Appendix: Answers to review questions

Chapter 1

1 (a) A downsloping line joining 15 shirts and 20 cakes. (b) 20. (c) All points below the frontier. (d) 1.33 cakes. (e) No.
2 Informationally, too costly to plan for, deliver to and monitor individuals.
3 Wages will fall for jobs for which students wish to offer themselves.
4 (a) P. (b) N. (c) P. (d) N.
5 (a) Macro. (b) Micro. (c) Micro. (d) Macro.
6 (a) Positive economics can be tested against evidence. (b) Beginning from an inefficient point, efficiency gains yield a free lunch. (c) Can use scientific method to study human behaviour.

Chapter 2

1 (a) Cross-section data, e.g. by county, for crime, unemployment. (b) Collect other data to control for income, policing, inequality, urban or rural; and use econometrics to disentangle.
2 Upsloping line: rise by 1 in RPI associated with extra £1300 in house prices; time series.
3 Upsloping line: higher income associated with higher consumption of similar amount.
4 Weights reflect relative importance, so capital usually much less than rest of country.
5 Downsloping curve.
6 (a) Theory organizes facts by providing a simple framework in which to interpret them. (b) Many sciences (e.g. astronomy) cannot conduct laboratory experiments. (c) Molecules individually random but collectively predictable. People's individual whims cancel out in larger groups.

Chapter 3

1 Equilibrium price £17, quantity 6.5.
2 (a) Excess demand = 5, and price rises. (b) Excess supply = 3, and price falls.
3 Demand curve for toasters shifts down. Equilibrium price and quantity of toasters fall.
4 Same as 3.
5 Drought, disease, wild dogs all shift supply curve down. Price falls move farmers down given supply curve, not a fall in supply.
6 Controlling for how much the good impresses your friends, lower prices raise your demand.
7 (a) A low enough price can fill any stadium. (b) It shows a price floor for farm goods. (c) It offers low rents to the lucky people who get housing but also reduces total supply and causes a shortage.

Chapter 4

1 (a) Vertical supply, downsloping demand. (b) To sell 10 per cent fewer baskets, raise the price 20 per cent to £1.20. Vertical supply curve now at 90 baskets.
2 (a) Inelastic. (b) More elastic. (c) More elastic still.
3 Where demand elasticity is –1. Below that point on the demand curve, demand is inelastic: higher prices add to revenue. Above that point, demand is elastic: lower prices add to revenue. If the stadium is free to operate, maximizing profits means maximizing revenue.
4 Vegetables: inelastic, necessity. Catering: elastic, luxury.
5 These data are for nominal not real spending on bread, which fell as real income rose.
6 (a) Necessity is a statement about income elasticity not price elasticity of demand. At high enough prices, demand may be price elastic. (b) If bad weather hits all farmers, it raises prices and helps incomes: 'good' weather needs insurance! (c) Not when they make inferior goods.

Chapter 5

1 Budget line joins points of food = 10, films = 25. Fall in food price has income and substitution effects. Both raise demand for food. For films, income effect raises demand, substitution effect reduces it. When film price falls, film demand rises, food demand could go either way. Putting two price cuts together. Between e and e'' there is no substitution effect: relative prices are the same. Since both goods are normal, e'' is north-east of e since real income is higher.
2 First three statements correct. Fourth may not be. For other goods, there is a substitution effect towards them

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(unless like cutlery they are complements of food), but since real income is lower, demand for normal goods can go either way. Demand for inferior goods *must* rise.

3 Films increase as budget line moves out, transport declines.

4 (a) Both reduce demand. (b) Demand curve shifts down: equilibrium price and quantity fall.

5 (a) Just a device to mimic what people do instinctively. (b) Budget line unaffected.

Chapter 6

1 (a) Expenses higher and pre-tax profits lower by £70 000. (b) Accounting profits change; economic profits unaffected since firm charges the opportunity cost of the money tied up in owning the office (the rental it could have got!). (c) More revenue and hence more profits.

2 Opportunity cost of owner is £40 000 and of money tied up is £24 000.

3 (a) Inventories are extra assets, extra borrowing is liability. (b) Interest on loan is a cost.

