

APPENDICES TO CHAPTER VI

Appendix 6-1: Details of the Factor Analysis to Derive “Ideal Types”

At an early stage of this research I carried out a factor analysis with my forty indicators and found that three “pure types” of market economies could be isolated: (1) a “capitalist-dominated” system with little government regulation of the economy, a stock market that strongly influences enterprise finance, a court system supportive of a market economy, low coverage of union contracts, and low protection of labor; (2) a “labor-friendly/statist” system with a large share of the labor force working for the government, high government subsidies, little enforcement of anti-monopoly regulations, bargaining of wages at an industrial or a national level (rather than at the enterprise level), high coverage of union contracts, and important peak organizations (on the national level) of labor unions and of employers in various industrial sectors; (3) an “ordered or cooperative” type of system with coordination of wage negotiations at a national level, governmental financing of vocational education, more clusters of enterprises working together, and a large financial sector playing an important role in the industrial decision making.

Unfortunately, few of the OECD nations corresponded closely to any of these three systems. When I explored the relationship between these ideal types and the level of economic development, I found that both the capitalist-dominated and the ordered systems were significantly and positively related to the per capita GDP, while the labor/statist system was significantly (but at a .10 level) and inversely related to this variable.

I used a principal axis method for the initial extraction and specified a promax rotation. A scree test of the eigenvalues associated with each factor indicated that three factors were the most meaningful. The factor scores were calculated from the rotated factor pattern, with only those variables with a score of 0.40 included in the calculations.

Appendix 6-2: Sources of Institutional Indicators for OECD Nations

These data for this discussion are contained in SA6:1 elsewhere on this C-D rom.

A. Market Institutions

1. Regulation of product market. The data refer to the late 1990s and were calculated by Nicoletti, Scarpetta, and Boylaud (1999); they summarize various types of legal regulations affecting the product market. A low score indicates a low degree of regulation. I have chosen a subindicator that excludes direct government participation in the economy, foreign-trade barriers, and barriers to entrepreneurship (all of which are handled by separate indicators). Nicoletti and Pryor (2005) compare legal and observer indicators of product market regulation; both series show roughly the same ranking of nations according to their degree of regulation.

2. Protection of patent rights. This index was calculated for 1990 by Ginarte and Park (1997). It covers five different categories of patent laws and contains a total of sixteen legal provisions of the patent laws in 110 nations, which were combined using subjective weights. The authors also tried to measure actual protection by listing the number of complaints by American patent holders about patent enforcement in foreign countries that were made to the U.S. Trade Representative or the U.S. International Trade Commission in the period from 1986 through 1995; none of the OECD nations, however, were on the list of countries with poor patent enforcement. My index is based on slightly revised data supplied by Walter G. Park. The Ginarte-Park scale, which ran from 0 through 5, was transformed into a scale running from 0 through 1.

3. Good legal environment for markets. This indicator consists of four components, each rescaled from 0 (poor) to 1 (good) and equally weighted. (a) One component, calculated by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002a) is a measure of the costs of legal procedures in the late 1990s, It posits a hypothetical commercial dispute over a check returned for nonpayment and

calculates both the number of procedural actions the plaintiff would have to undertake and the number of days required to resolve the case. (b) A second component is a measure of the efficiency of the judicial system, which represents an average from 1980 through 1993 of investor assessments. These data come from La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1996) and were drawn from the data base of Business International Corporation, a risk-rating agency. (c) The third component is an assessment of the risk of contract repudiation by the government. The original data are an average for April and October between 1982 and 1995 and are reported by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1996). (d) The final component is an index of the “rule of law,” as presented by Kaufmann, Kraay, and Mastruzzi (2003).

4. Barriers to starting new businesses. This indicator for 1999 focuses on the total costs (both in time and money) of meeting the various legal requirements for setting up a new business (defined in terms of a “standardized firm”). These costs are measured as a percentage of the average per capita GDP. The legal requirements include safety and health, environmental, tax, labor, and various screening regulations. The data come from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002b).

5. Social partnership of capital and labor. This statistic, designated as market integration by Siaroff (1999), describes “a long-term cooperative pattern of shared economic management involving the social partners and existing at various levels such as plant-level management, sectoral wage bargaining, and joint shaping of national policies influencing competitiveness (education, social policy, etc.” He uses an index of eight different indicators. I have averaged his calculations for the late 1980s and mid 1990s and have transformed his data to a 0-1 scale.

6. Ratio of governmental production subsidies to GDP. These data are the average ratios of governmental subsidies to the GDP, both in current price, for the period from 1988 through 1992.

For the various countries the data come from Table 1 in OECD (1998). For Germany, the data cover only West Germany; in 1991-92, subsidies as a percent of GDP were 0.4 percentage points higher in the united Germany than in West Germany alone.

7. Intersectoral grants for research and development. These data show the share of R and D carried out by agents other than those ultimately financing the research. They are calculated as the sum of R and D financed but not carried out by the government, plus that financed from abroad, plus that financed by business enterprises but not carried in the business sector. If the share of R and D financed by business enterprises minus the share of R and D carried out by business was greater than zero, this was considered a net grant by business; otherwise, the business grants were considered to be zero. For most countries these OECD data (2001b: 150-51) represent an average for 1989 and 1991.

8. Foreign trade barriers. This index has three components: the average MFN (most favored nation) tariff rates, weighted by constant overall OECD import values; the standard deviation for all tariff lines; and the frequency of nontariff barriers in various product lines, weighted by each country's own value-added in that product line. Since all three components had very roughly the same average for the sample nations as a group, I simply calculated an overall index using subjective weights respectively of 70 percent, 20 percent, and 10 percent. Such indices were computed for 1988 and 1993, averaged, and then rescaled from 0 through 1, with 1 representing the nation with the highest index. The underlying data come from OECD (1997c). Data for Australia, Austria, Canada, Finland, Japan, New Zealand, Norway, Sweden, Switzerland, and the United States are provided separately. Because of the harmonization efforts by the nations of the European Union, the values for Belgium, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, and the U.K. are given as the average for the EU as a whole.

9. Freedom to set prices. This series is the arithmetic average of two estimates, both for 1990. The first is variable 3.40 from the World Economic Forum (1991), which represents the “freedom of companies to set competitive prices,” with a high score representing fewer controls. The second comes from Gwartney and Lawson (1997: 244) and represents “the extent countries imposed price controls on various goods and services,” with a high score representing few controls. Their calculation is based partly on their own data and partly on data from Price, Waterhouse.

10. Product market competition. This indicator represents the percentage of business respondents in 1999 agreeing with the statement “competition in the local market is intense and market shares fluctuate constantly.” The data, drawn from indicator 10.01 (local competition) from World Economic Forum (annual, 2000), are based on a seven-point scale and were rescaled from 0 through 1.

11. Effectiveness of antitrust laws. These data for 1990 come from a survey of business people and represent the percentage agreeing that antitrust laws in their country are effective. The are drawn from variable 3.34 from the World Economic Forum (1991). A high score indicates that the laws are considered effective.

12. Presence of business clusters. The data come from a survey of business people who were asked whether they strongly agreed or disagreed with the following statement: “Clusters are present in most international industries and include not only suppliers, but specialized institutions such as university research programs and training providers.” The answers refer to 1999 and are drawn from World Economic Forum (2000), variable 10.16.

B. Labor Market

1. Coverage of collective bargaining agreements. This is the ratio of employees working under a collective agreement to the total number of employees in the private sector. The data,

primarily for 1990, come from Traxler, Blaschke, and Kittel (2001: 196). For Denmark and France the indicators are estimated from similar data for other years. For Greece and Ireland the data refer respectively to 1995 and 1994 and come from the ILO (1997-98: 248) and the denominator covers all employees in the formal sector.

2. Formal centralization of the largest peak union organization. This represents the number of powers (originally scaled 0 through 7) of the largest peak labor union organization. These include having the right to conclude collective agreements on behalf of members, having its own strike fund, having veto power over agreements at a lower level, etc. The data come from Traxler, Blaschke, and Kittel (2001: 67). For Greece I have used the verbal description by Henley and Tsakalotos (1993: 68).

3. Powers of workplace representatives of the labor union. These include formal authority to organize strikes, control their own strike fund, conclude collective agreements (that is, not to have representatives of peak organization on the union body conducting collective bargaining). The data come from Traxler, Blaschke, and Kittel (2001: 67), but their four-point scale has been reversed and rescaled from 0 through 1.

4. Protection of labor and employment. This is a summary index of twenty-nine indicators. The data, rescaled to run from 0 through 1, refer to 1997 and come from Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003).

5. Strength and protection in collective bargaining. This index consists of sixteen indicators of the power of labor unions, legal protection of the right to collective bargaining, the legality of strikes, the absence of procedural restrictions to the right to strike, compulsory third-party arbitration during disputes, and the absence of strong powers of employers during collective dispute. The data come from Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003); I have, however,

omitted their indicators of labor's right to appoint directors or to participate in worker councils. This index has also been rescaled to run from 0 through 1.

6. Strength of coordination of unions and employers in wage negotiations. The data come from OECD (1997a: 71) and represent the degree to which employer groups and trade unions coordinate their negotiations. This is rescaled to run from 0 through 1.

7. Strength of vocational training system. The data are based on the share of each age cohort in either secondary or post secondary vocational training and focus on the predominant system in the 1990s. They are coded in the following manner: weak vocational training system = 0, company-based systems = 0.5; dual apprenticeship programs = 0.75; vocational colleges = 1. The original data come from Estevez-Abe, Iversen, and Soskice (2001: 170).

8. Level of economy where wages bargained. This is an unweighted average of four sets of estimates for 1990: Golden and Wallerstein (2002), Henley and Tsakalotos (1993: 63-64), OECD (1994: 175), and OECD (1997a: 71). The ratings for Henley's and Tsakalotos's data were derived from their verbal descriptions. 0 = bargaining at the plant or enterprise level; 0.5 = bargaining at the industry or sectoral level; 1.0 = bargaining at the national level.

C. Enterprises and Production

1. Concentration of corporate ownership. The data report the percentage of "median firms" where the largest individual shareholder holds less than 20 percent of the voting rights. The data come from La Porta, Lopez-de-Silanes, and Shleifer (1998), who define "median firms" as the ten smallest firms in each country with a market capitalization of common equity of at least \$500 million at the end of 1995. The sample excludes affiliates of foreign firms, banks, and utilities, as well as firms owned either wholly privately or wholly by the government (and, therefore, are not listed). They also focus on the ultimate owners, rather than proximate owners, so that if over 20

percent of the voting rights in one firm are held by a second firm, the first firm is considered to be widely held if the second firm is widely held. This ownership-concentration variable was designed to determine the relative frequency of owner-dominated and manager-dominated firms. The authors also report estimates where the largest individual shareholder holds less than 10 percent of the voting rights. This statistic yields roughly same results with one major exception: the nations with a West European economic system no longer appear to have significantly less ownership concentration.

