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Inside this issue: **Laurence Meyer on booms and busts**



patterns of growth

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Contents

Patterns of growth 2

Stephen Nickell, Stephen Redding and Joanna Swaffield trace the decline of manufacturing in OECD economies.

Consulting the workers 10

Howard Gospel and Paul Willman explore the issues raised by the new EU directive on consultation

Bubbling along 18

Laurence Meyer looks back on lessons to be learned about monetary policy and boom markets

Staying on 23

Is the government hitting its higher education targets?
Damon Clark looks at the evidence

To peg or not to peg 28

Ellen Meade reflects on themes from the CEP's recent dollarisation conference



Patterns of growth

Since the early 1970s manufacturing's share in all OECD economies has fallen and the service sectors' has risen. **Stephen Nickell, Stephen Redding and Joanna Swaffield** examine the large differences in the pattern and timing of this process from country to country.

% of GDP

20.00

19.50

19.00

18.50

18.00

17.50

17.00



A key feature of economic growth in industrialised countries since the early 1970s has been the decline in manufacturing's share of GDP and the rise in the share of the services sector. Although these changes are common to all OECD countries, their magnitude and timing varies substantially. While the United Kingdom and United States were quick to de-industrialise, Germany and Japan have retained larger shares of manufacturing in GDP.

A variety of explanations have been proposed for this change and there has been much popular debate about its causes and implications. However, there have been few systematic econometric analyses of the phenomenon and what work there has been has typically focused on manufacturing to the exclusion of other sectors.

We have looked at five broad industrial sectors (including agriculture, manufacturing and the service industries) for 14 OECD countries since the mid-1970s in order to analyse the reasons for differing patterns of specialisation. Two popular explanations for de-industrialisation have been differential rates of technological progress and changes in relative prices. Our approach incorporates both of these considerations, while also allowing a role for factor endowments in explaining variation in the magnitude and timing of structural change and allowing a role for labour market institutions in shaping the speed of such change.

Levels of educational attainment are one popular explanation for differences in industrial structures. For example, Germany is frequently characterised as having high levels of the intermediate or vocational qualifications that lead to employment in the manufacturing sector. We investigate this hypothesis using a new dataset on educational attainment constructed from individual-level information in labour force surveys.

The data allow us to use a definition of educational attainment that is as consistent as possible for different countries and we have explicitly controlled for any remaining cross-country variation in the classification of educational levels. Information is available on an annual basis, providing a considerable advance on previous work, which relied on data available only every five years. The period since the mid-1970s is characterised by increasing levels of educational attainment in all OECD countries, although the magnitude and timing of these changes again varies substantially from country to country.

A second feature of this period is the marked change in female labour participation and education decisions. Between 1975 and 1994, for example, the percentage of the Canadian female population with a college degree or equivalent rose from 4.9% (approximately 50% of the male level) to 11.8% (over 75% of the male level). It is plausible that male/female differences in labour market outcomes and

their change over time are driven by largely exogenous cultural attitudes. Indeed, the extent of change varies markedly across countries with different cultural attitudes. Thus, while the percentage of the female population with a college degree or equivalent in Japan rose rapidly between 1975 and 1994, it was still only about 30% of the male level.

There is a wide literature on the male/female variation in education decisions and labour market outcomes. For example, many people have found a substantial gender wage differential, even after controlling for observable characteristics (such as age, experience, and occupation) and for unobserved heterogeneity. There is also informal evidence of substantial differences by industry and occupation. For example, men constituted 71% of manufacturing employment in the UK in 1975, compared with 42% in business services and 50% in "other" services. Further variation is observed in levels of educational attainment. Thus, in 1995, the percentage of female employees with a college degree or equivalent in UK manufacturing was approximately 7%, compared with 19% for men.

There has, however, been little attempt so far to systematically examine the implications of the changes in female/male education decisions for the production structures of different economies. Have economies that have been particularly successful in increasing levels of female educational attainment, tended to specialise in a different set of industries from those that have not?

Our preferred measure of education endowments is the number of men/women out of the working age male/female population with a particular level of educational attainment. This variable rises over time as education levels rise. The data allows us to test whether the effect on production structures of particular education levels is the same for men and women.

There is also a large theoretical and empirical literature on the role of institutions and public policies in shaping labour market outcomes. This emphasises the impact of employment protection and job security provisions in determining the speed at which workers are reallocated from old and declining sectors to new and expanding ones. In particular, previous research has found evidence of a negative effect of employment protection on growth and aggregate productivity and employment levels.

We examined the role of employment protection legislation in determining speeds of adjustment to long-run changes in patterns of specialisation. Our sample includes countries with very different extents of employment protection. We tested econometrically whether or not employment protection affects the speed of adjustment towards long-run equilibrium.

Our main source of data is the OECD's International

Labour market outcomes and institutions play an important roll

Sectoral Data Base (ISDB), which provides information for aggregated manufacturing and non-manufacturing industries on current price value-added, constant price value-added, employment, hours worked and the stock of physical capital. Data on a country's GDP and aggregate endowment of physical capital are also obtained from the ISDB. Information on educational endowments comes from individual countries' labour force surveys, while data on arable land area are taken from the United Nations Food and Agricultural Organisation (FAO).

Our sample is an unbalanced panel of 14 OECD countries and of aggregated (one digit) industries during the period 1975 to 1994. Table 1 lists the five one-digit industries used, together with a sixth category of "Government and Other Producers". This last is somewhat of a residual category and is less likely to be characterised by profit-maximising behaviour. For these reasons, it is excluded in the econometric analysis. More detailed information on the disaggregated sectors included in each one-digit industry is given in Appendix B of the discussion paper on which this article is based. Table 2 shows the evolution of industry shares of GDP in each of the 14 countries over the period we are studying.

We see a decline in the share of agriculture in GDP in all countries, although the rate of decline varies substantially – from over 95% in Germany from 1975 to 1993 to less than 30% in the Netherlands between 1975 and 1994. Countries also differ substantially in terms of the share of manufacturing industry in GDP. In Germany and Japan, manufacturing constituted about 30% of GDP in 1975, while in Australia, Canada and Denmark it was responsible for only 20%.

All countries experienced a decline in manufacturing's share of GDP. However, the magnitude and timing of this decline varies across countries. In Australia and the United

Kingdom, manufacturing's share of GDP declined by approximately 35% over the sample period, while in Denmark and Finland it fell by less than 10%. In The Netherlands and Norway, the decline was most rapid in the first half of the period, whereas in Germany and Japan most of the fall in manufacturing's share of GDP occurred in the second half. In other countries, such as Italy and the United Kingdom, the rate of decline of manufacturing's share of GDP was roughly constant over time.

The initial level of the share of "other production" in GDP varies from about 10% in Germany and the United States to over 15% in the natural resource rich countries of Australia and Canada. In all countries except Norway and Japan the share of this sector in GDP declined between 1975 and 1994. The share of "business services" in GDP rose in all countries for which data are available. The increase was most rapid in Australia, The Netherlands, Sweden and the United Kingdom. It was least rapid in Denmark and Norway. The share of "other services" in GDP rose in all countries except Denmark and Norway.

Table 3 shows male and female educational attainment as a percentage of the male and female population respectively for the years 1975, 1985 and 1994. Data for 1975 are only available for half of the 14 countries and, therefore, the discussion here concentrates on the period from 1985 to 1994. All countries in the table experienced an increase in the share of the population with higher education (college degree or equivalent). The rate of increase in this period varies markedly: from 38% in Italy and 36% in The Netherlands to 14% in Denmark and 15% in the United States.

All countries showed an increase in the proportion of both men and women with higher education. The increase is typically largest for women, which is reflected in a rise (except in France) in the share of women in the total number

Table 1: Industry Composition (International Standard Industrial Classification (ISIC))

Industry	Industry Code	Further Details
1. Agriculture	10	Agriculture, Hunting, Forestry and Fishing (ISIC 10)
2. Manufacturing	30	Manufacturing (ISIC 30)
3. Other Production	40	Mining and Quarrying (ISIC 20) Electricity, Gas, and Water (ISIC 40) Construction (ISIC 50)
4. Other Services	50	Wholesale and Retail Trade, Restaurants and Hotels (ISIC 60) Transport, Storage, and Communication (ISIC 70) Community, Social, and Personal Services (ISIC 90)
5. Business Services	60	Financial Institutions and Insurance (ISIC 82) Real Estate and Business Services (ISIC 83)
Excluded industry:		
Government/Other Producers	70	Producers of Government Services Other Producers

Notes: see Appendix B of DP545 for detailed information on the disaggregated sectors included in each one-digit industry.

Table 2: Shares of Industrial Sectors in a Country's GDP (per cent)(a)

Country	Year	Agric	Manuf	Other Prod.	Business Services	Other Services	Gov./ Other
Australia	1975	4.96	20.35	15.90	15.14	39.02	4.63
	1985	3.94	16.94	16.81	18.68	39.59	4.04
	1994	2.76	14.25	12.78	24.51	42.08	3.62
Belgium	1975	2.92	25.91	12.84	3.44 (a)	39.39	15.50
	1985	2.32	22.67	10.30	5.76 (a)	44.01	14.94
	1994	1.57	19.70	9.75	5.45 (a)	50.09	13.44
Canada	1975	4.91	20.35	15.01	15.28	26.14	18.31
	1985	3.10	18.96	15.77	18.22	25.78	18.17
	1992	2.38	16.26	12.77	21.29	26.94	20.36
Denmark	1975	5.59	19.99	10.21	14.58	29.19	20.44
	1985	5.60	19.57	8.15	16.76	27.83	22.09
	1992	3.86	18.53	8.60	17.95	28.36	22.70
Finland	1975	10.54	26.05	14.06	12.69	21.38	15.28
	1985	8.06	25.09	10.92	14.37	22.95	18.61
	1994	5.47	24.42	8.13	18.82	22.23	20.93
France	1975	5.60	27.22	10.36	15.95	25.55	15.32
	1985	4.07	23.07	8.95	19.23	26.92	17.76
	1992	2.93	20.80	8.33	22.83	28.11	17.00
West Germany	1975	2.88	35.40	10.10	4.64(a)	26.28	14.32
	1985	1.80	32.62	9.09	5.66(a)	29.33	14.09
	1993	1.09	27.16	8.32	6.04(a)	35.67	13.68
Italy	1975	7.14	27.43	13.59	5.11(b)	35.48	11.25
	1985	4.55	24.61	11.08	4.79(b)	41.86	13.11
	1994	2.94	20.52	11.16	4.99(b)	46.82	13.57
Japan	1975	5.28	29.05	11.74	12.93	16.73(c)	10.05
	1985	3.06	28.37	10.98	14.78	20.22(c)	9.74
	1994	2.05	23.49	13.25	17.17	22.21(c)	9.64
Netherl.	1975	4.72	22.69	13.38	13.73	31.08	14.40
	1985	4.15	18.64	15.50	18.29	31.20	12.22
	1994	3.52	18.63	9.64	24.10	33.37	10.74
Norway	1975	5.01	21.81	12.21	14.32	30.99	15.66
	1985	3.30	13.69	27.35	15.22	25.45	14.99
	1991	3.14	12.14	20.49	18.23	28.74	17.26
Sweden	1975	4.84	28.02	10.25	14.40	21.37	21.12
	1985	3.59	23.66	9.81	17.58	21.21	24.15
	1994	2.16	21.44	8.56	23.33	21.53	22.98
United Kingdom	1975	2.58	28.21	11.33	15.71	24.73	17.44
	1985	1.90	23.92	15.36	18.80	24.24	15.78
	1993	1.88	19.94	9.76	24.54	28.69	15.19
United States	1975	3.46	22.28	10.07	18.21	31.68	14.30
	1985	2.07	19.47	10.78	23.08	31.85	12.75
	1993	1.65	17.39	8.08	26.74	33.05	13.0

Notes: "Government and Other Producers" (ISIC 70) is the excluded industry in the econometric analysis that follows. (a) Figures are for the sub-sector "Financial Institutions and Insurance". (ISIC 82) and the numbers, therefore, sum to less than 100%. (b) Figures are for the sub-sector "Financial Institutions and Insurance" (ISIC 82). (c) Figures for "Other Services" exclude the sub-sector "Wholesale and Retail Trade, Restaurants and Hotels" (ISIC 60) and, therefore, sum to less than 100%. Source: OECD International Sectoral Database (ISDB)

of individuals (men plus women) with higher education. There are notable differences in patterns of educational attainment. Educational attainment in Germany and Norway is disproportionately concentrated, relative to other OECD countries, in the medium education group. In the United Kingdom in 1975, over 50% of the male population and over 60% of the female population were in the low education group, compared with less than 30% of the male



There have been marked changes in female labour participation

population and less than 25% of the female population in the United States.

