

## REFLECTIONS – 2

The birth of micro-macro and the developments in its wake, from the mid-'60s to the early '80s, produced radical changes in the way we do monetary macroeconomics. Now it is increasingly evident that in non-monetary equilibrium modeling, models which defiantly abstract both from money and misexpectations, changes have been steadily occurring since the early '80s that may prove to be no less important for the conduct of macroeconomics. In focusing on the medium- and the long-term tendency rather than fluctuations around it, this kind of modeling can focus on the bedrock-level influences determining an economy's *capacity* to offer participants an economic life of enterprise and challenge and thus to achieve high participation and productivity. A whole new field is forming that is taking us well beyond the models of neoclassical spirit that dominated economic thinking over most of the past century.

Job and career are recognized in much of this new work to be the source of the most basic satisfactions and personal development that a good economic system can offer – not merely a source of income (however highly or little valued). People, most people at any rate, need the unending new problems that an entrepreneurial economy can throw out both for their mental stimulation and as a way to discover their talents and develop their capabilities. Many also want jobs to find the personal growth that comes from working with others (while others may want jobs as an escape or respite from personal interactions). Some want involvement in their society and to be an employee in the economy's mainstream is to be a part of society's biggest project. People also value self-support: the dignity of feeling they are earning their own way and the autonomy brought by a substantial income of their own to meet their special needs. For these reasons, the above *job satisfactions* as well as the *wage rates* employers can offer and *job availability* – hence the enterprise of the business sector in launching new products, new methods or new markets and its sophistication in selecting and mastering innovations – are among life's *primary goods*, to use John Rawls's term.

These basic satisfactions from jobs and careers and, as a result, the economy's total employment rate (participation rates or unemployment rates or both) are seen in much of the new work to be a function of the economy's *dynamism* and the resulting growth rate; and both are codetermined by economic institutions: the scope and degree of enterprise in the business sector underlie much of the job satisfaction obtained by employees – the intellectual growth, the realization of talents, the stimulation – in both the industries creating the innovations and in those industries pioneering their selection and use. The attendant investing in new products, new methods and new markets pulls up wage rates and the availability of jobs. (Faster productivity growth may raise the wages firms can pay, too, although faster growth may not be sustainable.) Thus dynamism raises the rewards from business life in general and from employment in particular, and the increased attractiveness of jobs pulls up employment. The converse is also true: People's intellectual growth from their business experience is a part of society's economic development. And increased participation and employment is apt to result in more firms, more entrepreneurs, with benefits for productivity growth. (This echoes the idea of mine

years ago that is discussed by Chad Jones: the more people there are seeing and mulling over problems, the more solutions there will be.)

My reflections here on this emerging field will go best if I organize them around the stages of my own work in this field, while bringing in along the way the contributions of a great many others.

## I

My own first immersion in nonmonetary employment theory, begun in late 1985, was provoked by the deep slump that had become so visible at that time in continental Europe. The pioneering *nonmonetary* reworking of my quitting model (with revamping) by Steve Salop in 1979 and of the customer-market model by Calvo and myself in 1983 suggested that the project might be feasible. My first step was work with Jean-Paul Fitoussi. (Elements of the turnover-training model and the customer-market model as well as a conventional two-sector model were used to argue that an overseas shock to world real interest rates would drive down the unit value placed on the business asset in the home country, “Europa,” and thus depress home employment.) But these elements were imbedded in static, monetary models. Soon after, I started building intertemporal nonmonetary models to verify that the results with Jean-Paul were robust and to test them. This work, much in collaboration with Hian Teck Hoon and Gylfi Zoega, culminated in *Structural Slumps* in 1994 and extensions.

What we found and what we missed were both important, I think. In time-series analyses of national data in OECD economies from 1955 to 1989 we regressed the annual change of the national unemployment rates on the causal forces in the theoretical models, including lagged unemployment in view of the turnover-training model. These independent variables were the models’ *private market forces*, such as accumulated private wealth (or the income therefrom), the stock of business assets, and the overseas real interest rate, as well as some familiar *policy* variables, such as the direct tax rate and social wealth, also figuring in the models. We could thus see whether and how well the models’ independent variables explained the data. As a byproduct, we had an explanation (such as it was) of why some countries experienced a lesser slump than others did. Of the several conclusions four stand out in my mind:

Results in 1997 and 1998 supported the models’ implication that the growth rate of productivity, both expected and actual, has important effects. So the great productivity slowdown (dating from 1974), which was severe on the Continent, where catch-up growth had been spectacular in the ’50s and the ’60s, drove unemployment up far more there, especially in Italy, Belgium and France, than it did in the U.S., the U.K., Australia and Canada, where the slowdown was mild. There are two channels: The ensuing expectation of slower trend growth of productivity operates just like a rise in expected real interest rates, as first shown in Christopher Pissarides’ 1990 book (and touched on here and there in *Structural Slumps*). Second, with productivity and hence wages growing more slowly, workers’ asset holdings started to rise as a ratio to the wage; and, theoretically, the income or services for all these riches weakened workers’ incentives not to quit or shirk at the drop of a hat. The benefits offered by social entitlements likewise rose as a ratio to the slowed-down wage, with the same effects.

