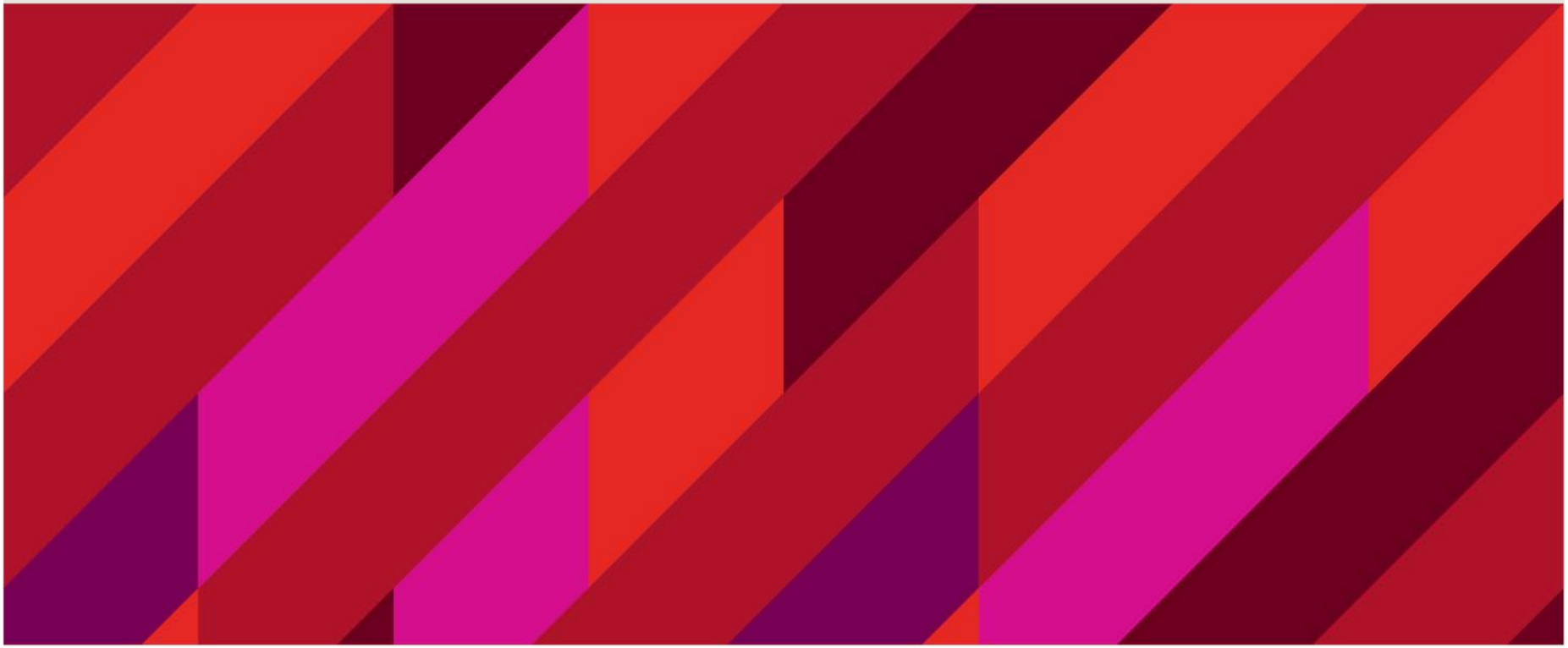
Transformative Learning & Teaching in Economics

Dr Prashan S M Karunaratne, FHEA



The Problem

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The Problem

3,000 students per year

1,500 students per semester

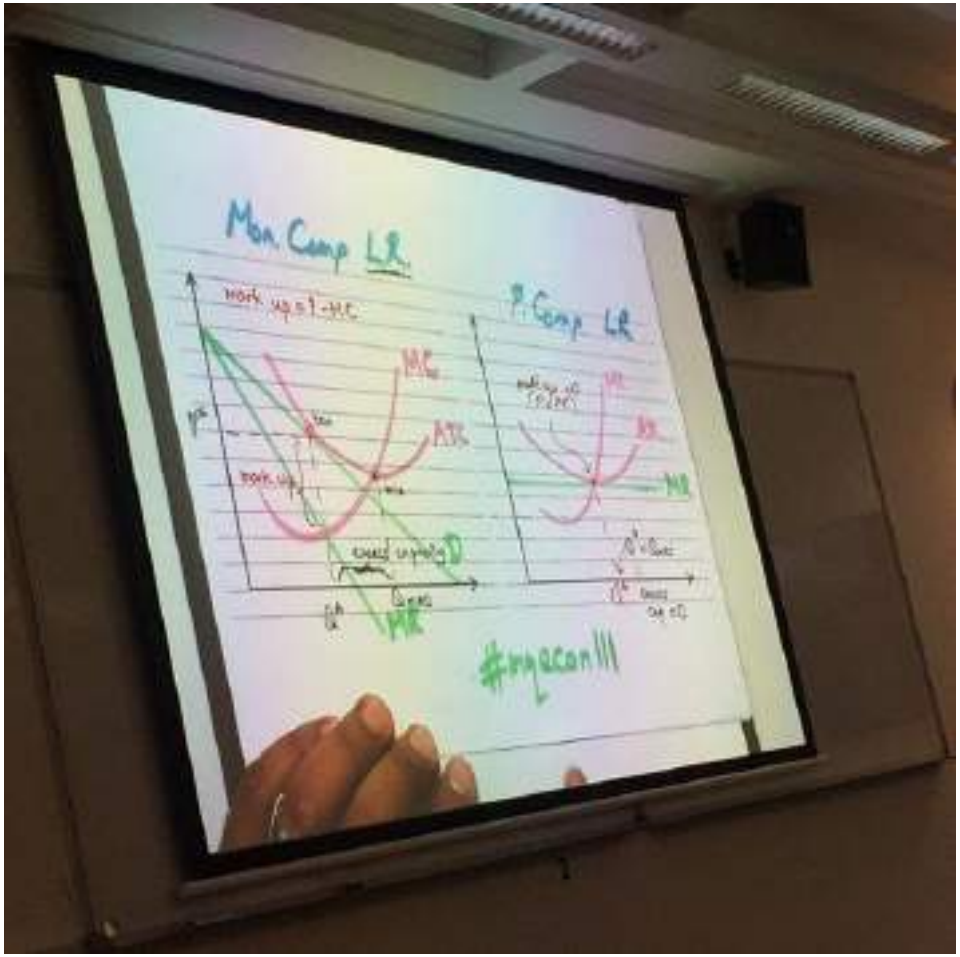
500 students per lecture stream

20 different majors

2-3% in a BEc

Blank Slate

The Method



Students as Partners

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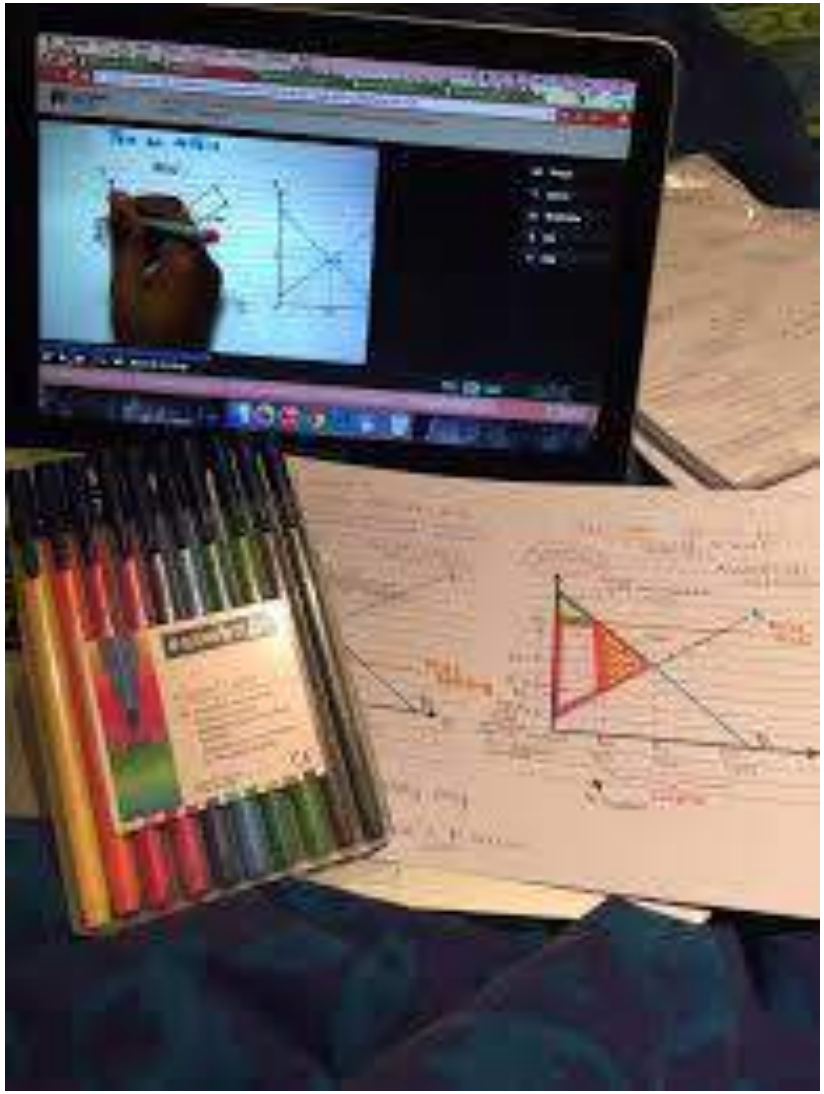
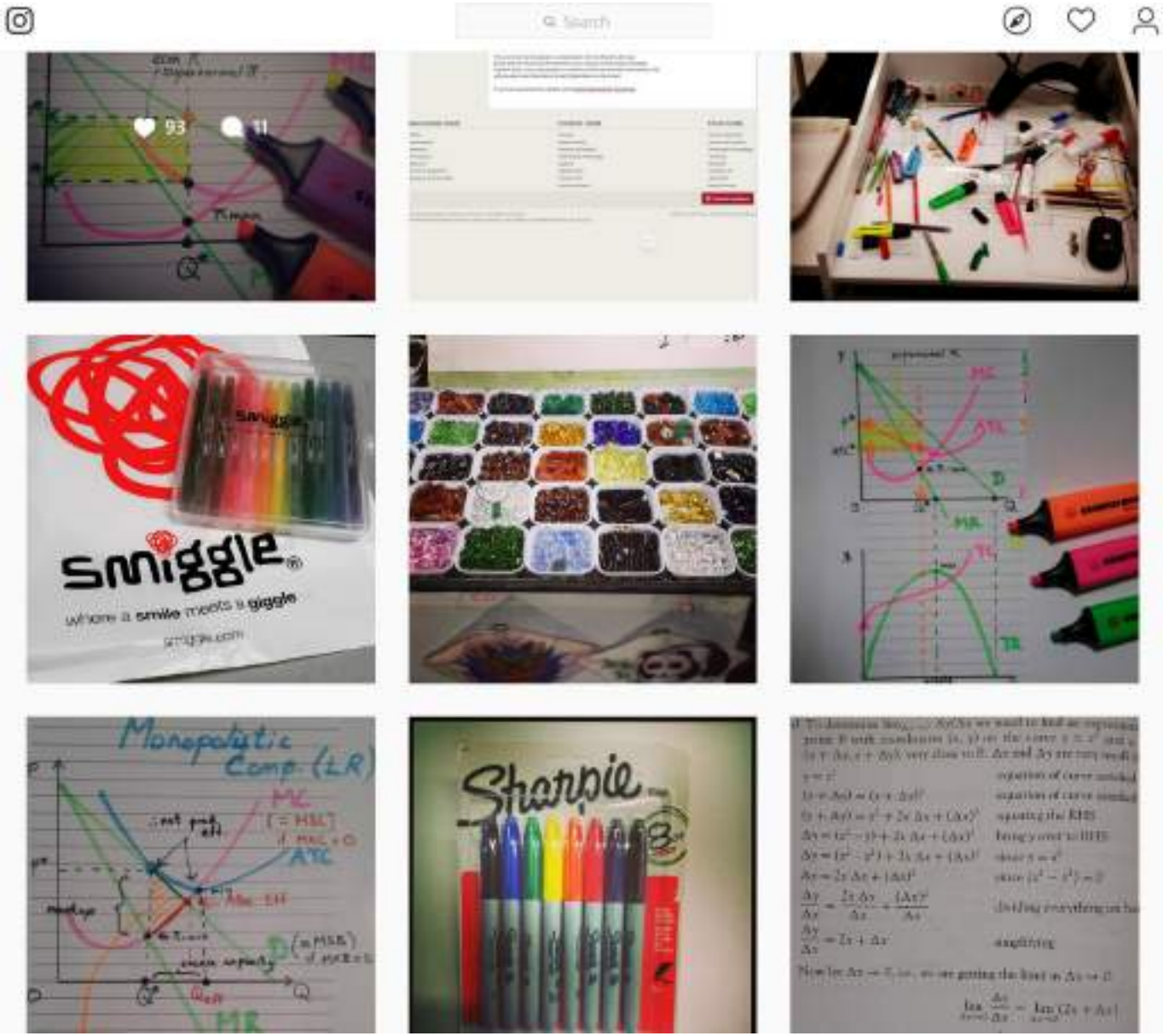
Lecture Capture