The share of the male population with higher education typically exceeds the share of the female population. However, this is not always so – in France, Italy, and Sweden in 1985 the share the female population with higher education exceeded that of the male population. There are large changes in the relative educational levels of men and women over time and the rate of change varies substantially. In Canada in 1975 and Australia in 1982 the

proportion of women with higher education was just over half that for men. However, by 1993 in Australia and by 1994 in Canada the share of women with higher education was over 75% that for men. In contrast, in Japan, the share of women with higher education in 1994 remained about 30% that for men.

Multiplying the percentage shares in Table 3 by the male and female population levels shown in Table 4, we obtain our preferred measure of countries' endowments of men and women with each education level. There is much

Table 3: Education attainment as a percentage of the male and female working age populations

Country	Year	Men			Women		
		Low	Med	High	Low	Med	High
Australia	1982	.484	.438	.078	.623	.333	.044
	1985	.462	.448	.091	.592	.353	.055
	1993	.341	.542	.117	.441	.469	.090
Belgium	1975	-	-	-	-	-	-
	1986	.349	.600	.051	.457	.523	.021
	1994	.277	.649	.073	.350	.614	.035
Canada	1975	.272	.639	.089	.264	.687	.049
	1985	.198	.682	.120	.189	.727	.084
	1994	.127	.696	.147	.133	.723	.118
Denmark	1983	.337	.611	.053	.452	.531	.017
	1985	.240	.707	.053	.386	.595	.019
	1994	.190	.751	.055	.302	.665	.028
Finland	1984	.526	.387	.086	.562	.359	.079
	1985	.512	.399	.089	.547	.370	.082
	1994	.438	.440	.121	.440	.435	.125
France	1982	.469	.421	.109	.466	.405	.129
	1985	.425	.449	.125	.418	.436	.146
	1994	.307	.511	.181	.308	.485	.207
West Germany	1984	.148	.783	.109	.315	.647	.051
	1985	.143	.774	.121	.311	.644	.057
	1994	.132	.758	.140	.252	.681	.083
Italy	1979	.529	.426	.044	.474	.477	.049
	1985	.392	.550	.058	.330	.607	.063
	1994	.217	.715	.083	.172	.744	.094
Japan	1975	.433	.425	.142	.484	.487	.029
	1985	.306	.501	.193	.336	.619	.045
	1994	.228	.534	.238	.226	.703	.071
Netherlands	1975	.371	.526	.103	.490	.460	.050
	1985	.216	.630	.153	.278	.621	.100
	1994	.146	.648	.206	.169	.671	.160
Norway	1976	.023	.862	.114	.018	.915	.067
	1985	.030	.822	.147	.025	.869	.106
	1994	.029	.775	.195	.028	.803	.169
Sweden	1975	.553	.323	.123	.596	.301	.103
	1985	.410	.413	.177	.420	.398	.181
	1994	.293	.430	.203	.262	.443	.227
UK	1975	.514	.438	.048	.634	.352	.015
	1985	.375	.528	.097	.447	.508	.046
	1994	.258	.618	.124	.314	.613	.073
United States	1975	.274	.549	.177	.229	.625	.146
	1985	.166	.598	.237	.122	.672	.206
	1994	.117	.605	.270	.083	.659	.257

Notes: Educational attainment data are from individual-level information in country labour force surveys. Low = no education or primary education; Medium = secondary and/or vocational qualifications; High = college degree or equivalent.



It takes time for factors of production to be reallocated

variation between countries in their relative levels of educational endowment and in the extent to which our five chosen industries employ men and women of a given educational level.

In 1975, for example, the ratio of arable land to physical capital in the United States was approximately 10 times that in the Netherlands. Countries also display very different rates of physical capital accumulation, with the physical capital stock rising between 1975 and 1992 by 113% in Japan, compared with a rise of 34% in Denmark.

An account of our economic estimation is given in our Discussion Paper, "Educational Attainment, Labour Market Institutions and the Structure of Production". We considered the static long-run relationships between the share of a sector in GDP, relative prices, technology and factor endowments. Economic theory leads us to expect that the more productive an industry, or the higher the price received by firms in that industry, the greater the amount of output that will be produced. With the exception of "Other Services", where the measurement of technology and prices is particularly difficult, we find exactly this pattern of estimated coefficients.

Our measures of factor endowments have a statistically significant effect on patterns of production. The coefficients on individual endowments vary substantially between industries. For example, while endowments of low education men have a positive and statistically significant effect on the share of agriculture and other services, the effect in manufacturing and business services is negative (with the coefficient for manufacturing significant at the 12% level). Male and female educational endowments have very different implications for patterns of production. For example, while endowments of medium education men have a negative and statistically significant effect on the share of business services in GDP, the effect of endowments of medium education women is positive and statistically significant. These empirical results provide statistical support for the idea that men and women of the same educational level have (or are perceived to have) different vectors of other characteristics or dimension of skills. They are consistent with the large labour market literature that finds substantial differences between men and women in terms of labour market outcomes.

In practice, it is likely to take time for factors of production to be reallocated from declining to expanding sectors. The speed at which this happens may depend on labour market policies and institutions – in particular, on employment protection provisions that limit the ability of firms in declining sectors to shed labour or raise the cost to of them of doing so. So we added a lagged dependent variable to our calculations and interacted it with a measure of the extent of employment protection to capture these dynamics.

The estimated coefficients indicate that the employment

Table 4: Endowments of physical capital (US \$ bn, 1990 prices); population ('000); arable land area ('000 hectares)

Country	Year	Capital	Males	Females	Arable
Australia	1979	789.80	4777	4651	43932
	1985	971.04	5294	5148	47150
	1993	1226.92	5944	5828	46300
Belgium	1975	385.88	-	-	982
	1986	536.11	3338	3312	765
	1994	671.63	3378	3325	777
Canada	1975	1123.04	7649	7531	44000
	1985	1686.04	8946	8827	45900
	1992	2192.23	9756	9609	45370
Denmark	1983	374.89	1702	1673	2593
	1985	389.32	1716	1683	2601
	1992	441.74	1768	1721	2539
Finland	1984	353.87	1663	1663	2294
	1985	365.18	1672	1667	2276
	1994	457.47	1719	1685	2267
France	1982	2419.60	17674	17611	17651
	1985	2573.97	18181	18224	17923
	1992	3061.88	18797	18839	18046
W Germany	1984	3756.45	21259	21396	11952
	1985	3845.38	21355	21385	11957
	1993	4716.85	28117	27127	11676
Italy	1977	2380.55	17800	18645	9359
	1985	3054.87	19313	19973	9050
	1994	3911.39	19353	19607	8329
Japan	1975	2757.52	37180	38460	4460
	1985	5276.81	40950	41360	4209
	1994	8572.96	43630	43360	3999
Netherlands	1975	583.50	4406	4322	759
	1985	732.83	5023	4899	826
	1994	886.90	5182	5353	885
Norway	1975	203.16	1266	1239	792
	1985	319.33	1355	1314	858
	1991	376.38	1403	1355	892
Sweden	1975	414.12	2660	2599	3006
	1985	532.66	2729	2665	2922
	1994	669.49	2844	2754	2780
United Kingdom	1975	1970.63	17554	17638	6883
	1985	2464.50	18643	18555	7006
	1993	3063.79	19019	18763	6081
United States	1975	13658.82	68335	70560	186472
	1985	18257.51	78450	80067	187765
	1993	22083.93	83768	84837	181950

Notes: Capital is stock of real physical capital from OECD's International Sectoral Database (ISDB). Male and female population data from individual country labour force surveys. Arable land area from United Nations Food and Agricultural Organisation (FAO).

The decline in manufacturing was earlier and more extensive in the UK and the US than in German and Japan

protection interaction was positively signed and statistically significant for the three industries that declined as a share of GDP during our period – agriculture, manufacturing and “other production”. This provides evidence that countries with higher levels of employment protection were slower to reallocate resources away from these sectors in response to a change in long-run patterns of specialisation. The employment interaction was positively signed, although not statistically significant, for the two industries that expanded as a share of GDP during the period – “other services” and business services. This is consistent with the idea that the main effect of employment protection is to raise the cost of shedding labour in declining sectors.

We found the effects of employment protection to be not only statistically significant but also quantitatively important. The estimated coefficient for the lagged dependent variable in manufacturing ranged from 0.44 for the United States at one extreme to 0.78 for Italy at the other, a difference of over 75%).

Looking at the general equilibrium effects of changes across different industries, we estimated that moving a man from low to medium education reduces the share of agriculture and “other production” in GDP, but increases the share of manufacturing and “other services”. In contrast, the effect of moving a woman from low to medium education is

Table 5 Contribution of Explanatory Variables to Changes in Shares of GDP percentage points.

	(1) Agriculture	(2) Manufact. Production	(3) Other Production Services	(4) Business Services	(5) Other Services
West Germany (1985-93)					
Actual Change in GDP Share	6.34	-0.71	-5.46	-0.78	0.38
Predicted Change in GDP Share	5.25	-0.92	-4.54	-2.26	2.38
Education (Male + Female)	3.25	1.41	-1.10	-1.12	-0.39
Capital	0.14	-0.39	-0.42	0.71	0.61
Arable Land	0.04	-0.17	-0.13	-0.01	0.35
TFP	0.38	1.51	0.31	0.12	-1.01
Prices	-1.33	0.00	-1.32	0.68	1.12
Year Effects	-1.56	-4.39	0.43	1.27	0.94
Japan (1976-93)					
Actual Change in GDP Share	5.43	-3.14	-4.93	1.81	3.43
Predicted Change in GDP Share	4.57	-3.45	-5.47	2.50	3.88
Education (Male + Female)	3.70	1.89	0.38	-3.56	0.95
Capital	0.71	-1.90	-2.07	3.53	3.02
Arable Land	0.15	-0.67	-0.52	-0.03	1.36
TFP	-2.01	2.55	-1.54	-1.01	0.62
Prices	-1.01	-0.51	6.68	-1.15	-1.46
Year Effects	-3.17	-5.33	3.51	1.58	-2.67
United Kingdom (1976-93)					
Actual Change in GDP Share	3.97	-0.92	-7.65	-2.14	8.48
Predicted Change in GDP Share	2.22	-1.30	-9.16	0.09	8.88
Education (Male + Female)	3.56	1.98	1.52	-4.43	1.91
Capital	0.29	-0.78	-0.85	1.45	1.24
Arable Land	0.20	-0.92	-0.72	-0.04	1.87
TFP	0.25	-4.70	3.87	-1.73	-1.43
Prices	-0.86	1.04	-1.29	5.70	-0.36
Year Effects	-3.17	-5.33	3.51	1.58	-2.67
United States (1976-93)					
Actual Change in GDP Share	1.22	-1.39	-5.48	-2.07	8.64
Predicted Change in GDP Share	1.98	-1.89	-6.69	-1.27	8.12
Education (Male + Female)	3.08	1.97	0.89	-2.92	0.32
Capital	0.32	-0.85	-0.93	1.58	1.35
Arable Land	0.04	-0.18	-0.14	-0.01	0.36
TFP	0.86	-0.03	-1.37	0.58	-0.98
Prices	-1.91	-1.20	0.56	4.06	0.83
Year Effects	-3.17	-5.33	3.51	1.58	-2.67

Notes: For an explanation of the methodology used to derive this table, see Table 9 in the CEP's Discussion Paper No. 545, page 26.



to reduce a country's specialisation in manufacturing, but to increase it in business services. Similarly, moving a man from medium to higher education increases specialisation in business services, though moving a woman from medium to higher education has the opposite effect. Thus, production structure responds very differently to the educational attainment of men and women.

Table 5 evaluates the contribution of each of the explanatory variables to observed changes in shares of GDP during our period. For simplicity, we focus on our static specification, excluding the lagged dependent variable and its interaction. In general, the predicted changes in GDP shares for each of the five industries lie close to the actual changes, providing evidence that our model is relatively successful in explaining changes in specialisation over time. The model is least successful for "other production". This is consistent with the existence of unobserved changes in known mineral resources, which are important for this sector. The year effects play a substantial role in all sectors except business services, supporting the idea that de-industrialisation is part of a secular trend and a shared experience across OECD countries.

