

Institutional coherence and macroeconomic performance

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Peter Hall and David Soskice suggest that institutional coherence is conducive to successful macroeconomic outcomes. Countries with corporate governance arrangements, industrial relations systems and other institutions that are congruent either with those of a coordinated market economy or with those of a liberal market economy are expected to perform better, while nations with less coherent institutional frameworks are expected to fare worse. I use a measure of institutional coherence devised by Peter Hall and Daniel Gingerich and another I develop here to assess the impact of institutional coherence on variation in economic growth and employment growth across 18 affluent countries over the period 1974–2000. The results offer little support for the institutional coherence hypothesis.

Keywords: varieties of capitalism, institutions, economic performance, growth, employment

JEL classification: O40, O57, P17

1. Introduction

In their ‘Introduction’ to *Varieties of Capitalism*, Peter Hall and David Soskice (2001) suggest that affluent capitalist economies can usefully be grouped into two types according to their institutional frameworks: ‘coordinated market economies’ and ‘liberal market economies’. Neither of these types, according to Hall and Soskice, is inherently better at generating good macroeconomic outcomes. Instead, they posit that superior macroeconomic performance is a product of

*The data used in this paper and a set of supplementary charts are available at www.u.arizona.edu/~lkenwor. Earlier versions were presented at the 2002 American Political Science Association annual meeting and the 2002 Society for the Advancement of Socio-Economics annual meeting. I am grateful to participants in those sessions, to Peter Hall, and to the *Socio-Economic Review* reviewers for helpful comments.

institutional coherence. Both coordinated market economies (such as Germany and Japan) and liberal market economies (such as the United States and the United Kingdom) can be coherent. Both within and across the two types of economies, countries with more coherent sets of institutions—i.e. with consistently non-market-oriented or consistently market-oriented institutions—should perform better.

Hall and Gingerich (2004) have recently created a measure of institutional coherence. I use their measure, along with an alternative measure I develop here, to assess the impact of institutional coherence on variation in economic growth and employment growth across 18 affluent countries over the period 1974–2000. The results are not particularly supportive of the Hall–Soskice hypothesis.

2. Varieties of capitalism and institutional coherence

Research on institutional variation across affluent nations differs in a number of respects, one of which is the choice about whether to focus on quantitative or qualitative variation in institutions. Many researchers prefer scales or country rankings for the institution(s) of interest. Most studies of the effects of left government, wage-setting centralization/coordination and central bank independence fall into this camp. Others focus on categorical differences. Early studies of corporatism (Crouch, 1985) and research inspired by Esping-Andersen's (1990) 'three worlds' welfare-regime typology are illustrative.

The 'varieties of capitalism' perspective advanced by Hall and Soskice (2001) at first glance appears to fall squarely into the latter camp. Hall and Soskice focus on the distinction between economic coordination that is primarily market-based and coordination that occurs mainly via non-market institutions. They examine five economic 'spheres': (a) industrial relations (bargaining over wages and working conditions); (b) vocational training and education; (c) corporate governance (relations between firms and their investors); (d) inter-firm relations (between firms and their suppliers, clients and competitors); (e) relations with employees (information-sharing, work effort incentives). Their core thesis is that political economies tend to be characterized by 'institutional complementarities'. A complementarity exists when 'the presence (or efficiency) of one institution increases the returns from (or efficiency of) the other' (Hall and Soskice, 2001, p. 17). For instance, 'long-term employment is more feasible where the financial system provides capital on terms that are not sensitive to current profitability. Conversely, fluid labour markets may be more effective at sustaining employment in the presence of financial markets that transfer resources readily among endeavors thereby maintaining a demand for labour' (Hall and Soskice, 2001, p. 18). Because institutional complementarities generate beneficial returns,

‘nations with a particular type of coordination in one sphere of the economy should tend to develop complementary practices in other spheres as well’ (Hall and Soskice, 2001, p. 18).

Hall and Soskice find that institutional complementarities do indeed tend to be present in the affluent Organization for Economic Cooperation and Development (OECD) economies, and they suggest that these economies fall into two groups. Coordination is market-based in six ‘liberal market economies’: Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States. Coordination is based largely on non-market or extramarket institutions in 10 ‘coordinated market economies’: Austria, Belgium, Denmark, Finland, Germany, Japan, The Netherlands, Norway, Sweden and Switzerland. These two labels are somewhat misleading. Hall and Soskice make it clear that economic processes are coordinated in both groups. The difference lies in the type of institutions doing the coordinating. A more accurate (if perhaps less elegant) set of labels would be ‘market-coordinated economies’ and ‘non-market-coordinated economies’. France and Italy—also Greece, Portugal, Spain and Turkey—are ‘in more ambiguous positions’ (Hall and Soskice, 2001, p. 21). They do not fit into either group.

Hall and Soskice are not, of course, the first to assert that the institutional frameworks of affluent OECD nations consist of two principal types. Predecessors include Albert’s (1993) notion of a ‘Rhine model’ of organized capitalism versus Anglo-Saxon free-market capitalism, Crouch and Streeck’s (1997) reference to ‘institutional capitalism’ versus market-oriented capitalism, and Rueda and Pontusson’s (2000) distinction between ‘social market economies’ and ‘liberal market economies’. The Hall–Soskice formulation, however, is the most clearly specified.¹

Hall and Soskice, and others who have used the varieties-of-capitalism approach, tend to be interested in it mainly as an explanatory device (rather than for merely descriptive purposes). That is my interest as well. Taken as an assertion of categorical difference, the varieties of capitalism perspective predicts that institutions, policies or shocks will have different effects in the two groups of countries. A standard way to test this hypothesis in quantitative analysis is to interact a dichotomous ‘coordination regime’ variable with one or more other independent variables of interest. To my knowledge, only a few such tests have been conducted. Rueda and Pontusson (2000) find that the effect of

¹ As always, questions can be raised about the classification of particular countries: Should the Nordic and/or Mediterranean countries be separated from those of northern continental Europe? Should Japan be distinguished from the European coordinated market economies? Should Australia and/or New Zealand be separated from other liberal market economies? See, e.g. Amable (2003).

wage-setting centralization on earnings inequality is more pronounced in social market economies than in liberal market economies. Kenworthy (2003) finds that the effect of earnings inequality on private-sector service employment growth is stronger in liberal market economies than in coordinated market economies. In a qualitative analysis, Thelen (2001) finds that globalization and heightened competition have had different effects on developments in labour relations in Germany, Sweden and Italy than in the United Kingdom and the United States.

