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New House

UNDERSTANDING ECONOMICS

For NCEA Level THREE | INTERNAL

MICRO-ECONOMIC CONCEPTS

Skills and Activities for the Key Competencies

Dan Rennie

NELSON
CENGAGE Learning

Understanding Economics for NCEA Level Three: Micro-economic concepts
1st Edition
Dan Rennie

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1 2 3 4 5 6 7 16 15 14 13 12

Contents

Preface

Demonstrate understanding of micro-economic concepts is a stand-alone text and workbook designed to cover aspects of Achievement Standard 3.3.

Key terms and ideas

<table>
<tr>
<td>Utility means satisfaction
Consumers aim to maximise total satisfaction
As more cans are consumed the MU decreases</td>
<td>
<table>
<tr><th colspan="3">Zoe's utility schedule for cans of drink (per day)</th></tr>
<tr><th>Cans consumed</th><th>Total utility (cents)</th><th>Marginal utility (cents)</th></tr>
<tr><td>1</td><td>100</td><td>100</td></tr>
<tr><td>2</td><td>180</td><td>80</td></tr>
<tr><td>3</td><td>230</td><td>50</td></tr>
<tr><td>4</td><td>240</td><td>10</td></tr>
</table>
<table>
<tr><th colspan="2">Zoe's demand schedule for cans of drink (per day)</th></tr>
<tr><th>Price (cents)</th><th>Quantity demanded (cans)</th></tr>
<tr><td>100</td><td>1</td></tr>
<tr><td>80</td><td>2</td></tr>
<tr><td>50</td><td>3</td></tr>
<tr><td>10</td><td>4</td></tr>
</table>
</td>
</tr>
<tr><td>Law of diminishing marginal utility</td><td>As more of a good/service is consumed, the total utility will increase at a decreasing rate (i.e., marginal utility will decrease).</td></tr>
<tr><td>Optimum purchase rule</td><td>A consumer desiring to maximise total utility should purchase more goods and services until price equals marginal utility (P = MU).</td></tr>
<tr><td>Explaining why MU leads to the downwards sloping demand curve</td><td>As consumption increases, MU decreases. The rational consumer attempting to maximise his/her satisfaction will be prepared to purchase to where P = MU. Consumers will only purchase additional units at a lower price. The individual demand curve is therefore derived from the individual MU curve.</td></tr>
<tr><td>Equi-marginal rule
Consumer equilibrium is reached when marginal utility of the last dollar spent on each commodity is equal</td><td>
<table>
<tr><td>(a) (i) must spend all income
and (ii) $\frac{MUa}{\text{price a}} = \frac{MUb}{\text{price b}}$</td><td>Solution:
Do nothing</td></tr>
<tr><td>(b) Not all income spent</td><td>Spend more on both goods</td></tr>
<tr><td>(c) all income spent
$\frac{MUa}{\text{price a}} \neq \frac{MUb}{\text{price b}}$</td><td>Spend more on good with higher MU per $ and less on other good</td></tr>
</table>
</td></tr>
<tr><td>Total utility (TU)</td><td>The aggregate satisfaction gained from consuming successive quantities of a good.</td></tr>
<tr><td>Marginal utility (MU)</td><td>The change in total utility resulting from the consumption of one extra unit of a given commodity.</td></tr>
</table>

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3 Julian likes to hire videos or video games at the local store. Videos are $10 each and video games $8.

a Complete the table given.

Quantity of each product	Marginal utility of videos (utils)	MU per $ videos	Marginal utility of video games (utils)	MU per $ video games
1	80	8	56	7
2	40	4	40	5
3	20	2	32	4
4	10	1	24	3

b State the law of economics that the changing values of marginal utility show in the table.

The law of diminishing marginal utility.

c State the consumer equilibrium rule Julian needs to apply to maximise the total utility he receives from buying videos and video games.

$$\frac{\text{MU videos}}{\text{price videos}} = \frac{\text{MU video games}}{\text{price video games}}$$

d How many videos and video games should Julian purchase to maximise his total utility?

Number of videos 2

Number of video games 3

e Explain using the optimum purchase rule why Julian would buy fewer videos if their price increased.

The optimum purchase rule states P = MU, if the price of a video increases then price will exceed the MU, and therefore the price paid for one more video would outweigh the satisfaction derived from it. Julian would therefore purchase fewer videos, this will cause MU to rise (the law of diminishing marginal utility) until it equals the new increased price.

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3 A consumer, Jacob, assigns the following utility to successive levels of consumption.