The table indicates clearly how the timing and magnitude of de-industrialisation varies substantially from country to country. The decline in manufacturing's share of GDP occurred earlier and was more extensive in the United Kingdom and United States than in Germany and Japan. It suggests that this is largely explained by differences in rates of Total Factor Productivity (TFP) growth in the four countries. The effect of TFP growth on changes in manufacturing's share of GDP was negative in the United Kingdom (-4.7 points) and the United States (-0.03 points), but positive in West Germany (1.51 points) and Japan (1.51 points). In Japan, the rapid decline in agriculture's share of GDP (3.14 points) is largely explained by rates of TFP growth (an effect -2.01 points), although the evolution of relative prices across sectors also had an important influence (-1.01 points).

Overall, as the table shows, rising educational attainment made a large negative contribution to the change in the GDP share of "other production" and a large positive contribution to the change in "Other Services". This is consistent with the idea that many service sectors are relatively skill intensive. The table suggests that the more rapid increase in business services' GDP share in the United Kingdom and United States, relative to West Germany and Japan, was largely due to country-specific changes in relative prices (which, for example, made a contribution of 5.7 points in the United Kingdom and -1.15 points in Japan). Physical capital also made a positive contribution to the expansion of business services and "Other Services", which is consistent with the high values of the real estate involved in these sectors.

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Consulting the workers

The government's green paper on employee involvement in the modern economy asks for evidence and comments by 11 December. **Howard Gospel and Paul Willman** offer their commentary on its implications in the context of the EU's new directive on employee information and consultation.

At the beginning this year, the European Union approved a major piece of industrial relations law – the Directive on Information and Consultation (2002/14/EC). Its provisions are due to cover all enterprises with 150 or more employees by early 2005 and all with 50 or more employees by 2008. This summer the government produced a green paper in response entitled “High Performance Workplaces: The Role of Employee Involvement in a Modern Economy: A Discussion Paper”.

This means that, in less than five years' time, three quarters of the entire UK labour force will be affected by the directive. It will certainly start immediately to have an impact, as managements and unions plan for its implementation. The question is whether this opportunity will be used to establish an effective system of information sharing and joint consultation in British industry or whether it will become another of the long list of historically missed opportunities in this area.

The box opposite gives a summary of some of the main

provisions of the directive. It is clear that these are far-reaching, so far as British industrial relations are concerned. Exactly how the directive will be incorporated into UK law will depend on political circumstances. However, some outcomes are reasonably certain. Forms of consultation based on direct participation will not qualify. Equally, *ad hoc* and issue-specific arrangements will not qualify, since the directive talks about a “permanent” and “general” system of consultation (Article 10). Many other existing systems of consultation will also not qualify, such as those where representatives are appointed by management. Trade union collective bargaining *will* qualify, provided that non-members are not disenfranchised. In addition, it seems likely that arrangements will have to be created at multiple levels within enterprises.

Other elements are still unclear. For example, how, in the absence of an employer initiative, will a request for a council or committee be instigated? Will there be a process of balloting? Who will be deemed to be representatives and how will such persons emerge? What exact sanctions will there be? However, as with all EU-derived law, the domes-



tic version will be subject to interpretation by the European Court of Justice. In the past, in areas such as representation, sex discrimination, and working time, the Court has rendered Directives far-reaching.

British trade unions and employers come to the directive with traditional attitudes and historical experiences that differ from those of their continental counterparts. Historically, British employers made most decisions on work matters unilaterally.

During the First World War, both collective bargaining and joint consultation developed significantly at national and workplace levels. In 1918 the Whitley Committee recommended that both should be further elaborated, with collective bargaining concentrated on pay and conditions and joint consultation on other matters, especially at the workplace. At the time, however, strong unions showed little interest. Weaker unions accepted the proposals on multi-employer bargaining, but again showed little interest in joint consultation. Equally, most employers were reluctant to accept workplace level representation, either by shop stewards or other worker representatives. At that time it was Germany that introduced by law a system of combined collective bargaining and joint consultation.

In the thirty years after 1945, as they saw their membership and power grow, British unions demanded collective bargaining in preference to joint consultation. This contrasted with the situation in continental Europe, where employee consultation was firmly established by statute in Germany, France, and other countries, and operated alongside collective negotiations. This difference was reflected in the 1968 report of the Donovan Royal Commission: "Collective bargaining is the most effective means of giving workers the right to representation in decisions affecting their working lives". Approvingly, it quoted Bill McCarthy's research paper for the Royal Commission as saying that consultative committees "cannot survive the development of effective shop floor organisation: either they must change their character and

Main principles in the Directive

1. Consultation is defined as "an exchange of views and the establishment of dialogue" (Article 2), which implies an ongoing process.
2. Article 4 outlines the minimum obligations created: (a) an obligation to provide information on the general business situation of the undertaking; (b) an obligation to inform and consult on the likely development of employment and on "anticipatory measures" that might threaten employment; and (c) an enhanced obligation to inform and consult on decisions likely to lead to substantial changes in work organisation or in contractual relations. Consultation must take place at an "appropriate" time, with employee representatives able to study the information adequately in advance and to prepare for it properly. It must also be "at the relevant level of management and representation depending on the subject under discussion", which implies that there should be different levels of representation and consultation within an undertaking. Consultation under (c) above shall be "with a view to reaching an agreement", which implies an ongoing process of give-and-take. Management is obliged in all consultation to provide a reasoned response to representatives' opinions.
3. Employers and employee representatives may negotiate different arrangements before and after the directive comes into force, but these would have to respect its principles (Article 5).
4. Representatives must have adequate "protection and guarantees" to enable them to perform their duties (Article 7).
5. Employers may withhold information that they consider would seriously damage their undertaking, while representatives and "any experts who assist them" may be made subject to an obligation of confidentiality.
6. Sanctions for failure to comply shall be "effective, proportionate, and dissuasive" (Article 8).

become essentially negotiating committees... or they will be boycotted by shop stewards and fall into disuse".

Some interim conclusions may be drawn from this brief historical survey. First, the paradox of "free" collective bargaining in Britain was that it relied heavily on a framework of legal immunities and state support. It provided neither much of a ceiling on union aspirations in good times, nor much of a floor in bad times. Second, collective bargaining and joint consultation grew up in an interrelated and complex relationship. At times, they complemented each other; at other times, the one subsumed the other. Third, unions and employers missed a number of opportunities to build a system of employee representation based on interlocking collective bargaining and joint consultation. In the case of the unions, they missed the opportunity to secure positive legal rights when they were strong. From the late 1970s onwards, the coverage of collective bargaining shrank quickly.

From the 1970s, a number of factors shaped the practice of representation in Britain. First, legal intervention steadily increased. Some of this was initially auxiliary to collective bargaining, such as the provisions in the early 1970s for union recognition and for information disclosure. Some of it mandated forms of representation on specific issues, such as health and safety and, as a result of EU membership, collective redundancies and transfer of undertakings. These procedures initially gave legal priority to union representatives, but, in their absence, allowed for non-union representation. Second, the favourable political and legal context changed with the election of the Thatcher government in 1979. Through the subsequent years, immunities were removed and restrictions were placed on unions and their collective bargaining activities. Third, union membership and the coverage of collective bargaining began to shrink, undoubtedly in part as a result of an increasingly hostile legal and political environment. Fourth, from the 1980s onwards, employers increasingly looked to alternative voice mecha-



nisms, based in part on indirect representation via joint consultation, but based more on direct communication and participation via direct workforce meetings, briefing groups, and problem-solving circles.

The election of a Labour government in 1997 led to new legislation on union recognition. It also led to the reformulation of law deriving from European directives on representation in collective redundancies and transfer of undertakings, where priority in the choice of representatives is now vested in a descending order of, first, union stewards, then representatives of standing consultative committees, and, last, representatives chosen ad hoc for the specific purpose. In the case of multinational corporations, the government also implemented the European Works Councils Directive. This created two precedents: it established legally-based, standing, general consultative arrangements in Britain, albeit for a particular group of employees; and it introduced the idea of representation that is inclusive rather than exclusive, giving priority in the choice of representatives to the entire workforce and not just to union members. When this is combined with the acceptance of the EU directive on information and consultation rights in national level undertakings, it is clear that, in terms of the law and practice, Britain has moved decisively down a multi-channel road, but has still been left with a fragmented system of information, consultation and representation.

So let us look at the state of employee representation in

Britain today and how it has changed over the past two decades. We use here successive Workplace Industrial Relations Surveys (WIRS) for 1980, 1984 and 1990, the Workplace Employment Relations Survey (WERS) for 1998, and the CEP's British Workplace Representation and Participation Survey (BWRPS) for 2001.

In 1998 unions were recognised in 42% of all workplaces with 25 or more employees and had a presence (i.e. membership but no recognition) in another 12%. In other words, almost half of all such workplaces had no union presence at all. In the private sector, unions were recognised in only 25% of these workplaces. However, recognition is not representation. In 1998, 28% of these workplaces had union representatives, 7% had non-union representatives, and 4% had both. On the whole, non-union representatives were slightly more likely to be found in workplaces where there was a union presence, but no union recognition. Overall it should be kept in mind that a majority of workplaces had no representatives of any kind.

In 1998, the coverage of joint consultative committees was not very different from that of collective bargaining, with 29% of all workplaces having a workplace consultative committee. In the private sector, this was true of 20% of all workplaces. (Some of these consultative committees, however, were not always "functioning" i.e. meeting at least three times a year.) Equally, there was evidence of a similar "hollowing out" of collective bargaining institutions. Consultative committees can exist at various levels. Thus, in

Table 1. % scope of negotiation, information, and information-provision, by type of worker representatives, 1998

Issue	Negotiates %	Consults %	Informs %	None%	Note. All establishments with 25 or more employees. The figures for union representatives are weighted and based on responses from 923 managers in workplaces with 25 or more employees, union recognition and a union representative on site. The figures for non-union representatives are weighted and based on responses from 134 managers in workplaces with 25 or more employees and without union recognition, but with non-union representative. Source: WERS 98.
Union representatives					
Pay or conditions of employment	38	13	17	32	
Recruitment or selection	3	15	30	52	
Training	5	29	24	42	
Systems of payment	12	16	26	46	
Handling grievances	18	54	13	15	
Staffing or manpower planning	6	33	24	37	
Equal opportunities	7	41	17	35	
Health and safety	13	62	11	14	
Performance appraisals	6	25	16	53	
Non-union representatives – workplaces with no recognition					
Pay or conditions of employment	16	33	36	15	
Recruitment or selection	2	33	32	33	
Training	3	46	24	27	
Systems of payment	4	20	48	28	
Handling grievances	14	50	16	20	
Staffing or manpower planning	3	36	40	21	
Equal opportunities	10	45	23	22	
Health and safety	18	62	19	1	
Performance appraisals	2	48	19	31	

the private sector, 16% of workplaces had a committee at workplace level and 18% at a higher level, but only 8% had both. Size effects here are complicated. Workplace size is positively associated with the existence of a workplace committee, but negatively associated with the use only of a higher-level committee. Organisational size is negatively associated with workplace committees, but positively associated with higher-level committees or a combination of the two. Union recognition and consultative committees appear to be associated. Thus, overall, 74% of workplaces with a recognised union had a committee, compared with 34% those without one.

Overall, the scope of joint regulation is modest. Table 1 shows the balance of negotiation, consultation, and information sharing by issue in the minority of workplaces where there is on-site representation. In workplaces where there are union representatives, bargaining is clearly dominated by pay and, to a lesser extent, by grievance handling. In these workplaces, aside from "pay bargaining" and "grievance handling", consultation and information sharing is the dominant joint process. In workplaces where there are non-union representatives and no union recognition, information and consultation are the dominant processes, but a surprising amount of negotiation is reported on "health and safety" and on "pay and conditions". Again, unilateral management regulation is a large category, but less so than in workplaces where there are union representatives.

A final point here is that, in the private sector at least, the

main form of workplace communication and participation is of the direct kind. Thus, 35% of workplaces have problem-solving groups, 35% regular workplace meetings and 43% briefing groups. Taking these three practices together, 75% of all workplaces and 72% of private sector workplaces had one or more of them.

The main changes over the past two decades are encapsulated in Table 2. First, there is a major decline in union density and presence, in particular in the private sector, where both density and recognition halved in 18 years. The



Will this become
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long list of
historically
missed
opportunities?



