PAPERS on Economics & Evolution

MAX-PLANCK-GESELLSCHAFT

0414

**Economic Systems of
OECD Nations:
Impact and Evolution**

by

Frederic L. Pryor

ECONOMIC SYSTEMS OF OECD NATIONS: IMPACT AND EVOLUTION*

Frederic L. Pryor
October 19, 2004

Abstract

This essay argues that economic systems should be defined in terms of clusters of complementary institutions. To show how such an approach can be carried out, I use a cluster analysis technique and data on forty different economic institutions in OECD nations to isolate four quite different economic systems. After specifying the most important institutional clusters in each system, I then examine what impact these economic systems have on various indicators of economic performance. Finally, I show how such an approach allows particular evolutionary patterns of the systems to be analyzed.

Frederic L. Pryor
Senior Research Scholar
Swarthmore College
Swarthmore, PA 19081
Telephone: 610-328-8130
Fax: 610-328-7352
E-mail: fpryor1@swarthmore.edu

ECONOMIC SYSTEMS OF OECD NATIONS: IMPACT AND EVOLUTION

Those specializing in the comparative study of economic systems usually ask one or more of four basic questions: How can we meaningfully define economic systems? What factors determine the origin and development of such systems? How does the economic systems perform according to various criteria? How and why do economic systems decline or disappear?

Seemingly, the most simple of these questions is the first - the definition of an economic system. Most approaching this problem start with some type of general definition of an economic system, for instance, that it comprises the totality of institutions and organizations that specify property relations wihtin a given society and that channel and influence the distribution of goods and services. Then they turn to a definition of economic institutions[1] and, after clearing away this brush, arbitrarily pick one or two key institutions with which to specify the economic system, for instance, market versus planned economy. While such a procedure is satisfactory for many purposes, it lacks a solid foundation.

In this essay I look briefly at several quite different approaches toward the specification of economic systems. Then I propose a new definition based on a cluster anlaysis of different economic institutions, an approach related to that of the "new institutional economics." While the new institutional economics has a microeconomic focus and deals with institutions and organizatiosn primarily as phenomena in isolation with each other, I focus on these phenomena from a more macro-viewpoint and consider how specific institutions and organizatons within an economy are related. To show more clearly what I have in mind, I carry out such a cluster analysis using forty different

---

[1] Many employ the useful definitions proposed by Douglas C. North (1981, 201-2). Institutions are " a set of rules, compliance, procedures, and moral and ethical behavioral norms designed to constrain the behavior of individuals." In a later essay (1998: 81) he added: "If institutions are the rules of the game, organizations and their entrepreneurs are the players. *Organizations* are made up of groups of individuals bound together by some common purpose to achieve certain objectives. Organizations include political bodies (e.g., political parties, the Senate, a city council, regulatory bodies), economic bodies (e.g., firms, trade unions, family farms, cooperatives), social bodies (e.g., churches, clubs, athletic associations) and educational bodies (e.g., schools, universities, vocational centers)." Although these examples focus on industrial, rather than preinudstrial economies, North's basic idea can be applied to all human economies.

institutional indicators for the OECD nations. Then I explore briefly the impact of these systems on their economic performance. Finally, I use the various results of this and other studies to show how these industrial economic systems have evolved over time.

A. Classification of Economic Systems

1. Common Approaches for Classifying Economic Systems

Some analysts merely take a few characteristics of an economy and use these to classify the type of economic system.[2] For modern industrial/service economies these selected characteristics might be the share of government ownership in the means of production, the relative importance of government expenditures or regulation, the dominant ideology, the most important economic values (individualistic, social, communitarian), the most usual structure of enterprises, and so forth. Using this ad hoc procedure, little attempt is made to link the distinguishing criteria with the full range of other economic institutions and organizations that structure the society in question. Such an approach can be justified, however, when the analyst cannot get adequate data on the society's full range of economic institutions.

Some scholars have posited various "ideal types," which is a more "theoretical" approach. That is, they focus on certain aspects of the economic institutions and organizations that their theory tells them are important, set up the corresponding categories of economic systems, and then place the various economies in the appropriate conceptual boxes. Such an approach has been widely employed from the middle of the nineteenth century up to the end of the twentieth century.[3] In some cases the characteristic is relatively general, for instance, the primary method of distributing goods and services

---

[2] The various essays on modern industrial/service economies in Coates (2002: volume I) provide examples of this practice.

[3] A nineteenth-century example is found in the work of Bruno Hildebrand, who classified economic systems according to their reliance on barter, money, or credit in their transfer of goods and services. Bert F. Hoselitz (1960) notes the ambiguity of Hildebrandt's schema: do these categories represent phases of a temporal sequence (*economic stages*), *ideal types* of economic system, or the most important *economic principles* underlying the functioning of an economy.
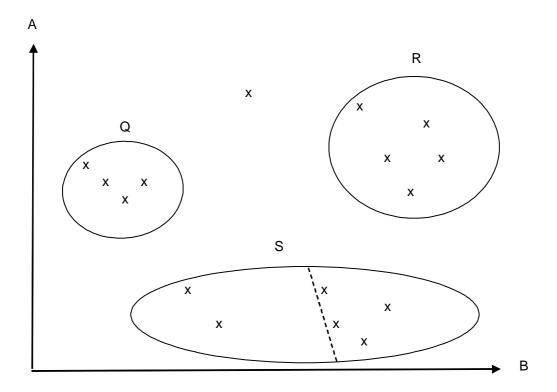
(market, centrally planned, traditional) or the type of market (free competition, regulated competition, dominance of monopolies, etc.). This method of classification helps to organize discussion and where the distinctions between economic systems appear obvious - for instance, those between industrial/service economies that are market driven and those that are centrally planned - it allows performance comparisons to be made with a minimum of fuss. Seldom , however, are the roles of other economic institutions nor the justifications for the classification schema made very clear. Moreover, as Richard Grassby sourly notes (1999: 2), ideal types are "fictive generalizations about the predominant characteristics of a particular society, projected from selected historical facts and intended to serve as a basis for universal analysis." As in the previously described procedure, usually only two or three features are singled out as crucial, so that we cannot be sure that the most important institutions and organizations in that economy are taken into account. As a result, we also have no assurance that the categories are very meaningful in helping us answer the central questions that I raise at the beginning of this chapter.

Finally, others have simply classified economic systems according to the schema in common parlence, using terms such as "feudalism," "agrarian capitalism," and so forth. Then they somehow squeeze the data into the schema, however tight the fit. Such a "common sense" solution may make the results of any further analysis easily understandable by others, but it does little to address the disadvantages of the classification schema itself.

2. My Approach for Classifying Economic Systems

I start with variables representing a series of institutions and organizations and define each as a dimension of the economic system, an approach that allows multidimensional statistical techniques to be employed. I focus on institutions and organizations that might have an important impact on the economy (at least as suggested by case studies of particular societies) and that are related to the system of property or distribution. Given these various dimensions, I then look for cluster of economies with similar configurations of institutions and organizations.

More technically, I calculate the distances in this multidimensional space defined by the selected institutions and organizations between each society and every other society

and employ a pattern recognition technique called cluster analysis to determine which societies are closest to each other, that is, which institutions and organizations cluster together. The clusters of economies which appear most similar define, in turn, the different types of economic systems.

Chart 1: Designation of Clusters

Note: The axes A and B respectively represent the two possible institutions in this simplified example, relative protection of job rights of workers and the ratio of government expenditures to GDP. The position of each society (x) is determined by the degree to which these two institutions play a part in its economy. Q, R, and S represent the derived clusters.

Chart 1 presents a simplified example in two dimensional space. To be very concrete, let us assume that all economic systems have only different degrees of two institutions, protection of the job rights of workers (A) and government expenditures as a ratio of GDP (B). For each society we can designate this configuration by an x on the graph. At first glance, the economies fall into three clusters, whose boundaries I have sketched. These clusters are bunched somewhat differently, with cluster Q the most tightly

packed and cluster S, the most loosely. One economy, in the upper middle portion of the graph, does not fall clearly into any of the three clusters; different estimations of the clusters might put it in either Q or R. Fortunately, as I have found through experimentation, such situations are relatively rare.

The chart illustrates another problem, however, that is quite common in this procedure. Might it be better to consider cluster S as really two clusters, with the dashed line marking the boundaries of each? We face a tradeoff. On the one hand, according to the principle of Occam's razor, entities (types of economic systems in this case) should not be multiplied unnecessarily, and we should have as few clusters as possible.[4] On the other hand, increasing the number of clusters reduces the error in defining each cluster. Obviously, if we have twenty-nine societies (each with an x on the graph), we will have no error in our description if we define twenty-nine clusters. If, however, eight x's cluster near each other and another nine x's are also close to each other, but not the first group, and a third group of eleven x's also form a distinct cluster, we lose relatively little information about the grouping of economic systems by reducing the twenty-nine clusters to three.

At this juncture it is useful to draw upon the principle of the *minimum description length* (MDL), defined by Jorma Rissanen (1989: 79 ff.; 2001), who worked from a "stochastic information-theoretic" approach. This technique combines the positive value of additional information gained by increasing the number of clusters with the negative value of the resulting greater theoretical complexity (both determined using information theory) and thereby arrives at a description length used for determining the optimal number of clusters. More specifically, the first step is to calculate the description length associated with each of various numbers of clusters for the data under examination. The optimal number of clusters (minimum description length) is simply where the gain in information

---

[4] In modern information theory this means that we should keep theoretical complexity to a minimum, where complexity is defined mathematically as the number of bits used to represent the model generating the clusters. A model with ten parameters, each with two possible values (1 or 0), would be of equal complexity to a model with one parameter with 1,024 potential values.

is exactly counterbalanced by the increase in complexity.[5] A computer program (written by Bruce Maxwell and described in Maxwell, Pryor, and Smith, 2002) allows an easy calculation of the MDL over a range of numbers of clusters. Once the optimal number of clusters (the number of economic systems) is selected, the program prints out the list of economies in each, as well as certain properties of each cluster, so that we can gain a quantitative idea of how often particular institutions occur together.

The optimal number of clusters, I must emphasize, may not be very helpful if the isolated clusters are very broad (in terms of Chart 1, if the lines defining the clusters encompass a very large area). A useful statistic to investigate this matter compares the variance of the distance of every point (a nation) with every other point in the sample and then compares it with the variance of the distance of every point within a given cluster with every other point in the same cluster for each cluster. Such a calculation tells us how much of the differences among the various economies is and is not explained by the calculated clusters. Thus, if the MDL calculations determines that three clusters are optimal and if, within each of these clusters, all countries have the same institutional configuration, the reduction-in-variance is 100 percent. By way of contrast, if the points to be clustered are randomly scattered over the multidimensional space, the calculated reduction-in-variance may be only 10 percent and distinctive economic systems cannot be meaningfully determined, a situation which, fortunately, I did not encounter.