4 (a) Maybe, if we mean profits over a long period. But since managers can only be monitored imperfectly, they have some scope to pursue other aims. Profit-related bonuses and fears of takeover help keep this in check. (b) Some of these may be sound investments. Some may not. Firms tend to sponsor things popular with the board not the shareholders.

5 With an extra fixed cost of £40, 6 is still the best output level in the short run. *MC* and *MR* are unaffected. In the long run the firm is losing money and should close down.

6 (a) *MR* is horizontal at £13. *MC* is as in Table 6.4. (b) 7 units.

7 (a) They may not cover opportunity costs. (b) *MC* = *MR* whenever a firm succeeds in maximizing profits. (c) Sales maximized when output expanded till *MR* = 0. Last units then fail to cover marginal cost.

Chapter 7

1 (a) Maximum output obtainable from specified bundles of inputs. (b) Also need to know prices of inputs and of output.

2 (a) Falling LAC. By spreading fixed costs. (b) Columns 1, 3, and 6 are cheapest way to make 4, 8, and 12 units of output. Total costs are 33, 64, 96. Average costs are 8.25, 8, and 8. (c) There are scale economies in raising output from 4 to 8, and constant returns to scale in going from 8 to 12.

3 (a) Column 1 more capital-intensive than column 2; column 3 than 4; column 5 than 6. (b) Away in this example.

4 (a) At output of 4, would switch from column 1 to 2. (b) Both must rise (life is harder).

5 (a)

Q	0	1	2	3	4	5	6	7	8	9
MC	0	15	13	11	9	10	10	11	13	16
AC		27	20	17	15	14	13.3	13	13	13.3

(b) At *Q* = 8, minimum AC = *MC*. (c) Short run. In the long run, the cost of a zero output is zero.

6 (a) If covering variable costs in short run. (b) No, it exits.

7 (a) May cover short-run variable costs. (b) Not if diseconomies of scale. (c) Not if economies of scale.

Chapter 8

1 1(a) Industry demand shifts down, price and quantity fall, firms lose money but may cover short-run variable costs. Eventually, enough firms leave the industry to restore original price at lower aggregate output. (b) Now industry LRSS curve slopes up too. In the long run, higher cost firms leave the industry, and equilibrium has lower price, fewer firms, lower total output.

2 Supply curve shifts up in short run, raising price and reducing quantity. In the long run, new entry reverses these shifts.

3 (a) Imports if domestic supply and demand intersect above world price, exports if they intersect below it. (b) Domestic price rises, so domestic output rises, domestic demand falls and imports fall.

4

Q	1	2	3	4	5	6
P	8	7	6	5	4	3
TR	8	14	18	20	20	18
MR	8	6	4	2	0	–2

Monopolist has *Q* = 2, *P* = 7. Competitive industry *Q* =4, *P*=5.

5 No effect. *MC* and *MR* unaltered and profits still positive.

6 (a) Normal profit rewards all inputs properly. (b) Not if lose scale economies and raise costs.

Chapter 9

1 1 (a) *Q* = 4, *P* = 7. (b) Same again. (c) Because each firm has *MC* = 3, but will face *MR* > 3 if it alone expands: price will not fall so much since other firm not expanding too.

2 (a)

Q	1	2	3	4	5	6	7
P	8	7	6	5	4	3	2
TR	8	14	18	20	20	18	14
MR	8	6	4	2	0	–2	–4

Z makes *Q* = 3, whereas in 1(b) dividing the market in half, Z made *Q* = 2.

3 Certification by a reputable agency saves customers cost of checking themselves. For mechanics, after a bad experience, you can go elsewhere. Reputation helps solve the information problem. For doctors, you might be dead after a bad experience.

4 A few convey new information. Many erect entry barriers.

5 Agreeing policy with a second parent may have this effect, since you then look silly if you depart from the agreement.

6 (a) Cannot police cheating on the collective agreement. (b) Deterring entry raises profits on existing output.

Chapter 10

1 (a) Other inputs are fixed. (b) Shifts labour demand curve up.

2 (a) Substitution effect means work more, but income effect means work less since leisure is a normal good. (b) More people join labour force.