Table 2. Union presence, density, and recognition, collective bargaining, and joint consultative arrangements, 1980 to 1998

	1980 %	1984 %	1990 %	1998 %
Union presence – by workplace				
All	73	73	64	54
Private manufacturing	77	67	58	42
Private services	50	53	46	35
Union density – percentage of employees				
All	65	58	47	36
Private	56	43	36	26
Union recognition – by workplace				
All	64	66	53	42
Private	50	48	38	25
Collective bargaining predominant form of pay determination – by workplace				
All		60	42	29
Private manufacturing		50	33	23
Private services		36	29	14
Consultation – incidence of joint consultative committee – by workplace				
All – any consultative committee	34	34	29	29
All – any functioning consultative committee	30	31	26	23
Private	26	24	18	20
Union recognition	37	36	34	30
No recognition	17	20	17	18

Source. Adapted from Millward et al. (2000), pp. 85-87, 96, 109, 186-191, 197

proportion of workplaces where collective bargaining was the dominant form of pay determination fell overall from 60 to 29% between 1984 and 1998. In private sector manufacturing, it fell from 50 to 23% and in private sector services from 36 to 14%.

Second, the pattern of change in consultation is different. Overall, the decline is less marked than for the union-related variables. The overall and private sector trends on consultation coverage are not as divergent as those on union variables. In fact, there is a slight rise in private sector consultation coverage between 1990 and 1998. Third, the percentage of workplaces with union representatives fell from 53% to 33% between 1980 and 1998, whereas those with a non-union representative (where no union representative) increased from 16% to 41%.

Third, one of the main developments over the last 20 years has been the growth of "direct voice" arrangements. Thus, regular meetings between senior managers and the workforce, problem-solving groups, and briefing groups increased significantly in the private sector. Between 1984 and 1998, the proportion of workplaces where there was union-only voice fell from 24% to 9%; the proportion where there was both indirect voice (union and non-union) and direct voice fell from 45% to 39%; but those where managers relied solely on direct arrangements rose from 11% to 30%. In the case of briefing groups, the increase was confined to workplaces without a union and those without a consultative committee. Regular meetings and problem-solving groups were more common where there was union representation and where there was joint consultation. Overall, direct communication practices do not seem to have been used to supplant indirect representation via trade unions, but there is some weak evidence that they may be used to exclude unions.

Faced with the opportunities offered by the new directive, what is it that British workers want? There are substantial difficulties involved in answering this question. Not least is the fact that, with surveys, workers may say they want one thing in everyday circumstances, but may want something very different in other circumstances, as when confronted with a major change in contractual arrangements or collective redundancies. However, the BWRPS survey indicates some answers. Its main findings here are summarised in Table 3.

A majority of British workers report reasonably high levels of satisfaction in their jobs and of commitment to their employing organisation. However, they are often critical of management and a majority desire more say in decisions about work tasks, pay levels and organisational governance. A high 38% identify current problems with unfair and arbitrary treatment, in areas such as rewards and discipline and report favouritism and bullying. Despite this, 50% per cent of workers reported that they did not go to anyone for help with work difficulties. There would, therefore, seem



**British
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to be a fairly high flow of problems in British workplaces, which is borne out by the rapid increase in recent years in enquiries to the Advisory Conciliation and Arbitration Service and to Citizens Advice Bureaus and cases to Industrial Tribunals.

Table 3 also suggests that most workers would prefer to deal with problems collectively, rather than individually. The only area where there is a clear preference for individual remedies is promotion. However, it should be noted that in most cases the preference is for dealing with issues via a group of fellow workers, rather than via a trade union or staff association representative. Perhaps not surprisingly, union members show a stronger preference for collective solutions and prefer union representation, rather than working through a group of fellow workers. The exceptions are again on matters of promotion and training, where union members would look more to a group of fellow workers. Non-union employees prefer fellow workers to unions as the preferred method of collective action on all issues. It is notable that workers in situations where there is a recognised union (and where there is both a union presence and a consultative committee) would seem to have the highest preference for collective solutions.

Table 4 explores this further and shows that a large majority (72%) of employees think their workplaces would be better with some form of collective representation. This breaks down as 92% of union members and 61% of non-union members. However, in the case of union members, it is striking that only 11% favour a union on its own, whereas 74% favour both a union and a joint consultative committee or works council. The wishes of non-union members are more dispersed: 34% cent want no form of representation; 29% favour a joint consultative committee on its own; 27% favour a joint consultative committee and a trade union; but only 5% favour a union on its own. Workers who are in

Table 3 % preferences of employees for dealing with workplace issues

Would you prefer to deal with this problem on your own or with...	All employees	Union membership status		Only workplace with union presence	Only Workplaces with recognised unions	Only workplaces with WC or JCC	Both WC/JCC and union presence at workplace	Neither WC/JCC or union presence at workplace
		Member	Non-member					
Sexual or racial discrimination at work								
Group of fellow workers	72	78	68	78	78	70	76	63
Union or staff association rep.	67	84	58	72	77	56	83	54
Negotiating salary								
Group of fellow workers	65	81	56	73	74	60	82	44
Union or staff association rep.	53	80	38	73	77	38	72	31
Negotiating hours and conditions								
Group of fellow workers	71	81	65	73	75	67	80	62
Union or staff association rep.	52	76	38	69	73	39	68	34
Promotion issues								
Group of fellow workers	46	50	43	39	37	54	50	38
Union or staff association rep.	27	36	23	34	35	21	33	20
Workplace bullying								
Group of fellow workers	69	72	68	70	71	74	74	60
Union or staff association rep.	58	80	46	65	69	46	75	41
Training and skill development								
Group of fellow workers	67	73	65	66	63	73	71	59
Union or staff association rep.	30	36	26	40	41	28	30	23

Note: Sample was divided at random into two variants. One variant asked if the respondent preferred to solve specific problems on their own or with the help of a group of colleagues or fellow workers. The other variant asked if respondents preferred to solve problems on their own or with the help of a trade union or staff association representative. Each respondent could only choose either an individual or collective solution.

Source: BWRPS (2001) Q35



Table 4 Do you think your workplace would be better with...?
%

Do you think your workplace would be better with...	All employees %	Union membership status		Only workplace with union presence %	Only Workplaces with recognised unions %	Only workplaces with WC or JCC %	Both WC/JCC and union presence at workplace %	Neither WC / JCC or union presence at workplace %
		Member	Non-member					
Trade Union on its own	7	11	5	14	16	2	9	6
Works Council on its own	21	6	29	11	10	40	9	27
Works Council and Trade Union	44	74	27	60	63	24	72	20
Neither	24	5	34	11	8	31	9	43
Don't Know	4	3	5	3	3	3	2	4

Source: BWRPS (2001), Q51.

situations where there is already a union and a consultative committee are the most in favour of dual representation (72%), but it is also striking that workers in situations where there is a recognised union or a union presence are also well disposed to dual representation. There is little preference for a consultative committee on its own, except where there is already the situation. All this suggests both union and non-union members see these unions and consultative committees as complementary.

Taking this further, the BWRPS survey shows that 82% of workers would be in favour of legislation that required management to meet with employee representatives. Overall, union members are more favourably inclined to statutory works councils than non-members (89% as opposed to 77%). However, support for legislation is strongest (92%) where there are already dual channels. In addition, there is a strong feeling that works councils should be elected by workers (72%), have legal protections from possible discrimination by employers (75%), and meet on a regular basis and not just at management discretion (89%). On the other hand, the proportion favouring confidential information for employee representatives is relatively low (40% in the case of union members and 33% cent in the case of non-members).

Experience on the Continent has been very different. Germany went down the road of multi-channel representation – collective bargaining outside the firm, alongside legally based joint consultation at the workplace and company levels, and representation on the supervisory boards of companies. German unions have benefited from their relationship with works councils and vice versa. Works councillors tend to be union members; the union provides advice to the council, and this in turn gives the

union salience. Employees through their works councils receive more information and experience more consultation than their British counterparts. However, in recent years, some works councils have come to supersede unions, in terms of the issues being discussed through the consultation process and of agreed deviations from nationally bargained agreements.

In union terms, the German story is usually seen as a positive one. Union membership has only fallen from 35 to 29% of the workforce over the last 20 years. The coverage and scope of collective bargaining and joint consultation remain high, though with some shift towards decentralised dealings via works councils.

By contrast, the French story might be seen as a more negative one. Historically, France also went down the road of multi-channel representation, with legally based joint consultation alongside collective bargaining. Periodically, French governments have intervened in industrial relations to support consultative arrangements. Since 1945, the law has mandated the election of a *comité d'entreprise*. Buttressed by further legislation in the early 1980s, the purpose of the *comités d'entreprise* is to ensure expression of the views of employees and to allow their interests to be taken into account in decisions. French employers are legally obliged to inform and consult employees over a wide range of matters.

However, in France, for a number of reasons, this has not worked as well as in Germany. In part, this has been because French *comités d'entreprise* have less extensive rights and are more employer-led than German works councils. In larger part, it is because French unions are more fragmented, have less presence at the workplace and, consequently, have been less able to use the law and institutions. In France, union membership has fallen from 18 to 9% of the workforce over the last 20 years and the scope of collective bargaining at workplace level has narrowed. There is evidence that joint consultation and collective bargaining have not complemented one another and the former has often come to substitute for the latter. On the other hand, French workers would undoubtedly obtain less in the absence of the *comité d'entreprise* and, arguably, French unions have been able to maintain a foothold in many companies largely because of the role they play in these arrangements.

What, then, are British workers likely to get out of the process being set in train by the new impetus that the new directive will give to indirect representation via joint consultation?

Employers have the advantage that they have come to control employee relations and that, in many cases, they have introduced more sophisticated human resource policies than in the past. On the other hand, they are faced with constraints, quite apart from the new directive.



**British unions
demanded
collective
bargaining in
preference
to joint
consultation**



Employees seem to want a more representative voice at work and employers now confront unions that are more confident than they have been for many years. Undoubtedly, some employers will seek to avoid new arrangements, arguing either that they already have adequate mechanisms or that their employees do not want arrangements on these lines. This strategy clearly has dangers in that it may be challenged in all or in parts of an enterprise. For other employers, there is an opportunity to establish arrangements, either wholly or partially new, either with or without trade unions.

Unions must fear that employers may use the directive to exclude or eject them and that they may have neither the leverage nor the capability to mobilise workers to achieve and operate new information and consultation arrangements. On the other hand, there is evidence that employees desire more voice at work; that many workplaces have a union presence, which can be built on; and that unions now have legal supports, which they can potentially turn to their advantage. At one end of the spectrum, where unions already have a high level of membership and bargaining coverage, they may eschew new arrangements, but use the law to capitalise on what they already have and expand the scope and level of consultation and bargaining.

At the other end of the spectrum, where unions have no presence, they will have little choice but to accept what employers may put into place. Here unions will have mixed motivations as to whether they wish to see such arrangements succeed. Where arrangements are successful, this may mean permanent union exclusion; where they are less successful, this may mean new opportunities to intervene. It is in situations at the middle of the spectrum, where there is hollow recognition or a partial presence at some levels or in some parts of an undertaking, that unions will confront challenges and have real opportunities to increase their membership and activities.

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The main form
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Bubbling along

Laurence H. Meyer looks back on his time at the US Fed and asks whether its systems for forecasting and moderating stock market bubbles needs some modification.



During my first several years on the Federal Reserve Board of Governors, the US economy seemed to be breaking all the old rules. In particular, equity valuations seemed to be ignoring previously well-established norms about fair valuation; and inflation remained low, or even declined, as the unemployment rate fell to levels that in the past had been associated with rising inflation. This last year has seen a dramatic downward correction in those equity valuations.

Large swings in equity prices provide challenges to monetary policy. They can increase the threat of the economy over-heating on the way up and they can increase the vulnerability of the economy to a sharp decline in demand when an asset bubble bursts. So how should monetary policy makers respond to a development such as the equity price bubble that emerged in the second half of the 1990s?

An asset bubble, simply defined, is a large and unsustainable increase in the prices of a subset of real or financial assets above their fundamental, long-term values. Unfortunately, such bubbles are inherently difficult, if not impossible, to identify in real time. Indeed, Alan Greenspan, the Fed's chairman, has suggested that the best way to know whether a particular increase in asset prices is a bubble is to see whether those prices subsequently fall by 40% or more! So the first question is whether we have the operational means to detect bubbles in real time with a confidence that would allow us to take preemptive policy actions early enough to make a difference.

It would be useful to have a simple rule indicating to monetary policy makers how they should respond to rising asset prices and potential asset bubbles, even if how they applied such a rule to economic developments was within their discretion. But first we need to identify the objectives of monetary policy, its instruments and the transmission mechanism to aggregate demand.

In the US, the Congress has required that the Fed set monetary policy to achieve dual objectives: full employment and price stability. Most models of the monetary policy process, therefore, begin explicitly or implicitly with an objective function according to which losses are proportional to deviations of output from its full employment level and inflation from the Fed's target.