The world real interest rate was unfailingly a significant variable and the elevation of real interest rates dating from 1981 was a sizable contractionary influence – and not just on the Continent, of course. Through this elevation, Continental saving was pulled out to finance increased investment in east Asia and to offset decreased saving in the U.S. The chilling effect on Continental firms' rate of investment in new plant, new customers and new employees reduced employment and real wages.

We found evidence that, given entitlement outlays and government purchases, a hike in the tax rate on wage income, in lowering the after-tax wage employers could pay as a ratio to workers' income from wealth, would move an economy down its medium-run wage curve, which takes income from wealth as fixed, thus driving up unemployment. But the models warn that the consequent fall of saving, in steadily lowering workers' income from wealth, could neutralize the wage effect, driving unemployment back to the rest point where it began.

Late in the day we discovered that appearance of a milder slump in the US and a faster recovery from its slump was the result of demographics: a steep upward trend in the proportion of US workers with some college and the proportion with a college degree, groups relatively immune to joblessness. In the U.S., the mean unemployment rate among high school dropouts in the '80s was nearly double its rate in the '70s and stayed did not get out of "double digits" until the mid-'90s, as if it were a country on the Continent.

I was delighted that Steven Nickell in his paper, experimenting with a similar approach and his own preferred explanatory variables, arrived at several results in common with mine. Thanks also to the results of Olivier Blanchard and others, the view taken by Structural Slumps seems to have won a surprisingly broad consensus.

On reflection, however, I see that these results don't go as far as we would wish. *Structural Slumps*, intending to explain the Continent's slump, produced an alternative macroeconomics of unemployment, real interest and real asset prices but it didn't really get to the bottom of that slump. It is one thing – and very nice – to explain a greater *rise* in one economy's unemployment rate than in another's and quite another thing to explain a greater *level*. Sure, if you have explained why a country's unemployment (I am thinking of France) rose by 8 percentage points between the mid-'60s and, say, the mid-'90s you have gone a long way toward explaining why it was *high* in the '90s; after all, the rate could not have been negative in the '60s. But if we think of the *mid-'90s* as normal, the regressions by Gylfi and me can be said to explain why unemployment in the '60s was *abnormally low* and to leave it a mystery why unemployment is as high as it is – in France, in Italy, in Germany and the rest – in the '90s. The panel methodology lets one estimate a free constant term for each country without having to introduce any determinants of the constant term and their differences across countries. We can plow along with this research without the foggiest idea of what they are.

## II

In the mid-'90s I came increasingly to believe – a belief that was reinforced by research on the Italian economy I started in 1997 – that widely recognized differences among the advanced economies in the framework of economic institutions created by their histories and policies had consequences for these economies' dynamism and their enlistment of the

population in business life. The economies whose institutions were, by some measure, closer to the model or models of capitalism, I suspected, would have greater dynamism: they might be more innovative and their innovative investment projects, being more closely geared to prospective profitability, would be better directed. Such differences, I thought, might have serious consequences for long-run economic health. But how to develop and test that entrepreneurial thesis?

Some ideas in that direction arose in the course of work I began with Gylfi a few years ago on investment booms. The background to this research was the record-breaking investment boom in the U.S. over the second half of the 1990s, which was not explained by existing models (at least not models that gear the expected growth rate of productivity to observation of the recent productivity growth rate). My modeling of the boom was based on the theory, which I attributed to Spiethoff and Cassel, that asset values and thus investment activity jump *off* their accustomed saddlepaths and *onto* (explosive) boom trajectories when there is the sudden expectation of new uses for capital (at normal rates of return) – in some new method, new product or new region – *at some future date*. We cannot observe the arrival and duration of such a galvanizing vision but its presence will have effects on the value placed (by firms) on the business asset – the customer, the employee, commercial space – and these effects may be “signalled” by the value of the *stock market* per unit of the business asset. In statistical analyses reported in 2000 and 2001 this variable worked well. It had a significant coefficient when entered on top of the usual explanatory variables in our unemployment-change regression equation.