3 Industry has to pay extra to attract workers from other industries.

4 (a) Top golfers in scarce supply but big demand. (b) Economics students have more human capital relevant to high-paying jobs.

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5 (a) Since people like it, demand is high; and nobody else can supply it. (b) Income effect means want more leisure.

Chapter 11

1 Lose £30 000 while training. Future salary of £23 000 for 30 years repays this.
2 Restrict entry by tough exams and insisting on long working hours.
3 Yes.
4 Wages fall if less monopoly profit for unions to chase after. Larger unions would help restore workers' bargaining power but might prevent gains from competition being realized.
5 (a) Not if there are systematic reasons for women to acquire fewer attributes valued by firms. (b) Neglects the opportunity cost of wages forgone while in education. (c) Not if poor are disproportionately represented in unions in the first place.

Chapter 12

1 (a) Some flows of consumption services are provided most efficiently by buying consumer durables. (b) The laundrette costs £104 a year. Buying costs £52 a year + £40 interest forgone. Better to buy.
2 You make 20 on every 90 you put in, about 22 per cent a year.
3 (£3600 × 0.91 = £3276) + (£12 600 × 0.83 = £10 458) × £13 734. Buy it!
4 It raises the present value of the existing stream of rentals, raising the incentive to build more capital assets. This slowly reduces the equilibrium rental on capital until long-run equilibrium is restored.
5 The land demand is a derived demand. If supply is fixed, only a rise in demand for land can bid up land prices. Tenant farmers face higher rentals but extra income from their crops is what started the process. Farmers lose in land prices and rentals bid up by higher demand for housing.
6 (a) It also makes future nominal income rise. (b) Higher labour productivity and wage income also raise the demand for goods. (c) True if only one possible user. Competition between users is what bids up the price.

Chapter 13

1 A is risk-neutral, B risk-loving, C risk-averse. C insures most.
2 High. Adverse selection. Low risk people are happy to be screened.
3 (a) Yes. (b) No. (c) Yes.
4 Negative beta: you do well in a slump, when other shares are doing less well. Your shares have high price and low expected return.
5 Fear of moral hazard – being exploited by people with better information – prevents *others* from dealing in shares.
6 (a) If all available information is already in the price, by definition only new, as yet unavailable information, can change the price. (b) Risk-pooling reduces the premium they need to charge. (c) Volatile shares are valuable if they have a negative beta!

Chapter 14

1 All three
2 Bundling.
3 SEAT, Skoda, VW, Audi (all the same firm); regular and executive lounges in airports; standard and luxury Christmas pudding.
4 Output is higher, and those previously unwilling to pay the uniform price now do better. Those willing previously to pay it do worse, since face a higher price.
5 Cartel makes a standardized product. Strategic alliance makes a range of products that have strong complementarity.
6 Benefits of scale economies, incentive to invest and hence cost reduction.
7 (a) *MC* = 0 so price should be low. Some free pricing also to entice people into usage before prices then raised. Advertising may also support free prices, as with ITV. (b) Total benefit to consumers rises because larger area under the demand curve when output expands. (c) High share prices could reflect expectations of high future profits.

Chapter 15

1 (a) Efficient, not equitable. (b) Neither efficient nor equitable. (c) Both efficient and equitable. (d) Not efficient nor very equitable. (e) Efficient not equitable. Equitable asks 'How fair is distribution?'
2 (a) 1 film worth 5 meals to consumer utility. (b) *MC* of films five times that of meals. *(c)* MP_L in meals five times higher than in film. Equilibrium equates *MSC* and *MSB*.
3 Yes to all questions.
4 No. By insuring boilers they certified removed any incentive to be bribed to falsify certificates, reducing moral hazard.
5 (a) Such activities waste scarce resources. (b) Yes.
6 (a) For further pollution reduction, marginal cost exceeds marginal benefit once pollution already low. (b) Monopoly, externalities, etc. are important market failures. (c) Government failures also occur.

