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Working Paper\*

# Some Empirics on the Concept of Path Dependence

Measuring Bounded Change in Pension Politics

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## Abstract

Path dependence has become a mainstream concept in the field of comparative welfare research. However, apart from its popularity, path dependence lacks of empirical foundation. This paper attempts to provide an empirical examination of path dependence in welfare politics by classifying the development of public pension systems in 16 OECD countries from 1980 to 2000. Using hierarchical cluster analysis, we identified six countries in which the evolution of the pension systems followed the pattern of bounded change.

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# 1. Research Question

The main question of this paper is: Can we identify homogeneous and distinct patterns in the evolution of public pension systems within the OECD? This question is important for at least two reasons: First, public pension systems in OECD countries have to cope with declining fertility rates and rising life expectancies, which will fundamentally alter the ratio of young contributors to old recipients (Fig.1). This development has serious consequences for the financial sustainability of public pension systems. Second, like other social insurances, old age pensions contribute to social solidarity (Barr. 1998:202). In terms of expenditure, the public pension system is the most important branch of the welfare state. Providing a decent standard of living for the old is a core government activity in Western democracies.

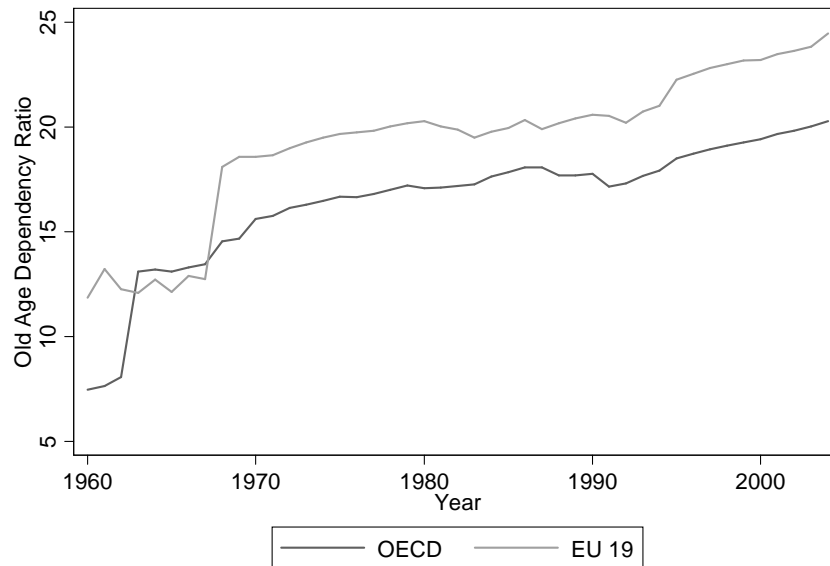
Therefore, public pension systems play an important role in legitimating the political system. Reforming public pensions has even become a topic on the intergovernmental level. Since 2001 the EU has taken several measures to enhance the coordination of pension policies. Although the organization and financing of public pensions still is a responsibility of the member states, the work of the EU Social Protection Committee can be regarded as the first step toward the harmonization of public pension systems.

Since the late 1980s, there is growing literature on pension reforms, which can be methodically divided into two broad groups. While qualitative comparative analysis focused on the direction and political conditions for pension reforms (Bonoli. 2000; Pierson. 1994), quantitative cross sectional researcher explored institutional determinates of pension reform policies (De Deken, Kittel. 2006). The paper most closely related to ours is Rehm and Schmidt (Rehm, Schmid. 2001). They used cross sectional time series data to analyze employment regimes in the OECD. Our work is located in the field of pension politics which is perceived as the "locus classicus" for the study of path dependent processes (Myles, Pierson. 2001:306). One gap in the public pension reform debate questions if OECD governments choose from the same pension reform menu. If public pension systems follow different patterns of development, there would be no ground for a common EU harmonization or reform strategy.

This paper mainly wants to make a methodical contribution. Although path dependence has become a popular theoretical framework to describe institutional developments it is unclear

how to capture path dependence methodically. We will use time series cluster analysis to investigate bounded change as a feature of a path dependent process.

**Figure 1.** Old Age Dependency Ratio (1960-2005)



Source: OECD Labor Force Statistics (2006)

## 2. Theoretical Framework

Two theoretical concepts will be used to examine the research question: Welfare regime approaches and path dependence. Although there is no coherent theory of the welfare state, regime approaches are the actual working horse in comparative welfare research. In this section we state that the treatment of time is a shortcoming of welfare regime approaches and argue that path dependence can enrich the analysis toward incremental change.

