

Edexcel GCE

Economics

Unit no. 6352

June 2006

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Mark Scheme (Results)

Question 1 High speed Rail Link between London and Channel Tunnel

(a) Using examples from the high speed rail link, explain the terms

(i) external costs

(4)

External costs are negative spillovers / negative third party effects / MSC exceeds MPC / costs ignored by price mechanism / costs external to an exchange (1 + 1 marks).

Examples of external costs from rail link include visual pollution / noise pollution / falling property prices / job losses in the ferry and airline industries (up to 2 marks if applied to case study).

(ii) private costs

(4)

Private costs are internal to the exchange / internal to the firms or consumers / paid for directly by firms or consumers (2 marks).

Examples of private costs from rail link include wages to staff / electricity / steel / stone aggregate / machinery / land purchase / financial cost of project of £3.7billion / the price paid by consumers (up to 2 marks if one point developed or two examples offered).

(b) Analyse one problem associated with estimating the external costs and one problem associated with estimating the private costs of a major project such as the high speed rail link.

(6)

External costs problems include: (3 marks = 1 identification, 1 application & 1 analysis)

- Quantifying external costs e.g. level of noise pollution; the amount of visual damage; the impact on property prices; extent of job losses in sea & airline industries.
- Attaching monetary value to the external costs, e.g. the loss of a scenic view; value of noise pollution; value of a lost job.

Private costs problems include: (3 marks = 1 identification, 1 application & 1 analysis)

- Long time period under construction - estimates become less accurate
- Large scale project - huge sums of money involved means a small miscalculation in percentage terms could represent a large sum in absolute terms.
- External shocks, e.g. Industrial disruption, landslides, poor weather
- Technical difficulties in construction, e.g. tunnelling
- Shortages of materials may occur in production causing cost inflation
- Consortium of firms make it harder to apportion costs out
- Insufficient funds to pay for project if costs overrun

Note: Maximum marks can only be achieved through application of external costs and private costs to a major project - otherwise a cap of 4 marks.

- (c) Examine the view that the government subsidy for building the high speed rail link is justified by its external benefits. Illustrate your answer with a diagram. (12)

Identification and analysis of external benefits up to 5 marks.

Definition of external benefits as positive spillovers / positive third party effects / MSB exceeds MPB / benefits ignored by the price mechanism / benefits external to an exchange (1 + 1 marks)

External benefits include:

Time savings for rail travel:

Domestic & international passenger benefits of £2800 million.

Shorter journey times for people to get to and from work or for leisure trips.

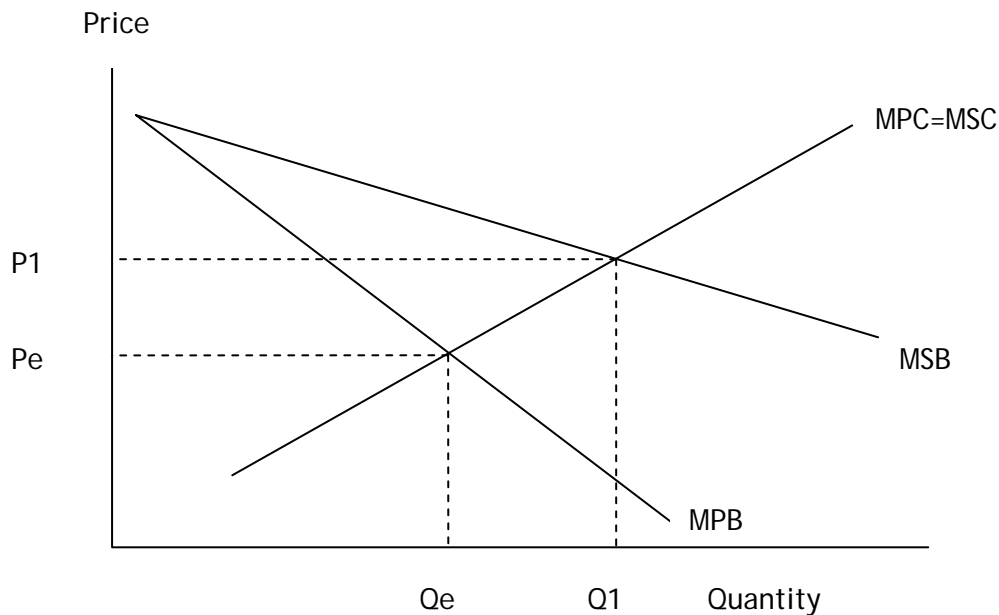
Shorter journey times for transporting goods by rail freight.