However, my aim in this paper is not to assess the merits of the Hall–Soskice classification. Instead, I want to suggest that the varieties-of-capitalism perspective also is in the camp of comparative political economy research that focuses on variation in degree—rather than in kind—across countries. With respect to performance outcomes, the key claim made by Hall and Soskice (2001) is not that there are two fundamentally distinct groups of countries, but rather that *successful macroeconomic performance is a function of institutional coherence*: ‘When firms coordinate effectively, their performance will be better, and the result will be better overall economic performance’ (Hall and Soskice, 2001, p. 45).²

Hall and Soskice assert that institutional coherence, and thus effective coordination, can exist in both coordinated market economies and liberal market economies. Indeed, they refer to both Germany and the United States as examples of political economies that are highly coherent (Hall and Soskice, 2001, pp. 21–33). Both non-market- and market-oriented institutions can work well, in this view, provided they are coupled with complementary institutions in other spheres: ‘Although each type of capitalism has its partisans, we are not arguing here that one is superior to another. Despite some variation over specific periods, both liberal and coordinated market economies seem capable of providing satisfactory levels of long-run economic performance. . .’ (Hall and Soskice, 2001, p. 21). Thus, for economic performance outcomes the decisive question for national economies is not ‘Which group are you in?’ but rather ‘How coherent are your institutions?’.

Note that ‘coherence’ applies both within and across economic spheres. A country’s institutional mix is deemed more coherent, and thus better coordinated, to the extent that (a) its institutions within each sphere are closer to one or the other of the two poles (liberal market or coordinated market) rather than in between and (b) its institutions are consistent across spheres. Incoherence can be a product either of being in the middle within each sphere or of having liberal

² In the terminology suggested by Höpner (2005), this is a claim that institutional coherence increases the benefits from institutional complementarity.

market institutions in some spheres and coordinated market institutions in others.

There are several precedents in the comparative political economy literature for the notion that coherence affects national economic performance. Perhaps the best-known is Lange and Garrett's (1985) argument about the interaction between labour strength and government partisanship. Lange and Garrett suggested that strong unions and wage centralization generate rapid economic growth when coupled with leftist government, and that weak unions and decentralized wage setting also generate fast growth when coupled with rightist government. 'Incoherent' arrangements—strong labour with rightist government, weak labour with leftist government—were predicted to yield slower growth. In contrast, the typical assertion, and empirical finding, in comparative political economy research has been that the effects of the particular institution (or group of institutions) of interest are linear. Thus, more corporatism, left government, or central bank independence is thought to be better for rapid growth, low unemployment or low inflation. And intermediate levels are presumed to be better than low levels.

3. Measuring institutional coherence

To test the Hall–Soskice hypothesis, we need a measure of institutional coherence. In a recent paper that considerably advances empirical assessment of the varieties of capitalism perspective, Hall and Gingerich (2004) provide such a measure. They develop a 'coordination index' that attempts to gauge the degree to which countries rely on non-market economic institutions. (This label too is somewhat misleading; it would be better labeled a 'non-market coordination index' or 'strategic coordination index'.) The index is created via factor analysis of six indicators, each measured as of the early- or mid-1990s (Hall and Gingerich, 2004, p. 11): (a) shareholder power ('legal protection and likely influence over firms of ordinary shareholders relative to managers or dominant shareholders'); (b) dispersion of control ('how many firms in the country are widely held relative to the number with controlling shareholders'); (c) size of the stock market ('market valuation of equities on the stock exchanges of a nation as a percentage of its gross domestic product'); (d) level of wage coordination ('level at which unions normally coordinate wage claims and employers coordinate wage offers'); (e) degree of wage coordination ['degree to which wage bargaining is (strategically) coordinated by unions and employers']; (f) labour turnover ('number of employees who had held their jobs for less than one year as a percentage of all employees'). The factor analysis yielded a single factor, which is highly correlated with each of these six indicators.

Table 1 Indexes of coordination/cooperation

Hall-Gingerich coordination index, 1990–95		Hicks-Kenworthy cooperation index, 1960–89	
Austria	1.00	Japan	0.82
Germany	0.95	Norway	0.75
Italy	0.87	Sweden	0.74
Norway	0.76	Austria	0.70
Belgium	0.74	Finland	0.68
Japan	0.74	Germany	0.66
Finland	0.72	Denmark	0.58
Denmark	0.70	Belgium	0.56
France	0.69	Switzerland	0.44
Sweden	0.69	The Netherlands	0.43
The Netherlands	0.66	Italy	0.42
Switzerland	0.51	France	0.28
Australia	0.36	Australia	0.14
Ireland	0.29	New Zealand	0.13
New Zealand	0.21	United Kingdom	0.10
Canada	0.13	Ireland	0.08
United Kingdom	0.07	United States	0.07
United States	0.00	Canada	0.06

Note: For data definitions and sources, see the Appendix section.