These results made me think. It appears that market economies are capable of being excited by expected future shocks to productivity (in the simplest formulation) that are signaled by share prices and dulled by long periods without such shocks. There may be intense exhilaration, with investment elevated by two or three percent of GDP as in the recent boom, and there may be spells of lesser stimulation. This may be how the more entrepreneurial economies in the world tend to grow, just as described by the German School – by Spiethoff, the Austrian Schumpeter, and Cassel.

I found myself proposing (in the 2001 piece) that such investment booms are healthy. Even if there is overbuilding, as realizations fall short of expectations, the “overhang” and “bust” after the boom may not outweigh or offset the benefit. A productively creative economy experiences the occasional investment boom followed by a spell of tidying up, learning by doing and research just as a productively creative person has the occasional rush of energy and focus, then returns to a relaxed and ruminative state. Investment booms may be good in general and a sign of an enterprising economy.

These thoughts led on a question: If some economies are more capable of responding to the prospects driving a boom than others, was there evidence showing that the countries having the strongest booms in the late '90s had the more entrepreneurial economies? And since we cannot observe and measure the degree of enterprise, what statistics in a country might proxy for the dynamism, or enterprise, of which an economy under existing arrangements was capable?

The table (from my Financial Times piece on 9 August 2000) uses three measures of the strength of the investment boom. The growth since 1996 of fixed investment is one. To capture the impetus to invest in new employees and new customers the growth of labor's share and the percentage appreciation of the real exchange rate are thrown in. (Much of the force of the boom in the UK spilled into labor's share and its exchange rate.) Ranked by summing these growth rates, the countries fall into two groups, one with convincing signs of an investment boom, whatever total output and employment may be doing, and the other with few or no signs of such a boom (though expansion may have been strong for other reasons, such as employment subsidies in France and Holland and labor reforms in Spain). The unambiguous boomers were the U.K., the U.S. and the Netherlands, but it is reasonable to add Canada, Australia and Sweden. In the other group, Germany, Italy, Belgium and France clearly belong and probably also Spain and Austria. A natural experiment seems to have been performed.

Now to the "entrepreneurial thesis" that the dynamism of economies requires economic institutions providing the necessary access and incentives. In this thinking, the economies that participated vigorously in the investment boom must have been the "dynamic," or "enterprising" ones, and so their entrepreneurs (in start-up or existing firms) must have been operating with the right institutions: capital markets providing access to venture capital and stock exchanges offering liquidity and transparency, product markets open to start-ups and to new entrants generally, and labor markets offering opportunities to hire and boss and fire employees without large and uncertain penalties and restrictions – to mention just some of the basics. The table records for each country some statistics that are presumably signs of the presence or absence of such institutions. They are to be interpreted here as proxies that reflect the strength and nimbleness of the economy's capacity and therefore its response to the new opportunities of the '90s.

The table shows that the ranking of the countries by strength of the boom correlates well with these institutional indicators of dynamism. The correlation with the red tape indicator is strong. Less strong is the correlation with the indicator of concerted action – the sum of the indices of employer coordination and union coordination. While these slender results might be said by some to be unsurprising, they give encouragement to dig deeper.

For me, the success of the higher education indicator is quite intriguing and, if it holds up in other uses, an important discovery. I would add that the predictive power of the education variable *is* somewhat surprising. How many of us would have been willing to bet (at even odds) that the three economies with the highest proportions of the labor force having a university degree would *all* be among the six boomers and that the four with the lowest proportions would *all* be among the six non-boomers?

The inspiration to try this indicator came from the Nelson-Phelps paper of 1966. As Philippe Aghion and Peter Howitt said in their paper, that simple model of the diffusion of innovations emphasizing the facilitating role of advanced education, is a sort of "general purpose" concept applicable to the problem-solving processes arising in an entrepreneurial economy: managers have to use their education to solve the many

problems that new ideas pose. Nelson-Phelps makes explicit that adoption of new intermediate products or new consumer durables will proceed slowly, and with it the investment made by the innovators in productive capacity, where firms or households that are potential adopters do not have the sophistication to choose early among the innovations offered. (At best the “new economy” would take time, no matter how fast innovations might have come on line.) The corollary I would add here is that *without* such problem-solving capacity in others, innovations will be few and far between. Entrepreneurs will innovate fewer intermediate products and new consumer goods if their diffusion would be slowed or permanently limited by the dearth of sophistication among the managers, employees or households on whom adoption and use would depend. Furthermore, entrepreneurs, who may themselves not be of sterling educational attainment, can’t design and launch commercial innovations without well-educated managers to address legal, technical, financial and even cultural problems that come up.