### 2.1. Welfare Regimes

Welfare regime approaches assume that welfare states can be grouped together by common traditions and certain characteristics. A welfare regime is defined by its principles, norms, rules and proceedings. The regime type is used to explain international differences in the development of welfare institutions. Following welfare regime approaches, one would assume that for example a pension system with a Bismarckian tradition would systematically take other measure to achieve financial stability than a pension system with a Beveridgean tradition. For the purpose of the empirical analysis, two influential welfare regime approaches will be presented in a very simplified way:

*Bismarck- vs. Beveridge-States:* A classical distinction of pension regimes concerning the financing rule is between Bismarck and Beveridge pension system. Pension systems in Bismarck countries are organized as public insurance schemes, in order to provide pensions as high as the last marked earned income. In Beveridge states public pension schemes are supposed to deliver a minimum pension. These pensions are not financed by contributions but rather through general tax revenues (Bonoli. 2000).

**Table 1.** Examples of Bismarck and Beveridge States

Beveridge	Bismarck
Denmark	Germany
New Zealand	Italy
Great Britain	France
Sweden	USA
Norway	Switzerland

Source: Bonoli. 2000:11

*Three worlds of pension politics:* In his seminal book “The three worlds of welfare capitalism”, Esping-Andersen distinguishes three types of welfare regimes: The liberal, the conservative and the social democratic welfare state (Esping-Andersen. 1990). Esping-Andersen developed a system of social indices and performance indicators to make welfare systems comparable. He assumes that patterns which are established at an early point in time have a strong impact on the development of welfare institutions. Although his classification has been criticized for various reasons (Arts, Gelissen. 2002) we will use these three ideal-types as the starting point of our empirical investigation on public pension systems.

**Table 2.** Three Worlds of Welfare Capitalism

social democratic	conservative	liberal
Sweden	Germany	Canada
Norway	Italy	USA
Denmark	France	Australia
	Austria	Great Britain

Source: Esping-Andersen. 1990

Hinrichs and Kangas (Hinrichs, Kangas. 2003) pointed out that the treatment of time is a main problems in these regime approaches. Pension reforms in OECD countries are mainly

incremental. It can take several years until the consequences of a stepwise reform finally materialize. Myles and Pierson (Myles, Pierson. 2001) investigate how pension reforms unfold over time. They focus on differences in pension reform patterns arguing that reform options are constrained by institutional and programmatic designs inherited from the past (Myles, Pierson. 2001:306). They identified two pension reform strategies: First, latecomers are countries that introduced PAYGO in the 80s. These countries reduced the degree of PAYGO financing in the 90s and increased the share of funded schemes later on. PAYGO (Pay as you go) means that pensions are paid out of current tax revenues or contributions rather than accumulated funds. Second, mature welfare states introduced PAYGO immediately after the second world war. Their options to reduce PAYGO were very limited. Hence, mature welfare states mainly undertook actuarial reforms or they partially introduced funded schemes. The reform politics of mature welfare states was a combination of fiscal austerity and parametric reforms. Myles and Piersons empirical analysis is driven by a detailed comparative description of pension reform developments.

**Table 3.** Examples of Latecomers and Mature Welfare States

Latecomer	Mature Welfare States
Australia	Canada
Ireland	USA
Netherlands	Sweden
New Zealand	Germany
Denmark	France
Switzerland	
Great Britain	

Source: Generated form Myles, Pierson. 2001

**2.2 Path Dependence**

Before we try to apply path dependence to pension politics we provide a brief review of the evolution of the paradigm from technological to institutional path dependence. Path dependence stems from David’s (David. 1985) and Arthur’s (Arthur. 1989; Arthur. 1994) critique on the efficiency assumptions of neo-classical theory. Their illustrative examples have taken a great share in the diffusion of path dependence in economics. Probably the most influential example for path dependence is the evolution of the QWERTY keyboard. David seeks to explain, why the QWERTY standard, which developed in the early days of typewriters, is still the dominant computer keyboard, although more efficient alternatives like the DVORAK keyboard are available. The QWERTY typewriter example shows that a relatively inefficient technology can be maintained even if there is a more efficient

alternative. David identifies three features which cause QWERTY to become locked in as the dominant keyboard arrangement. These features were technical interrelatedness, economies of scale and quasi-irreversibility of investment. David defines path dependent processes as a sequence of economic changes in which important influences upon the eventual outcome can be exerted by temporally remote events, including happenings dominated by change elements, rather than systematic forces (David. 1985:332).

