OECD II:
Economic Growth After the Fall

Gavin Cameron

Lady Margaret Hall

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OECD macroeconomic performance

	OECD	EU	USA	JAPAN	GERMANY	FRANCE	ITALY	UK
Output Growth (per cent per annum)								
1960-73	4.9	4.7	4.0	9.7	4.3	5.4	5.3	3.1
1973-79	3.2	2.6	2.9	3.5	2.4	2.7	3.5	1.5
1979-89	2.9	2.2	2.8	3.8	2.0	2.1	2.4	2.4
1989-99	2.6	2.0	3.0	1.7	2.2	1.7	1.3	1.9
Unemployment (per cent)								
1960-73	2.9	2.6	4.8	1.2	1.0	2.6	5.7	3.3
1973-79	5.0	4.6	6.7	1.9	3.0	4.4	6.0	4.9
1979-89	7.3	9.4	7.3	2.5	5.8	8.8	8.2	9.8
1989-99	7.4	9.9	5.8	3.1	7.5	11.2	10.9	8.3
Inflation (per cent per annum)								
1960-73	3.9	4.1	3.1	6.1	3.4	4.9	4.9	4.8
1973-79	8.8	9.6	7.8	9.5	4.6	11.1	16.7	15.6
1979-89	5.4	6.6	5.3	2.5	2.8	7.5	11.4	7.0
1989-99	2.7	3.4	2.4	1.0	2.4	2.1	4.6	3.8
Investment Share (per cent)								
1960-73	21.9	26.5	15.3	29.5	31.1	26.9	28.7	18.8
1973-79	22.7	25.0	16.6	32.0	27.2	26.8	24.5	18.5
1979-89	21.5	22.2	17.0	29.9	24.8	23.2	21.7	17.1
1989-99	22.3	22.5	17.5	32.4	24.2	22.9	20.7	18.4

Source: ***OECD.***

productivity growth in the business sector

	TFP Growth			Labour Productivity Growth		
	1960-73	**1973-79**	**1979-97**	**1960-73**	**1973-79**	**1979-97**
OECD	2.9	0.6	0.9	4.6	1.7	1.7
EU	3.4	1.2	1.1	5.4	2.5	1.8
USA	1.9	0.1	0.7	2.6	0.3	2.2
Japan	4.9	0.7	0.9	8.4	2.8	2.3
Germany	2.6	1.8	1.2	4.5	3.1	2.2
France	3.7	1.6	1.3	5.3	2.9	2.2
Italy	4.4	2.0	1.1	6.4	2.8	2.0
UK	2.6	0.5	1.1	4.1	1.6	2.0

