

EXERCISE ANSWERS UNIT 12

UNIT 12

coreecon

EXERCISE 12.1 PROPERTY RIGHTS AND CONTRACTS IN MADAGASCAR

Marcel Fafchamps and Bart Minten studied grain markets in Madagascar in 1997, where the legal institutions for enforcing property rights and contracts were weak. Despite this, they found that theft and breach of contract were rare. The grain traders avoided theft by keeping their stocks very low, and if necessary, sleeping in the grain stores. They refrained from employing additional workers for fear of employee-related theft. When transporting their goods, they paid protection money and travelled in convoy. Most transactions took a simple "cash and carry" form. Trust was established through repeated interaction with the same traders.

1. Do these findings suggest that strong legal institutions are not necessary for markets to work?
2. Consider some market transactions in which you have been involved. Could these markets work in the absence of a legal framework, and how would they be different if they did?
3. Can you think of any examples in which repeated interaction helps to facilitate market transactions?
4. Why might repeated interaction be important even when a legal framework is present?



Christian Spielmann
UNIVERSITY COLLEGE LONDON



Eileen Tipoe
UNIVERSITY COLLEGE LONDON

Introduction

The exercise reviews the concept of private property and property rights introduced in Units 1 and 5, and applies it to the case of 'Trades in Madagascar'.

- o Fafchamps, Marcel, and Bart Minten. 1999. 'Relationships and Traders in Madagascar'. *Journal of Development Studies* 35 (6) (August): pp. 1–35.

Answer

1. No. In the absence of legal institutions, the grain traders found informal mechanisms. These were costly and led to potential revenue loss compared to a situation of strong legal institutions i.e. the time the grain traders had to spend vigilant on-site to protect their stocks, money they had to spend for travel protection, the inability of increasing the scale of their business by employing more workers.
2. Most markets are likely to not work in the absence of a legal framework. Consider the simple case of buying groceries: if there was no legal framework guaranteeing property rights for the goods sold in the shop (and the revenue made), people could just walk in and take what they wanted without paying. Supermarkets would most likely all cease to exist very quickly and the market for groceries, as we know it, would change substantially. As discussed in (1), however, people may find their own informal arrangements (for example, barter) and trust may be established through repeated interactions, as a substitute for formal institution. The same reasoning applies to other retail purchases.
3. There are many examples. Your credit history is one of them. Information about repeated payments (interactions in the market) into an account are collected, and the long-run financial behaviour of the account holder determines the credit score, which in turn determines access to other financial services (such as a credit card, mortgage etc.). Buying a used car is another

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example. Repeated interactions may convince potential buyers that the good sold by a specific seller is of high quality.

4. Trust is important if contracts cannot be completely defined. In the example of buying used cars above, quality can only be imperfectly observed even if a legal framework is in place, and trust can facilitate trade.

Marking guidance

Good answers use real world examples creatively. The focus is on being able to link the discussion to the real world.

Teaching ideas

This question would be well suited for a think-pair-share exercise in a large group teaching setting to break up the front-led instruction. Instructors could also ask students to read the paper cited and answer the question in preparation to a small group teaching session.

EXERCISE 12.2 BARGAINING POWER

In the example of plantation owners and fishermen, can you think of any factors that might affect the bargaining power of these parties?

Introduction

The exercise aims to deepen the understanding of bargaining power in the externality model.

Answer

Bargaining power is affected by several factors, for example:

- The relative size of the party—the larger group usually has more bargaining power. A large company will have greater bargaining power than individual small farmers. The homogeneity of the group will improve bargaining power.
- The support of other parties in the community—a group has stronger bargaining power if other parties can help pressure the other group.
- The historical strength and influence of one party—this may affect social norms and determine what a ‘fair’ outcome is.

The relative demand for bananas and fish (market share)—this affects the relative wealth of the parties and hence their bargaining options.

Marking guidance

Students should be able to explain how/why these factors may affect bargaining strength.

Teaching ideas

An ideal question to ask in a lecture when talking about bargaining power in the model, and a good brainstorming exercise. If the technology is available, one can also create a word cloud using audience response software.

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EXERCISE 12.3 A POSITIVE EXTERNALITY

Imagine a beekeeper, who produces honey and sells it at a constant price per kilogram.

1. Draw a diagram with the quantity of honey on the horizontal axis, showing the marginal cost of honey production as an upward-sloping line, and the price of honey as a horizontal line. Show the amount of honey that the profit-maximizing beekeeper will produce.
2. For the beekeeper, the marginal private benefit of producing a kilo of honey is equal to the price. But since the bees benefit a neighbouring farmer, by helping to pollinate her crops, honey production has a positive external effect. Draw a line on your diagram to represent the marginal social benefit of honey production. Show the quantity of honey that would be Pareto efficient. How does it compare with the quantity chosen by the beekeeper?
3. Explain how the farmer and beekeeper could both be made better off through bargaining.