Social Media



Learning & Teaching – a constrained optimisation problem

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- **Engage students**
- **Equip students**
- **Empower students**

Learning & Teaching – a constrained optimisation problem

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- **Engage students**
- **Equip students**
- **Empower students**

- **→ the WHY of learning → ENGAGE**

- **→ the HOW of learning → EQUIP**

- **→ WHY + HOW = EMPOWER**

Learning & Teaching – a constrained optimisation problem

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Two Stage Approach:

"Macro Level" – re-tune the teaching

→ the *'WHY'* of learning & teaching

→ Literature on *Threshold Concepts*

"Micro Level" – re-scaffold the learning

→ the *'HOW'* of learning & teaching

→ Literature on *Assessments for Learning*

→ Literature on *Learning Taxonomies*

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STAGE 1

The WHY of learning

The Existing Approach

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- Initially focuses on **concepts which are foundational, fundamental or core** to the respective discipline.
- Learners **add knowledge and application over previously laid** foundational, fundamental and core knowledge.
- Focuses on the **addition of knowledge**.
- … and therefore focuses on the **accumulation of content**.
- **Input focused.**

Threshold Concepts

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- Meyer and Land (2003) argued that each discipline possesses threshold concepts that are:

- *… akin to **passing through a portal [or] conceptual gateway** [that opens up] previously inaccessible **way[s] of thinking** about something.*

- Again in Meyer (2016) – **“Threshold Concepts Framework”.**

The Threshold Concept Approach

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- The threshold concept approach addresses both **the way of thinking** as well as **the way of practice**.

- Passing through the portal or gateway of the threshold concept **transforms** the learner such that they are able to **practice the train of thought of their discipline** by **integrating** these concepts.

- **Output focused**

Threshold Concepts

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- Transformative
- Troublesome
- Irreversible
- Integrative
- Bounded

Threshold Concepts

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- A team of researchers and lecturers in the **"Embedding Threshold Concepts in First Year Undergraduate Economics" (ETC project)** outlined the concepts that were crucial and difficult for the majority of learners. This project was funded by the **Higher Education Funding Council for England and the Department for Employment and Learning (DEL)** – in the UK, under the **Fund for the Development of Teaching and Learning**.

- As part of this project, lecturers were briefed on the characteristics of threshold concepts. At the conclusion of the project, the group agreed on the importance of the recognition of threshold concepts within economics with regard to the learning and teaching of the discipline (Davies and Mangan, 2005). The threshold concepts developed by the ETC Project as reported by Davies and Mangan (2005) are:

Threshold Concepts in Economics

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- Economic Modelling
- Opportunity Cost
- Marginal Analysis
- Equilibrium vs Disequilibrium
- Elasticity

- Welfare & Efficiency
- Market Structures & Market Interactions
- Comparative Advantage
- Real vs Nominal
- Cumulative Causation

“Macro” Level → the WHY
→ Re-sequence the Teaching

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- **Using the Threshold Concepts as a guide (output focused).**

- **As opposed to the Foundational Concepts as a guide (input focused).**

	Microeconomic Principles
Week 01	Introduction to Economics
Week 02	PPF and Comparative Advantage
Week 03	Demand and Supply
Week 04	Elasticity
Week 05	Efficiency
Week 06	Government Actions in Markets
Week 07	Externalities
Week 08	Consumer Theory
Week 09	Producer Theory
Week 10	Perfect Competition
Week 11	Monopoly
Week 12	Monopolistic Competition
Week 13	Oligopoly / Game Theory

	Previous offerings	New offering
Week 01	Introduction to Economics	Introduction to Economics and the PPF
Week 02	PPF and Comparative Advantage	Producer Theory
Week 03	Demand and Supply	Perfect Competition
Week 04	Elasticity	Demand and Supply
Week 05	Efficiency	Monopoly
Week 06	Government Actions in Markets	Monopolistic Competition
Week 07	Externalities	Elasticity
Week 08	Consumer Theory	Efficiency
Week 09	Producer Theory	Externalities
Week 10	Perfect Competition	Government Actions in Markets
Week 11	Monopoly	Consumer Theory
Week 12	Monopolistic Competition	Game Theory / Oligopoly
Week 13	Oligopoly / Game Theory	Comparative Advantage

Context

	New offering
Topic 01	Introduction to Economics and the PPF
Topic 02	Producer Theory
Topic 03	Perfect Competition
Topic 04	Demand and Supply
Topic 05	Monopoly
Topic 06	Monopolistic Competition
Topic 07	Elasticity
Topic 08	Efficiency
Topic 09	Externalities
Topic 10	Government Actions in Markets
Topic 11	Consumer Theory
Topic 12	Game Theory / Oligopoly
Topic 13	Comparative Advantage

Context

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Topic 12	Game Theory / Oligopoly
Topic 13	Comparative Advantage

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Seeing Economics in Everyday Life

USING SOCIAL MEDIA TO ENGAGE THE THRESHOLD CONCEPTS OF ECONOMICS

Seeing Economics Every Day

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- Find an example in your life experience
- Capture a photo
- Hashtag it on social media
- Critique your example
- Critique a peer's example

Hashtags

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- #mqperfectcomp
- #mqmonopoly
- #mqoligopoly
- #mqmoncomp

#mqperfectcomp

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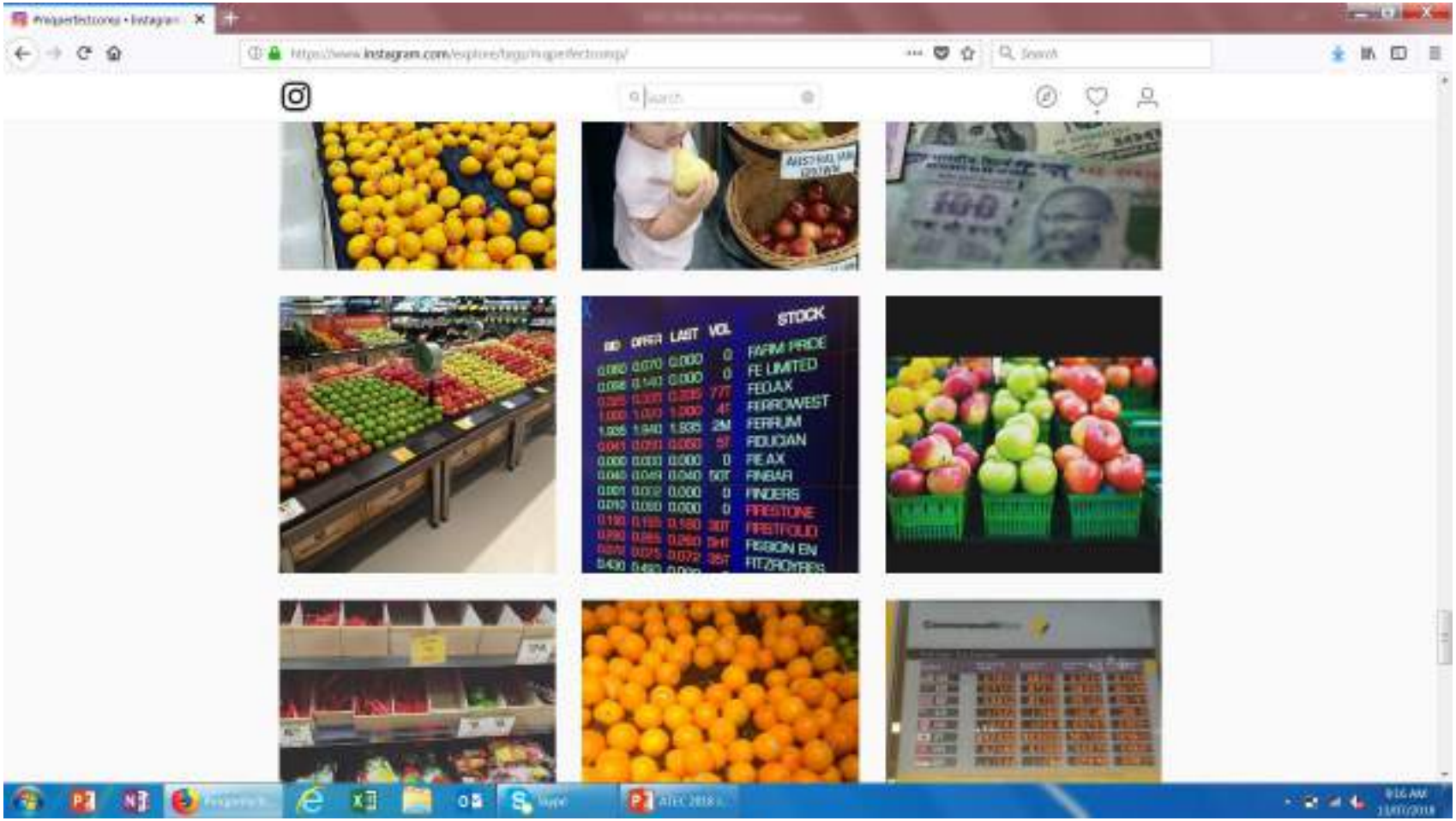
ECONOMICS IS EVERYWHERE