Chapter 16

1 All except d.
2 Education a merit good (people do not know what is good for them); externalities (we like educated people to interact with); equity (helps promote equality of opportunity).
3 Vertical equity says take from the rich and give to the poor, but should not assess just income: ideally want to redistribute from the person getting more of all goods that they care about. Horizontal equity says treat all sunworshippers in a similar way.
4 All progressive except tax on beer, which is a larger share of poor people's income.
5 18, 24, 28.8 per cent. It is progressive, and more so the higher the exemption level. With an exemption of £1 million, the tax would only hit the rich!
6 No change in labour supplied, so no distortion triangle. (b) Big triangle, and firms now bear most of the tax.
7 (a) What about finance of public goods, offsetting externalities, provision of social insurance, redistribution? (b) Marginal taxes usually create distortions. (c) We can analyse the incentives for politicians to choose particular policies,

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and for voters to elect particular parties, and hence analyse political equilibrium.

Chapter 17

1 Triangle has height of £3, and length of 200 000. Hence cost is £300 000.
2 The triangle now has height £6 and length 400 000, a cost of £1 200 000. In addition, 600 000 units are now produced at £1 more than is really necessary. Total social cost £1 800 000.
3 In essence, US presumes large size is bad, and tries to break up big firms, or regulate them if they cannot be split up. UK policy used to be on a case-by-case basis, but now increasingly emphasizes the promotion of competition.
4 Locational externalities. But the entire cluster locates in a sensible place. High-wage Switzerland is not a good place for labour-intensive businesses.
5 (a) Profit may just reflect monopoly power. (b) Benefits of scale economies and incentive to innovate sometimes outweigh the other costs of monopoly. (c) Private benefit of mergers may include monopoly profits, which are a social cost.

Chapter 18

1 Two-part tariff yields more revenue. It cannot discriminate between existing members, can at least do so between old and new ones.
2 BA faces stiff competition. OFAIR not needed.
3 Commuters travel when *MC* high and ideally should pay more; but big congestion externalities on rush-hour roads could easily justify cheap rail tickets. First best is to tax the externalities appropriately (properly price car use and parking).
4 Big externalities – it helps other industries that do not use the tunnel. Could be socially desirable even if privately unprofitable.
5 (a) Encourages inward investment to build cars, only some of which exported through the tunnel. (b) Social risk premium smaller than that charged by banks (better risk-pooling and risk-spreading). (c) Reduces congestion at Heathrow and Gatwick. (d) Reduces noise pollution near these airports. (e) Provided jobs for involuntary unemployed construction workers who would otherwise make nothing.
6 Cost-plus gives less incentive to keep costs down but prevents companies getting terrified by all the risk they bear (for which they have to charge). Fixed-price makes companies bear all risk (so raising the tender price they charge) but gives them bigger incentive to keep costs down (since they get all the benefits). Former better if little prospect of cost escalation, because easy to monitor management but large 'exogenous' uncertainties.
7 (a) Not if MC < AC. (b) Public monopolies can experience failure too. (c) Regulation is neither costless nor without dangers of capture. Sometimes structural solutions are more effective.

Chapter 19

1 (a) 1000 – 120 = 880.
2 (a) £250 bn. (b) National income is net national product at basic prices. Depreciation is part of the cost of producing output. (c) They reduce the purchasing power of a given gross income.
3 (a) 210. (b) 310. (c) 1870. (d) Yes, if imports exceed exports.
4 (a) 2200. (b) 10 per cent. (c) In this example, also 10 per cent.
5 (a) Leisure is lost but investment in human capital occurs. (b) No – just a transfer payment. (c) Yes. (d) Pollution should ideally be subtracted from GNP.
6 (a) Just a transfer payment, not real output. (b) Might conceivably be undesirable if achieved by very unequal income distribution. (c) Only because people compare nominal receipts. In real terms, *Gone With The Wind* wins by a mile!

Chapter 20

1 (a) Intercept = 40, slope = 08. (b) Destocking. (c) 200. (d) Yes: 40 = 0.2 × 200.
2 (a) 75. (b) 45.
3 (a) Equilibrium income falls from 500 to 200. (b) $I = S = 100$. Saving is unchanged, but rises from 20 per cent to 20 per cent of income because income falls.
4 Unplanned investment.
5 (a) 2000. (b) 200/(0.3) = 667. Lower.
6 (a) Investment is independent of saving and higher saving reduces aggregate demand. (b) Because *MPC* < 1, each fall in output causes a smaller fall in demand, so the process eventually comes to a halt.