Increase in domestic and foreign tourism, leading to job creation & revenues.

Reduce road congestion: Leading to time savings as above for motor vehicles.

Regeneration of East London & Kent: 50,000 jobs and £8 billion of investment predicted; urban renewal of east London - a relatively deprived area.

Diagram (3 marks)



Note: Candidates may achieve 3 marks by showing diagram of MSC being lower than MPC (1 + 1), leading to higher output for the social optimum compared to the private optimum position (1).

Note: Award 1 mark for basic subsidy diagram.

Marginal Private Benefit curve (1)
Marginal Social Benefit curve (1)
Social Optimum output exceeding private optimum output (1)
Without evaluation a maximum of 8 marks.

Evaluation (2+2 marks)

- Predicted external benefits of £3420 million exceed government subsidy of £1800 million and is justified (2)
- Further development of diagram, e.g.
 - Triangle of 'welfare gain' explained.
 - Showing effects of subsidy by shifting the supply curve (MPC=MSC) to the right and reaching social optimum position.
- Discussion of the most significant benefits - Figure 2 suggest it is the time savings.
- Time period of benefits: regeneration benefits will arise over a long time period and are dependent upon sufficient investment. In the short-term, benefits may be limited.
- However, benefits are not as great as assumed by government since:
 - The National Audit Office suggests exaggeration of passenger numbers by LCR and inappropriate method by including regeneration benefits.
 - Road decongestion benefits may be short-term as the growth in motor vehicles continues.
- Accept CBA where candidate considers whether Government subsidy is worth it.

(d) Discuss one likely impact on the UK income distribution of the high speed rail link.

(4)

Candidates may consider any one point (2 marks):

- Geographical impact, i.e. more income to London & South-East which already has the highest regional income per capita. Relatively less income to other parts of UK. Answers may be quite specific here, e.g. East London & Thames Gateway may benefit most.
- Impact on cross channel sea ports and airports - job losses mean lower income.
- Impact on travellers - businessmen and tourists who use cross channel services, may gain; often they may come from relatively higher income groups.
- Job creation - many service based jobs which could lead to more sectoral inequality.

Evaluation of one point (2 marks)

- Impact relatively insignificant as project comprises a very small percentage of national income.
- Short-run and long run impact

(e) (i) What is meant by *government failure*?

(2)

Government intervention in a market leads to a net welfare loss (2)

Government intervention leads to a more inefficient allocation of resources. (2)

Government intervention fails to improve allocation of resources. (2)

Government intervenes to correct market failure but leads to other problems. (1)

(e) (ii) Discuss the case for government spending on improving road transport links to the Channel Tunnel.

(8)

Case for spending on road improvements (3+3 or 2+2+2 marks):

- Road system to Channel Tunnel is heavily congested and requires urgent investment.
- Road transport demand to Channel Tunnel is likely to continue increasing rapidly to facilitate growth in trade and tourism.
- Comparison with rail subsidy e.g. most journeys are by road rather than rail so more people would benefit; a rail system already exists for international services and has spare capacity.
- Improve operation of labour markets in region.
- More business may locate in region.
- Issues raised against government spending on improving road transport links may be regarded as analytical.

Evaluation (1 +1 marks or 2 marks)

- Critical evaluation of the case for spending on road transport e.g.
 - High financial costs of improving roads and so there are tax implications.
 - Negative externalities associated with road transport.
 - Opportunity cost of increased spending on road transport.
- Short run & long run considerations
 - At best, short run gains since road improvements cannot keep up with growing demand for road journeys.
 - Road improvements may cause demand for road journeys to grow more quickly.
- Prioritising arguments in case for government spending on road transport links.

Question 2 Wind Power Farms

- (a) Refer to Figure 1 and the first paragraph in Extract 1. Outline two factors that might explain the differences in electricity generation from wind power between the UK and one other country shown. (4)

Reference to the UK and one other country in Figure 1 (1)

Reasons from extract (2+1)