Arthur developed a mathematical model of path dependent processes. Therefore he analyses the dynamics of allocation in competitive technology markets under the condition of increasing returns. In the Arthur-Polya-Urn model, two technologies A and B compete for adoption (Arthur. 1989:123). A technology becomes more attractive for a new user with an increasing number of adopters. Increasing returns mean that early adopters impose positive or negative net externalities on later adopters. Such a process has ex-ante several fixed points of distribution. However, it can not be predicted which equilibrium will be realized by the end of the process. Once an alternative has reached a critical mass the process gets locked in. Arthur regards increasing returns as the main reason for path dependence. Although he believes that path dependence is still an exception in economic activity, he assumes that it is very likely to occur in knowledge and network based economies.

North conveyed the idea of path dependence from technological competition to the evolution of economic institutions (North. 1990). He used Arthur's definition of path dependence to explain institutional change. North investigates, the factors which prevent inefficient economies from adopting the institutional structure of efficient economies. So far, neo-classical theory constructed inefficiencies as transient problems. North instead assumed that institutional change is determined by two permanent forces: Increasing returns and imperfect markets with transaction costs. In this case, increasing returns become a sufficient but not necessary condition for path dependence. In a world without transaction costs, institutions would adjust to changes in relative prices and preferences without delay (North. 1990). For North, path dependence is no longer initialized by happenings dominated by change, like David would suggest. Path dependence results from the bounded rationality of economic actors. These actors are still able to change their institutional environment, but in doing so they are geared by old institutional structures. North summarized this point in the following statement (North. 1990:99): "Path dependence is a way to narrow conceptually the choice set and link decision making through time."

Pierson was the first one who applied path dependence to the field of political science and comparative welfare research (Pierson. 1994; Pierson. 2000). His understanding of path dependence derives from North work on institutional change. Pierson focuses on the dynamics of self-reinforcement and positive feedback processes in the political system (Pierson. 2004:10). The adherence to inefficient institutions is even more likely in politics, because actors on political markets are not constrained by the price mechanism. Political path dependence does not end up in an inescapable lock-in, like the adoption of technological standards. It does not imply that a particular alternative is permanently locked-in (Pierson. 2004:52). Pierson presumes that political change is possible even in a path dependent process. Path dependent change becomes “bounded change”. Bounded change occurs if political options at the beginning of a reform process are getting less accessible when the process moves on.

Our investigation in pension politics focuses on sequencing as the main mechanism which is responsible for path dependence. Sequencing describes a process in which the temporal order of events influences the outcome. First, sequencing as a mechanism for path dependence, has to be distinguished from mere history matters. Saying that “one thing follows another” eludes any explanatory power from the concept of path dependence. In contrast, sequencing says, that „what happens next depends crucially on the details of the existing state of affairs, which in turn is the outcome of the pre-existing situations” (Rutherford. 1996:11). In such a process, welfare state institutions become, like David puts it, “carriers of history” (David. 1994).

Second, following Pierson, sequencing is understood as (Pierson. 2004:64): “Given a particular set of institutional rules, steps in a sequence of choices become irreversible. The rules dictate that alternatives rejected in early rounds are dropped from the range of possible later options (...).” Pension reform options that have not been chosen at an earlier point in time in the political decision making process become increasingly distant alternatives. Hence, bounded institutional change is the consequence of path dependent process based on sequencing.

## **2.3 Propositions**

In order to answer the research question, the following propositions will be tested:



*(P1) If welfare regime approaches are right, then the empirical analysis should reveal relatively stable and distinct pension clusters.*

These clusters should either follow the classification put forward by Esping-Andersen or the distinction between Bismarck and Beveridge pension systems.

*(P2) Countries with pension systems that follow a path dependent pattern of institutional development are less likely to change their pension regime affiliation.*

The claim of path dependence advanced here is not an argument for institutional inertia (Myles, Pierson. 2001:330), it is an argument for bounded change.

### **3. Empirical Analysis**

Since we want to measure bounded change the methodic framework has to capture both stability and change. Therefore, we decided to combine longitudinal cross-sectional data and hierarchical cluster analysis.