2. Importance of large manufacturing firms. This statistic shows the percentage of those working in manufacturing enterprises with a labor force of at least 500 workers and employees. For most countries the data come from European Commission, Eurostat (1994). Three major problems of comparability arose. First, although I chose to look at manufacturing (because the size of enterprises for the economy as a whole depends on the relative proportion of manufacturing and service production), the manufacturing sector is not defined in a completely uniform fashion. More specifically, for some countries the data refer to NACE categories 2 through 4 for 1990; for other countries the data refer strictly to manufacturing, which is a slightly narrower category. Second, the firm is defined somewhat differently in the various OECD countries and, allegedly, the “Latin countries” tend to define a firm at a more consolidated level than English-speaking or Nordic nations. In particular, we can define the firm as either a legal unit or an ownership unit. Third, some countries include all the various branches of predominantly manufacturing firms, while other countries include only those entities that are specifically engaged in manufacturing production. For those ten countries outside of the Eurostat survey, the following sources are used:

CAustralia. The data are for manufacturing in 1986-87 and come from Australian Bureau of Statistics (1991).

CAustria. The data are for manufacturing in 1999 and come from Austria (2002).

CCanada. Data were supplied by John Baldwin, Director, Micro Economics Analysis Division, Statistics Canada.

CDenmark. The data are for 1991 and are drawn from a study by the OECD and downloaded from < www.oecd.org/dataoecd/61/17/2763123.xls>. I have taken the total of number of firms and the labor force of “continuing firms” (which lasted the entire year) plus firms that existed at the beginning of the year but exited during the year, plus one-half of the firms and labor force of the firms that entered and exited during the year.

CGreece. No data are available.

CIreland. The data are for manufacturing enterprises in 1997 and were obtained from the Central Statistics Office of Ireland.

CJapan. The data are for manufacturing enterprises in 1999 and were downloaded from the web site of the Statistics Bureau, Ministry of Public Management, Home Affairs, Post and Telecommunications <www.stat.go.jp/english/data/jigyoku/kekka.htm>.

CNetherlands. The data are for manufacturing enterprises in 1993 and are estimates based on the number of enterprises in each size class (supplied by Thea Bosten-Eurlings of the Centraal Bureau voor de Statistiek). To estimate the number of employees I have taken the average number of employees in enterprises in each size class in twelve other European nations (from European Commission, Eurostat, 1994) and multiplied this by the number of firms in the size class in the Netherlands.

CNew Zealand. The data are for manufacturing enterprises in 1997 and were downloaded from the web site of the Statistics Bureau <www.stats.govt.nz/>. However, I had to make an estimate of the labor force for enterprises with 500 or more employees.

CSweden. The data refer to manufacturing enterprises in 1993 and were downloaded from the web site of Statistiska centralbyrån <www.scb.se/indexeng.asp>.

CUnited States. The data are for manufacturing enterprises in 1992 and came from the U.S. Bureau of the Census (1997).

I also experimented with two other measures of enterprise size: (a) The Florence medium (measured by lining up all firms according to size of the labor force, then lining up their workers in front of the firms, and finally determining as the median measure of firm size the employment in that firm where the median worker is employed) yields an unambiguous positive correlation with per capita GDP. If we hold per capita GDP constant, none of the economic systems has a significantly larger or smaller average firm size. (b) The percentage of those working in manufacturing enterprises with a labor force of fewer than fifty workers and employees yields a significantly negative correlation with per capita GDP. If we hold per capita GDP constant, the Southern European nations have a significantly higher share of their manufacturing labor force in these small firms. No significant correlations emerged between average firm size and any of the other three economic systems.

3. Powers of largest peak employer-organization. This represents the number of powers (originally scaled 0 through 7) of the largest peak employer organization. One point is given to each of seven different powers such as the authority: to conclude collective agreements on behalf of affiliates; to receive a share in dues collected by affiliates; to have its own fund for industrial action; or to veto collective agreements or lockouts by affiliates. The data come from Traxler, Blaschke, and Kittle (2001: 67). The data for Greece are my own estimates, based on materials supplied by George S. Argyropoulos, Director General of the Federation of Greek Industries. I rescaled this series to run from 0 through 1.

4. Shareholder rights (investor protection). This index, by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1996, 1997), is composed of five equally weighted rights of stockholders including those against management, such as rights that support the voting mechanisms against interference by insiders (rights that make it easier to vote enterprise directors out) and certain remedial rights.(for instance, the right to sue enterprise directors). The original data, which run from 0 through 5, are rescaled to run from 0 to1. The data from the two cited articles are slightly different in several cases from those published on their web site: <http://icg.som.yale.edu/data/datasets.shtml>.

5. Creditor rights. This index, by La Porta, Lopez-de-Silanes, Shleifer and Vishny (1996), is composed of five equally weighted rights of creditors, in contrast to rights of management, during bankruptcy proceedings. To the four listed by the authors I have added a fifth, which specifies whether the company must hold a monetary reserve for creditors that is at least 10 percent of the capital of the firm. The series was rescaled to run from 0 through 1.

6. Significant worker role in firm decisions. This composite index includes three indicators, each scored 0 if the characteristic was absent, 1 if it was present: (a) workers and/or unions have legal rights to appoint members to the boards of directors (weight = 40 percent). (b) Worker councils are mandated by law (weight = 40 percent). (Worker councils are institutions of employees and workers created for discussion of a company's policies affecting workers at the company level; the employer has sole rights to decide on operations of the company but must negotiate and decide all matters affecting workers within the framework of the council.) (c) Legal rights of labor to participate in management are written into the nation's constitution (weight = 20 percent, or lesser weights if officially declared as matters of public policy or public interest). The original data pertain to 1997 and come from Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003) but I have used a weighting system different from theirs.

D. Government

1. Government's share of gross fixed investment. These data are the average ratios of government direct gross, fixed, investment (i.e., excluding capital transfers) to total gross, fixed investment of the entire country for the period from 1988 through 1992. For data for most countries come from Tables 1 and 6 in OECD (1998). For New Zealand the data come from official national accounts downloaded from <www.stats.govt.nz>; they include investment of state-run enterprises, but exclude capital transfers. For Germany, the data cover only West Germany; in 1991-92, such government investment as a percent of total gross capital formation was 0.9 percentage points higher in the united Germany than in West Germany alone.

2. Government share of total consumption. These data are the share of current government consumption of goods and services to total private and governmental consumption and the data come from Table 1 in OECD (1998). For Germany, the data cover only West Germany; in 1991-92, current government consumption as a percent of total government plus private consumption was 1.2 percentage points higher for the united Germany than for West Germany alone.

3. Government domestic transfer payments as a percent of current GDP. These are the average ratios to GDP of total transfers, excluding subsidies and transfers abroad, for 1988 through 1992. The data come from Tables 1 and 6 in OECD (1998). If the government subsidy data in Table 6 were larger than those reported in Table 1, which happened in several cases, the difference was added to the total transfers. For New Zealand, the data come from official national accounts, downloaded from <www.stats.govt.nz> and include social security cash benefits and social assistance cash benefits. For Germany, the data cover only West Germany; this ratio was 1.3 percentage points higher for the united Germany in 1991-92 than for West Germany alone.

4. Direct government share of total employment. These are the average ratios to total

employment of employees working for various direct administrative arms of national, state or provincial, and local governments to total employment. Whenever possible I also include employees of the social security and health care systems. The data come from the “analytic data base” of OECD (1997d). The same publication provides data from two other (slightly different) data bases on public employment; but the analytic data base provides more details, so that I could make some adjustments to achieve greater comparability. It was not always easy to draw the line between the government *per se* and state-owned enterprises; I try to include the postal services among the latter (see indicator 5). Distinguishing people financed by government grants from government employees raised other difficulties. The data for all countries are from some year in the period 1993-95; for Austria, Belgium, and the U.K., I also had to make some small estimates.

5. Share of total employment by state-owned enterprises (SOEs). These data also come from the same analytic data base of the OECD (1997d). As noted above, I tried to exclude employees of the social security and health care systems from the SOE category, but to include the postal service workers. The data for all countries are from some year in the period 1993-95 for which the data were available.

6. Share of research and development in government sector. These OECD data (2001b: 150) show the share of R and D directly carried out by the government. They represent an average for 1989 and 1990.

7. Coverage of social security system. These data draw on 12 of the various governmental benefits for old age, disability, sickness, death, and unemployment benefits as calculated by Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003).

E. Financial Sector

1. Central bank independence. As Marcano (1998) warns us, the measurement of a central

bank's independence invariably contains some subjective elements, both in establishing the criteria for independence and then in measuring them. I have tried to avoid some of these pitfalls by averaging components of two quite different calculations. My index has three major components (weights in given in parentheses):

a. Legal (formal) independence (45 percent). This was, in turn, composed of two subindices:

i. Cukierman (1992: 396-411) unweighted index of six indicators of legal independence during the 1980s. These include his four variables about top personnel, the bank's monopoly position in making monetary policy, and official bank objectives regarding price stability.

ii. Grilli, Masciandaro and Tabellini (1991: 368) index of eight indicators of legal/political independence, apparently for the 1960s through to the end of the 1980s.

Each subindex was rescaled to run from 0 through 1 and then combined into a weighted average, where the weight of each index was the average value of the other subindex.

b. Policy tools and independence (45 percent). This was composed of two subindices:

i. Cukierman (1992) unweighted index of seven indicators of policy making independence during the 1980s. These included authority in decision making in disputes with other government agencies and 6 indicators of various constraints on lending.

ii. Grilli, Masciandaro and Tabellino (1991: 369) index of seven indicators of policy independence, apparently for the 1960s through to the end of the 1980s.

Each subindex was rescaled to run from 0 through 1 and then combined into a weighted average, where the weight of each index was the average value of the other subindex.

c. Annual turnover of central bank directors (10 percent). A high turnover of central bank leaders is, according to Cukierman (1992: 384), a crude indicator of the lack of actual political

independence of the central bank director. The data come from his estimates for the period from 1950 through 1989 and rescaled to run from 0 through 1, where the value points in the same direction as the other two components of the index.

2. Restrictions on bank activities. The original data are based on a determination of whether banks can sell or underwrite insurance, invest in real estate investments, and own and control nonfinancial firms. I have combined these three scales and have rescaled the results so that they run from 0 through 1. The data originally came from Barth, Caprio, and Levine (2001); I obtained them from a CD rom accompanying Demirgüç-Kunt and Levine (2001).

3. Openness of external capital flows. These data are averages for the period from 1988 through 1992 and come from Dennis Quinn and Maria Toyoda (2003), who have used IMF data on restrictions on the capital account and have coded two equally weighted indicators: openness of inward receipts and openness of outward payments.

4. Comprehensiveness of accounting reports to the public. An index created by examining and rating companies' 1990 annual reports on their inclusion or omission of ninety items in their balance sheets and income statements. The data come from the CD-rom accompanying Demirgüç-Kunt and Levine (2001) and were rescaled to run from 0 through 1. The original data were drawn from research published by the Center for International Financial Analysis and Research, Inc.

5. Bank concentration. This is the share of total banking assets in 1990 held by the three largest banks; the results were then rescaled from 0 through 1. For Ireland, New Zealand, and Sweden, the data are for a year close to 1990. The data come from the CD-rom accompanying Demirgüç-Kunt and Levine (2001)

6. Relative size of financial system. This is the ratio of deposit money bank assets and stock market capitalization to the GDP for the period from 1980 through 1995. These data come from the

“overall size variable” on the CD-rom accompanying Demirgüç-Kunt and Levine (2001).