Source: ***Economics of the OECD 2000 exam paper data table 2.***

the growth slowdown in the 1970s

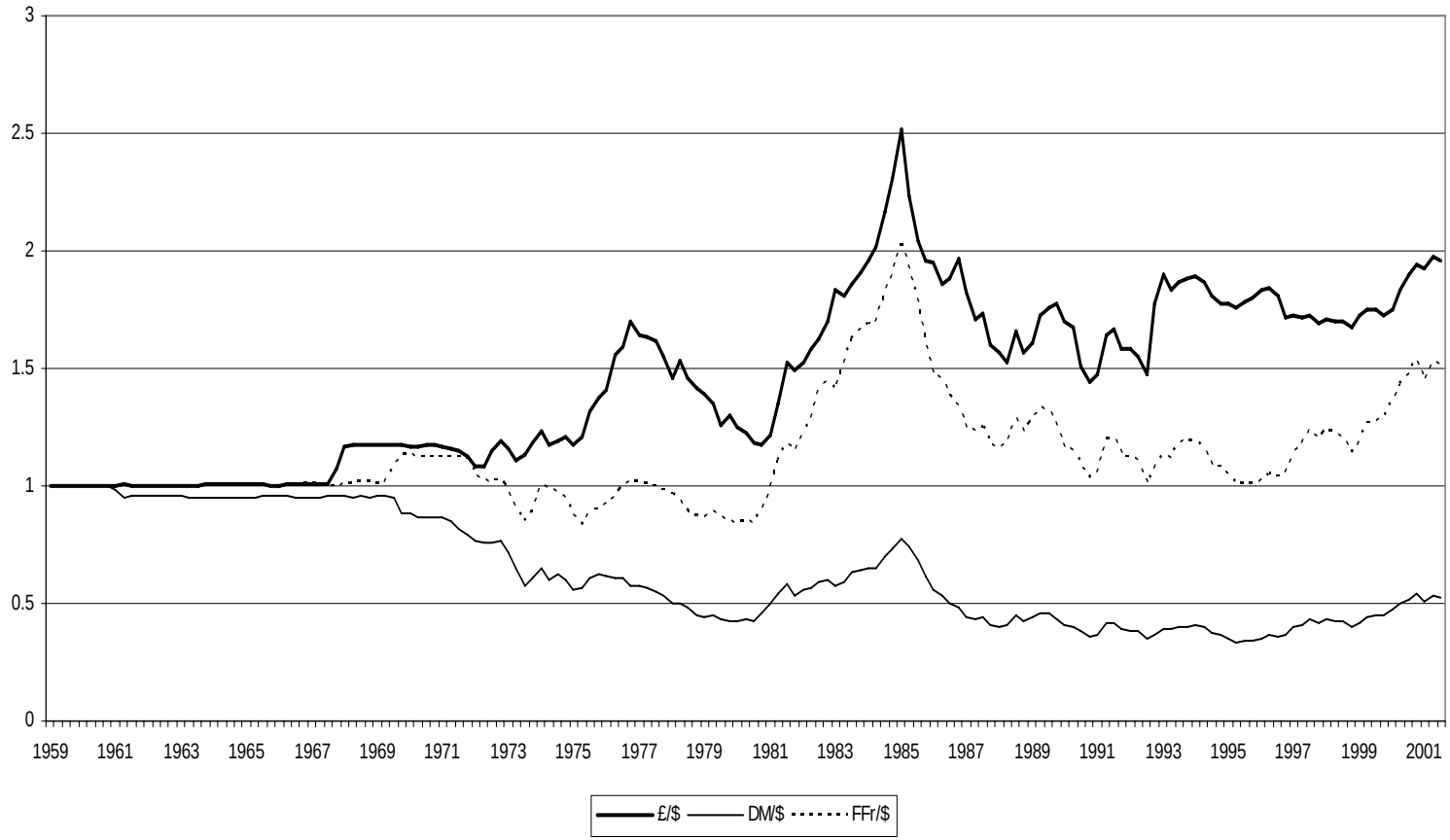
- Mis-measurement
  - The single-deflation bias;
  - Increasing importance of service sector.
- Demand-side
  - Mistaken belief in long-run tradeoff between unemployment and inflation led to serious policy errors after the oil shock and collapse of Bretton Woods in 1971-3.
- Supply-side
  - Slowing labour supply growth;
  - Exhaustion of catch-up gains;
  - The First Oil Shock, October 1973;
  - The rise in Union militancy, 1969-75.

