Workbook for the New I.B. Economics – Answer key for selected exercises

This answer key is for teacher use only – please do not distribute directly to students, either electronically or in paper form.

Note – Answers for the definition questions can be taken from the lessons directly

EP1

2. Wants – a new TV, a Blackberry, a milkshake – things that you could do without but which would be nice to have
Needs – Food, Clothing, Shelter – things which are necessary to live

3. What to produce – Do I produce trousers or blouses?
How to produce – Do I use sweatshop labour in Asia or do I use unionized workers in Europe?
Do I use mainly labour or machines? Do I use natural fabrics or synthetic fabrics?
How to distribute what is produced? – Do I sell through my own shops? Do I sell online? Do I sell through chain stores like Walmart and Carrefour?

4. If I got a new TV, I might then want to get more DVDs, more cable channels, or a nicer sofa. If I got a Blackberry, I might want a case and a better mobile plan. A milkshake might make me want to eat a salty snack to counteract the sweet, like some French fries.

5. Natural resources (in particular mineral and fossil fuel resources) are limited. There is only so much that we are able to access with current technology. There are only so many people on earth. And there is a countable quantity of equipment and machinery on earth. Thus, they are all finite.

6.   a) Limited Resource – Time; Unlimited Want – Fun
        b) Limited Resources – workers and equipment; Unlimited Want – output and revenues
        c) Limited Resources – money in the roads budget; Unlimited Want – better roads

7. Only rational choices can be readily understood. Many people do, however, make choices that are harmful which may seem irrational, but as the reasons behind these choices are difficult to understand, economics chooses not to study them (although, increasingly, the field of behavioural economics is looking into such choices).

EP2

2. My student model is not a good one as my students' actual behaviour was not the same as the behaviour predicted by the model. As their teacher, to save my self-esteem, I would be more likely to change assumption 2 than assumption 1.

3. If there had been a big chemistry lab or English essay due the same day my homework was due the ceteris paribus assumption would have been upset. Similarly, if there had been a big entertainment or sporting event on the night they were to do their economics homework, it is possible that both of my assumptions could have been correct despite my students failure to complete their homework.

4. Normative economic statements. Election campaigns are often fought using emotional appeals to take action without considering the costs of such action. For instance, governments around the world are now obsessed with reducing deficits to tame debt levels, but there is no discussion as to what the costs of such actions will be. Instead, it is simply put forward as an initial assumption that debt levels are now 'too high' and 'bad', and the debate simply proceeds from this point.

EP3

2. Surfing on Facebook

3. People with university degrees generally face a higher opportunity cost of having children when in their early 20s than high school graduates, as they are still pursuing education. A person who has finished high school is already working and so the decision to have children simply involves a reduction in work hours and earnings. On the other hand, people pursuing a university education may not want to interrupt that education or their career path in the 5 or 10 years after they finish their education, as they perceive that the cost in terms of income and career advancement from having children young will be significant.

4.   a) Yes, it is possible as (6,6) lies inside the PPF
        b) No, it is not possible to produce (7,8) as this point lies outside the PPF
        c) There would be no opportunity cost as you did not need to give up any good A to increase the production of good B from 4 to 9
        d)The opportunity cost is two units of good A

5. The PPC would be a straight line for goods which use the same skills and resources/technology. For instance, a PPF for cola and orange soda would likely be a straight line as producing one more bottle of one should always cost one bottle of the other. The PPC would be concave to the origin where there were gains from specialization where the productive resources would be best employed to produce one good or the other, but not both. For instance, if a firm were to produce both computer business software and computer games, perhaps it would be more efficient to produce just one or the other so as to have a consistent business culture.

EP4

2.   a) Sustainable development (environmental/resource issues)

b) The appropriate role of government in the economy

c) Efficiency vs equity

d) Economic growth vs economic development

e) Efficiency vs equity, and perhaps also economic and social sustainability

f) Efficiency vs equity – except this seems to be a case where inefficiency and unfairness are combined

EMI1

2. Probably assumption 2 – it is increasingly clear that consuming goods and services is not a major contributor to human happiness once fundamental needs are met

3.   a) Assumption 2

b) Assumption 3

c) Assumption 4

4.   a) 5 units

b) 10 units

5. Yes, for instance, if it is raining, people would buy more umbrellas, despite the price of umbrellas remaining unchanged.

EMI2

2. Because the new point (same price, different quantity) would not be on the original demand curve

3.   Top left – Demand curve shifts IN to the left

Top right – No shift in the curve, just a move down and to the right on the existing curve

Bottom left – Demand curve shifts OUT to the right

Bottom right – Demand curve shifts IN to the left

EMI3

1.   a) (P,Q) = { (0, 20), (1, 18), (2, 16), (3, 14), (4, 12)....}

b) draw the points appropriately – with price on the vertical axis and quantity on the horizontal axis. The y-intercept should be 10 and the x-intercept should be 20.

2.   a) Qd = 22 – 2P

b) The y-intercept should be 11, and the x-intercept should be 22.

3.   The graphs have the same slope, but the graph for Q2 lies above the graph for Q1. The equations have the same 'b' term, but a different 'a' term.

4.   The new equations would be Qd = 20 – P, and Qd = 22 – P. The b terms would be different.

EMI4

2.   Probably 4, but 3 is also likely.

3.   a) Assumption 2
        b) Assumption 2
        c) Assumption 4

4.   a) 5 units
        b) 5 units

Yes, there could be situations where, for instance, even if the price of an agricultural commodity was unchanged, if there was good weather, farmers would have more of the good available to sell.

EMI5

1.   Top left – Supply curve shifts IN to the left
        Top right – Supply curve shifts OUT to the right (as farmers shift to raising beef instead of unprofitable sheep and hogs)
        Bottom left – Supply curve shifts OUT to the right
        Bottom right – no shift in the supply curve, but a movement along the existing supply curve from the bottom left towards the upper right

EMI6

1.   a) (P,Q) = { (2,0), (3,2), (4,4), (5,6)...}
        b) straight line with y-intercept of 2 and x-intercept of -4

2.   a) Qs = -6 + 2P
        b) straight line with y-intercept at 3 and x-intercept at -6

3.   The 2 equations differ in their 'c' terms, and the graphs, while having the same slope, are one above the other – in this case the graph for Q2 is above the graph for Q1.

4.   The new equations would be Qs = -4 + P and Qs = -6 + P, respectively.

EMI 7

2.   a) Demand shifts OUT to the right, increasing price and quantity sold as well

b) Supply shifts IN to the left, increasing price while decreasing quantity sold

c) Demand shifts IN to the left, decreasing price and quantity sold

d) No shift in the demand and supply curves – rather a move from the equilibrium to a price below equilibrium, with a likely situation of excess demand (ie quantity demanded at that price exceeding the quantity supplied). Price falls, while quantity demanded increases

e) Supply shifts OUT to the right, lowering the price for gasoline and increasing the quantity sold

f) Demand shifts IN to the left, lowering both the price and quantity sold

g) Supply shifts IN to the left, increasing the price while decreasing the quantity sold

h) Supply shifts OUT to the right, decreasing prices while increasing the quantity sold

EMI 8

2.   a) Equilibrium price is: $-4 + 2P = 24 - 2P$

$$4P = 28$$

$$P = 7$$

b) Equilibrium quantity is: $Qs = -4 + 2(7)$ OR $Qd = 24 - 2(7)$

                                  $Qs = 10$ $Qd = 10$

c) Complete the tables and graph to match – equilibrium is at (P,Q) = (7,10)

3.   At a government mandated price of $4, there would be excess demand. The quantity demanded at a price of $4 is 16 while the quantity supplied at a price of $4 is 4, leaving an excess demand of 12 units. This should be confirmed with the graph.

EMI 9

2.   Examples that spring readily to mind are some ex-Soviet countries in Eastern Europe, such as Bulgaria or, even more starkly, Moldova, where it is said that rather than the country having a mafia, the mafia has the country.

3.   Signalling function – buying new sewing machines

Incentive function – making more jean jackets

4.   a) Consumer surplus – region between the demand curve and the price P1

Producer surplus – region above the supply curve below P1, from the vertical axis until Q1.

b) Q1 is not allocatively efficient as there are still opportunities to enjoy consumer and producer surplus to the right of Q1. If the price and quantity were set where the supply and demand curves intersect, total surplus would be the entire area between the supply and demand curve to the left of the intersection point. This area of surplus is greater than the area of surplus to Q1.

EMI 9 HL Extension Questions

a)
Price	0	1	2	3	4	...
Quantity Demanded	24	23.5	23	22.5	22	

Price	8	9	10	11	12	...
Quantity Supplied	0	0.5	1	1.5	2	

b) Make sure graphs are fully labelled (axes and lines) and that the equilibrium point is indicated with dotted lines and that the equilibrium price and quantity are marked 'P1' and 'Q1'

c) $24 - 0.5P = -4 + 0.5P$

$28 = P$

(and equilibrium quantity is 10 units)

d) Consumer surplus – calculate the area of the right triangle with a base at P=28, going over 10 units, rising to P= 48 where no units are sold. So, consumer surplus = 0.5 (b * h) = 0.5 (10 * $20) = $100.

Producer surplus – calculate the area of the right triangle with a base at P=28, going over 10 units, falling to P= 8 where no units are provided. So, producer surplus = 0.5 (b*h) = 0.5 (10 * $20) = $100

e) Limiting output to 8 units would result in a price of $32.
Consumer surplus would be the area of the right triangle with a base at P=32, going over 8 units, rising to P=48 where no units are sold, calculated as 0.5 (b*h) = 0.5 (8 *$16) = $64.