7. Stock market activity/bank activity. This series has two components, both reflecting the size of the stock market relative to the size of the banking sector. The first part measures size in terms of total capitalization (stock market) or assets (banks). The second part measures size in terms of total ratio of the annual value of stock traded (stock market) and annual claims of private sector by deposit banks. The two series were scaled from 0 through 1, with the endpoints representing, respectively, the lowest and highest ratios in the sample and then averaged. The data are for the period 1980 through 1995. The data come from the CD-rom accompanying Demirgüç-Kunt and Levine (2001). The results are rescaled with 0 and 1 representing respectively the lowest and highest shares of any country in the sample.

Appendix 6-3: SOURCES OF ECONOMIC PERFORMANCE DATA

1. Growth and inflation. These results were calculated by fitting an exponential curve to data from OECD (2002) for the period 1980 through 2000. The German results cover only the area of the former West Germany, and the appropriate data for 1990-2000 were obtained from the Statistisches Bundesamt.

2. Unemployment. The data come from OECD (2001a, 2002) and represent an average for the years 1980 through 2000. The German results cover only the area of the former West Germany, and the appropriate data for 1990 through 2000 were obtained from the Statistisches Bundesamt.

3. Pollution. The data on pollution emissions for 1988 through 1992 come from OECD (2000a). The density data come from the United Nations (1996); and the data on pollution regulations, from Pryor (2002).

Appendix 6-4: Sources of Other Performance Indicators

1. Strikes. Data on the number of total days lost in strikes in the manufacturing sector per 1,000 employees for the period 1988 through 1992 come from International Labour Organization (1996). This is also the source for the days lost per year for those workers on strike in the manufacturing sector.

2. Absenteeism. The data reflect the annual work days lost per worker in 1990 in the manufacturing sector because of absenteeism. The basic data come from variables 6.31 and 6.32 in World Economic Forum (1991). For thirteen countries, direct estimates of absenteeism are available (variable 6.32). For all countries, however, data are available for results of a survey of business people on the impact of labor absenteeism (variable 6.31). Since the two variables are highly correlated for the thirteen countries ($R^2 = .77$), I used these regression results to estimate the rate of absenteeism for the other countries.

3. Work accidents and fatalities. Data on the average number of days lost because of industrial accidents per 1,000 employees and on fatalities per 1,000 employees are averages for the period 1988 through 1992. They come from the International Labour Organization (1996).

4. Health indicators. All data, including days of sickness per worker per year, life expectancies, infant mortality, and percentage of low-weight babies, are averages for the period 1988 through 1992. They come from OECD (2000a).

5. Pollution. These data come from OECD (2000b).

6. Patents issued per 1,000 adult residents. Two sets of data are used. The first come from national statistics and reflect the average number of patents issued in the period 1988 through 1992 per 1,000 residents between the ages of 15 through 65, as reported by the World Intellectual Property Organization (2003). For Germany the data cover only the former West Germany. The

population data come from OECD (2000b). Unfortunately, such data suffer from comparability problems, because the criteria for issuing patents in the individual nations differ. The second set of data are patents issued to nonresidents in various countries by the U.S. Patent and Trademark Office (USPTO), which uses the same criteria for all countries. Data from USPTO (2003), are supplemented by information supplied by Paul Harrison of this agency. The U.S. had to be excluded from this sample because we must assume that foreigners register only “important” patents in the U.S., while residents in the U.S. register all patents there.

Appendix 6-5: Political/Ideological Correlates to Industrial Market Economies

Table A6-1 presents the statistical results of this investigation and is set up like other tables in this study. The first data column presents the percentage change of the variables when per capita GDP changes 1 percent (development elasticity); the remaining data columns show the average values of the different variables for the four economic systems, along with information about whether this average is significantly higher or lower than the other nations when per capita GDP is held constant.¹

A. Leftist Orientation

Many political scientists gauge the dominant ideology of a nation by the relative importance of various political parties and Table A6-1 presents three relevant measures. All of these measures raise problems of interpretation.

The calculations suggest that the Nordic economic system appears to be significantly influenced by the strength of leftist political parties.² Conversely, the weakness of left political parties in the AS+ legislatures also appears to have helped to share the AS+ economic systems. Curiously, these evaluations of leftism do not strongly correlate with citizens' evaluation of their place on the political spectrum, at least as measured in 1990 in the World Value Study (Inglehart, Basañez, and Moreno, 2000). The AS+ nations provide an exception since their citizens place themselves more on absolute scale. For instance, on a relative scale, the Democratic Party in the

¹ Two statistical problems arise at this point. First, in calculating the elasticities, it was necessary to add 1 to all of the dependent variables in which at least one country had a zero value, so that logarithms of this variable could be calculated. Second, the results holding per capita GDP constant were estimated with OLS regressions. I make, however, no assumptions about the direction of causality.

² A World Bank index of leftism from 1975 through 1990, drawn from their database of political institutions (Keefer, 2002), yields the same result for the Nordic nations.

Table A6-1: Political/Ideological Correlates to Industrial Market Economies around 1990

| Panel A | Range | Devel. elasti- city | Average ratios of economic systems | | | | Sample average |
|----------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------|------------------------------------|--------------------------|---------------------------|---------------------|-------------------|
| | | | Southern European | AS+ European | Nordic European | Western European | |
| <u>Left orientation</u> | | | | | | | |
| 1. | Both chief executive and largest party in legislature have left orientation | | | | | | |
| | 1929-95 period | 0-1 +0.20 | 0.103 | 0.244 | 0.621⁺ | 0.173 | 0.268 |
| | 1975-95 period | 0-1 - 0.01 | 0.369 | 0.279 | 0.571 | 0.357 | 0.370 |
| 2. | 1960-90: Left seats in parliament | 0-1 +2.31 | n.a. | 0.273⁻ | 0.480^{+?} | 0.405 | 0.362 |
| 3. | 1990-93: Citizen's self-rated leftism | 0-1 - 0.18 | 0.380⁺ | 0.170⁻ | 0.250 | 0.250 | 0.258 |
| <u>Competition between political parties</u> | | | | | | | |
| 1. | 1920-90: Party fractionalization | 0-1 +0.71 | 0.412⁻ | 0.558 | 0.736⁺ | 0.655 | 0.604 |
| 2. | 1950-90: Party fractionalization | 0-1 +0.92 | 0.415 | 0.551 | 0.740^{+?} | 0.671 | 0.604 |
| 3. | 1920-90: Political competition | 0-1 +0.94 | 0.055⁻ | 0.097 | 0.098 | 0.093 | 0.087 |
| 4. | 1950-90: Political competition | 0-1 +1.00 | 0.059⁻ | 0.100 | 0.100 | 0.100 | 0.092 |
| 5. | 1990-93: Personal interest in politics | 0-1 +1.20 | 0.283^{-?} | 0.534 | 0.552 | 0.528 | 0.493 |
| <u>Regime legitimacy</u> | | | | | | | |
| 1. | 1920-90: Degree of democracy | 0-1 +0.20 | 0.538⁻ | 0.970 | 0.991 | 0.924 | 0.878 |
| 2. | 1950-90: Degree of democracy | 0-1 +0.93 | 0.586⁻ | 0.999 | 1.000 | 1.000 | 0.911 |
| 3. | 1950-90: Legislative effectiveness | 0-3 +0.52 | 2.274⁻ | 3.000 | 3.000 | 3.000 | 2.778 |
| 4. | 1990-93: Confidence in pol. system | 0-1 +0.27 | 0.436⁻ | 0.551 | 0.615⁺ | 0.542 | 0.546 |
| Panel B | | | | | | | |
| <u>Political turmoil</u> | | | | | | | |
| 1. | Average microcivil disturbances per year per 100 million population | | | | | | |
| | 1920-90 | 0 upwd - 2.36 | 14.609 | 8.035 | 3.299⁻ | 9.522 | 8.500 |
| | 1950-90 | 0 upwd - 2.50 | 15.263⁺ | 5.483 | 2.827 | 5.463 | 6.818 |
| 2. | Average macrocivil disorders per year | | | | | | |
| | 1920-90 | 0 upwd. - 1.69 | 1.771⁺ | 0.455 | 0.258 | 0.947 | 0.816 |
| | 1950-90 | 0 upwd. - 1.46 | 1.622⁺ | 0.405 | 0.299 | 0.439 | 0.680 |
| 3. | 1920-90: Political instability | 0 upwd. - 0.11 | 0.071⁺ | 0.005 | 0.004 | 0.018 | 0.021 |
| 4. | 1950-90: Political instability | 0 upwd. - 0.06 | 0.040⁺ | 0.002 | 0.006 | 0.010 | 0.013 |
| 5. | 1920-90: Gov't. leadership turnover | 0 upwd. - 1.80[?] | 0.673⁺ | 0.340 | 0.471 | 0.377 | 0.447 |
| 7. | 1950-90: Gov't. leadership turnover | 0 upwd. - 1.50[?] | 0.540 | 0.318 | 0.418 | 0.292 | 0.376 |

Notes: For panel A, the percentages for the economic systems are expressed as the decimal equivalents. This table uses the same conventions for designating statistical significance as all tables in the text. The development elasticity designates the percentage change of the variable associated with a 1-percent change in the per capita GDP. I omit France and Switzerland from the calculations of the last five columns, but not in the estimation of elasticities.

the ideology of a particular party in relation to other political parties in the same nation, or on some

United States would be considered a “left” party, while on an absolute scale (or on a scale based on the rest of the OECD nations), it would be considered centrist. The source from which line 1 under “left orientation” was drawn appears to have relied more on a relative definition, while data the source for line 2 appear to the right side of the political spectrum, which is consistent with the lower number of seats held by leftist parties in their legislatures.³

1. Leftist chief executive and largest legislative party. These data, drawn from Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003), were based on the percentage of years in which the party of the nation’s chief executive and also the largest party in the legislature had a left orientation. They appear to have used a relative definition of left orientation.

2. Percentage of seats held by leftist parties in the legislature. These data, drawn from Huber, Ragin, and Stephens (1997), are described as the percentage of total seats in the parliament (evidently the lower house) by leftist parties. They appear to have used an absolute definition of leftist orientation.

3. Citizens’ self-ratings of their leftism. In the World Value Study for 1990-93 (Inglehart, Basañez, and Moreno, 2000), respondents were asked (question 248) to rate themselves on a scale of 1 to 10, with 1 = far left and 10 = far right. The authors report the percentage of people placing themselves from 1 to 4 on this scale.

B. Competition Between Political Parties

Vigorous competition between political parties can bring the economic system of a nation

³ It should be added that a respondent’s self-evaluated political position is significantly correlated with the stated belief that government ownership of business and industry should be increased (question 251), but not with the belief that the state should take more responsibility to ensure that everyone is provided for (question 252).

more into accord with the values and beliefs of its citizens. As I note in the text, in a country with a left-leaning population, even a conservative government would usually have to follow certain leftist policies if it wanted to retain power. Where party competition is not vigorous, a ruling party has a greater chance of imposing its stamp on the economic system, whatever the wishes of the population.

The results in Table A6-1 can be quickly summarized. By almost all criteria, competition between political parties was significantly lower in the Southern European nations than in the other OECD nations. By contrast, according to some (but not all) measures, party competition was higher in the Nordic nations than in these other groups of nations.

1 and 2. Party fractionalization. Fractionalization is defined as one minus the Herfindahl index (in this case, the sum of the squares of the fractions accounted for by each party in the lower house of the legislature). If there is a single party, the index is 0; if there are a very large number of parties, each with a single seat, the index is 1. The data come from Banks (2003). I have averaged all years in the designated periods except the years from 1939 through 1949, which included World War II and its immediate aftermath.