#mqmonopoly

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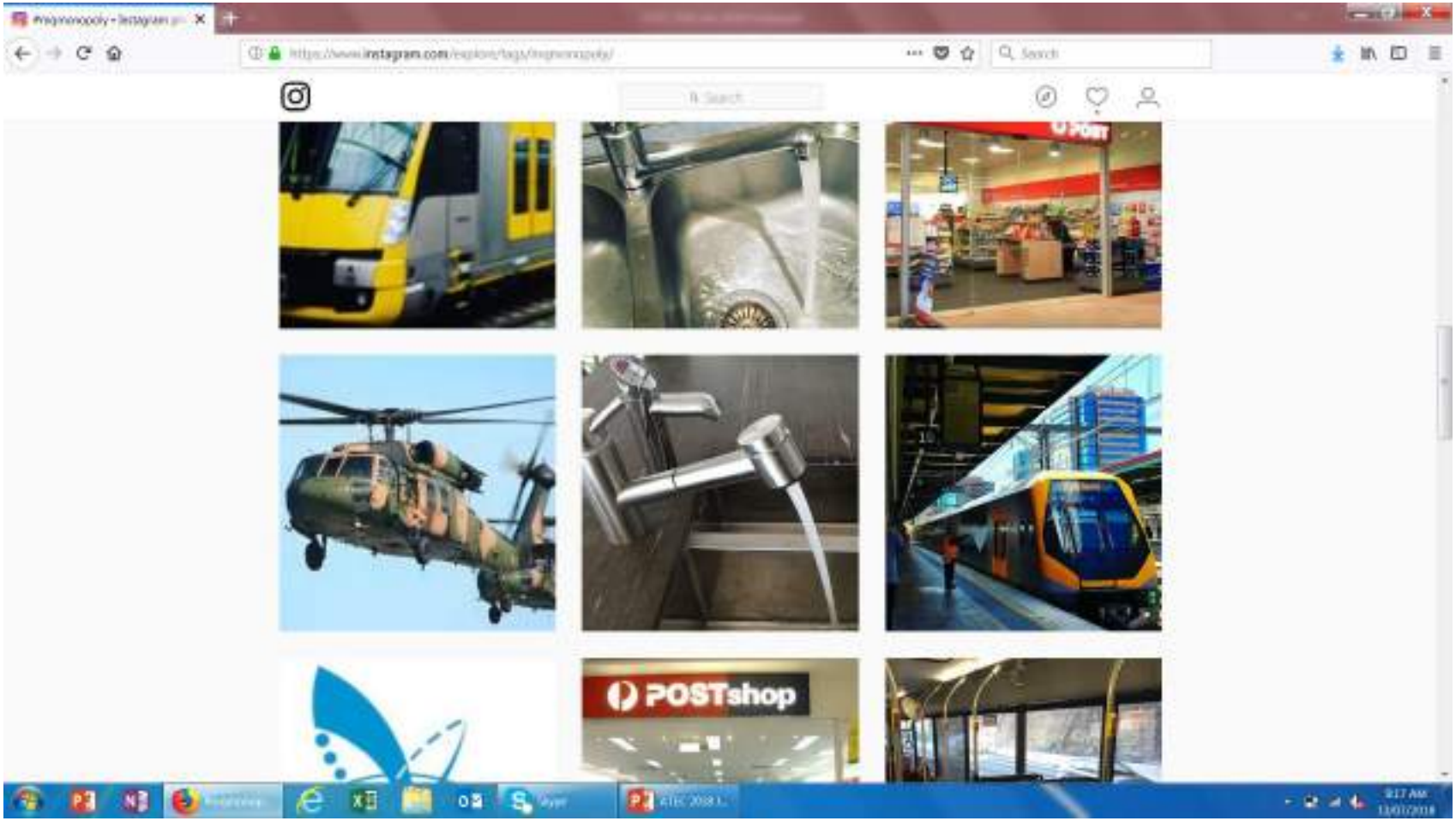
ECONOMICS IS EVERYWHERE



#mqoligopoly

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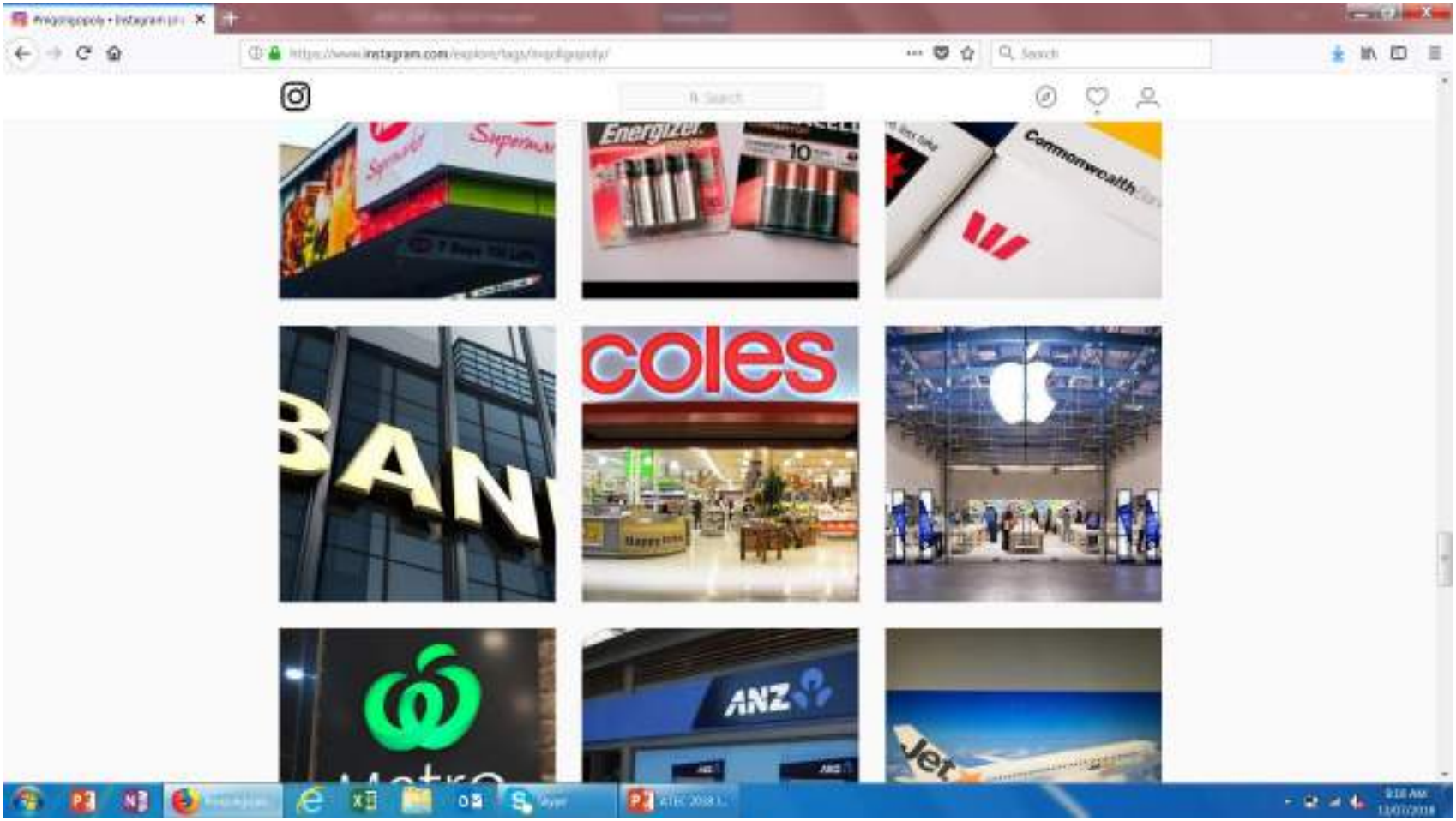
ECONOMICS IS EVERYWHERE



#mqmoncomp

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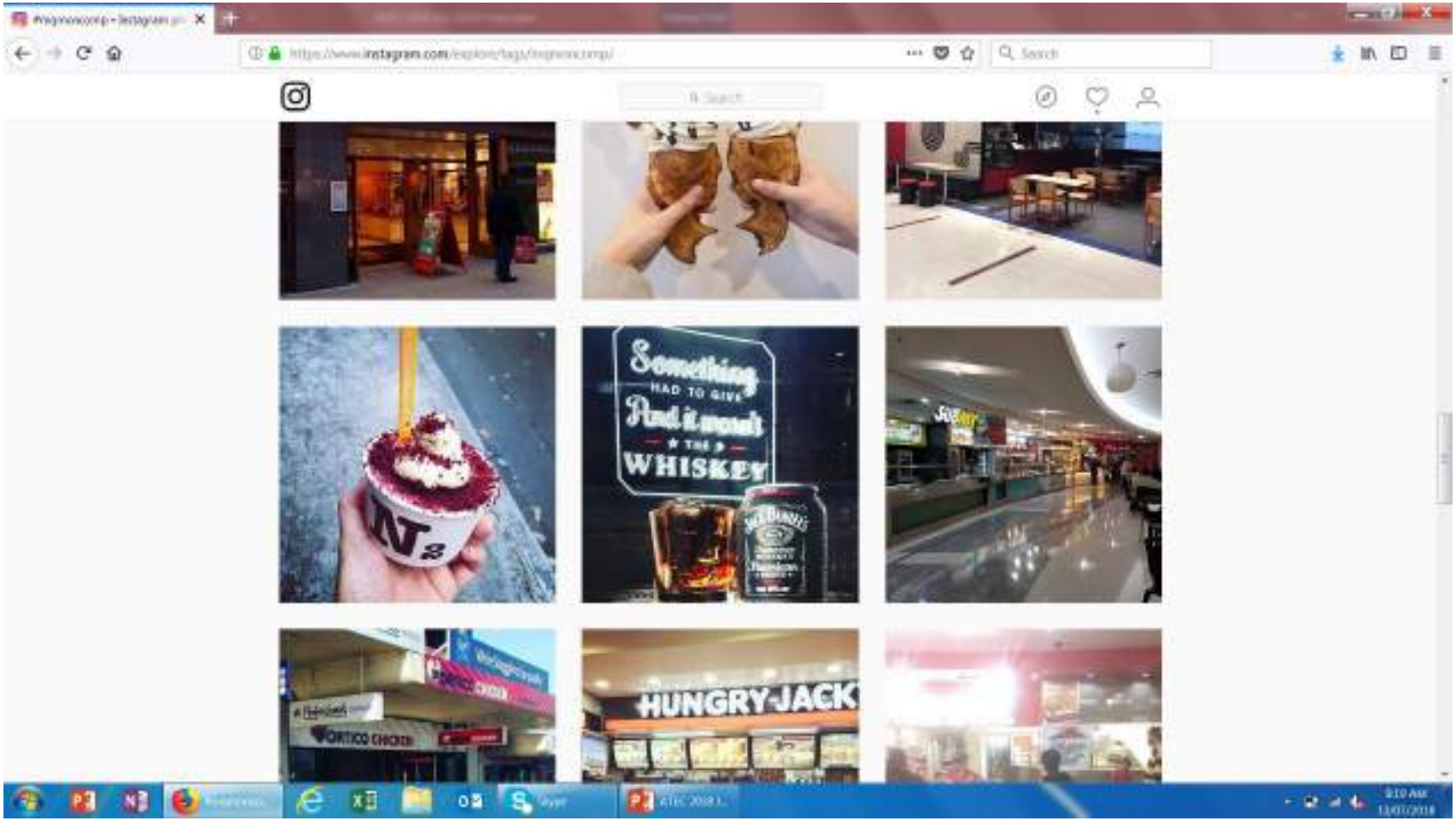
ECONOMICS IS EVERYWHERE



