

EXERCISE ANSWERS UNIT 6

UNIT 6

ANSWERS TO EXERCISES

coreecon

EXERCISE 6.1 THE STRUCTURE OF AN ORGANIZATION

In Figure 6.1 we showed the actors and decision-making structure of a typical firm.

1. How might the actors and decision-making structure of three organizations, Google, Wikipedia, and a family farm compare with this?
2. Draw an organizational structure chart in the style of Figure 6.1 to represent each of these entities.

Introduction

The aim of this question is to highlight how the structure of different kinds of organizations varies.

Answer

1. The first step is to revisit the definition of a firm (see glossary and discussion in Unit 1, as well as in this unit). A firm in a capitalist economy is a privately-owned business organization which employs people and purchases inputs, to produce and market goods and services at prices that more than cover the cost of production.

Google: A firm. Its structure is quite similar to that in Figure 6.1. Students might search on the internet and find graphics of Google's internal structure. Google's website also describes its structure.
- *Wikipedia:* Not a firm (it is a not-for-profit organization), and its structure is quite flat. The founder and a handful of others are at the top of the hierarchy but the product is produced by millions of people around the world for free.
- *A family farm:* Not a firm in the sense that workers may not be paid if they are family members. However, they share the revenue or profits, so could be thought of all shareholders.
2. There is no definitive answer to how the organizational charts should look, but the key elements are the flow of authority, the flow of information, and the identity of the actors. They should match the points above.

Marking guidance

A good answer will:

- demonstrate some research into the basic structures of the three entities
- relate these to Fig 6.1



Parama Chaudhury

UNIVERSITY COLLEGE LONDON

Eileen Tipoe

UNIVERSITY OF OXFORD

- The roles of Wikipedia's employees: Business Insider, 2010. "What Do Wikipedia's 35 Employees Do?" (<http://tinyco.re/6655460>).

EXERCISE ANSWERS UNIT 6

- redraw Fig 6.1 as required, including both flows of authority and of information

Teaching ideas

This is quite an open question so there are many ways to extend it. One way would be to have a poster session where students present the graphical structure of the entities listed (and potentially others) and discuss how this might affect the relationship between the owners of the firm and those producing the output.

- You could refer students to 'Dilbert's law of firm hierarchy' discussed in the Einstein at the end of section 7.2.

EXERCISE 6.2 INCOMPLETE CONTRACTS

Think of two or three jobs with which you are familiar, perhaps a teacher, a retail worker, a nurse, or a police officer.

In each case, indicate why the employment contract is necessarily incomplete. What important parts of the person's job—things that the employer would like to see the employee do or not do—cannot be covered in a contract, or if they are, cannot be enforced?

Introduction

Incomplete contracts play a central role in the course. The aim of this question is to have students think concretely about the specifics of an employment contract for jobs with which they are familiar.

Answer

There are three major issues when writing contracts:

- firms and workers are uncertain about the future
- effort and outcomes are hard to observe
- qualitative aspects essential to the job such as effort are hard to enforce in a court and cannot therefore be written into the employment contract

Using a teacher as an example, there may be changes in the curriculum or in teaching methods and technology that the school currently does not know about, which may involve the teacher undergoing additional training or carrying out different tasks. Since the new tasks depend on the specific change, the school cannot write these into the employment contract.

While some teaching outcomes are easy to observe, for example student performance on tests or number of hours spent teaching materials, the amount of effort put into teaching and quality of teaching is difficult to observe or quantify. Since student effort put into studying depends on many factors unrelated to the quality of teaching, it is difficult to determine a teacher's contribution to the student's final grade. It is therefore impossible for a school to specify in the contract of employment the quality of teaching required to be delivered.

Other qualitative aspects of teaching, such as teacher motivation and enthusiasm, are difficult to measure and hard to enforce. Therefore, the contract cannot include these aspects even though the employer cares about

EXERCISE ANSWERS UNIT 6

them.

Marking guidance

A good answer will:

- identify 2-3 real life jobs
- give examples of the duties involved in each job, and distinguish between those that can be included in a contract and those that cannot

Teaching ideas

The main issue here is that it is impossible to write contracts that specify all possible contingencies. Students may also point out that it is often hard to observe either the efforts of a worker (for example, a teacher who thinks about her lesson plans on the way back home) and the output (again, a teacher whose output could be student grades, but is probably broader than that). In many cases, the worker will need to use discretion, and these points should bring the student to a discussion of why neither the worker's outcomes or actions could be fully specified in a contract that could be upheld in a court.