#### **3.1 Method**

Cluster analysis is a statistical method to classify the objects of a given set of objects. Each object is described by a certain number of characteristics and then ordered into groups (clusters) by the similarity of its characteristics. Each cluster should fulfill internal homogeneity and external separateability. The basic idea of cluster analysis is to measure distances between objects. If the distance between two objects is relatively small, they are interpreted as relatively similar or homogenous. If distances between two objects are relatively high, they are interpreted as dissimilar or heterogeneous. The similarity or dissimilarity between objects is measured by proximity scales, which were represented in a proximity matrix (Eckstein. 2004). Using the Ward method distances are calculated as squared Euclidian distances (SED):

$$SED(x, y) = \sum_i (x_i - y_i)^2$$

Hierarchical-agglomerative cluster analysis starts with the smallest partition of singleton clusters. Step by step, the most similar objects are integrated into a new cluster until all objects are integrated into one last single cluster. The results of the integration or fusion process are represented in a dendrogram. Hierarchical-agglomerative cluster analysis is not able to evaluate public pension regimes. Therefore a comprehensive evaluation can not be the aim of this contribution. This paper gives an explorative classification of public pension schemes in the OECD within the last two decades.

### 3.2 Data and Variables

The analysis uses time series data for 16 OECD countries: Australia (AUS), Austria (AUT), Canada (CAN), Denmark (DNK), Great Britain (GBR), United States (USA), Italy (ITA), France (FRA), Finland (FIN), Germany (GER), Spain (ESP), Netherlands (NLD), New Zealand (NZL), Norway (NOR), Portugal (PRT) and Sweden (SWE). We will compare cluster results at five points in time: 1980, 1985, 1990, 1995 and 2000. The analysis focuses solely on variables that qualify output and performance of public pension systems. Four variables were chosen to describe public pension system in the 16 OECD countries. The variables were transformed into z-scores. All clusters were calculated with Stata 9.

**Table 4.** Public Pension Expenditure (in % GDP)

country	1980	1985	1990	1995	2000
AUS	3.24	3.11	3.33	4.75	5.33
AUT	8.58	9.46	9.56	10.41	10.55
CAN	3.09	3.73	4.22	4.91	4.73
DNK	8.15	8.00	8.59	9.58	8.27
FIN	5.20	7.12	7.13	8.59	7.64
FRA	7.74	8.83	9.31	10.73	10.60
GBR	5.52	6.00	7.23	8.05	8.22
GER	9.97	10.07	9.95	11.10	11.47
IRL	4.51	4.73	4.17	3.72	2.63
ITA	7.38	9.16	9.65	10.74	11.24
JPN	3.01	3.83	4.07	5.23	6.79
NLD	7.09	7.14	7.79	6.99	6.44
NOR	5.10	5.53	7.15	7.11	6.54
NZL	6.88	7.46	7.28	5.64	4.98
SWE	7.84	8.36	8.71	9.89	9.22
USA	5.25	5.36	5.19	5.39	5.18

Source: SOCX(2005)

The first two variables were taken from the Social Expenditure Database (SOCX, 2005) provided by the OECD. *Public Pension Expenditure per GDP* is the most reliable source for governmental pension liabilities (Tab.4). It indicates the relative importance and political heritage in pension politics (Rose, 1990). *Public Pension Expenditure per Head* is defined as national pension expenditure divided by the number of people who are 65 and older (Tab.5). These variables account for systematic differences in spending levels. Pension expenditure in France for example is twice as high as in the USA.

**Table 5.** Public Pension Expenditure per Head (in \$ US)

country	1980	1985	1990	1995	2000
AUS	315	416	554	995	1399
AUT	854	1309	1789	2374	2938
CAN	347	572	807	1101	1352
DNK	843	1175	1573	2154	2332
FIN	475	949	1283	1635	1935
FRA	747	1164	1650	2224	2680
GBR	477	732	1191	1607	2064

GER	862	1202	1619	2384	2850
IRL	276	408	537	666	738
ITA	678	1179	1674	2230	2775
JPN	267	498	774	1183	1760
NLD	704	945	1388	1514	1738
NOR	482	787	1281	1696	2341
NZL	572	900	1019	960	1017
SWE	799	1203	1625	2104	2451
USA	625	923	1178	1468	1768

Source: SOCX(2005)

**Table 6.** Public Pension Replacement Rate

country	1980	1985	1990	1995	2000
AUS	35	39	40	40	37
AUT	74	74	76	79	79
CAN	49	58	61	65	64
DNK	52	60	59	59	58
FIN	57	64	66	65	62
FRA	63	64	64	63	58
GBR	43	50	51	54	55
GER	71	73	69	69	64
IRL	43	54	50	48	42
ITA	58	74	70	79	86
JPN	62	66	63	64	62
NLD	61	58	53	52	55
NOR	55	66	62	60	62
NZL	49	52	53	52	49
SWE	66	72	67	69	61
USA	65	62	67	70	67

Source: Scruggs(2005)

The next two indicators were taken from the Welfare State Entitlement Data Set developed by Scruggs (Scruggs, 2005). The *Pension Replacement Rate* is the average standard pension replacement rate for couples and singles divided by two (Tab.6). This is the ratio of net public pension paid to a person earning the average production worker wage. The replacement rate is a proxy for the generosity of a pension system. The *Pension Coverage Rate* is the portion of those above official retirement age who are in receipt of a public pension (Tab.7). This variable indicates the public character of the pension system.