Economics is Everywhere

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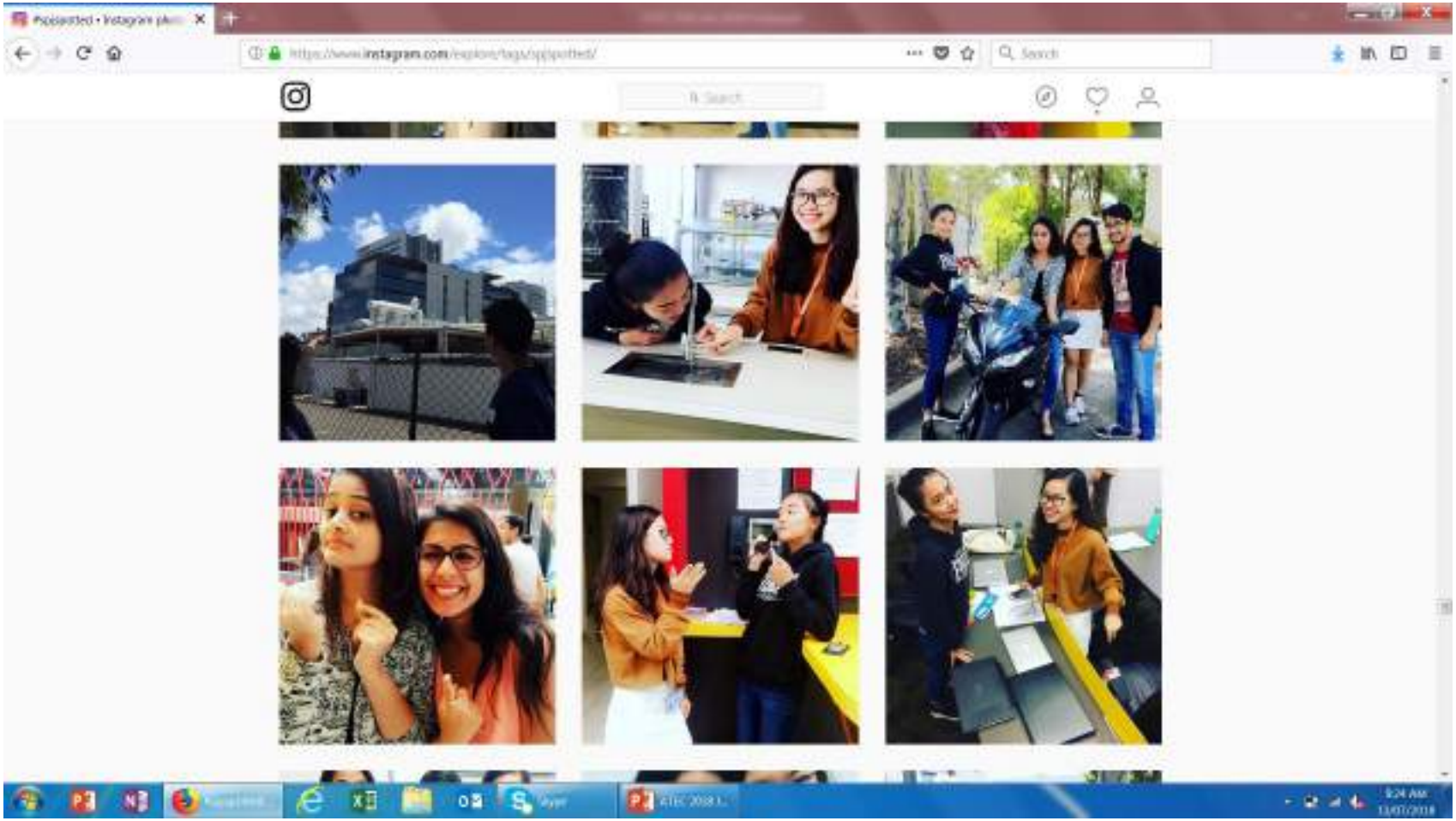
CLASSROOM ACTIVITY



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STAGE 2

The HOW of learning

“Micro” Level → the HOW
→ Re-scaffold the Learning

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- Assessments *for* learning → Boud (2000)

- Learning *how* to learn → Anderson and Krathwohl (2001)

Boud (2000)

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- ***Sustainable assessment*: rethinking assessment for the *learning society***

- **Assessment *for* learning rather than Assessment *of* learning**

Anderson and Krathwohl (2001) - revised Bloom's taxonomy

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Anderson and Krathwohl (2001) - revised Bloom's taxonomy

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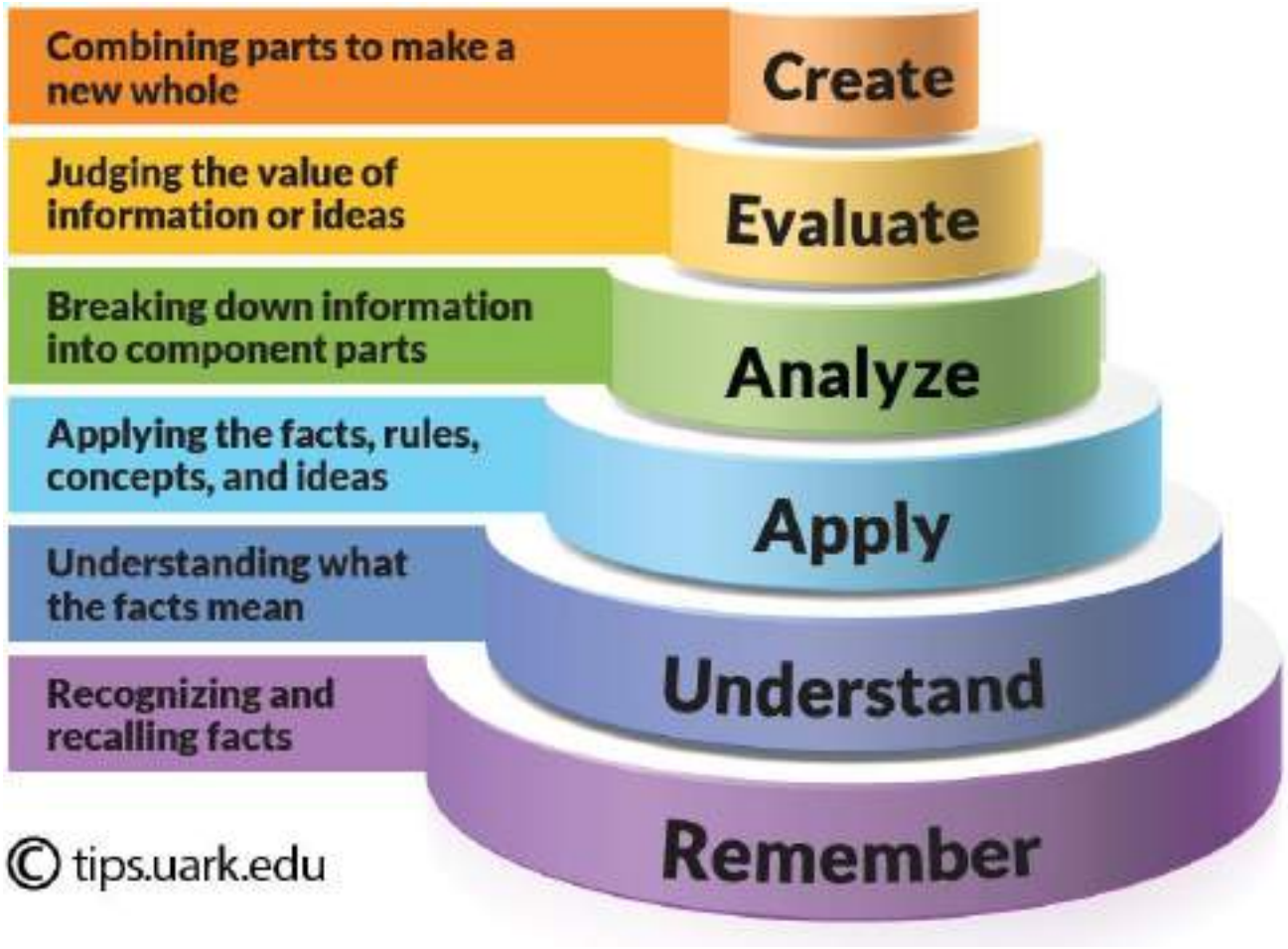

R.E.A.L. as a pedagogy

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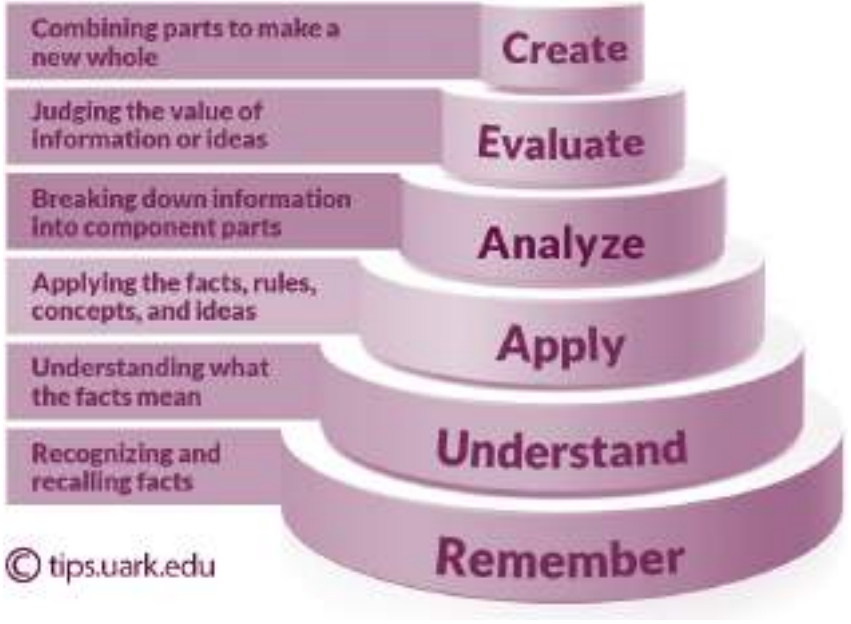
- **R** – Re-cap & Remind



R.E.A.L. as a pedagogy

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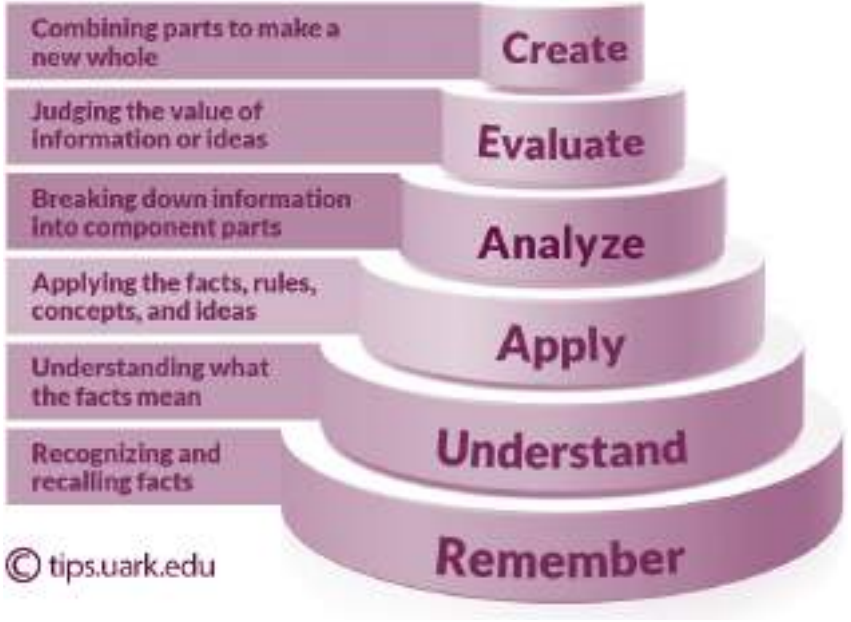
- **R** – Re-cap & Remind
- **E** – Economics Everyday