It has been exciting to see the widening receptivity to the Nelson-Phelps view of education (a wave of earlier work was led by Glenn Cain) not solely because of my partnership interest in that paper but because of the sea change it tokens in economists’ perception of the economy: from a mere market mechanism, in which productivity would benefit from use of foreign languages and math, to an enterprise system in which growth and the very fabric of economic life depends upon well-directed innovations and their prompt selection and exploitation. (Let me refer readers to recent results from Michelle Connally showing that the states and regions in America’s South that pulled themselves out of backwardness in the middle of the last century – like the nations that achieved the most modernization in east Asia – were those with a relatively high antecedent level of education. I understand that Jess Benhabib is preparing a new round of results on Nelson-Phelps, which could not be ready for this volume.)

The revelation here, for me at any rate, is the predictive power of the stock market indicator – and seven years before the boom. Speculating on the reasons for it, I suggested (in the Financial Times piece) that start-up entrepreneurs in the booming economies could launch “new economy” ventures since those economies had more developed stock markets. “That was crucial to venture capitalists, who could later sell shares in start-ups they financed. Also, a liquid market for shares was crucial to the rise of stock options to focus managers on earnings growth.” It should be added that the listing of a firm’s shares in a stock exchange is like a seal of approval, which boosts the price of the shares, since to gain listing the firm has to meet requirements for financial accounting – transparency, frequency, prompt disclosure – that the exchange finds advantageous to impose.

### III

Let me recap. I got to the point of stating what I called the entrepreneurial thesis. It’s the thesis that a country’s having economic institutions that provide desirable access and incentives to entrepreneurs, investors, managers and employees is, at some level, the key to the dynamism of its economy and thus to the attractions and satisfactions of economic life there. As a first check on that thesis I looked to see whether a partial and very crude

implementation of it helps to explain why, in the second half of the '90s, some economies went into an investment boom while others didn't respond. The thesis, it seems to me, did well. Perhaps it was necessary for the thesis to pass that test. However, that test is *remote* from being *sufficient* to convince skeptics.

The basic limitation of the above exercise is that it is awfully "second-order." It suggests that, in a period of new opportunities apparently regarded as extraordinary, the economies indicated to be relatively entrepreneurial in some of their institutional features responded relatively strongly to those opportunities. That does not imply, however, that these relatively entrepreneurial economies have a higher *trend path* in terms of employment or productivity. It could be that these same economies suffer bigger setbacks during an unusual drought of new opportunities. It could be too that the relatively *non-entrepreneurial* economies to some degree *offset* with their cunning in importing or copying the advances elsewhere what they lack in entrepreneurship.

What we need to do, then, is to examine how and to what degree differences in the "endowment" of economic institutions among the advanced economies explain the *levels* of things. For a start we might look at levels in a relatively normal year, namely 1995, just before the upheaval of the investment boom in several of our twelve economies – as if the economies were in a steady state that year.

For this purpose we need to shift gears a little. If we want to make use of the stock-market variable, capitalization as a ratio to GDP, and thus relate the level of that variable to the *level* of productivity or of employment, we had better recognize that this variable is much more than an indicator of the development (both its sophistication and its penetration in the business sector) of the stock exchange as an institution. It is very close to what is a key macroeconomic variable in the intertemporal models of Structural Slumps, namely, the value (per unit) of the business asset as a ratio to the opportunity cost of producing it – the ratio known as Tobin's Q ratio (in my notation). In the turnover-training model, for example, its key variable is the shadow price attaching to one job-ready employee,  $q$ , divided by the technological parameter giving the employees' productivity when producing (instead of training) *times* the number required to prepare a new employee for his job; and this ratio is close to the capitalization to GDP ratio. And there is a technical, or structural, relationship between that macro variable and the steady-state level of the business asset – hence also steady-state employment and productivity.

Consequently, I have explored a little a simple organizing idea: Visualize the steady state as determined by the intersection of two steady-state curves in a plane with the stock of the business asset on the horizontal axis and the Q-like variable on the vertical axis, which for present purposes we may think of as just the value (per unit) placed on the business asset by firms. One of these curves gives the steady-state *supply* of the business asset as an increasing function of the unit value placed on it by the firms. The other curve gives the steady-state asset's unit *value*, thus what it is worth to the firms, as a function of the size of the asset stock – in view of the burdens and hazards for the firms' profitability created by the adverse institutions in the existing institutional endowment and the prospective benefits of the propitious ones; this curve may be

downward sloping (as in the turnover-training and customer models) but if upward-sloping it is not as steep as the steady-state supply curve. Now think of the imposition of an adverse institution (or a more adverse one) as operating like a tax in that it shifts down the unit value of the asset *as seen by the firms and their owners*. (Equivalently, it inserts a *wedge* between the two curves *left* of their intersection.) The result is a movement *down the upward-sloping supply curve*. Hence the unit value of the asset stock to the firms is decreased and the steady-state stock of the business asset is correspondingly reduced – whether it is job-ready employees, plant or net foreign customers. In this formulation, then, we think of the influence of most or all economic institutions on the stock of business assets as occurring in significant part, if not entirely, *through* their creation of a bad wedge (or good wedge) that drives down (or up) the value of the business asset.