It would be interesting to have students find actual employment contracts to compare.

EXERCISE 6.3 ASSUMPTIONS OF THE MODEL

As in all economic models, our simplified representation of Maria's employment rent has deliberately omitted some aspects of the problem that might be important. For example, we have assumed that:

- Maria finds a job with the same pay after her spell of unemployment.
- She does not experience any psychological or social costs from being unemployed.

Redraw Figure 6.2 to show how relaxing each of these assumptions would alter the employment rent. Specifically, assume:

- Maria can only find a job with the lower pay of \$6 per hour after her spell of unemployment.
- She experiences a psychological cost of being unemployed of \$1 per hour. When unemployed, she gains \$2 per hour because there is no longer the disutility of working so the net gain is \$1.

Introduction

The aim of this question is to focus on the *ceteris paribus* assumptions and see how adding some complications to the model changes its conclusions. It is also a chance to test how well students understand the diagrammatic representation of the model.

Answer

Relaxing the first assumption means that, after a spell of unemployment, Maria finds another job at lower pay. Holding the disutility of effort when employed

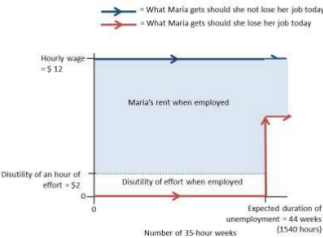
EXERCISE ANSWERS UNIT 6

constant, the duration of unemployment, and the unemployment benefit, her employment rent from her current job would be larger, because she has more to lose from becoming unemployed. The employment rent increases by the area between the original wage of \$12 and the new lower wage (see below).

Relaxing the second assumption means that Maria faces additional costs if she were to lose her job. In other words, her disutility of effort when employed is partially offset by the psychological cost of being unemployed. Holding the disutility of effort when employed, the duration of unemployment, and the unemployment benefit constant, her employment rent increases. Note that her reservation wage decreases, because her net benefit from being unemployed is now the unemployment benefit minus the larger expected cost of being unemployed, which is smaller.

The first graph below shows the case in which Maria's new job after unemployment pays an hourly wage of \$6.

Maria's unemployment rent when the job she gets after unemployment pays half the wage of her old job

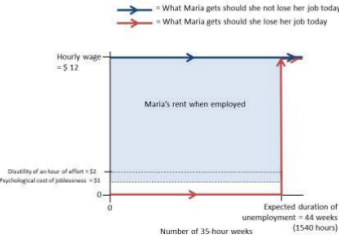


The employment rent per hour following the spell of unemployment

$$\begin{aligned} &= \text{wage} - \text{disutility of work} \\ &= \$6 - \$2 \\ &= \$4 \end{aligned}$$

The second graph shows the case where Maria's psychological cost of joblessness is half the disutility of working.

Maria's employment rent when the psychological cost of joblessness is \$1/hour



In each case, the blue shaded area is her employment rent.

EXERCISE ANSWERS UNIT 6

Make sure that students understand the intuition of the results:

- *If Maria gets a job that pays less than her original job:* Her employment rent is larger than before. She has more to lose by the loss of her high-paying job.
- *If she has to bear the psychological costs of joblessness:* Her employment rent is larger than before.

Point out that this shows that many standard variations can be analysed using this simple model, which makes the model powerful. You could give examples – what happens if Maria's wage increases over time whilst she's in the job.

Marking guidance

A good answer will:

- discuss how relaxing each of these assumptions will affect Maria's costs and benefits of working
- draw a graph for each case using Figure 6.2 as the base

Teaching ideas

The lecturer may want to think of some more variations (starting with some simple ones like a different wage or a higher level of disutility of effort) that lead to slightly different employment rents, and use these to help students practice the mechanics of the model.

EXERCISE 6.4 THE EMPLOYER SETS THE WAGE

Would any of the following affect Maria's best response curve or the firm's isocost lines for effort in Figure 6.6? If so, explain how.

1. The government decides to increase childcare subsidies for working parents but not for those unemployed. Assume Maria has a child and is eligible for the subsidy.
2. Demand for the firm's output rises as celebrities endorse the good.
3. Improved technology makes Maria's job easier.

Introduction

The aim of this question is get students to think about how the conditions of the model affect the employee's best response function.