The country scores are shown here in Table 1. They are the factor scores, adjusted to vary between zero and one. Countries with a high or low score are those deemed to have the most coherent institutional framework. Hall and Gingerich enter this variable into economic growth regressions in curvilinear form—the variable itself and its square. They predict, and find, faster rates of growth over the period 1971–97 in countries with high or low levels of the variable (Hall and Gingerich, 2004, pp. 22–9).

Hall and Gingerich's attempt to utilize 'hard' indicators in measuring institutional coherence is laudable, as it reduces the influence of subjective judgment. And their factor analysis suggests strongly that types of corporate governance arrangements and industrial relations systems do tend to cohere in a number of countries (see also Höpner, 2005). However, as a measure of institutional coherence their coordination index has several problematic features. One is that the six indicators are measured as of 1990–95, creating a potential time-ordering problem (the effect precedes the cause) in attempting to explain performance outcomes over the past several decades. More important, the six indicators used in the factor analysis cover only three of the five spheres

highlighted by Hall and Soskice (2001). The first three of Hall and Gingerich's indicators focus on corporate governance, the fourth and fifth on industrial relations, and the sixth on relations with employees. Two of the five Hall–Soskice spheres, vocational training/education and inter-firm relations, are not represented at all. And one of the five spheres, corporate governance, accounts for half of the six indicators. It is quite possible that, across countries, institutions in the other two spheres are relatively closely correlated with those in the spheres of corporate governance and industrial relations/wage setting. If that is the case, the Hall–Gingerich index may be fairly accurate. Yet there certainly is room for skepticism.

Although the coordination index arrays countries more or less as the Hall–Soskice dichotomous classification would lead us to expect, there are several surprises. One is that Japan, which is frequently cited as an example of a highly coherent non-market-coordinated economy (e.g. Aoki, 1988; Dore, 1997), scores in the middle of the pack among the 'high coordination' countries. Another is that Italy and (to a lesser extent) France have relatively high scores. These two countries are classified as 'ambiguous' by Hall and Soskice (2001, p. 21), which suggests that their scores ought to be in the middle.

For purposes of comparison, I also include in Table 1 a 'cooperation index' calculated from data in Hicks and Kenworthy (1998). This is based on a scoring of the degree of cooperation in nine spheres: (a) relations among firms across industries; (b) relations among unions; (c) relations between the state and interest groups; (d) relations among firms and investors; (e) relations among firms and suppliers; (f) relations among competing firms; (g) relations between labour and management; (h) relations among workers; and (i) relations among functional departments within firms. For each sphere, in each year from 1960 to 1989, each nation was scored 0, 0.5, or 1—representing weak, moderate and strong cooperation, respectively. The scores were then averaged to form the index, which ranges from 0 to 1. These scores are subjective. They were created based on the authors' reading of secondary and primary sources.

The Hall–Gingerich and Hicks–Kenworthy indexes are relatively consistent with one another. Indeed, they correlate at 0.85. Among the Hall–Soskice coordinated market economies (what I refer to here as non-market-coordinated economies), the main differences are that Japan and Sweden score higher and Germany and Austria score lower on the Hicks–Kenworthy index than on the Hall–Gingerich index. Italy (and to a lesser degree France) scores in the middle on the Hicks–Kenworthy index, which is more consistent with the assessment of Hall and Soskice (2001, p. 21).

An alternative is to take a 'softer'—more subjective—approach to measuring institutional coherence. Doing so reduces the reliability of the measure, but may heighten its validity. I attempt to create a simple ranked grouping of

countries in terms of their degree of institutional coherence. Because of the paucity of hard data and the lack of clarity regarding how to weight various indicators that do exist, I use just three groups: high coherence, intermediate coherence and low coherence.

I focus on the five spheres identified by Hall and Soskice (2001) as critical in differentiating modern political economies. Other spheres could be added—e.g. relations between divisions/departments within firms and relations between firms and the government. But the Hall–Soskice five are, in my view, reasonable enough. Like Hall and Gingerich (2004), I ignore changes in the degree of coherence within countries over time and focus on differences across countries. In order to make this simplification justifiable, I focus on the period since the mid-1970s. I include 18 OECD countries (abbreviations listed in parentheses): Australia (Asl), Austria (Aus), Belgium (Bel), Canada (Can), Denmark (Den), Finland (Fin), France (Fr), Germany (Ger), Ireland (Ire), Italy (It), Japan (Ja), The Netherlands (Nth), New Zealand (NZ), Norway (Nor), Sweden (Swe), Switzerland (Swi), the United Kingdom (UK) and the United States (US).

Table 2 shows two measures of institutional coherence. In the first column is a ‘linearized’ version of the Hall–Gingerich coordination index: the index is transformed so that more coherent countries have higher scores and less coherent

Table 2 Measures of institutional coherence

	Hall–Gingerich institutional coherence index	Kenworthy institutional coherence ranked grouping
Austria	1.00	High
United States	1.00	High
Germany	0.90	High
United Kingdom	0.86	High
Canada	0.74	High
Italy	0.74	Low
New Zealand	0.58	Intermediate
Norway	0.52	High
Belgium	0.48	Intermediate
Japan	0.48	High
Finland	0.44	Intermediate
Ireland	0.42	Low
Denmark	0.40	Intermediate
France	0.38	Low
Sweden	0.38	High
The Netherlands	0.32	Low
Australia	0.28	Intermediate
Switzerland	0.02	Low

Note: For data definitions and sources, see the Appendix section.

countries have lower scores (see the Appendix section for details). I refer to this as the ‘Hall–Gingerich institutional coherence index’.

My ranked grouping is shown in the second column. Surely Germany, Austria, Japan, the United States and the (post-1979) United Kingdom should be classified as highly coherent. Most observers would probably add Sweden, Norway and Canada to this group. The only one of these eight countries that is scored significantly differently on the Hall–Gingerich institutional coherence index is Sweden, which is lower on that index than might have been expected. In contrast, on the Hicks–Kenworthy cooperation index (Table 1) Sweden scores near the top, behind only Japan and Norway.