Chapter 21

1 (a) 120. (b) Output rises by 250 to 1250. Consumption rises by 200 to 1000. Investment is 130 and government spending 120. (c) $Y = 1250$, $C = 1000$, $I = 80$, $G = 170$. (d) $Y = 1200$, $C = 960$, $I = 80$, so $G = 160$.
2 Of each extra pound of national income, 0.6 goes in extra consumption, 0.15 in extra saving, and 0.25 in extra taxes. Multiplier = 1/(0.4). Equilibrium income rises £15 bn. Taxes rise a quarter of this, so budget deficit increases, since extra *G is* £6 bn.
3 In equilibrium, desired leakages equal desired injections. Desired S and I equal only when no government and no foreign sector.
4 Because eventually it would be unable to afford the interest payments on its huge debt. *You* cannot pile up huge debts either!
5 EU exports fall, inducing EU slump and lower EU imports. EU trade balance worsens.
6 (a) Wrong because of balanced budget multiplier (b) As an identity, $(X - Z)$ always equals $[(T - G) + (S - I)]$.

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Chapter 22

1 (a) No. Cannot be retraded indefinitely. Nor is it pure barter unless new car has same monetary value as old. (b) Watch which is then retraded, not swallowed.
2 (a) Same value. (b) More valuable as money. (c) Less valuable as money, for example because more efficient token money now used.
3 By simultaneously creating loans and deposits to match, without requiring a cash injection.
4 (a) No. They are not subsequently retraded repeatedly. (b) No. (c) They reduce your demand for money, but do not affect supply: credit card stubs cannot be reused to purchase other goods.
5 M0 =12 + 2 =14, M4 =12 + 30 +60 + 20 = 122.
6 Small, since opportunity cost of holding bank deposits hardly affected.
7 (a) Most of money supply is bank deposits, a liability of banks. By simultaneously expanding both sides of their balance sheet, banks increase the money supply. (b) If people put less cash in banks, banks less able to multiply up reserves into deposits.

Chapter 23

1 (a) Bank of England gives cheque to Barclays in exchange for cash. Bank has now fewer securities (assets) but equivalently fewer liabilities (cash in circulation). Having lost cash reserves, Barclays has a multiplied reduction in deposits, and corresponding change in loans on the other side of its balance sheet. (b) Money supply falls by more than original open market operation. (c) No difference if pay in cash (unless changes public's desired ratio of cash to deposits).
2 The money multiplier is now 1. Money supply falls only by the value of the open market operation. No additional deposit and loan contraction at Barclays.
3 If monetary policy cares about inflation and output, but takes time to affect them, then whatever things are observable today but known to be reliably correlated with future inflation and output. This includes past values of inflation and output themselves, some financial market data (which comes out fast) and survey data on business and household confidence.
4 Initially, consumption function shifts up: spend more at each income. However, once debts accumulate, more income goes on paying interest and less available for buying goods. Consumption function eventually shifts down again.
5 Reduces present value of future profits, and hence benefit of investment. This true whether financed by bank borrowing, new share issues, or out of retained profit (when what changes is the opportunity cost of the funds employed).
6 Households and firms may be locked into previous plans, may take time to re-evaluate decisions, and may wait to see if interest rate change permanent.
7 (a) Can control money supply by relying on 'normal' reserve ratios banks want anyway. However, central banks prefer to set interest rate and supply the money the market then demands. (b) Cash pays no nominal interest. Its real return is simply – where is the inflation rate. (c) Sensible if expected future incomes have risen sharply.

Chapter 24

1 It adds little to permanent income, so consumption demand changes little.
2 (a) *IS* shifts up. (*b*) *LM* shifts right. (c) *LM* shifts left.
3 Horizontal *LM.* Whatever the small country's output, European Central Bank sets the single interest rate based on whole euro area, which is hardly affected by small country. Its *LM* shifts when ECB changes interest rates.
4 For Euroland, *LM* slopes up. If small country behaves like the Euroland aggregate, its output is only high when Euroland output is high, so *LM* slopes up even for the small country.
5 (a) Automatic stabilizers work at fixed tax rates. (b) If output was lower, there would have been no reason to raise interest rates, but then there would be no reason for output to fall. (c) Consumption and investment demand based on assessment of long run.