Units consumed	Utility					
	Pizza	MU per $	Drink	MU per $	Wedges	MU per $
1	120	12	22	11	40	10
2	90	9	20	10	36	9
3	60	6	18	9	32	8
4	40	4	14	7	28	7
5	20	2	12	6	24	6
Price per unit	$10		$2		$4	

Help Jacob maximise the total utility he receives from purchasing pizza, drinks and wedges. In your answer you should:

- Complete the MU per $ column for each product in the table.
- State the consumer equilibrium rule (or formula) Jacob should use to ensure he maximises the total utility he receives.
- Assume Jacob has $20 to spend. What combination of goods will he buy?
- In what order will Jacob purchase pizza, drinks and wedges? Justify your answer for Jacob's fifth purchase.

$$\frac{\text{MU pizza}}{\text{price pizza}} = \frac{\text{MU drinks}}{\text{price drinks}} = \frac{\text{MU wedges}}{\text{price wedges}}$$

Jacob will purchase 1 pizza, 3 drinks and 1 lot of wedges.

Order of purchases	Price $	Total income spent
1st pizza	10	10
2nd drink	2	12
3rd= wedges	4	16
3rd= drink	2	18
5th drink	2	20

Jacob will buy a drink for his fifth purchase instead of another lot of wedges because at that stage he has only $2 left out of $20 income and therefore cannot afford to buy the wedges at a price of $4 or pizza at $10 each.

Self-evaluation review

Tick (✔) which of the following you know the precise economic answers to (go back and learn those that you have not ticked).

	(✔) TICK
Explain the difference between total and marginal utility.	☐
Explain the law of diminishing utility.	☐
Intuitively derive how the individual demand curve is derived from the individual's marginal utility curve.	☐

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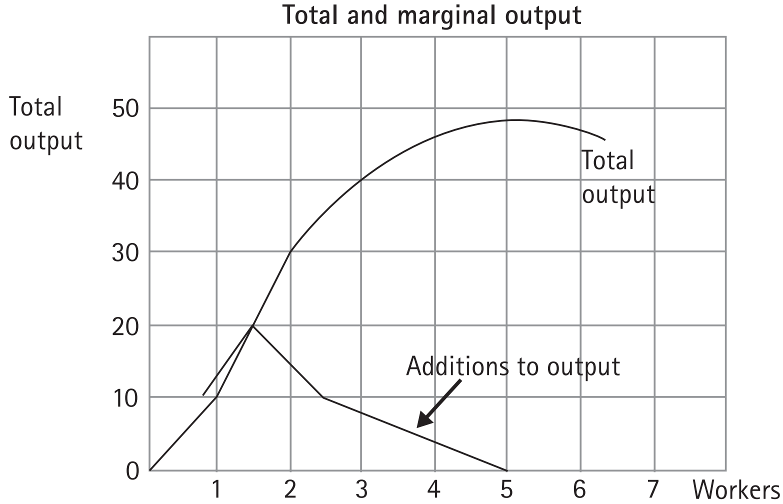
Key concepts and terms: apply the law of diminishing returns to show its relationship to increasing costs (3.3).

DIMINISHING RETURNS

The **law of diminishing returns** refers to the idea that as more and more of a factor (input) is used, with at least one fixed factor, there is some point at which the increase in output will be at a decreasing rate.

In the table, we assume that workers are the only variable factor in the production process. The additions to output (marginal output) increase between the first and second workers. The additions to output reach a maximum on the second worker and thereafter the additional output falls as diminishing returns set in.

Number of workers	Total output	Marginal output
1	10	10
2	30	20
3	40	10
4	46	6
5	48	2
6	46	–2



Firms will experience diminishing returns in the short run because, in the short run, at least one factor input is fixed. If additional quantities of other (variable) factors are added into the production process, the total output will increase at a diminishing rate (marginal product must eventually fall). This is because each factor has less of the fixed factor to work with, reducing its ability to produce (extra) output.

Diminishing returns will cause a firm's marginal costs to increase because as each additional variable unit produces less when diminishing returns are occurring, the production of extra units of output will require more and more of variable inputs to produce them (compared with earlier units). Therefore, it follows that the cost of each additional unit produced (i.e., MC) must increase because more inputs are being used to produce it. So, marginal cost must rise as output increases.

Increasing returns to a factor reflect that a firm's short-run average costs would be falling. The increased input of a factor results in increasing additions to output, or a decreased input results in a smaller decrease in output. If a firm decreases an input by 5% but output falls by only 4%, the addition to outputs is actually increasing. The production process must be more efficient than before and costs must be falling (in the short run).

Decreasing returns to a factor (or diminishing returns) reflect that the increase of one input results in decreasing additions to output. The firm increases an input by 5% but output rises by only 3%. Similarly a decrease in an input would result in a larger decrease in output. An input falls by 10% and output decreases by 12%. Both these examples show that the production process has become inefficient. The short-run average costs (**SAC**) will eventually rise.