I've had time to try out this organizing idea with the four charts. The first part of this idea is that various institutions impact on the asset value curve. For this purpose one could reach for the familiar indicators of the welfare state, such as the Layard-Nickell “replacement ratio” or my “social wealth” variable. One could as well use supply-side indicators, essentially measures of departures from the “free market,” such as the tax rates on labor and the scale of government purchases. But I am attempting here to draw attention to the possible roles played in productivity and employment determination by institutions in a wholly different realm – the institutions that make up the economy's *operating system*, or its “market organization” in bygone terminology. So I will investigate the effects of some of these central economic institutions on asset valuation.

The first pair of charts, drawing upon the same cross-section of 12 economies used in Table 1, examines how two such operating institutions appear to affect the value of the business asset and thus the market-capitalization variable. In Figure 1 the stock-market variable appears to decrease with the degree of “coordination” among employers and among labor unions. Of course, several economists have supposed that coordination damages investment, employment and innovation, thus the supply of output and of wealth. But here, perhaps, we glimpse the channel through which this effect may occur. In Figure 2 we see the effect of another institution, an index of job protection, which, though valued for its presumably favorable effect on job tenure, is also seen to have a depressing effect on business asset valuation and thus, according to the theory, on the assets accumulated – from plant to employees. (This last variable can be understood to be a product of populist desire for community and stability rather than welfarist objectives, since the latter can be and are met through the entitlement programs of the state.) Of course, my thought is that we can learn something by carrying this investigation further to include the extent of private ownership, corporate governance arrangements, measures of financial development, etc.

The last pair of charts applies to the data the second part of the organizing idea, that the whole gamut of investments made by the firms in the business sector – the cumulative investment in fixed capital, the patents and results obtained from research and development expenditure, in customers and in readying workers to be functioning employees – are increasing in the value that firms place on a unit of each of these assets. If there is such a mechanism, it will presumably be displayed in the observed cross-

section between labor productivity and the stock-market variable, since the former is a proxy for the assortment of assets per unit of labor and the latter is a proxy for some weighted average of business asset values (suitably normalized). In Figure 3 we see that productivity in the business sector was indeed correlated with the considerably lagged stock-market variable in our cross-section sample. (The “market cap” in Holland and the U.K. is inflated by holdings of overseas business assets that do nothing to raise domestic productivity, however beneficial they are.) In Figure 4 we find that employment as a ratio to working-age population was also noticeably correlated with the stock-market variable.

I am not completely unaware of the limitations and pitfalls of this sort of analysis. An institution may be a proxy for a raft of institutions, some of which are the real source of the measured effect; a multivariate analysis is required, but there are not many countries to study. An institution may be in place only because the alternatives to it are worse, so that some more fundamental and overarching deficiency is the problem. An institution may function differently in one institutional set-up than in another, so there may well be interactions that are hard to capture. And so forth. But I feel that we would make a mistake not to go down this road simply because there is not very much light there. The returns from the perhaps small number of things learned may be very high.

# # #

The history of macroeconomics shows that, bit by bit, it has taken on board more and more of the real world: Two such additions, one the size of the public sector and consequent tax rates, the other the incentive effects of the welfare state, have been prominent. But it has given a wide berth to economic institutions. Encouraged by the above results, though, I can foresee a field of study that imbeds economic institutions into the macroeconomics of employment and productivity. Some factors that before were regarded as arcane – private ownership, financial accountability, minority shareowner rights, etc. – will find a place in the new models. Where to look for the most promising candidates? The institutional literature has grown large by now. The focus of the early institutional theorists, well represented by Douglass North, was on the poor enforcement of normal property rights: lax policing, weak courts, and poor patent protection – more recently, political instability and social unrest, which raise fears of expropriation. But I would not expect differences in these respects to explain much of the disparities in productivity nor in employment among the advanced economies in the OECD.