Chapter 25

1 (a) *MDS* shows how inflation affects aggregate demand via its effect on how interest rates are set. (b) Shifts *MDS* upwards. (c) Tighten monetary policy by raising c^*.
2 Vertical *AS* shifts right, *MDS* shifts up, equilibrium inflation unchanged. In practice, *MDS* shift likely to precede *AS* shift.
3 Higher tax rate shifts it up, higher productivity shifts it down.
4 If all wages changes together, in principle they could adjust quickly to a shock. When wage settlements are staggered, old wages, appropriate to old circumstances, affect where new wages are set, which in turn affect the next round of wage settlement, and so on, slowing down wage adjustment.
5 (a) With fixed nominal interest rate, higher inflation reduces real interest rate, and boosts demand: *MDS* still slopes down. *SAS* shifts up, so inflation rises and output falls. Subsequently, *SAS* shifts down when oil prices fall again, and back to full equilibrium. (b) and (c) still imply a downsloping MDS schedule.
6 (a) Eventually, output restored to potential output. (b) Not in long run, unless potential output depends on inflation

Chapter 26

1 (a) With zero inflation, in years 1–9 your income is £10 000, and interest payment is £4000. (b) In year 1, income £10 000, interest £204 000! By year 9, income £2 560 000, interest still £204 000.
2 Equal annual payments in nominal terms become declining annual payments in real terms. Inflation brings the real burden forward, may make early years impossibly difficult (later years very easy).
3 When change in real money demand, *M* and *P* change differently.
4 Initially, demand shock raises and lowers *U*, supply shock raises and raises *U*. Permanent demand shock has no permanent effect on *U* (since market forces or central bank restore aggregate demand to potential output), whereas permanent supply shock raises equilibrium *U*.

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5 Those with fixed nominal income, those paying higher taxes because tax system not inflation-neutral, those lending at fixed nominal interest rate. For third group, if they anticipated inflation, they could set nominal interest rates appropriately higher.
6 (a) Not in long run. (b) Not if nominal interest rate adjusts to maintain real interest rate. (c) If nominal interest rate fails to keep up with inflation, real interest rates may actually be lower.

Chapter 27

1 Pessimistic about finding a job, people leave labour force completely. Lower morale, aware that firms, rightly or wrongly, may brand them as less good because they have been unemployed.
2 No, outflow falls a lot in slump.
3 Teenagers need training from scratch – lack skills and job experience; teenage wages not low enough to compensate.
4 Reduced demand for some types of labour, raised demand for others. Temporary mismatch but eventually skills and wages adjust. Millennia of technical progress would have driven unemployment to 100 per cent if there was any permanent relationship to unemployment.
5 (a) Deficient demand in economy. (b) Real wage too high, for example because of union power or generous welfare benefits.
6 Do not begin with spare capacity. Rather high equilibrium unemployment.
7 (a) Fast flow through *U* pool may allow better matching of skills to jobs in changing world. (b) Not if equilibrium *U*. (c) Exacerbates Keynesian *U*. Even if equilibrium *U*, shifting job acceptance schedule down will only eliminate some *U*.

Chapter 28

1 £1 = €1.40, and €1 = £0.71.
2 Surplus of £2 billion. Central bank sells this amount of sterling and buys £2 billion of forex reserves to achieve forex market equilibrium at the desired exchange rate.
3 External balance refers to current account balance, not trade balance. Japan also earns income on large foreign assets, so actually has had current account surpluses. Yes, running out of forex reserves forces adjustment faster than stockpiling forex reserves.
4 Trivially, appreciation desirable if initial exchange rate too low, undesirable if initially too high. Could assess relative to likely long-run equilibrium values.
5 Inflation means US price of $4 rises to $12, UK price of £1 rises to £2. Hence need exchange rate of $6/£ to preserve original relative prices in a common currency.
6 (a) Not if nominal exchange rate depreciates enough. (b) Financial account more important in short run since flows could potentially be huge. (c) Will *already* have appreciated to high level so expected to fall from now on, offsetting from now on the benefit of high interest rates.