France and Italy seem clearly to belong in the low-coherence group. As noted earlier, Hall and Soskice consider these to be ‘ambiguous’ cases, and I fully concur. Italy is less coherent than other affluent countries in terms of its deep divisions between north and south, between the formal and informal economies, and between large and small firms. The French economy has been characterized by a unique mix of close and stable relationships, short-term atomistic ties and heavy-handed government intervention.

I include three other countries in the low-coherence group: The Netherlands, Switzerland and Ireland. The Netherlands is in certain respects a paradigmatic coordinated market economy. This applies in particular to its tradition of relatively coordinated wage setting (formally centralized through the 1970s, informally centralized since then). Yet investor–firm relationships and relations among companies and their suppliers have tended to be comparatively short-term and arms-length (van Iterson and Olie, 1992, pp. 102–3, 109–10; Kurzer, 1993, pp. 50, 122, 146–7). With respect to relations with employees, median job tenure in The Netherlands is closer to the liberal market economies than to the coordinated market economies (Estevez-Abe *et al.*, 2001, p. 170). Switzerland has a high level of wage coordination (Soskice, 1990) and close relationships between firms (Porter, 1990, pp. 319–24), but little employment protection and relatively short median job tenure (Blaas, 1992, p. 369; Estevez-Abe *et al.*, 2001, pp. 165, 170). The Hall–Gingerich institutional coherence index scores The Netherlands and Switzerland as among the least coherent countries (Table 2).

What about Ireland? In terms of corporate governance and interfirm relations, Ireland is a typical ‘liberal market economy’. But beginning in the late 1980s and continuing throughout the 1990s, it has had a highly coordinated system of wage setting (Baccaro and Simoni, 2004). In addition, Ireland has a higher level of employment protection than other liberal market economies and longer median job tenure (Estevez-Abe *et al.*, 2001, pp. 165, 168, 170). Why, then, does Ireland not score lower on the Hall–Gingerich institutional coherence index? The main reason is that the wage coordination indicators used in Hall and Gingerich’s

factor analyses do not include the 1990s. One, from Layard *et al.* (1991), is based on the 1980s and the other, from the OECD (1997), provides no score at all for Ireland. Were the extensive Irish wage coordination during the late 1980s and the 1990s taken into account, Ireland would almost certainly move down on the Hall–Gingerich institutional coherence index to join Switzerland and The Netherlands at the bottom.

I score the remaining five countries—Belgium, Denmark, Finland, Australia and New Zealand—as intermediate. The first three are classified by Hall and Soskice (2001) as coordinated market economies and the latter two as liberal market economies. However, these countries tend to be less coherent in their institutional mix than nations such as Japan and the United States. At the same time, they are less incoherent than France, Ireland, Italy, The Netherlands and Switzerland.

Plainly there is room for disagreement about the assignment of particular countries. Yet I believe the ranked grouping shown in Table 2 is the one most consistent with the discussion in Hall and Soskice (2001), with the Hall–Gingerich (2004) and Hicks–Kenworthy (1998) indexes, and with my reading of the comparative and case study literatures. The measurement approach pursued by Hall and Gingerich has considerable merit, in that they rely mainly on ‘hard’ indicators. This seems to me, however, to come at potentially considerable cost in terms of validity. One of the five spheres emphasized by Hall and Soskice, corporate governance, accounts for half of the indicators used to create the Hall–Gingerich factor analytical index; and two of the five Hall–Soskice spheres are not represented at all. Of course, there is no perfectly accurate measure of institutional coherence. But given the limited available data and the lack of clarity regarding how to properly weight indicators that do exist, a ranked grouping along the lines of that in Table 2 may be preferable.

4. The impact of institutional coherence on macroeconomic performance

The three most common measures of macroeconomic performance are economic growth, employment (or unemployment) and inflation. Owing to financial globalization and the requirements for European monetary integration, there was relatively little cross-country variation in inflation rates in the 1990s. I therefore focus on growth and employment.

Economic growth can be measured in various ways, including growth of real gross domestic product (GDP), growth of real GDP per capita and growth of real GDP per employed person. Hall and Gingerich use growth of nominal GDP per capita, but they control for inflation in their regressions, so in effect their measure is the second: growth of real GDP per capita. I focus on the

third: growth of real GDP per employed person. Commonly referred to as ‘productivity growth’, it is perhaps the best macro-level indicator of efficiency. I also show (in Table 3) results for growth of real GDP per capita, which do not differ substantially.

Employment is measured as employed persons as a share of the population aged 15–64. I focus on growth of employment.

I examine the post-‘golden age’ period of 1974–2000. This covers three complete business cycles—1974–79, 1980–89 and 1990–2000—which I also examine separately to see if there have been period-specific patterns. For the full 1974–2000 period I show the data in scatterplot form, in Figures 1–4. I also present regression results in Table 3. For the subperiods I show only the regression results. Scatterplots for the subperiods are available at www.u.arizona.edu/~lkenwor, as are all of the data used in the analyses.

Figure 1 shows two scatterplots, each with the average rate of productivity growth over 1974–2000 on the vertical axis and a measure of institutional coherence (from Table 2) on the horizontal axis. The first chart uses the Hall–Gingerich institutional coherence index. The institutional coherence hypothesis predicts a positive relationship: productivity growth should be higher in countries scoring high on the index. But there is no indication of a positive association. The regression line is essentially flat. And as reported in Table 3, the R^2 is 0.00. The second chart in Figure 1 substitutes my institutional coherence ranked grouping for the Hall–Gingerich index. Again there is no association. The regression coefficients in Table 3 indicate that in the 1974–79 period productivity growth is positively associated with the Hall–Gingerich measure but negatively associated with my measure. However, these associations are quite weak.