For ideas on the advanced economies and their differences I think of theorists in the past two decades with European puzzles explicitly on their minds, say, Mancur Olson’s *Rise and Decline*, Roman Frydman and Andrzej Rapaczynski’s *Privatization in Eastern Europe*, Edward Prescott and Stephen Parente’s *Barriers to Riches*. Now, in several papers in this volume, James Heckman takes an institutional perspective on the stagnation of Germany; Christopher Pissarides models the link between start-up costs and the economy’s employment; and Philippe Aghion and Peter Howitt inject the Nelson-Phelps view of education into productivity growth. They identify institutions that create stakeholders to share power with stockholders, that protect managements from competition and from takeovers, and that block entrepreneurs and oppose change.

The thread running through this new school is their recognition that productivity, the stimulation and satisfactions of business life and therefore the enlistment of working-age people into the business economy depend on the dynamism of the economy's operating system. Among economies that are entrepreneurial by some standard, an economy will be less creative and stimulating if some of its institutions offer reduced incentive to perform for those playing entrepreneurial, managerial and financial roles or offer less access to these roles for some who might perform them better.

Fresh winds are clearly blowing. I will be pleased if in these reflections I have succeeded in characterizing the nature of this new research perspective, in identifying a channel – asset values – through which the institutions it studies work their effects on the “real” economy, and in conveying some of the importance of this thinking.

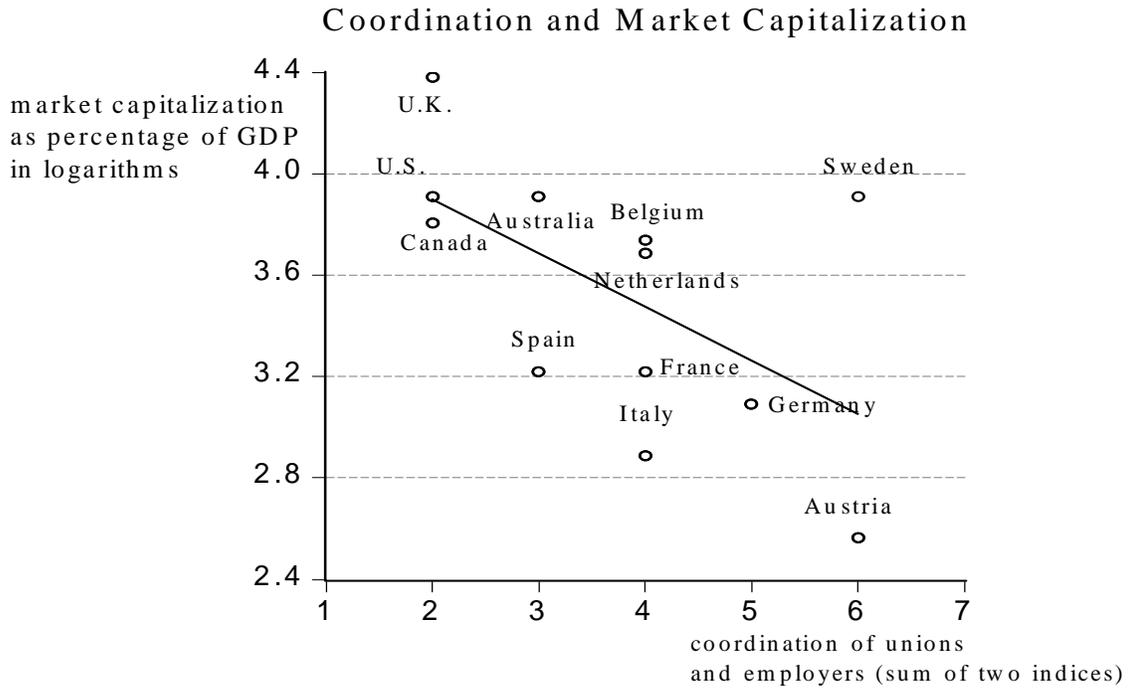
Table 1: The 1990s Investment Boom: Measures and Some Sources

	Mean Annual Growth Rate of: Fixed Investment	Stock-Market Real Exchange Rate	Red Labor's Share	Union + Capitalization in % of GDP	Univ'ty Tape Index	Employer Coord'n in % of LF	Univ'ty Degree
<b>A strong general investment boom in evidence</b>							
U.K.	10.8%	8.5%	2.0%	80	0.5	2	21
U.S.	10.6%	4.3%	0.6%	50	1.3	2	33
Canada	11.6%	-2.2%	1.3%	45	-	2	37
Holland (1997)	7.6%	0.9%	0.3%	40	1.4	4	22
Sweden (1997)	9.1%	-2.4%	2.1%	50	1.8	6	28
Australia(1995)	8.5%	-0.2%	-0.4%	50	-	-	24
<b>Few signs of investment boom driving the expansion (if any)</b>							
Austria	8.7%	-1.4%	0.1%	13	-	6	8
Spain	8.8%	-1.3%	-0.7%	25	1.8	3	16
France	6.2%	-1.9%	-0.3%	25	2.7	4	19
Belgium	6.0%	-1.9%	-1.1%	42	2.6	4	25
Italy	4.0%	0.3%	-0.7%	18	2.7	4	8
Germany	3.6%	-2.2%	-0.1%	22	2.1	5	23
euro zone	5.7%	-1.5%	-0.5%	-	-	-	-