Virtually all central banks use a short-term interest rate as their policy instrument. In the case of the US, this is the federal funds rate. At each of the Federal Reserve Open Market Committee's eight meetings a year, the Fed sets a target for the federal funds rate that applies until the next meeting. The Manager of the System Open Market Account is then responsible for conducting open market operations to maintain the actual rate as close as possible to the target rate.

Such bubbles are difficult to identify in real time

Spending decisions, however, are not linked directly to the federal funds rate. The power of monetary policy comes from its influence on a wider range of financial variables that do directly impact on spending decisions, including short- and longer-term private interest rates, equity and other asset prices, and foreign exchange rates. These indices of broader financial conditions are, of course, also affected by developments other than monetary policy, including changes in the perception of risk, in inflation expectations and in fiscal policy.

A simple way to represent the strategy of monetary policy is the Taylor rule, named after the Stanford economist who is currently Undersecretary for International Affairs at the US Treasury. This formula sets out how monetary policy makers adjust, or should adjust, the federal funds rate in response to developments in output and inflation. It can be thought of as a representation of how policy makers on average have conducted policy in the past and/or of how policymakers should conduct policy in order to achieve their objectives. It is best not to think of the Taylor rule as a formula that policy makers are obliged to follow, but rather as a simple representation of systematic guidelines that inform the discretionary choices of policy makers.

The Taylor rule begins with the concept of an equilibrium real federal funds rate. This is the real federal funds rate (i.e. the nominal rate less the expected inflation rate) that is appropriate when output and inflation are at levels consistent with the policy maker's objectives in terms of full employment and price stability. Given the equilibrium real rate, the Taylor rule then prescribes that monetary policymakers should adjust the nominal funds rate so as to move the real funds rate in proportion to deviations of output and inflation from their respective objectives.

The logic of this adjustment reflects two features of the underlying model of the economy. First, the consensus model holds that increases in real rates, via their impact on broader financial conditions, lower aggregate demand and hence production and employment. Second, it holds that inflation depends on inflationary expectations (and, perhaps, also past inflation) and on the balance between aggregate demand and supply in the product and labour markets. This balance is proxied by the percentage gap between actual and potential output, or the difference between the unemployment rate consistent with steady inflation (the non-accelerating inflation rate of unemployment, or the NAIRU) and the actual rate of unemployment.

If output falls below its full employment level or if the unemployment rate rises above the NAIRU, then a decline in the real funds rate would stimulate aggregate demand and hence raise production back towards its potential level and lower the unemployment rate back to the NAIRU level. If inflation rises above its objective, a rise the real funds rate would have the opposite effects.

In terms of this framework, we can now identify how policy makers should respond to changes in asset prices. The conventional wisdom is that they should respond only indirectly to changes in asset prices. It says that they should respond only to the extent and in proportion to the effect of changes in asset prices on output and inflation relative to monetary policy objectives. In other words, policy makers should continue to follow the simple Taylor rule.

This framework already allows for the indirect response to the extent that the changes in asset prices affect output and inflation. Specifically, if wealth owners become more optimistic about earnings growth and bid up the price of equities, the resulting wealth effects and the decline in financing costs for firms

would increase consumer spending and business investment, thereby increasing overall aggregate demand and raising output relative to potential. Monetary policy would respond by raising the real federal funds rate in proportion to the effects on output and inflation.

But should monetary policy makers do more than what is called for in this indirect response? Specifically, should they respond directly to changes in asset prices? It is useful here to make a distinction between simply responding to changes in asset prices and responding to the possible emergence of an asset bubble. In the typical models underlying the indirect approach, changes in asset prices, working through to consumer spending and business investment, have the same effect whether they reflect fundamentals or speculation. If the policy concern is about the potential damage associated with the emergence and subsequent correction of asset bubbles, we need to go a step further and construct a measure of asset bubbles.

This is a demanding task. One could use a measure of fundamental value for equity prices, for example one based on a long average of the price-earnings ratio. Alternatively, one could develop a more sophisticated model of equity prices and use it as a measure of the deviation of equity prices from fundamental values.

An increase in asset prices based on fundamentals is easier to handle through the indirect approach. It is just another factor affecting overall aggregate demand and hence output and inflation relative to objectives. A speculative rise in asset prices, on the other hand, is different. Here the policy concern may be less the inflationary consequences of the surge in equity prices than the deflationary consequences of the ensuing correction.

The question is whether responding to the inflationary potential of the

Virtually all central banks use a short-term interest rate as their policy weapon

speculative rise in equity prices is enough to limit the emergence of a bubble and the adverse effects of the subsequent correction. The divergence of asset prices from fundamental values becomes an index of an accident waiting to happen. In these circumstances, the idea of a direct monetary policy approach is at least an interesting one.

However, it leaves open the question of whether responding on the basis of imperfect measures of equity bubbles would improve upon the results under the indirect approach. The case for the direct approach depends on whether we can demonstrate that responding directly to asset prices improves the performance of output and inflation relative to their objectives.

This is a potentially fruitful topic for research and I have an open mind about it. But I begin with some skepticism, based on two major considerations. The first is the inherent difficulty of identifying asset bubbles, especially in time to take action to prevent them from becoming dangerously large. The second is that the Taylor rule appears so well designed in relation to the objective function, directing policy makers to respond to precisely the deviations that give rise to costs in terms of the loss function.

Indeed, occasional asset bubbles may be inevitable in a capitalist economy, particularly a dynamic one that goes through occasional waves of innovation and technical change. My views in this respect are shaped by both the insights of my former Washington University colleague, the late Hyman Minsky, and by my reading of the long historical experience of the American economy.

Minsky always argued that economic expansions naturally give rise to conditions that encourage increased risk-taking and higher valuations of risky assets. His work focused on the tendency toward excess during expansions. Time and again, during

periods of prolonged favourable macroeconomic experience, individuals take on increased risk in portfolios, bid up asset prices to unsustainable levels and take on new levels of debt. This process increases the vulnerability of the economy to adverse shocks and, thereby, heightens the potential for such shocks to cause a sharp correction of asset prices, debt service problems and bankruptcies that would aggravate what otherwise might have been a milder downturn.

The historical precedents for the recent technology-related asset bubble may shed additional light on the circumstances that are especially conducive to the formation of asset bubbles. In a paper that I wrote in 1999,* I suggested that, in very broad brush terms, more than 100 years of US economic history could be viewed as a series of relatively long productivity cycles – periods of about a quarter century of higher and then lower productivity growth. Typically, productivity growth has averaged about 1½% per year during low productivity periods and about 3% during high productivity periods. Although it is difficult to be precise about those relationships, the cycles in productivity appear to be related to cycles in the pace of innovation, with high productivity periods coincident with or following a bunching of innovations.

One of the regularities that has often appeared in periods following an acceleration in productivity is a surge both in equity prices and in investment in the innovating industries, followed by a correction in both. Even when the innovations were fundamentally important and productivity enhancing, the associated corrections highlight the difficulty that businesses inevitably encounter in successfully exploiting them. In addition, the swings in asset prices reflect the tendency to overestimate the extent or persistence of the profit opportunities that follow from innovations.

It also seems that some expansions

are more likely than others to encourage the development of asset bubbles. In particular, expansions driven by demand shocks seem less likely to encourage asset bubbles than expansions driven by supply shocks, specifically expansions accompanied by and driven by accelerations in productivity.

During demand-driven expansion, real interest rates tend to rise as above-trend growth raises utilisation rates. Rising real interest rates, in turn, ensure that there will be countervailing forces in play on equity valuations. The cyclical improvement in earnings will encourage a rise in equity valuations, while the rise in interest rates will tend to lower equity valuations.

By contrast, during expansions driven to an important degree by supply shocks, especially by accelerations in productivity growth, rising resource utilisation rates do not lead as quickly to higher inflation, or a perceived threat of higher inflation. In the absence of an inflation threat, policy makers may be more hesitant to raise the real interest rate. As a result, a cyclical expansion might proceed for quite a while with no marked tendency toward higher real interest rates, or at least with substantially smaller increases in real interest rates than would occur during an expansion driven by demand shocks.

In the US expansion of the second half of the 1990s, the earliest concern about the possibility that equities might be overvalued was Alan Greenspan's comment in December 1996 about the possibility of "irrational exuberance". Looking back, it is not at all obvious that equities were overvalued at the time. With benefit of hindsight we can see that we were at the time in the early stages of an acceleration in productivity. Indeed, it seems clear that the asset bubble in the US was confined to technology sector. The ratio of the NASDAQ to the broader Willshire index is a good proxy for the emergence of the technology asset

* "What Happened to the New Economy?", New York Association of Business Economics and Downtown Economists, June 6 2001



Should policy makers respond directly to changes in asset prices?

bubble and its subsequent correction. This ratio jumped sharply in the second half of 1999 and into early 2000, precisely at the point that the equation errors suggest significant overvaluation in overall equity valuations. Technology stocks then fell by 70% peak to trough, more than meeting the Greenspan 40%+ definition of a bubble, while non-technology stocks declined by only 15%.

US nominal interest rates were nearly stable from the end of 1995 to the third quarter of 1998, with only a single $\frac{1}{4}$ point tightening during this period. Growth was consistently in the 4 - 4 $\frac{1}{2}$ % range and unemployment had declined from about 5 $\frac{1}{2}$ % to 4 $\frac{1}{2}$ %, a level that in the past would have been consistent with building inflationary pressures. But, since core inflation was declining throughout the period, the real federal funds rate was rising.

Policy makers, though, were becoming increasingly uncertain about their estimate of the NAIRU, the critical unemployment threshold below which inflation pressures were expected to build. This uncertainty spawned two reactions inside the Fed. One line was that policy makers should attenuate their response to the unemployment rate, because of the uncertainty about the NAIRU. In this case, the real federal funds rate should not rise or not rise as aggressively as it otherwise might in response to the falling unemployment rate, pending direct evidence of rising inflationary pressure.

The second line was to continuously update estimates of the NAIRU, using all available information, including information about inflation. Here the lower-than-expected inflation was interpreted as evidence of a decline in the NAIRU. The estimate of the NAIRU should then be updated continuously and monetary policy might then continue to be about as aggressive as otherwise relative to this continuously adjusted estimate of the gap.

In either interpretation, the real funds rate does not increase as aggressively as would have otherwise been the case. At the same time, the productivity acceleration may have resulted in an increase in the equilibrium real federal funds rate. The gap between the real federal funds rate and its equilibrium value widened when the Fed eased by 75 basis points from the end of September to mid-November 1988 and remained wide until it began to tighten policy in mid-1999.

The Fed eased policy in response to a seizing up of the fixed-income markets and in response to a global financial crisis that was widely expected to result in a sharp slowing in the US economy. In the event, US growth was virtually unaffected, as domestic demand soared and offset the drag from lower foreign demand for US goods.

In retrospect, it could be argued that the failure to move in a more timely fashion to reverse the decline in the funds rate, once fixed-income markets were again operating more smoothly and once it became clear that the US economy would defy the slowdown elsewhere, might have fed the equity bubble. But even this is not clear, given that much of what now appears to have been a significant overvaluation in equities occurred during the period when the Fed was raising interest rates from mid-1999 to mid-2000.

The point here is that the special features of an expansion driven by a productivity acceleration induce policy makers to be more cautious about raising the real interest rate in response to rising utilisation rates and, at least, provides a fertile environment for the formation of asset bubbles.

It remains the strongly held view at the Federal Reserve – shared by many other central banks – that monetary policy should not target asset prices, nor respond directly to movements in them. To do so would

substitute policy makers' judgment for that of the market. To go beyond the indirect approach to monetary policy and make a frontal assault of the wealth of American citizens, the Fed would have to be awfully confident of its assessment that an equity bubble was emerging and of the seriousness of the danger associated with it.

However, even within the spirit of an indirect approach to monetary policy there may be some adjustments that could reduce the prospects for, or at least limit the size of, equity bubbles. Ensuring that real interest rates rise, where justified, in an expansion driven by a productivity acceleration would maintain at least some friction between rising earnings expectations and rising real interest rates. This might do something to make it less likely that an asset bubble would emerge, or to reduce its size.

A more forward-looking monetary policy, responding to forecasts of output gaps and inflation and not just reacting to actual movements in these variables, would contribute to a more timely indirect response, particularly when are dramatic increases in equity values. In addition, the target set for the funds rate should rise to keep pace with the increase in the equilibrium real interest rate that is expected to accompany an acceleration of productivity. Theoretical analysis suggests, and empirical analysis confirms, that the equilibrium real rate will rise at least in line, percentage point for percentage point, with the structural productivity growth rate. Such a rise would reintroduce the friction between earnings optimism and rising rates that limits open-ended increases in equity prices during demand-led expansions.