identifiable forces 1973-1987

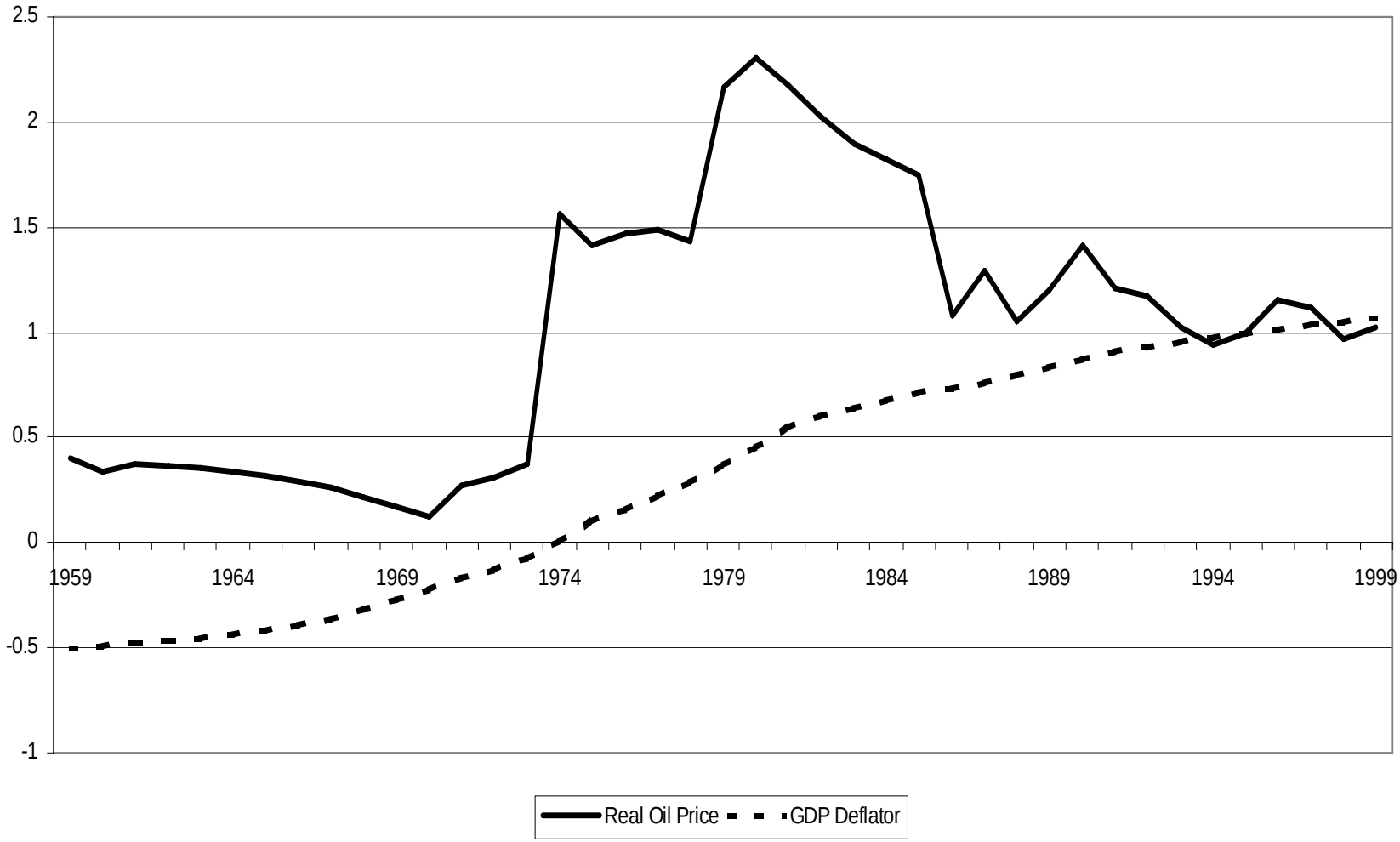
	France	Germany	Japan	Netherlands	UK	USA
GDP	-2.88	-4.12	-5.54	-2.96	-1.28	-1.14
Augmented factor input	-0.78	-1.63	-2.49	-1.02	-0.83	0.01
TFP	-2.10	-2.49	-3.05	-1.94	-0.45	-1.15
Structural Effect	-0.56	-0.23	-1.07	-0.25	-0.48	-0.23
Technology Diffusion	-0.01	-0.19	-0.29	-0.10	0.06	0.00
Foreign Trade	-0.10	-0.16	-0.20	-0.65	-0.05	0.00
Scale Effect	-0.09	-0.13	-0.17	-0.09	-0.04	-0.03
Energy Effect	-0.05	-0.03	-0.12	-0.31	-0.05	-0.19
Natural Resources	0.00	0.00	0.00	-0.19	0.14	0.00
Total explained	-0.95	-1.02	-2.21	-1.40	-0.17	-0.34
Residual TFP	-1.15	-1.47	-0.84	-0.54	-0.28	-0.81

Note: ***Data are differences between annual compound growth rates over 1950-73 and 1973-87.***
Source: ***Maddison (1991) table 5.19.***