3 and 4. Political competition. This variable (ParComp), drawn from Marshall and Jaggers (2003), takes into account the degree of institutionalization, or regulation, of political competition and the extent of government restriction on political competition. Again I have averaged all years in the designated periods except the years from 1939 through 1949.

5. Citizen's self-declared interest in politics. In the World Value Study for 1990-93 (Inglehart, Basañez, and Moreno, 2000), respondents were asked (question 241) whether they were very interested or somewhat interested in politics. This series is the percentage of yes responses to

either of these positions. If such interest is low, it is likely that meaningful political competition is low as well.

C. Legitimacy of the Regime

I rate a political regime as legitimate if it responds to citizen preferences, both in how the political leaders are chosen and in other respects as well. For this purpose I employ three indicators: a synthetic measure of degree of democracy, a subjective evaluation of the quality of the legislature, and citizen's self-declared confidence in various governmental institutions, as reported by the World Value Study.

By all four measures, regime legitimacy is lower in the Southern European nations than in the rest of the OECD. The other three groups of nations differ little from each other, though possibly the citizen's in the Nordic nations exhibit somewhat greater confidence in their political system than do the nations with an AS+ or Western European economic system. This appears to be one aspect of the greater social capital in these Nordic nations, a topic discussed below.

1 and 2: Democracy. This synthetic variable, drawn from Marshall and Jaggers (2003), takes into account the presence of institutions and procedures through which citizens can effectively express their preferences, the existence of institutionalized constraints on the power of the chief executive, and the guarantees of civil liberties.

3. Effectiveness of legislature. This is an evaluation by Banks (2003) on a four-point scale. However, the validity of this variable has its critics, such as Przeworski *et al.* (2000a: 55).

4. Confidence in the political system. This is a composite variable, reflecting an unweighted average percentage of respondents in the World Value Study for 1990-93 (Inglehart, Basañez, and Moreno, 2000) expressing either a "great deal" or "quite a lot" of confidence in the following seven

aspects of the political system: the armed forces (question 273), the education system (question 274), the legal system (question 275), the police system (question 278), parliament (question 279), the civil service (question 280), and the social security system (question 282).

D. Political Turmoil

It is commonly argued that economic systems with greater political turmoil have less secure property rights and a more intrusive government, which, at the same time, is less effective (and more corrupt) than in other nations. To gain some idea of the degree of such turmoil, I use four indicators that are described below.:

After controlling for per capita GDP, almost every indicator of political turmoil was significantly greater in the Southern European nations than in the other OECD nations. According to one indicator, such political turmoil was less in the Nordic nations, which seems to parallel the greater trust that they place in their political system.

1 and 2. Average incidence of micro civil disturbances per 100 million population. This variable, based on data from Banks (2003), is the average annual number of riots, political assassinations, major anti-government demonstrations, and general strikes, normalized to 100 hundred million population in the middle year of the period. For the 1920-90 period, I omit 1939 through 1949.

3 and 4. Incidence of macro civil disturbances. This variable, based on data from Banks (2003), is the average annual number of internal guerilla wars, major governmental crises, and revolutions in the period. For the 1920-90 period, I omit 1939 through 1949.

5 and 6. Political instability. This variable, based on data from Banks (2003), consists of two components: the average annual number of coups d'état and the average number of major

constitutional changes in the period. For the 1920-90 period, I omit 1939 through 1949.

7 and 8. Turnover of governmental leadership. This variable, based on data from Banks (2001) consists of two components: the average annual number major cabinet changes and the average annual number of changes in the effective executive of the nation. For the 1920-90 period, I omit 1939 through 1949.

Appendix 6-6: Social/Cultural Correlates to Industrial Market Economies

I consider five aspects of social structure and culture: societal fractionalization, education, social capital, social breakdown, and values. The statistical analysis mirrors that used in the previous appendix. All relevant data are presented in Table A6-2 below.

A. Homogeneity/Heterogeneity

According to conventional social science wisdom, the citizens of relatively more homogeneous nations are more likely to cooperate with each other, to accept taxation to finance common goals, to trust the government to function effectively and honestly, and to maintain more social cohesion. If these propositions are true, such correlations would have some obvious implications for the economic system. I measure heterogeneity in terms of the fractionalization statistic (used above to measure political competition), where total homogeneity is scored as zero and total heterogeneity is scored as one. I examine heterogeneity in terms of ethnicity, language, and religion. If population heterogeneity had any impact on the economic system on highly industrialized nations in the late twentieth century, it seems likely that ethnic fractionalization would be the more important.

Holding per capita GDP constant, few statistically significant differences are found between nations in the four economic systems, except that the AS+ nations have greater religious fractionalization and the Nordic nations have less. The Nordic nations do, however, score lower than all of the other groups in all three variables. These differences might have been statistically significant in the 1970s before the wave of immigration in the following decades.

Table A6-2: Social/Cultural Correlates to Industrial Market Economies Around 1990

| Indicators | Range | Devel. elasti- city | Economic systems | | | | Sample average |
|-------------------------------------------------------------------------|---------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------|-------------------|
| | | | South European | AS+ | Nordic | Western European | |
| <u>Homogeneity/Heterogeneity (late 1990s)</u> | | | | | | | |
| 1. Ethnic fractionalization | 0-1 | +0.19 | 0.184 | 0.278 | 0.083 | 0.234 | 0.218 |
| 2. Language fractionalization | 0-1 | +2.05² | 0.144 | 0.204 | 0.128 | 0.343 | 0.217 |
| 3. Religious fractionalization | 0-1 | +1.38 | 0.263 | 0.649⁺ | 0.231⁻ | 0.502 | 0.454 |
| <u>Education: Percentage of adults, 1988-92</u> | | | | | | | |
| 1. No more than primary education | 0-100 | -1.72 | 76.6⁺ | 37.6 | 34.8 | 38.7 | 44.7 |
| 2. Just completed secondary education | 0-100 | +2.02 | 14.4⁻² | 35.4 | 44.3 | 45.2 | 36.0 |
| 3. Completed university | 0-100 | +0.75 | 7.5 | 12.7 | 11.3 | 9.6 | 10.3 |
| <u>Social capital: Percentage of adults, late 1980s and early 1990s</u> | | | | | | | |
| 1. Participating in community activities | 0-100 | +0.67 | n.a. | 27.3 | 32.8 | 27.1 | 27.2 |
| 2. Belonging to a "Putnam group" | 0-100 | +2.15² | 16.0 | 88.1 | 54.3 | 29.3 | 80.4 |
| 3. Doing volunteer work, "Putnam group" | 0-100 | +0.69 | 3.2 | 5.7 | 5.0 | 4.6 | 4.7 |
| <u>Social breakdown, 1988-92</u> | | | | | | | |
| 1. Suicides/100,000 population | 0 upwd. | +1.53 | 6.4⁻² | 12.2 | 20.6⁺ | 15.9 | 14.1 |
| 2. Homicides/100,000 population | 0 upwd. | +0.97² | 1.47 | 2.48 | 1.73 | 1.22 | 1.78 |
| 3. Annual ratio of marriages to divorces | 0 upwd. | -1.65 | 8.4⁺ | 2.5 | 2.0 | 2.7 | 3.7 |
| 4. Single-parent families as % of all families | 0-100 | +0.42² | 12.9⁻² | 19.9⁺² | 16.9 | 18.0 | 17.1 |
| 5. Adults in prison per million population | 0 upwd. | +0.94 | 654 | 1885 | 498 | 599 | 1030 |
| <u>Values, 1990-93</u> | | | | | | | |
| 1. Work ethic (index) | 0-1 | -0.01 | 0.390 | 0.463 | 0.514⁺² | 0.341⁻ | 0.424 |
| 2. Trust in others (index) | 0-1 | +0.27 | 0.488⁻² | 0.603 | 0.709⁺ | 0.573 | 0.595 |
| 3. Competitive individualism (index) | 0-1 | +0.18 | 0.475 | 0.575 | 0.620⁺² | 0.486 | 0.519 |
| 4. Materialism (index) | 0-1 | -0.30 | 0.305 | 0.254 | 0.268 | 0.253 | 0.270 |
| 5. Fatalism (index) | 0-1 | -0.53 | 0.378 | 0.268 | 0.306 | 0.341 | 0.324 |
| 6. Percent rejecting corruption (index) | 0-1 | +0.05 | 0.668 | 0.705⁺² | 0.654 | 0.564⁻ | 0.651 |
| 7. Percent espousing civic virtues (index) | 0-1 | -0.00 | 0.679 | 0.684 | 0.675 | 0.607 | 0.661 |

Notes: The same conventions used in Table A6-1 are followed here.

All data are calculated as 1 minus Herfindahl indices, taking as raw data the fractions of the various ethnic, language, and religious groups in the population. The language and religion data refer to 2001; the ethnicity data refer to various years, mostly in the 1990s. Since these variables change only very slowly, we can safely assume that they are quite applicable to 1990 and earlier years as well. All data come from Alesina *et al.* (2003).

B. Education

Although the impact of the average level of education on the economy has been well studied, its impact on the economic system is less clear. Presumably, a higher average level of education should reduce the need for governmental assistance to the economy because various economic institutions could operate effectively with more autonomy and the population would also be more capable of looking after, and protecting, itself. But a more educated population might also have greater understanding of the kind of social and economic problems that require governmental intervention and thus be more likely to demand it.

The average level of education is, of course, highly correlated to the per capita GDP, as the elasticity calculations indicate. When we hold the per capita GDP constant, the Southern European nations have a significantly higher percentage of adults with only a primary school education. None of the other economic systems stand out from the others in a statistically significant way. Nevertheless, it must also be noted that the correspondence between formal education and actual literacy is loose. According to the results of the International Adult Literacy Survey (OECD and Statistics Canada, 2000), the Nordic countries have significantly higher mean scores in prose, document interpretation, and quantitative tests than the other OECD nations, when we hold per capita income constant, while the AS+ nations have significantly lower scores, at least (in the

document interpretation and quantitative tests, even though the average level of education is higher in the latter group of countries). Unfortunately, not enough Southern European nations were included in the survey for their results to be reported.

All data come from OECD (2000a) and pertain to the period 1988 through 1992.

C. Social Capital

In his well-known book Bowling Alone, Robert Putnam (2000) argues that the social bonds between individuals in a society are the key to how a community functions, but measuring such “social capital” is not easy. In Table A6-2 I provide three imperfect indicators and the results show no statistically significant differences between the economic systems.

1. Percentage of adults engaged in community activities at least once a month. These data, originally from the International Adult Literacy Study, refer to the 1994-98 period and come from OECD and Statistics Canada (2000: 159).

2. Percentage of adults belonging to any “Putnam group.” A “Putnam group” is a social organization formed for social purposes, i.e., not for the purpose of economic gain or rent seeking. These data come from Knack and Keefer (1997) and refer to the early 1990s.

3. Average percentage doing volunteer work for a “Putnam group.” These data represent the average percentage of adults belonging to each of eight different social groups (all groups reported except labor unions and political parties) for some year between 1990 and 1993. The data come from the World Value Study, as reported by Inglehart, Basañez, and Moreno (2000).

