UNIT 1

ANSWERS TO EXERCISES

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EXERCISE 1.1 INEQUALITY IN THE FOURTEENTH CENTURY

What do you think a 'skyscraper' figure like Figure 1.2 (page 24) would have looked like at the time of Ib'n Battuta?

Introduction

This question asks students to comment on historical data on world inequality across countries at around 1350.

Answer

Inequality within a country always existed. Around 1350, relative differences among the deciles within countries may have been similar to today, but differences between countries were much less (look at Figures 1a and 1b). The 'climb' from poor to rich deciles within a country (from the front to the back of the figure) would have been about as steep as today, but the ascent from the poor to the rich countries (from the left to the right in the figure) would have been much flatter.

Marking guidance

Good answers explain the income distribution around 1300 in words, and then suggest how this difference translates into the skyscraper graph as suggested above. Students may also sketch the graph for clarification.

Teaching ideas

This can either be a short question, asked during a lecture, or lead to a longer discussion on the history of income inequality. In a lecture, the question could be dealt with in a think-pair-share exercise, where each student sketches the skyscraper graph, compares the graph with a partner. They discuss the intuition behind their sketches, and then share their ideas with the whole group. In a longer discussion, instructors could relate to historical literature on income inequality.

- A recent VoxEU article might be a good starting point for further discussion: Alfani, Guido, 2017. The top rich in Europe in the long run of history (1300 to present day), *VoxEU.org*, 17 January. (http://tinyco.re/8450032)

EXERCISE 1.2 WORKING WITH INCOME DATA

You can download the spreadsheet data that we used to create Figure 1.2. Choose five countries that you are interested in.

1. For each one calculate the 90/10 ratio in 1980, 1990 and 2014.
2. Describe the differences between countries and the changes over time that you find.
3. Can you think of any explanations for them?

EXERCISE ANSWERS UNIT 1

Introduction

The main aim of this question is to show students how to work with income data and the 90/10 ratio inequality measure. The questions are a self-led mini research exercise. Students can follow their own interests and do some independent research on the economic performance of some countries of their choice.

Answer

We chose Bangladesh, Canada, Ethiopia, Germany, and Sweden as an example.

Country	Year	90/10 ratio
Bangladesh	1980	8.00
	1990	12.06
	2014	17.69
Canada	1980	8.99
	1990	7.93
	2014	9.24
Ethiopia	1980	33.89
	1990	29.36
	2014	44.97
Germany	1980	5.61
	1990	6.54
	2014	7.31
Sweden	1980	4.89
	1990	5.00
	2014	6.28

Inequality in 2014 was higher than in 1980 and 1990 in all countries. It high in the two low-income countries (Bangladesh and especially Ethiopia). In both countries, this may indicate that economic growth may have benefited different parts of society in different ways. Canada, Germany and Sweden look similar, with Sweden having lowest inequality when measured by the 90/10 ratio. Students may use historical events to suggest possible explanations for this evolution, but should be careful to not suggest causality.

Marking guidance

For a good answer, students should correctly calculate the 90/10 ratio, and briefly define it. There should be some explanation about the evolution of inequality in the chosen countries. Finally, some attempt should be made to find out about historical events that hint at an explanation for patterns and trends.

Teaching ideas

Instructors could use this question as a small research project, a topic for an essay, or for discussion in small group seminars. The lecturer might decide which countries students should look at, and teach the session using them, but it may be more interesting to give students some freedom when answering this question. Students could print their prepared graphs and bring them to the seminar. In group work, students could compare their graphs and discuss the evolution of income inequality in their chosen countries based on historical events and policy. This is also a good opportunity to emphasize the difference

between correlation and causation.

EXERCISE 1.3 WHAT SHOULD WE MEASURE?

While campaigning for the US presidency on 18 March 1968, Senator Robert Kennedy gave a famous speech questioning 'the mere accumulation of material things' in American society, and why, among other things, air pollution, cigarette advertising and jails were counted when the US measured its living standards, but health, education or devotion to your country were not. He argued that 'it measures everything, in short, except that which makes life worthwhile.'

Read his speech in full (http://tinyco.re/9533853) or listen to a sound recording (http://tinyco.re/6486668) of it.

1. In the full text, which goods does he list as being included in a measure of GDP?
2. Do you think these should be included in such a measure, and why?
3. Which goods does he list in the full text as missing from the measure?
4. Do you think they should be included, and why?

Introduction

This question focuses on the components of GDP and discusses whether GDP is an appropriate measure for living standards in a country.

