International Competitiveness and Productivity

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competitiveness

- 'Most people who use the term "competitiveness" do so without a second thought. It seems obvious to them that the analogy between a country and a corporation is reasonable and that to ask whether the United States is competitive in the world market is no different in principle from asking whether General Motors is competitive in the North American minivan market. In fact, however, trying to define the competitiveness of a nation is much more problematic than defining that of a corporation...So when we say that a corporation is uncompetitive, we mean that its market position is unsustainable - that unless it improves its performance, it will cease to exist. Countries, on the other hand, do not go out of business. They may be happy or unhappy with their economic performance, but they have no well defined bottom-line. As a result, the concept of national competitiveness is elusive.' Paul Krugman, *Pop Internationalism*.
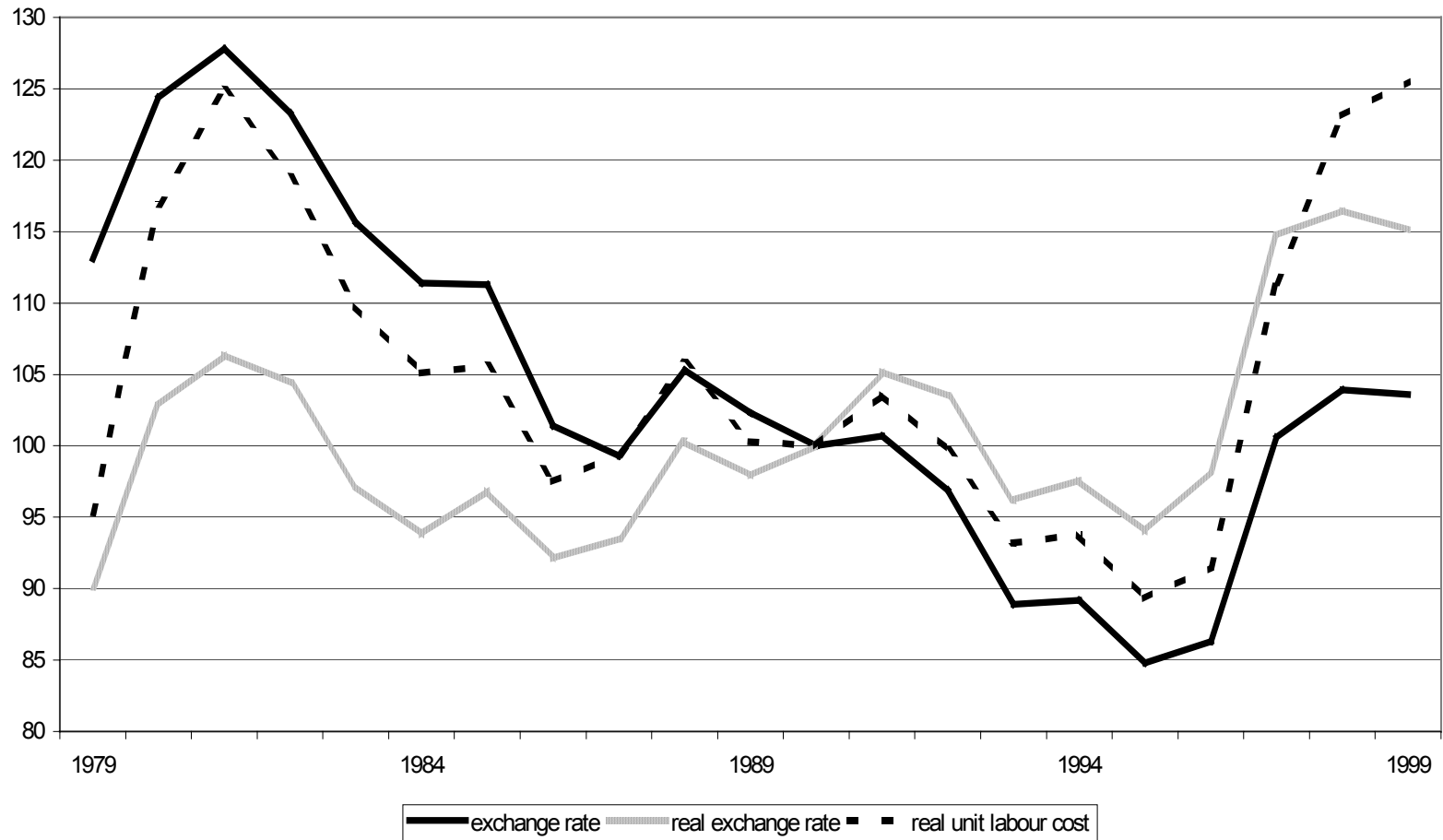
the real exchange rate