Bretton Woods and after

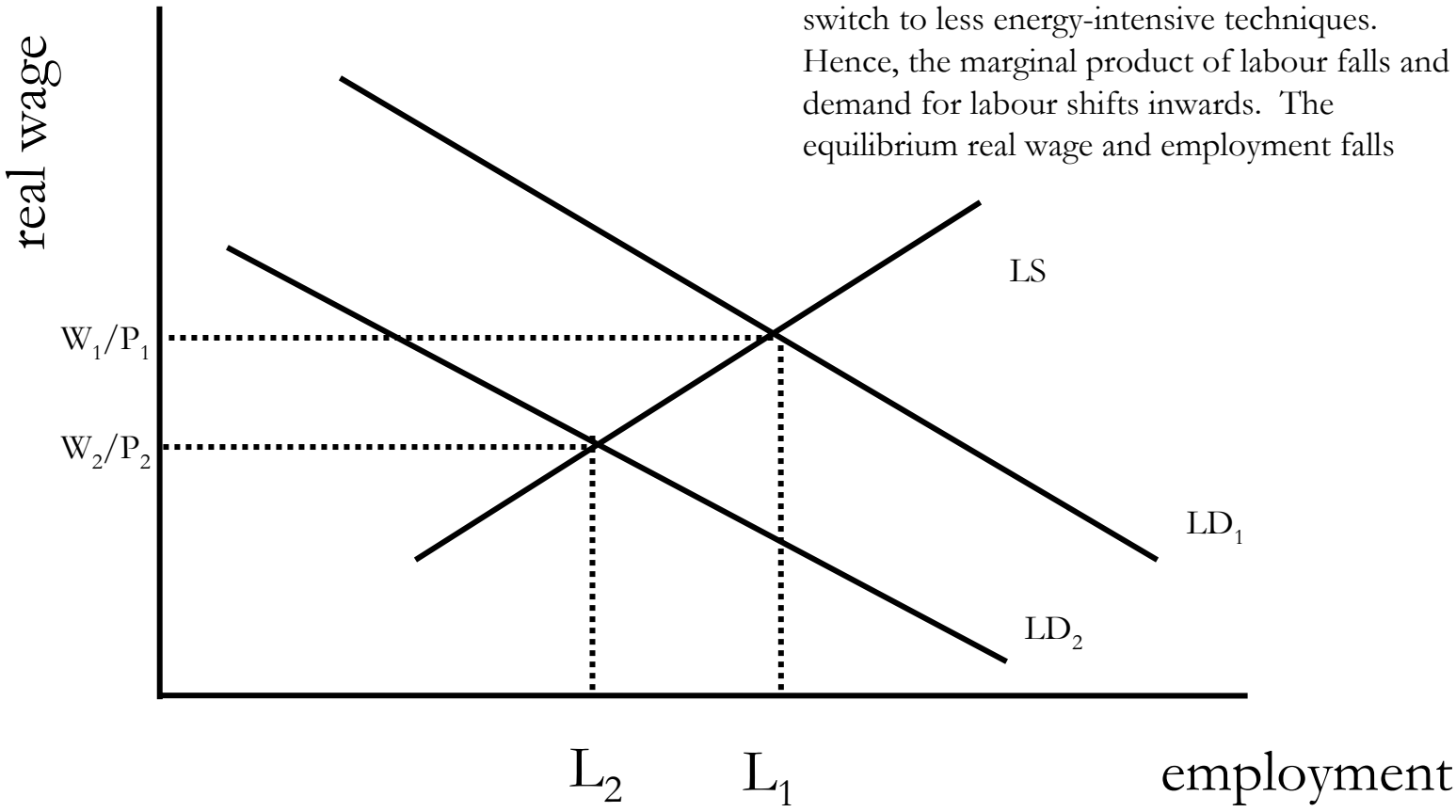


Log Real Oil Price and US Price Level (1995=1)
1959 to 1999

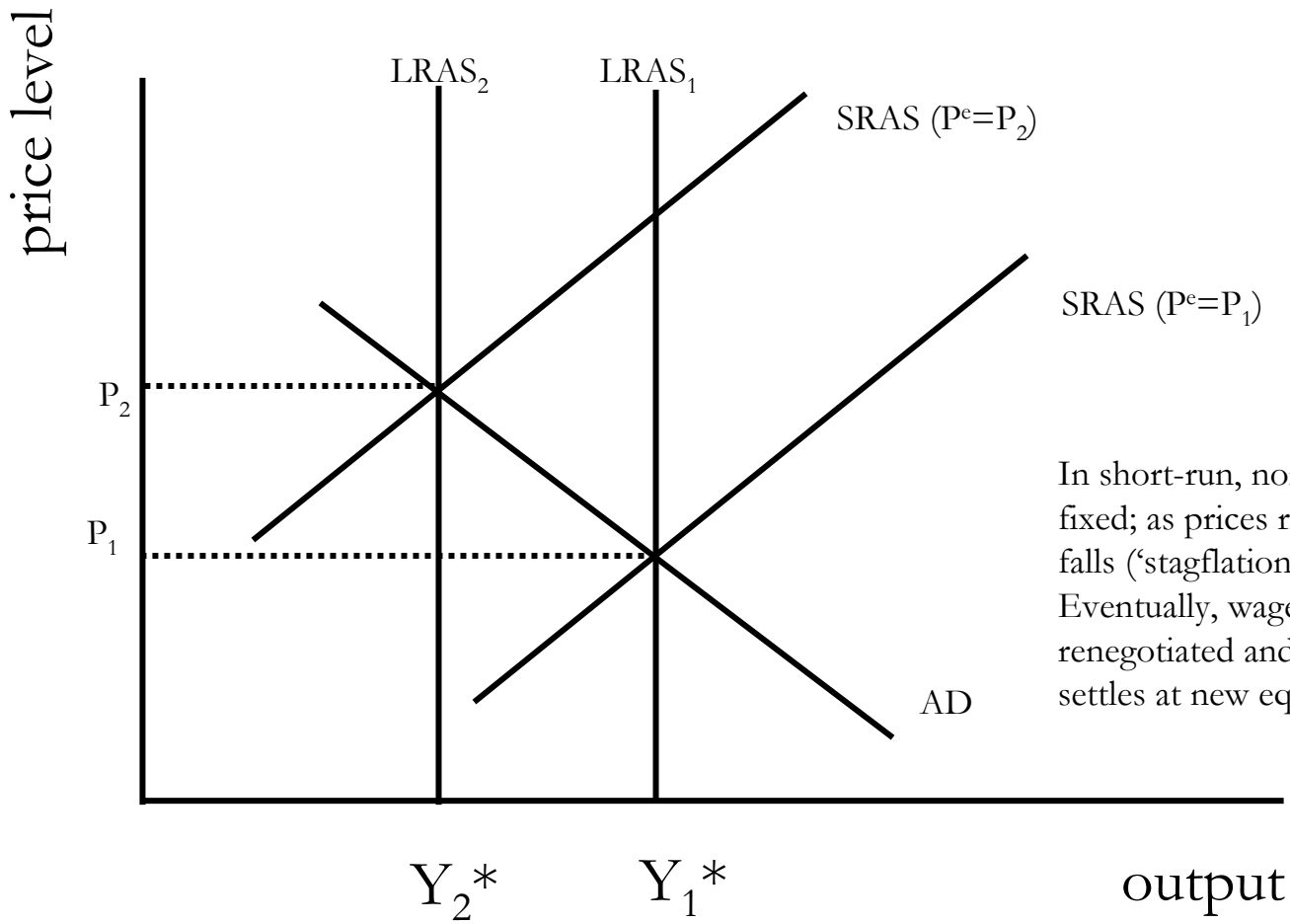


an ‘oil price shock’ & labour

Labour productivity falls since production has to switch to less energy-intensive techniques. Hence, the marginal product of labour falls and demand for labour shifts inwards. The equilibrium real wage and employment falls



an ‘oil price shock’ and AS-AD



In short-run, nominal wages fixed; as prices rise, output falls (‘stagflation’). Eventually, wages are renegotiated and output settles at new equilibrium

rate of growth of energy inputs, 1913-87

	1913-1950	1950-1973	1973-1987
France	0.40	4.50	0.87
Germany	0.00	4.63	0.19
Japan	1.98	9.19	0.79
Netherlands	1.64	6.71	0.96
UK	0.01	1.46	-0.34
USA	1.87	3.13	0.90
Arithmetic Average	0.98	4.94	0.48

Note: ***Data are annual compound grov***

Source: ***Maddison (1991) table 5.11.***

the single-deflation bias

- Consider real GDP calculated as:

  VASDi=GOi/PPOi-Mi/PPOi
- Where PPO is the gross output deflator, GO is gross output, M is intermediate inputs and VASD is single-deflated value-added. However, real value-added should really be double-deflated:

  VADDi=GOi/PPOi-Mi/PPIi
- Where PPI is the intermediate input price deflator. VADD differ from VASD when PPO differs from PPI:

  Bias=VASD-VADD=f(PPO/PPI)
- A positive oil shock raises the ratio of PPI to PPO and hence makes VASD growth understate the growth of VADD. A fall in oil prices does the opposite.

energy price rises and investment

- As we have seen, a rise in energy prices leads to a rise in unemployment in both the NRU and the NAIRU models (unless fully accommodated by trade unions).
- Profitability of installed capital stock fell when energy prices rose in 1973. This should reduce investment, especially when most finance is internal to the firm.
- Much of the installed capital stock was designed for low energy prices and hence became obsolete. This should lead to capital scrapping.
- The profitability of the marginal investment should have risen due to factor substitution away from expensive energy (and labour).
- Difficult to say which effect dominates! But perhaps the wage bargaining process matters too.

the ‘Golden Age’ institutional equilibrium

- Imagine a social contract between labour and firms: that neither side will try to raise wages or prices unexpectedly and that firms will reinvest profits rather than raise dividends. That is, labour and capital shares in income are stable by social consensus.
- Unions set real wages and firms choose investment levels simultaneously. However, it takes one period for a change in investment level to take effect.
- This is essentially a coordination game with two plausible equilibria:
  - ‘Wage Restraint; High Investment’
  - ‘Wage Push; Low Investment’
- Tipping from the ‘good’ to the ‘bad’ equilibrium is more likely when firm and union discount factors fall, productivity falls, or union aggressiveness rises.

why did the equilibrium shift?

- The incentive to for the equilibrium to switch will be high, when:
  - Inflation is expected to be volatile and potential economic growth is slower;
  - There is a movement towards a floating exchange-rate;
  - Wage-setting becomes decentralised or disorganised; Corporatist institutions are 'captured' by one side, either unions or firms; or union legislation changes;
  - A rise in international capital mobility;
  - A rise in employment protection;
  - Financial liberalisation allows easy access to credit;
  - Increased competition on world markets;
  - There is a negative productivity shock, such as an oil shock.

a simple game matrix

	High Investment	Low Investment
Wage Push	x, 0	3, 3
Wage Restraint	5, 5	0, x

unionisation and strike rates

	Degree of Unionization				Strike Rates	
	1960	1970	1975	1979	1960-67	1968-75
Canada	**0.25**	**0.27**	**0.31**	**0.33[a]**	**0.35**	**0.82**
Denmark	**0.47**	**0.51**	**0.5**	**0.69**	**NA**	**NA**
Germany	**0.30**	**0.30**	**0.35**	**0.37**	**0.01**	**0.03**
Japan	**0.17**	**0.23**	**0.24**	**0.23**	**0.09**	**0.10**
Sweden	**0.53**	**0.66**	**0.75**	**0.80**	**NA**	**NA**
UK	**0.42**	**0.46**	**0.50**	**0.54**	**0.12**	**0.45**
USA	**0.26**	**0.25**	**0.23**	**0.21[a]**	**0.33**	**0.53**

Source: Bruno and Sachs (1985) pp. 169 table 8.13.

Notes: Degree of unionization is union membership per total employed workers. The strike rate is workdays lost due to strikes per total employed. a: 1978.

manufacturing labour share of value added

	1961	1969	1973	1975	1979	1981
Belgium	**58.3**	**60.6**	**67.9**	**77.0**	**75.7**	**76.9**
Canada	**67.3**	**68.5**	**65.8**	**69.2**	**65.8**	**NA**
Denmark	**68.6**	**72.2**	**74.8**	**74.5**	**76.5**	**74.5**
France	**65.9**	**65.8**	**68.7**	**74.1**	**74.6**	**75.9**
Germany	**52.6**	**52.6**	**58.8**	**60.5**	**59.2**	**63.3**
Japan	**39.6**	**40.3**	**44.5**	**53.8**	**49.8**	**NA**
UK	**69.9**	**71.0**	**71.4**	**80.2**	**79.7**	**82.8**
USA	**70.5**	**71.0**	**71.6**	**71.6**	**73.8**	**75.6**

Source: Bruno and Sachs (1985) table 8.8.

the decline in labour reallocation?