Although such an approach appears "objective," it cannot be used heedlessly. The analyst must base the calculations on unbiased information and select thoughtfully the dimensions by which the clusters are to be defined (in Chart 1, relative protection of the job rights of labor and the ratio of government expenditures to the GDP). The number of relevant institutions and organizations is, of course, related to the complexity of the economy. For studies of hunting and gathering societies I have used ten institutions (Pryor, 2003); for agricultural societies, twenty-two institutions (Pryor, 2005b); and for the OECD sample discussed below, forty institutions.

Of course, the economic systems derived from the cluster analysis may look like

---

[5] In cases where the MDL was roughly equal for two adjacent numbers of clusters, I selected the number of clusters yielding the most interesting results. In these cases, the various societies in all but one of the clusters were generally the same, but one particular cluster splits in two (in Chart 1, this would most likely occur with cluster S).

ideal types, yet they differ in three respects. They are empirically derived, and not deduced from a particular theory about economic systems that may (or may not) be correct. Moreover, the starting point for the analysis takes into account many different dimensions, rather than one or two that capture the fancy of the investigator. Finally, many societies with a given economy system lacked *some* of the characteristics defining the system, even though its patterns of institutions and organizations matched the system type in the most important respects.[6]

B. Economic Systems of OECD Nations in 1990

In this section I present a case study of the OECD countries. Although the results are not startling, they illustrate the specific problems that can be encountered in using cluster analysis for defining economic systems.

1. Data and Statistical Technique

For the data on economic institutions and organizations in OECD nations I draw upon three different types of indicators: Some of these forty indicators are derived from the laws defining the institutions (for instance, various types of government regulation or patent protection); others, on statistics about their activities (for instance, centralization of banks or the percentage of workers covered by collective bargaining contracts); while still others, on expert opinion, for instance, the level of the economy at which wages are most often bargained or the competitiveness of the economic environment). When I present the summary data below, I also specify which of the three types of indicators is involved.[7] Whenever possible, I tried to collect these indicators for 1990 for two reasons: it is difficult

---

[6] I weight each of the dimensions equally, so that the cluster analysis yields a single pattern. If, for theoretical reasons, certain dimensions are considered more important than others, then a different pattern might emerge.

[7] The development of these indicators has been carried out principally by four teams: a primarily Harvard-based team composed of a shifting combination of Juan Botero, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny; a World Bank team composed of Daniel Kaufmann, Aart Kraay, M. Mastruzzi, and Pablo Zoldo-Lobatón; an OECD team of Giuseppe Nicoletti, Stefano Scarpetta, and Olivier Boylaud; and an independent team of Peter A. Hall and David Soskice. My intellectual debts to them should be readily apparent.

to find more recent data on many institution; and, moreover, the Maastricht agreement was signed in the next year, and the subsequent homogenization of European economic institutions allegedly accelerated thereafter.

These indicators are grouped into five categories:[8] (a) those reporting the ways in which the product market functioned in the different countries (twelve indicators); (b) those describing aspects of the labor market and various types of labor institutions (eight indicators); (c) those referring to various characteristics of enterprises and the system of production (six indicators); (d) those detailing the relative importance of different types of governmental activities (seven indicators); (e) and, finally, those reporting particular aspects of the financial system (seven indicators). Some of these indicators overlap in certain respects, but all reflect what I believe to be crucial aspects of the property and distribution institutions of the societies. As I show below, some of these institutions were not related to any specific economic system, which means that the variance explained by the clusters is smaller than we might desire.

2. The Results

Chart 2 presents the results of a cluster analysis when different numbers of clusters are specified.[9] From these calculations, we can draw several important conclusions:

* *Cluster permanence.* Three clusters, namely those consisting primarily of South European, West European, and Nordic nations, appear relatively consistent when four to six clusters are specified. The cluster consisting primarily of Anglo-Saxon nations (hereafter the Anglo-Saxon- plus, or AS+, group) was the least homogeneous, with two of

---

[8] All of the indicators are discussed in detail on my website: <http://www.swarthmore.edu/SocSci/Economics/fpryor1> in Appendix 2 of Economic Systems of Foraging, Agricultural, and Industrial Societies.

[9] The program starts with a random seed and uses an iterative procedure to derive the prespecified number of clusters. I instructed the program to iterate two hundred times and then averaged the results of one hundred such calculations. I repeated this procedure ten times (for four clusters, twenty-five times) and averaged the results of these runs. For each column, I then placed each country in the cluster where it most often appeared, designating with a question mark those cases where it did not appear in its most common cluster less than 70 percent of the runs. Except for the calculations with five clusters, the various countries were found over 90 percent of the runs in the particular clusters specified in Chart 2.
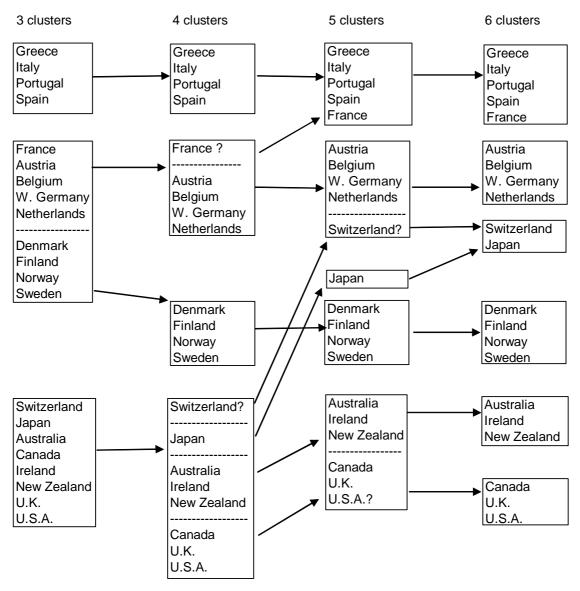
Chart 2: Results of the Cluster Analysis for Industrialized Market Economies

3 clusters	4 clusters	5 clusters	6 clusters

Greece
Italy
Portugal
Spain

→

Greece
Italy
Portugal
Spain

→

Greece
Italy
Portugal
Spain
France

→

Greece
Italy
Portugal
Spain
France

France
Austria
Belgium
W. Germany
Netherlands

Denmark
Finland
Norway
Sweden

→

France ?

Austria
Belgium
W. Germany
Netherlands

→

Austria
Belgium
W. Germany
Netherlands

Switzerland?

→

Austria
Belgium
W. Germany
Netherlands

Switzerland
Japan

Japan

Denmark
Finland
Norway
Sweden

→

Denmark
Finland
Norway
Sweden

→

Denmark
Finland
Norway
Sweden

Switzerland
Japan
Australia
Canada
Ireland
New Zealand
U.K.
U.S.A.

→

Switzerland?

Japan

Australia
Ireland
New Zealand

Canada
U.K.
U.S.A.

→

Australia
Ireland
New Zealand

Canada
U.K.
U.S.A.?

→

Australia
Ireland
New Zealand

Canada
U.K.
U.S.A.

A question mark indicates that less than 70 percent of the cluster runs placed
the country in that particular grouping.

the nations (Switzerland and Japan) hiving off when five clusters were specified and then
breaking up into two separate groups when six clusters were calculated.

Cluster boundaries. Of the twenty-one countries, three appeared to have irregular patterns in Chart 2. France, which was questionable in the West European group in the four-cluster calculations, moved from the West European cluster to the South European cluster; similarly Switzerland, which also was also a questionable member of the AS+ group in the four-cluster group, moved to the West European cluster, and finally to a separate cluster. This suggests that these two "wandering nations" laid close to the boundaries of the respective clusters, that is, away from the "core nations" forming each cluster; for this reason, I omit these two nations in the calculation of the averages for each system.

The case of Japan, a country which borrowed many of its economic institutions from quite different Western nations, illustrates another feature of the cluster boundaries. As the prespecified number of separate clusters increases, the criteria for forming a cluster become ever tighter (as shown in Chart 1 for cluster S). What Chart 2 tells us is that, when considering only a few major criteria, Japan is most similar to the AS+ nations; but if we define economic systems in greater institutional detail, then it must be grouped with other nations. We can conjecture that Japan's movement between systems reflects the fact that in the late nineteenth century, this nation borrowed economic institutions from a number of different nations so that the final institutional pattern was not internally consistent.

* *Interpretations*. Although I interpret the clusters as defining different economic systems, it is necessary to ask whether the systems are "independent entities" or merely a function of the level of economic development. For the OECD nations the South European cluster of nations has a significantly lower average per capita GDP (in 1990 dollars) than the other nations in the sample. Although we need not at this point determine the direction of causation between the economic system and per capita GDP, the per capita GDP must serve as a control variable at all steps of the analysis.

Using the minimum description length calculation, we can also determine that the optimal of clusters - or distinct economic systems - for our analysis is four. To determine whether the composition of nations in these clusters is robust, I made a similar calculation, but with only thirty indicators and obtained essentially the same results.[10] When I reduced

---

[10] To make this test more difficult. I also estimated a number of the indicators in a somewhat different way (see Pryor 2005a).

the number of indicators to eleven, about 75 percent of the countries appeared in the same clusters as in Chart 6-1.[11] In sum, the results appear robust and, moreover, forty indicators are useful for completeness even if they are not necessary to obtain the same results.

The composition of the four clusters is not surprising, and it is worth noting that other economists have recently come up with roughly the same groupings of nations. For instance, Jelle Visser (2001), who focused primarily on different models of industrial relations, distinguished four distinct types (Nordic corporatism, West European social partnership, Anglo-Saxon pluralism, and Latin confrontation). Soskice (1999) and Kitschelt, *et al.* (1999b) also arrived at quite similar groupings of nations; both placed emphasis on how the firm interacts with the rest of the economy, particularly with regard to the coordination of production, vocational training, and industrial relations. Soskice focuses particularly on four criteria (the system of industrial relations, the financial system, the education and training system, and the system regulating inter-company relations); Kitschelt paid more attention to the coordination of production and the system of industrial relations.[12] In carrying out a cluster analysis based on a wide number of indicators of

---

[11] I also calculated two other tests of robustness. One was a variance test, which started with the variance of the multidimensional distance between countries using the forty indicators and then compared this with the multidimensional variance between countries within the same cluster. For four clusters, the variance is reduced 41.5 percent; for six clusters, 53.8 percent.

A second test was making twenty five runs and determining the percentage of times a given nation was placed in the cluster where it most often occurred (shown in Chart 2). In the four cluster case for the entire sample in these different runs, the various nations always appeared in the same cluster 93.9 percent of the time. Omitting France and Switzerland (the two "wanderer nations"), this rose to 97.7 percent.