Hall and Gingerich’s (2004) analysis is based on annual data rather than period averages. There are two advantages to using yearly data. One is that it permits a control for ‘fixed effects’ (‘unobserved heterogeneity’)—stable country-specific factors, such as culture or geography, which may be correlated with the independent variable of interest. But the fixed effects concern is that an apparent relationship between an independent variable and the outcome may be spurious. This is an issue only if the analyses do suggest a relationship between the independent variable and the outcome. The patterns in Figure 1 do not suggest a relationship, so there is no particular reason to worry about the lack of control for fixed effects.

The second advantage to yearly data is that it greatly increases the number of observations, allowing use of a larger number of control variables. Here, however, the number of observations is not a critical factor. Hall and Gingerich include five control variables in their regressions. Two of them—inflation and the share of the population younger than age 15 and older than age 64—are unnecessary if we

Table 3 Regression results: estimated impact of institutional coherence on productivity growth, per capita GDP growth, and employment growth

	Hall–Gingerich institutional coherence index		Kenworthy institutional coherence ranked grouping	
	Coefficient	R ²	Coefficient	R ²
Economic growth				
Productivity growth				
1974–2000	0.15	0.00	0.01	0.00
1974–9	0.31	0.00	–0.35	0.01
1980–9	0.32	0.01	0.08	0.00
1990–2000	–0.15	0.00	0.09	0.00
Catchup-adjusted productivity growth				
1974–2000	0.38	0.05	–0.18	0.03
1974–9	0.52	0.02	–0.51	0.04
1980–9	0.69	0.07	–0.15	0.01
1990–2000	0.23	0.01	–0.03	0.00
Per capita GDP growth				
1974–2000	0.42	0.02	–0.01	0.00
1974–9	1.56	0.12	0.53	0.03
1980–9	0.07	0.00	0.21	0.03
1990–2000	0.12	0.00	–0.49	0.03
Catchup-adjusted per capita GDP growth				
1974–2000	–0.05	0.00	–0.02	0.00
1974–9	0.98	0.08	0.51	0.05
1980–9	0.03	0.00	0.27	0.05
1990–2000	0.05	0.00	–0.11	0.00
Employment growth				
Employment growth				
1974–2000	0.03	0.00	0.06	0.00
1974–9	0.97	0.12	0.94	0.28
1980–9	–0.28	0.02	0.26	0.03
1990–2000	–0.20	0.01	–0.71	0.05
Catchup-adjusted employment growth				
1974–2000	–0.10	0.01	0.08	0.01
1974–9	0.91	0.10	0.97	0.02
1980–9	–0.20	0.01	0.10	0.01
1990–2000	–0.50	0.07	–0.24	0.04

Note: Unstandardized coefficients from bivariate OLS regressions. Both of the institutional coherence measures range from zero to one. For data definitions and sources, see the Appendix section.

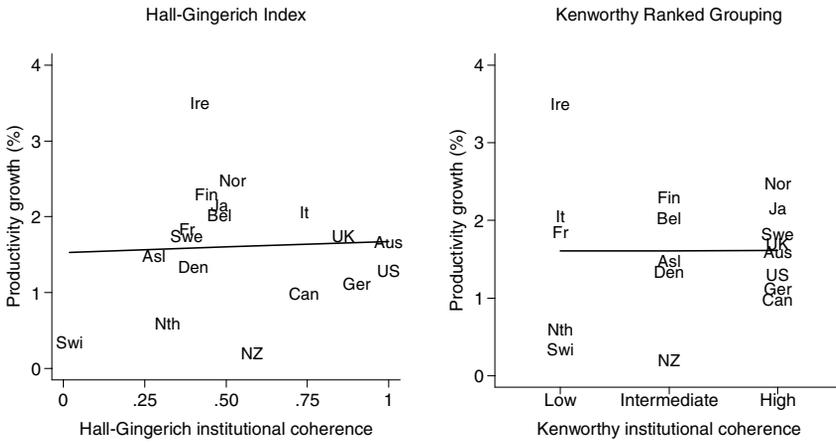


Figure 1 Institutional coherence and productivity growth, 1974–2000.

Note: For data definitions and sources, see the Appendix section.

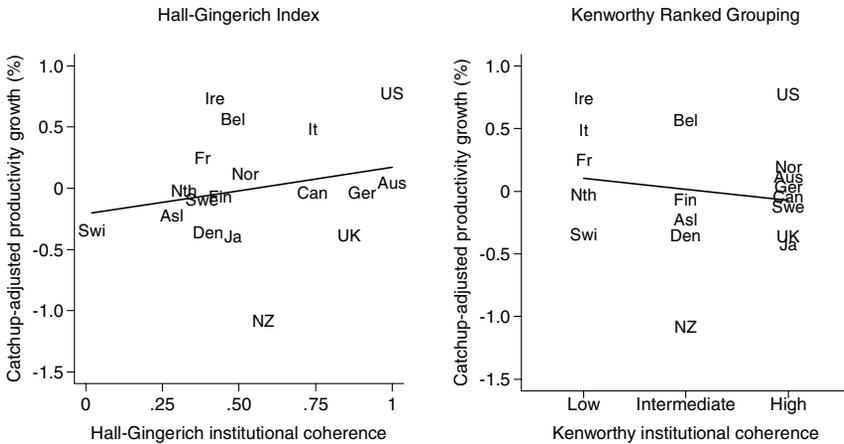


Figure 2 Institutional coherence and catchup-adjusted productivity growth, 1974–2000.