**Table 7.** Public Pension Coverage Rate<sup>1</sup>

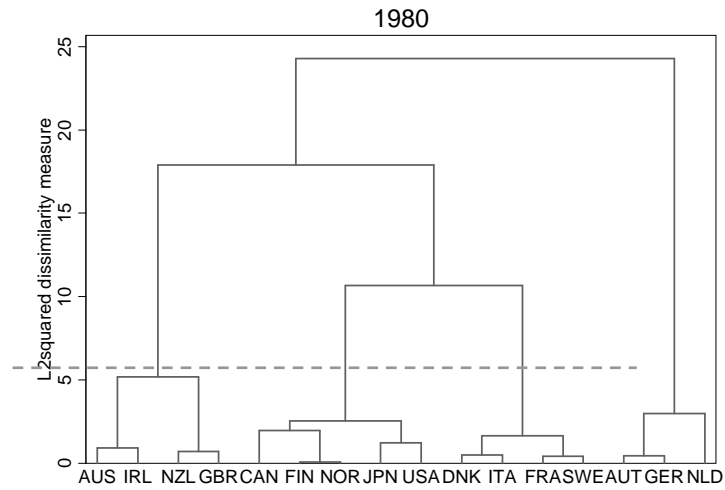
country	1980	1985	1990	1995	2000
AUS	84	77	69	71	68
AUT	86	84	86	86	87
CAN	96	95	95	97	97
DNK	98	99	100	101	101
FIN	101	101	101	102	100
FRA	95	95	95	100	100
GBR	94	97	100	102	104
GER	87	87	91	94	100
IRL	86	100	94	94	96
ITA	100	100	100	100	100
JPN	94	93	91	107	127
NLD	82	106	107	107	107
NOR	99	100	100	101	102
NZL	95	98	97	92	95

<sup>1</sup> „Some percentages are above one because deriving a series of pensioners above retirement age was not always possible.” (From e-mail correspondence with Lyle Scruggs).

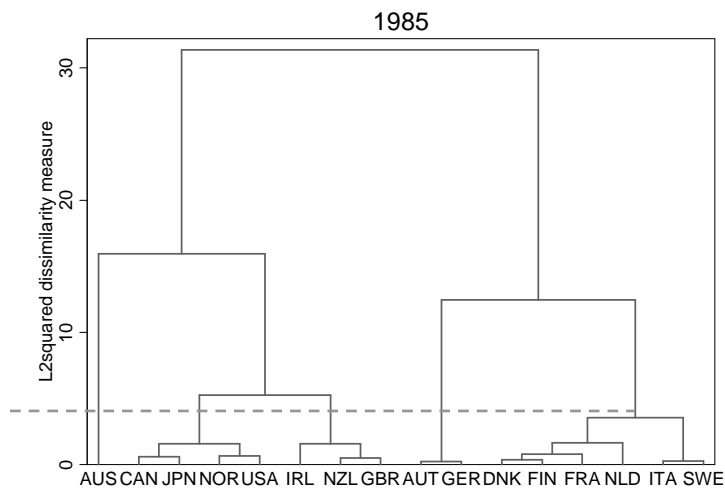
SWE	101	103	102	103	105
USA	94	94	94	94	93

Source: Scruggs(2005)

**Figure 2.** Dendrogram 1980 (Wards)



**Figure 3.** Dendrogram 1985 (Wards)



**Figure 4.** Dendrogram 1990 (Wards)

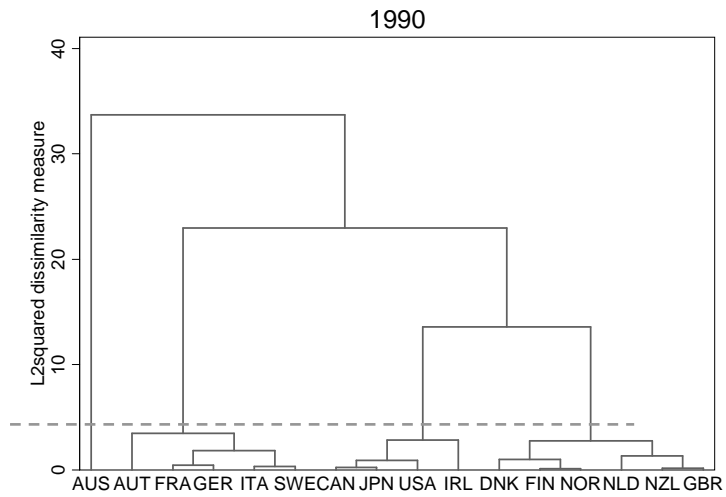


Figure 5. Dendrogram 1995 (Wards)