D. Social Breakdown

The indicators of social breakdown focus on the activities of a small minority of the population and should not be considered as the opposite of social capital. Among other things, social

breakdown influences the security of property and the continuity of institutions.

I use five different indicators, and the pattern that emerges is unexpected. On most indicators the Southern European nations reveal lower social breakdown: they have significantly greater marital stability and their suicides and incidence of single-parent families may be significantly lower as well. The Nordic nations have significantly higher suicide rates; and the AS+ nations possibly have a significantly higher incidence of single-parent families. The variation in rates of imprisonment of the various nations with the same economic systems are so great that none of the four groups appears, on average, to be significantly different from the others in this respect. For instance, among the AS+ nations the rates range from 295 per million population in New Zealand to 6,470 per million population in the U.S.; or among the Southern European nations, 190 in Italy to 1,068 in Portugal.

1 and 2. Suicide and homicide rates. These data refer to the 1988-92 period and come from OECD (2000a).

3. Marital stability. These data represent the number of marriages in 1992 divided by the number of divorces. The data come from the United Nations (1996).

4. Single parent families as a percentage of all families. The data come from OECD (1999: 89).

5. Adults in prison. The data refer to both men and women for 1990 and come from the Fourth U.N. crime study, as reported by OECD (1997b). For the U.S., however, this source omitted the population in local prisons, so I have reestimated the OECD data for this single country. If the U.S. is omitted from the average of the AS+ nations, this cluster's average becomes 739 per million.

E. Values

From the answers to the World Value Study (Inglehart, Basañez, and Moreno, 2000), I have calculated seven different sets of values that might have an impact on various aspects of the economic system.

All calculations of values are based on composite variables. I would select the various questions (designated below by the letter V) which seemed to relate to the basic value in which I was interested. These were subjected to a factor analysis, and those variables with signs in the “wrong” direction were discarded and another factor analysis was carried out. I then used the weights derived from the first factor analysis as the weights for the various series. For several of the values, however, I followed a somewhat different procedure, described below. All value indices were then standardized to run from 0 through 1.

In contrast to most of the other indicators in this table, these values are mostly unrelated to the level of per capita GDP (the one exception: the fatalism index). As we might expect, the correlations of these different values show no consistent pattern with the economic system, so that each indicator must be examined separately.

1. Work ethic. This index consists of five questions and focuses on the declared importance of work in a person’s life, the pride taken in such work, and conscientiousness exercised on the job. When we hold per capita GDP constant, the nations with the Western European economic system have a significantly lower work ethic index, while the Nordic nations have a significantly higher one. Among the latter group of nations, however, the declared work ethic seems to collide with results (discussed below) indicating that none of the economic systems had a significantly different rate of work absenteeism than the others.

This index covers five questions: V4 - Importance of work in your life; V110 - Importance of feeling you can achieve something in a job; V115 - Pride taken in work; V119 - Doing one's best in a job regardless of pay; V122 - Work as the most important thing in your life.

2. Trust index. This index combines the responses to two statements: (i) that most people can be trusted and (ii) that it is important to teach one's children tolerance and respect for other people. The Southern European nations scored significantly lower on this index, which is consistent with their lower social capital and higher political turmoil (Table A6-1). The response for the Nordic nations indicate significantly higher trust, which seems consistent with their greater population homogeneity.

This index is an unweighted average of two questions: V94 - Belief that most people can be trusted; and V231 - Importance of teaching one's children tolerance and respect for other people.

3. Competitive individualism. This index covers four questions dealing with the control people have over their lives, their desire for achievement and responsibility, and their confidence. When we hold per capita GDP constant, the Western European nations scored significantly lower, which seems consistent with their lower rating of self-declared work ethic. The Nordic nations possibly have a significantly higher score on this index.

This index covers four questions: V95 - Having control over your life; V110 - Importance of believing you can achieve something in a job; V331 - Liking to assume responsibility; V332 - Feeling sure about how to behave.

4. Fatalism. This index covers two questions: one dealing with the feeling of helplessness if an unjust law is passed and the other with feeling bored over the past few weeks. Fatalism is inversely related to the per capita GDP and was more prevalent in the Southern European nations.

This index is an unweighted average of two questions: V89 - Feeling bored over past few weeks; V338 - Feeling helpless if an unjust law is passed.

5. Rejection of corruption. This index is the average percentage of people who tell the pollster that taking bribes in the course of one's duties or that cheating on one's taxes are never justified. The Western European nations scored significantly lower on this index than other nations; and the AS+ nations, significantly higher. Unfortunately, assessments of perceptions of corruption by outside observers vary considerably, depending on the methodology, and, therefore, so do our conclusions. More specifically, when we hold GDP per capita constant, calculations made from various subjective perceptions of corruption by different observers from the late 1980s to the late 1990s show that perceived governmental corruption was significantly higher only in the Southern European nations and that among the other OECD nations there were no significant differences in this respect.⁴

This index consists of two questions (also part of the civic virtue calculation). V298 - Never justified to cheat on taxes; V306 - Never justified for an official to accept a bribe in the course of his or her duty.

6. Materialism and civic virtue indices. Finally, for two other indices, no statistically significant differences between economic systems can be detected. The first is the materialism index, which covers two questions, one dealing with how dissatisfied people are with their current financial situation and the other with whether they feel envied by others for their possessions. The second is

⁴ Calculations were made from various series presented by Transparency International for 1988-92 (Lambsdorff, 2003), by the World Bank for 1996 (Kaufmann, Kraay, and Mastruzzi, 2003), and by both the World Economic Forum (2000) and the Institute for Management Development (1999) for the late 1990s.

the index of people espousing civic virtues. This covers not only the corruption index (discussed above) but also littering, driving while under the influence of alcohol, fighting the police, not reporting that you accidentally hit a parked car, and claiming a government benefit to which you are not entitled.

The materialism index is an unweighted average of two questions: V132 (reversed) - dissatisfied with current financial situation; V330 - Owning many things people envy you for. In addition to the two questions about governmental corruption, the civic virtue index includes four others: V311 - Never justified in fighting the police; V314 - Never justified in not reporting when you have hit a parked car; V318 - Never justified in littering in a public place; V319 - Never justified driving while under the influence of alcohol.

Appendix 6-7: POSSIBLE LEGAL ORIGINS OF INDUSTRIAL MARKET ECONOMIES

In a series of articles (summarized in Djankov, *et al.*, 2003), shifting teams of economists including Juan Botero, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny argue that the origins of the legal system play a critical role in the formation of particular institutions. They distinguish five basic types of legal systems, of which the “socialist law” system is irrelevant for this discussion. There is a close fit between these legal systems and the economic systems of the nineteen countries in the OECD with an unambiguous designation of the system (that is, excluding France and Switzerland):

CThe English common law system provides the basis of law in 86 percent of the nations with the AS+ economic system (Japan is the exception).

CThe Nordic civil law system is found only in the nations with the Nordic economic system.

CThe French civil law system provides the basis of law in all of the Southern European countries, as well in two of the four Western European nations.

CThe German civil law system is found in two of the four nations with a Western European economic system, as well as in Japan.

The analysis of the legal systems yields many important insights about the origins and impact of particular institutions. Nevertheless, the relationship between the legal systems and the economic system as a whole seems obscure. For instance, it seems curious that the French civil law system is found in nations with two dissimilar economic systems (the Western and Southern European systems) and surely other factors must account for the differences between them. Moreover, it is also strange that two different legal systems are found in the nations with a Western

European economic system or that one nation in the AS+ group has a legal system based on German civil law..

This raises the question of whether it was the legal systems alone, in contrast to some of the other explanations discussed in chapter VI, which provide a better explanation for the origins of four economic systems. Unfortunately, it is difficult to devise statistical tests to explore this question, although it seems more probable to me that the geographical contiguity and close historical connections between nations that now have the same economic system provides a stronger explanation than these common legal origins.

Other indicators of the legal system (other than the one incorporated in the definition of economic system) such as de jure or de facto judicial independence from the political system (data from Feld and Voigt, 2003) reveal no significant difference between economic systems. I could find no other promising judicial variables to explain the adoption of particular economic systems.

Appendix 6-8: Economic Systems of Developing Nations

A. The Sample and the Data

In Table A6-3 below, I define “developing countries” as those nations which, in 1990, had a per capita GDP of \$10,000 or less in a set of common prices (Maddison, 2003). For this group I collected data on thirty-one economic institutions and organizations, almost all of which were also used in the study of the OECD nations in chapter VI. Appendix 6-9 presents a full description of these variables. For forty-one nations, listed in Table AT6-3 sufficient data were available to carry out the analysis. Those nations which did not fall at least 70 percent in one cluster are designated with a question mark. They lay close to the borders of the various cluster and I did not include them in the calculation of the systemic averages.⁵ It is noteworthy that a much higher share of nations had this characteristic than of the industrial/service economies of the OECD.

B. The Economic Systems

Table AT6-4 below presents the averages of the four economic systems for the thirty-one institutional characteristics. The economic systems are arranged in terms of their declining average per capita GDP. The table shows not only the average values of the institutional variables but also whether the system was significantly different from the other systems when per capita GDP is held constant, a procedure which allows us to separate out the effects of the relative level of economic development from that of the system itself.⁶ For instance, the countries with the “business-oriented”

⁵ I did, however, include them in the calculation of the income elasticities.

⁶ More specifically, I calculated regressions of the following type: $EcSys = a + b DevLev + c I$, where $EcSys$ is a dummy variable which is equal to 1 if the society has the specified economic system and equal to 0 if it doesn't; $DevLev$ is the level of economic development; I is the indicator under examination; and a , b , and c are the calculated regression coefficients. For 31 indicators and 4 economic systems, this required calculating 124 regressions. Because the variable to be explained

Table AT6-3: Developing Countries in the 1990 Sample Arranged by Economic System (Clusters)

| <u>Type of economic system</u> | | | |
|--------------------------------|-----------------------|----------------|--------------------|
| <u>Business-oriented</u> | <u>Labor-oriented</u> | <u>Statist</u> | <u>Traditional</u> |
| Chile | Argentina | Brazil? | Bangladesh |
| Korea, South. | Bolivia? | Costa Rica? | Dominican Republic |
| Malaysia | Colombia | Egypt | El Salvador? |
| South Africa | Ecuador | Ghana? | Honduras |
| Taiwan | Indonesia? | India? | Nigeria |
| Thailand | Mexico | Jamaica | Pakistan |
| | Panama | Jordan | Senegal |
| | Paraguay | Kenya | Tanzania |
| | Peru | Mauritius | Uganda |
| | Philippines? | Morocco? | Zambia? |
| | Turkey? | Sri Lanka | |
| | Uruguay | Trinidad | |
| | Venezuela | Tunisia | |

Note: The derivation of the economic systems is discussed above. The question mark indicates that the country is placed in that cluster less than 70 percent of the runs and, therefore, must be considered as lying close to the border with another cluster. None of the Marxist nations in transition to a more market oriented economy are included in this calculation.

is equal either to 1 or 0, I used a probit regression technique.