Answer

1. Kennedy states that GDP counts things such as: pollution, cigarette advertising, ambulances, locks, jails, forest destruction, weapons such as napalm and nuclear warheads as well as entertainment such as television programs, including those which glorify violence in order to sell toys to children. He is asking if these really do add to the wellbeing of the people of a country.
2. Many of the things Kennedy mentions are manufactured goods. Such goods make up a considerable share of GDP in most countries. However, such goods may come with a negative impact on society (like pollution resulting from their production or use), which is typically not measured (such negative so-called external effects are introduced in unit 12). So the question may not only be what IS measured (that Kennedy thought should not be) but also what IS NOT measured (that he thought should be).
3. Kennedy states that GDP does not include things like children's health, the quality of education, or the joy children experience when they play.
4. These are all the things that Kennedy feels make (should make) US citizens 'proud to be American'. Although such aspects are of great benefit and promote the development of a more just and fair society for all, they cannot be as easily quantified in monetary terms.

This question invites students to reflect on the usefulness of GDP and to come up with their own ideas about how to account for goods and services which are

not traded in markets, and so do not have prices with which we can add them up.

Marking guidance

A good answer would make a list of all the items Kennedy mentions, categorise the items (things that are hard to measure, things that are 'bad for you' and so on), point out that some items are in more than one of these categories, and discuss how goods and services not traded in markets might be included in GDP.

Teaching ideas

Lecturers may want to ask students to start from a blank canvas and think about what comes to mind when a country is defined as 'rich'. Make a list of what everyone thinks, then compare this list to a list of what is included in the GDP measure of the student's own country. One could go through any differences in the two lists and ask students to justify the inclusion or exclusion of items.

Another way to extend the discussion is to check what has been included in GDP measures over time, and how the changes might be justified. An extended project could ask students to gather data on things they could include in GDP measures and see how country rankings would change.

- One could also ask students to create their own index using the OECD Better Life Index (http://tinyco.re/2887644).

EXERCISE 1.4 THE ADVANTAGES OF RATIO SCALES

Figure 1.1a (page 22) used a conventional scale for the vertical axis, and Figure 1.1b (page 32) used a ratio scale. Use one or the other of the figures to answer the following questions.

1. For Britain, identify a period of time when its growth rate was increasing and another period in which its growth rate was roughly constant. Which figure did you use, and why?
2. Identify a period during which GDP per capita was shrinking (a negative growth rate) faster than in India. Which figure did you use and why?

Introduction

This question introduces students to the ratio scale and explores in which circumstances it may be more beneficial to use.

Answer

In Figure 1b you can see that Britain's growth rate was increasing between 1700 and 1900 (the red series becomes steeper), and roughly constant after that (the red series is a straight line). A negative growth rate would be indicated in both Figure 1a and 1b by a downward-sloping line, and in 1b you can easily see that from around 1600 until around 1900, in China, income per capita was shrinking faster than in India (its line is more steeply downward-sloping).

Marking guidance

A good answer would correctly read the data from the graph, compare the growth rates by referring to the steepness of the lines. Good answers should

clearly point out the difference between ratio and conventional scale, and how this relates to growth rates.

Teaching ideas

You may ask students to concentrate on one of the countries and describe how the level of income and growth rate of income evolved. Then ask them to create graphs for this country, research historical events (like wars, famines, political changes), and describe how such historical events may have affected growth rates. You may use this exercise to reinforce the message that changes in the growth rate are better shown on a ratio scale.

EXERCISE 1.5 HOW MUCH DIFFERENCE DOES A COUPLE OF DEGREES WARMER OR COLDER MAKE?

Between 1300 and 1850 there were a number of exceptionally cold periods as you can see from Figure 1.6b (page 40). Research this so-called 'little ice age' in Europe and answer the following.

1. Describe the effects of these exceptionally cold periods on the economies of these countries.
2. Within a country or region, some groups of people were exceptionally hard hit by the climate change while others were less affected. Provide examples.
3. How 'extreme' were these cold periods compared to the temperature increases since the mid-twentieth century and those projected for the future?

Introduction

This question invites a student to think about the impacts of climate change on people's lives, how these impacts will differ by geography, wealth, and other differences, and how a temperature anomaly of much less than 2 degrees centigrade can have substantial effects on some localities and groups.

Answer

Simple responses can be found online allowing some descriptions of local impacts.

Marking guidance

A good answer will identify the relevant periods in the figure, and describing some of the impacts, differing by group and region.

Teaching ideas

This is a good opportunity to talk about the broader concept of climate change that is associated with changes in average surface temperature, but are also more wide-reaching, for example telling the story of the demise of the Norse community that had lived for 500 years in Greenland, but disappeared during the fifteenth century.