Staff at the Federal Reserve Board have been working on estimates of the variation in the equilibrium real rate of interest over time. This confirms that it tends to move percentage point for percentage point in line with underlying productivity growth. While this might seem to

Occasional asset bubbles may be inevitable in a capitalist economy

open up promising policy options, retaining the standard indirect approach but nevertheless allowing monetary policy to lean against otherwise open-ended increases in equity values, such an approach has difficulties in practice.

First, it takes time to appreciate that there has been an increase in underlying productivity growth. While the data now suggests that higher productivity growth began in 1996 and further increases occurred through 1998, many – including myself – were not convinced of this until late 1998 or early 1999. Indeed, the data were not definitive until the revisions in the summer of 1999 and again in the summer of 2000. Second, we are still iterating the revised productivity data to reach an understanding of how large the acceleration in productivity has been. There continues to be a high degree of uncertainty about what the underlying rate of productivity growth was and will be. Finally, we can estimate the equilibrium real interest rate only with considerable imprecision.

Nevertheless, it seems to me that work on varying equilibrium real rates over time is an important. If we build more confidence in the estimates, they might provide some basis for movements in the real funds rate consistent with the basic principles of the Taylor rule.

Analysis of the appropriate monetary policy in the face of a bursting of an asset bubble is quite a bit simpler. On the surface, it appears that the response here is basically the same as it would be to other abrupt adverse shocks to the economy. But there are some special considerations that have to be taken into account.

First, the generally aggressive policy response to the bursting of an asset bubble will generally reflect the likelihood that asset price movements on the way down will be more discontinuous and abrupt than on the way up. This sometimes leads to the

claim that monetary policy responds asymmetrically to increases and decreases in asset prices. Policy makers, it is said, are willing to tolerate, even celebrate, an open-ended rise in asset prices, but respond quickly and aggressively to limit any decline.

As Alan Greenspan has noted, it is not policy that is asymmetric, but markets. This asymmetry partly reflects the different dynamic pattern associated with up and down movements. But it also reflects the potential for sharp declines to be accompanied by a dramatic decline in liquidity in financial markets, resulting in increased risks of broader financial instability. Sometimes – in 1987, 1998 and again in the most recent experience – policy eased quickly and sharply to accommodate a dramatic increase in the demand for liquidity that accompanied a correction of asset prices, or other financial market turbulence.

Second, the bursting of an asset bubble is often not a spontaneous event, but one triggered by some shock – for example, an unexpected change in policy or an unexpected slowdown in aggregate demand. In the case of the technology bubble, there was a combination of tighter monetary policy, an adverse energy shock, a resulting slowdown in the pace of the expansion and an apparent reassessment of the profitability of owning and using high tech equipment. The result of the latter shock was both a decline in equity valuations and a retrenchment in high tech investment, above and beyond the effect on equity valuations. An easing of monetary policy might have to be very aggressive in this case because a significant easing would be required just to offset the effect on financial conditions of the decline in equity prices.

Clearly, monetary policy is a very blunt instrument during a period of the potential emergence of an asset bubble. It will be difficult for it to slow

the economy in the face of a continued rise in equity prices. There is also the danger that the cumulative monetary restraint implemented in such circumstances may ultimately slow the economy more than is desired or expected. But we should at least be alert to the conditions that facilitate the emergence of asset bubbles and continue to work on approaches that could militate against open-ended speculative increases in equity prices.

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Staying on

Will the government's target for participation in higher education by 2010 be met? Damon Clark analyses the reasons why young people drop out of education and concludes that more emphasis on good work-based learning will be required.

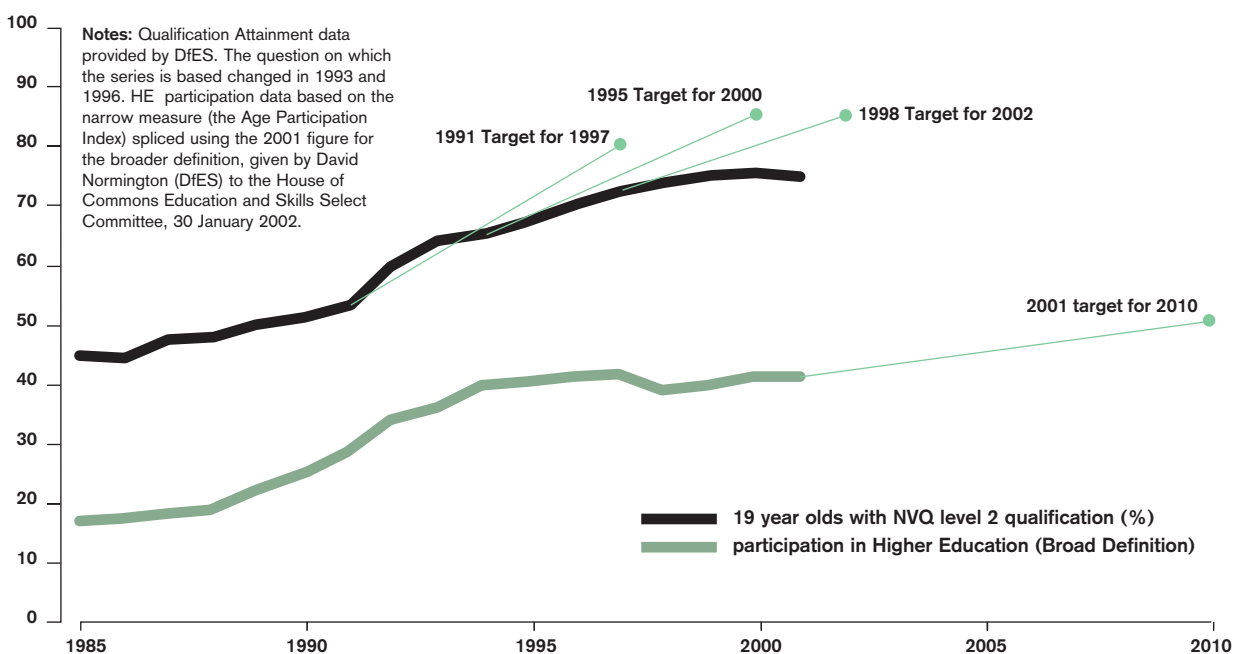
In 1998, New Labour's first full year of office, David Blunkett as Education Secretary identified four targets for his Department to hit before December 2002. These related to Standard Assessment Test (SAT) scores at age 11, GCSE results at age 16 and qualification attainment among young people and adults. To underline the importance of these targets, Mr Blunkett promised to resign if the SAT target was not hit in time.

A Cabinet reshuffle last year ensured that Mr Blunkett's

bluff would not be called. This appeared fortunate because, when his successor took over, all four targets were still standing and, looming up behind them, was the Prime Minister's own declared objective of seeing 50% of young people in higher education by 2010.

With the December 2002 deadline now upon us, the GCSE target has been hit and the SAT target narrowly missed. Although the results for qualification attainment among young people and adults are not yet in, attainment among adults has improved markedly. However, the same

Figure 1: Outcomes and Targets for Young People (%)



The staying on rate is pivotal to attainment and entry into higher education

cannot be said of attainment among young people. Here, little progress has been made.

The difference between outcomes and the targets for young people is illustrated in Figure 1. Although the target comprises both the proportion of 19-year-olds with attainment at NVQ Level 2 (notably five or more higher-grade GCSE passes or one A Level) and the proportion of 21-year-olds with attainment at NVQ Level 3 (two or more A levels), the graph displays information only for the 19-year-olds. (The picture for 21-year-olds is similar.)

The bad news for the government is that, since 1998, the proportion of 19-year-olds with attainment at Level 2 has increased only slightly. As a result, the 2001 outcome lags behind the 2002 target by almost ten percentage points. The bad news for the Conservatives is that, as shown in Figure 1, Tory governments missed targets almost as spectacularly. The consistency with which attainment among young people has undershot the targets set over the

years emphasises how big a challenge the government has set itself. If these targets are to be met, and if higher education is to expand as Mr Blair envisages (see Figure 1), decade-long trends will need to be bucked.

Why have the targets for young people not been hit? The immediate reason can be traced to Figure 2. This charts recent trends in the staying on rate, the proportion of school leavers that continue into full-time further education. Since the staying on rate is the engine powering attainment and entry into higher education, it is not surprising that the spluttering performance seen after 1993 has had such an adverse impact on these later outcomes. Following the huge increase in staying on that occurred in the late 1980s and early 1990s, this staying on standstill seems especially strange.

Why, though, is the staying on rate so pivotal to attainment among young people and entry into higher education. Figure 3 classifies school leavers into three groups: those that continue into further education, those engaged in work-based training (e.g. Modern Apprenticeship) and the remainder. School leavers in this last group may be working, unemployed or out of the labour force.

The connection between staying on and qualifications attainment is straightforward. For those young people who do not acquire Level 2 qualifications in school, these must be attained either in work or in further education. The connection between staying on and entry into higher education is even more mechanical, since it is unusual for young people to enter higher education without first staying on into further education. Although some increases in higher education entry can be bought by luring mature students into higher education, the 2010 target is unlikely to be met by this strategy alone.

Note first that, since school leavers who want to stay on are entitled to do so by law, the supply of further education

Figure 2: The Staying On Rate (%)

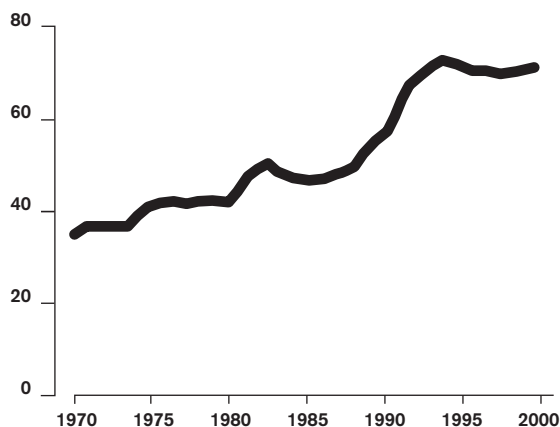
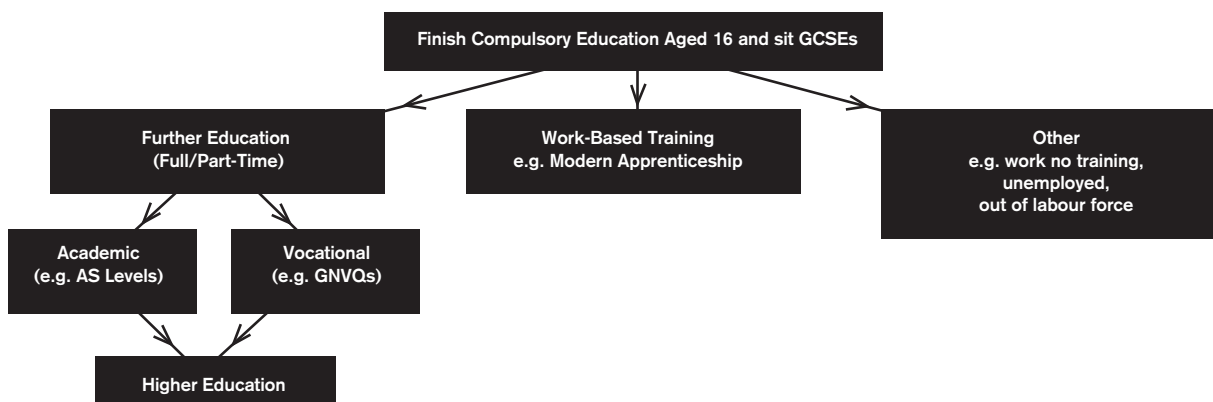


Figure 3: The Importance of the Staying On Rate



One force may be the collapse of youth unemployment



places does not come into it. Although there may be a small number denied their legal entitlement, stories of further education institutions struggling to fill places abound.