- The nominal exchange rate may be defined as
  - Units of domestic currency/Units of foreign currency
- The Real exchange rate may be defined as
  - The nominal exchange rate * (price of foreign goods/price of domestic goods)
- In these definitions, a rise in the exchange rate is a *depreciation* and a fall is an *appreciation*.
  - As long as goods prices move together, the real exchange rate will be stable.
  - If foreign prices rise faster than domestic prices, the nominal exchange rate will depreciate.
- The Terms of Trade may be defined as
  - 1/the real exchange rate.
- The Terms of Trade are determined by the relative supply and demand of tradeable goods.
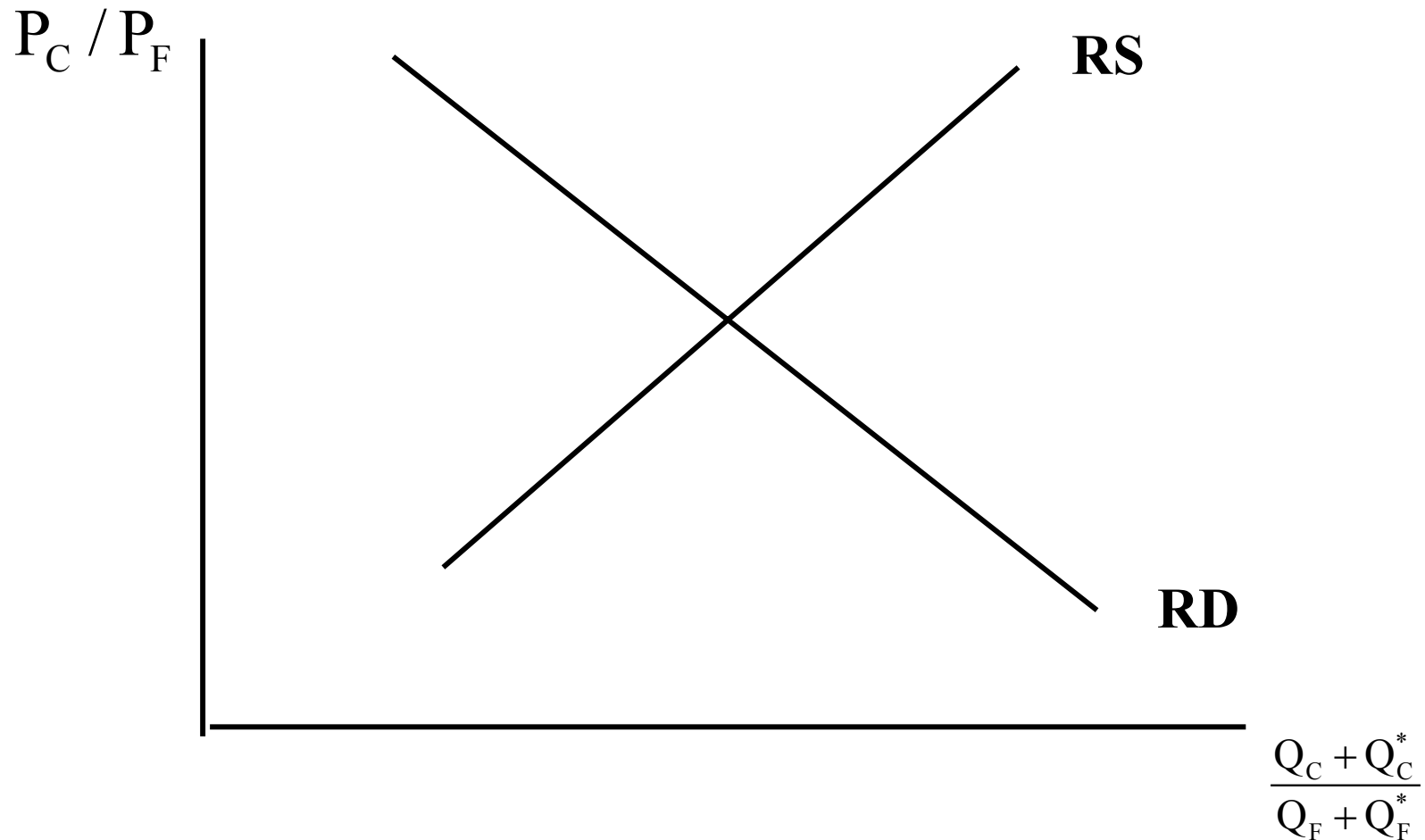
what determines the real exchange rate?