- Kintisch, Eli, 2016. 'Why did Greenland's Vikings disappear?' *Science*, 10 November. (http://tinyco.re/6937234)

EXERCISE 1.6 THE POOREST MAN'S COTTAGE

'The poorest man may in his cottage bid defiance to all the forces of the Crown. It may be frail, its roof may shake; the wind may blow through it; the storms may enter, the rain may enter—but the King of England cannot enter; all his forces dare not cross the threshold of the ruined tenement.' – William Pitt, 1st Earl of Chatham, speech in the British Parliament (1763).

1. What does this tell us about the meaning of private property?
2. Does it apply to people's homes in your country?

Introduction

The aim of this question is to strengthen the understanding of the concept of private property.

Answer

1. The quote suggests the special position of private property in the lives of people. It is the one right which no one can violate regardless of who they are ('the King of England cannot enter; all of his forces dare not cross the threshold of the ruined tenement'). More generally, private property can be enjoyed in any possible ways contributing to one's own enjoyment and everyone else can be prevented from its use.
2. To a large extent it does apply to people's homes in many countries in principle. Property rights, however, have to be supported by the rule of law and the recognition that this right exists. Furthermore, the government may have the right to interfere with this right. For example, in Britain an 'Empty Dwelling Management Order' can be applied to abandoned houses.

Marking guidance

A good answer will start with the definition of private property in the text. Note that the quote mostly focuses on the second bullet point, excluding others (in this case, the King) from its enjoyment. Discuss whether a home satisfies the other elements of the definition.

Teaching ideas

The discussion can be extended to other possessions like a car, or intellectual property, or one's own body (a slave's body was the private property of another person). One can ask students to look around and identify items that are not private property. For example, the road outside, the building may, or may not, be private property, or the wifi network. For each, one can discuss the characteristics of the item and how it matches (or not) the textbook definition of private property.

EXERCISE 1.7 MARKETS AND SOCIAL NETWORKS

Think about a social networking site that you use, for example Facebook. Now look at our definition of a market.

What are the similarities and differences between that social networking site and a market?

Introduction

The question focuses on the definition of markets.

Answer

Markets are a place where people can connect in order to exchange goods and services and mutually benefit from each other through a process of buying and selling.

The transfers are reciprocal and voluntary. 'Reciprocal', so that when one person transfers a good or a service to another person they get something in return. 'Voluntary' simply means undertaken by choice, without threat of harm if one actor chooses not to exchange.

A networking site such as Facebook satisfies one of the conditions of being a market, which is that it is a platform for people to interact and (sometimes) mutually benefit from these interactions. Its primary purpose, however, is not the transfer of goods and services although some people use it for such things. It's the same for most social networks. Twitter or Instagram are platforms for people to interact and share ideas and information, but there is usually no exchange of goods and services.

Marking guidance

A good answer will discuss all bullet points in the textbook definition. The first bullet point applies to social networking, but the others in most cases will not. Students should be precise on the definition, and carefully discuss which aspect of the definition applies to social networks.

Teaching ideas

If students suggest a large number of different networking sites, then teachers may want to do a comparison, to see whether some (Etsy, for example) are closer to being a market than others.

If students have internet-enabled devices, one could ask them to go to the networking website and see whether the definitions of the market are satisfied. The lecturer may also want to do so on the classroom computer if available.

One could stimulate a discussion by asking students where they bought the last item they purchased (this could be an online site or a physical one), and discuss how this site was different from, for example, Facebook. If online, again the lecturer could show the site on the class computer and compare with the social networking site.

EXERCISE 1.8 CAPITALISM

Look again at Figure 1.7 (page 42).

1. Can you suggest an explanation for why the usage of the term capitalism spikes when it does?
2. Why do you think it has remained so high since the late 1980s?

Introduction

Media coverage is an important indicator for the most important topics in public debate. Students should use this question to reflect on how capitalism has shaped the public debate, and why.

Answer

1. Media coverage spikes when there is a historical event related to capitalism. This may be (a) a crisis where capitalism has failed (such as a financial crash or the Great Depression) or (b) events where decisions about the economic system involve weighing the benefits and costs of capitalism (for example the discussion about the future economic system after the fall of the Berlin Wall).
2. Since the late 1980s, the discontent with globalization, growing inequality and climate change has increased often linking these phenomena with capitalism as an economic system. The Cold War between Soviet Union and its allies (with their centrally planned economies) and the US, UK, France, and other capitalist countries also promoted the use of the term.

Marking guidance

This is an open question and students should draw on examples.

Teaching ideas

Instructors can divide the different peaks among the students in the class. Each student group can focus on one of the historical events, and research its background and the possible link to the capitalist system. In the class discussion, students can go through their explanations. How similar are the events? How does the role of capitalism differ among these events? This can lead to a discussion of the second part of the question.

EXERCISE ANSWERS UNIT 1

EXERCISE 1.9 FIRM OR NOT?