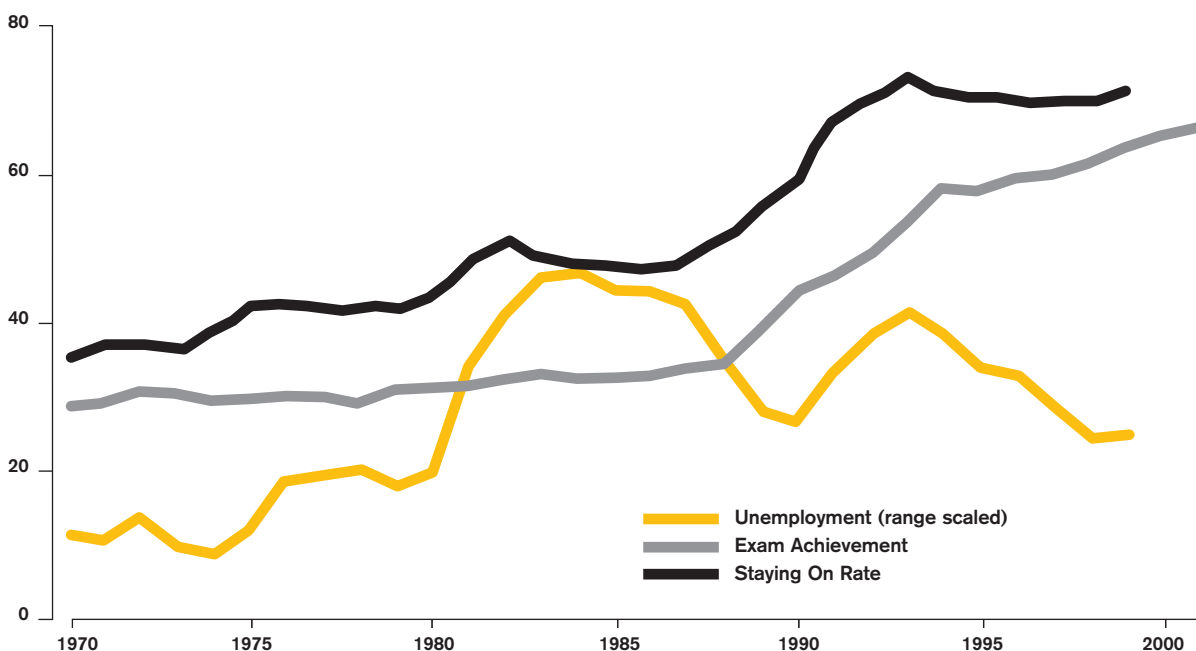
So we need to focus instead on the demand side, viewing the “staying on” choice as an investment decision. This implies that school leavers will stay on when the returns reaped tomorrow (higher wages, a reduced risk of unemployment) exceed the costs incurred today (the small direct costs of books and materials, the large indirect costs of foregone earnings). Economists have taken this approach since the 1960s, when the Nobel Prize-winning economist Gary Becker drew an analogy between this type of “human capital” investment and the investments in physical capital (such as factories and computers) made by firms.

The perceived returns to staying on will depend on the value that school leavers expect their future employers to place on education. They will also depend crucially on success in school, as measured by GCSE achievement. School leavers who do well in school will have more to gain from staying on.

The costs of staying on will be non-monetary as well as monetary. Some school leavers may enjoy education irrespective of the potential financial gains to doing so and this is, probably, the main channel through which parental social class influences the staying on decision.

Family background may also affect the monetary costs of staying on, since wealthy parents may subsidise their children's further education. But the most important

Figure 4: Why has the staying on rate not increased?



monetary cost will be foregone earnings, which depend crucially on the state of the local labour market, as measured by the rate of youth unemployment. Put simply, when school leavers cannot find jobs, they have little to lose by staying on in education. If, on the other hand, they have the option of earning £8,000 a year (say) at work, then the effective cost of two years of further education is £16,000. With this in mind, we can now consider whether trends in exam achievement and youth unemployment can explain the staying on standstill and, by extension, the difficulties governments have encountered in meeting their targets for young people.

A number of studies have investigated the impact of GCSE attainment on the staying on rate. The basic approach is to take a cross section of school leavers and examine whether those with good GCSEs are more likely to stay on, controlling where possible for other factors such as family background. Not surprisingly, a strong positive correlation is always found between exam achievement and staying on. For example, in the most recent study of this kind, the predicted probability of staying on for boys was found to rise from 0.084 for those with no exam achievements to 0.869 for those with greater than five higher-grade GCSE passes. The equivalent rise for girls was from 0.172 to 0.884.

Figure 4 illustrates the correlation between exam achievement and staying on over the past 30 years. While the positive nature of this correlation is evident, the remarkable feature of the graph is that the staying on standstill occurred despite steady increases in exam achievement. This suggests that, over this period, there were other forces dragging the staying on rate down.

One such force may be the collapse in youth unemployment that occurred over the mid- to late 1990s. As Figure 4 shows, there appears to exist a tight correspondence between unemployment and staying on over time. Certainly, the increased unemployment induced by the recessions of

the mid-1970s and early 1980s were accompanied by sharp increases in staying on. This suggests that the staying on standstill may be due to a fall in youth unemployment offsetting increases in exam achievement. This would contrast with the 1988 to 1993 period, when improved exam achievement and increased unemployment combined to dramatically increase the staying on rate.

This seems like a neat explanation. It fits the basic facts; it is intuitively plausible; and it is consistent with anecdotal and survey evidence garnered from school leavers and those working in further education. Yet it may not be the correct explanation. It may be that the correlation between unemployment and staying on is a spurious one, or that the correlation is real, but not strong enough to support such a simple story.

I have analysed some regional-level data to test whether this story could be supported. Suppose that over the period 1993 to 1996, youth unemployment in the North fell faster than youth unemployment in the South. If the national-level correlation between youth unemployment and staying on was merely a coincidence, we would not expect to see the difference in staying on rates between North and South follow any particular pattern. If we believe the youth unemployment story, however, then we would expect to see participation fall faster (or increase less sharply) in the North than in the South.

Based on a well-established extension of this idea, my analysis strongly supports the simple story told in Figure 4, with the caveat that the picture is clearer for boys than for girls. Taking these results, we can break down changes in participation over time into those attributable to changing exam achievement, those attributable to changing youth unemployment and those attributable to other factors, such as the difference in earnings between those who stay on and those who leave.

The results are presented in Table 1, which focuses on changes in boys' staying on rates over three periods of interest. Between 1981 and 1988, the staying on rate increased by 3.4 percentage points. My results suggests that, had nothing else changed, the reduction in youth unemployment that occurred during this period would have decreased participation by 2.6 percentage points. However, other things did change: most notably the level of exam achievement, which increased as Figure 4 shows. I estimate this to have contributed 2.3 percentage points to the overall rise, with the remainder explained by other factors.

My analysis suggests that the huge increase in staying on seen during the period 1988 to 1993 was driven by improved exam achievement, increased unemployment and other factors. In contrast, when we consider the period since 1993, during which the staying on rate has stood still, we see that reductions in youth unemployment cancel out

Table 1: Breakdown of staying on changes for boys (percentage points)

	1981-1988	1988-1993	1993-2001
Actual changes	3.41	22.86	-0.92
Changes predicted by model	3.96	22.21	-4.04
<i>of which due to:</i>			
GCSE achievements	2.32	11.59	8.14
Youth unemployment	-2.65	6.32	-9.25
Other	4.29	4.30	-2.93
Unexplained changes	-0.54	0.66	3.12

The picture is clearer for boys than for girls

the effects of increased exam achievement, which is in line with the story set out above.

Let us now consider the policy implications of these findings. A diagnosis centred on falling unemployment does not point to any specific policy remedies. It does imply that a recession would increase the staying on rate, but the cure would then be worse than the disease.

Instead, the discussion points in two more general directions. The first is obvious. The analysis confirms that staying on is heavily dependent on GCSE achievement. Policies that directly or indirectly improve GCSE attainment will increase the staying on rate. Almost one child in three leaves education at age 16, mostly with very few qualifications or none at all. Although the proportion leaving without Level 2 qualifications has come down of late, it is still high by international standards.

The second direction in which the analysis points is work-based training. That some school leavers only stay on when they cannot find jobs suggests that, for some, work may be the more rewarding as well as the more lucrative option. In principle, work-based routes to skills may be the optimal solution for these types of school leaver, since they enable them to earn a wage and provide them with a more appealing context in which to continue their education.

In practice, the Modern Apprenticeship scheme compares unfavourably with both traditional British apprenticeship and with the type of apprenticeship training undertaken by two thirds of German school leavers. School leavers who would otherwise incline towards work-based training may, therefore, choose instead to take a job that does not offer any training. As Hilary Steedman argued in a previous article (*"Are we being serious about apprenticeship?" CentrePiece*, Spring 2002), despite some early progress in this field, the government has neither struck the right balance between the interests of modern apprentices and

of firms that employ them, nor has it encouraged a transition from work-based training to higher education. Such a transition would make training more attractive and help to meet the higher education target.

A third direction, to which our research does not speak directly but along which the government is already progressing, is to provide school leavers with financial incentives to stay on. Under the Educational Maintenance Allowance (EMA) scheme announced by the Chancellor in July, the government will pay money to school leavers who come from low-income households and who choose to continue into further education.

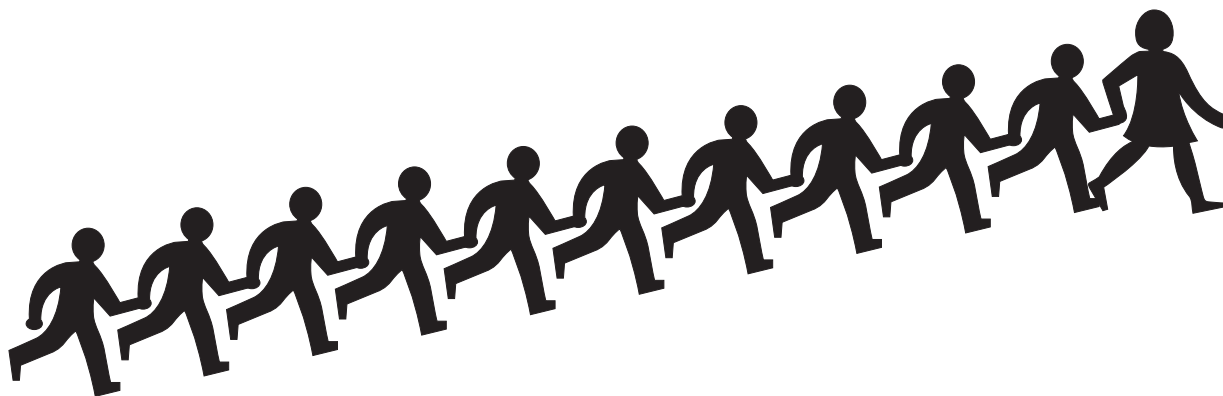
Whether money matters to the staying on decision is an issue that researchers have been chipping away at for years. Although the question posed is usually whether school leavers with richer parents are more likely to stay on, even this has yet to be answered satisfactorily. This gap in our knowledge, mainly due to a lack of reliable income data, makes the first analyses of the EMA pilots so interesting. These suggest that, on average, staying on rates increased by 5% in the pilot areas.

This is large effect. Were it achieved at the national level, it would be a welcome development that might have a significant impact on qualifications attainment and on entry into higher education. Yet to rely on this policy alone is to assume that all school leavers have a price at which they can be induced to stay on. While this may be true, for school leavers already disillusioned with an education centred on the classroom that price could be high.

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Staying on rates increased by 5% in pilot areas



To peg or

In the summer the CEP organised a conference to look at the experience of countries that have adopted the dollar or another currency as their own. **Ellen Meade** speculates on how the lessons from that conference might apply to the countries about to join the European Union.



not to peg

Some countries in eastern Europe may accede to the European Union in about two years time. This would put them on track to adopt Europe's single currency from 2006. Unlike Great Britain, which can still decide whether or not to join the euro, these countries in eastern Europe will not be able to opt out of monetary union. The question facing them is *when*, not *if*.

Several well-known economists, including Willem Buiter of the European Bank for Reconstruction and Development and Jacek Rostowski of the Central European University, have argued that countries in eastern Europe should adopt the euro now, either unilaterally or by prior arrangement with the EU. (This second option is often referred to as "consensual euroisation".) In this case, the euro would circulate in parallel to the domestic currency, or perhaps replace it altogether. In any event, this action would require authorities to fix the value of the domestic currency in terms of the euro, rather than participating in the so-called ERM2 target band arrangement for two years before entering EMU.

The basic idea of "euroisation" is not particularly new. It is a form of official currency substitution in which the domestic legal tender of a country is replaced by a reserve currency. Economists generally regard official currency substitution as the "hardest" form of pegged exchange rate regime, one that is more difficult to reverse than a currency board. Such official currency substitution has become known as "dollarisation," even if the currency chosen to replace the domestic currency is the euro or some reserve currency other than the US dollar.