Table AT6-4: Defining Characteristics of Economic Systems of Developing Nations in 1990

| Features | | Indicator | Range | Devel. elasticity | Averages | | | | Total sample | |
|----------------------------------------------------------|----|-----------|---------------------------------------------|----------------------|--------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------|
| | | | | | Economic Systems | | | | | |
| A | B | | | | Business- oriented | Labor- oriented | Statist | Tradi- tional | | |
| Product market | | | | | | | | | | |
| 1 | X | D | Freedom from product market regs. | -0.6 - +1.2 | 0.40 | 0.677⁺? | 0.393 | 0.039 | -0.394 | 0.150 |
| 2. | L | P | Protection of patent rights | 0 - 1 | -0.01 | 0.566 | 0.342⁻ | 0.445 | 0.481 | 0.444 |
| 3. | L | P | Good legal environment for markets | -1.1 - +1.2 | 0.51 | 0.753 | -0.150⁻ | 0.112 | -0.644⁻ | -0.030 |
| 4. | LS | PD | Barriers to starting new businesses | 0 - upwd | -0.51 | 0.259⁻ | 0.548 | 0.578 | 2.269 | 0.874 |
| 5. | S | D | Ratio of government subsidies to GDP | 0 - 1 | 0.40 | 0.018 | 0.023 | 0.017 | 0.006⁻ | 0.017 |
| 6. | S | D | Foreign trade barriers | 0 - 1 | 0.26 | 0.864 | 0.792 | 0.772 | 0.703 | 0.779 |
| 7. | XL | D | Freedom to set prices | 0 - 1 | 0.20 | 0.658 | 0.472^{-?} | 0.534 | 0.489 | 0.530 |
| 8. | X | D | Product market competition | 0 - 1 | -0.03 | 0.667 | 0.519 | 0.628 | - | 0.595 |
| 9. | X | PD | Presence of business clusters | 0 - 1 | 0.15 | 0.547⁺? | 0.386⁻ | 0.417 | - | 0.457 |
| Labor market | | | | | | | | | | |
| 1. | L | D | Legal protection: workers, employment | 0 - 1 | 0.08 | 0.464⁻ | 0.627⁺ | 0.480 | 0.517 | 0.528 |
| 2. | L | D | Legal protection: labor bargaining rights | 0 - 1 | 0.24 | 0.516 | 0.733⁺ | 0.435 | 0.415 | 0.537 |
| 3. | X | D | Level of economy where wages bargained | 0 - 1 | 0.00 | 0.000⁻ | 0.333 | 0.500 | 0.167⁻ | 0.235 |
| 4. | S | D | Union density | 0 - 1 | 0.07 | 0.145 | 0.185 | 0.227⁺ | 0.128 | 0.170 |
| 5. | S | DP | Years of education of average worker | 0 - upwds | 0.32 | 7.461 | 6.604 | 6.597⁺? | 3.451 | 5.974 |
| Production and business sector | | | | | | | | | | |
| 1. | L | P | Shareholder rights | 0 - 1 | -0.25[?] | 0.700⁺ | 0.457 | 0.450 | 0.800 | 0.568 |
| 2. | L | P | Creditor rights | 0 - 1 | -0.26 | 0.350 | 0.217⁻ | 0.400 | 0.400 | 0.318 |
| 3. | L | P | Significant worker role in firm's decisions | 0 - 1 | -0.03 | 0.111 | 0.075 | 0.200 | 0.080 | 0.118 |
| 4. | S | P | Inequality of land holdings | 0 - 1 | 0.07 | 0.468^{-?} | 0.827⁺ | 0.694 | 0.595 | 0.691 |
| Government sector | | | | | | | | | | |
| 1. | S | D | Government share of total consumption | 0 - 1 | 0.18 | 0.188 | 0.134^{-?} | 0.191⁺ | 0.117⁻ | 0.157 |
| 2. | S | D | Ratio of govt. transfers to GDP | 0 - 1 | 0.25 | 0.026 | 0.046 | 0.038 | - | 0.036 |
| 3. | L | D | Coverage of social security system | 0 - 1 | 0.56 | 0.543 | 0.640⁺? | 0.406 | 0.353 | 0.494 |
| 4. | X | P | Security of government contracts | 0 - 1 | 0.26 | 0.780 | 0.605 | 0.573 | 0.419 | 0.588 |
| 5. | X | P | Security from govt. expropriations | 0 - 1 | 0.11 | 0.786 | 0.646^{-?} | 0.631 | 0.563 | 0.651 |
| 6. | S | P | Importance, state owned enterprises | 0 - 1 | -0.17 | 0.124 | 0.092 | 0.230⁺ | 0.128 | 0.136 |
| Financial sector | | | | | | | | | | |
| 1. | L | D | Central bank independence | 0 - 1 | -0.05 | 0.399 | 0.432 | 0.400 | 0.455 | 0.423 |
| 2. | L | PD | Restrictions on bank activities | 0 - 1 | 0.00 | 0.400 | 0.611⁺? | 0.250 | 0.460 | 0.479 |
| 3. | L | D | Openness of external capital flows | 0 - 4 | 0.25 | 0.515 | 0.689⁺ | 0.378⁻ | 0.458 | 0.521 |
| 4. | S | PD | Comprehensiveness of accounting stds. | 0 - 1 | 0.01 | 0.720⁺ | 0.489^{-?} | - | - | 0.584 |
| 5. | S | P | Bank concentration | 0 - 1 | -0.13 | 0.520 | 0.570 | 0.775⁺ | 0.725 | 0.652 |
| 6. | S | D | Relative size of financial sector | 0 - upwds | 0.35 | 1.265⁺? | 0.293⁻ | 0.577 | 0.311 | 0.595 |
| 7. | S | D | Stock market activity/bank activity | 0 - upwds | 0.40 | 0.835⁺? | 0.235 | 0.237 | 0.112⁻ | 0.347 |
| Number of countries in the "core" of the economic system | | | | | | 6 | 9 | 8 | 8 | 31 |
| Average per capita GDP (1990 \$) | | | | | | 6453 | 5200 | 3977 | 1280 | 4111 |

Notes:

Features: Column A designates if the indicator is based on legal definitions (L), statistics (S), or expert (X) or some combination thereof. Column B designates whether the indicator refers primarily to property (P) or distribution (D). A dash in columns 4 through 8 indicates no data or data only for one country available. **Range:** An asterisk designates that the range is not absolute, but is based on the highest and lowest recorded values. **Development elasticity** designates the percentage change of the indicator resulting from a 1 percent change in the per capita GDP. The second through fifth data columns present averages (excluding the countries specified in the text). 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 Appendix 6-9.

system had the most favorable legal environment for a market economy, a characteristic which increases as the level of economic development rises. If we factor out the impact of the higher level of development of the nations with business-oriented economic systems, however, this particular institutional feature does not distinguish the nations with such an economic system. In brief, this table allows us to label the systems and see how they differ from each other.

The countries with a business-oriented economic system had a significantly higher per capita GDP than the other developing nations in the sample. Holding the level of per capita GDP constant, these nations were significantly different from the others by their greater freedom from product market regulations, lower barriers for starting new businesses, less legal protection of workers and their employment, bargaining for wages at the enterprise level (rather than at the industry or national level), more shareholder rights in comparison to those of management, more equal distribution of agricultural land, greater comprehensiveness of accounting standards for business, a larger financial sector (in comparison to the GDP) and a larger role of the stock market in enterprise finance than in the other countries. Because of their higher level of economic development, they also had a better legal environment for markets, greater freedom to set prices, more product market competition, and greater security both of government contracts and from governmental expropriation. From Table A6-3 we see that among the six countries in this cluster were four in east Asia (South Korea, Malaysia, Taiwan, and Thailand), one in Latin America (Chile) and one in Africa (South Africa). We might conjecture that the nations with this economic system would have experienced faster growth than the other nations in the sample, an expectation which is validated below.

At the opposite extreme were the countries with the “traditional” economic system. These nations had a significantly lower per capita GDP than the other nations. Among their relatively few

distinguishing characteristics were a worse legal environment for market activity and a relatively small role of the stock market. Due to their lower level of economic development, they also had more government regulation, higher barriers for starting new businesses, a lower union density, more poorly educated workers, less security of government contracts or from governmental expropriation, and a smaller financial sector. From the table we also see that among the eight nations lying near the core of this economic system, four were in Sub-Saharan Africa (Nigeria, Senegal, Tanzania, and Uganda); two, in the Caribbean area (Dominican Republic and Honduras); and two, in Asia (Bangladesh and Pakistan).

The nations with a “labor-oriented” economic system had significantly higher legal protection of workers and their employment, as well as collective bargaining rights. They also had significantly worse protection of patent rights, a poor legal environment for markets, few rights of creditors, greater inequality of land holdings, greater coverage of social security, more restrictions on bank activities, less comprehensive accounting standards, a smaller financial sector but, surprisingly, fewer restrictions on flows of foreign capital. They also had a lower ratio of government consumption expenditures to the GDP than the other nations. Among the nine nations lying near the core of this economic system, all were in Latin America (Argentina, Columbia, Ecuador, Mexico, Panama, Paraguay, Peru, Uruguay, and Venezuela).

Finally, the nations with a “statist” economic system had relatively few significant differences with the other nations. These did, however, include more educated workers, a higher government share in total consumption, greater importance of state-owned enterprises, less openness to external capital flows, higher concentration of banks, and a higher union density (share of non-agricultural workers in labor unions). From Table AT6-3 we see that among the eight nations lying

at the core of this economic system, three were in the Circum-Mediterranean area (Egypt, Lebanon, and Tunisia); two, in the Caribbean area (Jamaica and Trinidad); two in Sub-Saharan Africa (Kenya and Mauritius); and one in Asia (Sri Lanka).

C. General Features of the Results

Aside from information about the relevance of particular institutional indicators for the four economic systems, several more general aspects of the results deserve brief attention.

CSize of the government sector. The government, of course, played an important causal role in many of these institutional indicators. Nevertheless, the six indicators for the size of the government sector turned out to be no more likely to distinguish the types of economic systems in a statistically significant manner than any of the other four classes of indicators. Indeed, the highest percentage of distinguishing features occurred in the various indicators of the financial sector. This suggests that the traditional focus on the size of the government sector as an exclusive way of categorizing an economic system is misplaced, and that we must pay just as much attention to other economic institutions.

CUnimportant 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 the ratio of government subsidies to the GDP, product market competition, a significant role of workers in firm decision-making, the ratio of governmental transfers to the GDP, the security of government contracts, and central bank independence.

CDiffusion of economic institutions. Countries with close geographical proximity or historical ties often have the same types of economic institutions. This is seen most clearly in the countries with a labor-oriented system: all nine of the nations within the core of the system are in

Latin America, where both the geographical and historical criteria for “closeness” are met. As noted above, two-thirds of the countries with a business-oriented system are in Asia; one-half of the countries with a traditional economic system were in Africa (and five-eighths were former British colonies); and in the countries with a statist economic system, three-quarters were former British colonies.

CSystemic differences with industrialized nations. When a similar analysis is carried out for the OECD nations with roughly the same institutional indicators (chapter VI), the particular configuration of institutions defining the four economic systems are very different. This seems to be due to two factors. First, the various institutions have quite different income elasticities so that they change at different rates as per capita GDP rises. Second, the functional requirements for the operation of an industrialized economy are different from those of semi-industrialized or agricultural societies. In brief, the economic system of a nation is not frozen in time; rather, the configuration of its institutions changes as its level of per capita GDP rises.