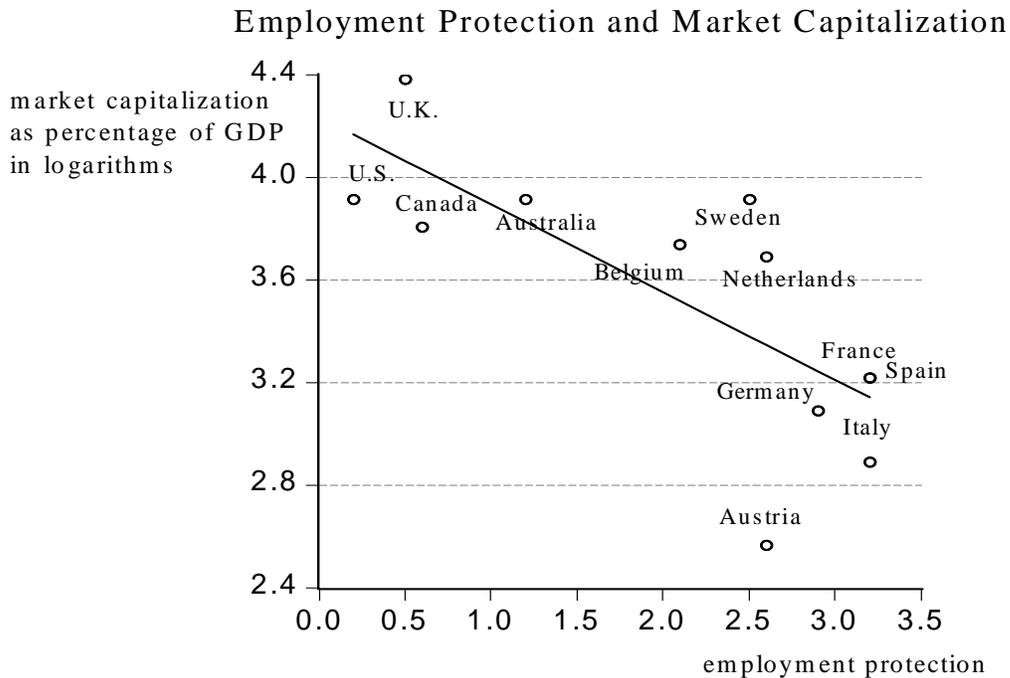
Source: OECD, *Economic Outlook* June 2000, Appendix and Ch. VII.

NOTES: Mean growth rate is the mean of the annual growth rates up to 1999 from 1996 or the start date given in parentheses. Investment is real gross private non-residential fixed capital formation. Compensation per employee is real total labor cost per person employed in the business sector. Labor's share is compensation per employee to output per employee in the business sector; only the growth rates from 1996 are available. The exchange rate is an index of trade-weighted nominal rates deflated by consumer price indices. Market capitalization figures from Morgan Stanley Capital International are for 1988. The OECD red tape index is from *The Economist*, July 1999. Proportion of labor force with university degree is from the OECD.