Producer surplus would be the area of the rectangle from $32 to the price suppliers were willing to accept to sell 8 units (in this case $24) PLUS the triangle from $24 down to $8 going over 8 units.
So, a rectangle of $8 * 8 = $64 plus a triangle of 0.5 (8 * $16) = $64, for a total of $128.

The total producer and consumer surplus is therefore $64 + $128 = $192. This implies a welfare loss of $8 (we can check this by looking for the area of the small triangle of welfare loss – it would have a base of 8 (difference between $24 and $32) and a height of 2 (difference between

8 and ten units) – note I am looking at the triangle sideways. The area of this triangle would be 0.5 (b * h) = 0.5 ($8 *2) = $8, which is the difference between $200 (the old surplus) and $192).

This has nonetheless been a good move from the point of view of the producers. While total surplus declined by $8, producer surplus increased from $100 to $128.

EMI10

2.   a) PED = 5/15 = 0.33
        b) PED = 10/25 = 0.4 [percentage change in price is {(1.25-1.00)/1.00} *100]

3.   a) inelastic as cigarettes are addictive/habitual
        b) chicken legs would likely be elastic as there are many substitutes (other meats)
        c) inelastic as they are a small proportion of total income and there are no close substitutes – you can't use just ANY decorations for Christmas
        d) could go either way – elastic if you consider that close substitutes exist (aka Pepsi), but inelastic if people believe the advertising and branding and as people spend only a small portion of their income on Coke

4.   If cigarettes have price-inelastic demand, then government taxes will not curb smoking as much as they will raise revenue for the government.

EMI11

1.   Graph the demand schedule with P on the vertical axis and Qd on the horizontal axis.
        PED values: from $10 to $8 – 40%/20% = 2
                        from $8 to $6 - 28%/25% = 1.12
                        from $6 to $4 – 22%/33% = 0.66
                        from $4 to $2 – 18%/50% = 0.36

        Demand is elastic with respect to price along the upper portion of the demand curve. This is because of the denominators change differently as you calculate the percentage change in price and quantity as you move down the curve. For instance, as I move down the demand curve by a steady $2, at the top, that $2 is a small portion of the initial value of $10. Meanwhile, the corresponding increase of 2 units of quantity is a big portion of the initial value of 5. So, at the top, the PED is a big portion over a small portion, thus it is a value greater than one. At the bottom portion of the demand curve, the relative portions are reversed (ie a $2 change in price is a big portion of $4, while a change of 2 units is not a big portion of 11), so the PED is less than one.

To maximize revenue, I would charge somewhere between $8 and $6, which is probably in the region where PED would be equal to one. As firms also have costs, they then tend to want to operate in the elastic portion of the demand curve.

EMI 12

2.   a) Fish YED = – 0.4; Pork YED = 1.32
        b) Pork is a normal good while fish is an inferior good
        c) Farmers would be likely to increase their production of hogs

3.   a) XED (gas/trucks) = - 1; XED (gas/ethanol) = +0.4
        b) Gas and ethanol are substitutes while gas and trucks are complements
        c) Perhaps offer discounted gasoline to purchasers of your trucks

4.   It is a good idea from the point of view of YED as travel and tourism are strongly normal goods whereas primary commodities are often inferior goods. As global incomes rise, people are likely to increase their spending on tourism much more than their spending on commodities.

5.   Yachts are strongly normal and new children's clothing is normal, while used children's clothing is an inferior good.

6.   The demand curve for the second good (the substitute) will shift outwards. For instance, if the price of beef increases, then people will switch to chicken. So, more chicken is bought even though the price did not change, implying a shift outward in the demand curve.

EMI 13

2.   From $4 to $6 – 33%/50% = 0.66; From $8 to $10 – 20%/25% = 0.8
        In general, the quantity supplied is inelastic with respect to price

3.   a) Automobiles – automakers have more spare capacity and they do not make such a specialized product so they should be able to change their output more in response to price changes. As well, they operate in a much more competitive marketplace, with dozens of making cars, whereas there are only a few airliner manufacturers (ie Boeing, Airbus, Bombardier...).

        b) MP3 players – while both have high PES values, the makers of unbranded MP3 players likely have more spare capacity and a greater ability to switch production from other goods than Apple, mainly due to their greater collective productive capacity.

c) New homes during a recession, mainly due to the presence of unused capacity. During a recession, it is easy to find the skilled workers and materials to build houses, whereas during a boom, such workers and materials are harder to find.

4. People with more widely applicable skills and an awareness of opportunities are more likely to switch to sectors and industries where their skills are in demand. Fundamentally, such education makes individuals more responsive to market forces, as expressed by price changes.

5. Example – supply curves going through (0,0), (1,5), (2,10), and going through (0,0), (5,1), (10,2) both have a PES of one.

EMI14

2. Less than one unit less was sold because of the tax. The price went up almost the entire amount of the tax. The government would raise almost $15 from the tax.

3. Less than one additional unit was sold due to the subsidy. The price went down by almost the entire amount of the subsidy. The subsidy would cost the gov't about $17.

EMI15

1. a) P=8 and Q=4
    b) Qs = -5 + P, P=8.33 and Q=3.33
    c) the price rose by 33 cents, the quantity sold fell by 0.66 units, consumer expenditure fell from $32 to $27.74, company revenue fell from $32 to ($7.33 * 3.33 =) $24.41, while the government raised $3.33.
    d) Producers paid more of the tax, as they accepted a reduction in price of 0.66 while the consumers only paid an extra 0.33. This is because the supply curve is steeper (less price elastic) than the demand curve.

2. a) Qs = -3 + P, P=7.66 and Q =4.66
    b) The price has fallen by 33 cents, the quantity sold has increased by 2/3 of a unit, consumer spending has risen to $35.70, and company revenue has risen even more sharply to (8.66 * 4.66) $40.36. The government, though, has had to pay $4.66 in subsidies to producers.
    c) Producers benefited more from the subsidy than consumers. Prices only fell by 33 cents for consumers while they rose 66 cents for producers. Again, this has to do with the relative slopes of the demand and supply curves. In general, the less elastic of the two either pays most of the tax or receives most of the subsidy.

3. The graphs should confirm the results in Q1 and Q2.

2.   a) Rationing – usually there are limits on the number of tickets which can be bought per person. Prices are kept lower than equilibrium to remain attractive to teenagers who may not have much money but who make a good audience.
b) Waiting lists – Often it will take years to move up the queue to receive the keys to a subsidized or rent-controlled apartment. The price is kept low to keep living costs affordable to the poor.
c) Waiting lists or actual physical queuing – if you want a non-emergency procedure done, often under a public health system you will need to wait a period of months to get it done. If you visit an emergency room or public clinic, you will often have to wait for hours to see a doctor.
d) Rationing – often governments issue ration coupons to the poor in developing countries (like India) which entitle them to purchase essential commodities like rice and kerosene at subsidized prices.

3.   Milk and eggs do not store well and thus need to be supplied on a regular basis. Thus, wild swings in prices would lead to consumers being unable to, during times of low prices, find milk and eggs. So, price management schemes do help to ensure that consumers have a steady supply of these commodities in shops, by ensuring that farmers have an incentive to produce a steady supply. By contrast, wheat and rice store well and so swings in prices are unlikely to mean the good is unavailable as authorities and traders will sell stored grain in times of shortage and high prices.

4.   a) excess demand of 3 units, total expenditure before - $24; after - $12 (remember, at the lower price, only 4 are available for sale, even though people want 7)
b) excess supply of 9 units, total expenditure after - $21 (as at $7, people only want to buy 3 units)
c) answers on graph paper should agree

2.   In all three cases, there are costs incurred on others (second-hand smoke, sidewalk violence at bar closing time etc.) that are not borne by the user of the good in question.

3.   In all three cases, there are benefits which accrue to others (ie firms enjoy employing well-educated workers, people who have access to regular health care do not get and spread as many diseases to others) which cannot be captured by the person who would be paying for the good.

4. While the buyer may know that the car he is selling is a good one, the buyer will often not have confidence that this is the case. This lack of information and thus trust will scupper many such transactions.

5. Example – the market for health care is allocatively efficient if health care is provided to the point where the benefit gained from providing the last unit of health care are exactly equal to the cost of providing that last unit. If less health care is provided than this, ie if there are still benefits, be they to the person receiving the health care or others, available in excess of the costs of providing health care at the level being provided, the result would be allocative inefficiency.

EMI18

2. Costs suffered by you – shorter lifespan, smelly breath, stained fingers and teeth
Costs suffered by others – shorter lifespan (from second hand smoke), allergic reactions
Draw a negative externality diagram, like the first one on the facing page, and label it correctly.

3. If I get a good education, I can enjoy higher income, more job satisfaction and more interesting leisure activities. My family will also enjoy my higher income, my employer will profit from my additional skills, and my community will benefit from my greater interest in rewarding leisure activities if I engage more in community recreation programs.
Draw a positive externality diagram, like the second one on the facing page, and label it correctly.

4. Environmental costs – polluted water and smelly air from the mill, perhaps leading to health problems for the residents.
Economic benefits – economic spinoffs – jobs at the mill and increased economic activity for local businesses, and perhaps increased property values
Economic development projects often simultaneously feature both positive and negative externalities. So long as the positive spillover effects are greater than the negative spillover effects, the projects are usually undertaken. Other examples of such projects are things like wind farms to generate electricity. They have clear benefits (clean power) but also some costs (ruined vistas, dead birds).