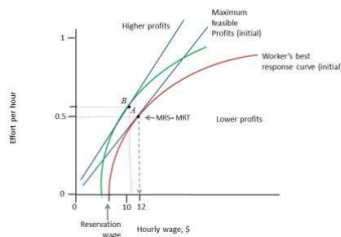
Answer

1. If childcare for someone with a job is now cheaper, then Maria's reservation wage may fall because she now pays less for childcare, and is happy to work at a lower wage. Therefore, the horizontal axis intercept of her best response function moves to the left. Maria may also choose to use more childcare services because it is now cheaper, making her less stressed and more productive at work. This may lead to her best response curve rotating upward, as well as shifting to the left, which would mean that she puts in more effort for exactly the same wage (the green line in the first diagram). This would then lead to the firm producing on a higher isoprofit line and making

EXERCISE ANSWERS UNIT 6

more profit (for example, point *B* instead of *A* in the figure below).

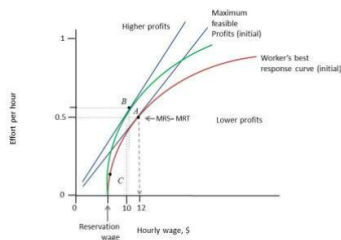
Worker's best response curve shifts to the left when childcare costs fall



2.

3. If doing the job is now easier, Maria may put in more effort at a given wage, such that best response curve rotates upwards with the same reservation wage (the green curve below). This would also lead to the firm producing on a higher isoprofit line and thus making more profit.

Worker's best response changes at a given reservation wage when the job becomes easier to perform due to technology



Marking guidance

A good answer will:

- recognize that the reservation wage depends on the provision of childcare and other outside opportunities (Note the importance of the assumption that the childcare subsidy is only for working parents. If it was general, it would not shift the best response function because there would be no change in her cost of childcare, whether she was in work relative or unemployed. As a consequence, there would be no change in her reservation option. The work-dependent subsidy makes the cost of job loss higher, because her employment rent is higher).
- draw the relevant graphs

Teaching ideas

One could look at variations, for example how introducing an income tax or free employer-provided training would affect these curves. However, as the example

EXERCISE ANSWERS UNIT 6

illustrates, it is essential to think carefully through the consequences of any proposed policy.

EXERCISE 6.5 EFFORT AND WAGES

Suppose that, with the status quo best response curve in Figure 6.7, the firm chooses the wage to minimize the cost of effort, and the worker's best response is an effort level of 0.6. If unemployment rose:

1. Would effort be higher or lower than 0.6 if the firm did not change the wage?
2. How would the firm change the wage if it wanted to keep the effort level at 0.6?
3. How would the wage change if the firm minimized the cost of effort at the new unemployment level?

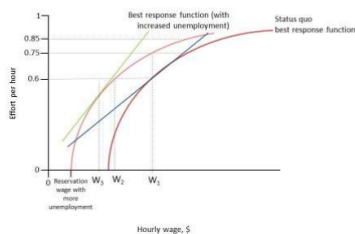
Introduction

The aim of this question is to strengthen students' understanding of what determined the position of the BRF, and therefore of the wage required to elicit a specific level of effort.

Answer

1. Figure 6.7 shows an employee's best response curve in three different cases. If unemployment increases, the worker knows that losing the job will be costlier because they will spend a longer time out of work, thus their employment rent increases. The longer the expected duration of unemployment, the lower is the worker's reservation wage. This shifts the BRF to the left. As the benefits of being employed are greater, the worker will exert more effort for fear of losing the job. Therefore, effort will be higher than 0.6 if the firm kept the wage at W_1 .
2. The employer can generate the same amount of effort as before (0.6) from the worker with a lower wage, W_2 .
3. If the firm now minimizes costs at the higher level of unemployment (and new BRF), then the optimal wage will be lower than before. The isocost curve that the firm will be on will be closer to the vertical axis (the green curve in the diagram), meaning higher profits due to the lower wage cost of a unit of effort.

The best response function depends on the level of unemployment and the unemployment benefit.



EXERCISE ANSWERS UNIT 6

Marking guidance

A good answer will:

- show the isocost line for the status quo effort choice of 0.6 and relate the changes due to higher unemployment to this diagram
- explain why the reservation wage is different due to higher unemployment
- explain what this implies for the position of the BRF
recognize that these shifts imply a different wage for each BRF for any specific level of effort

Teaching ideas

The most obvious extensions are the ones using other governmental or economy-wide changes. One may also want to pair this question with exercise 6.7, as that question looks at the effects of macroeconomic changes.