[12] More specifically, both start with Soskice's distinction between nations with coordinated market economies and those with liberal market economies. The latter group includes Britain, Canada, Ireland, US, Australia and New Zealand, although the authors note that the latter two nations have special characteristics that do not fit nicely into their schema . In the former group they distinguish between those economies coordinated through industries and those coordinated through groups of companies across industries (e.g., the keiretsu of Japan and chaebol of Korea). Kitschelt and his colleagues also differentiate between those countries coordinated at the national level (Nordic countries) and those coordinated at the sectoral level (some West European nations, such as Belgium, Germany, and Switzerland). For particular purposes, Soskice has also distinguished between West European and South European economies, placing France toward the latter group.

governmental regulation of (and intervention in) product and labor markets, Nicoletti, Scarpetta, and Boylaud (2000) also derived roughly the same grouping of countries as that shown in the chart.

3. Special Characteristics of the Four Individual Economic Systems

Table 1 presents data on the forty institutional characteristics used to define the types of economic systems. There is no need to try the patience of the reader by describing each characteristic in detail.

To clarify the role of the level of economic development on the economic system, two types of comparisons are useful. The first test, shown in the first data column, is a simple income elasticity, that is, the percentage change in the numerical value of the indicator associated with a 1 percent change in per capita GDP.[13] For instance, the degree of protection of patent rights is significantly and positively related to the level of economic development; while, by contrast, the share of R and D carried out in the government sector (and not by industry or universities) is inversely related; and the ratio of government subsidies to the GDP has no significant relationship at all.

The second test of the role of the level of economic development, shown in the second through fifth data columns, presents the average values for each indicator among the nations sharing a particular type of economic system. I have also determine if this value is significantly different from the other nations in the sample when holding the level of per capita GDP constant. Statistically significant results for the economic system variable at the 0.05 level from the regressions underlying this exercise are shown in boldface, with the sign of the calculated coefficient shown in the superscript; a question mark in the superscript distinguishing significance at the 0.10 from the 0.05 level. Thus significantly more workers in the South European nations belonged to labor unions, while among the AS+ nations, significantly fewer belonged.

Finally, in the last data column I present the average value of the indicator for the entire sample to provide more perspective on the values for the individual systems.

---

[13] In order to use the entire sample, the "borderline" nations are included in these calculations. Such a calculation, of course, tells us nothing about the direction of causation.

Table 1: Defining Characteristics of Four Industrial Economic Systems in 1990

Features A	B	Indicator	Range	Devel. elasticity	South European	AS+	Nordic	West European	Average Total sample
Product market									
1 L	D	Regulation of product market	0.6 - 3.1*	-0.40	**2.800**[+]	1.086	2.100	2.000	1.876
2 L	P	Protection of patent rights	0 - 1	**+0.66**	0.599	0.698	0.702	0.805	0.707
3 L	P	Good legal environment for markets	0 - 1	**+0.19**	**0.747**[-]	0.846	0.882	0.880	0.842
4 LS	PD	Barriers to starting new businesses	0 upwards	**-2.21**[?]	**0.542**[+]	**0.074**[-]	0.104	**0.321**[+?]	0.237
5 LSX	P	Social partnership of capital and labor	0 - 1	**+1.16**	0.313	**0.371**[-?]	**0.852**[+?]	0.777	0.548
6 S	D	Ratio of government subsidies to GDP	0 - 1	-1.04	0.028	0.017	0.032	0.028	0.024
7 S	D	Intersectoral grants for R & D	0 - 1	-0.36	0.366	0.261	0.290	0.304	0.296
8 S	D	Foreign trade barriers	0 - 1	-0.25	0.621	0.703	0.501	0.693	0.636
9 XL	D	Freedom to set prices	0 - 1	**+0.52**	0.539	**0.748**[+]	0.650	0.637	0.663
10 X	D	Product market competition	0 - 1	+0.08	0.700	0.726	**0.654**[-?]	0.758	0.713
11 X	D	Effectiveness of antitrust laws	0 - 1	**+0.22**[?]	0.436	**0.529**[+?]	0.471	0.516	0.493
12 X	PD	Presence of business clusters	0 - 1	+0.54	0.513	0.626	0.650	0.663	0.616
Labor market									
1 S	D	Coverage of collect. barg. agreements	0 - 1	**-1.20**	**0.797**[+]	**0.459**[-]	0.673	**0.888**[+]	0.663
2 L	D	Centralization of largest peak union org.	0 - 1	-0.62	0.476	0.367	0.464	0.607	0.457
3 L	D	Power of workplace representative	0 - 1	-0.48*	0.250	0.036	0.125	0.188	0.138
4 L	D	Legal protection: workers, employment	0 - 1	**-0.63**	0.662	**0.362**[-]	0.418	0.485	0.464
5 L	D	Legal protection: labor bargining rights	0 - 1	-0.82	**0.698**[+]	0.331	0.444	0.384	0.452
6 X	D	Coordination of wage negotiations	0 - 1	-0.84*	0.417	**0.292**[-?]	0.688	0.750	0.520
7 XS	D	Strength of vocational training system	0 - 1	+3.88*	0.500	**0.000**[-]	**0.938**[+]	0.750	0.500
8 X	D	Level of economy where wages bargained	0 - 1	-0.12*	0.385	**0.323**[-?]	**0.750**[+]	0.594	0.482
Production and business sector									
1 S	P	Widespread firm ownership	0 - 1	+1.14*	**0.000**[-]	**0.557**[+]	0.200	**0.100**[-?]	0.267
2 S	P	Importance of large manufacturing firms	0 - 1	**+1.26**	0.203	0.427	0.344	0.409	0.364
3 L	P	Power of peak organizations	0 - 1	-1.07*	0.476	**0.245**[-]	**0.857**[+]	0.464	0.468
4 L	P	Shareholder rights	0 - 1	+0.45	**0.250**[-]	**0.771**[+]	0.500	**0.250**[-]	0.476
5 L	P	Creditor rights	0 - 1	-0.07	0.500	0.400	0.550	0.650	0.486
6 L	P	Significant worker role in firm's decision	0 - 1	-1.12*	0.283	**0.000**[-]	**0.650**[+]	0.533	0.298
Government sector									
1 S	PD	Govt. direct share of fixed investment	0 - 1	-0.21	0.152	0.139	0.133	0.114	0.137
2 S	D	Govt. share of total consumption	0 - 1	+0.31	0.197	0.217	**0.317**[+]	0.222	0.233
3 S	D	Ratio of govt. domestic transfers to GDP	0 - 1	+0.13	0.149	**0.127**[-]	0.198	**0.221**[+]	0.167
4 S	P	Direct govt. share of total employment	0 - 1	+0.34	0.149	**0.142**[-?]	**0.316**[+]	0.155	0.181
5 S	P	State enterprise share of total employment	0 - 1	-0.93	0.036	0.023	0.043	0.043	0.036
6 S	D	Share of R & D in government sector	0 - 1	**-1.66**	0.273	0.204	0.152	0.114	0.184
7 L	D	Coverage of social security system	0 - 1	-0.02	2.248	2.106	**2.560**[+]	1.950	2.206
Financial sector									
1 L	D	Central bank independence	0 - 1	**+0.99**	0.330	0.498	0.406	**0.604**[+?]	0.479
2 L	PD	Restriction on bank activities	0 - 1	-0.09	0.354	0.393	0.313	0.250	0.317
3 L	D	Openness of external capital flow	0 - 4	**+3.48**	3.225	3.429	3.525	3.750	3.490
4 S	PD	Comprehensiveness of accounting stds.	0 - 1	**+0.49**	0.603	0.802	0.822	**0.669**[-?]	0.736
5 S	P	Bank concentration	0 - 1	-0.72	**0.550**[-]	0.611	**0.827**[+]	0.653	0.638
6 S	D	Relative size of financial system	0 upwrds.*	**+1.01**	0.812	1.186	0.835	1.210	1.101
7 S	D	Stock market activity/bank activity	0 upwrds.	+0.34	**0.074**[-]	**0.671**[+?]	0.280	**0.188**[-?]	0.367
		Per capita GDP (1990 dollar prices)			12342	17149	17870	17507	16696

Notes: <u>Features</u>: Column A designates if the indicator is based on legal definitions (L), statistics (S), or expert evaluations (X), or some combination thereof. Column B designates whether the indicator refers primarily to property (P) or distribution (D). <u>Range</u>: An asterisk designates that the range is not absolute, but is based on the highest and lowest recorded values. <u>Development elasticity</u> designates the percentage change of the indicator resulting from a 1 percent change in the per capita GDP; and a rough estimate is designated with an asterisk. The second through fifth data columns present averages (excluding France and Switzerland). The level of significance is determined when per capita income is held constant, and the sign of the coefficient in this regression is designated in a superscript. A statistically significant result at the 0.05 level is boldfaced, with a question mark placed as a superscript if the level of significance is 0.10. Sources and exact meaning of the data are discussed in the Appendix to Chapter 2 <u>Economic Systems of Foraging, Agricultural, and Industrial Societies</u>, <u>op. cit</u>.

In major respects the AS+ economic system embodied the characteristics of a traditional liberal market economy, with organized labor in a relatively weak position. Controlling for per capita GDP, the countries with this type of economic system had significantly fewer barriers to starting new enterprises, greater freedom of firms to set their own prices, a smaller share of workers belonging to labor unions, less legal protection against job loss and fewer safeguards for collective bargaining, more widespread firm ownership, a weaker system of vocational education, fewer national organizations representing employers, greater protection of shareholder rights, little role of workers in firm decision-making, and a lower ratio of government transfer expenditures to the GDP. Less certain characteristics (the significance level is 0.10) included a less apparent social partnership between management and labor, more effective antitrust laws, less coordination of wage negotiations (which were more likely to be carried out at the enterprises level), a smaller share of total employment by the government, and more financing of enterprise investment through the stock market, rather than banks.

The results show what we already know, that the Nordic economic system was, in may ways, the opposite of the AS+ system, particularly with regard to the economic role of the government. Among the statistically significant characteristics of these economies are a greater strength of the vocational system, bargaining of wages at the national or industrial level, greater power of national employer organizations, a higher share of government consumption expenditures in the GDP (that is, government expenditures excluding transfers, subsidies, and investment), a larger share of total employment by the government, greater coverage of the social security system, and a higher concentration of banking activity. At a lower level of statistical confidence, the nations with the Nordic economic system had a greater social partnership of capital and labor and less competition in the product market.

The West European economic system reflected a different type of ordered market economy. When the level of economic development is factored out, a larger share of workers in these countries belonged to labor unions, minority stockholder had fewer rights, and government transfers were a higher ratio to the GDP. Other less certain characteristics are a greater social partnership of capital and labor, less widespread firm ownership, higher central bank independence, less comprehensive accounting standards, and a smaller share

of industrial investment financed through the stock market.