CSystemic change. The results reported in Tables A6-3 and A6-4 are for 1990. At least in industrialized nations, the configuration of economic institutions comprising the economic system changes considerably in the medium-run. For instance, the Scandinavian nations are distinguished by higher ratios of government consumption expenditures to the GDP than other nations in the OECD, but this particular systemic characteristic only became apparent in the late 1950s. The stability of the institutional composition of the economic systems in the developing nations has yet to be determined. Given the rapidly changing world economic environment, however, some medium-run changes appear inevitable.

D. Impact of the Economic Systems

To what extent does the economic system have an important impact on the performance of the economy? Table AT6-5 below presents data on two aspects of performance, namely average annual growth of per capita GDP, prices (as measured by the GDP deflator) and volatility of the GDP. For investigating the impact of the economic system on economic growth, I hold constant the per capita GDP at the beginning of the period under investigation, the average level of education of those in the labor force in the same year, and the average ratio of gross fixed capital investment to the GDP in the 1975-95 period (to take account of lags in the completion of investment projects). These variables, according to Levine and Renelt (1992), constitute the minimum variables necessary to hold constant in testing a growth model.⁷ This kind of test, in which the groups of institutional variables constituting an economic system are held constant, has certain advantages over testing the impact of a single institution.

According to this test, the countries with a business-oriented economic system have a significantly higher rate of economic growth; and the countries with a labor-oriented economic system have a significantly higher degree of inflation and production volatility. These results have two important implications:

CGrowth related to the level of economic development. The fact that the nations with this economic system have a significantly higher initial GDP per capita than the other developing nations may well be a function of the fact that their economic system has provided the environment

⁷ Rodrik, Subramanian, and Trebbi (2002) present various regressions showing that to explain economic growth, geographical, and trade variables have little explanatory power when institutional variables are also included. Given the relatively small size of my sample, I have, therefore, omitted such variables in my regression exploring the determinants of economic growth.

Table AT6-5: Performance Indicators for Economic Systems of Developing Nations

| | <u>Economic systems</u> | | | |
|--------------------------------------------------------------|---------------------------|---------------------------|---------|-------------|
| | Business-oriented | Labor-oriented | Statist | Traditional |
| Average annual growth of per capita GDP, 1980 - 2000 | 4.07% ⁺ | 0.98% | 1.48% | 1.14% |
| Average annual growth of GDP deflator, 1980 - 2000 | 7.12 | 44.46 ⁺ | 9.83 | 16.61 |
| Volatility of GDP (standard deviation of annual growth rate) | 3.49 | 6.41 ⁺ | 3.79 | 3.45 |

Note: Regressions of the following form were calculated:

Indicator = a + b GDP/capita + c Economic system (1 if the system was of the specified type, 0 if otherwise) + d other variables. For the growth equation the other variables included in the regression were per capita GDP in 1980, average years of education of those in the labor force in 1980, and the average ratio of gross fixed investment to the GDP from 1975 through 1995. For the inflation and volatility equations, only the per capita GDP in 1980 was included. A bold-faced coefficient indicates statistical significance at the 0.05 level; and the plus in the subscript indicates that it is significantly higher than the others.

The data for per capita GDP, the GDP deflator, and the average ratio of gross fixed investment to the GDP came from the World Bank (2004). The per capita GDP in a common set of prices for 1980 came from Maddison (2003). The average years of education of workers in 1980 came from Przeworski, Alvarez, Cheibub, and Limongi (2000b).

for faster growth in the past as well.

C Systemic contrast with industrialized nations. In contrast to the developing countries, none of the four economic systems of OECD nations are associated with higher growth in the 1980-2000 period (chapter VI). This suggests (i) that the economically developed nations all had a business-oriented economic system during the course of their industrialization; (ii) or that the slow-growing OECD nations adopted some of the economic institutions of their fast-growing neighbors to raise their own growth rates.

Table AT6-5 also shows that the nations (all from Latin America) with a labor-oriented economic system have much higher inflation and GDP volatility than the nations with other economic systems. This result is puzzling, because none of the variables reflecting their financial institutions (Table AT6-4) points in this direction. For instance, the independence of their central banks is roughly the same as the other nations. Two interpretations of these negative results come immediately to mind:

C Impact of other variables. The institutions constituting the economic system may have had nothing to do with the results. Rather, the higher inflation may have been the result of bad policies, occasioned, perhaps, by a combination of common political factors. These could stem from the fact that all were former Spanish colonies and featured large income inequalities, high corruption, strong leftist ideologies, and economies with a heavy emphasis on mineral extraction or export of agricultural goods produced on plantations (reflected in their greater inequality of land ownership). The greater GDP volatility might be a function of particular aspects of their foreign trade or poorly chosen trade or exchange rate policies. A detailed exploration of these topics would, unfortunately, take us far from the major theme of this short appendix.

C Impact of sub-systemic institutions. These results may be the consequence of institutions which I have not included in Table AT6-4, either because no data were available or because they seemed too specialized to include in the analysis. For explore the latter possibility, it would be necessary to examine particular institutions dealing with fiscal and monetary policy in much greater detail than the relatively macro-view which I have provided.

D. A Brief Overview

In this preliminary exploration of economic systems of developing nations I define such systems in terms of clusters of complementary institutions, using thirty-one indicators of economic institutions to derive` four quite different economic systems. To a considerable extent the countries with particular economic systems are either geographically close to each other or were colonies of the same nation. These economic systems appeared to have had an impact on certain indicators of economic performance, for instance, the countries with the business-oriented economic system, which had the most secure property rights and other features most conducive for economic growth, also had the highest growth rate of per capita GDP, other factors held constant. The countries with a labor-oriented economic system (all in Latin America) had the highest rate of inflation and production volatility.

Appendix 6-9: SOURCES OF INSTITUTIONAL INDICATORS FOR DEVELOPING NATIONS

Roughly one-fourth of the institutional indicators for the OECD countries could not be used for the analysis of developing nations because of lack of data. Although in many cases I could draw from the same data sets, for some of the institutional indicators for the developing nations only less suitable data were available. As noted in the text, when both sets of data were used for the analysis of OECD economic systems, the results revealed no major differences. The numbering of the variables correspond to those of Table A6-3.

A. Market Institutions

1. Regulation of product market. The data refer to the 1996 and come from subjective indicators reported by Kaufmann, Kraay, and Mastruzzi (2003).

2. Protection of patent rights. The same source as variable A2 in Appendix 6-2.

3. Good legal environment for markets. The same source as variable A3 in Appendix 6-2.

4. Barriers for starting new businesses. The same source as variable A4 in Appendix 6-2.

5. Ratio of governmental subsidies to GDP. These data are the average ratios of governmental subsidies to the domestic economy to the GDP, both in current price, for the period from 1988 through 1992. For the various countries the data come from United Nations (2000). For Taiwan, the data come from Republic of China (2003).

6. Foreign trade barriers. This is a weighted index of four series, the first three of which are drawn from Barro and Lee (1994) and the final from Sachs and Warner (1995). These series (with their weights in parentheses) are: black market premium, 1985-89 (5 percent); average import tariffs on capital and intermediate goods (45 percent); average quota coverage (45 percent); and presence of governmental export marketing boards (5 percent).

7. Freedom to set prices. The same source as variable A9 in Appendix 6-2.
8. Product market competition. The same source as variable A10 in Appendix 6-2.
9. Pervasiveness of business clusters. The same source as variable A11 in Appendix 6-2.

B. Labor Market

1. Protection of labor and employment. The same source as variable B4 in Appendix 6-2.
2. Strength and protection of labor in collective bargaining. The same source as variable B5 in Appendix 6-2.
3. Dominant level of wage bargaining. These data from the ILO (1997: 246-7) reflect their evaluation of the dominant level of bargaining over the 1985-95 decade. 0 = company level, .5 = sector level, and 1.0 = national level. When the ILO designated several levels, the scores were averaged.
4. Union density. Data on union membership as a percentage of the non-agricultural labor in 1990 or, in some cases, mid 1990s come from International Labour Office (1997-98). Where data were available, I averaged union density for 1985 and 1995; in cases where the data for the former year were not available, I used the latter data only.
5. Years of education of average worker. These data come from Przeworski, Alvarez, Cheibub, and Limongi (2000a, 2000b), who drew upon unpublished data of Surjit S. Bhalla.

C. Enterprises and Production

1. Shareholder rights (investor protection). The same source as variable C4 in Appendix 6-2.
2. Creditor rights. The same source as variable C5 in Appendix 6-2.
3. Worker participation in firm decisions. The same source as variable C6 in Appendix 6-2.
4. Inequality of land holdings. These are Gini coefficients from Deininger and Olinto (2000).

D. Government

1. Government share of total consumption. These data are the share of current government consumption of goods and services to total private and governmental consumption. For the various countries the data come from United Nations (2000). For Taiwan, the data come from Republic of China (2003).

2. Government domestic transfer payments as a percent of current GDP. These are the average ratios to GDP of total transfers excluding subsidies and transfers abroad for 1988 through 1992. The data come from United Nations (2000). For Taiwan, the data come from Republic of China (2003).

3. Coverage of social security system. The same source as variable D7 in Appendix 6-2.

4. Security of government contracts. This variable, drawn from Demirgüç-Kunt and Levine, (2001) (and originally from the International Country Risk Guide) indicates the relative safety from a "modification in a contract taking the form of a repudiation, postponement, or scaling down" due to "budget cutbacks, indigenization pressure, a change in government, or a change in government economic and social priorities." The score ranges from 0 through 1 with a low score indicating a high risk; and the data are an average from 1982 to the early 1990s.

5. Security from governmental expropriation. This variable, also drawn from Demirgüç-Kunt and Levine, (2001) (and originally from the International Country Risk Guide) indicates the security from "outright confiscation" or "forced nationalization". The score ranges from 0 through 1 with a low score indicating a high risk; and the data are an average from 1982 to the early 1990s.

6. Importance of state-owned enterprises in nonagricultural economic activity. These data come from World Bank (1995: Table A-2). These data represent an estimated average from 1986 to

1991.

E. Financial Sector

1. Central bank independence. As Marcano (1998) warns us, measuring central bank independence contains some subjective elements, both in establishing the criteria for independence and then measuring them. My index, based completely on data from Cukierman (1992: 396-411) has three major components (weights in parentheses):

CLegal (formal) independence (45 percent) is an unweighted index of 6 indicators of legal independence during the 1980s. These include his four variables about top personnel, the bank's monopoly position in making monetary policy, and the bank's official objectives regarding price stability.

CPolicy tools and independence (45 percent) is an unweighted index 7 indicators of policy making independence during the 1980s. These included authority in decision-making in disputes with other government agencies and 6 indicators of various constraints on lending.

C Annual turnover of central bank directors (10 percent) is, according to Cukierman (1992: 384), a crude indicator of the lack of actual political independence of the central bank director. The data come from his estimates for the period from 1950 - 89 and rescaled to run from 0 through 1, where the value points in the same direction as the other two components of the index.

2. Restrictions on bank activities. The same source as variable E2 in Appendix 6-2.
3. Openness of external finance. The same source as variable E3 in Appendix 6-2.
4. Completeness of accounting reports to the public. The same source as variable E4 in Appendix 6-2.
5. Bank concentration. The same source as variable E5 in Appendix 6-2.