R.E.A.L. as a pedagogy

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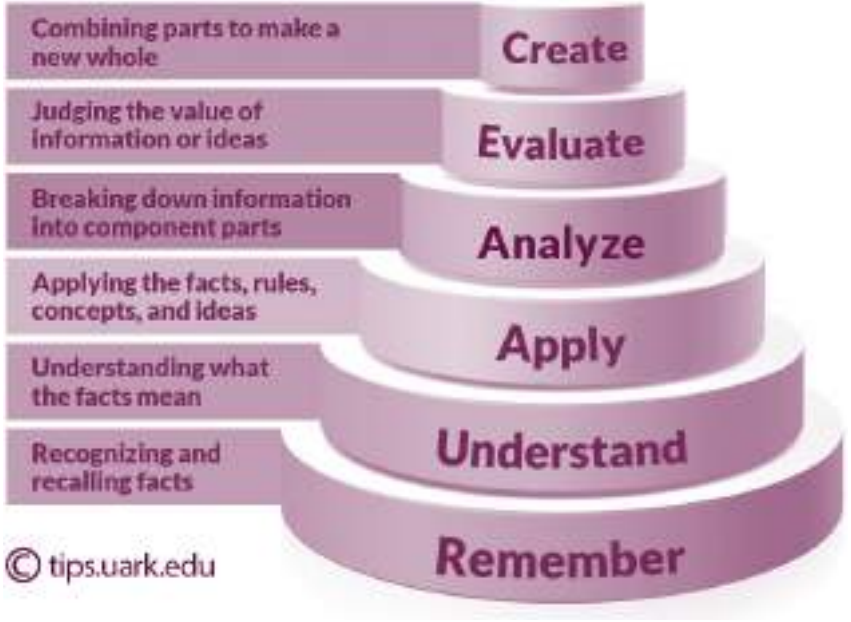
- **R** – Re-cap & Remind
- **E** – Economics Everyday
- **A** – Application & Awareness



R.E.A.L. as a pedagogy

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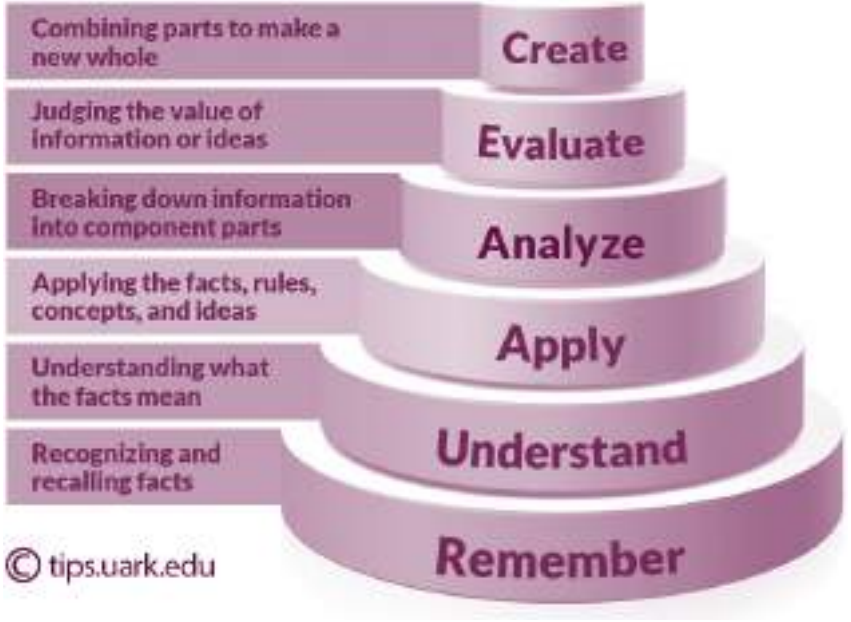
- **R** – Re-cap & Remind
- **E** – Economics Everyday
- **A** – Application & Awareness
- **L** – Learning
  Life Lessons



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R.E.A.L. lessons

TWO EXAMPLES

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A R.E.A.L. lesson – Example #1

EFFICIENCY, MARKET FAILURE, GOVERNMENT ACTIONS, AND THE ENVIRONMENT

Why New Zealand is granting a river the same rights as a citizen

Tuesday 6 September 2016 2:53PM

Kathleen Calderwood

Sunday 7:00am
Repeated: Monday 2am

Presented by Hugh Riminto

Supporting Teaching Materials – A connected learning journey through a purposefully designed tutorial activity.

MICROECONOMIC PRINCIPLES

Tutorial Questions and Solutions

Topic: Government Actions in Markets
Externalities

The Economics Threshold Concepts engaged in this topic:

- Welfare & Efficiency

The threshold concept that is engaged is explicitly mapped to the weekly content.

ECONOMICS IS

R – RE-CAP & REMIND
E – ECONOMICS EVERYDAY
A – APPLICATION & AWARENESS
L – LEARNING LIFE LESSONS

Bloom's taxonomy is adapted to economics in a memorable way. Each tutorial question is based on this taxonomy, and the question progression encourages a transformation of the student and focuses on the 'how' of learning.

APPLYING ECONOMICS TO EVERYDAY LIFE SITUATIONS LIKE:

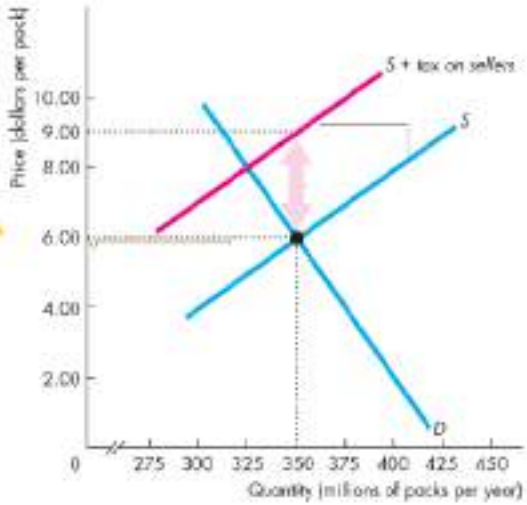
Budget 2016-17

Explicit mention and explicit use of real-time and relevant examples to engage the student – drawing attention to the 'why' of learning.

Re-cap & Remind

Per unit taxes are known as excise taxes under ATO terminology. One product category that attracts excise taxes in Australia is the product category of cigarettes. Consider one such situation below:

Basic revision of lecture content and key concepts.



a) According to the diagram on the previous page, what is the equilibrium price and quantity before tax? How much is the government tax on cigarettes? How much tax revenue does the government collect?

b) What price do producers receive and what price to consumers pay after tax? Calculate the tax incidence (burden) borne by producers and consumers.

c) Show how both consumers and producers both carry a burden from such a tax.

d) What will determine the overall burden of the tax?

e) Is the tax efficient? Explain.

f) When can such a tax be efficient? Explain.

g) Show that the incidence (burden) would have been exactly the same, had the per-unit tax been imposed on buyers instead.

Key concepts to be noted are highlighted and woven into questions.

Solutions

Colour coded files – with solutions in blue.

The tax equals $1.25. This is the vertical distance between the two supply curves.
Tax revenue = $1.25 x 18 billion = $22.5 billion.
Producers receive $2.80 from consumers but keep only $1.55 after paying the tax to the government.

The incidence of the tax is $0.29 on the producers and $1 dollar on the consumers

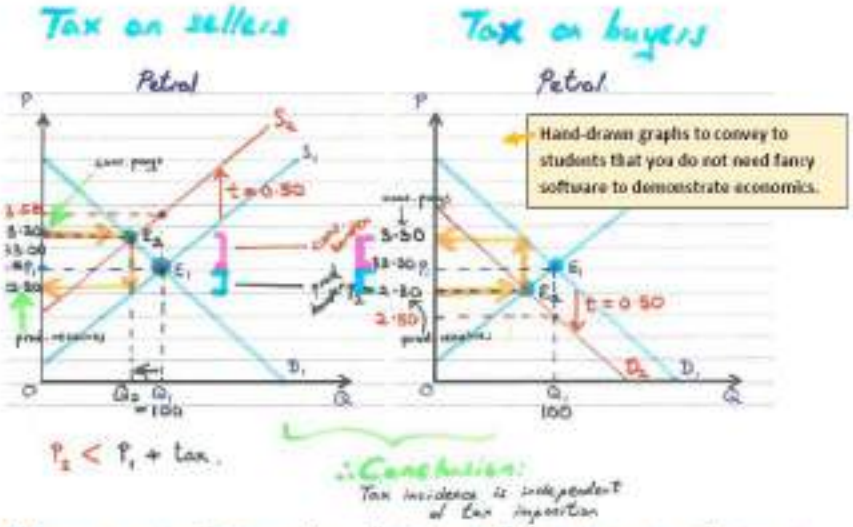
In general, the imposition of a tax on a market causes a wedge to be driven between the price received by the seller and the price paid by the buyer. This causes the marginal social benefit from the last unit sold to be higher than its marginal social cost, and the market will under-produce the good or service being taxed. If more of the good or service were produced, the marginal social benefit gained would be greater than the marginal social cost incurred, and the net benefit to society would increase. (Identify the area of DWL in the graph above and calculate it).

There are TWO ways a tax could be efficient:

1. *When externalities are not present in the first place – A tax is efficient, that is, creates no deadweight loss, when demand is perfectly inelastic or supply is perfectly inelastic. In both these cases a tax does not change the quantity produced and so creates no deadweight loss.*
2. *When externalities are present in the first place – A tax could take the market from an inefficient equilibrium to an allocatively efficient point.*

Thus – please note that:

If there are no externality issues, the market is already allocatively efficient – thus a tax (or any government intervention for that matter) will create inefficiency.



If there are no externality issues, the market is already efficient – thus a tax will not create inefficiency if the demand and/or supply curves are perfectly inelastic.

If there are externality issues, the market is not allocatively efficient to begin with, and thus a tax could make the market more allocatively efficient.

On the 3rd of May 2016, the Federal Treasurer, Scott Morrison, announced the Federal Budget for the 2016-17 financial year.

As is usual in any federal budget, the treasurer announced various changes to taxes and subsidies.

Explicit attention and signposting of current economic events – highlighting the 'why' of learning.

ECONOMICS EVERYDAY

One proposition in the new federal budget is an increase in the tax on cigarettes.

Assume that the tax is a per-unit tax.

For the aforementioned cigarette tax:

a) Who is it logistically more practical to impose such a tax on and why?

b) From the budget's point of view, why would a tax hike for cigarettes make sense?

c) From a social point of view, why would a tax increase on cigarettes make sense?

d) Is the budget proposal more likely to be effective for (b) or (c)?

Visual cues to give students a sense of familiarity as well as importance of economics.

What determines the size of the burden (incidence)?

$\therefore \downarrow \varepsilon_D \rightarrow$ cons. burden ↑

$\therefore \downarrow \varepsilon_S \rightarrow$ prod. burden ↑

Visual cues to link mathematics with theory and its application.

Solutions

The government will choose to impose the tax on the buyer or the seller due to either political concerns or logistical constraints (because as we've proved above, the incidence (burden) is independent of who the tax is actually imposed on). It would be logistically and practically easier to impose it on sellers rather than the buyers.

From a budget point of view – a tax hike on cigarettes makes sense – inelastic demand, small change in Q – therefore a large increase in government revenue.

From a social point of view – a tax hike on cigarettes makes sense – discourages consumption, health issues, etc.

This is a good question to create a small group discussion. I would say the budget view is more effective than the social view because in the end demand is relatively inelastic. But, there is some research to prove otherwise. We encourage a debate in class, and see how this debate goes!

Visual cues to make students realise that economics is everywhere – why they are learning.

Application & Awareness

Assume that the consumption of re-usable shopping bags creates a positive externality for third parties / by-standers because of the reduced negative impact on the environment.

a) Draw a demand and supply diagram that exhibits this externality using the steps for questions on externalities on the following page.

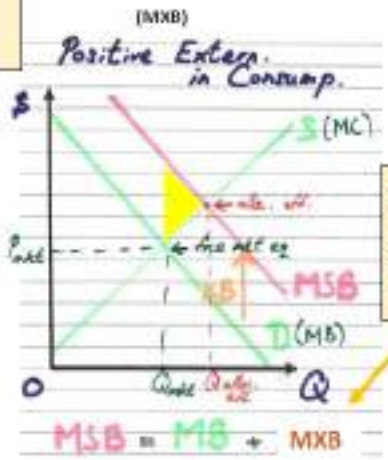
b) What are some solutions to address this market failure?

c) Are such solutions allocatively efficient?