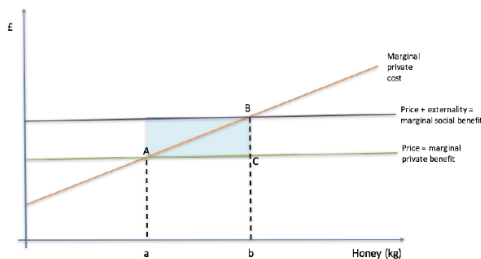
Introduction

The ebook is brief on positive externalities and this question encourages students to reflect on such externalities.

Answer

1. The profit-maximizing quantity produced when beekeepers make their decisions privately is at point A with quantity a, where the price equals the private marginal costs.

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2. As honey production comes with a positive externality to the neighbouring farmer, there is an additional benefit from the beekeeper's action to society as a whole. This additional benefit is not taken into account when the beekeepers unilaterally decide about how much honey to produce. Hence the social marginal benefit is above the price the beekeepers receive. The socially optimal outcome would be at point B.
3. By producing quantity b, the beekeeper incurs an additional private cost equal to the triangle ABC. At the same time the neighbouring farmer has a benefit equal to the blue rectangle. As the rectangle is larger than the triangle,

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the farmer would in principle be able to compensate the beekeeper by more than the additional cost they face (at least the amount ABC, up until the size of the rectangle) and still benefit from the positive externality.

Marking Guidance

Good answers clearly refer to and explain the graph and link the more formal representation to the real-world case.

Teaching Ideas

This is a good exercise for a small group session. After recapping the negative externality case, instructors could ask students to work in groups on this extension. One may want to let students brainstorm to come up with other examples for positive externalities. The question directly links to exercise 12.4, and instructors may want to discuss them together.

EXERCISE 12.4 PIGOUVIAN SUBSIDY

Consider the beekeeper and neighbouring farmer in Exercise 12.3. Why might they be unable to bargain successfully to achieve a Pareto-efficient outcome in practice? Use the diagram you drew to show how the government might improve the situation by subsidizing honey production. Describe the distributional effects of this subsidy, and compare it to the Pareto-efficient bargaining outcome.

Introduction

The question is an extension to Exercise 12.3, focusing on a Pigouvian subsidy to increase output when a positive externality is present.

Answer

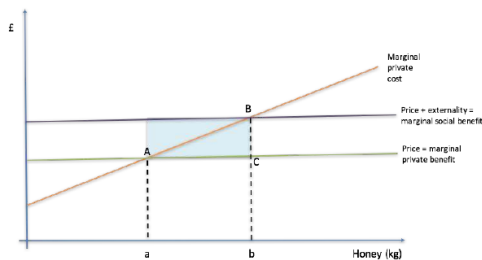
As mentioned in the Unit, farmer and beekeeper may be unable to reach a Pareto-efficient bargaining outcome in practice because of:
Missing information—it may be difficult to quantify the benefit that the bees give to the farmer.
Enforcement—the farmer must be able to rely on the legal system if the beekeeper does not increase output.

The subsidy increases the beekeepers' revenue per unit of honey production, hence it shifts up the price curve. If the subsidy is just equal to the positive externality, the new private benefit curve coincides with the social benefit curve and the externality is perfectly internalized. The output is b , which is the socially optimal outcome.

The subsidy is paid by the government, so does not affect the cost of the farmer (assuming that the government does not tax the farmers to pay for the subsidy). Compared to the bargaining outcome, the farmer clearly benefits from this arrangement. The beekeeper incurs an additional cost from increasing output, which is offset by the subsidy. The distributional effects depend on how the government finances the subsidy, and whom it taxes.

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Exercise 12.3 A Positive Externality

**Marking Guidance**

Good answers precisely refer to the graph and discuss the design of the subsidy.

Teaching Ideas

This exercise could be discussed together with Exercise 12.3.

EXERCISE 12.5 COMPARING POLICIES

Consider the three policies of regulation, taxation, and compensation arrangements discussed above. Evaluate the strengths and weaknesses of each policy from the standpoint of Pareto efficiency and fairness.

Introduction

The exercise considers regulation, taxation and compensation arrangements from the point of fairness and Pareto efficiency.

Answer*Regulation*

Pareto efficiency: If the government knew the exact level of optimal production of bananas (in this case, 38,000) then Pareto efficiency can be achieved. More generally, it is unlikely that the cap will be set at the right level.