6. Relative size of financial system. The same source as variable E6 in Appendix 6-2.

7. Stock market activity/bank activity. The same source as variable E7 in Appendix 6-2.

BIBLIOGRAPHY TO APPENDICES TO CHAPTER VI

Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain

Wacziarg. 2003. "Fractionalization." Journal of Economic Growth 8, no. 1: 155-94.

Atkinson, Anthony B., Lee Rainwater, and Timothy M. Smeeding. 1995. Income Distribution in OECD Countries: Evidence from the Luxembourg Income Study. Paris: OECD.

Australian Bureau of Statistics. 1991. Enterprise Statistics, Australia, 1986/87. ABS Publication 8103.0. Canberra.

Austria, Statistik Austria. 2002. Statistisches Jahrbuch Österreiches. Vienna: Verlag Österreich.

Banks, Arthur R. 2003. "Cross-National Time-Series Data Archive." This is a proprietary database distributed by Databanks International <<http://www.databanks.sitehosting.net/>>.

Barro, Robert J., and Jong-Wha Lee. 1994. "Data Set for a Panel of 138 Countries." <www.nber.org/pub/barro.lee>.

Barth, James R., Gerard Caprio, Jr., and Ross Levine. 2001. "Banking Systems Around the Globe: Do Regulation and Ownership Affect Performance and Stability?" Pp. 31-88 in Frederic S. Mishkin, ed., Prudential Supervision: What Works and What Doesn't. Chicago: University of Chicago Press.

Board of Governors, Federal Reserve System. 2002. Flow of Funds Accounts of the United States, 5 vols. Washington, D.C.

Botero, Juan, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2003. "The Regulation of Labor." NBER Working Paper 9756. Cambridge, Mass.

Clague, Christopher, Philip Keefer, Stephen Knack, and Mancur Olson. 1999. "Contract-Intensive Money: Contract Enforcement, Property Rights, and Economic Performance."

Journal of Economic Growth 4, no. 2 (June): 185-211.

Cukierman, Alex. 1992. Central Bank Strategy, Credibility, and Independence: Theory and Evidence. Cambridge, Mass.: MIT Press.

Deininger, Klaus, and Pedro Olinto. 2000. "Asset Distribution, Inequality, and Growth." World Bank Working Paper 2375.

Demirgüç-Kunt, Asli and Ross Levine, eds. 2001. Financial Structure and Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development. Cambridge, Mass. MIT Press.

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2002a.

"Courts: The Lex Mundi Project," NBER Working Paper 8890. Cambridge, Mass.

---. 2002b. "The Regulation of Entry." Quarterly Journal of Economics 117, no. 1 (February): 1 - 39.

Djankov, Simeon, Edward L. Glaeser, Rafael La Porta, Florencio Lopez -de-Silanes, and

Andrei Shleifer. 2003. "The New Comparative Economics." NBER Working Paper 9608. Cambridge, Mass.

Estevez-Abe, Margarita, Torben Iversen, and David Soskice. 2001. "Social Protection and the

Formation of Skills: A Reinterpretation of the Welfare State." Pp. 145-83 in Peter A. Hall and David Soskice, eds., Varieties of Capitalism. New York: Oxford University Press.

European Commission, Eurostat. 1994. Enterprises in Europe: Third Report. Brussels.

Feld, Lars P., and Stefan Voigt. 2003. "Economic Growth and Judiciary Independence: Cross-

Country Evidence Using a New Set of Indicators." CESifo Working Paper 906.

<www.CESifo.de>.

- Ginarte, Juan C., and Walter G. Park.** 1997. "Determinants of Patent Rights: A Cross-National Study," Research Policy 26, no. 3: 283-301.
- Golden, Miriam, and Michael Wallerstein.** 2002. "Union Centralization among Advanced Industrial Societies: Update to 1995." <www.shelley.polisci.ucla.edu/data>.
- Gottschalk, Peter, and Timothy M. Smeeding.** 1997. "Cross-National Comparisons of Earnings and Income Inequality." Journal of Economic Literature 35, no. 2 (June): 633-87.
- Grilli, Vittori, Donato Masciandaro, and Guido Tabellini.** 1991. "Political and Monetary Institutions and Public Financial Policies in the Industrial Countries." Economic Policy 13: 342-92.
- Gwartney, James D., and Robert A. Lawson.** 1997. Economic Freedom of the World: 1997 Annual Report. Vancouver: Fraser Institute.
- Henley, Andrew, and Euclid Tsakalotos.** 1993. Corporatism and Economic Performance: A Comparative Analysis of Market Economies. Brookfield, Vt.: Elgar.
- Huber, Evelyne, Charles Ragin, and John D. Stephens.** 1997. "Comparative Welfare States Data Set." <www.lisproject.org/publications/welfaredata/welfareaccess.htm>.
- Inglehart, Ronald, Miguel Basañez, and Alejandro Moreno.** 2000. Human Values and Beliefs. Ann Arbor: University of Michigan Press.
- Institute for Management Development (IMD).** 1999. The World Competitive Yearbook. Lausanne: IMD.
- . 2001. World Competitiveness Yearbook. Lausanne: IMD.
- International Labour Office (ILO).** 1996. Yearbook of Labour Statistics 1996 Geneva.
- . 1997-98. World Labour Report 9. Geneva: ILO.

International Management Development (IMD). 2001. World Competitiveness Yearbook.
Lausanne: 2001.

International Monetary Fund. Monthly. International Financial Statistics. Washington, D.C.

---. International Financial Statistics, Database and Browser, CD-Rom. Washington, D.C.

Jefferson, Philip N. 1998. "Seigniorage Payments for Use of the Dollar: 1977-1995." Economic Letters 58: 225-30.

Kaufmann, Daniel, Aart Kraay, and M. Mastruzzi. 2003. "Governance Indicators for 1996-2002." <www.worldbank.org/wbi/governance/pubs/govmatters3.html>.

Keefer, Philip. 2002. "DPI2000: Database of Political Institutions: Changes and Variable Definitions," <www.worldbank.org>.

Knack, Stephen, and Philip Keefer. 1997. "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation." Quarterly Journal of Economics 112, no. 4 (November): 1251-88.

Kondo, Edson Kenji. 1994. Patent Laws and Foreign Direct Investment: An Empirical Investigation. Ph.D. dissertation, Harvard University, Cambridge, Mass.

Lambsdorff, Johann. 2003. University of Passau, Internet Center for Corruption Research. "Historical Corruption Indicators." <www.user.gwdg.de/~uwww/corruption.cpi_olderindices_historical.html>.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer. 1998. "Corporate Ownership around the World." NBER Working Paper 6625. Cambridge, Mass.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny. 1996. "Law and Finance." NBER Working Paper 5661. Cambridge, Mass.

- . 1997. "Legal Determinants of External Finance." NBER Working Paper 5879. Cambridge, Mass.
- Lazear, Edward P.** 1990. "Job Security Provisions and Employment." Quarterly Journal of Economics 105, no. 3 (August): 699-726.
- Levine, Ross, and David Renelt.** 1992. "A Sensitivity Analysis of Cross-Country Growth Regressions," American Economic Review 82, no. 4 (September): 942-64.
- Maddison, Angus.** 2003. The World Economy: Historical Statistics. Paris: OECD.
- Marcano, Gabriel.** 1998. "Measuring Central Bank Independence: A Tale of Subjectivity and Its Consequences," Oxford Economic Papers 50 (July): 468-92.
- Marshall, Monty G., and Keith Jagers.** 2003. "Polity IV Project: Regime Characteristics and Transitions, 1800-2001." <[www/cidcm.umd.edu/inscr/polity/](http://www.cidcm.umd.edu/inscr/polity/)>.
- 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.
- OECD.** 1980. National Accounts of OECD Countries, 1950-1978. Paris.
- . 1994. Employment Outlook 1994. Paris.
- . 1997a. Employment Outlook 1997. Paris.
- . 1997b. Family, Market and Community: Equity and Efficiency in Social Policy, Social Policy
- . 1997c. Indicators of Tariff and Non-tariff Trade Barriers. Paris.

- . 1997d. Measuring Public Employment in OECD Countries: Sources, Methods, and Results. Paris.
- 1998. National Accounts..Vols.I and II. Main Aggregates, 1960-1996. Paris.
- . 1999. A Caring World: The New Social Policy Agenda. Paris: OECD.
- . 2000a. OECD Health Data. CD-Rom. Paris.
- . 2000b. Labour Force Statistics, 1978 - 1998. Paris.
- . 2001a. Labour Force Statistics. Paris.
- . 2001b. OECD Science, Technology and Industry Scoreboard. Paris.
- . 2002. National Accounts of OECD Countries, Vol. 2. Detailed Tables, 1970-2000. CD-Rom. Paris.
- OECD and Statistics Canada**. 2000. Literacy in the Information Age. Paris: OECD.
- Pryor, Frederic L.** 2002. "Quantitative Notes on the Extent of Government Regulation in Various OECD Nations," International Journal of Industrial Organization 20, no. 5 (May): 693-715.
- 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>>.
- Putnam, Robert D.** 2000. Bowling Alone: The Collapse and Revival of American Community. New York : Simon & Schuster.
- Quinn, Dennis, and Maria Toyoda.** 2003. Unpublished monograph.
- Republic of China.** 2003. Statistical Abstract of National Income in Taiwan Area, Republic of China. <<http://61.60.106.83/nis/enisd.htm>>
- Rodrik, Dani, Arvind Subramanian and Francesco Trebbi.** 2002. "Institutions Rule: The

- Primacy of Institutions over Geography and Integration in Economic Development.”Centre for Economic Policy Research Paper 3643. London.
- Sachs, Jeffrey D. and Andrew Warner.** 1995. “Economic Reform and the Process of Global Integration.” Brookings Papers on Economic Activity, no. 1: 1-119.
- Siaroff, Alan.** 1999. “Corporatism in 24 Industrial Democracies: Meaning and Measurement.” European Journal of Political Research 16, no. 2 (October): 178-205.
- Smeeding, Timothy.** 2000. “Changing Income Inequality in OECD Countries: Updated Results from the Luxembourg Income Study.” LIS (Luxembourg Income Study) Working Paper 252.
- Traxler, Franz, Sabine Blaschke, and Bernhard Kittel.** 2001. National Labour Relations in Internationalized Markets. New York: Oxford University Press.
- United Nations.** 1996. Demographic Yearbook. New York.
- . 2000. National Account Statistics: Main Aggregates and Detailed Tables, 1996-1997. New York.
- U.S. Bureau of the Census.** 1997. 1992 Enterprise Statistics: Company Summary. Washington, D.C.: GPO.
- . 1999. Statistical Abstract of the United States 1999. Washington, D.C.: G.P.O.
- U.S. Patent and Trademark Office (USPTO).** 2002. “TAF Special Report, All Patents, All Types, January 1977 - December 2001.”<www.uspto.gov/web/offices/ac/ido/oeip/taf/apat.pdf>.
- World Bank.** 1995. Bureaucrats in Business: The Economics and Politics of Government Ownership. New York: Oxford University Press.
- . 2004. World Development Indicators, 2004. <www.worldbank.org>.
- World Economic Forum.** 1991. World Competitiveness Report 1991. Lausanne and Geneva.

---. 2000. The Global Competitiveness Report 2000. New York: Oxford University Press.

World Intellectual Property Organization. 2003. "25 Years of Industrial Property Statistics."

<[www.wipo.int.ipstat/en](http://www.wipo.int/ipstat/en)>.