EMI19

1. a) taxes, campaigns, and regulations (concerning age and location of smokers)
b) regulations, sometimes campaigns
c) subsidies, campaigns, regulations (ie truancy laws)
d) subsidies, regulations (housing codes to ensure safe housing)

e) campaigns and regulations (you need to get your car tested regularly in many jurisdictions). If carbon taxes ever gain traction (like in British Columbia), taxes too.

f) subsidies, campaigns and sometimes regulations – mandatory vaccinations for school children

2.   a) Negative externality diagram. Show the MPB moving to the left, as the campaign makes people with gambling problems more sensitive to the pain they are causing their families

b) Positive externality diagram. Show the MPC disappearing, ie moving to the x-axis, and thus the quantity offered being the intersection of the x-axis and MPB.

c) Negative externality diagram. Show the MPB moving in to the left, as people cannot drink as much in fewer hours (I know, I know – this is a very weak argument, but it is the one made by authorities who have never experienced the 10:45 last call line-up).

d) Positive externality diagram. Show the MPC moving down and to the right by the amount of the subsidy.

EMI20

2.   a) a toll highway is not non-excludable. You can be kept out with the toll gate.

b) an apple is excludable. If I eat it, you can't.

c) a subscription satellite service is not non-excludable. You can be excluded by the signal being scrambled.

d) so long as the concerts are not crowded, they are public goods, but once the park gets crowded, enjoying the concert becomes somewhat rivalrous, as getting space for your blanket becomes more difficult – ie either you get to put down your blanket in that space, or I do.

3.   If I decided to fund the production or radio and television shows to be broadcast over the airwaves in the hope that people would pay for them I would likely go bankrupt quite quickly. People would be happy to enjoy the programs, but would not likely bother to send me money. PBS in the US shows this dilemma quite nicely. So, instead, broadcasters sell your attention to advertisers and with that money they produce the shows which capture your attention to sell. In some countries, like Britain (BBC) and Canada (CBC) broadcast radio and television is produced by a government broadcaster which is funded by taxes or, in the case of Britain, by the sale of mandatory licences levied on the ownership of televisions.

4.   National defence, public roads, lighthouses...

2.

Price	5	4	3	2
Qd	1	2	3	4
TRevenue	5	8	9	8
MRevenue	5	3	1	-1
TCost	2	4	6	8
TProfit	3	4	3	0

The graph should show that the allocatively efficient output would be 4 units (where the cost of the last ice lolly to the vendor is equal to the amount the Italian tourist is willing to pay , while the monopolist will choose to sell no more than 2 units, as this is where his profits are greatest. Show the total cost and total profit calculations above to help explain.

3. The vendors know much more about the items on offer than most buyers. Often, when you point out that the item on sale is similar to an item you just saw that was half the price, the vendor will respond that his is of "much higher quality" and usually the buyer is not in a position to argue with any confidence. Governments could intervene to create standards so that buyers could more easily compare prices between items of similar workmanship.

EMI22

2. As the fish become scarce and their value rises, the incentives to individual fishermen to catch the fish rises, making it more likely that they will continue to be fish until there are so few that they are hard to find and likely critically endangered.

3. a) The fishing lodge and the town will both complain about the effluent from the paper mill ruining their business and fouling their drinking water.
b) The town could then charge the mill for using the water and use the proceeds to build a treatment plant to make river water safe for drinking. Or, alternatively, to avoid such charges, the mill could build a treatment plant to render their effluent safe.
c) If the mill were given ownership of the water, then at least ownership is clear and the town would want to either pay the mill to reduce their effluent or, if it was cheaper to build their own treatment plant, do so. So long as the river water is owned by someone, it is in someone's interest to act to limit pollution levels. In the latter case, the firm has an incentive to reduce pollution as they can get the town to pay for it to do so.

4. Governments could simply reduce the number of permits in circulation. This reduction in total allowable pollution levels would force the price of the remaining permits higher, thereby keeping in place the incentive for firms to reduce pollution levels.

5. Some of the external costs of greenhouse grass emissions are felt in places far away from the world's industrial centres (for instance, the Seychelles or the Maldives may actually disappear due to global warming and rising sea levels).
    Binding international agreements are required as global climate can be seen as a public good (ie it is non-excludable and non-rivalrous) which is therefore subject to the free-rider problem. Countries and firms and individuals in countries will not want to reduce their emissions if other countries are not seen to be doing the same.

EMI23

2.

Q	TC	MC	AC	TR	TP
0	10	--	--	0	-10
1	17	7	17	5	-12
2	22	5	11	10	-12
3	25	3	8.33	15	-10
4	27	2	27/4	20	-7
5	29	2	29/5	25	-4
6	31	2	31/6	30	-1
7	34	3	34/7	35	+1
8	38	4	4.75	40	+2
9	43	5	43/9	45	+2
10	49	6	4.9	50	+1

3. The graphs should reflect the data above. At the profit maximizing output (which is 9), notice that the marginal cost and the marginal revenue are both $5.

EMI24

2. a) The profit maximizing output will be the point where P1 (dotted) meets marginal cost.

    b) Yes, the firm is making profits, as at that point, Average Revenue (again the P1 dotted line) is above Average Total Cost (ie on the average, the company is collecting more revenue than the units are costing to produce).

    c) If the price were lowered to P2, the business would likely have to shut down, as that price, being the lowest marginal cost, would have to be lower than the lowest average variable cost (as average costs lag behind marginal costs just as your average falls more slowly than your test grades if you get successively lower grades on your tests). Thus, at

P2, the firm is not even covering its average variable costs, and so is losing more money for every unit produced. The wise course of action in this case is to shut down.

3. So long as the marginal costs are below average costs, average costs will be dragged lower. However, the moment marginal costs rise above average costs, average costs will begin to rise. From this, we can see that the lowest average costs will be at the point where the marginal costs are equal to average costs, as at that point, average costs are neither being dragged down or being made to rise.

EMI25

2. Average product should be at a minimum where it crosses marginal product (ie at 4 workers). This is a similar relationship to that which exists between average and marginal costs.

3.

# of farm workers	1	2	3	4	5	6	7
Kg of food produced	500	1100	1800	2600	3300	3900	4400
Marginal product	500	600	700	800	700	600	500
Average product	500	550	600	650	660	650	628.6

4. Diminishing returns are inevitable because as you add more of one factor of production without adding additional units of other factors of production, eventually those extra units of, say, labour, are unable to add much production as they don't have the land or capital they need . For instance, if I had a small factory, if I continued to add workers but did not add machines as well, eventually I would have workers standing around without machines to work on. As these workers would not be able to produce anything they would have a marginal product of zero, which would be a fall from earlier workers.

EMI26

2. You would be better off opening a second location across town as 20 tables is the size that has the lowest long-run average costs. If you were to expand your existing location, you would be moving to SRAC5 or SRAC6 which exhibit higher costs than SRAC4.

3. Any good examples will do. Say, for a lumber mill, economies of scale might come from being able to use better technology and more highly skilled and specialized workers, and being able to borrow money more cheaply and engage in financial strategies (hedging) to reduce volatility in both input and finished product prices. Against this, diseconomies

of scale may enter into things if there is increased waste and absenteeism due to the emergence of toxic worker/management relationship and poor morale.

4.   This should be an interesting discussion, particularly if students in your class have been to bigger or smaller schools. Economies of scale might be the ability to offer specialized courses and use the same admin staff to do the work of 200 or 700. Diseconomies would emerge from teachers and administrators not knowing all the students, leaving some to 'fall between the cracks' and that alienation leading some students to vandalism etc.

EMI27

2.

Quantity	1	2	3	4	5	6	7	8
TC	6	10	13	15	16	18	21	25
MC	6	4	3	2	1	2	3	4
AC	6	5	4.33	3.75	3.2	3	3	3.125

b)   The profit maximizing long run equilibrium price and quantity would be Q=7 and P=3. If price were equal to $3 and the firm operated at Q=7, the firm is operating at its lowest average costs and earning zero supernormal profits. This output is both productively (operating at lowest AC) and allocatively efficient (the price is equal to the marginal cost at Q=7).

3.   Yes, the firm is making profits in the short run, as MR=AR (aka 'P') is above AC where MR=MC (the profit maximizing point). However, this is unlikely to persist into the long run as these profits being earned by firms in the competitive industry will attract new entrants into the industry. These new entrants will increase industry supply (pushing the industry supply curve out to the right) until the equilibrium price is at the lowest average cost point on the cost and revenue curve.

As the firm diagram is drawn, it will produce where MR (or 'P') crosses MC. As this point is to the right of where AC is lowest (which is where AC crosses MC), the firm is not producing where AC is lowest, hence it is not productively efficient. However, it is allocatively efficient as the price is equal to the marginal cost at this point. In the long run, as the price falls due to the entrance of new firms into the industry to the point where the price (or MR or AR) is crossing MC where it intersects AC, the firm will become both productively and allocatively efficient.