Finally, the South European economic system revealed yet another admixture of characteristics, some related to a lower average level of economic development of the various nations, others unique to this group of countries. When the per capita GDP is held constant, we find that these nations had more regulation of the product market, a more unfavorable legal environment for markets, more barriers to starting new businesses, more legal protection against job loss and more safeguards for collective bargaining, a smaller share of workers belonging to labor unions, fewer stockholder rights, and less concentration of banking activities.

By and large, the major results of this statistical exercise should not be surprising to those familiar with the economies of the OECD nations. Nevertheless, it is worth nothing many of the institutional characteristics defining the particular types of economic systems have been changing over time. For instance, the high ratio of government consumption expenditures to the GDP in the Nordic economic system only appeared in the late 1950s; or, since 1990 peak employer organizations in the United States may have been becoming stronger (such as the Business Roundtable), while in some European nations they were becoming weaker.

These results also raise the critical question of the impact of these institutional differences on the performance of the economy, a topic discussed below. Before turning to this question, however, I would like to note several unexpected findings.

* *Size of the government sector.* The government, of course, played an important causal role in many of these institutional indicators. Nevertheless, the seven indicators for the size of the government sector turned out to be no more likely to distinguish the types of economic systems than the other four classes of indicators. This suggests that the traditional focus on the size of the government sector as an exclusive means of categorizing an economic system is misplaced, and that we must pay just as much attention to economic institutions in the other sectors.

* *Unimportant indicators*: A number of the indicators, which I had assumed would differentiate between the economic systems, did not play such a role. Among others, these included patent protection, the ratio of government subsidies to the GDP, barriers to foreign trade, the presence of "business clusters" (groups of separately-

owned businesses in different industries operating together, centralization of umbrella labor organizations ("peak labor unions"), the power of union representatives in the work place, the relative share of employment in large manufacturing firms, creditor rights, the government's direct share of fixed investment, the employment share of state-owned enterprises, the share of R and D carried out by the government, restrictions on bank activities, and openness of external capital flows.

In brief, this statistical investigation not only illustrates how the cluster analysis technique can be used but it also confirms in a rigorous fashion what we intuitively "know" about the economic systems of the OECD nations from our general reading. One caveat, however, deserves emphasis. The foregoing discussion focuses on averages of nations with the same type of economic system. Although all nations with the same system were similar in some respects, this is not true in all respects; and, of course, within the four main groupings, the economic system of each nation had its own unique features.

C. Economic Performance and Economic Systems

1. Macroeconomic Indicators

Most of the theories about the relative performance of economic systems refer to differences between centrally planned and market economies, for instance, that the former have lower static efficiency than the latter. Turning to differences in economic performance of the various OECD, it can be plausibly argued for two reasons that there should be no differences between the systems at all: (a) It is government policies, not institutions, which are critical in determining economic performance; (b) If a particular type of economic performance is relatively apparent to all, then in a set of functioning democracies where voters are aware of what is happening in other nations, voters would demand changes in the institutions responsible for such outcomes, such as, for instance, the "Thatcher revolution" in the UK, or else they would adapt other economic institutions which might interact with existing institutions in a manner to enhance economic performance.

Several counter arguments can be offered against such propositions: (a) If the major institutions of an economic system were specifically designed to achieve certain

economic outcomes corresponding to values quite different than those in other nations, it is quite possible that economic performance would be significantly different from others. In this regard, the income redistribution system, whereby the government transfers income from one group to another, comes immediately to mind. (b) Voters are often not aware of what is happening in other countries and also may not understand the relationship between institutions and economic performance; (c) The existing economic system might maintain its inertia if changing one institution required changing many other institutions as well.

Given our current lack of theoretical clarity about such matters, it is necessary to proceed cautiously and inductively.

Panel A of Table 2, which is set up much like the previous table, shows one instance of a very visible impact of the economic system, namely its impact on income distribution. This indicator is not related to the level of economic development (the first data column), so the comparison of systems is less difficult. When we look at income inequality in terms of the ratio of incomes at the 20th and 80th percentile to the median income, it is apparent that the direct distribution of incomes before taxes and transfers (more precisely, factor incomes) was not significantly different between three of the four economic systems, but the AS+ had significantly higher relative factor incomes in the upper part of the income distribution. By contrast, the distribution of income after taxes and transfers (disposable personal income) was significantly more unequal in the AS+ nations and significantly more equal in the Nordic countries. In the West European nations, the ratio of income of those in the 20th percentile to the median shows significantly greater equality than the other nations when the impact of per capita

income is factored out. The extent of the redistribution of income through the fiscal system in each economic system can be measured by comparing the percentile ratios for the two concepts of income. An important aspect of such redistribution came through government transfers, which, as shown in Table 1, were higher in the Nordic and West European economic systems than in the other two systems. the Nordic countries. In the West European nations, the ratio of income of those in the 20th percentile to the median shows significantly greater equality than the other nations when the GDP is held constant. The extent of the redistribution of income through the fiscal system in each economic system can be measured by comparing the percentile ratios for the two concepts of income. An

important aspect of such redistribution came through government transfers, which, as shown in Table 1, were higher in the Nordic and West European economic systems than in the other two systems.

Table 2: Economic Performance Indicators for OECD Countries

	Devel. elasticity	Average values				
		Economic systems				Total
		South European	AS+	Nordic	West European	sample
Panel A: Income distribution around 1990: Ratios of incomes at specified percentiles						
20th to 50th percentile						
Factor income	- 1.23	n.a.	0.389	0.269	0.379	0.384
Disposable personal income	+0.03	0.624	**0.590**⁻	**0.700**⁺	**0.695**⁺ˀ	0.654
80th to 50th percentile						
Factor income	- 0.09	n.a.	**1.758**⁺	1.609	1.625	1.661
Disposable personal income	- 0.11	1.544	**1.601**⁺	**1.341**⁻	1.428	1.479
Panel B: Macroeconomic indicators: Average annual rates, 1980-2000						
GDP per capita	- 0.35	1.99%	2.27%	1.80%	1.89%	1.95%
GDP per worker	- 0.44	1.59	1.78	2.16	1.70	1.73
Unemployment rate	**- 1.20**	10.68	7.66	6.18	6.79	7.65
Inflation rate	**- 1.85**	**9.30**⁺	3.54	4.03	2.47	3.47

Notes: Development elasticity designates the percentage change of the variable associated with a 1 percent change in the per capita GDP.

In the second through fifth data columns, the tests of statistical significance are made by calculating ordinary least squares regressions of the following type:

Indicator = a + b Ycap + c EcSys, where Ycap is per capita GDP, EcSys is a dummy variable with a value of 1 for a particular economic system and a value of 0 for all other economic systems; and a, b, and c are calculated coefficients. France and Switzerland are excluded from these calculations (but not the calculation of the elasticities).

I estimated the income distribution statistics from data sets of the Luxembourg Income Study <www.lisproject.org>. In these calculations, data are missing for Japan, New Zealand, Greece, and Portugal, which means that for the South European system, only two countries are included and, therefore, the results should be carefully interpreted.

The sources of data are described in the Appendix to Chapter 2 of Economic Systems of Foraging, Agricultural, and Industrial Societies, op.cit.
.

Panel B of Table 2 presents four common macroeconomic performance indicators, which are generally believed to reflect the well-being of a large part of the population and which are endlessly repeated by leading politicians of all ideological stripes. These indicators cover the period 1980 through 2000, thus spanning the year (1990) for which the systems were determined.

The data in the first column show that both the unemployment and inflation rates were lower in those countries with a higher level of per capita GDP. When the 1990 level of per capita GDP is held constant, the data reveal that, with one exception, the differences between the performance levels of the economic systems were not statistically significant. For the rate of per capita GDP growth, I reran the regressions holding not just per capita GDP in the initial year constant, but also the average years of education of those in the labor force in the initial year and the ratio of gross capital investment to the GDP from 1975 through 1995 (to account for lags in the impact of investment). These three variables, according to Levine and Renelt (1992), constitute the minimum required for testing growth models. The results, however, were the same as before and showed that the economic system had no impact on growth rates.

The single exception to the relative unimportance of the economic system in explaining macroeconomic behavior was the rate of inflation, which was significantly higher in the Southern European nations. In part, the greater fiscal indiscipline of these South European nations, which underlay this inflation, might be attributed to the lack of the central bank's policymaking independence from the ministry of finance (as shown in Table 1). To prevent tut-tutting, I might add that inflation - unless it is extremely severe - has not usually had an adverse impact on either growth or unemployment in my sample of OECD nations

2. Other Performance Indicators

The performance of an economic system can, of course, be rated on many indicators other than those discussed above. In this section I very briefly consider four indicators of a quite different type: class struggle, health, pollution, and innovations.[14]

---

[14] The sources of all data used in this and the following paragraph are discussed in Appendix 2 of Economic Systems of Foraging, Agricultural, and Industrial Societies, op.

* *Class struggle*. To explore whether certain economic systems lead to more overt conflict between capital and labor, I use three proxies for class struggle in the period from 1988 through 1992: the days of work lost in strikes in the manufacturing sector as a percentage of total work days, days of absenteeism per manufacturing worker per year, and days of work lost per worker per year because of claimed illness (which partly overlaps with the second indicator). When we hold the level of per capita income constant, the South European countries had significantly higher strike days per worker. At a lower level of statistical significance, the Nordic nations had greater absenteeism, in contrast to the AS+ nations, which had less.[15] One indirect indicator of class struggle, because it may reflect employer negligence toward workers, is the rate of industrial accidents, as measured either by days of work lost or by fatalities. When the impact of per capita GDP is held constant, the accident rates for the four economic systems did not significantly differ from 1988 through 1992. Such mixed results suggest either that the class struggle indicators were not tied to the economic system in any consistent manner or that strikes and absenteeism were substitutes for each other.

* *Health status*. Three indicators of health in the 1988-92 period are readily available: life expectancy, infant mortality, and low birth weights. When we hold per capita GDP constant, the Nordic nations have significantly fewer babies with low birth weights, which is probably a function of their higher governmental health expenditures. At a lower level of statistical significance, the AS+ nations had more babies with low birth weights. For the other two indicators, however, no statistically significant differences between the economic systems could be found.

* *Pollution*. The control of pollution is another success criterion of an economic system and I focus on three types of air pollution for which data for the 1988-92

---

cit. The statistical analysis is carried out in the same manner as in Table 2, with per capita GDP held constant.