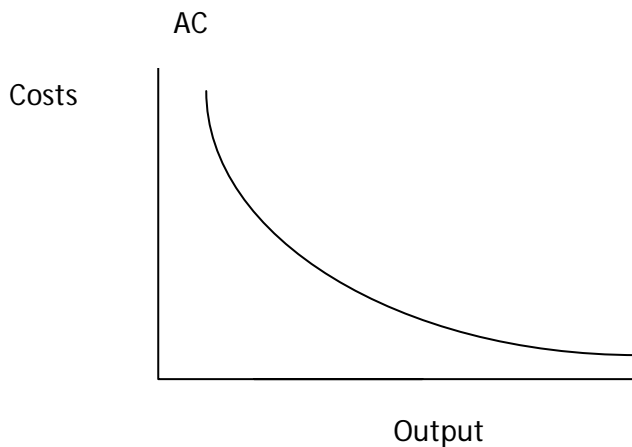
- High start-up costs put UK government off funding renewable wind power but this does not appear to have been the case for some other governments.
- Differences in availability of other energy resources, e.g. coal, oil, gas deposits between countries
- Differences in environmental awareness & concern of public, firms & government

If UK is compared with France then accept adaptation of the above points. Note, France embarked upon a major nuclear energy programme to meet its power requirements.

- (bi) Define *economies of scale*. (2)

Unit / average costs fall as output increases (2)

Also accept a relevant diagram (2)



Note: Reference to output increasing at a faster rate than inputs (1).

- (bii) With reference to Figure 2, explain two different economies of scale that might arise in the generation of electricity from wind power. (4)

Two types of economies of scale;

Identification (1) & explanation (1) for each scale economy.

- Technical: Larger turbines & blades mean greater efficiency in electricity generation.
- Purchasing: Buying components in bulk may lead to lower unit costs.
- Risk bearing: Diversifying energy sources and so reduce dependency on other forms of energy.
- Financial: A firm might borrow larger sums of money at a lower rate of interest.
- Managerial: Specialist managers could be used for building and operating wind farms.
- Research & Development: A firm might be able to spend more on R & D.

- (c) Examine the significance of entry barriers that a firm might face when setting up a wind power farm. (8)

Entry barriers might include (3+3 or 2+2+2 marks):

- High start up costs, e.g. purchase of machinery & land.
- Economies of scale
- High sunk costs
- Planning permission might be difficult to obtain due to opposition from local communities for fear of affecting property prices, noise & visual pollution on land based wind farms; opposition might come from fishing interests and the Ministry of Defence for sea based wind farms.
- Limit pricing from existing electricity generating firms that use fossil fuels or nuclear energy.
- The uncompetitive nature of wind power electricity compared to fossil fuels.
- Technology is changing fast and it might be difficult for a firm to have sufficient market knowledge to set up the most efficient wind farm.
- Patents of wind turbine technology.
- Land banks secured by existing firms.

Evaluation (2 marks)

- Barriers may not be so significant since:
 - Large power generating companies involved in setting up wind farms.
 - Renewable energy certificates will make wind power electricity more competitive.
 - Government subsidies have reduced capital start up costs.
 - Government has simplified and accelerated planning inquiries for wind farms.
 - Technology could help reduce start up costs
- Prioritising the significance of the two barriers
- Short-run & long-run influences e.g. the high start up costs could be spread over many years of income stream.

(di) What is meant by *market failure*? (2)

- 'The price mechanism fails to allocate resources efficiently.' (2)
- The operation of the price mechanism leads to a net welfare loss. (2)
- The interaction of supply and demand leads to a misallocation of resources. (1)
- Market mechanism does not lead to the optimum allocation of resources. (2)

(dii) Discuss, using the concept of externalities, the government's policy of encouraging the generation of electricity from wind power farms. Illustrate your answer with a diagram.

(12)

Definition of externalities (2)

Costs or benefits which are external to an exchange / costs or benefits which the price mechanism fails to take into account / divergence between social and private costs & benefits. Alternately, award 1 mark for 'third party effects' or 'spillovers'

There are both external benefits and external costs from wind power farms.

External benefits include: (2)

- Reduction in green house gas pollution.
- Reduce dependency on fossil fuels.
- Extend availability of fossil fuels for future generations.
- Wind farms as tourist attractions.
- Wind farms create thousands of jobs in manufacturing, construction and maintenance often in areas of high local unemployment.

External costs include (2)

- Visual pollution
- Noise pollution
- Restriction to fishing rights around offshore wind farms
- Reduction in property prices close to wind farm sites
- Damage to wildlife e.g. birds and seals.