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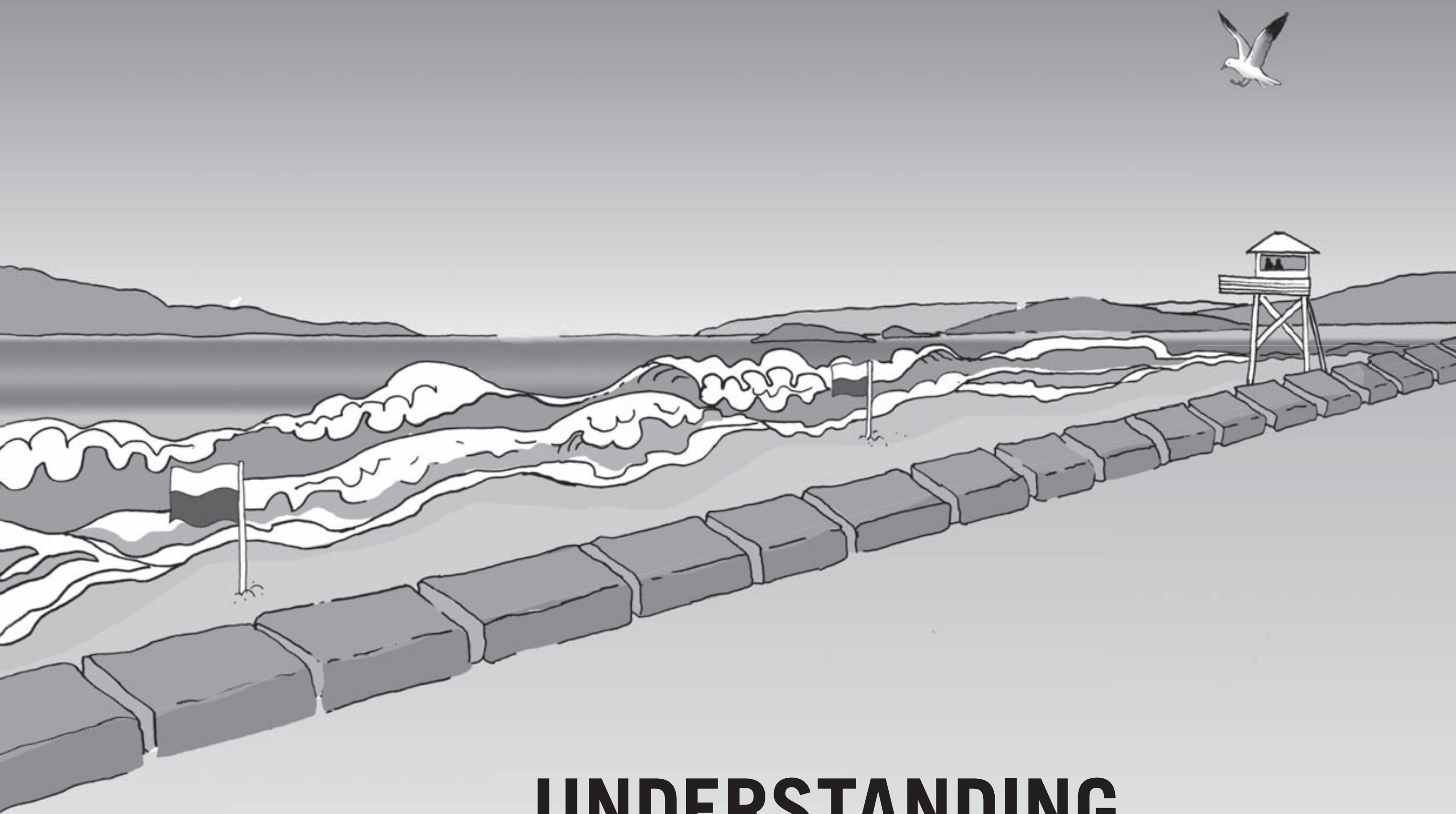

UNDERSTANDING ECONOMICS

For NCEA Level THREE | INTERNAL | MICRO-ECONOMIC CONCEPTS is a self contained textbook/workbook designed to satisfy the requirements of the recent curriculum changes and allow students to develop the Key Competencies with a range of learning activities.

Concise notes and a comprehensive set of activities work to introduce and develop the Economic definitions, concepts and skills students require for the Internal Achievement Standard: Demonstrate understanding of micro-economic concepts. Review questions in each chapter allow students an opportunity to test their understanding and prepare for an internal standard.

Notes and activities in this book have been trialled with NCEA Level Three classes in Economics over several years with excellent results.

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