Using our definition, explain whether each of the following entities is a firm by investigating if it satisfies the characteristics that define a firm. Research the entity online if you are stuck.

1. John Lewis Partnership (UK)
2. a family farm in Vietnam
3. your current family doctor's office or practice
4. Walmart (US)
5. an eighteenth-century pirate ship (see our description of *The Royal Rover* in Unit 5)
6. Google (US)
7. Manchester United plc (UK)
8. Wikipedia

Introduction

The question uses the definition of the firm and applies it to real world examples.

Answer

In the text, the firm is defined as having the following characteristics:

- One or more individuals own a set of capital goods that are used in production
- They pay wages and salaries to employees
- They direct the employees (through the managers they also employ) in the production of goods and services
- The goods and services are the property of the owners
- The owners sell them on markets with the intention of making a profit

1. John Lewis is owned by the people who work there, they are not employed by outside owners of the capital good they work with, so this is not a firm. We discuss worker-owned cooperatives as an alternative form of business in Unit 6.
2. A family farm in Vietnam could be a firm if it paid its family members wages (what would be equivalent to being its employees), and if it sold its produce on the market. However, more likely than not it does not satisfy both of these conditions. In a family farm the members of the family work for the benefit of the family and not an individual wage. Family farms sometimes only produce enough for their own subsistence. Therefore, the family farm in Vietnam might not be a firm.
3. In many countries, the family doctor's office or practice would also be considered a firm as it fits all of the characteristics. The office employs other doctors and nurses and they are paid a wage. In some countries family doctors are private entrepreneurs and will have staff which are paid. They offer a service that is sold on the market to us and they do make a profit from selling their service on the market.
4. Walmart is also a firm, very similar to John Lewis.
5. A pirate ship is not a firm. The capital good (the ship itself and its equipment) is not owned by anyone: it was stolen from someone! The crew are not paid wages (they received a share of the goods the pirates stole).
6. Google is definitely a firm.
7. Manchester United plc (UK) also operates as a firm.

- More information on worker-owned cooperatives: www.tinyco.re/2414644.

8. Wikipedia is not a firm according to the definition due to several aspects: First, most of its employees are actually volunteers, no one is paid to contribute to Wikipedia. It also does not operate with the goal or intention of making a profit, its product is shared on the market for free.

Marking guidance

A good answer will start with the textbook definition of the firm and, for each of these entities, go through the bullet points in the definition of the firm.

Teaching ideas

The lecturer may want to supplement this list (or substitute some of the entities on it) to include entities that the students know more about (the student's university, local stores or other places that students visit.)

One could ask students to get into pairs or groups of three and check each other's answers. Then they need to come to a consensus about which entities are firms. If there is some disagreement, then the lecturer can explain the reasoning.

EXERCISE 1.10 APPLES AND WHEAT

Suppose that market prices were such that 35 apples could be bought for 1 tonne of wheat.

1. If Greta sold 16 tonnes of wheat, would both she and Carlos still be better off?
2. What would happen if only 20 apples could be bought for the price of a tonne of wheat?

Introduction

The question asks students to apply the concept of comparative advantage. This is a simple mechanical question to familiarize students with calculating questions about comparative advantage and exchange, and to discuss the intuition behind the answer.

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Answer

The production possibility for Greta and Carlos is:

	Production if 100% of time is spent on one good
Greta	1,250 apples or 50 tonnes of wheat
Carlos	1,000 apples or 20 tonnes of wheat

The following table summarizes the autarky option and the trade option under the new price. Note that, even with the lower price, both Greta and Carlos benefit from trade:

		Production & consumption under self-sufficiency	Complete specialization: Greta produces only wheat; Carlos produces only apples; they trade the surplus of their production above what they consume				
			Production		Trade		Consumption
		(1)	(2)		(3)		(4)
Greta	A	500	0				560
	W	30	50	=	16	+	34
Carlos	A	300	1000	=	560	+	440
	W	14	0				16
Total	A	800	1000				
	W	44	50				

With a low price of 20 apples per tonne of wheat, overall specialization still improves production on aggregate. Considering the new consumption point, Carlos is again better off than under autarky, consuming now 680 apples and 16 tonnes of wheat. Greta will now, however, have only 320 apples (instead of 500 under autarky). She still has 34 tonnes of wheat (rather than 30 under autarky) but, assuming she is not valuing them more than the market price of 20 apples, she is still worse off.

Marking guidance

Good answers may also use the terms comparative and absolute advantage when describing the situation. Students should calculate the new matrix and clearly relate their narrative to the empirical results.

Teaching ideas

This can easily be done during class or as students' pre-class work. Perhaps run through the calculation question by asking one student to set the calculation out on the board. While doing this, the instructor could ask the other students for intuition related to each step in the calculation. This way the whole group remains engaged.