[15] Statistical experiments using an income distribution variable (the ratio of incomes in the 80th to the 20th percentile) suggest that in the case of strike days lost, this income ratio may have served as the most direct cause, so that the economic system was only an indirect cause. When I specify "possibly" in the text, I mean that the calculated regression coefficient is statistically significant, but only at the 0.10 level. Absenteeism is also influenced by non-systemic factors, for instance, if a high percentage of both parents are in the labor force, absenteeism may reflect the necessity to tend a sick child.

period are readily available, namely sulfur oxides, nitrogen oxides, and carbon monoxide. Statistical calculations to determine the role of the economic system yield mixed results and depend on the control variables. If we hold both per capita GDP and population density constant, however, none of the economic systems has significantly different pollution rates from the others.[16] If we look at pollution restrictions using observer data (namely, surveys of business people (Nicoletti and Pryor, 2001) and hold per capita GDP constant, the West European nations had significantly more pollution regulations. Nevertheless, the relation between economic system and actual pollution, once population density and the level of development are taken into account, appears weak.

Innovation. One of the major arguments for the alleged superiority of the AS+ economic system is that it is more encouraging of innovation. A proxy for such activity is the average number of new patents per capita in the 1988-92 period. When we holding per capita GDP constant, no statistically significant differences between the economic systems can be found.[17]

Of the four kinds of performance criteria discussed above, the economic system had a significant impact on only two indicators, namely strike days and low birth weights of babies.[18] Such disappointing results may arise either because the performance indicators are not very satisfactory or because it was very specific institutions, such as government

---

[16] When we use only per capita GDP as the control variable, the AS+ countries had significantly higher emissions of sulfur oxides and carbon monoxide, while the West European nations had significantly lower emissions for sulfur oxides.

[17] I discuss how I partly circumvented comparability problems with patent statistics in the Appendices to Chapter 2 in Economic Systems of Foraging, Agricultural, and Industrial Societies, op. cit.

[18] I also tried a number of other statistical experiments, for instance, using the indiccator bravely devised by Afonso, Schuknecht, and Tanzi (2003) to measure the performance of governmental administration in 1990. It is composed of four equally weighted indices measuring corruption, red tape, quality of the judiciary, and the size of the shadow economy. When we use their data for 1990 and hold per capita GDP constant, the South European countries score significantly worse than the other countries, while the Nordic countries possibly score significantly higher. I suspect, however, that such results are due more to differences in the social capital and interpersonal trust (see below) than to the economic system per se. I also regressed the systems variables against several of their measures of efficiency of the government sector for 2000, but found little of interest.

health services, which had the most important impact on performance. In this latter case, the economic system embraces too many institutions to capture such a specific impact.

3. Some General Considerations

Unraveling the quite different roles that particular institutions may play within a given economic system provides a useful perspective to understand the impact of the system on economic performance.

a. Critical importance of one or several institutions. The economic performance of a nation may depend on a few institutions, rather than on the entire economic system. For instance, an enormous amount of scholarly energy has been devoted to isolating those few institutions which directly account for differences in the rate of economic growth, such as particular structures of the financial system. It is noteworthy, however, that some of these financial structures, in turn, have been related to more basic institutions of the economic system.[19] A clearer example is provided by Timur Kuran (2004) who, in a fascinating essay, argues that the Middle East became economically underdeveloped after 1000 C.E. because of the influence of three interlocking institutions: the Islamic law of inheritance, the absence in Islamic law of the concept of a corporation, and the existence of the waqf (a charitable foundation), which locked vast resources into unproductive organizations.

b. Variations in relative performance of economic systems. This can be seen most clearly by looking at performance data over time. For instance, the data underlying Table 2 show that, on average, the AS+ nations had higher average growth of per capita GDP during the 1980s and 1990s than the West European nations; but in the 1950s and 1960s the reverse was true.[20] A different kind of variation can also occur at a

---

[19] This literature is reviewed by Beck, Demirgüç-Kunt, and Levine (2003), who trace the origin of these financial structures and institutions to the type of legal system. Other possible causal factors, such as the presence of certain types of joint stock companies or other types of property institutions, come readily to mind.

[20] The data for the earlier period were drawn from Maddison (2003). Nevertheless, with the possible exception of the AS+ nations, the differences between one system and another in the 50s and 60s were not statistically significant when we hold constant such control variables as per capita GDP in the initial year.

single point in time among the nations with the same economic system. For instance, although the data between 1980 and 2000 show the average unemployment rate in the Nordic countries to be roughly the same as that of other nations, this rate was roughly twice as high in Denmark and Finland as in Norway and Sweden.

   c. Interactions between economic events (shocks), institutions, and outcomes. A number of economists have emphasized that the economic environment in the 1950s and 1960s was much different than it was in the 1980s and 1990s, when unemployment rose in certain countries with particular labor market institutions.[21] For instance, countries whose institutions favored rising monetary wages, or laws raising the costs to employers of releasing workers, or high and long-lasting payments to the unemployed, are more likely to experience higher long-term unemployment when shocks, such as falling productivity, rising inflation, and rising real interest rates, hit the economy, which they did in the last quarter century of the twentieth century. And, of course, economists have invoked these arguments to explain why unemployment rates in many European nations increased so greatly in the same period. In brief, changes in the economic environment interacted with particular labor market institutions, which, in turn, affected other economic outcomes in ways that depended upon the configuration of these institutions. It might be added that some of these labor market institutions are not included in my forty indicators because their scope is too specialized. Nevertheless, they played a key role in particular labor market outcomes.

   d. Institutions reinforcing each others. The redistribution of income is, as indicated above, an integral feature of the economic system. Although such an outcome can be traced to governmental actions, three other critical institutions can also influence the results:[22] (i) Labor unions have generally acted to narrow wage differences and changes in labor union membership affect the degree of equalization in many (but not all) groups of the labor force. (ii) Strong legal support for collective bargaining reinforces the

---

[21] I draw especially upon the work of Blanchard (1997), Blanchard and Wolfers (2000), Bertola, Blau, and Kahn (2001) and Lazear (1990) for the discussion in this paragraph.

[22] Discussion in this paragraph draws upon the empirical and theoretical work of Blau and Kahn (1994) and Card (1998).

equalizing effect of union activity. (iii) Income equality is further strengthened by wage bargaining at the industry or national level, rather than at the enterprise level. Thus, in the United States, which experienced a decline in both union membership and collective bargaining in the latter part of the twentieth century, and where wages tended to be negotiated at the enterprise level, we would expect (and do find) growing inequality of wages, a trend reinforced in the latter part of the twentieth century by the impact of greater imports from low-wage nations.

        e. Institutions counteracting the effects of each other. Peter Lindert (2002) asks an interesting question: Why did the Nordic nations, which tax heavily and spend lavishly on social welfare, show growth rates little different from other nations when such taxes should discourage investment and growth, at least according to conventional belief as well as sophisticated statistical studies (e.g., de Avila and Strauch, 2003)? Among other things, Lindert points out that the mix of taxes in some of these Nordic nations was more pro-growth than in many OECD countries with lower tax rates; that these Nordic nations adopted several measures for minimizing a young adult's incentive to avoid work and training; that their government subsidies to early retirement took the least productive employees out of work, thereby raising labor productivity; and that much of the social spending, especially on education, raised productivity. Blau and Kahn (1994) also point out that although compressed wage differentials discourage a person from investing in more training, Sweden circumvents this disincentive by subsidizing advanced training, thus making it less of a financial burden to the recipient. Slemrod (1995) also notes that a high degree of interpersonal trust and governmental honesty (both are discussed below), also aided Nordic economic growth.[23]

        From this array of considerations two main conclusions can be quickly drawn.

_____

    [23] In many cases it is difficult to determine whether the reinforcement effects of economic institutions or their counteracting effects are stronger. For instance, Nickells and Layard (1999) show that in the 1983-94 period, unemployment in twenty OECD nations was significantly and positively related to union density, union contract coverage, the ratio of unemployment payments to wages, the length of unemployment benefits, and the tax wedge between wages and income, and was negatively related to coordination of wage bargaining above the level of the enterprise and to active labor market policies. These various institutions and policies do not, however, occur in a single package, but rather in varying degrees in different countries so that assessing their overall impact requires in a particular country requires a comparative analysis of many countries.

First, in linking the economic system to economic performance, it is essential to take into account variables representing the changing economic environment. Second, in many cases the economic system is too broad to link directly to economic performance, and we must look instead at the individual components of the system and the ways in which they reinforce or counteract each other.

D. Evolution of the OECD Economic Systems

Up to now we have focused on economic systems at a single point in time. Our approach, however, also helps us to explore systemic change over time. Before starting, it is useful to specify four different patterns of change:

•*Fixed versus fluid patterning.* Fixed patterning means that the overall configurations of institutions defining particular economic systems are relatively fixed over time, while fluid patterning means that this patterning of institutions changes over the course of economic development. Given the vastly different development elasticities of the various institutions shown in previous chapters, fluid patterning seems much more likely.

• *Parallel versus polyvalent change.* Parallel change indicates that over the course of time, the nations with the same economic system change in the same manner so that they remain grouped together. The hypothesis discussed in the previous chapter that the different political/economic structures of various nations in Europe a millennium ago was roughly the same as their current economic systems is a dramatic example of parallel change. If, by contrast, systems change in a polyvalent fashion, nations that are grouped together at one point in time may be in quite different groups at other points in time. In polyvalent change the logic-of-institutions is much weaker than in the parallel change.

• *Contracting versus expanding clusters*. Contracting change indicates that the multidimensional distance *among* nations with the same economic systems becomes smaller. This means that the clustering of nations with a given economic system has become tighter, that is, the technological/environmental constraints influencing variations within a given economic system have become stronger. Expanding change is the reverse. Of course, it is also possible that the tightness of the clustering remains unchanged.

• *Convergent versus divergent change*. Convergent change indicates that the multidimensional distance *between* economic systems becomes smaller. This means that the clusters of nations have become closer and reveals in another way that the technological/environmental constraints limiting systemic variation have become stronger. Divergent change is the reverse. Of course, it is also possible that the inter-cluster distance remains the same.

The latter three characterizations of systemic change represent different dynamic characteristics of the logic-of-institutions. In all cases, the logic-of-institution may be strong at a single point in time, but this strength can vary over time, depending upon technological and other exogenous changes in the economic environment.

With this framework of four characteristics of systemic change in mind, my discussion focuses on two topics. First, I briefly summarize the results of a cross-section analysis of the economic system of nations outside the OECD that had relatively low levels of economic development in 1990. This provides direct evidence on three of the four characteristics of systemic change. Then I examine the economic systems of OECD nations at various points of time in the second half of the twentieth century, an exercise which, although limited by the lack of sufficient data to allow a refined empirical analysis, does provide some important insights.

Unfortunately, we encounter a sufficient number of unresolved issues in the analysis of past changes in the economic system that we cannot easily predict the future. For this reason the discussion of future systemic change is less elaborate and focuses primarily on the most important factors that will influence changes in both the economy and the economic system in the coming decades. Such factors include aging of the population, increasing globalization, and changing relationships between capital and labor.