- When PPP holds, money supply growth and hence inflation leads to changes in the nominal exchange rate, but not in the real exchange rate.

- When PPP holds, the real exchange rate reflects relative supply and demand for tradeables (the terms of trade).

- For example, a rise in demand for British products will cause the sterling real exchange rate to appreciate.

**Measures of UK Competitiveness
1979 to 1999**

exchange rate — real exchange rate — real unit labour cost

the terms of trade

P_C / P_F

RS

RD

$$\frac{Q_C + Q_C^*}{Q_F + Q_F^*}$$

export-biased growth

P_C / P_F

RS

RS'

T_1

T_2

RS

RD

$$\frac{Q_C + Q_C^*}{Q_F + Q_F^*}$$
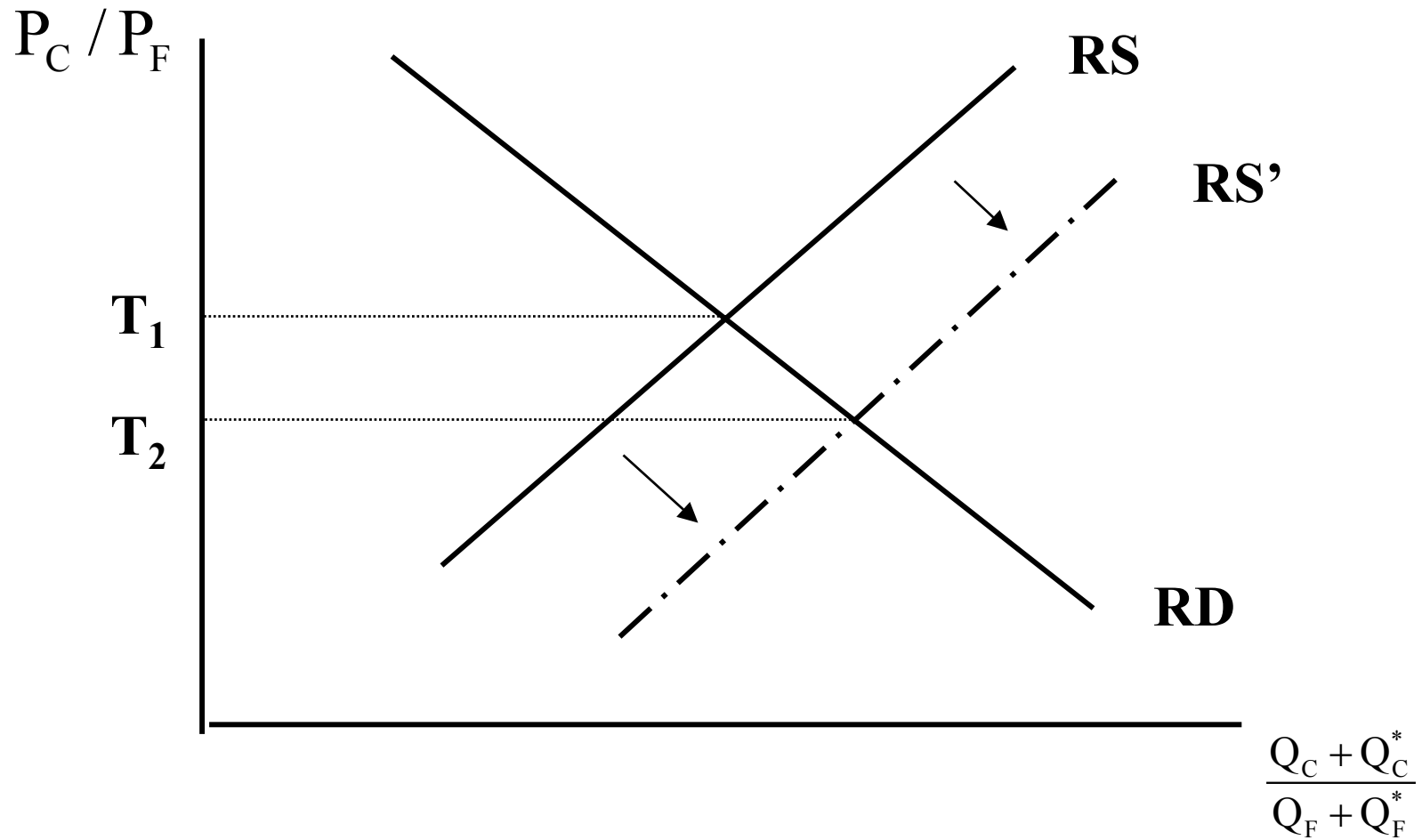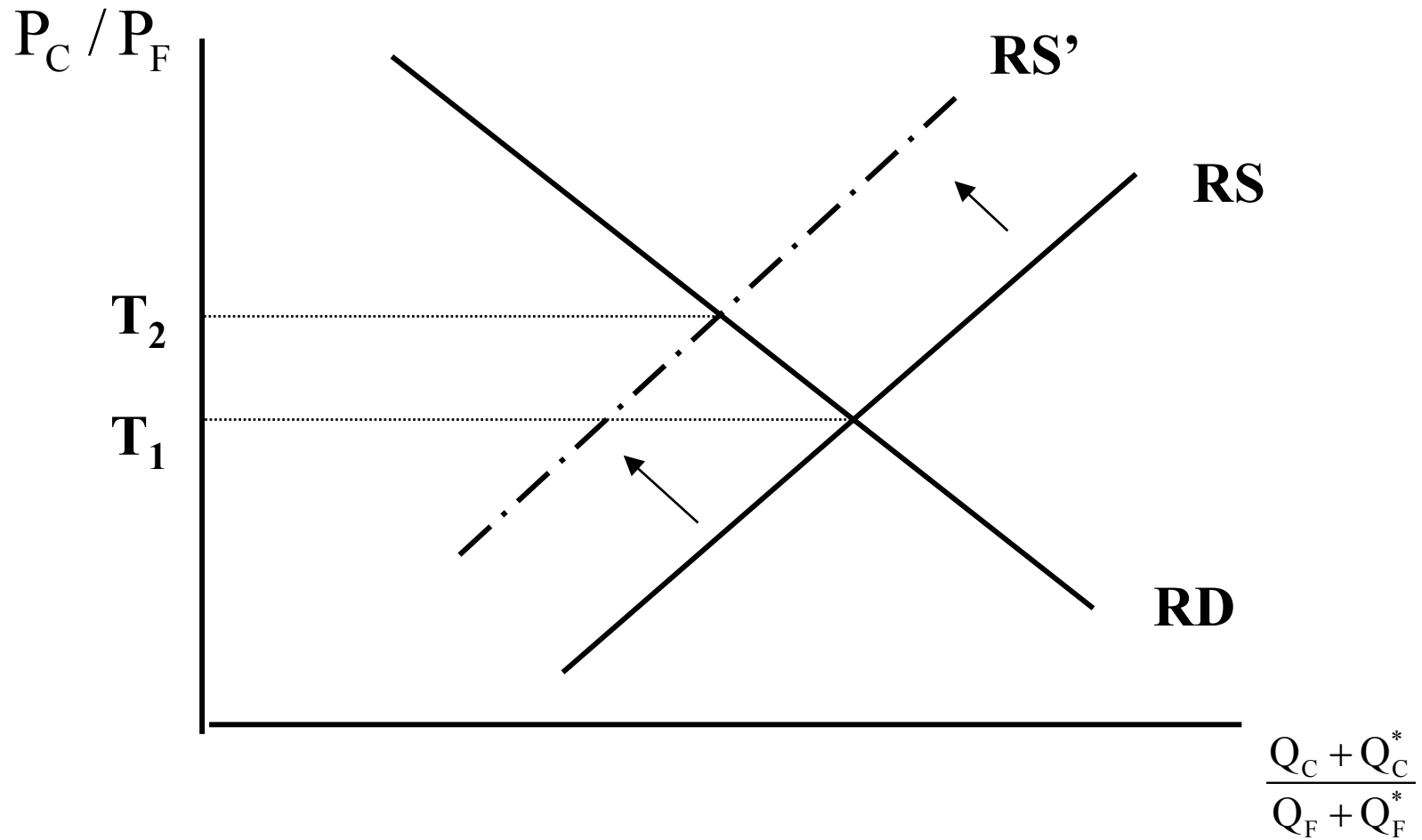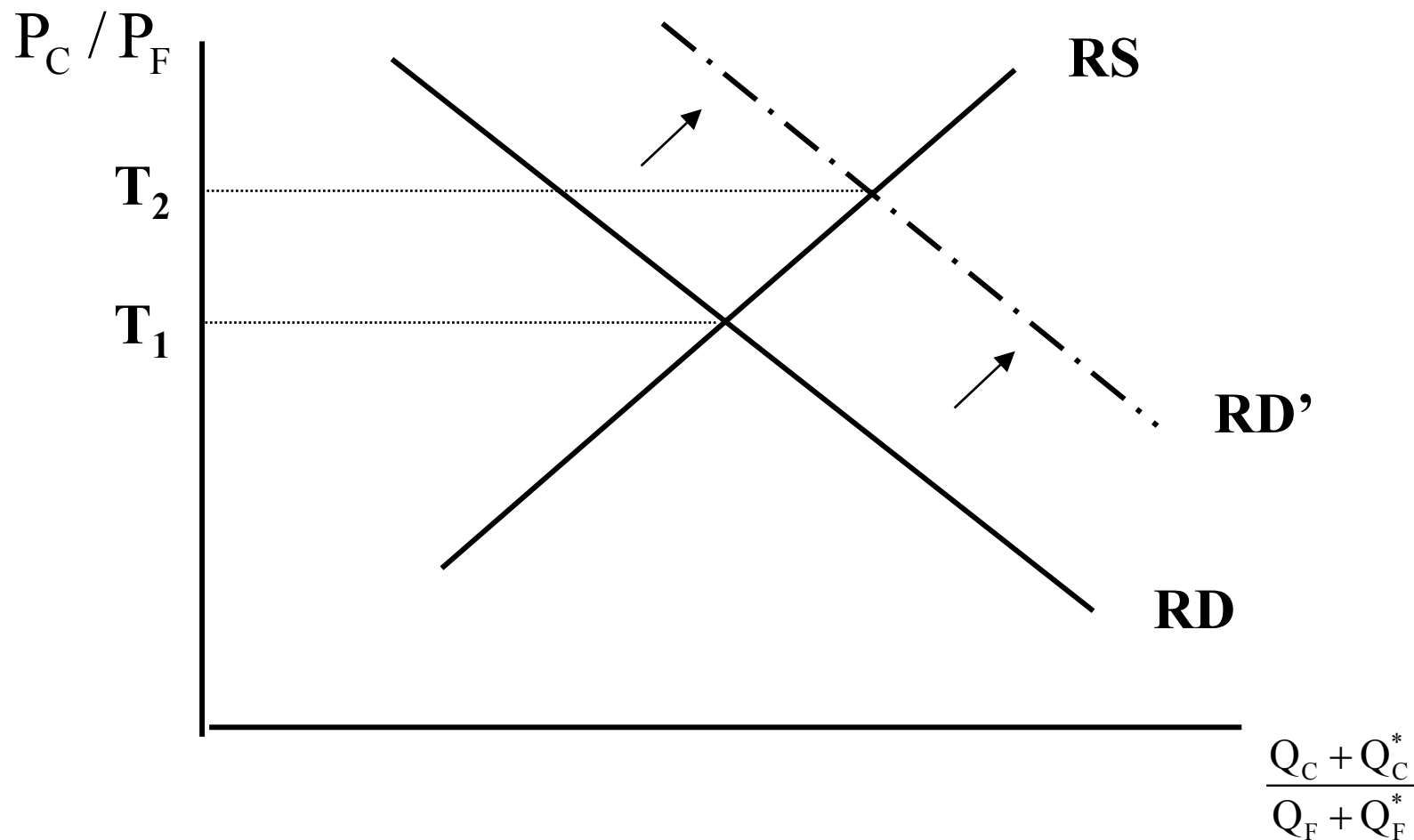
import-biased growth