Fairness: As mentioned in the main text, the distributional effects of regulation may be unfair, particularly towards smaller farming businesses, which may be more adversely affected by regulation. Regulation may also be subject to political pressure and lobbying, and the distribution of capped production among producers may be tricky. One could auction permits or simply give out quotas (see the cap and trade policy discussed in Unit 20). Each mechanism has its own drawbacks.

Pigouvian tax

Efficiency: If the precise shape of the cost and benefit curves were known, it would be possible to design the tax to attain the efficient outcome. However, it is unlikely that the government knows (or can truthfully elicit) this information. **Fairness:** This policy is 'fair' in the sense of making the polluters pay for their actions. Among farmers, the tax may again adversely affect distribution if it disproportionately affects the profits of small farming businesses, but there is a

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revenue gain to the government, which could be used to offset some of these effects. The policy may provide an incentive to find less polluting (and more efficient) methods to grow bananas.

Compensation

Efficiency: It is possible that compensation could incentivize producers to reduce output to optimal levels if the compensation is set so that the marginal private cost plus compensation equals the marginal social cost. Once again, Pareto efficiency is likely to depend on the precise compensation amounts. **Fairness:** It may seem unfair for other parties to pay the polluting party to reduce output (compared to a tax on producers). The exact distributional consequences depends on how the government finances the compensation.

Marking Guidance

Good answers link the discussion closely to the examples in the ebook.

Teaching Ideas

Instructors could use this exercise question for a debate. Students could work in groups on the efficiency and fairness arguments for one of the three policies and then debate about the pros and cons, using examples.

EXERCISE 12.6 INCOMPLETE CONTRACTS

In each of the five cases above (incinerator, loud music, training, irrigation, and climate change):

1. Explain why the external effects are not (and possibly cannot be) covered by a complete contract.
2. What critical piece(s) of information required for a complete contract are asymmetric or non-verifiable?

Introduction

This exercise question asks students to apply the concept of externalities and incomplete contracts to real world examples.

Answer

Incinerator & loud music: It is practically impossible to write a contract with every person who can possibly be affected by the fumes/loud music. One cannot verify who exactly is affected by the fumes/loud music, and furthermore it is impossible to precisely quantify the external effects. In other words, the precise impact of air pollution and how loud music affects neighbours is non-verifiable.

Training: The cost of training is borne by the company at which the worker was initially employed. Once the worker leaves, there is an external benefit conferred on the new employer. Note that it is assumed that the skill is useful to the new employer and is not a general skill (such as university education). The worker is free to leave the first firm and accept a new job. The employer cannot write a contract to prevent this and therefore cannot prevent the new employer from benefitting from the investment in training. This will result in too little training being supplied in the economy.

Irrigation & Climate Change: Kim, the farmer, is unable to identify potential free riders. The same problem is faced by a country that invests in reducing carbon

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emissions but lacks the power to persuade others to implement similar solutions and/or prevent them to breathe the relatively cleaner air. The precise magnitude of the free-riding activity is non-verifiable information, and it is difficult to find and punish every free rider. This in turn gives rise to even more free-riding behaviour.

Marking Guidance

Good answers could also give real-world examples where such behaviour is observed.

Teaching Ideas

A group task in a seminar.

EXERCISE 12.7 RIVALRY AND EXCLUDABILITY

For each of the following goods or bads, decide whether they are rival and whether they are excludable, and explain your answer. If you think the answer depends on factors not specified here, explain how.

1. A free public lecture at a university held in a lecture theatre
2. Noise produced by aircraft around an international airport
3. A public park
4. A forest used by local people to collect firewood
5. Seats in a theatre to watch a musical
6. Bicycles available for the public to hire and travel around a city

Introduction

The exercise trains students to apply the concept of rivalry and excludability to real world examples.

Answer

1. Since the lecture is open to the public (and is free), it is non-excludable. Assuming the capacity of the lecture theatre is limited, the good is however rival.
2. It is impossible to prevent somebody from hearing the noise, hence it is non-excludable. It is also non-rival, because somebody's ability to hear the noise does not prevent anyone else from hearing it.
3. Assuming access to the park is free, it is non-excludable. The capacity of the park may be limited, in which case it would also be rival.
4. Assuming free access to the forest, it is non-excludable. Depending on the size of the forest relative to the number of wood collectors, the good may be rival. Even though the amount of firewood is finite, it is possible that there are only a few wood collectors so they will not have to compete for resources.
5. Assuming the seats are not given away for free, they are both excludable (who can pay it) and rival (who gets the ticket first).
6. Since the service is not free, it is excludable. It is also rival, in terms of individual bicycles (only one person can use a bicycle at a time). In terms of the service as a whole, it is rival when there is scarcity of bicycles.

Marking Guidance

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Students should be very precise in what sense the goods are excludable and rival.