1. Clues about Systemic Change from the Economic Systems of Developing Nations
Comparisons of the economic systems of developing nations and of the OECD in 1990 provides some important insights about general systemic changes. Before plunging into the discussion, however, we must consider two hazards of using evidence from a single point in time in other parts of the world to generalize about events occurring over several centuries. First, poor and rich countries respond differently to certain important economic

forces. For instance, the development elasticities of certain institutional variables, such as the share of public consumption in the GDP, are much different. Second, some causal forces operate quite differently over a period of time than at a single point in time. For instance, from 1879 to the present, the ratio of government expenditures to the GDP in the OECD nations was highly correlated with per capita income; but at a single point in time, I could find no such relation.[24] These two methodological pitfalls mean that we must proceed cautiously.

The analysis starts with a study, similar to this, of economic systems of developing nations (Pryor, 2005a), which employs a cluster analysis with most of the same institutional variables used for the OECD nations in the previous chapter.[25] This allows us to focus on the differences with the OECD nations, particular results most relevant to the problem of systemic change. The following results are obtained from such a comparison:

• *Fluid patterning of the economic system.* The institutions and organizations that served to distinguish the economic systems in the OECD from each other were quite different from those defining the economic system of developing nations. For instance, regulation of product markets, which differentiated OECD economic systems, did not emerge as important distinguishing characteristics between the economic

---

[24] Total government expenditures include consumption, transfers, subsidies, and capital consumption. In the OECD nations the ratio of these expenditures to the GDP increased from an average of 9.2 percent in 1870 to 45.9 percent in 1990, and the relationship between this ratio and per capita GDP was strongly significant. By contrast, I could find no significant relationship between per capita GDP and this government expenditure ratio among the OECD nations at single points in time, taking cross-sections for 1870, 1910, 1950, and 1990. New technologies, new ideas and values, and new political or economic opportunities can influence changes in the economic system over time; at a single point in time, however, they are roughly the same for all nations.

The ratios of total government expenditures to GDP come from Cusack and Fuchs (2003). I have made rough estimates of the OECD countries not included in the earlier years. The per capita GDP data come from Maddison (1995, 2001). This topic receives greater attention below.

[25] The developing county sample consists of forty-one countries in 1990, all with a per capita GDP of less than $10,000, and thirty-one indicators of institutions and organizations. The OECD sample consists of twenty-one countries in 1990, all with a per capita GDP of more than $10,000, and forty indicators. For the comparisons with the developing nations, however, I have used roughly the same indicators as those in the analysis of developing nations.

systems of developing nations. This suggests that the institutional configurations defining economic systems of OECD nations could have been quite different thirty or fifty years ago, a topic taken up at greater length below. To investigate this matter further, I combined the samples of OECD and developing economies and carried out a supervised cluster analysis, which means that I forced the program to classify the economic system of each developing nation into one of the four economic systems of the OECD nations. Almost all of them fell within the Southern European cluster, which constituted that group of OECD nations with the lowest levels of per capita GDP. This exercise provides yet another example of the interrelations between the economic system and the level of economic development, so it is not surprising that the economic systems of developing nations would be defined by quite different characteristics than those of the industrialized market economies of the OECD.

• *Contracting clusters during modernization.* The statistical analysis yields tighter clusters for OECD nations than for developing countries, whose clusters appear to have roughly the same tightness as preindustrial agricultural societies.[26] This is schematically shown in Chart 7-1, which (similar to Chart 1-1) in which the axes represent the institutions defining the economic system (only two axes are drawn since it is difficult to draw graphs in thirty one dimensions), and the ellipses represent the spaces within which all nations belonging to the same economic system are found. Although systemic change appears contracting, such a conclusion must be drawn cautiously for several reasons. The developing nations had a greater percentage variation in per capita GDP than the OECD nations, and since many institutions are related to the level of economic development, these developing nations would reveal greater differences in particular institutions. Moreover, the developing nations were spread over the entire world (except Europe and Oceania), and, as a result, the forces of diffusion (borrowing of institutions) between them were weaker. Finally, a successfully functioning agricultural economy is less complex and, therefore, requires fewer restriction on its constituent elements.

---

[26] For these comparisons I used roughly the same institutional indicators for OECD and developing countries. The cluster analysis reduces the variance of the sample of OECD countries 44 percent, the sample of developing countries, 31 percent; and the sample of preindustrial agricultural societies (using different institutional indicators), 30 percent.
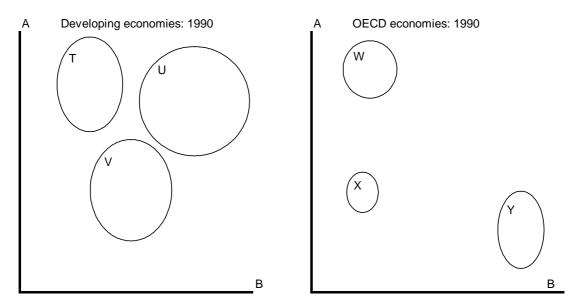
Chart 3: Economic Systems of Developing and OECD Economies

A and B are the institutions defining the economic systems.
T, U, V and W, X, and Y are the economic systems.

• *Diverging change*. The distances between the individual clusters among the developing nations were shorter than among the OECD nations, a characteristic also shown in the chart.[27] Thus, at the same time that the OECD nations with the same economic system were more similar than developing countries with the same economic system, the individual economic systems of the OECD nations were more different. In other words, over the course of economic development the patterning of the individual economic systems becomes more distinct, even as the possibilities of variation of individual patterns increase. A rough analogy might be a collection of bonsai trees which, in their early months, show few overall differences but which also cannot be easily distinguished into distinct groups; years later, however, the same collection reveals great differences and can also be easily separated into groups with distinct styles of induced growth.

• *Impact on economic performance.* Unlike the OECD countries, the economic systems of developing economies have important consequences for such

_____

[27] In this comparison I used the same samples as in footnote 4 and measured the multidimensional distance of the center of each cluster with every other cluster. The comparisons noted in the text refer to the sum of the distances of each economic system with every other economic system.

macroeconomic indicators as the growth of per capita GDP and inflation. This provides additional support for the conjecture discussed in chapter V that the early industrialization of many OECD nations can be attributed to certain characteristics of their economic systems that set them apart from other countries that were not industrializing. Moreover, those European nations that industrialized relatively late were more able to borrow and modify institutions from their more successful neighbors, unlike the nations in Asia, Africa, or Latin America, which either had a colonial status or had less opportunity to communicate with the pioneering nations of the industrial revolution.[28]

In brief, this glance at a cross-section of developing economies yields some interesting clues about the long-term evolution of the economic systems of the OECD nations. The characteristics differentiating the economic systems of development countries are not the same as those that differentiate the four economic systems of the OECD nations. The functional requirements of industrialization (and post-industrialization) appear to tighten the complementarities between particular institutions, even while allowing greater variation of the institutional patterns as a whole. Finally, the economic system previously in place had an important impact on the speed of industrialization, as shown by the higher average growth rates of those developing nations with a particular economic system. The impact of the economic system on growth rates attenuates, however, at higher levels of economic development, and this, in turn, reduces the political impetus

---

[28] Some argue that political factors have a much stronger influence on the economic system and its performance in the developing countries than in OECD nations (a proposition rigorously investigated by Przeworski, et al., 2000). For instance, various studies find more corruption and more autocratic governments among these developing nations. Other than the obvious impact such characteristics might have on the security of private property rights, generalizations are difficult to make. This indeterminacy arises from the very nature of autocracy: each ruler had his own notions about a desirable economic system, often quite unrelated to the actual economic conditions of the country, and the results might as easily encourage as discourage economic growth (Glaeser, et al., 2004).

I might add that the literature on politics and the economic system is confusing. Some argue that dictatorship and a market economy are incompatible, but a half-century ago many argued the reverse - that a market economy and democracy are contradictory. For my purposes, neither line of argument seems promising. Moreover, statistical experiments using my sample of developing nations shows that the economic system was a more important determinant of various measures of economic performance than various political indicators.

for a convergence of systems.

2. Recent Evolution of the OECD Economic Systems: Clues from a Small Sample

In this section I explore changes in the economic systems of OECD nations over the second half of the twentieth century. In the theoretical literature, which I briefly review in the first section, major differences of opinion arise about the characteristics of systemic change. I then turn to the scanty available data to investigate these issues for the second half of the twentieth century, especially with regard to whether such changers were parallel or polyvalent.

a. Different Views on How Economic Institutions and Systems Change

In dynamic economies, institutions composing the economic system are mutating for a variety of reasons. Some institutional changes arise from shifts in the economic environment, for instance, a higher per capita GDP, particular economic crises, a shifting demand for various goods and services, new technologies, new values,[29] or new developments in the domestic and international economic environment. Some institutional changes arise from endogenous causes, for instance, certain institutions are not performing well (due to poor management). Other changes occur because policy dilemmas can be solved in quite different ways in nations with the same economic system, depending on the particular balance of political forces or on changes in opinion of certain key institutional players, such as the Roman Catholic church in certain European countries.[30] Finally, economic institutions and systems change for direct political reasons, for instance, the East European

---

[29] An interesting example is provided by the system of income taxation in the United States. According to a survey commissioned by the U.S. Internal Revenue Service (cited by Anon., "Tax Points," 2004), the percentage of people who "completely agree" with the statement that it is the duty of all Americans to pay their fair share of taxes decreased from 81 to 68 percent between 1999 and 2003. Further, those who said it is acceptable to cheat "a little" rose from 8 to 12 percent; and those who said taxpayers should cheat "as much as possible" rose from 3 to 5 percent. If such a shift in values continues, the current income tax system in the U.S. would become unsustainable. Perhaps it already is.

[30] For instance, Lindert (2004b: 79) points out that Catholicism had a positive impact on social transfers after World War II, but not before.

nations changing from market economies to planned economies in the late 1940s and then back again in the 1990s. As a result many assertions about institutional change rest more on intuition than rigorous theorizing or empirical study.

The variety of causes underlying institutional and systemic change mean that prediction about parallel or polyvalent change is difficult. It is usually assumed that groups of nations with the same economic system will continue to have similar economic systems in the future, even while the nature of these systems are changing, but such an implicit assumption is questionable. Of course, particular institutions may have strong complementarities, which make it seem likely that the composition of the groups of nations with the same economic system will not change. For instance, unions will always play a stronger economic and political role in those nations with the so-called Ghent system of unemployment insurance, whereby the national system is administered by unions, not the government. Moreover, insofar as natural resource endowments influence the economic system (for instance, in the oil-rich nations in the Mideast), a changing composition of nations with the same economic system will be inhibited. Nevertheless, such complementarities may weaken as the institutions themselves change as a response to external factors. Moreover, as Dani Rodrik (2004) has forcefully pointed out, different institutions can serve the same function, so that the tasks sloughed off by a changing institution can be picked up by others. Perhaps the strongest reason for believing in parallel, rather than polyvalent, change is that our mental maps of the economies of different countries mutate more slowly than the actual economic systems of these nations.