Steps for answering questions on externalities:

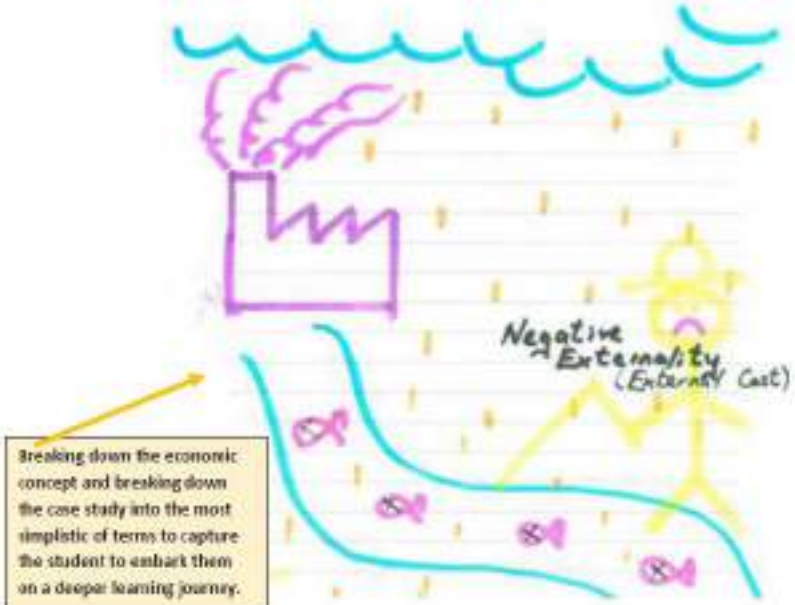
1. Start with a demand and supply diagram at equilibrium at E1 – this is the unregulated market equilibrium.
2. Identify which party is causing the externality – you have to shift this curve.
3. Determine whether you shift this curve in #2 up or down.
4. Draw the new curve, and label this curve Marginal Social Cost (if you shift S) or Marginal Social Benefit (if you shift D).
5. Construct an equation to reflect this shift: MS_ = __ +/- __
6. Label the new intersection the 'social optimum' / 'allocatively efficient' point.
7. Note whether the unregulated equilibrium is over-production or under-production.
8. Mark the deadweight loss, based on your answer to #6.

Step-by-step guidance on how to tackle any question on this topic – guiding student on how to learn.



Making the visual connection using graphs and colour-coding with mathematics – to assist students with a weak mathematical background

This is a great article for a life lesson and to create a discussion – the article is interesting because the theorem works regardless of who owns the river. For example below:



Breaking down the economic concept and breaking down the case study into the most simplistic of terms to capture the student to embark them on a deeper learning journey.

The Coase theorem would work regardless of who had a property right for the river. If the fisherman owned the river, the polluting firm would have to either not pollute or compensate him/her for polluting the river, for fear of being sued by the fisherman. If the firm owned the river, the fisherman would have to pay the firm to not pollute the river (which the fisherman would, so long as the MB of fishing outweighed the MC of paying the firm to not pollute). In either case, the externality becomes internalized.

The article is interesting because it is a proposition not discussed in the traditional first year textbook, where the proposal is that the river becomes a legal person and has a property right for itself – it can represent itself (or be represented) in a court and then sue those that infringe on its property rights.

Other Solutions

- *Taxes*
- *Emission charges – Australia: "carbon tax"*
- *Marketable permits – Australia: "emissions trading scheme"*

Linking the formal discipline terminology to the contemporary terminology of the Australian context.

If there are no externality issues, the market is already allocatively efficient – thus a subsidy (or any government intervention for that matter) will create inefficiency.

If there are no externality issues, the market is already efficient – thus a subsidy will not create inefficiency if the demand and / or supply curves are perfectly inelastic.

If there are externality issues, the market is not allocatively efficient to begin with, and thus a subsidy could make the market (more) allocatively efficient.

LEARNING LIFE LESSONS

The progression through: *R, E, A*, and then onto *L*, transfers the 'how' of learning, especially for deeper, evaluative and critical learning.

Visual cues to help students realise that economics is not restricted to the world of business, but that economics is everywhere – why they are learning.

a) What are property rights?

b) What is the Coase Theorem?

c) Read the article below and explain how the Coase Theorem can be applied to this case – to show how a market failure can be avoided / corrected.

d) What are some other possible solutions?

External links to reputable news sources such as the ABC to further engage students with economics.

http://www.abc.net.au/radionational/programs/sundayextra/new-zealand-granting-rivers-and-forests-same-rights-as-citizens/7816456

- *Property Rights*
  - *Sometimes externalities arise because of the absence of property rights.*
  - *Property rights are legally established titles to the ownership, use, and disposal of factors of production and goods and services that are enforceable in the courts.*
- *The Coase Theorem*
  - *The Coase theorem is a proposition that if property rights exist, only a small number of parties are involved, and transactions costs (defined below) are low, then private transactions are efficient.*
  - *There are no externalities because all parties take into account the externalities involved.*
  - *The outcome is independent of who has the property rights.*

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A R.E.A.L. lesson – Example #2

MARGINAL ANALYSIS, SPECIALISATION, COMPARATIVE ADVANTAGE, AND INTERNATIONAL TRADE

Brexit: All you need to know about the UK leaving the EU

By Brian Wheeler & Paul Seddon & Richard Morris
Political reporter

10 May 2019

Share

Brexit

Top Stories

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A symbolic vote denounces Mr Trump's comments about four congresswomen, widely seen as racist.
2 hours ago

The surprising thing about America's migrant past
7 hours ago

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3 hours ago

Features

MICROECONOMIC PRINCIPLES

Topics: Specialisation I – Comparative Advantage

Specialisation II – Division of Labour

The Economics Threshold Concepts engaged in this topic:

- Marginal Analysis
- Comparative Advantage

RE-CAP & REMIND

This topic engages the economics threshold concept of ECONOMIC MODELS where our models are usually 2D graphs. Differentiate between a graph that shows a value that is increasing at an increasing rate from a graph that shows a value that is increasing at a decreasing rate. As we move away from the origin, what is happening to the slope of the graph in each of these two scenarios?

See the solutions incorporated below.

ECONOMICS EVERYDAY

This topic engages the economics threshold concept of MARGINAL ANALYSIS.

Watch the following video: https://youtu.be/0wIfx-spPeI

Complete the following table based on what you observe in the video:

Labour (L)	Quantity (Q) also known as Total Product (TP)	Marginal Product (MP)
0	0	
1	4	4
2	8	4
3	13	5
4	17	4
5	18	1
6	18	0
7	16	-2

i. Draw a large, labelled and accurate graph of the total product (TP) for the table above, with labour (L) on the x-axis and output (Q) on the y-axis.

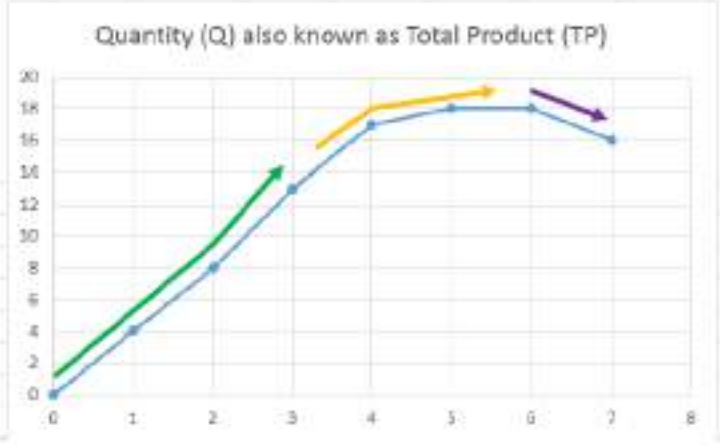
ii. Draw a large, labelled and accurate graph of the marginal product (MP) for the table above, with labour (L) on the x-axis and marginal product (MP) on the y-axis.

iii. Explain the connection between **Total Product (TP)** and **Marginal Product (MP)**.

iv. Describe what is happening to the output between the 2nd worker and the 3rd worker being added to the production line. Why is this happening?

v. Describe what is happening to the output between the 3rd worker and the 5th worker being added to the production line. Why is this happening?

vi. Describe what is happening to the output between the 5th worker and the 7th worker being added to the production line. Why is this happening?



MP = ΔQ / ΔL = slope of TP since

Slope = rise / run = vertical Δ / horizontal Δ = ΔQ / ΔL

Section I – TP is increasing at an increasing rate. The slope = MP is increasing.

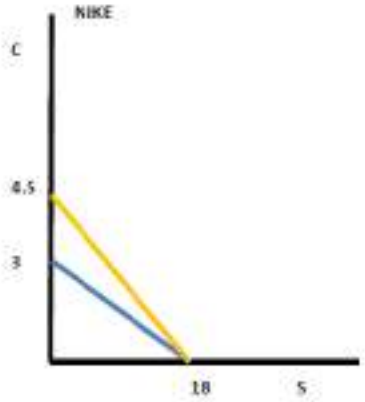
Section II – TP is increasing at a decreasing rate. The slope = MP is decreasing.

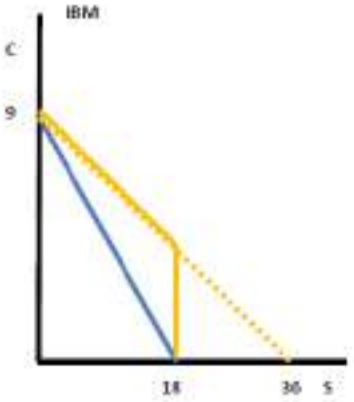
Section III – TP is decreasing. The slope = MP is negative.

Application & Awareness

Assume that there are two companies: Nike and IBM. These two firms can only produce two goods: shoes (S) or computers (C). Using all their resources, Nike is able to produce the number of shoes indicated by the output of the 5 workers in the video, or Nike can use all their resources to produce 3 units of computers. Using all their resources, IBM is able to produce the same number of shoes as Nike, or IBM can use all their resources to produce 9 units of computers.

a) Draw graphs of each company's linear PPF with shoes (S) on the horizontal axis and computers (C) on the vertical axis.
b) Using this example, differentiate between **absolute advantage** and **comparative advantage**.
c) Based on your answer, who should specialize in the production of shoes and who should specialize in the production of computers? Explain why.
d) Now assume that the two companies trade. What would be an agreeable rate of exchange, known as the **terms of trade**? Explain why.
e) Use your terms of trade to draw the PPF after trade known as the **Consumption Possibilities Frontier (CPF)** and thus show the **gains from trade**.





BLUE = PPF
ORANGE = Trade Line (dashed) and CPF (thick)

Absolute Advantage: the ability to produce more than another.
IBM has an absolute advantage in the production of computers (C).
Neither has an absolute advantage in the production of shoes (S).

Comparative Advantage: the ability to produce at a lower opportunity cost.

Computers
NIKE
3C = 18 S
1C = 6S

IBM
9C = 18S
1C = 2S

Therefore, IBM has a comparative advantage in the production of computers

Shoes
NIKE
18 S = 3C
1S = 1/6 S

IBM
18S = 9C
1S = ½ C

Therefore, Nike has a comparative advantage in the production of shoes.

Therefore, Nike should specialize in the production of shoes, and IBM should specialize in the production of computers.

