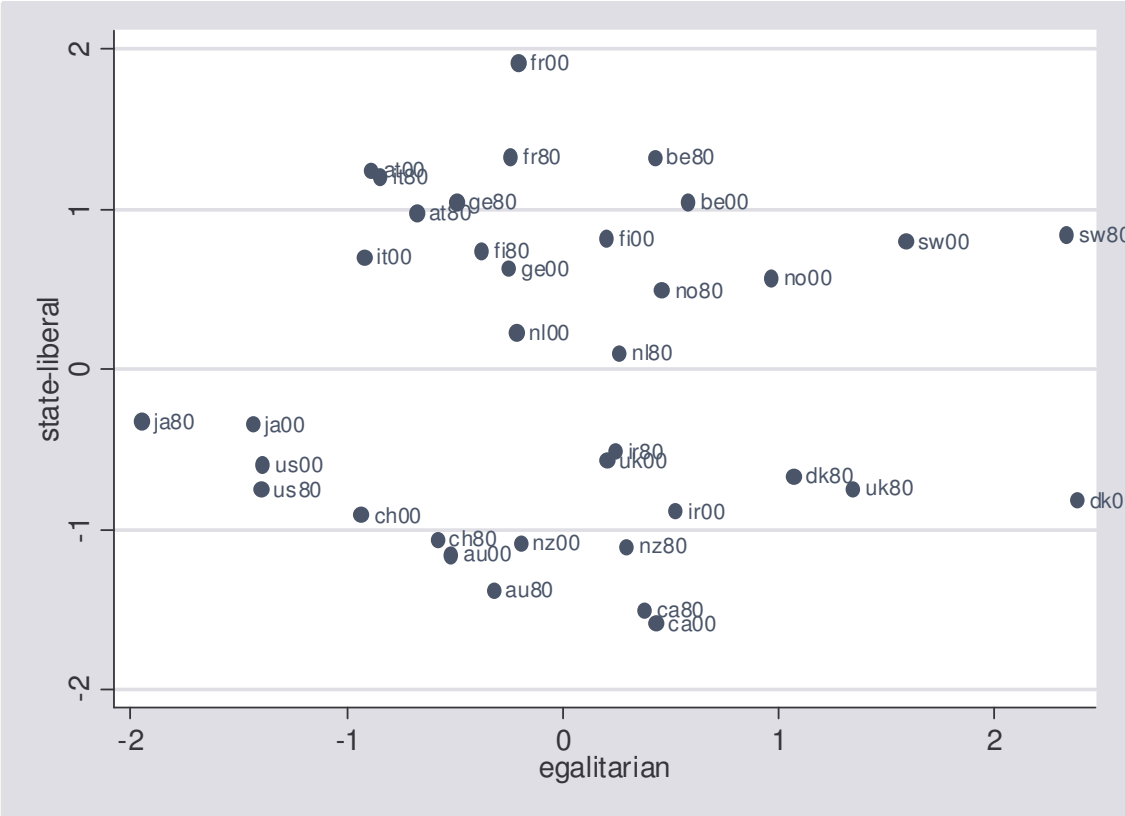


Figure 2: Change in Gini Redistribution and Change in Egalitarianism

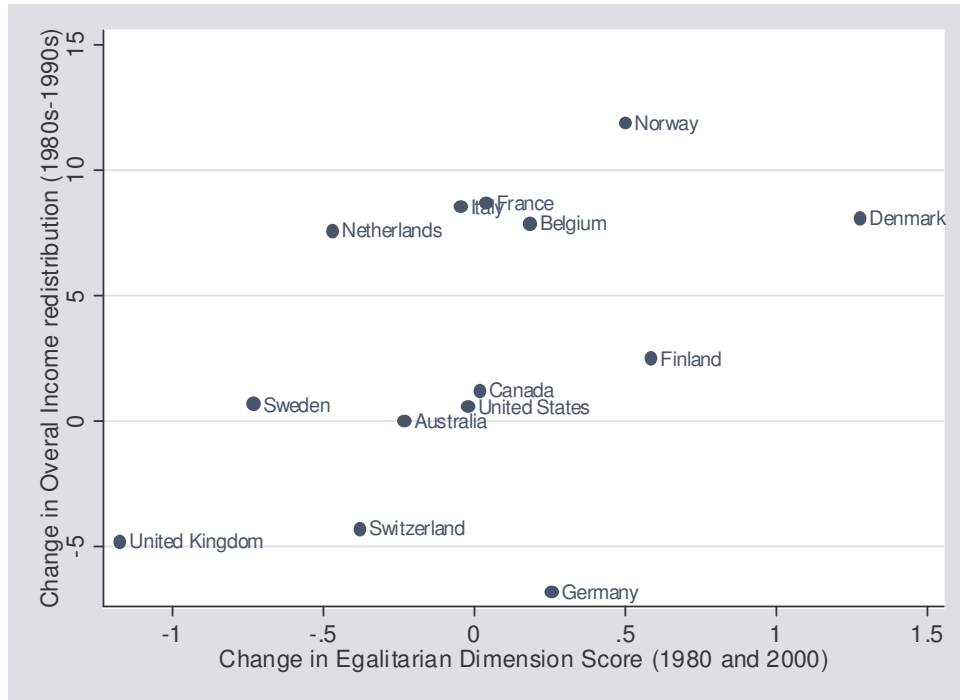
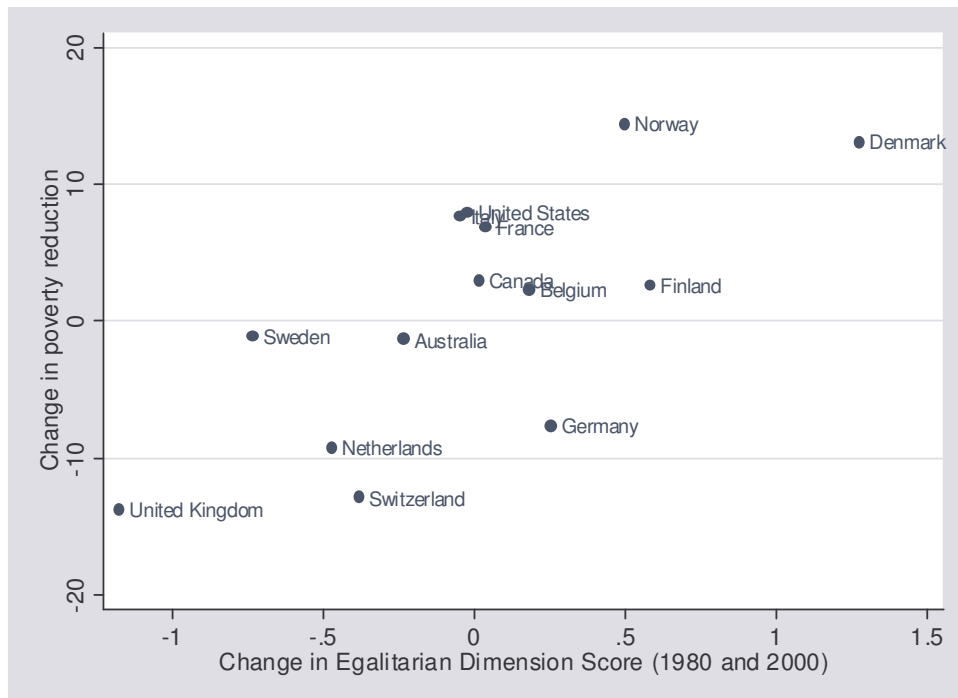


Figure 3: Change in Poverty Reduction and Change in Egalitarian Dimension



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