an improvement in export quality

UK manufacturing TFP growth

- Growth of output = weighted growth of inputs + growth of total factor productivity (TFP)
- In common with most other OECD economies, manufacturing TFP growth in the UK slowed in the 1970s (from about 2½ per cent per annum in the 1960s to about 0.2 per cent per annum between 1973 and 1979).
- UK manufacturing TFP experienced an increase in growth in the 1980s, attaining a growth rate of about 3 per cent per annum.
- Two possible explanations for the slowdown and speedup:
  - Mismeasurement: Capital Scrapping; Labour Hoarding; Single Deflation Bias.
  - Structural Change: Institutional Rigidities and Strong Unions in the 1970s followed in the 1980s by weakening of trade union power, withdrawal of state-subsidies, shedding of below average plants, increased subcontracting and catch-up to international best practice.

Decomposition of Growth in UK Manufacturing

|	1960q1-73q1	1973q1-79q2	1979q2-90q2	1990q2-95q3	1960q1-95q3
Decomposition of Y/L					
Y/L	4.20%	1.50%	4.62%	3.46%	3.75%
TFP	2.58%	0.15%	3.03%	2.20%	2.23%
K/L	1.62%	1.35%	1.59%	1.26%	1.51%
Decomposition of TFP					
TFP	2.58%	0.15%	3.03%	2.20%	2.23%
Biases	0.12%	-1.16%	0.33%	0.50%	0.02%
Cycle	-0.81%	0.11%	-0.11%	0.03%	-0.31%
Trends	3.04%	1.88%	2.75%	2.56%	2.67%
Other*	0.23%	-0.67%	-0.06%	-0.88%	-0.15%
Decomposition of Trends					
Trends	3.04%	1.88%	2.75%	2.56%	2.67%
SKILL	0.52%	0.34%	0.29%	0.22%	0.37%
UNION	-0.11%	-0.06%	0.25%	0.06%	0.04%
R&D	0.92%	-0.11%	0.50%	0.55%	0.55%
Other+	1.72%	1.72%	1.72%	1.72%	1.72%

Notes:

May not sum exactly due to rounding. These estimates are based on the parameters in regression (1). SKILL is the ratio of administrative, technical and clerical staff to total workers. UNION is the proportion of full-time manual males covered by collective agreements. R&D is the ratio of the stock of industry-funded Business Enterprise spending on R&D (BERD) to the physical capital stock. % change in labour productivity = % change in TFP + % change in the contribution of the capital to labour ratio.

* Includes the residual plus seasonal factors.

+ This is the effect of the base trend.