The agreeable rate of exchange has to be one that is mutually beneficial to both countries. This price is in between the two countries' opportunity costs:

2S < Price of C < 8S, e.g.: 1C = 4S
1/6 C < Price of S < ½ C, e.g.: 2S = ¾ C

This price is known as the TERMS OF TRADE. The price can be anything that satisfied the inequality and would depend on each agent's relative bargaining power. Another possible example for a valid terms of trade could be:
1C = 5S and therefore 1S = 1/5 C (Both countries still benefit from trade, but these T.o.T. are preferred by IBM than the previous one – can you see why?)

To get the trade line follow this important step:
Value what each country has produced according to the TERMS OF TRADE.
Nike has produced 18 shoes (S). Now, the terms of trade state that 1S = ¼ C, therefore 18 S = 4.5 C, this gives us the vertical intercept for the trade line.

IBM has produced 9 computers (C). Now, the terms of trade state that 1C = 4S, therefore 9C = 36 S, this gives us the horizontal intercept for the trade line.

To convert the dashed line (trade line) to a CPF (thick line), see if the trading partner actually has the amount indicated by the intercept. For example, the vertical intercept for Nike is 4.5 C, and IBM produces a maximum of 9 C, and thus, 4.5 C is possible and therefore the entire line becomes the CPF. However, the horizontal intercept for IBM is 36 S, and Nike produces a maximum of 18 S, and thus, only 18 S is possible, and therefore trade along the trade line will cease at this amount, giving a kinked CPF.

Both countries have gained from trade as their CPFs post-trade are greater than their PPFs pre-trade.

LEARNING LIFE LESSONS

You may have been following the news in June, 2016 about The United Kingdom voting to leave the European Union. The European Union is a political and economic union of 28 member European states. This debate and the eventual decision by The United Kingdom to leave the EU has been termed by the popular media as "Brexit". If you are unfamiliar with this piece of current affairs about "Brexit", please see the appendix to this set of questions.

a) Utilise your knowledge of comparative advantage & trade as well as your answer to the Application & Awareness question to explain one of the economic rationales behind the formation of the European Union. Likewise what economic rationale is there for Australia to sign Free Trade Agreements with South Korea, Japan and China in recent years?

b) What conditions must be met for such gains from trade to be as extensive as the model implies?

c) Using your answer to (a) and (b) explain why it could be envisaged that there are voters who would vote in favour of The United Kingdom leaving the European Union.

This question is deliberately placed to encourage class discussion based around a contemporary issue which has featured heavily on the news / media – to show that what teach is directly applicable to the real world and that there are ways to question what economic models do tell us. The motivation is not to convince students which argument is correct – but to present both sides of the argument and let them critically decide. There are more answers than the ones outlined below, these would have been discussed in class.

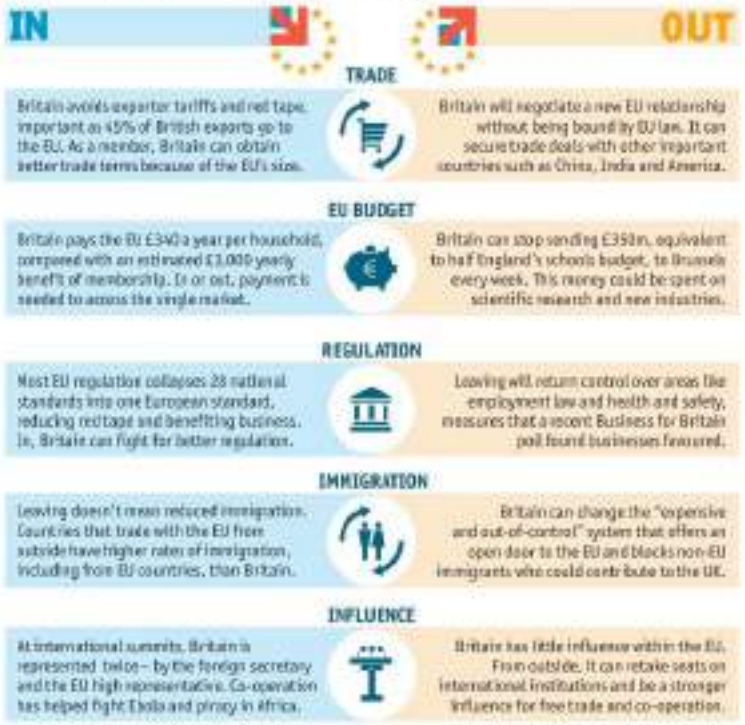
Countries gain from trade as their CPFs post-trade are greater than their PPFs pre-trade.

The conditions for the gains to be as extensive as the model implies are:
. The transaction and transportation costs have to be very low.
. The quality of the goods is assumed to identical. If the qualities are not identical, gains are still possible, but not as extensive as the model implies

Some industries lose in the short run – think about the computer workers in Nike and the shoe workers in IBM if Nike and IBM were two different countries. The short term loss needs to be supplemented by government microeconomic policy to retrain workers for the industry that the

The debate

Arguments for and against Brexit, according to the main campaigns



Sources: Britain Stronger In Europe; Vote Leave

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Final Exam

SEEN CASE STUDIES

Assessments *for* Learning

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SEEN CASE STUDIES

THINK LIKE AN ECONOMIST, ASK THE RIGHT QUESTIONS AND "GUESS" TWO OF THE 5 EXAM QUESTIONS!

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Assessing the Curriculum #1 – Student Learning Experience

Survey Questions

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Question Code	Survey statement
CRU05	The unit **content was organised** in ways that **assisted my learning**.
CRU06	**Teaching sessions** (face-to-face and/or online) kept me **engaged** in the unit.
CRU07	The unit's **learning activities** (e.g. assessments, in-class or online discussions and exercises) were **effective in developing my understanding**.
CRU11	This unit contributed to my **development** of one or more of the MQ **graduate capabilities**.
CRU12	This unit **challenged me intellectually**.

Student Average Responses

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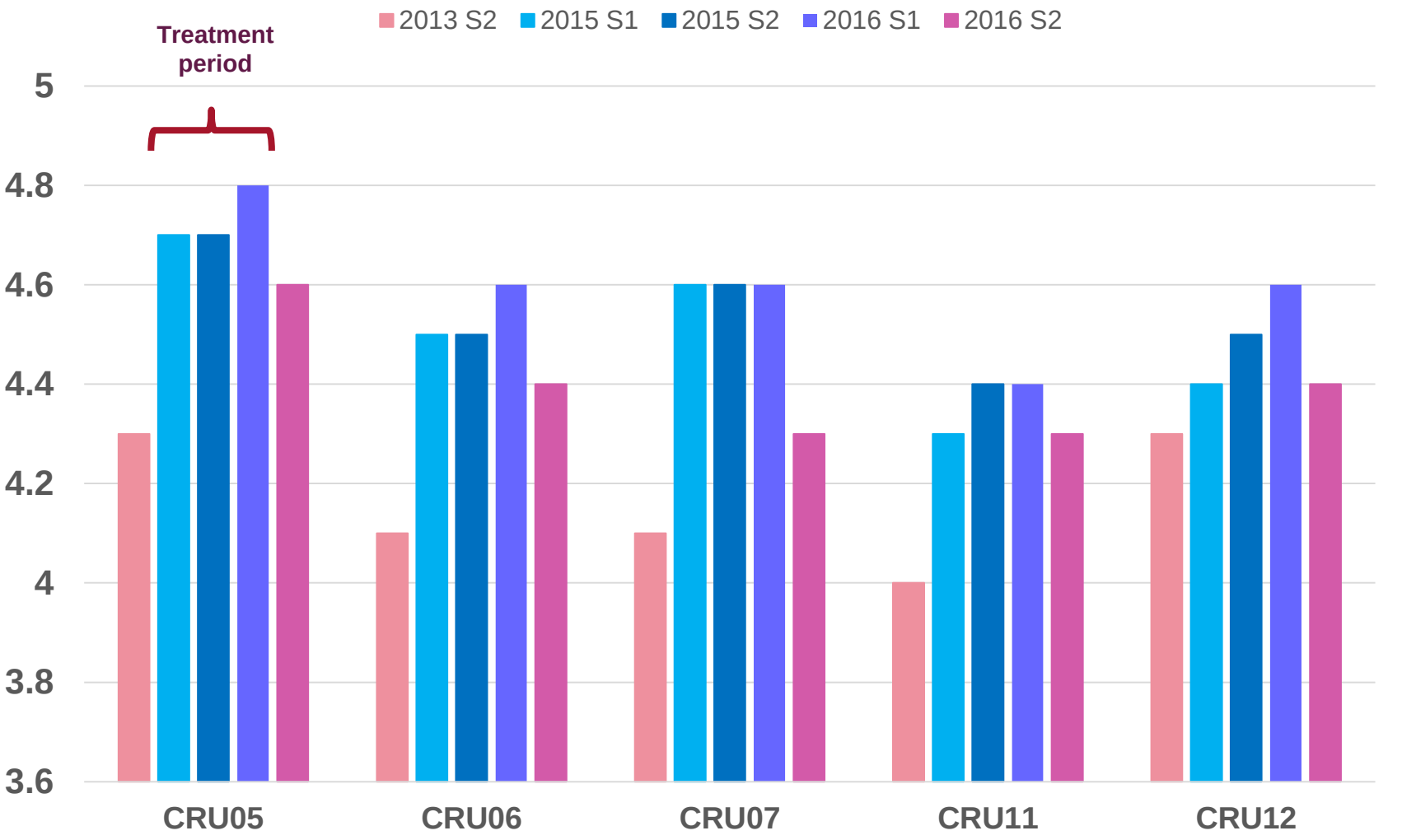
Treatment period

Question	2013 S2	2015 S1	2015 S2	2016 S1	2016 S2
CRU05	4.3	4.7	4.7	4.8	4.6
CRU06	4.1	4.5	4.5	4.6	4.4
CRU07	4.1	4.6	4.6	4.6	4.3
CRU11	4.0	4.3	4.4	4.4	4.3
CRU12	4.3	4.4	4.5	4.6	4.4

Student Experience Surveys



Two sample t-tests

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Question	2015 S2	2015 S1	2013 S2	t statistic	p-value
CRU05	4.7	4.7	4.3	9.379	0.000
CRU06	4.5	4.5	4.1	7.919	0.000
CRU07	4.6	4.6	4.1	8.892	0.000
CRU11	4.4	4.3	4.0	7.882	0.000
CRU12	4.5	4.4	4.3	4.969	0.000

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Assessing the Curriculum #2 – Student Learning Outcomes