Assertions about contracting clusters and convergent change rest on the notion that the functional requirements for an advanced industrial or postindustrial economy are increasingly restrictive in all dimensions and, moreover, globalization is brining about a homogenization of certain economic institutions throughout the industrialized world.

Some contrary arguments, however, are also strong. For instance, in recent years, several groups of economists (see Kitschelt, *et al.,* 1999b and Hall and Soskice , 2001) have pointed out that by working within a given economic system, the workforce of a nation develops core competencies that are advantageous in the international marketplace. As a result, strong economic interests would oppose both contracting and convergent change. Moreover, the citizens of different nations have quite different institutional

preferences, which would also work against international homogenization of economic institutions.

Obviously, these different views of systemic should be assessed empirically by studying the economic institutions of OECD nations at earlier points in time, using a cluster analysis to divide them again into distinctive types of systems. While this prescription is easy to write, it is hard to fill because, unfortunately, quantitative indicators for economic institutions at different points in time are difficult to find. More specifically, of the forty indicators used in the previous chapter to define the economic systems of OECD nations in 1990, time-series data are readily available for only eleven. Moreover, for several institutions, less satisfactory indicators than those employed for the 1990 sample must be used and, moreover, the various data series also have more blanks. In some cases, therefore, I use alternative statistical procedures.

b. Parallel versus Polyvalent Systemic Change

An indirect method of determining whether the same nations remain grouped together over the postwar period focuses on the relative ranking of each economic system for each institutional indicator. If systemic change is parallel, then the rank orders of these various institutional variables for the different groups of nations should remain the same over time.

Since the OECD nations had largely recovered from the effects of World War II by 1960, I start the analysis with data for four benchmark years thereafter, namely 1960, 1970, 1980, and 1990. Then I determine the rank orderings of the average values of the four economic systems for each of the eleven indicators in each benchmark years. Finally, I investigate whether these rank orderings for the eleven indicators were related in the four years by calculating a Kendall concordance coefficient. This coefficient ranges between zero (where there is no relationship in the rank orderings for a particular indicator in the four benchmark years) to one (where the rank orderings are the same for all four years). The resulting coefficient can then be tested for statistical significance.[31]

The test results are clean. For ten out of the eleven institutional indicators, the

---

[31] I follow the procedure for calculating concordance coefficients described by Sheskin (1997): 641-51. In the text I describe the results only from 1960 through 1990, but roughly similar results are obtained when 1952 is included in the calculation.

relative rank orderings of the four economic systems are similar over the period under investigation, that is, the concordance coefficient is statistically significant for all four years under investigation. The only exception is the indicator showing the government's share in total investment. Such results suggest that the regardless of whether the particular characteristics of the economic systems in the OECD changed from 1960 through 1990, the four groups of countries maintained their distinct differences with each other - in brief, they revealed parallel institutional change and the groups of nations with a similar economic system did not greatly change.

More insight can be gained by looking at indicators whose rank orderings changed somewhat over the years, even though the degree of concordance remained significant. For instance, the ratio of public consumption to total (public plus private) consumption in the Nordic nations was roughly the same as the OECD average in 1952 (not included in the test results), but it had moved ahead of all other OECD systems by 1960 and, in the following years, this gap widened. Thus, this distinctive characteristic of the current Nordic economic system in the 1990s began to emerge only in the mid- 1950s, even though the ideological seeds may have been planted decades earlier. An alternative method of redistributing income is to provide cash transfer and, in this regard, Western European nations led the rest of the OECD economic systems throughout the second half of the twentieth century. In the immediate post-World War II years this was undoubtedly a response to assist quickly those suffering from war injuries or property damage, a daunting administrative task most easily solved by giving funds directly to needy individuals, who could then purchase the necessary services themselves. The Nordic system of providing the needed welfare services in kind was administratively too complicated for Western European governments in these early postwar years, but their system of transfer payments persisted thereafter.[32]

One immediate objection to this analysis must be raised. These comparisons of

---

[32] Other factors also played a role in these different approaches to the welfare state. For instance, the relatively homogeneous populations in the Nordic countries, combined with the greater trust of citizens in each other and their greater degree of leftism played a key role. Equally important, as some have argued, the relatively late (but not very late, as in Southern Europe) industrialization in the Nordic nations encouraged a political alliance between industrial workers and farmers, which gave greater power to social democratic parties and their program of direct supply of welfare services.

rank orderings cover only thirty years. Would such relationships hold over a longer period? For instance, data on public expenditures extending back to 1870 show sharp breaks in the rank ordering before and after World War II.[33] Similarly, with regard to the openness of foreign trade, as measured by average tariff rates, the rank orderings of the four groups of nations greatly changed over the last 120 years, showing sharp breaks after both world wars.[34] In addition, certain institutional features, such as the relative importance of cartels or direct governmental measures to direct production were not very important in the latter part of the twentieth century in most OECD nations, but played an important role in the economic systems of certain of my sample nations during the period between the world wars. In these ways as well, the economic systems did not appear to change in a parallel fashion over the century.

This kind of test of parallel versus polyvalent change is, of course, indirect. Nevertheless, the results suggest parallel change, namely that the same groups of countries cluster together over time, whatever the defining institutional characteristics of the economic systems are at a given level of economic development.

Nevertheless, an economic system is not just of set of economic institutions randomly assembled, but institutions in a distinctive relationship to each other and we must look at the overall pattern of these institutional variables as well. Therefore, the eleven

---

[33] The underlying data come from Cusack and Fuchs (2003). However, I have had to make a number of estimates to extend some of the series back to 1870. Another series of public expenditures for social purposes by Lindert (2004a, 2004b) goes back to the eighteenth century, but these appeared too late to be used in this study. He shows that many of the changes in the rank orderings among nations can be traced to changes in the extent of the voting franchise and the degree of democracy.

[34] The long-term pattern of trade openness is complex. Tariff rates in a worldwide sample of thirty-five nations slowly rose from the 1870s to the first decade of the twentieth century, then rose dramatically from the 1920s to the late 1930s, so that at their peak they were roughly twice as high as the late-nineteenth-century average, and then slowly declined from the late 1940s to the 1990s (Blattman, Clements, and Williamson, 2003). During these three periods, the relative position of countries changed considerably. For instance, the U.S. was a high-tariff nation in the late nineteenth century, but in the interwar period (up to the enactment of the Smoot-Hawley tariff bill in the early 1930s) had relatively low tariff rates, in comparison both to its previous rates and rates in other countries. Obviously certain changes in the external international economic environment, such as the influence of GATT and the European common market after World War II, greatly influenced these tariff differences among nations.

indicators might be used to derive economic systems just as the forty indicators were in the previous chapter for the OECD nations in 1990.

Unlike the forty indicators previously used in the previous chapter, the eleven indicators available for the historical analysis are not necessarily representative of the entire economic system. Thus, the two data sets might not necessarily yield the same results for 1990, the overlapping year. Such a calculation put this fear to rest and showed that for 1990, slightly more than three-fourths of the countries in the eleven-indicator sample were in the same clusters derived from the cluster analysis for the same year using forty indicators.[35] It is noteworthy that distinct Nordic and AS+ groups emerge in the eleven-indicator sample, as in the more extensive analysis. This finding gives us a certain confidence to proceed, especially since comparability problems are not as serious when we use the same eleven indicators for each of the benchmark years. To avoid any confusion with actual economic systems, however, I label the results of the eleven-indicator cluster analysis as "pseudosystems."

The results of this exercise suggest a certain degree of polyvalent change. More specifically, the similarity of composition of the pseudosystems seemed also to decline as we move back in time. For instance, in 980, 48 percent of the nations remained in the same cluster that the forty-indicator analysis had assigned them; for 1970, 57 percent; and for 1960, 38. Moreover, since most of the eleven indicators do not necessarily capture the key systemic elements, the derived pseudosystems should also be more volatile over time than systems derived from an analysis using more indicators. As expected, only slightly more than one-third of the nations remained in the same pseudosystem from one decade to the next.

The results from the cluster analysis are also supported by other evidence. For instance, the calculations in chapter VI show that the economic system of France appears close to the border separating the Western and Southern European systems, and that the

---

[35] The minimum description length (MDL) analysis of the eleven-indicator samples suggests that a grouping of five different economic systems is the most appropriate in 1990, 1980, and 1960, but not 1970. To achieve comparability, I use a five-cluster analysis for all years and also for the comparisons with the forty-indicator sample in 1990. The percentage of variance explained by the cluster analysis was roughly 60 percent for all four benchmark years.

economic system of Switzerland is similarly situated close to the border of the Western European and the AS+ nations, which suggests that in later years they might be grouped by the statistical analysis in different clusters than their present location. As I discuss in the next section, the U.K. appeared to move from one economic system to another over the last half of the twentieth century, which provides additional evidence about polyvalence.

Thus, the results of the rank order concordance and the cluster analysis tests provide rather different answers to the question about parallel versus polyvalent change. Although the latter test appears to me to be more appropriate, I do not believe that a definite conclusion can be drawn at this time.

c. Contracting and Convergent Systemic Changes

Looking at the results of the cluster analysis for the four benchmark years, no trends in the degree of clustering can be detected from 1960 through 1980; in 1990 the degree of clustering seemed was higher, one point does not represent a trend.[36] In sum, within the various clusters no apparent trend toward contracting nor expanding systemic change was apparent over the thirty years.

This cluster analysis for the four benchmark years also showed no trend in the multidimensional distances between the various clusters.[37] In this respect, therefore, the systems experienced no convergence or divergence, at least between 1960 and 1990 before the nations in the European Union began to accelerate their economic integration. Such a result confirms the conjectures of Herbert Kitschelt, Peter Hall, and David Soskice discussed briefly above.

Because of the nature of the data, these two results are by no means conclusive.

---

[36] The amount of sample variance explained by a five-group cluster analysis for 1990, 1980, 1970, and 1960 are, respectively, 59%, 53%, 53%, and 53%. Although the difference between the sample variance for 1990 and 1980 is statistically significant, more years would be needed to determine if 1990 represents a trend.

[37] More specifically, for each of the benchmark years the cluster program calculated the multidimensional distance of the mean values of each dimension in the different economic systems to each other to determine the average distances between the various systems. I then added up the each of these average distances and found no statistically significant difference in the four benchmark years. The sums of the multidimensional distances in the four benchmark years were respectively 20, 17, 18, and 19.