Log Total Factor Productivity in UK Manufacturing -
Actual, Trend, Bias, and Cycle
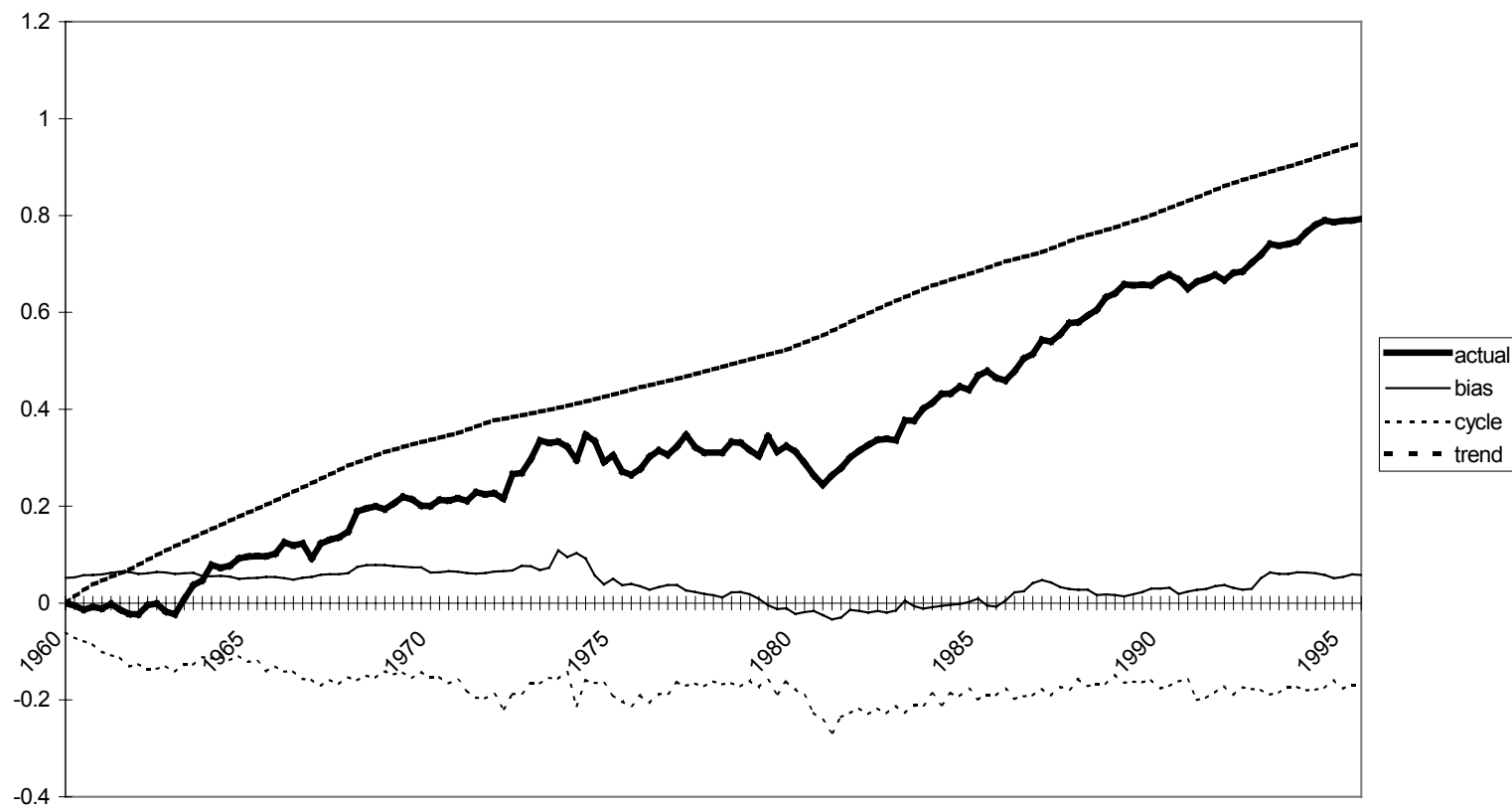
UK TFP relative to the USA

Industry	$RTFP_{70}$	$RTFP_{90}$	$\Delta RTFP_{70-90}$	$\Delta RTFP_{70-79}$	$\Delta RTFP_{80-89}$
Food & Drink	68.4	56.1	-1.00	-0.73	-1.12
Textiles & Clothes	51.6	58.9	0.66	0.23	1.07
Wood Products	51.8	54.5	0.25	0.28	-0.23
Paper & Printing	39.5	48.7	1.04	-0.31	2.21
Minerals	76.1	76.9	0.05	-0.69	1.56
Chemicals	49.4	64.0	1.30	1.88	1.42
Rubber & Plastic	74.2	90.5	1.00	0.10	1.84
Primary Metals	49.7	73.3	1.94	4.27	9.43
Metal Products	41.0	60.2	1.93	2.20	1.53
Machinery	79.5	75.3	-0.27	-0.16	0.04
Electricals	58.9	56.2	-0.24	-0.74	0.36
Transport Equip.	44.8	73.3	2.46	0.42	4.54
Instruments	62.1	76.6	1.05	1.65	0.57
Other Manufacturing	39.8	48.5	0.98	2.29	0.36
Average	56.2	65.2	0.80	0.15	1.68

Source: Cameron, Proudman and Redding (1999) 'Productivity Growth, Convergence and Trade in a Panel of Manufacturing Industries', CEP Discussion Paper 428.

shares of world manufactured exports

	US	UK	Germany	Japan	1st tier NIEs
1965-69	19.1	10.6	17.1	8.5	2.0
1970-74	15.4	8.3	17.7	10.3	3.4
1975-79	14.4	7.9	16.9	11.1	4.8
1980-85	14.6	6.8	14.8	13.4	6.8
1986-90	11.9	6.2	15.6	13.3	8.6
1991-93	13.0	5.9	14.2	12.9	9.0