Student Grade Descriptors

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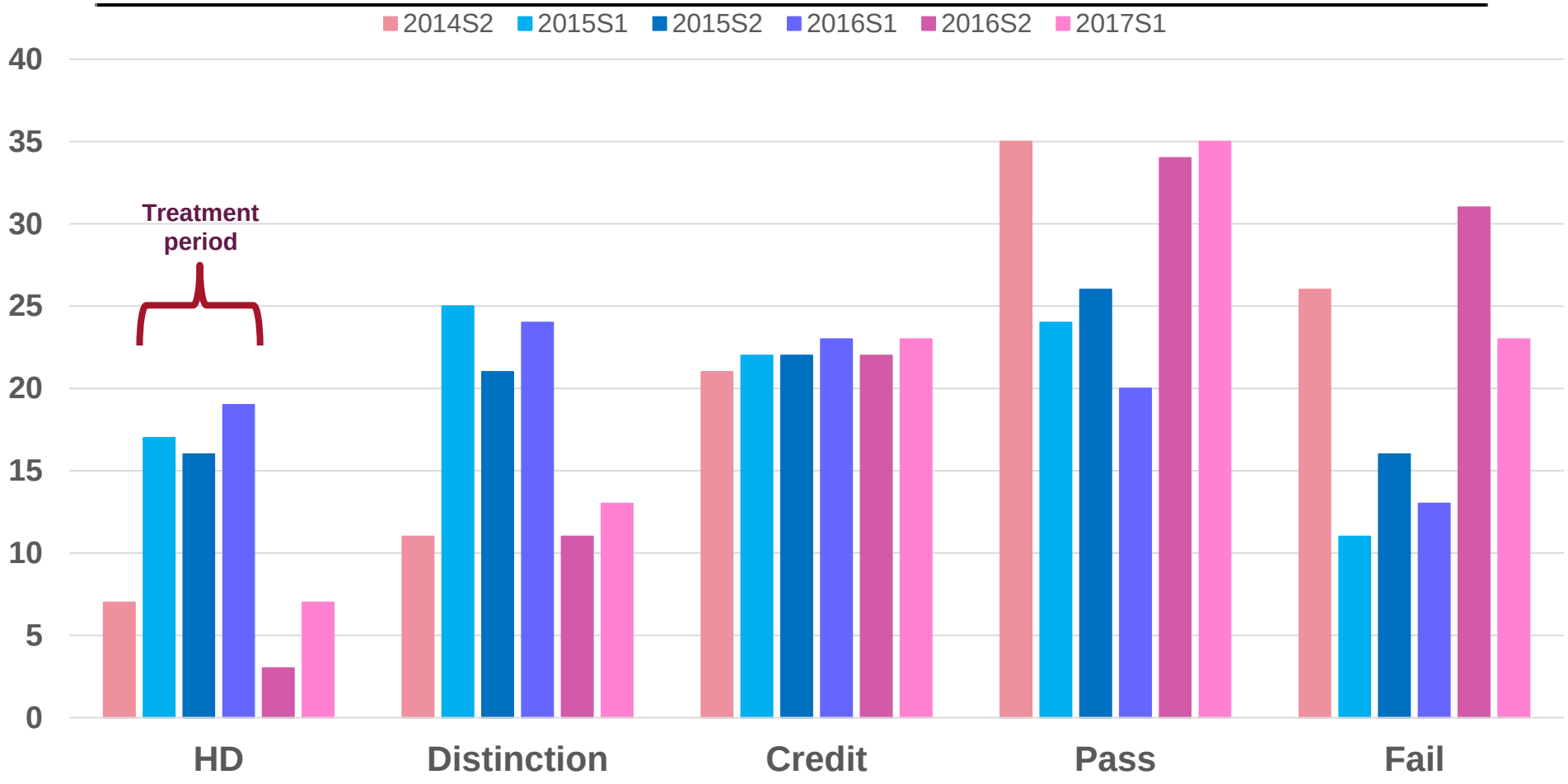
Grade name	Letter grade	Standardised Numerical Grade range
High Distinction	HD	85 – 100
Distinction	D	75 – 84
Credit	Cr	65 – 74
Pass	P	50 – 64
Fail	F	0 – 49
Fail Absent	FA	
Fail Withdrawn	FW	

Grade Distribution 2014 S2 - 2017 S1



Z-test of proportions

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	Percentage Change	Z statistic	p-value
HD	50.9	4.397	0.000
D	29.5	3.609	0.000
Cr	1.3	0.203	0.419
P	-10.2	-1.802	0.036
F	-47.2	-5.993	0.000
FA	-16.3	-1.387	0.083
FW	-49.5	-2.510	0.006
FAILS	-37.6	-6.277	0.000

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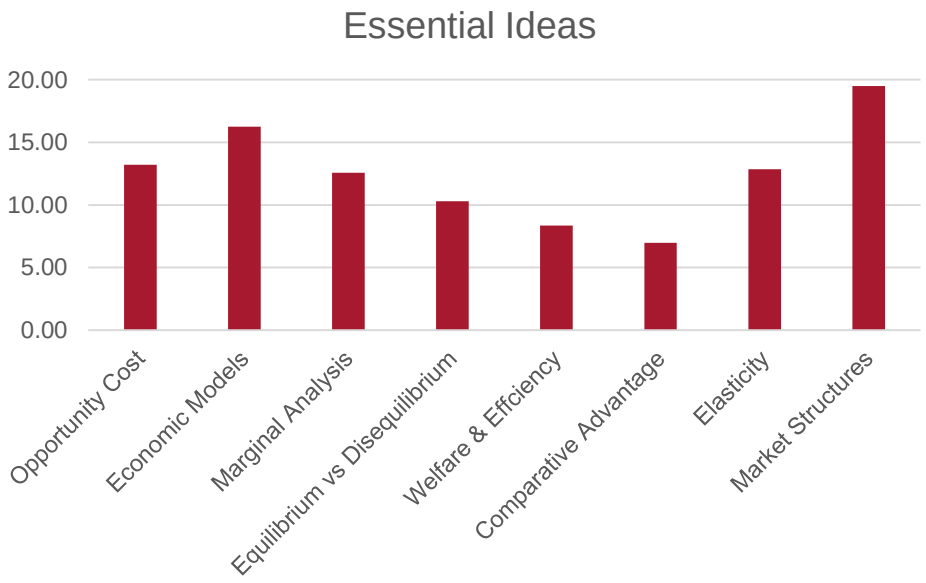
Assessing the Curriculum #3 – The Student Voice

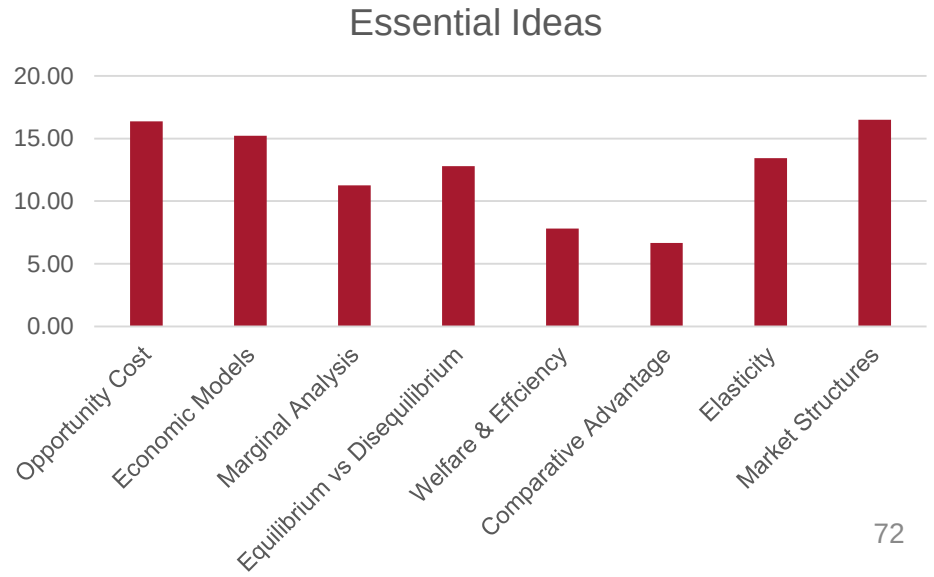
The Student Voice

WHAT IDEAS ARE ESSENTIAL? (%)



Re-sequenced Curriculum

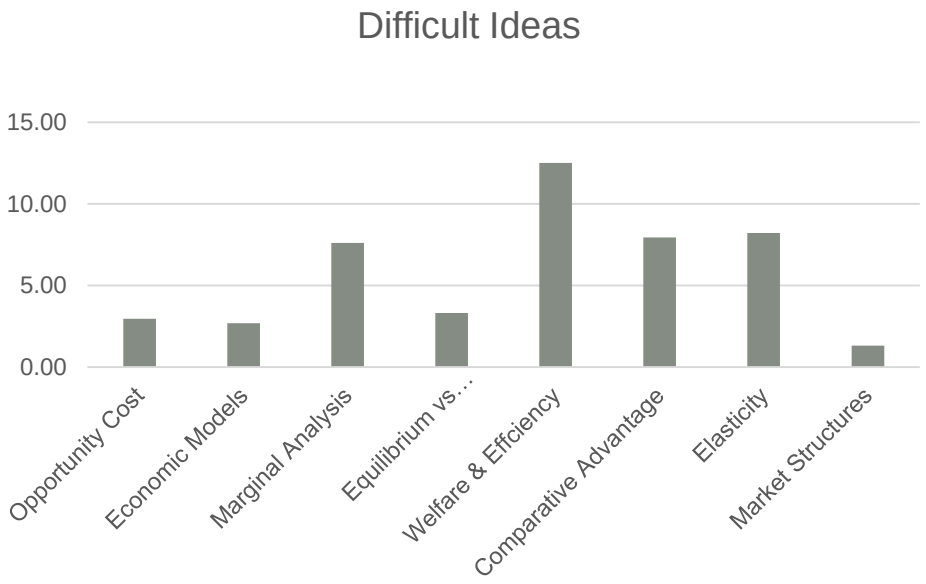
Traditional Curriculum



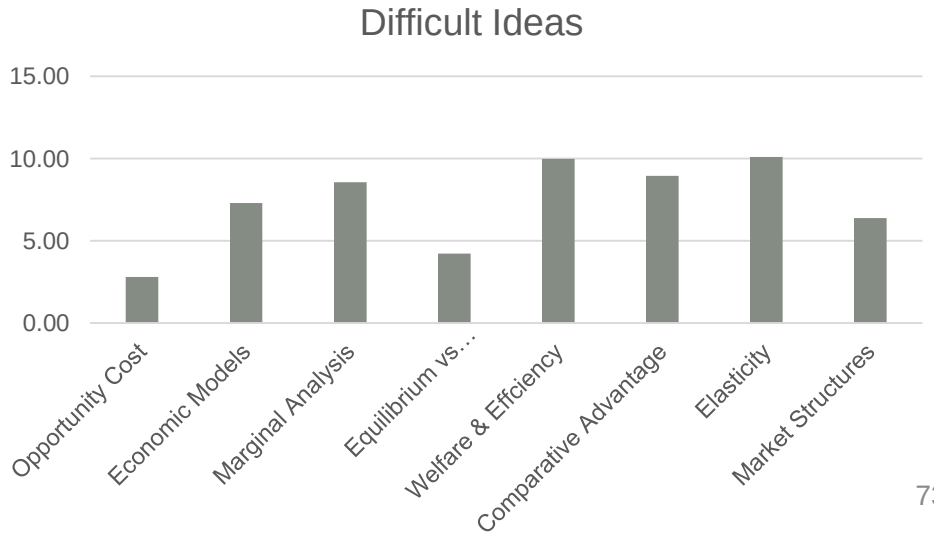
The Student Voice

WHAT IDEAS ARE DIFFICULT TO LEARN? (%)

Re-sequenced Curriculum



Traditional Curriculum



The Experience & Outcomes

- An improvement in the **student learning experience** indicated by the LEU results

- An improvement in **student learning outcomes** indicated by the improved grade distribution.

Summary

- More organised in a way that promotes student learning
- Offers face-to-face sessions that are more engaging
- Has assessments that are more effective in developing student understanding
- Contributes more to the development of their graduate capabilities
- The course is more intellectually challenging.

Published

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Citation – Published Chapter

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Karunaratne, P., Breyer, Y. and Wood, L. (2016), "Transforming the economics curriculum by integrating threshold concepts", *Education + Training*, Vol. 58 No. 5, pp. 492-509. https://doi.org/10.1108/ET-02-2016-0041

PhD Thesis

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http://www.researchonline.mq.edu.au/vital/access/manager/Repository/mq:70964?queryType=vitalDismax&query=prashan

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Awards

Received

- **2017 – VC's Award – Teaching Excellence**
- **2017 – VC's Award – Student Nominated**

Received

- **2018 – VC's Award – Programs that Enhance Learning**

Received

- **2019 – MQBS Award – Teaching Excellence**
- **2019 – MQBS Award – Educational Leader**