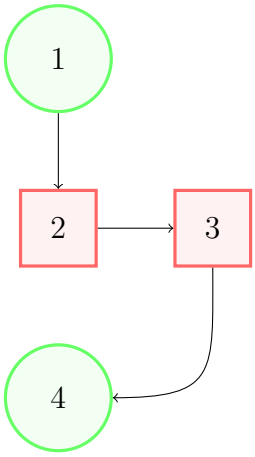
LC Economics: Costs Worksheet

Critical Thinking & Real-Life Application



Instructions (Students):

– Answer in full sentences where appropriate.

– Use real-life reasoning (not just definitions).

– Where asked to *justify*, explain *why* your answer makes economic sense.

Q1 – Law of Diminishing Marginal Returns (LDMR)

(a) A small restaurant has *one oven* (fixed factor). It keeps hiring chefs (variable factor). Explain why output might rise at first and then rise more slowly. Identify when LDMR "kicks in" using real-life logic (space, coordination, queueing for the oven).

(b) "If you hire another worker, total output always increases by the same amount." Explain why this can be false *even if* the new worker is skilled.

(c) **LDMR vs laziness:** Give **two** reasons marginal output might fall that have nothing to do with workers being lazy.

(d) A firm notices marginal output has started falling. Does that automatically mean it should stop hiring workers? Explain what extra information it needs (hint: think costs vs revenue).

Q2 – Fixed, Variable, Explicit, and Implicit (Opportunity) Costs

(a) For each item below, state whether it is *fixed or variable* and *explicit or implicit*. Some costs may fit more than one category depending on context, so justify briefly.

Item	**Is this item an implicit or an explicit cost to a firm?**
Rent	
Electricity	
A salaried manager	
Ingredients	
The owner working unpaid	
Using your own savings	
Insurance	

(b) A college student uses € 2,000 savings to start a side business. The bank pays 3% interest. What is the implicit cost per year? Explain in one sentence why it is a "cost" even though no money is paid out.

Workings:

Short explanation:

(c) **Normal profit as a cost:** Explain why "normal profit" is treated like a *cost of staying in business*, not a bonus. Give a simple example of what happens if a business doesn't earn it.

Q3 – Cost Tables & Calculations

(a) You are given total cost at different outputs (like a costs table). Explain the **method** (no calculations needed) for how you would find: *VC, MC, AFC, AVC, ATC*. Explain why each method works.

(b) If total cost rises from € 56 to € 63 when output rises from 4 to 5, what is marginal cost at $Q = 5$? Explain what that number means in plain English.

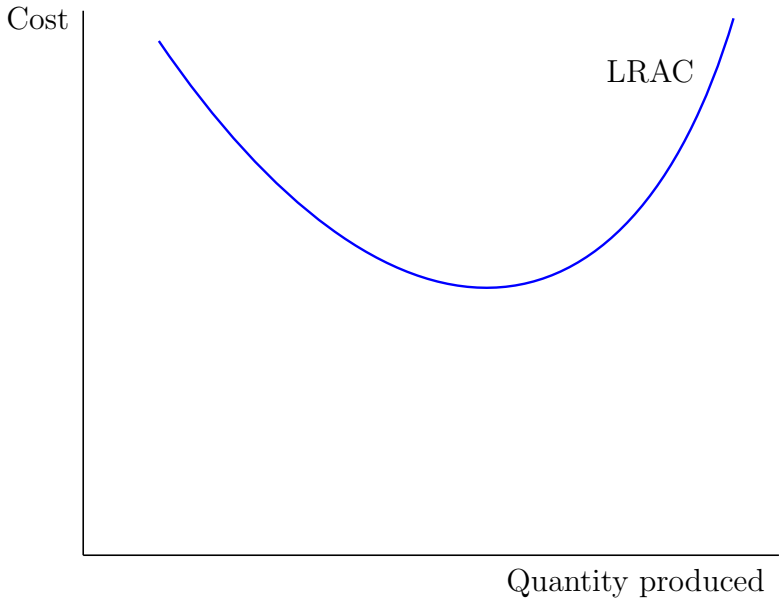
(c) Given the information provided, fill in the values for the rest of the table. Refer to the first few slides in the notes on the cost chapter, if you're unsure about the

Qty	**Fixed Costs**	**Variable Costs**	**Total Costs**	**Average Fixed Costs**	**Average Variable Costs**	**Average Total Costs**	**Marginal Costs**
0	36	–	36	–	–	–	
1			44				
2			48				
3			51				
4			56				
5			63				
6			72				
7			82				
8			101				

(d) A student says: "ATC fell, so MC must have fallen too." Is that necessarily true? Use the relationship between MC and ATC to explain.

Q4 – Cost Curves

(a) Give a real-life example showing how fixed costs are "spread out" as output rises.



(b) Explain why the average variable cost curve is U-shaped. Use a real example (coffee shop, car wash, takeaway, etc.) to support your answer.

(c) Draw a graph of plotting MC and and AC. Explain the shape of each curve and discuss the relationship between AC and MC.

(d) Explain why MC intersects ATC at ATC's lowest point. Then explain what that point represents for the firm in terms of productive efficiency.

Q5 – Economies and Diseconomies of Scale

(a) Pick one large Irish firm and explain:

– one **internal economy of scale** it likely has, and
– one **internal diseconomy of scale** it might face.

Link each clearly to cost per unit falling or rising.

Name of Large Irish Firm	

(b) Explain how a big industry expanding can lower costs for firms while raising costs for society as it does so. Use one relevant Irish example to support your answer.

(c) "Bigger firms always have lower costs." Write a short paragraph agreeing or disagreeing, but you must mention both LRAC logic and diseconomies of scale.

Q6 – Long Run Average Cost and LDMR

(a) Explain why the Law of Diminishing Marginal Returns is mainly a **short-run** problem. Then explain how a firm can respond to decreasing returns to scale in long run.

(b) Use LRAC reasoning to explain why a big supermarket chain like Lidl can often sell cheaper than a local corner shop. Give one reason the corner shop may still survive.

Q7 – Shutdown Decision in the Short Run

(a) Two firms both make a loss this month. Firm A's revenue is *below* its variable costs. Firm B's revenue is *above* variable costs but below total costs. Which should shut down in the short run?

(b) Create an analogy for the shutdown decision using something non-business (eg, driving to a concert, continuing a project, staying in a gym membership). Link the analogy clearly to FC, VC, and TR.

Q8 – Profit Maximisation (MR = MC) and Pricing

(a) Draw a graph showing how a firm can determine its profit maximising level of output. Explain in your own words what this means.

(b) Explain how the shape of average revenue affects marginal revenue, and why marginal revenue lies below average revenue when the firm must drop price to sell more. Give a real market example for each.

Q9 – Firm Objectives Beyond Profit

The firm may have objectives beyond profit (e.g., becoming a takeover target, solving a social issue, or earning satisfactory profit). Choose **one** objective and answer:

– What would its cost/revenue decisions look like in practice?

– What trade-off does it face compared to profit maximisation?

Chosen objective	