2. | Quantity | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Price (AR) | 30 | 27 | 24 | 21 | 18 | 15 | 12 | 9 | 6 |
| Total Revenue | 30 | 54 | 72 | 84 | 90 | 90 | 84 | 72 | 54 |
| Marginal Revenue | 30 | 24 | 18 | 12 | 6 | 0 | -6 | -12 | -18 |
| Total Cost | 40 | 50 | 59 | 67 | 74 | 80 | 85 | 89 | 93 |
| Marginal Cost | 40 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 4 |
| Average Cost | 40 | 25 | 19.7 | 16.75 | 14.8 | 13.3 | 12.14 | 11.125 | 10.3 |
| Total Profits | -10 | 4 | 13 | 17 | 16 | 10 | -1 | -17 | -39 |

Graph the results on two graphs, one for total cost, total revenue and total profits, and the other for marginal and average costs and revenues.

b)   The revenue maximizing output is at Q=6, while the profit maximizing output is at Q=4.

c)   This firm would appear to be a natural monopoly as it faces ever declining marginal and average costs. Thus, new entrants to the industry would tend to be driven out of business over time by this firm, which, having higher output, would enjoy lower costs.

d)   The inelastic portion of the demand curve would be the lower right hand portion. Monopolists would never choose to operate in this area as here they face low or even negative profits.

3. Generally things like utilities are monopolies, sometimes cigarette makers and in local economies, there may be some sole suppliers of certain materials. Generally the discussion should revolve around how they often do not give good service and may charge higher prices than competitive firms, but it depends on the examples chosen.

4. Generally, yes, as it gives pharmaceutical companies and incentive to develop new drugs to treat illnesses – it is a spur to innovation. The promise of a profitable monopoly leads firms to conduct research.

2.	a) By offering better fares in the low season or to people who book far in advance
	b) By offering discounts to people willing to eat dinner early (ie the 'early bird special')
	c) By branding and marketing – premium brand beans can command higher prices than store brand beans, even when the store brand is made at the same plant as the name brand beans.
	d) By closely observing their clothing and other markers of wealth, as well as by observing their gullibility.

3.

P	Qd = 1000 – 125P	Qd = 8000 – 2000P	Qd = 9000 – 2125P
8	0	-	-
7	125	-	-
6	250	-	-
5	375	-	-
4	500	0	500
3	625	2000	2625
2	750	4000	4750
1	875	6000	6875
0	1000	8000	9000

The graphs for 'b' and 'c' follow from these figures.

d) Looking at the 'rectangles of profit' in the diagrams, it should be apparent that greater profits are earned when the market is decomposed into 'adults' and 'teenagers' than not. Price discrimination makes sense for the park as they can receive more revenue from adults without driving away teenagers.

2.	a) Fine dining restaurants often change their menu items or introduce new decor
	b) Nightclubs constantly reinvent their theme and decor
	c) Clothing labels bring out new fashions every season
	d) Sports brands often bring out new technology to create new styles of sports shoes
	e) Fast food restaurants introduce new menu items frequently, often for only a short period of time
	f) Electronics device makers are constantly improving existing products (making them more powerful or adding features) and developing entirely new ones as well

3.	All promotional spending is designed to get you to think that there are no substitutes for the product being advertised. Ads for Levis jeans are designed to get you to think only of

Levis when you want to buy jeans, and not to consider other brands like Lee, Wrangler etc.

4. The output of firms operating under monopolistic competition is usually to the left of the productively efficient output, which is to say, they are not busy – sales clerks and waiters tend to spend some time just standing around when there are few customers.
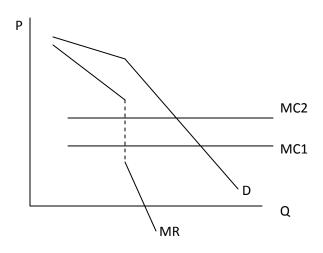
5.

MS	# of firms	B to E?	Homog. Goods?	Econ profit SR?	LR?	Ex?
PC	many	no	yes	rarely	no	farmers
M	one	yes		yes	yes	utilities
MC	many	no	no – differentiated	yes	no	restos

MI31

2.

Acme

	High Price	Low Price
High Price (Bechtel)	Acme gets 5 million and Bechtel gets 5 million	Acme gets 7 million while Bechtel gets nothing
Low Price (Bechtel)	Acme gets nothing while Bechtel gets 7 million	Acme gets 3.5 million and Bechtel gets 3.5 million

b) If the firms cooperate, they maximize their joint profits by both submitting high-priced bids.

c) If the firms do not trust one another, they will likely both submit low-priced bids. This result is called the Nash Equilibrium.

3. Gas stations or grocery chains are often thought to be oligopolistic. They sometimes engage in price competition but they also may engage in non-price competition – for instance, gas/petrol stations often have loyalty reward programs which try to instil brand loyalty for a good that is essentially homogeneous. As well, they often offer free gifts with each fill-up (hats, mugs) for the same reason.

4. The key here is to see that the MR curve will have a discontinuous portion in the middle below the kink, as drawn below. The shallow part of the demand (aka AR) curve at the top gives rise to the relatively shallow portion of the MR curve while the steeper part of the demand curve to the right gives rise to the even steeper lower portion of the MR curve. Between these two portions is a discontinuity (dotted). If MC were to rise from

MC 1 to MC2 below, you can see that output and price would be unaffected due to the presence of the discontinuity.

MI32

	MS	#	B to E	Product Diff'n	Profits SR	Profits LR	Efficiency (P/A)
1.	PC	many	no	no	rarely	no	P and A
	Mon	one	yes		yes	yes	usually neither
	MC	many	no	yes	yes	no	usually neither
	O	few	yes	sometimes	yes	yes	usually neither

2.   Draw the diagrams for PC and Monopoly in the LR, and mark in the differences. The output is set in both cases where MR=MC, but generally monopolies result in lower output, higher prices, sustained supernormal profits and a loss of both productive and allocative efficiency as compared to competitive industries.

3.   Looking at the short run, this will look very similar to question 2 except that the slopes of the demand and marginal revenue curves will be shallower. In the long run the similarity is that neither PC or MC firms earn supernormal profits (but MC firms still have higher prices, lower output and a lack of efficiency as compared to PC firms).

4.   Just draw the diagrams required side by side. In the short run monopoly and monopolistic competition are very similar, the only difference being the relatively shallower slopes of the demand and marginal revenue curves for MC firms (and usually

lower levels of supernormal profit) reflecting their weaker market power (ie close substitutes do exist for their products). However, in the long run the situations are very different in that the MC firms are no longer earning supernormal profits as the absence of barriers to entry has made them vulnerable to new entrants if they do not innovate to remain in the short run.

5.   When oligopolists engage in a 'price war' to drive a fellow oligopolist out of business they resemble competitive firms. When they cooperate to maximize their joint profits, they, as an industry, resemble a monopoly. Oligopolists are unique in their decision making processes as their decisions depend on how they perceive their fellow oligopolists will respond to their decisions – they are interdependent. The diagram drawn should be the same as for a monopoly. This outcome is not stable as the individual oligopolists will have a temptation to cheat to either increase their market share, often by secretly lowering prices, which will make the situation more competitive.

MA1

2.   Such actions would likely reduce the level of economic activity of firms and households.

3.   The correct counter-cyclical response to a crash or recession would be to cut taxes and increase spending.

4.   A reduction in interest rates reduces the cost of borrowing and the reward for saving. Thus, lower interest rates should encourage borrowing and discourage saving. Both of these should result in higher spending and investment by both firms and households.

5. (6)   Central Europeans like von Mises and von Hayek had first-hand experience with fascism, which involved a great deal of government control over the economy. This was not without good aspects – Germany under Hitler embarked on big public works projects (and rearmament) that resulted in a marked reduction in unemployment while the western democracies were still wallowing in misery in the mid-1930s. However, the tyranny that ultimately resulted was too high a price to pay for lower unemployment, which is why economists of the Austrian school value freedom (supported by free markets) so highly.

6. (7)   Often we see governments being kicked out of office if unemployment remains high or inflation is high. I suspect unemployment and weak growth will result in trouble at the polls for Barack Obama in the US in 2012.

2.   AD = C + I + G + (X-M), so in this case
AD = 400 + 60 + 20 + 60 + (50-40)
AD = 490 billion dollars

Note – As I am counting nominal GDP using the expenditure approach, I am counting all consumer spending on goods and services, ALL spending by firms on equipment and machinery ('gross', not 'net'), all government spending that results in the production of goods and services (including salaries) and net exports. The reason we count government spending on salaries for government workers but not for the spending of firms on wages and salaries is that the value of the government worker's work is not made a part of his or her product (ie a nurse in a public hospital does create value, but as people don't have to pay to go to the hospital, the value of her work would not show up as consumption expenditure) while the wages paid to workers employed by firms is captured in the selling price of whatever it is the firms produce, and so does show up as consumption expenditure.

3.   GDP from the expenditure side might be consistently greater due to income tax avoidance and evasion. People may earn money and not declare it on their tax forms but nonetheless spend it on goods and services. The gap between GDP calculated using the expenditure approach and the income approach gives a rough estimate of the size of the 'underground' economy.

4.   See 'Note' above for the first part of this. As to why government transfer payments are excluded, they are not counted as nothing was produced in order for individuals to receive them. Remember, both the income and expenditure approach are trying to capture the level of output of goods and services in an economy.

5.   Nominal GDP = 400 + 70 + 60 + 15 = 545 billion dollars
Nominal GNP = 545 -15 + 10 = 540 billion dollars

6.   120/124 = x/545
X = (120 * 545)/124 = 527.42 billion dollars

In words, the price level in 2010 is 3-4% higher than it was in 2009. So, you have to take that increase in prices out of the figure for nominal GDP to arrive at the real GDP in 2009 dollars.