Source: UNCTAD Trade and Development Report (New York: United Nations, 1996).
Note: Germany includes East Germany after 1991

Shares of Sectors in UK Output

Sector	Share in Gross Output		Share in Value Added	
	1979	1990	1979	1990
Primary	0.17	0.19	0.16	0.13
High Tech Manufacturing	0.17	0.15	0.13	0.11
Other Manufacturing	0.23	0.16	0.12	0.10
Fin Services	0.06	0.16	0.07	0.15
Trade Services	0.06	0.05	0.05	0.06
Non-Trade Services	0.32	0.30	0.46	0.45

Sector	Share in export value added		Share in export gross output	
	1979	1990	1979	1990
Primary	0.16	0.10	0.13	0.13
High Tech Manufacturing	0.27	0.31	0.30	0.33
Other Manufacturing	0.18	0.18	0.28	0.22
Fin Services	0.08	0.15	0.05	0.13
Trade Services	0.09	0.08	0.09	0.06
Non-Trade Services	0.23	0.19	0.15	0.13

Sector	Share in employment	
	1979	1990
Primary	0.10	0.09
High Tech Manufacturing	0.15	0.13
Other Manufacturing	0.13	0.11
Fin Services	0.09	0.16
Trade Services	0.05	0.05
Non-Trade Services	0.47	0.48

decomposition of UK growth

Shares of total growth		Between	Within	Total
TFP	Whole economy	17.1	82.9	100.0
	Manufacturing	10.2	89.8	100.0
Labour Productivity	Whole economy	4.4	95.6	100.0
	Manufacturing	3.0	97.0	100.0

Source: Gavin Cameron, James Proudman, and Stephen Redding, 'Deconstructing Growth in UK Manufacturing,' (London: Bank of England Working Paper 73, 1997).

share of foreign firms in UK manufacturing

	Value Added	Investment	Employment	Relative Labour Productivity
1981	18.3	25.5	14.8	1.28
1983	18.6	23.1	14.5	1.35
1984	19.3	20.4	14.2	1.45
1985	18.1	21.1	13.6	1.41
1986	17.0	19.7	12.7	1.40
1987	17.9	20.4	12.8	1.49
1988	17.8	20.8	12.9	1.46
1989	20.6	26.7	14.6	1.51
1990	21.7	26.9	16.0	1.45
1991	21.6	33.4	17.1	1.34
1992	23.4	31.6	18.1	1.38

Source: Office of National Statistics, Census of Production (London: ONS, various years).

foreign direct investment

- Between 1983 and 1990, the share of foreign-owned enterprises (FOEs) in UK manufacturing rose from 19 per cent to 22 per cent. In 1983, FOEs had a 35 per cent labour productivity advantage, rising to 45 per cent in 1990.

- However, FOEs tended to be located in high productivity sectors. If they had the same employment mix as UK firms, they would have been 24 per cent more productive in 1983, rising to 31 per cent in 1990.

- Nick Oulton (1997) argues that once you take into account the higher capital intensity and higher skilled workers in FOEs there is no significant difference in TFP between FOEs and UK firms (except for US owned firms which have a TFP advantage of about 10 per cent).

- Very little of the productivity growth in the 1980s was due to the shift towards foreign-ownership. Between 1981 and 1991, real labour productivity rose by 3.7% p.a. on average, with 3.63% p.a. accounted for by within sector growth and only 0.06% p.a. accounted for by employment shifts to FOEs.

- The idea that FDI is caused by differences in technology also has trouble explaining why the UK is a massive outward investor. In the 1990s, both inward and outward direct investment averaged about 1.1 per cent of UK GDP.

summary

- When Purchasing Power Parity holds, movements in prices (at home and abroad) affect the nominal exchange rate but not the real exchange rate.

- In the long-run, the real exchange rate (and the terms of trade) are determined by relative supply and demand for domestic goods and services.

- About half of the UK 'productivity miracle' in the 1980s was due to mis-measurement and about half was due to an improvement in the supply-side of the economy.

- Very little of this improvement was due to the effect of foreign direct investment.

syndicate topics

- What determines the terms of trade of a country?
- Why do services cost more in rich countries than in poor ones?
- What does competitiveness mean? And what determines it?
- How can productivity be measured?
- What policies lead to improved economic performance?