**An Introduction to Welfare Economics and Externality Theory**

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**PURPOSE OF THIS BOOKLET (PLEASE READ):**

This is PREP homework, so please print off the booklet and you must attempt EVERY question after carefully reading the instructions and guidance. I do not want to see gaps, I want to see that you have had a go at it. We will clarify and adjust in the lesson to make sure you understand the basic principles here.

The answers do not need to be perfectly neat as you will be writing up the ‘neat notes’ as part of the revision worksheet remember.

This booklet should take you up to 3 hours to complete.

**Context: Case Study of Obesity**

How can we use Economics to analyse and address this growing ‘epidemic’ in our country and around the ‘developed’ world?

**TASK: Complete the following boxes, using internet research**

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| **Market Failure Research**  HINTS: What are the markets we are looking at? Market for fast food? Market for gym membership? What is obesity and how does it affect UK society and economy (any stats on obesity and the subsequent health issues and impact on our economy? Child obesity is an issue as well – look at what Jamie Oliver’s campaign for more details as well as other sources. This section should have statistics comparing the UK to Europe, USA and specific impacts on our economy etc. | **Market Success Research**  HINTS: Aren’t markets doing what they should do? If someone wants to eat a cheeseburger, then it’s their preference? They are willing to pay a price for a cheeseburger and firms are willing to make a profit from that…what is the problem? What are the ‘agency issues’ – isn’t it their fault they are fat? Haven’t they already made this choice? Investigate this line of reasoning. Are their genetic issues – is there an argument to say that obesity is caused for genetic reasons and not because of over-eating?! |
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| **GOVERNMENT INTERVENTION**  What existing interventions exist and what more could the Government be doing? Explain why your measures have been successful (or could be successful). Also categorise them along the lines of below (we looked at this in RWS 5 if you remember?   * PRICE MECHANISM: What is the sugar tax and how might it work? What about the ‘fat tax’…what is this? What subsidies could the Government provide to firms to solve the issue? * DIRECT CONTROLS: investigate regulations like food labelling requirements, traffic light systems etc. Also investigate the NHS; what service do they provide? * PERUASION: How is the Government trying to prevent obesity through marketing campaigns etc.? Nudge theory?! | **GOVERNMENT FAILURE**  Categories for government failure include ‘imperfect information of the government’, ‘administrative errors of the government’, ‘political conflicts of the government’ and ‘unintended effects of government action’. When reading and researching, what strikes you about the interventions so far (or those proposed). Why might they NOT work? There might be explicit data or info you can refer to OR It might be a case of you just working out possible pitfalls. |
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**Economic Welfare and Externalities**

**STAGE 1: SOCIAL BENEFITS AND COSTS OF AN ACTIVITY**

In Economics, activities are undertaken up to the point where the social benefit to society of that activity (be it consumption or production) are equal to the social cost to society of that activity.

For example, HS2 is a proposed improvement to infrastructure by the Government and would connect the North of England to London via high speed rail. HS1 was the Channel Tunnel. To consider whether HS2 should be built the Government tried to work out the social costs and benefits of such an action.

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|  | **SOCIAL COSTS**  **(over a 30 year period)** | **SOCIAL BENEFITS**  **(over a 30 year period)** |
| * Cost of building HS2 (£42bn) * Damage to the environment from building (£1bn) * Opportunity cost of using the money for other projects (£2bn)   **TOTAL: £45bn** | * Greater links to the North of England (£20bn) * Construction jobs (£1bn) * Boost the UK economy = greater productivity (£23bn) * Environmental benefits (£0.5bn) * Boost national pride (£0.5bn)   **TOTAL: £45bn** |
| They concluded that the construction of HS2 should go ahead because although there are costs to building this line but there are also benefits. | |

This is an example of measuring the costs and benefits of a ‘production activity’ (as opposed to a ‘consumption activity’). Economists believe that every activity that economic agents (consumers or firms) undertake, they will take into account the full costs and benefits of such an action and will only pursue the activity if the social costs are at least equal or less than the social benefits. This comes back to the traditional idea that the ‘rational’ economic agent will weigh up costs and benefits before making a decision.

***TASKS: Consumption Activity***

1. *Try to identify some costs and benefits of the consumption of a donut by individuals to society (including therefore the individual consuming, the firm selling and the rest of society in general)….*
2. *Try to place a value (in pounds sterling) for each of the benefits. Be prepared to justify the values you ascribe.*

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**STAGE 2: INTRODUCTION TO MARGINAL ANALYSIS**

**TASK: Read the following page**

**Introduction to Marginal Social Cost (MSC) and Marginal Social Benefit (MSB) Theory**

When we look at externalities, we are interested in whether each unit will be consumed or not. Therefore, we study marginal costs and benefits i.e. the costs and benefits from the **additional of one extra unit**.