**Figure 1**

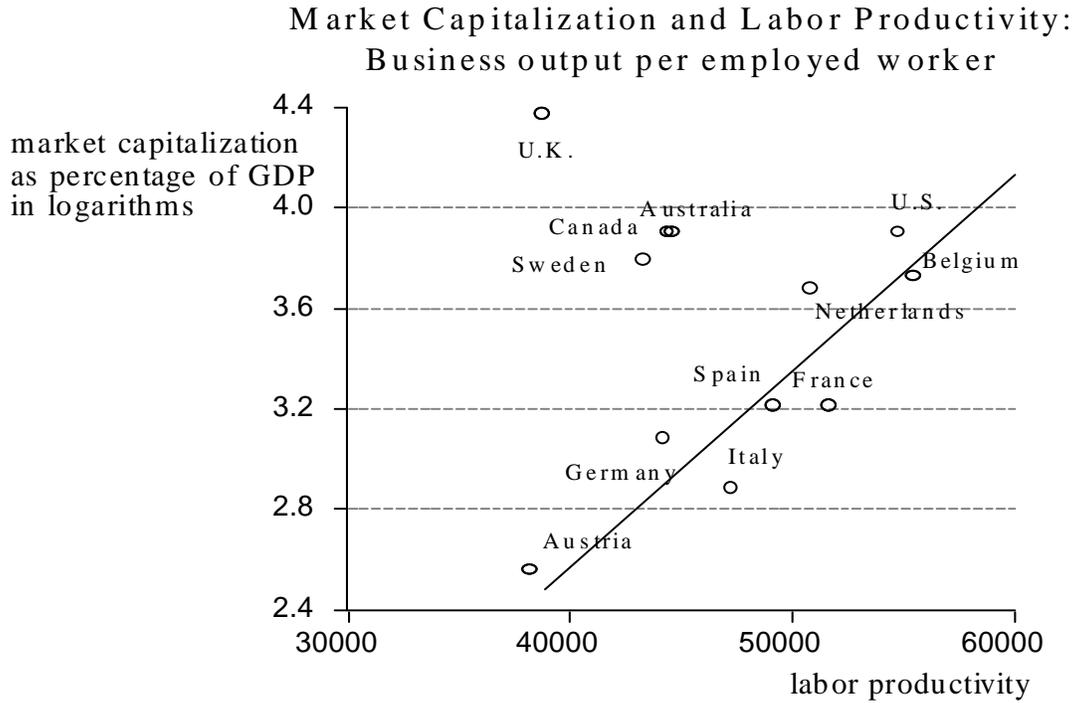


**Figure 2**

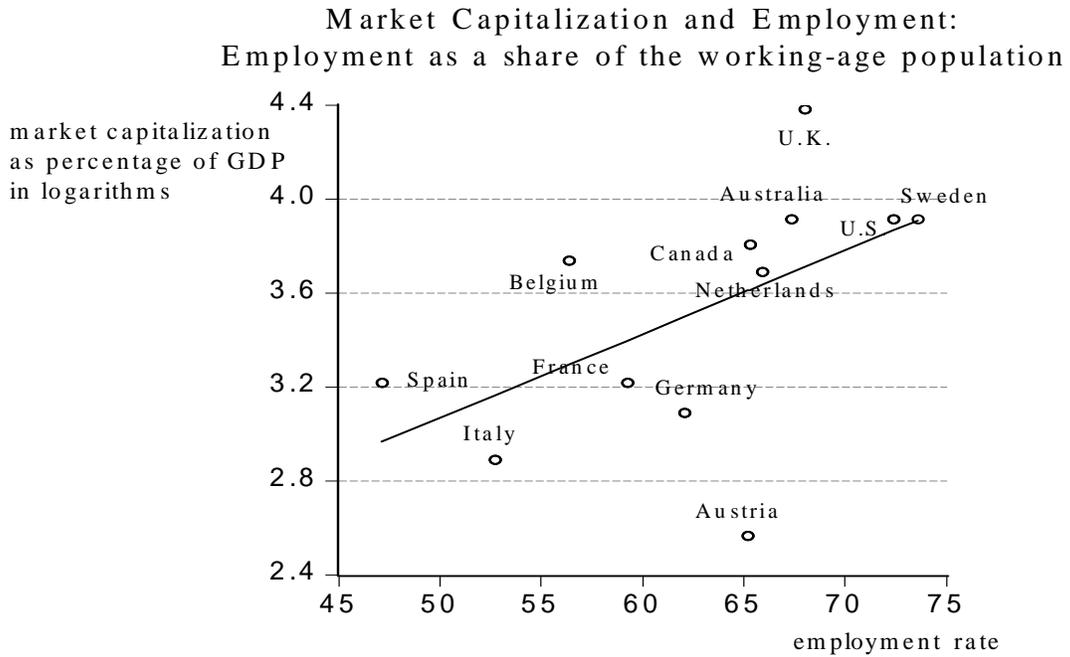


Sources: Morgan Stanley International and Nickell and Layard (1999). Market capitalization is the value of shares in the corporate sector in 1988. The coordination variable is calculated as the sum of Nickell's indices of union and employer coordination for the years 1989-1994. Employment protection is the number of months of salary that goes in mandatory redundancy payments.

**Figure 3**



**Figure 4**



Sources: Morgan Stanley International and OECD. Market capitalization variable measures the value of shares in the corporate sector in 1988. Labor productivity is calculated as business output per employed worker in US dollars. The employment rate is the ratio of total employment to working-age population.