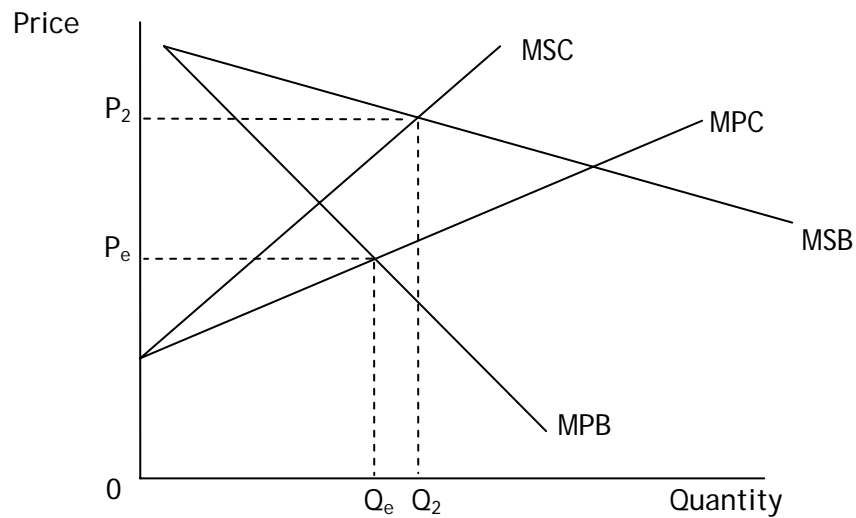
Note: A maximum of 4 marks available from definition and explanation of externalities which might arise from wind power farms.

Diagram of externalities up to 4 marks.

- Illustration of external costs (2)
- Illustration of external benefits (2)

Candidates may illustrate external costs and benefits on two separate diagrams.

To achieve the full 4 marks for the diagram(s) candidates must distinguish between the private and social optimum positions.



(If just one curve is shifted, award a maximum of 2 marks.)

Evaluation (2+2)

- The government must assume external benefits exceed external costs in generating electricity from wind power because of the subsidy. Also accept idea that social benefits exceed social costs.
- Opportunity cost of government funding of wind power via £500 million subsidy.
- The government policy might be better directed towards offshore wind farms where there is less opposition to them.
- Feasibility of policy in providing for future energy needs of UK is open to question.
- Government policy is significant since backed by £900 million subsidy and legislation on extending REOCs.
- Welfare loss / gain triangle displayed on diagram.

- (e) With reference to Extract 2, examine the advantages and disadvantages of Renewable Energy Obligation Certificates as a means of reducing fossil fuel pollution. (8)

Advantages

- Correct market failure: Electricity suppliers are obliged to buy more of their electricity from renewable sources and so reduce pollution from fossil fuels (negative externalities should be reduced).
- Expansion of renewable energy sector in UK and government may achieve its 10% target.
- Firms have an incentive to invest in renewable energy sources, e.g. wind, tidal, solar & geothermal power.
- Polluters pay principle.
- The renewable energy certificates operate with the price mechanism.
- Companies which achieve renewable energy targets may receive financial incentives from government.

Disadvantages

- Higher energy costs for electricity suppliers which may result in lower profits and less R& D.
- Higher prices for consumers (firms & households). UK firms may become less competitive than foreign firms who do not face such obligation certificates.
- Electricity suppliers could still use fossil fuels to generate electricity and just pay the obligation certificate fee.
- Costs of administrating, monitoring and enforcing the scheme.
- More red tape for firms, reducing their flexibility in production.
- Difficulty of measuring pollution from fossil fuels.

Three points required (2+2+2 marks) including at least one advantage and one disadvantage. Otherwise award a maximum of 4 out of 6 marks here.

Evaluation (2 marks)

- Consideration of whether advantages outweigh disadvantages of REOCs, providing a reason.
- Inconvenient in short run but essential in long run to ensure energy supplies as fossil fuels run out.
- Significance of REOCs as a percentage of energy supplies is relatively low at 4.9% but rising to 15.4% by 2015.
- REOCs ineffective in reducing global fossil fuel pollution if RoW does not have similar measures.
- Magnitude of fine e.g. if small then firms may pay and ignore REOCs.

Unit 2 Assessment Objectives Grid June 2006

	Knowledge	Application	Analysis	Evaluation	Marks
Question 1					
(ai)	2	2			4
(a ⁱⁱ)	2	2			4
(b)	2	2	2		6
(c)	2	3	3	4	12
(d)		1	1	2	4
(e ⁱ)	2				2
(e ⁱⁱ)	2	2	2	2	8
Total	12	12	8	8	40
Question 2					
(a)	2	2			4
(b ⁱ)	2				2
(b ⁱⁱ)		2	2		4
(c)	2	2	2	2	8
(d ⁱ)	2				2
(d ⁱⁱ)	2	4	2	4	12
(e)	2	2	2	2	8
Total	12	12	8	8	40