Note: For data definitions and sources, see the Appendix section.

measure growth as change in real (inflation-adjusted) GDP per employed person. Their third control is the average growth rate among the group of countries as a whole weighted by the degree of trade openness in each nation. In an analysis with yearly data this is useful in order to control for business cycle effects, but it is unnecessary in an analysis that examines periods that correspond to business cycles. The fourth control variable is change in each country’s terms of trade (export prices divided by import prices), weighted by the country’s degree of trade openness. The expectation is that favourable price developments boost

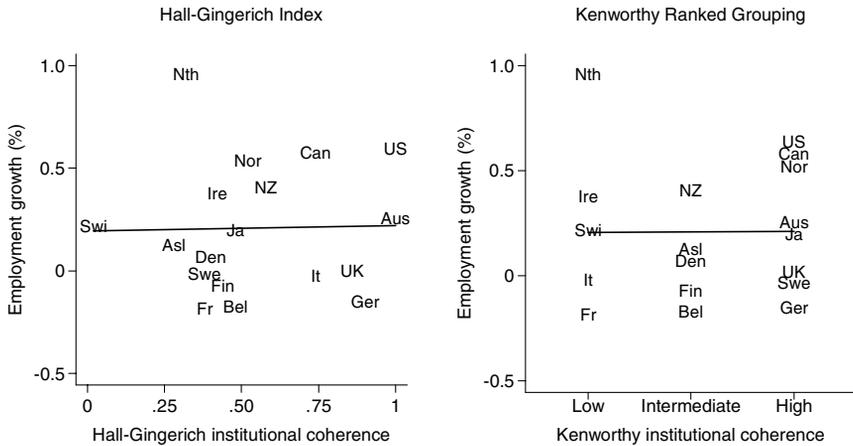


Figure 3 Institutional coherence and employment growth, 1974–2000.

Note: For data definitions and sources, see the Appendix section.

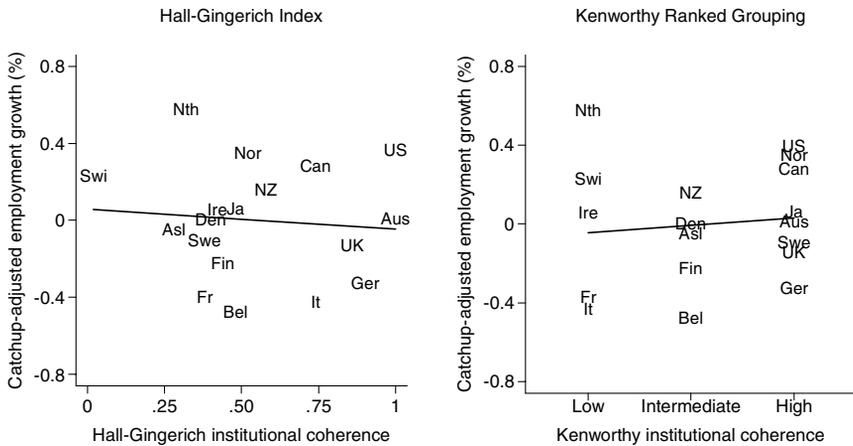


Figure 4 Institutional coherence and catchup-adjusted employment growth, 1974–2000.

Note: For data definitions and sources, see the Appendix section.

growth. However, this variable has the ‘wrong’ sign in almost all of the Hall–Gingerich regressions. The same was true in regressions I tried, and the variable’s inclusion had no impact on the results for the institutional coherence measures (not shown here). Hence, this control seems unnecessary.

The fifth control variable used by Hall and Gingerich is each country’s level of economic output in the initial year. Among the rich OECD nations there has been a strong ‘catchup’ process operating since World War II, whereby less affluent nations tend to grow faster than richer ones because the former are

able to benefit from technological developments and larger markets in the latter (Baumol *et al.*, 1994). Thus, for instance, Ireland stands out in the charts in Figure 1 as having had by far the fastest productivity growth, but that could be due to the fact that as of the mid-1970s it was by far the poorest of these countries. Why might this affect the association between institutional coherence and productivity growth? Cross-country differences in institutional coherence have persisted over long periods of time; those with greater coherence today may also have had greater coherence half a century ago. If so, and if institutional coherence has in fact contributed to faster productivity growth, countries with greater institutional coherence may have had higher levels of productivity entering the 1970s than countries with less coherent institutions. The catchup effect would permit countries with less institutional coherence and, therefore, lower 'initial' productivity levels to enjoy faster productivity growth during the ensuing decades than their level of institutional coherence would otherwise make possible. This catchup boost might offset their otherwise less rapid growth rates, making it appear in the raw data as though institutional coherence had no impact on productivity growth.

Figure 2 shows another set of scatterplots with institutional coherence on the horizontal axis, but now the vertical axis measure is productivity growth adjusted for catchup effects. The vertical-axis data are residuals from regressions of productivity growth on initial year level of productivity. (For the 1974–2000 period overall and for each business cycle the regression coefficient for the initial year level is negative and substantively strong, suggesting that catchup effects were relevant.) The first chart uses the Hall–Gingerich index. Here there is some indication of the predicted positive relationship between institutional coherence and productivity growth. The magnitude of the estimated effect, while by no means large, is not inconsequential. In a regression of catchup-adjusted productivity growth on the Hall–Gingerich institutional coherence index, the regression coefficient is 0.38 (Table 3), suggesting that, on average, a country scoring one on the index enjoyed a rate of productivity growth about four-tenths of a percentage point faster than a country scoring zero on the index. Over a long enough period of time this seemingly small difference can matter. In a country with an annual growth rate of 1.6%, productivity will double in 45 years, whereas with a growth rate of 2.0% it will double in 36 years. However, the association is confined to the 1970s and 1980s. More important, it is heavily dependent on the US case: if the United States is omitted, the regression coefficient drops to just 0.09 and the R^2 is 0.00 (not shown here).