Nevertheless, as a working hypothesis they suggest that in the middle-run, systemic change among the OECD nations showed no significant trends toward contracting or convergent change.

d. A Brief Word about the Logic-of-Institutions

The cluster results presented in the previous chapters show that, at a single point in time, the logic-of-institutions is unchallengeable, since we can explain a considerable share of the difference between the configuration of economic institutions in various countries by grouping them into distinct economic systems. Since institutions and systems change over time, however, a strong version of the logic-of-institutions explains nothing. A weaker version, however, would suggest that systemic change would be parallel, not polyvalent; and that systemic change would not be either contracting or expanding nor would it be either convergent or divergent. At least the latter two predictions receive some support.

E. Final Reflections

Data on various major institutions of an economic system, combined with a cluster analysis, allows us to define economic systems in a much more rigorous fashion than previously. By using the economic systems of OECD nations, which are already known to us, I show that the results accord with the conventional wisdom about these nations. This technique, however, can be used for other types of economic systems, for instance, those of hunting and gathering societies, preindustrial agricultural societies, and develop-ing countries (Pryor, 2003, 2005-a, 2005-b) to obtain results which are much less obvious.

Once the economic systems are isolated, we can carry out a relatively standard analysis of the economic performance of these systems. Such an analysis, nevertheless, raises questions which have seldom been considered in a systematic fashion, namely whether the similarities or differences in such performance are due to the system itself, particular groups of institutions, or single institutions or whether policy decisions, exogeneous efvents or random factors play the key role.

Comparison of the results of the cluster analysis of different countries at various stages of development or of the same countries at different points in time allow us to

describe the evolution of economic systems in a very precise way, even though, at the present time, we have no means of explaining these results with any degree of theoretical rigor. Three important generalizations can be drawn from the comparison of developing and OECD nations: the clusters of institutions defining economic systems change over the course of economic development; over the long term the clusters defining the various economic systems contract; and over the long-term the clusters also become further apart from each other. It is also noteworthy that economic growth is much more closely tied to the economic systems of developing nations than of the OECD, which suggests that differential growth rates will not serve as a source of systemic change in the OECD nations in the future. In looking at middle-run systemic change among the OECD nations we find no trends toward changing cluster size or distance between clusters. The statistical analysis of whether the same nations are grouped together in the same economic systems over time does not yield conclusive results.

Finally, I wish to note that a common criticism of the approach followed in this essay is that it is primarily inductive and does not explain theoretically the various results. On this point, two observations are in order. The current "theories" of economic systems, at least those focusing on market economies" explain very little of what has or is happening. Even worse, they do not point to interesting aspects of the economic systems that should be explained. This essay provides a series of hitherto unknown stylized facts about such market economics that need to be explain. For instance, the OECD nations have four quite distinct economic systems; these systems have little impact on most economic performance indicators except those reflecting basic societal values; and, as nations develop, the differences among nations with the same system become smaller, while the difference between nations with different economic systems become greater. Abstract theorizing about economic systems, no matter how profound, must be guided by such stylized facts and, in this essay, I hope to have provided the first important step for the construction of any such theoretical edifice.

BIBLIOGRAPHY

Anon. 2004. "Tax Points," <u>Tax Line</u> 24, no. 1 (January): 1.

de Ávila, Romero, and Rolf Strauch. 2003. "Public Finances and Long-Term Growth in Europe: Evidence from a Panel Data Analysis." <u>Working Paper</u> 246, European Central Bank (Frankfurt am Main).

Beck, Thorsten, Asli Demirgűç-Kunt, and Ross Levine. 2003. "Law and Finance: Why Does Legal Origin Matter?" <u>Journal of Comparative Economics</u> 31, 620-53.

Bertola, Giuseppe, Francine D. Blau, and Lawrence M. Kahn. 2001. "Comparative Analysis of Labor Market Outcomes: Lessons for the US from International Long-Run Evidence." <u>NBER Working Paper</u> 8526. Cambridge, Mass.: National Bureau of Economic Research.

Blanchard, Olivier. 1997. "The Medium Run." <u>Brookings Papers on Economic Activity</u> 2: 89-158.

Blanchard, Olivier, and Justin Wolfers. 2000. "The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence." <u>Economic Journal</u> 110, C1-C33.

Blattman, Christopher, Michael A. Clemens, and Jeffrey G. Williamson. 2003. "Who Protected and Why? Tariffs the World Around, 1870-1938." <u>Harvard Institute of Economic Research Discussion Paper</u> 2010. Cambridge, Mass.

Blau, Francine D., and Lawrence M. Kahn. 1994. "International Differences in Male Wage Inequality: Institutions versus Market Forces." <u>NBER Working Paper</u> 4678. Cambridge Mass.:National Bureau of Economic Research.

Card, David. 1998. "Falling Union Membership and Rising Wage Inequality: What's the Connection?" <u>NBER Working Paper</u> 6520. Cambridge, Mass.: National Bureau of Economic Research.

Coates, David. 2002. <u>Models of Capitalism: Debating Strengths and Weaknesses</u>. Northhampton, Mass.: Elgar.

Cusack, Thomas R., and Susanne Fuchs. 2003. "Parteien, Institutionen und Staatsausgaben." In Herbert Obinger, Uwe Wagshal, and Berhard Kittel, eds. Politische Ökonomie: Politik und wirtschaftliche Leistengsprofile in OECD Demokratien. Opladen: Leske und Büdrich: 321-54.

Glaeser, Edward L., Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2004. "Do Institutions Cause Growth?" <u>NBER Working Paper</u> 10568.

Grassby, Richard. 1999. <u>The Idea of Capitalism before the Industrial Revolution</u>. Lanham, Md.: Rowman & Littlefield.

Hall, Peter A. and David Soskice. 2001. "An Introduction to Varieties of Capitalism." Pp. 1-71 in Hall and Soskice, eds. <u>Varieties of Capitalism: The Institutional Foundation of Comparative Advantage</u>. New York: Cambridge University Press.

Hoselitz, Bert F. 1960. "Theories of Stages of Economic Growth." Pp. 193-239 in Bert F. Hoselitz, <u>et al.</u>, eds., <u>Theories of Economic Growth</u>. Glencoe, Illinois: Free Press.

Kitschelt, Herbert, Peter Lange, Gary Marks, and John D. Stephens, eds. 1999a. <u>Continuity and Change in Contemporary Capitalism</u>. New York: Cambridge University Press.

---. 1999b. "Convergence and Divergence in Advanced Capitalist Democracies." In Kitschelt et al., 427-60.

Kuran Timur. 2003. <u>Why the Middle East is Economically Underdeveloped: Historical Mechanisms of Institutional Stagnation</u>. University of California at Los Angeles, Center for Law, Economics, and Organization, Research Paper no. C03-24.

Lazear, Edward P. 1990. "Job Security Provisions and Employment. "<u>Quarterly Journal of Economics</u> 105, 699-726.

Lindert, Peter H. 2003. "Why the Welfare State Looks Like a Free Lunch." <u>NBER Working Paper</u> 9869. Cambridge, Mass.: National Bureau of Economic Research.

---. 2004a. <u>Growing Public: Social Spending and Economic Growth Since the Eighteenth Century</u>, vol. 1. New York: Cambridge University Press.

---. 2004b. <u>Growing Public: Social Spending and Economic Growth Since the Eighteenth Century</u>, vol. 2. New York: Cambridge University Press.

Levine, Ross, and David Renelt. 1992. "A Sensitivity Analysis of Cross-Country Growth Regressions," American Economic Review 82, 942-64.

Maddison, Angus. 1995. <u>Monitoring the World Economy, 1820-1992</u>. Paris: OECD.

---. 2001. <u>The World Economy: A Millennial Perspective</u>. Paris: OECD.

---. 2003. <u>The World Economy: Historical Statistics</u>. Paris: OECD.

Maxwell, Bruce A., Frederic L. Pryor, and Casey Smith. 2002. "Cluster Analysis in Cross-Cultural Research." World Cultures 13, 22-39.

Nickell, Stephen, and Richard Layard. 1999. "Labor Market Institutions and Economic Performance." Pp. 3029-84 in Orley Ashenfelter and David Card, eds. Handbook of Labor Economics, vol. 3c. New York: Elsevier.

Nicoletti, Giuseppe, and Frederic L. Pryor. 2005, forthcoming. "Subjective and Objective Measures of Governmental Regulation in OECD Nations." Journal of Economic Behavior and Organization.

Nicoletti, Giuseppe, Stefano Scarpetta, and Olivier Boylaud. 1999. Summary Indicators of Product Market Regulation with an Extension to Employment Protection Legislation, OECD Economics Department Working Papers 237. Paris.

North, Douglass C. 1981. Structure and Change in Economic History. New York: Norton & Co.

---. 1998. "Economic Performance through Time." In: Carl K. Eicher and John M. Staatz, eds., International Agricultural Development. 3d edition. Baltimore: Johns Hopkins University Press, 78-90.

Pryor, Frederic L. Web page: www.swarthmore.edu/SocSci/Economics/fpryor1.

---. "Appendices to Economic Systems of Foraging, Agricultural, and Industrial Societies." Pryor web page.

---. 2003. "Economic Systems of Foragers." Cross-Cultural Research 37, 393-427.

---. Forthcoming, 2005a. "Economic Systems of Developing Market Economies." Comparative Economic Studies, forthcoming.

---. Forthcoming, 2005b. "Rethinking Economic Systems: A Study of Agricultural Societies." Cross-Cultural Research, forthcoming.

Przeworski, Adam, Michael E. Alvarez, José Antonio Cheibub, and Fernando Limongi. 2000a. Democracy and Development. New York: Cambridge University Press.

---. 2000b. "Database."<http://pantheon.yale.edu~jac236/Research.htm>.

Rissanen, Jorma. 1989. Stochastic Complexity in Statistical Inquiry. Singapore: World Scientific Publishing Co.

---. 2001. "Information, Complexity and the MDL Principle." In: Lionello F. Punzo, ed., <u>Cycles,</u> <u>Growth and Structural Change: Theories and Empirical Evidence</u>. New York: Routledge, 339-51.

Rodrik, Dani. 2004. <u>Getting Institutions Right</u>. Website: http://ksghome.harvard.edu/k~drodrik.academie.ksg/papers.html.

Sheskin, David. 1997. <u>Handbook of Parametric and Nonparametric Statistical Procedures</u>. Boca Raton, Florida: CRC Press.

Slemrod, Joel. 1995. "What Do Cross-Country Studies Teach About Government Involvement, Prosperity, and Economic Growth?" <u>Brookings Papers on Economic Activity</u>, no. 2: 373-415.

Soskice, David. 1999. "Divergent Production Regimes: Coordinated and Uncoordinated Market Economies in the 1980s and 1990s." In: Kitschelt, et al., 101-34.

Visser, Jelle. 2001. "Industrial Relations and Social Dialogue." In: Peter Auer, ed., <u>Changing Labour Markets in Europe: The Role of Institutions and Policies</u>. Geneva: International Labour Office, 184-242.