EXERCISE 6.6 LAZEAR'S RESULTS

Use the best response diagram to sketch the results found by Lazear and co-authors in their study of a firm during the global financial crisis.

1. Draw a best response curve for each of the following years and explain what it illustrates:
 - a. the pre-crisis period (2006)
 - b. the crisis years (2007–8)
 - c. the post-crisis year (2009)

Assume that the employer did not adjust wages.

2. Is there a reason why a firm might not cut wages during a recession? Think about the research of Truman Bewley and the experimental evidence about reciprocity in Unit 4.

Introduction

The aim of this question is to get students to use the labour discipline model to describe empirical results.

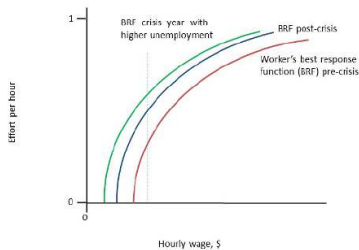
Answer

1. *Part (a):* In 2006, the economy was in a housing-bubble-fuelled boom. This led to low unemployment, meaning that workers could quickly find a new job. This situation is illustrated by the red best response curve.
Part (b): When the housing bubble burst in 2007, the economy went into recession. This led to an increase in the rate of unemployment, shifting the best response curve to the left. According to Lazear's analysis, the recession also had the effect of inducing workers to exert more effort for the same wage: for the same wage, effort would be higher on the green BRF.
Part (c): In 2009, the economy came out of recession and began to grow again. This reduced unemployment to a level less than in 2007-

EXERCISE ANSWERS UNIT 6

- 08 but still greater than 2006, as shown by the reservation wage on the horizontal axis.
- Firms may not cut wages in a recession, and choose to lay off workers instead, if it is likely that workers see these pay cuts as unfair, and therefore reduce their effort at the given wage. This would lead to the best response curve rotating downward, reducing profits.

Lazear's results



Marking guidance

A good answer will:

- draw the best response functions for the three cases
- explain Lazear's results in their own words
- relate the results to the best response functions

Teaching ideas

This question allows for a rich set of extensions. A lecturer could ask students what happens if the recession continues for a long time, or that there are lasting effects – for example austerity means that fewer subsidized in-work public services like healthcare or childcare are available.

The cases in Exercise 6.4 highlight that care must be used when applying the model.

EXERCISE ANSWERS UNIT 6

EXERCISE 6.7 OUTSOURCING COMES HOME

At the start of this unit, we discussed the decision by many clothing companies to outsource production to Bangladesh and other low-wage economies. Show your results in a single diagram.

1. Draw the best response curve of the workers in the high-wage home country in the absence of outsourcing (with the wage on the horizontal axis, and effort on the vertical axis).
2. In the same diagram show the best response curve of workers in the foreign low-wage country in the absence of outsourcing. (Assume that wages are measured in dollars in both cases.)
3. Show in your diagram what the home country employer will pay home country workers if outsourcing is not possible.
4. Show in your diagram what the home country employer will pay workers in the low-wage country if it switches production there (ignore the costs of moving production).
5. Now assume that outsourcing is possible and is widely practiced by many firms in the clothing industry. Show the best response function for home country workers under these conditions. Explain why this is different from your answer to 1. Show these outcomes in a diagram.

Introduction

The aim of this question is to get students to use this model in a real-life policy application related to the material about offshoring in the initial section of the unit.

Answer

In the absence of outsourcing, the reservation wage in the high-wage country is higher than in the low-wage country, and at each level of wage, workers will put in less effort. This is because outside opportunities and unemployment benefits are better. Another way to see this is to notice that to get a given amount of effort from workers, the employer must pay more in the high-wage than in the low-wage country. Once these basics are established, drawing the BRFs and the isoprofit lines (as in the graph below) is quite straightforward.

The low-wage country BRF is above the high wage country BRF, so it is clear that:

- the profit-maximizing wage and effort will be lower in the low-wage country
- profits will be higher than in the high-wage country (the isocost of effort line is steeper)

Therefore, if the employer switches production to the low-wage country, then it will pay a lower wage per hour and make higher profits.

If outsourcing is widely practiced, this would mean that a fired worker will have less chance of being employed elsewhere. Some firms will close in the home country, enlarging the pool of the unemployed, and prolonging the length of unemployment. The new BRF shifts to the left due to the lower reservation wage.