Teaching Ideas

One could use audience response software in a large-group lecture type setting to vote on whether the good is excludable and/or rival. Based on the data, one can then discuss how students made their choices.

EXERCISE 12.8 HIDDEN ATTRIBUTES

Identify the hidden attributes in the following markets and how they may impede market participants from exploiting all of the possible mutual gains from exchange:

1. A second-hand good being sold on eBay, Craigslist or a similar online platform
2. Renting apartments through Airbnb
3. Restaurants of varying quality

Explain how the following may facilitate mutually beneficial exchanges, even in the presence of hidden attributes:

4. Electronic ratings shared among past and prospective buyers and sellers
5. Exchanges among friends, and friends of friends
6. Trust and social preferences
7. Intermediate buyers and sellers, such as used car dealers

Introduction

The question asks students to apply the concept of hidden attributes to real world examples.

Answer

The first part of the question asks students to identify the hidden attributes of the good or action:

1. Even though the buyer can see pictures and/or descriptions of the good, and potentially also the seller's rating, without an in-person inspection he/she cannot be certain of the product's quality. Hence, the second-hand good may not be bought online, even if it would have been of satisfactory quality to the buyer.
2. Even though the host can see the description and references of the guests, this information is incomplete and some characteristics of the tenant may be hidden. Likewise, potential tenants cannot be certain of the apartment's quality. These hidden attributes on both sides of the market may result in fewer transactions than is optimal.
3. The quality of the meal and service provided by the staff on a particular day is difficult to predict. Therefore, even though a meal would have met a customer's standard, these hidden attributes may prevent them from dining at that restaurant.

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However there are ways to overcome the problems linked to the presence of hidden attributes. In particular:

4. Ratings provide a proxy for the average quality and variability of the traded products. Past buyers are likely to provide truthful reports, so prospective buyers may be more willing to trust sellers with constantly good ratings.
5. These exchanges are based on mutual trust, which comes from a long-term relationship and repeated interactions. As unfavourable trades among friends may be harmful for the future of the friendship, such trades are less common.
5. Trust may facilitate beneficial trades (see 2.) Likewise, social preferences such as altruism may facilitate trades that would not occur if people were completely selfish.
7. Used car dealers are likely to have better information and the means to check the quality of the product. This facilitates beneficial trades. In addition, legal actions can be more easily taken between intermediate dealers.

Marking Guidance

Good answers clearly link the answers to the quotes.

Teaching Ideas

All students could work on questions 1-3. Then students in smaller groups (2-3) could discuss one of the remedies each and share with the class.

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EXERCISE 12.9 CAPITALISM AMONG CONSENTING ADULTS

Should all voluntary contractual exchanges be allowed among consenting adults?

State what you think about the following (hypothetical) exchanges. You may assume in each case that the people involved are sane, rational adults who have thought about the alternatives and consequences of what they are doing. In each case, decide whether you approve, and if you do not approve, whether you think the transaction should be prohibited. In each case explain why the transaction described produces mutual benefits (that is, it is a Pareto improvement over not allowing the exchange).

1. A complicated medical procedure has been discovered that cures a rare form of cancer in patients who would otherwise certainly die. Staff shortages make it impossible to treat all those who would benefit, and the hospital has established a policy of first come, first served. Ben, a wealthy patient who is at the bottom of the list, offers to pay Aisha, a poor person on the top of the list, \$1 million to exchange places. If Aisha dies (which is very likely), then her children will inherit the money. Aisha agrees.
2. Melissa is 18. She has been admitted to a good university but does not have any financial aid, and cannot get any. She signs a four-year contract to be a stripper on the Internet and will begin work when she is 19. The company will pay her tuition fees.
3. You are waiting in line to buy tickets for a movie that is almost sold out. Someone from the back of the line approaches the woman in front of you and offers her \$25 to exchange positions in the line (he takes her position in front of you and she takes his at the back of the line).
4. A politically apathetic person, who never votes, agrees to vote in an election for the candidate who pays him the highest amount.
5. William and Elizabeth are a wealthy couple who give birth to a baby with a minor birth defect. They sell this baby to their (equally wealthy) neighbours and buy a child without any birth defects from a family who need the money.
6. An individual with an adequate income, decides that he would like to sell himself to become the slave of another person. He finds a buyer willing to pay his asking price. The aspiring slave will use the money to further his children's education.

Introduction

This exercise is a good question to engage students in a discussion about the limits of markets.

Answer

The issue in all these cases is to determine whether or not market forces have undermined any moral consideration and changed the value of the good in question to an extent that is objectionable. None of the questions have a correct answer, and therefore students should be encouraged to form an opinion on the basis of an informed discussion.