Chapter 29

1 c, a, b.
2 (a) Nothing, since interest parity must hold from now on. (b) Rises. (c) Rises. (d) Initial gain in competitiveness boosts net exports and output. Eventually, extra inflation erodes competitiveness enough to undo this. Once competitiveness back to initial level, extra inflation stops.
3 All rise by 30 per cent. Nominal exchange rate is the nominal anchor now.
4 Yes, as in 2 above. Without devaluation, slump lowers inflation and hence prices and wages, eventually adjusting competitiveness as needed.
5 Since marginal propensity to import < 1, net exports rise so need real appreciation. Speculators foresee later rise and bid exchange rate up immediately – otherwise, opportunities for foreseeable large capital gains later.
6 (a) Can if set interest rate appropriately to keep speculators happy at that exchange rate. (b) Mainly influenced by financial account in short run. (c) Affects the interest rate response (or lack of it) to a change in fiscal policy.

Chapter 30

1 Latter is output per person. Output grows faster unless population growth negative.
2 Compare with other countries to see if factually true that we are different. For different countries, correlate long-run growth with usual explanations (labour input, capital input, etc.) and see if extra role for fraction of population who are scientists, engineers. Private and social benefits differ if there are externalities (some skills make it easier for people with other skills). Subsidies to education also imply discrepancy between private and social cost.
3 Pollution and congestion. Can quantify and value some (e.g. how much house prices are lower under airport flightpath). As information technology lets us record data better, will get easier to include in GNP.
4 Poverty traps possible even in Solow model. Endogenous growth can also explain why growth rates permanently differ.
5 Land input has increased much less than labour, without big diminishing returns to labour. We accumulated other factors (human and physical capital) as substitutes for land, and technical progress invented ways to economize on land. Same is already happening for other scarce inputs.
6 (a) In short run, might reduce output by reducing consumption demand. (b) In long run, might just raise level of per capita output (Solow model).

Chapter 31

1 It would kill the multiplier–accelerator model. Technology, costs and real interest rates might still induce investment fluctuations. Might also be fluctuations from C, G, X.
2 For example, higher oil prices are also a demand shock for Norway, since export revenues rise, while a supply shock for many other European countries.
3 Bygones now bygone. What matters is what can be done from now on.

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4 It might accentuate a global political business cycle. With elections at different dates, pre-election booms are more diffuse.
5 Cause lies not in fluctuations in nominal money, or monetary policy, but rather in real shocks such as views about future technology and productivity growth. More generally, tries to explain cycles without nominal rigidities and constraints on adjustment speeds. Persistent is optimal because of intertemporal substitution.
6 (a) Closer integration accentuates international transmission mechanism of booms and slumps, e.g. US high-tech bust of 2001 quickly spread to Europe. (b) Multiplier–accelerator model relies on failure to forecast future output correctly. (c) Costs of adjusting labour mean output cycles induce cycles in output per worker.

Chapter 32

1 New Classical: at earliest opportunity, nominal wages and prices fall by same amount, restoring all real variables to original level, so very small and temporary output fall. If anticipated, no output fall, since wages and prices already adjusted. Gradualist Monetarist: bit longer for wage and price adjustment to happen, bit larger fall in output. Moderate Keynesian: Bit longer still, so larger output fall and slower recovery. Extreme Keynesian: very long time indeed.
2 NC: entirely as fall in U^* because of better supply-side policies plus maybe some intertemporal labour substitution (fewer in labour force). GM: Mainly fall in U^* as above, but also recovery from very high interest rates in 1991–92 caused by German Unification (see Part 5); MK: sustained fall in U over many years must eventually be from lower U^*, but initial recession larger than GM think; EK: big Keynesian recession at start of 1990s, so mainly end of Keynesian U.
3 NC, MK, GM, EK.
4 GM, MK.
5 (a) Rational expectations possible in model with other reasons for slow wage adjustment, just happened that rational expectations was first pioneered in New Classical models. (b) Not true in short run. (c) They stress that money is the main determinant of prices.