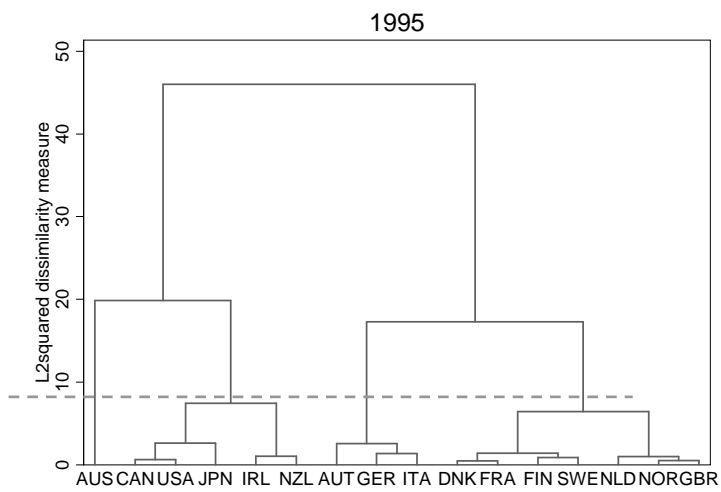
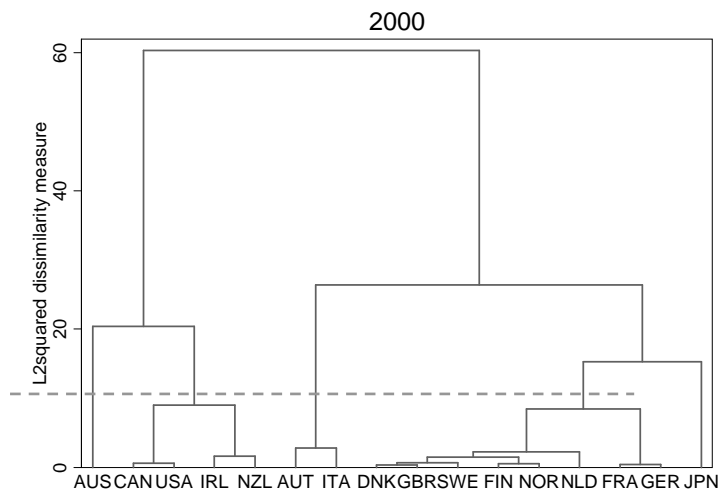


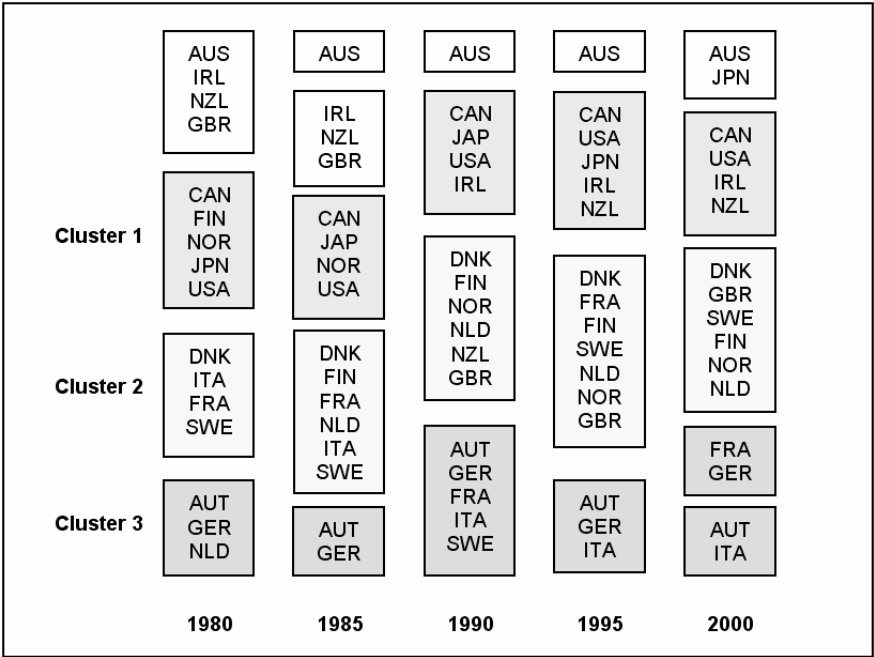
Figure 6. Dendrogram 2000 (Wards)