Andorra, Monaco, San Marino and the Vatican City already use the euro as their domestic currency (the euro replaced the legacy currency that was already in use). In eastern Europe, Kosovo and Montenegro also have euroised. A

number of other economies use an external currency for their legal tender (see Table 1). From this table two striking facts emerge: first, most of the economies "dollarised" many decades ago; and, second, the population in these economies is very small, ranging from 56 persons on Pitcairn Island to 3.5 million in Puerto Rico. Before the adoption of the dollar in Ecuador (population 12.9 million) in 2000 and El Salvador (population 6.1 million) in 2001, the average population in dollarising countries was 450,000. Countries that have dollarised have traditionally been miniscule in economic terms, with strong trade ties to the reserve currency country and relatively undeveloped domestic financial markets. In fact, size may be an important determinant of success with respect to "dollarisation". If this is the case, the 1997 debate on dollarisation in Argentina, the recent adoption of the dollar in Ecuador and El Salvador and the calls for adoption of the euro in countries in transition to EU membership can be seen as fundamentally different in that these countries are all much larger than the traditional "dollariser".

A large academic and policy literature was written in the late 1990s, motivated by proposals that Argentina should replace its then-successful currency board, which linked the peso one-to-one with the US dollar, with a dollarisation arrangement. A primary focus in this literature was on the appropriate exchange rate arrangement when financial liabilities are denominated in a reserve currency while financial assets are denominated in the domestic currency. Large "liability dollarisation" makes a country vulnerable to adverse balance sheet effects arising from changes in the exchange rate. Liability dollarisation can be seen as reducing the range of values for the exchange rate that domestic authorities can tolerate. Berg and Borensztein (2000) provide a good summary of the pros and cons of dollarisation in the context of the Argentine debate.

Some, like Enrique Mendoza of the University of Maryland,

Other economic policies must be appropriate

Table 1 Economies Using Another Currency as Domestic Legal Tender

Country	Population	Political Status	Currency used	Since
Andorra	63,000	Independent	Euro (French franc and Spanish peseta since 1278)	1999
Channel Islands	140,000	British dependencies	pound sterling	1797
Cocos Islands	600	Australian external territory	Australian dollar	1955
Cyprus, Northern	180,000	de facto independent	Turkish lira	1974
Greenland	56,000	Danish self-governing region	Danish krone	Before 1800
Guam	150,000	U.S. territory	U.S. dollar	1898
Kiribati	80,000	Independent	Australian dollar	1943
Liechtenstein	31,000	Independent	Swiss franc	1921
Marshall Islands	60,000	Independent	U.S. dollar	1944
Micronesia	120,000	Independent	U.S. dollar	1944
Monaco	30,000	Independent	Euro (French franc since 1865)	1999
Nauru	8,000	Independent	Australian dollar	1914
Niue	2,000	New Zealand self-governing Territory	New Zealand dollar	1901
Norfolk Island	2,000	Australian external territory	Australian dollar	Before 1900
Northern Mariana Islands	48,000	U.S. commonwealth	U.S. dollar	1944
Palau	18,000	Independent	U.S. dollar	1944
Panama	2.5m	Independent	1 balboa = US\$ 1; uses dollar notes	1904
Pitcairn Island	56	British dependency	New Zealand and US. dollars	1800s
Puerto Rico	3.5m	U.S. commonwealth	U.S. dollar	1899
Saint Helena	6,000	British colony	pound sterling	1834
Samoa, American	60,000	U.S. territory	U.S. dollar	1899
San Marino	24,000	Independent	Euro (Italian lira since 1897)	1999
Tokelau	1,600	New Zealand territory	New Zealand dollar	1926
Turks and Caicos Islands	14,000	British colony	U.S. dollar	1973
Tuvalu	10,000	Independent	Australian dollar	1892
Vatican City	1,000	Independent	Euro (Italian lira since 1929)	1999
Virgin Islands, British	17,000	British dependency	U.S. dollar	1973
Virgin Islands, U.S.	100,000	U.S. territory	U.S. dollar	1917
Ecuador	12.9m	Independent	U.S. dollar	2000
El Salvador	6.1m	Independent	U.S. dollar	2001
Kosovo			Euro	
Montenegro			Euro	

Source: Levy Yeyati and Sturzenegger (2002).

see the fundamental advantage of dollarisation in terms of “institutions substitution”, a process by which dollarising countries “borrow” the monetary policy institutions of the reserve currency country. In this view, dollarisation is superior to a currency board largely because, under dollarisation, the domestic central bank is “replaced” with the central bank of the reserve currency issuer.

In the best circumstances, dollarisation eliminates currency risk and, possibly, reduces default risk. The extent of these gains depends, of course, on how irreversible dollarisation is perceived to be. Ideally, gain in credibility from “institutions substitution” will substantially narrow the spread on dollar liabilities issued by the dollarising government,

relative to those issued by the US Treasury, producing lower domestic interest rates.

Key to successful dollarisation, however, is that other economic policies must be appropriate. In particular, dollarisation is a commitment by the monetary authority only and does not guarantee a responsible fiscal policy. Ultimately, a lax fiscal policy will push up interest rates and undermine the monetary regime. For example, credibility gains from Argentina's currency board were high in the early years following its adoption in 1991, but eroded over time as the government failed to consolidate its fiscal policy. In a recent monograph, Mussa (2002) provides an interesting discussion of Argentina's downfall.

Table 2 Argentina's Quasi-Monies in Circulation
(Millions of Argentine pesos)

	Denomination	December 2001	March 2002
Federal government	Lecop	1,039	2,649
Provincial "own" securities		1,627	2,591
1. Buenos Aires	Patacones	822	1,591
2. Buenos Aires, City	Porteno	–	–
3. Catamarca	Ley 4748	26	31
4. Chaco	Quebracho	50	100
5. Cordoba	Lecor	200	300
6. Corrientes	Cecaror	193	185
7. Entre Rios	Bonfe	54	148
8. Formosa	Bocanfor	33	50
9. Jujuy	Patacon	–	6
10. Mendoza	Petrom	–	–
11. La Rioja	Debt Cancellation	8	8
12. Tucuman	Bocade	98	173
Quasi-monies:			
Total		2,666	5,240
As percent of pesos in circulation		23.2	45.6

Source: De la Torre, Levy Yeyati, and Schmukler (2002),

Several econometric studies have shown that inflation performance improves under a hard peg currency regime. Ghosh, Gulde, and Wolf (2002) found that inflation is 10.5 percentage points per year lower under a hard peg than under a floating exchange rate. In their study, "hard peg" regimes include currency boards as well as dollarisation. Of the 10.5 percentage point reduction in inflation, 4.5 percentage points derive from lower money growth in the pegged regime (the "discipline effect"), while the remaining 5.5 percentage points represent the credibility gain associated with the hard peg regime (the "confidence effect"). As the methodology makes no distinction between pegs maintained for a series of years and a series of pegs sustained for a single year, the study was not able to say anything about whether the discipline or confidence effects associated with the peg diminish over time.

The literature on dollarisation generally does not distinguish between cases where it is pursued in isolation, or is part of a broader integration agenda with the country that issues the reserve currency. In practice, there is more than one way to dollarise or euroise. During the 1997 debate in Argentina, the central bank president Pedro Pou saw dollarisation not as a single policy choice, but as a range of policy options from unilateral to full monetary union. With unilateral dollarisation or euroisation, the country adopting the reserve currency asks nothing of the issuer, whereas broader forms of dollarisation or euroisation involve some

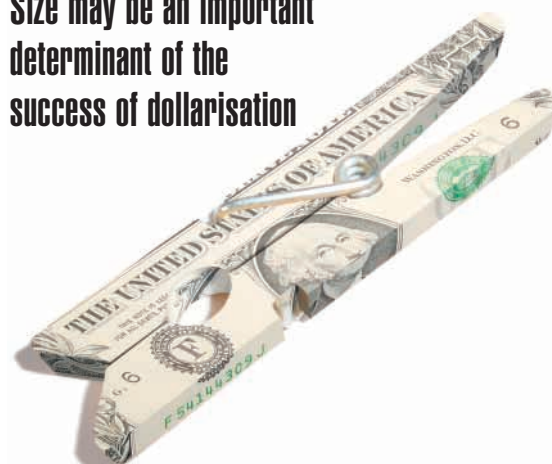
set of on-going obligations for the issuer of the reserve currency and thus require mutual agreement by the two countries to a treaty or bilateral arrangement.

Argentina's flirtation with dollarisation in 1997 was in the context of a monetary treaty with the United States that would have provided for some sharing of seignorage revenue to fund a lender-of-last-resort facility. In the extreme, a monetary union such as the euro area could be seen as the most cooperative form of arrangement, in which participating countries share a currency and decision-making power.

Dollarisation and euroisation raise important issues about the degree of responsibility or commitment of the issuer to the country adopting the issuer's currency. When the policy is not unilateral, the issuer has some stake in its success (although the degree of this stake depends on the exact requirements of the arrangement). The commitment of the issuer can also serve to "bind in" the dollarising or euroising country, particularly if this commitment involves several steps that will lead ultimately to further integration between the two countries. Thus, dollarisation in Ecuador, which was a unilateral undertaking in response to an economic and financial crisis, differs from dollarisation in El Salvador, which was part of a broader trade and integration strategy with the United States. And euroisation in Andorra, Monaco, San Marino and the Vatican City differs fundamentally from potential euroisation in EU accession countries, because the latter countries seek eventually to join monetary union and participate fully in the monetary policy decision making of the European Central Bank.

In the Argentine case, US authorities opposed a monetary treaty for fear that it would ultimately impose broader responsibilities, or at least generate a perception that the US was playing a role in the supervision of Argentine banks, acting as lender of last resort and taking the Argentine economy into account when setting US interest rates. Argentina's proposed monetary treaty, in fact, provided only

**Size may be an important
determinant of the
success of dollarisation**



for the US to share in seignorage revenue and did not involve broader obligations. Despite that, the view of US authorities was that any treaty, no matter how narrow in scope, was a political symbol that could serve to create obligations for the currency issuer in times of crisis. In the debate over euroisation in accession countries, the opposition of European policy officials to this initiative could be seen as reflecting fears that European authorities would be held accountable in the event of a crisis, even for the results of unilateral decisions.

If dollarisation is to provide major credibility gains, it must be widely viewed as irreversible and as an irrevocable commitment to replace the domestic legal tender with the reserve currency. However, the reversal of dollarisation is not particularly difficult to implement. For example, Liberia de-dollarised in 1998 after 54 years of using the US dollar in parallel with its domestic currency. And, in Argentina, the number of parallel currencies in circulation increased dramatically as the crisis deepened and the currency board linking the peso to the US dollar was abandoned (see Table 2). Thus, linking the currency decision to a broader integration strategy can make dollarisation seem more irreversible and enhance its credibility.

Many commentators have advocated early euroisation in accession countries as an interim exchange rate arrangement during the transition to EMU. A target band system, they argue, is crisis-prone and euroisation would be the best regime to forestall a speculative attack on their currencies. European officials do not see the so-called ERM2 machinery as crisis-prone, because of the wide bands around the central rate. At this point, financial markets are betting that the candidate countries will join the EU, so the credibility gains associated with a move to euroisation would be limited. However, euroisation might be helpful in limiting financial market speculation in the event of a long and unexpected delay in the accession process.

According to the Maastricht Treaty, the Council of Ministers must approve the rate at which a currency joins the euro. That requirement would appear to rule out unilateral euroisation, in which an accession country would select its own conversion rate. However, as has been pointed out, there are two Treaty-consistent options: (1) joint selection by the Council and the accession country of the rate at which the domestic legal tender is converted into euros (the "consensual" option); or (2) a currency board arrangement in which the euro is legalised as a parallel currency for use alongside the domestic currency of the accession country. Either way, such use of the euro in the run-up to accession would appear to make some sense as a transition measure to discourage speculation, so long as it is implemented in the context of sound macroeconomic policies and is not in clear violation of the Maastricht Treaty.

Interestingly, a discussion similar to option (1) above arises in the context of a UK referendum on the euro. Richard

Layard of the CEP and others claim that a referendum will need to specify the rate of the pound's conversion into the euro. This would appear to require that the British government pre-negotiate the pound's conversion rate with the Council of Ministers.

* This article brings together perspectives from the recent conference "Dollarisation and Euroisation: Viable Policy Options?" hosted by the LSE on May 24-25, 2002. The conference programme and papers are available on: <http://cep.lse.ac.uk/events/conferences/dollarization>. A fuller account of the conference by Ellen Meade, Nikolas Müller-Platenberg and Massimiliano Pisani will be published in November by the CEP as an Occasional paper No.17.

It must be viewed as irreversible



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