- Maddison (1991) calculates the effect of lower labour reallocation on growth rates, as does Temple (2001).
- In the 1950s, reallocation particularly important for Italy, West Germany and France. After 1960, Italy and Spain continue to benefit. However, of the 1970s slowdown, only around one-seventh can be attributed to lower reallocation.
- But note that these effects do not include the possibility of increasing returns in the non-agricultural sectors (Kaldor, 1966) or explain which factors allowed labour to move at such rates in the 1950s and 1960s.

	France	Germany	Japan	Netherlands	UK	USA
Maddison Structural	0.27	0.09	0.35	0.13	1.07	0.20
Temple Structural	0.12	0.08		0.04	0.03	0.13

Notes: **Proportional contributions to the slowdown by lower labour reallocation.**
Maddison calculates the effect of lower reallocation on growth in 1973-87 vs 195-73.
Temple calculates the effect of lower reallocation on growth in 1979-90 vs 1960-73.

Europe since 1995

- Europe continued to catch-up with the USA in terms of productivity until 1995, even though its relative employment performance has been poor since the early 1980s.
- Why has European relative growth slowed since 1995?
- Why has Europe not had the same ICT boom as the USA?
- Why are European unemployment rates so high, and employment rates and hours so low?

Table 1.1:

Aggregate annual growth rates of real GDP, total hours and labour productivity, 1980-2002

	real gdp				total hours				gdp/hour			
	1980 -90	1990 -95	1995 -00	2000 -02	1980 -90	1990 -95	1995 -00	2000 -02	1980 -90	1990 -95	1995 -00	2000 -02
Austria	2.3	2.0	2.8	0.9	0.6	0.3	-0.5	0.1	1.7	1.8	3.2	0.8
Belgium	1.9	1.6	2.7	0.7	-0.4	-0.7	0.0	1.4	2.3	2.3	2.8	-0.7
Denmark	2.0	2.0	2.7	1.5	0.1	-0.4	1.1	0.0	1.9	2.4	1.6	1.5
Finland	3.1	-0.7	4.8	1.1	0.1	-3.4	1.9	-0.2	3.0	2.8	2.9	1.4
France	2.3	1.1	2.7	1.4	-0.6	-0.4	1.4	-0.2	2.9	1.4	1.3	1.7
Germany	2.2	2.0	1.8	0.4	-0.3	-1.9	-0.3	-0.9	2.5	4.0	2.2	1.3
Greece	1.6	1.2	3.4	4.0	0.6	0.7	0.6	-0.2	1.0	0.6	2.8	4.2
Ireland	3.6	4.7	9.8	4.7	-0.4	1.1	3.9	1.4	4.1	3.6	5.7	3.2
Italy	2.2	1.3	1.9	1.1	0.3	-1.0	1.0	1.2	2.0	2.3	1.0	-0.1
Netherlands	2.2	2.1	3.7	0.7	0.2	0.7	3.1	0.4	1.9	1.4	0.6	0.3
Portugal	3.2	1.7	3.9	1.0	1.4	-1.8	0.8	1.0	1.7	3.5	3.1	0.1
Spain	2.9	1.5	3.8	2.2	-0.1	-0.7	4.2	2.6	3.0	2.3	-0.3	-0.4
Sweden	2.0	0.7	3.3	1.5	0.9	-1.3	1.0	-0.5	1.1	2.0	2.2	2.0
United Kingdom	2.6	1.8	2.9	1.7	0.5	-1.2	1.0	0.7	2.2	3.0	1.8	1.1
European Union	2.4	1.6	2.7	1.3	0.1	-1.0	1.1	0.4	2.3	2.6	1.5	0.8
United States	3.2	2.4	4.0	1.3	1.7	1.2	2.0	-0.4	1.4	1.1	2.0	1.7
Japan	4.0	1.4	1.4	-0.7	1.0	-0.4	-0.9	-0.9	3.0	1.8	2.3	0.2