### 3.3 Results and Interpretation

The dendrograms tree structure pictures the clustering process for each fusion step (Fig.2 to 6). The x-axis represents the 16 pension systems employed in our analysis. The y-axis represents the increase in the squared Euclidian distance. The horizontal cut off lines have been drawn free handed. The lines separate up to four clusters of public pension systems. In this respect, hierarchical cluster analysis differs from regression methods using probabilistic theory and significance levels. In order to enhance readability, the results are summarized in Figure 9. The boxes indicate the partitions given by the cluster analysis. The analysis reveals the development of three distinct and stable pension clusters visualized by different shades of gray. For the years 1985, 1990, 1995 and 2000 Australia and Japan were regarded as outliers that did not fit properly in any of the three clusters.

Figure 7. Evolution of Public Pension Clusters



First, let us focus on (P1) concerning welfare regimes. The results of the cluster analysis are very similar to Esping-Andersens classification of welfare states (Tab.3). In order to characterize the three pension clusters, Table 8 lists the average values for the old age dependency ratios (ODR), the employment ratios (EMPL) and the four variables employed in the cluster analysis. The old age dependency ratio and the employment ratio are helpful indicators to assess sustainability and reform pressure on pension systems. The combined effect of low fertility rates and longer life expectancies is expressed in the old age dependency

ratio. The old age dependency ratio, is the number of individuals who are 65 and older divided by the total population. The second indicator is the employment ratio. This is the number of individuals who are 65 and older divided by the total amount civilian employment (LFS. 2006).

Pension systems in Cluster Nr.1 have low old age dependency and employment ratios. Public pension expenditure per GDP and per head is low in these countries. However, the replacement rate in Cluster Nr.1 is very low as well, while pension systems coverage rate is only at the average. Cluster Nr.1 is characterized as the “liberal” pension cluster.

Macroeconomic indicators for pension reform pressure are very similar in Cluster Nr.2 and Cluster Nr.3. Although the employment ratio in Cluster Nr.2 has slightly decreased, these systems are heavily challenged by the demographic development. Pensions systems in Cluster Nr.2 have medium values for pension expenditure per GDP and per head. While the replacement rate is at the average, the coverage rate is the highest in Cluster Nr.2. Therefore, this cluster is characterized as the “social democratic” pension cluster. Countries in Cluster Nr.3 have the highest pension expenditure per GDP and per head. Although the coverage rate is on the lowest level, the replacement rate in Cluster Nr.3 is the highest. This cluster is characterized as the “conservative” pension cluster.

**Table 8.** Macroeconomic Indicators and Pension Cluster Results

	1980	1985	1990	1995	2000
<b>Cluster 1</b>					
ODR	19.61	19.51	17.88	17.66	17.43
EMP	27.76	27.33	27.22	26.71	27.01
Pension/GDP	5.67	5.19	4.57	4.94	5.02
Pension/Pop65+	1157.16	1115.20	882.61	887.42	883.78
Replacement Rate	62.14	61.92	59.03	57.55	57.03
Coverage Rate	98.23	97.54	95.69	95.52	94.81
<b>Cluster 2</b>					
ODR	23.42	22.06	21.07	22.67	22.78
EMP	36.33	34.32	30.55	33.05	32.38
Pension/GDP	9.27	8.62	7.28	8.02	7.76
Pension/Pop65+	1711.67	1575.63	1318.96	1498.48	1457.84
Replacement Rate	66.25	63.94	56.70	59.90	59.45
Coverage Rate	100.20	100.49	99.38	100.44	100.67
<b>Cluster 3</b>					
ODR	21.33	22.66	23.27	22.43	22.33
EMP	33.35	34.49	36.79	37.07	37.07
Pension/GDP	9.15	10.35	9.81	10.19	10.00
Pension/Pop65+	1719.90	1980.47	1821.31	1900.72	1854.11
Replacement Rate	67.50	73.31	70.70	74.35	71.40
Coverage Rate	93.35	88.54	95.72	92.96	93.44

Second, we consider (P2) concerning path dependence. Focusing on the development of the three pension clusters, we identify countries that have switched the cluster as well as countries

that did not change their cluster affiliation in the last two decades. Countries that have not changed their cluster assignment will be regarded as path dependent (P2). Using this simple criteria, public pension systems in Canada, the USA, Denmark, Sweden, Germany and Austria are path dependent in relation to other public pension systems within the sample. These six countries are the building cores that constitute the three pension clusters. Although considerable pension reforms have taken place in all of these countries, the reform process was more bounded. The empirical findings pretty much confirm the classification of pension reform strategies made by Myles and Pierson (Tab.2). All of the six core cluster countries are mature welfare states. How far one country has gone down the path of PAYGO provision seems to be critical for delimiting reform options (Myles, Pierson. 2001:313).