Chapter 33

1 US, with higher human and physical capital, exports more manufactures. Brazil, with less than Asia, exports fewer manufactures.
2 No. Equilibrium exchange rate can be low enough to offset any absolute disadvantage. To enjoy efficiency gains from comparative advantage, should allow trade.
3 True that gain less as percentage of their initial income: small countries cannot enjoy scale economies without international trade. Trade by large countries also bids the world price in adverse direction from their viewpoint.
4 Wine and cars have high two-way trade based on choice and differentiation, steel based more on comparative advantage and one way.
5 Only if planning to become subsequent export in TVs, but production subsidy more efficient than tariff.
6 (a) No. Government may as well have the tax revenue too. (b) Domestic art buyers gain since prices fall. Domestic artists lose out, so too foreign art buyers. (c) Probably not.
7 (a) Must have comparative advantage in something. (b) Not always, if market failures exist. (c) May fail to exploit comparative advantage and lose the gains from trade.

Chapter 34

1 Because price level had risen relative to competitors, joining at old nominal exchange rate meant a much less competitive real exchange rate. UK then had a slump.
2 Automatic adjustment better under GS, since money supply forced to adjust. More scope for discretion in DS: could be good or bad. Financial discipline better under GS: could be good, or bad (if too tough).
3 Commitment to avoid domestic monetary expansion may help reduce inflation expectations. However, if fiscal authorities continue to have big deficits, may still bid up prices, making country increasingly uncompetitive, forcing big eventual crisis, as in Argentina 2001.
4 Because as small open economies they were interdependent and had less sovereignty anyway as separate nation states.
5 Stock market soared, anticipating low interest rates and a low exchange rate that boosted exports and profits. Bond market fell, fearing higher inflation and higher eventual nominal interest rates.
6 (a) Even in long run, only current account need balance. (b) Induced changes in domestic price level change the real exchange rate.

Chapter 35

1 Yes, wages lower.
2 Germany, France, Holland have high human capital; Greece, Spain, Portugal less so.
3 No. Equilibrium risk premium on riskier bonds to prevent capital flows by compensating properly for extra risk. Yes, a monetary union: two firms' bonds pay slightly different interest rates even within the UK.
4 If every member state has one vote on central bank board, want to prevent countries getting into fiscal trouble then voting for high inflation to help their budget position. Even with tough monetary policy, monetary–fiscal mix matters. With loose fiscal, need tight money, but then high real interest rates and real exchange rate appreciates to uncompetitive levels.
5 Yes. In practice, hard for borrowers to commit to repay and spend the money wisely. This moral hazard severely limits how much lenders will lend.
6 (a) Non-tariff barriers also important. (b) By matching German interest rates in the ERM, countries had already given up most of their monetary sovereignty. (c) Independence from political control is the best commitment to price stability if politicians are the main cause of inflationary policies.

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Chapter 36

1 Man-made substitutes for raw materials (e.g. rubber) reduced demand. Productivity increases raised supply. Protection in rich countries limited markets.

2 Rise in demand, higher copper price until new copper sources found, substitutes for copper developed, or boom subsides.

3 All require intensive but low-skilled labour, which they have in relative abundance.

4 (a) Buy commodity when price low, stockpile, sell when price high. (b) Incentive for each country to 'cheat' and put all its produce on market and gain higher price at expense of others. No incentive ever to cut production: if average price wrong, as in CAP, stockpile grows without limit plus stocks accumulating.

5 Not indefinitely. Small country has to specialize to get adequate scale in some industries, and hence must export these products and import all the others.

6 Under pure float, capital account inflow = current account deficit. Latter cannot grow without bound, hence capital inflow limited. This helps prevent foreign money subsequently leaving in a rush. Bad domestic policies can still cause a crisis in which domestic citizens want to take their money out – remember the TV pictures of locked banks in the Argentina crisis of 2001.

7 (a) LDCs often argue that aid encourages dependence. They want foreign investment, less protection by rich countries, technology transfer, and debt relief to wipe out mistakes of the past. (b) Europe would make a net gain from greater exploitation of comparative advantage, even though vociferous particular losers have so far blocked the process. (c) Individually, perhaps, but collectively they bid down world prices against themselves, especially when denied access to the richest markets.