7.   a) This would show up under the income approach (wages and salaries) or the expenditure approach (G)

b) This spending would not show up under either the income or expenditure approach, as the goods are not finished products/final goods and services

c) The spending on the materials would show up under the expenditure approach (C)

d) This would be part of the calculation of 'G' under the expenditure approach

e) This would show up using the income approach

f) This would not show up using either approach (however the person's spending of the money would eventually show up as 'C' under the expenditure approach)

g) This would show up under the expenditure approach as 'I' – a casino is an income producing asset and so building one (or building a hotel or office building or even homes) counts as investment spending. However, the money that was earned selling drugs did not likely get counted in any fashion as people tend not to ask for receipts when buying drugs.

8. $64/60 = x/100$; $x = 106.66$, therefore economic growth between 2008 and 2009 was 6 and 2/3 % (ie 6.66%).

   $69/64 = x/100$; $x = 107.8$, therefore economic growth between 2009 and 2010 was 7.8%.

MA3

2. During an expansion, saving (leakage) is likely going down as people spend more, and as a consequence, investment (injection) is rising to meet the rising demand for goods and services. During a contraction, the opposite is likely the case – savings are rising (and consumption spending falls) as people are fearful of future uncertainty and investment is falling.

3. During the boom, the common sense was that 'houses always rise in value' – this belief led not only to individuals borrowing ever greater sums of money to buy increasingly expensive (and unaffordable) houses but to banks gladly lending them the money. This confidence in the unsinkable nature of the housing market was what led to the boom, despite many more sober voices warning that the housing market was already in an asset bubble. As people who were renting saw house prices rising steadily, they didn't want to be 'left behind' – this was particularly the case in Ireland which had never experienced a housing bubble before.

4. Austrian school economists believe that positive real interest rates are necessary to avoid the creation of asset bubbles that ultimately pop. The housing bubble can be in

large part blamed on Alan Greenspan who pursued a zero interest rate policy at the US Federal Reserve in response to the technology stock market crash of 2001. These low rates were also made possible by global trade imbalances. China invested much of the surplus cash earned in trade in US treasury bonds, which depressed interest rates in the US. These low rates made it possible for people to service much bigger loans than in the past, which in turn allowed people to bid higher and higher prices for homes.

5.   eBay makes sense – it is a trading platform that manages information, and information can be transported at zero cost on the internet. Pets dot com makes no sense – it was an online pet food store. Ordering pet food online was easy for consumers, but shipping the orders to consumers was far more expensive than having them drive down to their local supermarket and pick it up. So, early on in the business cycle, good ideas are developed, but in the later stages increasingly sketchy ideas are explored.

MA4

2.   a) AD shifts to the right, increasing both real output and the price level
      b) AS shifts to the right, increasing real output and reducing the price level
              (while the roads are being built, increased gov't spending could increase AD)
      c) AS shifts to the right
      d) AS shifts to the right
      e) AD shifts to the left, decreasing real output and the price level
      f) AS shifts to the left, decreasing real output and increasing the price level
      g) AD shifts to the left
      h) AS shifts to the right (the deductions should encourage greater investment)
              (AD may shift out as well, but the dominant intended effect is on AS)
      i) AS shifts to the left
      j) AS shifts to the left
      k) AS shifts to the left
      l) AS shifts to the right

MA5

1.   Keynesian – an increase in real output, no increase in the price level
      Neo-classical – an increase in the price level, no increase in real output

      The Keynesian view is supportive of government intervention to reduce unemployment while the neoclassical view sees government intervention as inherently inflationary.

2.   The diagram will feature SRAS 3 to the left of SRAS 2, and AD3 to the right of AD2. Joining up the points where the corresponding SRAS/AD pairs intersect (ie SRAS1/AD1, SRAS2/AD2) should result in a vertical line, which is LRAS.

If governments had done nothing in response the initial increase in oil prices would have had a short-term effect on output (lower) and the price level (higher) but over time firms and consumers would have found substitutes or made processes more efficient and the increase in oil prices would have been absorbed without leading to higher inflation.

3.   The diagram on the left shows a recessionary gap (unemployment) while the diagram on the right shows an inflationary gap (inflation).

MA6

2.   Multiplier = (1/1-MPC), therefore = (1/1-0.75), therefore = 1/0.25, therefore = 4
So, the total increase in AD would be 4*$1000 = $4000.

3.   Left diagram – problem is overheating/inflation – governments should cut spending, raise taxes and increase interest rates
Right diagram – problem is low output/unemployment – government should increase spending, lower taxes and lower interest rates

4.   Recessions are good in that they cleanse the economy of wasteful enterprises and investment. If the impact of recession is blunted, while that will spare people misery, it can also lead to unsound businesses remaining in business and using up scarce resources. This affects people as well – if unsound businesses remain in operation people will develop the skills necessary to work in the business when perhaps they should develop skills more suitable for other industries and businesses.

5.   A belief in government management may make firms and workers believe that their success or failure is due to government action, not their own actions. Thus, firms may not make necessary investments and workers may not upgrade their own training as much as they would were they not sure that, if they ran into trouble, the government would help them out. For instance, if workers can see that their industry is facing stiff competition from foreign competitors, under a free-market system, they have an incentive to learn new skills that are transferable to work in other industries. In a system that is used to government intervention (like the UK from the 1940s to the 1970s) workers will not bother as they will view it as the government's responsibility to preserve their jobs.

2.

Worker	1	2	3	4	5	6	7
MP	5	6	7	8	7	5	3
MRP	10	12	14	16	14	10	6
MC	10	10	10	10	10	10	10

Graphs should have #of workers on the horizontal axis and $ on the vertical axis

The firm will likely hire 6 workers as the marginal cost of employing the sixth worker is equal to his MRP. For the 4 workers previous, the MRP is greater than the MC, so the employer is increasing his profits by hiring additional workers up to this point.

3. $Qs = 2 + W$ $Qd = 20 - 2W$

$2 + W = 20 - 2W$
$3W = 18$
$W = 6$

The equilibrium wage is $6 per hour, at which 8 workers would be employed.

If the minimum wage were $8 per hour, then the $Qs = 2 + 8 = 10$ workers
and the $Qd = 20 - 2(8) = 4$ workers, resulting in 6 unemployed workers.

4.   a) Supply of software engineers moves to the right, wages fall and employment levels rise
b) Demand for software engineers moves to the left, wages fall and employment levels fall
c) Supply of software engineers moves to the right, see 'a'
d) Demand for software engineers moves to the right, wages rise and employment levels rise
e) Supply of software engineers moves to the right, see 'a'

2.   4000/36000 = 0.111, therefore an unemployment rate of 11.1%

3.   Lacking hard data, they will have to use surveys or make estimates based upon what data they do have (payroll numbers compared to population figures).

4.   a) Seasonal
b) Frictional

c) Structural

d) Cyclical

5.(6) During the nadir of a recession, unemployment rates may begin to fall as discouraged workers give up. Meanwhile, when economic conditions actually begin to improve, unemployment rates may get worse for a time as these discouraged workers once again enter the labour force and begin looking for work.

6. (7) Show AD moving to the left on the diagram at left, and then show the demand for labour moving to the left on the diagram at right. Note that the reduction in AD has reduced employment levels and wages.

7. (8) In an isolated mining town there will not be other sources of employment that use the same skills as were needed at the mine. By contrast, if you were working as a salesman in a big city and your employer went out of business, you could fairly readily find similar work with another company.

MA9

2. a) The outcome would be lower wages and a fall in employment. The Keynesian economist would advocate a counter-cyclical policy of tax cuts and spending increases and interest rate reductions to move AD2 to AD1, and thereby move DL2 back to DL1 as well.

b) A neo-classical economist would expect the same outcome in the very short term (falling wages and employment). However, they would recommend that the government do nothing as they would feel that, left alone, the fall in wages would spur hiring and that workers, wise to the change in conditions, would readily accept lower wages and get back to work, eliminating any excess unemployment that may have initially resulted from the fall in AD. Incidentally, this acceptance of lower wages by workers would also have seen real output return to the level seen before the recession, accompanied by a reduction in the price level.

3. a) Market based supply side policies should have the effect of reducing unemployment in the depressed region and perhaps increasing it in the city as workers move from the depressed area to the city in search of work. Overall, though, unemployment should fall as the migrants are likely to want to learn new skills in order to work in the city, and they are likely to find work there.

b) Interventionist supply side policies will likely result in a reduction in the unemployment rate in the depressed region (due to direct government intervention) but could also result in an increase in unemployment in the city as the government can

only pay for the interventionist policy through raising taxes on other workers and businesses. Overall unemployment could well rise as labour becomes ever more poorly allocated.

MA10

2.   a) 2005/2006: 5%; 2006/2007: 7.6%; 2007/2008: 8%; 2008-2009: 2.4%; 2009-2010: -1.6

b) Disinflation occurred between 2008 and 2009, while deflation occurred between 2009 and 2010.

3.   Governments are often the beneficiaries as they tend to borrow money (government debt). After a period of high inflation this borrowed money can be repaid more easily with inflated dollars that are worth less than the money that was initially borrowed.

4.   The likely inflation rate, assuming that the velocity of money remained unchanged, would be 4%.

5.   Find your own example – Ireland has experienced deflation recently as it tries to settle the debts incurred in its recent property boom. Increased savings to pay off these debts has drastically reduced AD, which has led to a reduction in the price level. China (and many other developing nations) meanwhile are experiencing inflation as they continue to grow rapidly, and rising incomes are leading to rising prices.