Note: Germany 1980-90 refers to West Germany only; EU 1980-90 excludes Eastern Laender of Germany

Source: GGDC/*The Conference Board*, Total Economy Database (June 2003)

Table 1.4b

Annual labour productivity growth, EU-15 and US

	EU-15			US		
	1979-90	1990-95	1995-01	1979-90	1990-95	1995-01
Total Economy	2.2	2.3	1.7	1.4	1.1	2.3
Agriculture, Forestry and Fishing	5.2	4.8	3.3	6.4	1.7	9.1
Mining and quarrying	2.9	13.1	3.5	4.4	5.1	-0.2
Manufacturing	3.4	3.5	2.3	3.4	3.6	3.8
Electricity, gas and water supply	2.7	3.6	5.7	1.1	1.8	0.1
Construction	1.6	0.8	0.7	-0.8	0.4	-0.3
Distributive trades	1.3	1.9	1.0	1.8	1.5	5.1
Transport	2.8	3.8	2.3	3.9	2.2	2.6
Communications	5.2	6.2	8.9	1.4	2.4	6.9
Financial Services	2.2	1.0	2.8	-0.7	1.7	5.2
Business Services*	0.7	0.7	0.3	0.1	0.0	0.0
Other community, Social and Personal Services	-0.3	0.4	0.3	1.2	0.9	-0.4
Public Administration, Education and Health	0.6	1.1	0.8	-0.4	-0.8	-0.6

* includes real estate

Source: O'Mahony and Van Ark (2003)

Table II.14

Labour productivity levels in manufacturing, EU countries relative to the US (US=100)

	1979-81	1994-96	1999-01
Belgium	87.2	117.9	115.7
Denmark	114.0	94.3	88.5
Germany	100.3	92.7	82.7
Greece	45.7	30.7	27.4
Spain	60.5	73.5	62.1
France	103.9	104.3	101.6
Ireland	34.3	90.6	169.8
Italy	90.8	91.1	78.9
Netherlands	94.2	110.2	99.4
Austria	62.4	76.9	79.0
Portugal	37.1	33.4	34.3
Finland	73.7	102.6	101.8
Sweden	93.5	99.3	86.6
UK	63.3	81.9	75.3
EU-14	84.6	88.0	80.3
US	100.0	100.0	100.0

Note: Labour productivity is measured as value added per hour worked

Sources and methods: see Chapter VII.

Table III.5

Contributions of industry groups to differences between EU-15 and US aggregate annual labour productivity growth

	Productivity growth differential EU15 over US Average annual percentage points		
	1979-1990	1990-1995	1995-2001
Total economy	0.99	1.19	-0.54
ICT Producing Industries	-0.13	-0.25	-0.45
ICT Producing Manufacturing	*-0.31*	*-0.29*	*-0.60*
ICT Producing Services	*0.08*	*0.04*	*0.15*
ICT Using Industries	0.38	0.44	-0.61
ICT Using Manufacturing	*0.19*	*0.18*	*0.14*
ICT Using Services	*0.19*	*0.26*	*-0.75*
Non-ICT Industries	0.73	0.99	0.44
Non-ICT Manufacturing	*0.27*	*0.01*	*0.24*
Non-ICT Services	*0.41*	*0.88*	*0.32*
Non-ICT Other	*0.06*	*0.10*	*-0.11*

summary

- Growth slowed dramatically in the early 1970s. Underlying productivity performance also collapsed. There was some recovery in the 1980s and 1990s, but overall performance is still mixed.
- It is probably best to view the 'Golden Age' is a unique period where catch-up, reconstruction, and liberalisation all promoted rapid growth.
- But when catch-up gains began to run out and the macroeconomic shocks of the early 1970s appeared, there was a rapid slowdown as the high-investment, wage & price restraint commitment of the 'Golden Age' collapsed.
- Even after the macroeconomic shocks of the early 1970s had faded, growth did not return to its 'Golden Age' rate.
- Analysis is complicated by the mis-measurement in the data.
- Although European labour market performance has been weak since the 1980s, only since 1995 has Europe slipped behind the USA in terms of productivity growth.