The second chart in Figure 2 replaces the Hall–Gingerich institutional coherence index with my ranked grouping. Here there is no positive relationship. This is a product of the different scoring of particular countries. Several countries that had not-so-high rates of catchup-adjusted productivity growth, such as

Sweden and Japan, are scored intermediate on the Hall–Gingerich measure but high on my measure. And several countries that had comparatively high rates of catchup-adjusted productivity growth, such as Ireland and Italy, are scored intermediate on the Hall–Gingerich measure but low on my measure. I leave it to others to decide which of the two measures of institutional coherence is preferable. The point is simply that the conclusion that institutional coherence is good for economic growth appears to hinge not only on the years examined and on the inclusion of the United States but also on the coding of particular countries.

Figure 3 performs the same exercise for employment growth. The first chart shows the average annual rate of growth in employment over 1974–2000 by the Hall–Gingerich institutional coherence index. Again the institutional coherence hypothesis predicts a positive relationship, but again it finds no support. As the regression coefficients in Table 3 indicate, in the 1974–79 period we do see the expected pattern. But the fit is poor: the R^2 for a regression of 1974–79 employment growth on the institutional coherence index is just 0.12, and it drops to 0.03 if Switzerland is removed (not shown here).

In the second chart in Figure 3 the Hall–Gingerich institutional coherence measure is replaced with my measure. Again there is no indication of an association in either direction. The regression coefficients reported in Table 3 suggest evidence of a positive association in the 1974–79 period, and here that association does not hinge on Switzerland’s inclusion. However, this positive effect appears to have been offset by a similarly strong negative association between coherence and employment growth in the 1990–2000 period.

In Figure 4 employment growth is adjusted for initial levels of employment, since countries that began with low employment rates may have found it easier to achieve increases. This produces very little change in the patterns for either the Hall–Gingerich institutional coherence measure or my institutional coherence measure. The regression lines in the charts (and the coefficients in Table 3) suggest a possible negative relationship for the Hall–Gingerich measure and a possible positive relationship for my measure, but these associations, if genuine, are extremely weak.

Aside from the initial level of productivity or employment, there are additional factors that should perhaps be controlled for in analyses of productivity growth and employment growth. But a number of them would be considered endogenous in the varieties of capitalism approach. For instance, educational attainment among the working-age population could well influence productivity growth, but in the varieties of capitalism framework this is likely to be affected by the type of economic coordination in the country: coordinated market economies tend to rely more on firm-specific skills acquired through on-the-job training, whereas liberal market economies rely more on general skills acquired through the school

system (Hall and Soskice, 2001). Employment protection regulations and the generosity of the unemployment benefit system may influence employment growth, but these too are expected to be a function of the type of coordination (Estevez-Abe *et al.*, 2001).

I estimated a series of regressions with various combinations of four control variables that seem less likely to be endogenous and potentially likely to alter the association between institutional coherence and productivity growth or employment growth: trade-adjusted changes in terms of trade (discussed earlier), real interest rates, tax revenues (as a share of GDP) and left government. However, none of these variables is correlated with the Hall–Gingerich institutional coherence index ($r = 0.00, 0.10, -0.08, -0.17$ over 1974–2000), with my institutional coherence measure ($r = 0.14, 0.09, -0.01, 0.11$ over 1974–2000), or with the two macroeconomic performance measures. Hence, controlling for them did not substantively alter the regression results for either of the institutional coherence variables (not shown here; available on request).

On the whole, then, patterns of productivity growth and employment growth among these 18 countries over the period 1974–2000 appear to offer little, if any, support for the notion that institutional coherence—as conceptualized by Hall and Soskice (2001) and Hall and Gingerich (2004)—has contributed to healthy macroeconomic performance.³

5. Future research on coherence and performance

Institutional coherence is certainly not the first broad, general feature of political-economic institutions to be posited as influential for macroeconomic performance outcomes in the world's most affluent countries. Others include free markets (Hayek, 1960; Friedman, 1962), distributional coalitions (Olson, 1982), corporatism (Cameron, 1984; Katzenstein, 1985), flexible specialization (Piore

³ One other attempt to assess the impact of institutional coherence on economic performance outcomes is by Amable (2003, pp. 213–24). Like Hall and Gingerich, Amable uses factor analysis to create country scores for the degree of non-market coordination in various economic spheres (product markets, the wage–labour nexus, financial systems, social protection and education). Rather than using these coordination scores to create a measure of overall institutional coherence, Amable regresses macroeconomic performance indicators (economic growth, productivity growth and unemployment) on interactions between the measures of sphere-specific coordination. He finds that some of these interactions have the expected positive sign, suggesting for instance that economic growth has been more rapid in countries in which product market regulation and labour market regulation are either both high or both low. However, it is not clear why we should expect only coherence between some spheres, rather than across all spheres, to boost macroeconomic performance. If overall coherence is what is predicted to matter, then the hypothesis is best tested using a measure of the overall degree of coherence, as in Hall and Gingerich (2004).

and Sabel, 1984), competition (Porter, 1990), social capital (Putnam, 1993), cooperation (Kenworthy, 1995; Hicks and Kenworthy, 1998) and policy coherence (Wilensky, 2002), to mention but a few. However, there is reason to be skeptical about the veracity of empirical findings that appear to support linkages between aggregated concepts such as these and aggregated outcomes such as growth, employment and inflation. Assessing such claims requires clear specification and testing of the purported causal mechanisms (Elster, 1989, ch. 1; Hedström and Swedberg, 1996; Goldthorpe, 2001). Finding associations may or may not tell us something interesting. I am not suggesting that aggregate analyses are useless, but rather that they should be considered only a preliminary, partial step in the investigation of causal linkages.