6.   Cost-push – draw AS moving in the left; Demand-pull – show AD moving out to the right

MA11

Student-led exercise - just check their methodology.

MA12

2.   Show how 'D' on the Phillips curve diagram will correspond to a '4' to the upper left of the existing '3' on the AD/AS diagram, and the 'E' will correspond to a '5' directly above the '3'.

MA13

2.   Country 'B' has greater equality of income. Country 'A' therefore would have the higher GINI coefficient.

3. While people in the US cannot often be called poor using measure of absolute poverty, they can be considered poor using measures of relative poverty. If the average American owns a newer car and has several televisions, someone with a 20 year old car and one black and white TV would be relatively impoverished.

4. Slices: 50 - 70K   20K taxed at 35% = $7000
           30 – 50K   20K taxed at 25% = $5000
           10 – 30K   20K taxed at 15% = $3000
           0 -10K   10K taxed at 0% = $0

                              Total Income Tax Paid: $15000

   This person's marginal income tax rate (the tax rate paid on his last dollar of income) is 35% but his average income tax rate is just (15000/70000 = 0.214) 21.4%.

5. Consumption taxes are considered regressive because the poor will pay a higher percentage of their income to the tax than the rich for the simple reason that the poor tend to spend all of their income while the rich are usually able to save a portion of their income. This saved portion will not be subject to consumption taxes.

6. This is a good discussion question. I would likely put progressive income tax schemes at the bottom, as they may lead to tax evasion/avoidance by the wealthy and the deadweight losses associated with such efforts (ie payments to accountants, tax lawyers etc.) However, they are the best way to raise government revenue based on the principal of the ability to pay. Quality public services are good as they have no stigma attached to their use, but they are expensive to operate and maintain. Giving direct transfers to the poor are the most direct way or furthering equity but doing so may skew the incentives of the working poor in way that impair efficiency.

MA14

2. On the left – the problem is inflation. The fiscal policy prescription is to raise taxes and reduce government spending to bring AD back to the left.

   On the right – the problem is unemployment. The fiscal policy prescription is to lower taxes and increase government spending to bring AD out to the right.

3. Supply side increases in government spending on education could, in the short term, increase AD as teachers spend their additional salaries on goods and services. More importantly, though, increased spending on effective education should shift AS out to the right, which would increase output and should lead to reduced unemployment.

MA15

1. The central bank should raise interest rates. This will shift AD back to the left and eliminate the inflationary gap. Raising interest rates reduces aggregate demand mainly by increasing the cost of borrowing. With higher borrowing costs, people are less likely to borrow to spend on big ticket items like homes, cars and appliances. As well, firms are less likely to borrow money to spend on additional equipment and machinery.

2. The banking industry would like interest rates to remain low so as to maintain the health of their loan portfolios. At low interest rates, borrowers can continue to make payments on their loans and the loans can remain on the accounts of the bank as performing assets.
   If interest rates were to rise, though, many individuals and firms would be unable to make their payments on their mortgage and other debts and would default. This would threaten the health of the banks as then the loans become non-performing assets, which cannot be counted as bank assets. More directly, if the banks borrowed money to lend to others, and if these other people cannot pay the money back, the banks are going to have to accept losses.

3. If interest rates remain low for a long period of time, inflation could become a problem as with lower interest rates, speculators might be tempted to speculate in commodity markets which would push up the price of food and energy. Generally investors shun commodities as they don't yield a dividend or interest payment, but in a zero interest rate environment, the opportunity cost of investing in commodities instead of in stocks or bonds is minimal – you are not giving up much in the way of interest payments to invest in commodities.

4. Ultra-low rates nonetheless serve the policy objectives of full employment, equity and growth. If low rates can encourage businesses to invest in increasing capacity, they may hire additional workers. If low rates can keep over-indebted people in their homes, that is good for equity (and, as well, good for household wealth – if people who cannot make their mortgage payments are forced out of their homes, the sale of their homes will depress prices of other homes, reducing the household wealth of everyone). If people feel wealthy and if they are getting work, that is good for growth.

MA16

2. In the short term, the construction project will increase AD, shifting AD to the right.
   In the long term, the completed port and rail link will increase the productive capacity of the country, and so will shift both SRAS and LRAS to the right.

3.   In the short run, such cuts will reduce AD, shifting it to the left as workers and the unemployed suffer reduced purchasing power.

In the long run, though, as the unemployed are motivated to seek employment and as unionized workers begin to be more amenable to working flexible shifts in order to earn higher wages, AS should shift out to the right.

However, if the workers refuse to accept these changes and go on a general strike, AS could also, in the medium term, shift to the left (aka Greece).

MA17

2.   Depending too much on demand management to ensure full employment can result in an economy losing its responsiveness to changing market conditions, ie losing competitiveness. This can, over time, lead to inflation.

3.   Popular protest often prevents governments from pursuing greater supply-side regulatory reform. For example, much of Southern Europe should have enacted supply-side reforms before the adoption of the euro, but political resistance resulted in such reforms being postponed. Now, the glaring productivity and competitiveness gap between nations such as Greece and Portugal as opposed to Germany threatens the euro's existence itself.

4.   a) The Singapore government should likely do nothing, apart from encouraging people to shop at less expensive stores or use less expensive cuts of meat in their cooking. The problem is unlikely to persist so a policy solution may be counterproductive.

b) The Chinese government may want to engage in expansionary demand management policies in the short term, so they may want to increase government spending and reduce taxes in order to encourage domestic consumption to take up the output from export-oriented industries. In the long term they may want to undertake supply-side reforms to enhance competitiveness to improve their position in future downturns.

c) In the short term the government should enact contractionary demand management policies (fiscal – cut spending, raise taxes; monetary – raise interest rates) to slow down the rate of growth. In the long term, supply side policies should be enacted to permit more and faster labour productivity increases.

5.   Individual answers will vary.

IE 1

2.   a) The PPC for Taiwan should be inside the PPC for Japan

b)   Opportunity cost for: Japan   Taiwan

        Rice (1 tonne)   10 computers   13.33

        Computers (ea.)   100 kg of rice (1/10 tonne)   75 kg

c) Japan has an absolute advantage in the production of both goods

d) Japan has a comparative advantage in the production of rice, while Taiwan has a comparative advantage in the production of computers.

e)   Japan   Taiwan   Total
        Rice   50   30   80

        Computers   500   400   900

f)   I need to produce 80t of rice. I will devote 4/5 of Japan's economy to rice production to do this, which leaves 1/5 of its capacity for computers as well as the entire Taiwanese economy. That will result in 200 computers being produced in Japan and 800 computers being produced in Taiwan, giving a total of 1000 computers. So, simply by specializing and trading, the two nations are able to produce 100 extra computers.

g)   Without trade, the Taiwanese need to give up 13.3 computers for every tonne of rice. So, as long as they can give up fewer than 13.3 computers for a tonne or rice through trade, they are better off.
        Without trade, the Japanese only get 10 computers for each tonne of rice they give up. So, as long as they can get more than ten computers for each tonne of rice they trade, they are better off.
        So, as long as the two countries can trade rice at a price of between 10 and 13.3 (a price of 11.6 would be quite fair) computers per tonne of rice, they would both be happy.

IE2

2.   a) geography – much of Canada is covered in boreal forest

        b) history and geography – the US is a large country that needed to develop air transport. European countries, not being so big, and having already developed dense rail networks, did not need to develop air transport with the same urgency.

3.   They were motivated to form a free trade area so as to develop close links to one another so as to avoid a fourth war between the two nations (the first three being in 1870, 1914 and 1939). The belief was that with closer economic ties, war would be made impossible.

4.   Ghana might do so to encourage the development of a domestic chocolate industry based upon domestically grown chocolate – to move up the value chain from primary to secondary production.

5.   Why would a country's producers want to sell a product to another country's consumers for less than the costs of production? It doesn't make much sense. However, it is a commonly used justification for protectionism as it is one of the only allowable justifications for protectionism under international trade law.

6.   Benefit to workers – 1000 jobs * $20000 = 20 million dollars

Cost to consumers - 2 million households * $50 = $100 million dollars

The government nonetheless imposed the tariff as the workers were concentrated and motivated to act to apply pressure on the government while the consumers were dispersed and not likely to feel the impact of the tariffs very directly, and so were not as well motivated to act to pressure the government to maintain free trade.

IE3

1.   a) 500 units at $8 per unit
       b) $4000 – yes it would be the same.
       c) (or b2) – under free trade – 800 units at $5 per unit
       d) (or c) – domestic share – 200, imports – 600
       Domestic income ($1000) + Income of foreign producers ($3000) = consumer spending
                                                                              ($4000)
       e)(or d)   i) 600 units at $7 per unit
                      ii) 400 units. Their total revenue would be 400*$7 = $2800
                      iii) 200 units. Their total revenue would be 200 * $5 = $1000
                      iv) The gov't would collect $2 * 200, so $400
                      v) Consumers spend 600 * $7 = $4200

2.   Label the diagrams correctly. Tariffs do not simply transfer consumer surplus to domestic firms and the government. A little bit of consumer surplus is simply lost, that being the portion between the old world price and the new world price plus the tariff, to the right of the new equilibrium point with the tariff.

