Exploring economics: the secret life of t-shirts

About this free course

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Introduction

This free course, *Exploring economics: the secret life of t-shirts*, aims to describe what goes into making and selling a t-shirt: which resources, which markets, who is involved, the income people get, the income and value they create. You will explore these questions at different stages of the production of a t-shirt, and will use concepts from economics such as supply chains and value added to answer them.

The secret life of t-shirts will be described using data. This will help you to think about key numbers and data which help constructing evidence of how a t-shirt is produced, from raw cotton to our wardrobe. To look at data, to interpret it, and to construct your own, means that you will also be developing some maths skills.

This OpenLearn course is an adapted extract from the Open University course DD126 *Economics in context*.

Learning Outcomes

After studying this course, you should be able to:

- define a supply chain and understand how different stages of the t-shirt production chain can be organised differently
- engage with different data sources and their objectives
- read into data to tell an economic story
- evaluate what the ‘made in…’ tag on your t-shirt really means.

1 Defining a supply chain and organisation of the supply chain for a t-shirt

Every day we use and buy many goods and services that have been supplied to us. Economists investigate the way in which economic agents organise and are involved in these transactions. One way to study the provision of goods in the market is through the so-called ‘supply chain’.

1.1 The supply process

The aim of this course is to think about this process of supply. To do this you will look at the example of a simple cotton t-shirt. What is the process that takes the basic inputs required through to the final product?

Who are the suppliers?

The first step in understanding supply of goods is to think about who the suppliers are. For example, we can easily identify the supplier of a loaf of bread, whether it be a supermarket, corner shop or bakery. If we have a leaky roof, we can find local builders who are willing to sell their services to repair our roof. The supermarket, the corner shop, the bakery and the builder are all examples of sellers, that is, agents who are willing to supply goods and services.

Activity 1

Jot down ten suppliers from which you have recently bought goods and services. Try to make them as varied as possible.

Provide your answer...

Discussion

A market-based economy, such as the UK, includes a dizzying number and a vast diversity of agents engaged in activities related to supply. Sometimes agents work alone as individuals, or perhaps within a household, or these days, a person selling goods via eBay. Often sellers are organisations such as businesses. A business may be a local takeaway, or may operate in multiple locations across the globe; both are, in economic terms, referred to as firms. In this course you will focus on firms as the main economic agents involved in supplying the economy.

Firms are a crucial part of the modern economy, supplying the food we eat, the clothes we wear, or the leisure activities we enjoy. But to do this, **firms** need resources. They use inputs to produce an output which is the good or service they supply.

1.1.1 The firm's transformation process

The production of goods is a complex process which combines various inputs. Often economists make a distinction between material means of production such as cotton and machineries and labour force. This is because the cost of labour depends on social forces. At this stage, we include workers as inputs.

Activity 2

Consider the examples mentioned earlier: the supermarket, the bakery and the builder. Make a list of the inputs that would be needed by each to produce its final output.

Provide your answer...

Discussion

You might have come up with something similar to the following:

Bread: wheat, workers, water.

Builder: workers, bricks, cement, glass.

Supermarket: land, workers, foodstuffs.

The three examples in Activity 2 include a range of inputs. One input that is common to all three suppliers is workers, who are an important input for any firm. In economics these workers are referred to as labour. In addition to labour, firms will need inputs such as machinery, computers and some premises to work in. This is referred to capital.

These examples demonstrate that in order to produce an output the firm needs to use inputs. The role of the firm is to combine these inputs and to transform them so that an output can be produced and this output sold to consumers.

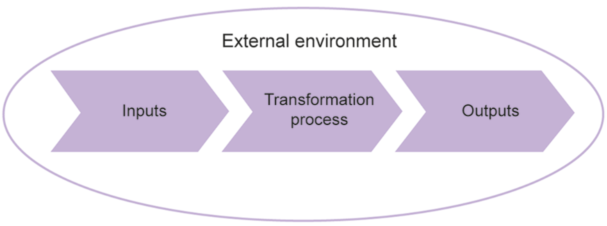

Figure 1 The firm's transformation process.