This might be a useful route for further research on the influence of institutional coherence. If institutional coherence is good for macroeconomic performance, how exactly does the causal process work? Hall and Soskice (2001, p. 45) suggest that ‘When firms coordinate effectively, their performance will be better...’. Does this mean those firms will have higher productivity? If so, that presumably can be tested, at least for firms in certain sectors.⁴ The evidence reviewed here suggests no aggregate-level association between coherence and successful macroeconomic performance. Yet if the causal pathways were investigated, it might turn out that there is a beneficial effect. Such an effect could be hidden in the analyses here due to the impact of some additional variable for which I have not controlled. Or it could be that institutional coherence has both positive and negative effects on productivity or employment, which offset each other.

Another potentially fruitful avenue for empirical evaluation of the institutional coherence hypothesis is exploration of the US case. Notwithstanding its post-1999 stock market and employment declines, the American economy has experienced comparatively strong macroeconomic performance over the past several decades. Figure 5 shows rates of catchup-adjusted productivity growth and catchup-adjusted employment growth over 1974–2000. On the combination of these two measures, the position of the United States in the chart suggests that it had the best performance record among the 18 countries. (The United States also features well-known distributional maladies such as high poverty and inequality.) We lack a convincing account of recent US macroeconomic success. A host of factors surely have contributed, among them effective countercyclical monetary policy, robust demand owing to growing personal indebtedness along

⁴ Ernst (2002) examines industry performance in three ‘high-coherence’ countries (Germany, Japan and the United States), but does not analyse differences across countries that have varying degrees of institutional coherence.

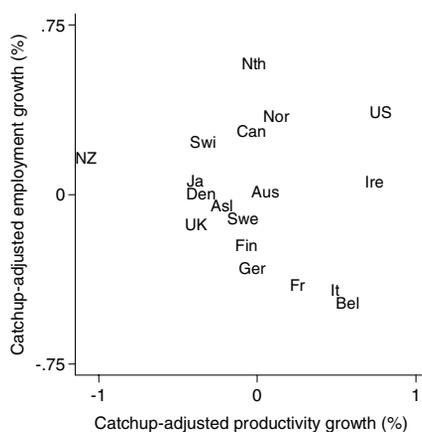


Figure 5 Catchup-adjusted productivity growth and catchup-adjusted employment growth, 1974–2000.

Note: For data definitions and sources, see the Appendix section.

with the real estate and stock market booms, and first-mover advantages in various information technology industries. Advocates of the institutional coherence approach might emphasize growing marketization of the American economy since the late 1970s—most notably, deregulation of various industries, weakening of unions and reduced commitment to job security. As Hall and Soskice (2001, p. 49) suggest ‘Because of the bluntness of the instruments available to states and the importance of markets to these economies, deregulation is often the most effective way to improve coordination in LMEs [liberal market economies]’.

Yet at the same time, other developments in the US economy during this period seemingly have heightened the importance of non-market institutional coordination. Many of these developments stem from the influence of Japanese practices on American management strategy in the 1980s and 1990s. They include greater reliance on stable long-term relationships between firms and suppliers, research and development alliances among competitors, and participatory work teams and multidivisional research-design-production teams within firms. Various accounts attribute some of the recent success of the US economy to these developments (e.g. Angel, 1994; Applebaum and Batt, 1994; Waterman, 1994; Hollingsworth, 1997). How does this fit in with the institutional coherence perspective? Are these developments in fact consistent with the accentuation of market-oriented coordination in the US economy? Are they of little or no relevance in explaining recent US macroeconomic success? Or is institutional coherence perhaps not so critical to that success?

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Appendix: variable descriptions and data sources

Catchup-adjusted employment growth. Residuals from a regression of employment growth on level of employment in the period's initial year.

Catchup-adjusted productivity growth. Residuals from a regression of productivity growth on level of productivity in the period's initial year.

Employment growth. Average annual rate of change in employed persons as a share of the population aged 15–64. *Source:* Author's calculations from data in OECD (2004a).

Hall–Gingerich coordination index. Factor scores, adjusted to vary from zero to one, from a factor analysis of six indicators (see the text). Measured as of 1990–95. *Source:* Hall and Gingerich (2004, Table 2, p. 14).

Hall–Gingerich institutional coherence index. 'Linearized' version of the Hall–Gingerich coordination index. Calculated as follows: (absolute value of [0.50 minus the Hall–Gingerich coordination index score]) divided by 0.50. Ranges from zero to one.

Hicks–Kenworthy cooperation index. Average of scores on nine indicators of economic cooperation (see the text). Measured over 1960–89. *Source:* Hicks and Kenworthy (1998, Table 3, pp. 1642–3).

Kenworthy institutional coherence ranked grouping. See text and Table 2. Three categories: low coherence, intermediate coherence and high coherence. Scored as 0, 0.5 and 1 when used in regressions.

Left government. Left party cabinet portfolios as a share of all cabinet portfolios. *Source:* Author's calculations from data in Swank (2002, variable: LEFTC).

Per capita GDP growth. Average annual rate of change in inflation-adjusted gross domestic product per person. *Source:* Author's calculations from data in OECD (2004b).

Productivity growth. Average annual rate of change in inflation-adjusted gross domestic product per employed person. *Source:* Author's calculations from real GDP and consumer price data in OECD (2004b) and employment data in OECD (2004a).

Real long-term interest rates. Yield on long-term government bonds adjusted for inflation. *Source:* Author's calculations from data in OECD (2004b).

Tax revenues. Government tax revenues as a share of GDP. *Source:* Author's calculations from data in OECD (2004c, Table 3, pp. 67–8).

Trade-adjusted change in terms of trade. Average annual rate of change in the ratio of export prices to import prices, multiplied by exports plus imports as a proportion of GDP. *Source:* Author's calculations from data in OECD (2004b).