2.   a) $25000, 35000 cars
        b)   i) draw a horizontal line at $15000
                ii) $15000, 55000 cars
                iii) 15000 are made in Australia, 40000 are imports

        c)   i) tariff of $5000/vehicle
                $20000, 45000 cars
                Domestic share – 25000, imports – 20000
                Treasury collects (20000 * $5000) $100 million

                ii) subsidy of $5000
                $15000, 55000 cars
                Domestic share – 25000 cars, imports – 30000
                Treasury spends $125 million (25000 * $5000)

                iii) quota of 20000
                $20000, 45000 cars
                Domestic share – 25000, imports – 20000
                Treasury neither spends nor receives anything

Generally, from an efficiency standpoint, the subsidy is seen as the best outcome, as does not affect car prices and so leads to a more efficient allocation of resources. Consumers continue to get lower priced cars and workers can (mostly) keep their jobs. However, the subsidy will have to be paid with taxes...

Clearly the worst option is the quota, as it raises the price of cars for consumers and delivers a bonus to the foreign car companies. As the price is now $20000, and as there is no tariff being collected, the foreign producers can keep an extra $5000 per car. At least with a tariff, that money is flowing to the government which may use it in ways to benefit the country.

IE5

1.   It is unlikely that they would ever entirely specialize as the opportunity costs of doing so would become increasingly high. As they move towards either axis, the amount of one good they would have to give up to get one more of the other good would become prohibitive.

2.   Once the trade grouping collapsed, it was hard for Cuba to find other buyers of sugar or for Estonia to find other buyers of thermostats. It is never good to depend too much on

the production and trade of a particular good or service. It is always better to, if possible, develop different industries to both give you domestic security and additional export opportunities.

3.   Good examples are sugar producers in the USA and Europe, or rice farmers in Japan. Softwood lumber in the US is another good example, but there are many others.

4.   Generally China and either the US or the EU have ongoing disputes...

IE6

2.   a) visible import
         b) invisible export
         c) invisible export
         d) invisible import
         e) invisible import
         f) visible export
         g) capital outflow
         h) invisible import

3.   Balance of visible trade: +50 – 46 = +4 billion
         Balance of invisible trade: +7 – 12 + 6 – 7 = -6 billion
         Current account balance: +4 – 6 = -2 billion
         Capital account balance: +10 – 9 = +1 billion
         Overall balance of payments: -2 + 1 = -1

         Under a floating exchange rate system, we should expect a slight depreciation in the value of the Balancian currency.

IE7

2.   a) Foreigners buy pounds on the foreign exchange markets to place in British banks. This will shift the demand for pounds in the forex markets out to the right, resulting in an appreciation of the pound.

         b) British people will begin to buy more imports. To do so, they need to buy foreign currencies, and to do this they need to sell pounds on the forex markets. This will shift the supply of pounds in the foreign exchange markets out to the right, resulting in a depreciation of the pound.

         c) This will increase the demand for pounds on the foreign exchange market, and should either blunt a depreciation or lead to an appreciation of the pound.

d) The British investors will have to buy UAE Dirhams in order to purchase the property company. To purchase these Dh, they will need to sell pounds. Thus, the supply of pounds on the forex markets will increase (shift to the right), resulting in a depreciation of the pound.

IE8

2. Pound/Euro = 1/1.5
    a) 1/1.5 = x/5; x = 3.33 pounds
    b) 1/1.5 = x/120; x = 80 pounds

3. a)

Price	25	30	35	40	45
Qd = 180 – 2P	130	120	110	100	90
Qd = 20 + 2P	70	80	90	100	110

    b) Be sure the diagrams are fully labelled and that the scales are sensible

    c) 180 – 2P = 20 + 2P
        160 = 4P
        40 = P
        So, the exchange rate of the USD is 1 USD = 40 Indian Rupees

    d) Remember to keep the USD point of view!
        Americans are finding Indian goods fashionable and so are buying more of them. To do so they need to buy rupees. To buy rupees they need to sell dollars. So, on the diagram, the supply of USD on forex markets would shift out to the right. As a consequence, the USD should, ceteris paribus, depreciate (ie a USD would not be worth as many rupees as before).

IE9

2. a) To send their money abroad to US banks, the Argentines would have to first sell their pesos in order to buy USD. So, from the point of view of the Argentine peso, the supply of pesos in the forex market has increased or moved to the right.

    b) If the Argentine government chose to simply use their foreign exchange reserves to buy up the pesos that their citizens are dumping on the foreign exchange markets, the diagram could look one of two ways. One, you could keep it as it is, and just label the excess supply of pesos on the forex market as being bought up by the Argentine government. Alternatively, you could show the Argentine intervention as an increase in

demand for pesos on the foreign exchange market , so pushing out the demand curve to the right so that it crosses the new supply curve from part 'a' at the fixed rate.

If the Argentine government chose to raise interest rates, that could have one of two effects. It would either stop Argentines investing their money abroad, thus decreasing the demand of Argentines for dollars and therefore the supply of Argentine pesos on the foreign exchange market being sold to buy dollars (so S would go back to its original position to the left) or the higher rates would attract foreign money to Argentine banks, in which case the demand for Argentine pesos on the foreign exchange market would shift to the right.

IE10

2.   As food prices can be quite volatile, and can change rapidly in the short term, the appropriate policy response would likely be to simply intervene in the foreign exchange market to buy up surplus domestic currency using the central bank's foreign currency reserves. As a longer term measure, perhaps supply side policies designed to foster food security and reduce dependence on imports would also be in order.

3.   An increase in competitiveness should compress the J-curve horizontally (ie deficits will not last as long following a devaluation). An increase in competitiveness implies a greater price elasticity of supply, ie a greater responsiveness to changes in price on the part of producers. If producers are more responsive to prices, we should expect them to adapt more quickly to changes in price. This should result in the J curve getting shorter. The initial depth of the J curve may not be affected, but firms (and consumers) who are more sensitive to price changes should change their behaviour more quickly if they are more competitive, which would in turn eliminate current account deficits more quickly.

4.   a) According to the M-L condition, a devaluation should make the BoP situation worse.

b) The export picture will be the same as the example in the text.

The import picture will be as follows:
The devaluation will lead to a 25% rise in the oil price in terms of CFA francs.
This will affect import volumes by, according to a PED of 0.4, 10%.

If import volumes fall by 10%, that means that oil imports are now 0.9 * 120 or 108 barrels of oil, each of which costs 25% more CFA francs than before (38 * 1.25 =) 47.5 CFA francs, giving an import bill of (108 * 47.5 =) 5130 CFA francs.

Bringing exports and imports together post-devaluation, we get:

4104 – 5130 = -1026. As we would expect from the Marshall-Lerner condition, this is a deterioration from the pre-devaluation deficit of -760.

Extra Practice – Exchange Rates

1. Supply of yen on forex markets will increase as Japanese consumers spend more, including more in imported goods, which requires them to sell yen in order to buy the foreign currencies they need to buy foreign goods.

2. The demand for yen on forex markets will decrease as foreigners choose not to buy increasingly uncompetitive Japanese goods, and therefore do not need to buy yen to buy the good.

3. The demand for yen on forex markets will increase as foreigners need to buy yen in order to deposit yen in Japanese banks

4. The demand for yen on forex markets will fall as foreigners do not want to invest in Japan and so do also not need to buy yen with which to invest.

IE11

1. If the yuan had been allowed to appreciate, China would not have been able to export so easily and the US would not have been able to buy Chinese goods as inexpensively, and so likely would have imported fewer Chinese goods. The US also would not have been able to sell its government bonds as easily, and so interest rates would have had to have been higher, which would have discouraged the 'housing bubble' of 2001-2007, the wreckage of which is behind the current global financial crisis.

China can likely adapt to a higher yuan more easily than the US. If the yuan appreciates, while export markets will dry up, there is a vast pool of unmet needs and wants in China which Chinese firms should be able to cater to to fuel continued economic growth.

However, the US has become quite used to inexpensive imports and low interest rates. Higher inflation (as import prices rise) and higher interest rates will lead to a reduction in the standard of living of many Americans.

Basically, China and the US need to rebalance their consumption and production – for most of the past 10-15 years China has produced more than it has consumed while the US has consumed more than it has produced.

The Chinese have, in response to American calls for them to revalue the yuan, quite legitimately been calling for the US to address their gigantic structural trade deficit.

IE12

    2.   Any sensible answer will do – Pokemon, Canto-pop, Nando's chicken...

    3.   People are afraid of losing their distinct cultural identity. The Basques do not want to be simply Spaniards or Europeans or global citizens. They want to be Basques, yet also they want to take part in the opportunities of a global market and tap into the ideas and advances of a global civilization.

    4.   ....let students find out the current state of affairs...

IE13

    2.   Participating in a regional or bilateral negotiation is much easier as there are fewer participants and so agreements can be ironed out much more rapidly. The WTO has been likened to a car with one accelerator and 190 brake pedals.

    3.   Poorer developing countries do not have a lot to offer the global trading system. Thus, they are likely to be left out of most bilateral or regional agreements. Already, trade is dominated by the industrialized and rapidly industrializing nations of the world. Without a framework that explicitly includes them, the world's poorest nations will be left behind.

    4.   a) AD would move to the left as export competitiveness (and hence export receipts) fell. The policy response would have been to increase government spending to push AD back out.

                b) From the point of view of the Euro, if international investors sold their Euro denominated bonds, and then sold the Euros they got from the sale of their bonds on the foreign exchange markets so they could bring their money back home, the supply of Euros on the forex markets would increase, and the exchange value of the Euro relative to other currencies would fall.