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| **Marginal social benefit** will be downward sloping. The more **extra units** you consume of a good or service, the lower the benefit. For example, eating the first chocolate bar is more enjoyable than the 10th or 15th or the first treatment in a private hospital may save your life but further work may bring less benefit. Therefore the marginal consumption has a lower benefit than the one before. | For a society, the MSB represents the preferences of consumers in the market. If this was a market for chocolate, the first say 10 consumers would value a chocolate bar at £1.50 (they really love chocolate). The second 10 consumers like chocolate less and value it at £1.20 and so on until the MPB curve hits the x-axis. At the x-axis, this marginal group of consumers hates chocolate and values it at 0. | **Marginal social cost** will be upward sloping. This is because of diminishing marginal returns. The more **extra units** that are produced and consumed, the higher the cost. For example, as more and more chocolate bars are made, resources become scarcer and more expensive. Similarly, a private hospital nearing full capacity will be more inefficient, over-run and face higher costs. |
| Therefore you pay a higher price at a lower quantity and a lower price for a higher quantity (in effect this is **the demand curve**). | | Therefore the price is higher as quantity increases to cover these extra costs (in effect this is **the supply curve**). |

Below are the cost and benefit curves for the consumption of chocolate bars to society:

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| **MSC**  **Supply Curve**    **MSB**  **Demand Curve**  **FIGURE 2** | When we studied market equilibrium we said that demand = supply. However, we now call demand MSB and supply MSC. Therefore **market equilibrium** is where:  **Marginal Social Cost = Marginal Social Benefit**  Let us consider why, by considering the following situations of daily consumption of chocolate bars:   * **MSB > MSC:** it is worth consuming the 1st chocolate bar as the benefit of that bar is greater than the cost (i.e. MPB > MPC). This is true for the 2nd, 3rd, 4th, 5th as MPB is greater than MPC for all those units. * **MSB = MSC:** the 6th is also consumed asMPB = MPC. This is the last chocolate bar that would be consumed. * **MSB < MSC:** however, the 7th chocolate bar is not worth consuming as the cost of that chocolate bar is more than the benefit (i.e. MPC > MPB) |

TASK: Why in the diagram above (figure 2), is welfare maximised at the equilibrium? Think about consumer and producer surplus….

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TASK: Should society produce more? Complete the following exercises using the information from STAGE 2 above

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| **1. What is the MSC and MSB at 3 units of production of donuts? Draw on the diagram your answer. Should the third donut be produced?**  **2. Explain why society should produce the 7th donut on the diagram to your left?** | DONUTS |
| **3. Explain why society should not produce the 8th donut.**    DONUTS | |

TASK: Can you see any problems with this ‘cost-benefit’ analysis from stage 1 and stage 2 which economists argue all economic agents go through before deciding to undertake an ‘activity’.

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**STAGE 3: EXTERNALITIES**

Externalities are effects on others in society of an economic activity (consumption or production) which are ‘external’ to the agents involved in the activity. They are often present because they are not fully reflected in the market price of the activity. The remainder of the worksheet attempts to marry together the marginal analysis above and the idea of market failure of either under production/consumption or over production/consumption (allocative inefficiency in this case).

**TASK: For the following activities, try to identify possible ‘externalities’ or effects on others in society.**

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| **Consumption Activity** | **Possible Externalities (are they positive – i.e. a benefit or negative – i.e. a cost?)** |
| Cigarette smoking | NEGATIVE:  Passive smoking  Lack of productivity in later life when smoker falls ill  Burden on society of probable illness |
| Having a shower |  |
| Regular dental check ups |  |
| Eating fast food |  |

**STAGE 4: PRIVATE AND EXTERNAL COSTS OF AN ACTIVITY**

**TASK: Read the following:**

The next stage is to establish the different types of costs and benefits to consider; these are summarised below:

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| **SOCIAL COSTS**  **(MSC)** | **=** | **PRIVATE COSTS**  **(MPC)** | **+** | **EXTERNAL COSTS**  **(MEC)** |  | **SOCIAL BENEFITS**  **(MSB)** | **=** | **PRIVATE BENEFITS**  **(MPB)** | **+** | **EXTERNAL BENEFITS**  **(MEB)** |
| The total cost to society of an activity |  | The cost to the agents undertaking the activity |  | An ‘Externality’: The cost to others in society of the action taken by the agent | The total benefit to society of an activity |  | The benefit to the agents undertaking the activity |  | An ‘Externality’: The benefit to others in society of the action taken by the agent |

We have already established, that at the heart of traditional microeconomic theory lies the assumption that, economics agents are ‘rational’ and ‘selfish’. So far we have established using marginal analysis that agents are ‘rational’ in that they effortlessly weight up the costs and benefits of an activity and will consume or produce up to the point where the marginal consumption or production costs are equal to the marginal benefit of an activity. Therefore social benefit maximisation, which maximises the public interest or the welfare of the whole community, occurs when:

**Marginal social benefit (MSB) = marginal social cost (MSC)**

The ‘selfish’ part we will deal with now: Traditional theory suggests an economic agent will only consider the ‘private costs and benefits’ of an activity, ignoring any costs and benefits imposed on others (externalities) or external costs/benefits. Therefore, economic agents will consume or produce up to the point where:

**Marginal private benefit (MPB) = Marginal Private Cost (MPC)**

Traditional theory suggests economic agents seek to maximise their private benefit or self-interest, net of costs and not the wider social interest of the whole community. The basically ignore the effects of their actions on other people. However if these effects are present then costs and benefits of an individual’s activity will inevitably be imposed on others so that the MPB does not equal the MSB or the MPC does not equal the MSC because we have externalities.

**TASK: Complete the following table based on stage 4 (I have filled in the healthcare example for you as an example)**

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|  | **Consumption Activity** | | |
| **Positive Externalities** | **Social Costs of**  ***using healthcare*** | Private Costs | Costs of healthcare or health insurance (assuming there is no NHS which is a Government Intervention).  So paying BUPA etc. Or if you are in the USA, you would pay an insurance company a premium every month (a bit like a gym membership!). |
| External Costs | *There are assumed to be no external costs of consuming healthcare and therefore the private costs are just equal to the social costs. This is just to keep the analysis simple so we can focus on the discrepancy between the benefits….* |
| **Social Benefits of**  ***using healthcare*** | Private Benefits | * Healthier for work = more productive and possibly higher wages * Longer life and enjoyment |
| External Benefits | * Business/Economy: more productive workers leads to greater profits and economic growth (shift in LRAS) * Government: more tax revenue from income tax * Social: Less spread of diseases etc. |
| **Negative Externalities** | **Social Costs of**  ***Fast Food eating*** | Private Costs |  |
| External Costs |  |
| **Social Benefits of**  ***Fast Food eating*** | Private Benefits |  |
| External Benefits | *There are assumed to be no external benefits of eating fast food and therefore the private benefits are just equal to the social benefits. This is just to keep the analysis simple so we can focus on the discrepancy between the benefits….* |

**STAGE 5: Externality Diagrams - Using Marginal Analysis to demonstrate a market failure**

IF YOU ARE UNSURE HOW TO ANSWER THESE TASKS, PLEASE LOOK AT ‘ECONOMICS HELP’ website OR look up ‘EconPLusDahl’ on YouTube to watch a video

There are four diagrams in total that you have to draw. For this current worksheet (RWS7), there are two consumption externality diagrams and for RWS8, there are two for production externalities. We will look at one example now and this exercise is meant for you to HAVE A GO!!

First of all, you need to assume that we are in a free market. So the NHS no longer exists!! It has been disbanded and now if you want healthcare it is not free at the point of use. You actually have to pay for it!! What would happen in such a scenario?? Economics can help us to explain.

The positive externalities of healthcare can be shown diagrammatically. As patients only consider their private cost and benefits they will consume healthcare at Qm. Qm is the point where the free market will naturally fall; it is the equivalent of the ‘equilibrium’. Because consumers are selfish, they only take into account the private costs and benefits of consuming healthcare. The positive externalities (external benefits) are not taken into account.

Society would actually want a higher level of healthcare in the market i.e. at Qso (SO stands for ‘socially optimal’ point). This is because at Qso MSC = MSB. The result of this is under-consumption of healthcare from society’s point of view. We are only consuming Qm when society wants us to consume Qso. Therefore we can say there is a market failure i.e. welfare could be gained by increasing quantity of healthcare.

Essentially consumers ‘under value’ the importance of consuming healthcare because they are only taking into account their own benefits and not considering the wider effects on the rest of society. Therefore society would like them to consume more.

Another way to explain it is using demand and supply. If we call the MPB and MSB curves, demand curves, then we want one demand curve (MPB) to increase to the other demand curve (MSB) but consumers are under demanding healthcare for the good of society at MPB because they ‘undervalue’ (Pm rather than Pso) healthcare.

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| TASK: On the graph to the right, at Qm, mark where the following is:   * MPB * MSB * MEB * Can you identify how much the positive externality is at Qm by marking it on the diagram? * Identify an area of the graph that you can identify as the market failure. |  |

TASK: in the space below, see if you can draw the diagram to demonstrate ‘negative externalities in consumption’ and explain why there is market failure. Just have a go…if you get it wrong, then you will learn more from the process….by the way have you checked out Economics Help website or EconPlusDahl on YouTube if you do not know where to start???? Use google to look these up by typing for example ‘EconPlusDahl Externalities in consumption’.

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| Diagram | Explanation as to why the market is failing |
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