#### **4. Concluding Remarks**

The empirical analysis reveals three relatively stable clusters of public pension systems within the OECD. The three pension clusters can be characterized by certain features, such as liberal, conservative and social democratic pension systems. Moreover, we introduced time series cluster analysis as a method to capture bounded change. We identified six countries in which the pension system followed the pattern of bounded change. These findings let us suppose that that the evolution of pension systems within these countries is relatively path dependent.

However, we should bear in mind the restriction of our findings. The results have to be interpreted on the background of a relative small sample size and omitted input variables. Factor analysis might be useful to identify more precise indicators of pension cluster affiliation. The cluster analysis could be re-run with alternative specifications in order to check the robustness. Overall, the results may give reason for further empirical research on path dependence in pension politics. Such a work could investigate what eroded the sequence in some pension systems while the core pension cluster countries remained relatively unchanged.



## 5. Literature

- Arthur, W.B. 1989. Competing technologies, increasing returns, and lock-in by historical events. *The Economic Journal*. 99: 116-131.
- Arthur, W.B. (1994). *Increasing returns and path dependence in economics*. An Arbor: University of Michigan Press.
- Arts, W., Gelissen, J. 2002. Three worlds of welfare capitalism or more? *Journal of European Social Policy*. 12(2): 137-158.
- Barr, N. (1998). *The Economics of the Welfare State*. Oxford: Oxford University Press.
- Bonoli, G. (2000). *The politics of pension reform. Institutions and policy change in western Europe*. Cambridge: Cambridge University Press.
- David, P. 1994. Why are institutions the 'Carriers of History'? Path dependence and the evolution of conventions, organizations and institutions. *Structural Change and Economic Dynamics*. 5(2): 205-220.
- David, P.A. 1985. Clio and the economics of QWERTY. *American Economic Review*. 75(2): 332-337.
- De Deken, J., Kittel, B. (2006). Putting the Chain Saw into Social Expenditures. In N. Siegel, J. Clasen (Eds.), *Welfare Reform in Advanced Societies*. Cheltenham: Edward Elgar.
- Eckstein, P. (2004). *Angewandte Statistik mit SPSS*. Wiesbaden: Gabler.
- Esping-Andersen, G. (1990). *The Three Worlds of Welfare Capitalism*. Princeton: Princeton University Press.
- Hinrichs, K., Kangas, O. 2003. When Is a Change Big Enough to Be a System Shift? Small System-shifting Changes in German and Finish Pension Policies. *Social Policy and Administration*. 37(6): 573-591.
- LFS. (2006). *OECD Labour Force Statistics*. Paris: OECD.
- Myles, J., Pierson, P. (2001). The comparative political economy of pension reform. In P. Pierson (Ed.), *The new politics of the welfare state*. 305-333. Oxford: Oxford University Press.
- North, D.C. (1990). *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.
- North, D.C. 1990. A transaction cost theory of politics. *Journal of Theoretical Politics*. 2(4): 355-367.
- Pierson, P. (1994). *Dismantling the Welfare State? Reagan, Thatcher, and the Politics of Retrenchment*. Cambridge: Cambridge University Press.

- Pierson, P. 2000. Increasing returns, path dependence, and the study of politics. *American Political Review*. 94(2): 251-267.
- Pierson, P. (2004). *Politics in Time. History, Institutions, and Social Analysis*. Princeton: Princeton University Press.
- Rehm, P., Schmid, J. 2001. Die vier Welten der Beschäftigung. Eine explorative Analyse der arbeitsmarktpolitischen Performanz und politisch-ökonomischen Korrelate in 10 Industrieländern 1980 - 2000. *WIP Occasional Paper*(13).
- Rose, R. 1990. Inheritance before choice in public policy. *Journal of Theoretical Politics*. 2(3): 263-291.
- Rutherford, M. (1996). *Institutions in economics. The old and the new institutionalism*. Cambridge: Cambridge University Press.
- Scruggs, L. 2005. Welfare State Entitlements Data Set. A Comparative Institutional Analysis of Eighteen Welfare States. *Version 1.1*.
- SOCX. (2005). *Social Expenditure Database*. Paris: OECD.