IE 14

    2.   Export Price Index = $\quad 0.4\{(12/10)*100\} + 0.6\{100\}$
                                        108

                Import Price Index = $\quad 0.3\{100) + 0.7\{(8/10)*100\}$
                                        86

                Therefore, the terms of trade for Morocco for 2010 were $(108/86) * 100 = 125.6$

3. a) Korea's terms of trade would go down, BUT if people worldwide buy many more flat screen TVs (as I would expect would happen – I would imagine that the demand for flat screen TVs is price elastic) then Korea's national income, balance of payments and exchange rate could all conceivably rise.

    b) Saudi Arabia's terms of trade would go up, and, at least in the short term, as the demand for oil is quite price inelastic, I would expect that Saudi Arabia's national income and balance of payments would rise. As the Saudi riyal is pegged to the USD, there would not be any impact on the exchange rate.

    c) For India, the story is reversed. India's terms of trade would go down, and I would expect their balance of payments to worsen as well. This could lead to a fall in the value of the rupee. As well, an increase in oil prices may cause national income to fall, but I doubt by much in an economy as large and diverse as India.

4. Developing countries should move away from exporting primary products (farm goods, minerals, fish) and develop secondary and tertiary industries. Manufactured goods and services have more stable prices than primary products and have historically commanded higher prices.

ED1

2. 140/1.04=134.6 (Elbonia's real GDP in 2010, adjusted by using a GDP deflator)
    Therefore the real growth in GDP was {(134.6/130)*100 = 103.53} 3.53%.

3. a) Using rates today (October 26th, 2011) and using Yahoo Currency Converter:
    100 000 CHF = 114 187 USD
    　60 000 Rs 　=　 1 214 USD
    It would appear that the average Swiss is more than 100 times wealthier than the average Indian.

    b) Using the Big Mac Index PPP exchange rates (from the July 28th, 2011 edition of "The Economist" magazine:
    100 000 CHF (divided by the implied PPP exchange rate of 1.6) = 62 500 USD
    　60 000 Rs (divided by the implied PPP exchange rate of 20.7) = 2 899 USD
    Still a big difference, but now the average Swiss is only a little more than 20 times wealthier than the average Indian.

    The comparison has changed because the purchasing power of an Indian rupee in India is higher than an equivalent (calculated using exchange rates from the forex market) amount of dollars in America or francs in Switzerland.

4.   Both show economic growth, as in both the PPC is moving out. However, only the PPC on the right shows economic development, as growth in health care should improve the standard of living of the people in the country, while more military equipment is unlikely to have such an effect.

5.   This is a great activity, and generates much discussion, but doesn't lend itself out to an answer...

6.   Again, have students go to the website and discuss.

7.   Ditto.

ED2

1.   Add 'foreign aid', 'trade', foreign direct investment' and 'loans' under the box "Initial injection of capital" and the three leakages on page 169 coming out of the cycle at some point – probably before step one ("Invested in infrastructure, education, health care, capital goods").

2.   A poverty cycle would look like:
                A shortage of investment capital
                        Leading to
        Poor quality health care, education, infrastructure and capital goods
                        Leading to
        Poor productivity and consequent low output and income
                        Leading to
                An inability to generate savings
                        Leading to...(go to top)

ED3

1.   Box 2 – "Newly rich rural folk demanded more manufactured goods from cities (bottled beer, crockery etc, the manufacture of which drew in workers from the countryside to the cities" or some such

        Box 3 – " Larger, more populous cities in turn demanded more food and raw materials from the countryside, which stimulated farmers to raise productivity further" or some such

        b) Some specific improvements might be deeper ploughs, flooding of pastures, the invention of the seed drill, better animal husbandry....

2.   Depends on the place...

2. Governments can run an efficient police force to maintain internal order and maintain a military which is good at deterring external threats. Neither the police nor the military should themselves become forces that threaten the lives and livelihoods of citizens.

   By ensuring the security of people's lives and property, the government gives people the courage to improve their property and their businesses, safe in the knowledge that they will be able to keep and enjoy their improved property and will be able to profit from their improved businesses.

3. Good infrastructure, in particular roads and telephones, can help police and the military move quickly to counter threats or respond to crimes.

4. Initially it was because they were seen as a better credit risk than men. However, the improvement in the status of women that has resulted from their being granted micro-credit loans has had many other benefits that have aided development – ie more family planning, better education and health care for children, etc.

5. These pumps are easy to build and easy to maintain and easy to operate without specialized tools or skills.

6. If you don't have money or recognized assets, you can't open a bank account. By being excluded in this way, though (see last lesson's bit about Hernando de Soto), the capital they do have (but which is extra-legal and therefore not recognized officially) is 'dead' and can't be used as collateral to take out a loan to start a business. In this way, millions or even billions of people who could have the ideas and the drive to start businesses are left in poverty, to their own detriment and to the detriment of the people around them.

7. In this generation, people earn a bit of money in petty trade. However, this allows them to send their children to school a few more years, which makes them able to take up better employment. Their children in turn perhaps finish high school or even college. In later stages, people may be able to be employed in the formal economy, even if in the beginning that is not the case.

ED5

2. During a global recession, you are probably better off if you had been pursuing a strategy of import substitution, as in that case you will not face collapsing export markets and so your own GDP and employment will be less affected than if you depended on foreign buyers for your goods.

3. Large nations can more effectively pursue an import substitution strategy than small nations as they have a more diverse resource base and variety of climate zones. The US could make pretty much everything it needs in the US if necessary, whereas Switzerland would have a hard time doing the same (ie it can't grow its own oranges).

4. India was demanding that the developed countries (notably the EU and the USA) open up their markets to agricultural and other primary products from the developing world by eliminating subsidies and quotas designed to help European and American farmers. One set of global trade rules would be beneficial for developing nations as they would not have to negotiate a variety of different rules and they would be included in the global system whereas they may be left out of most bilateral or regional agreements.

5. Often I think of local brand sodas and potato chips (ie "Thums Up" in India as opposed to Coke). Often they appeal to patriotism and usually they are a cheaper than imported brands.

6. If you wish to pursue economic development, you need to have access to machine goods and technology. These are available from the advanced industrialized countries. So, to develop, initially you need to trade in order to acquire these 'building blocks' of development.

ED6

2. Most will choose to work for the multinational. This suggests that they have better labour practices than national firms in many places around the world.

3. Often the multinationals are held to the environmental and labour standards of their home countries. Even if they are not, though, they are often judged by the standards of their home countries and are sensitive to public relations fiascos that may erupt due to poor practices (ie Nike and its use of sweatshop labour, Apple and the Foxconn suicides in China).

4. If a country can offer an MNC a skilled and trained labour force, they are less likely to want to leave. Even if the MNC does leave, though, the skilled labour will continue to be productive in other enterprises which have likely sprung up around the MNC to build components or offer logistical support. Eventually the industrial cluster will have built up its own momentum.

5. The MNC has succeeded in raising the average wage rate in that country, which should have a positive impact on its level of economic development.

6.	People often view MNCs involved in extraction as exploitative (blood suckers etc.). These attitudes are often to do with the nature of the business (taking resources) and the fact that they don't usually employ great numbers of people, and the fact that most senior management and technical positions are held by foreigners.

ED7

2.	Students should look up the information and present it. Alternative examples can also be used to show the contrast between top-down mega-project based tied aid and more humble but less flashy forms of development aid.

3.	If there are good jobs to be had in the aid sector, the best and brightest will be drawn to them. However, it would be better if they were drawn to industry or agriculture or other careers which focus on creating wealth as opposed to merely distributing it.

ED8

2.	Often a structural adjustment plan calls for governments to cut subsidies and raise taxes in order to correct a balance of payments deficit (ie "expenditure reducing"). These policies can retard development as without subsidies (for food, fuel etc) many poor families in developing countries may be unable to continue to send their children to school or seek medical attention, etc. As well, the imposition of higher taxes and the elimination of subsidies for businesses can lead to bankruptcies and unemployment, again hurting the poor.

3.	If you owe someone money, they have power over you. In the 1800s, the Khedive of Egypt surrendered Egypt's sovereignty to England and France when he could no longer service the debts he had incurred while modernizing (ie developing) the country. Today we are seeing the EU increasingly seeking to take control of Greek government policy in exchange for bailout money needed to keep Greece from defaulting on its debts.

4.	Stronger domestic institutions would help curb corruption amongst the officials of developing nations. This would make it less likely that loans taken on by developing nations were squandered. If loans taken were used effectively, the increases in output and productivity that resulted would be enough to easily pay the interest on the loans.

ED9

2.	Newly independent countries pursued policies of state-led development as that was what all the experts were recommending. Remember, in Britain at this time, the government of Clement Attlee was busy nationalizing the "Commanding Heights" of the economy (rail, coal, steel, shipbuilding etc.).

3.   The risk is that you end up strangling the spirit of free enterprise and end up with very low rates of economic growth. India suffered mightily under the 'licence raj' where government regulations stifled entrepreneurship and led to 40 years of economic stagnation during which living standards in India remained very low.

4.   Every game needs rules and referees. A developing economy needs a strong and effective government to make sure that growth is supported by infrastructure, that education and health care continue to improve to support further growth, and that the inequalities that inevitably result from growth are ameliorated.

5.   As technology improves, we might be able to achieve bigger gains in human welfare with fewer resources and less pollution than in the past. For instance, if we can continue to develop renewable energy technology (wind, solar) we may be able to have abundant energy without pollution and without running down our finite stocks of fossil fuels.