1.1.2 Labour intensive and capital intensive techniques of production

A good or service in question may be produced using a technique that employs mostly labour, referred to as a labour intensive technique, or a capital intensive technique, where machinery and technology are important.

Activity 3

Write down an example of a good you imagine being produced with a labour intensive technique, and a good you imagine produced with a capital intensive technique.

Provide your answer...

Discussion

Fruit picking can be done using a labour intensive technique when the farm owner employs a large amount of seasonal workers to pick up the fruit. These days, fruit picking can also be done using machinery, which would be a capital intensive technique. Another example of capital intensive techniques are often found in car production.

1.1.3 From inputs to goods sold in markets: stages of production

Activity 2 also shows that firms are not working in isolation; they are only part of the supply story. In the production of a loaf of bread there will be other firms involved. There will be a farmer growing the grain, a miller processing the wheat and transforming it into flour, a baker producing the bread and a retailer (or two) to sell the bread. Therefore, the supply of a final good to the customer will usually involve more than one stage of production and more than one firm.

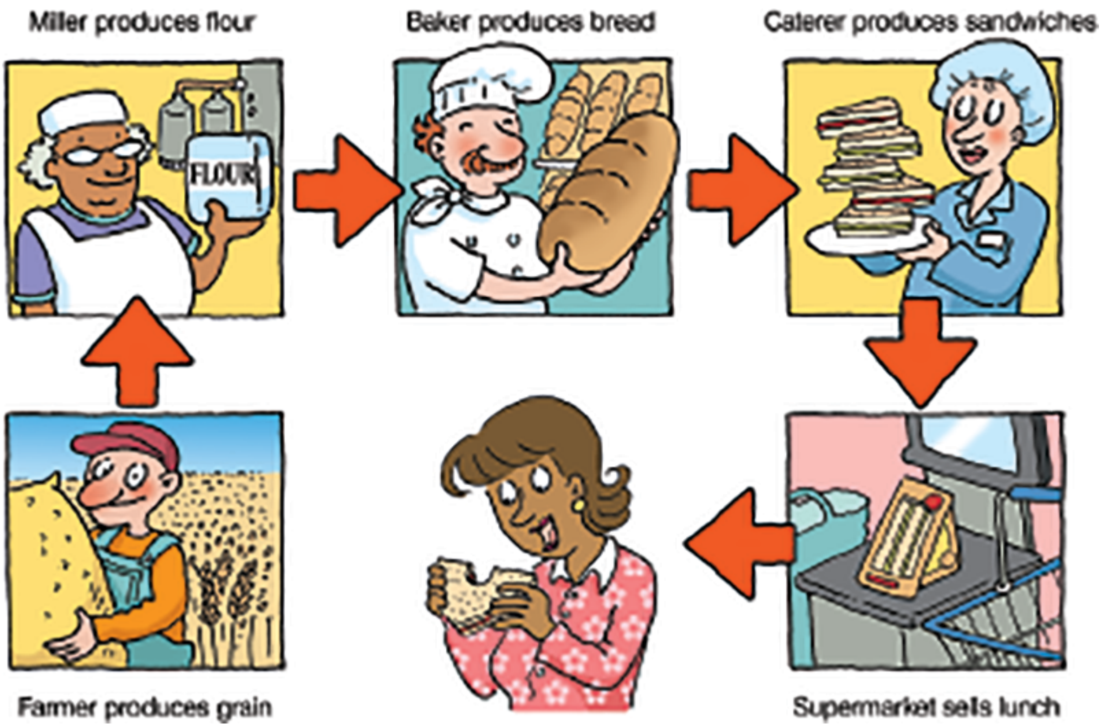

Figure 2 Diagram showing the stages of producing bread.

This process of linking the stages of production required to produce a loaf of bread can be thought of as a chain. This relationship between the stages of production is known as the **supply chain**.

The supply chain may involve many firms working at each stage, all producing and selling their goods on to the next stage of production. However, it may also be true that one firm is involved at more than one stage of the supply chain. A firm that mills wheat into flour may also bake the bread itself, or a dairy farmer may use the milk to produce other products such as butter or cheese. A farmer might choose to retail their own produce directly rather than using a retailer to sell their output to the customer. In these cases, where a firm operates at more than one stage of production, the firm can be said to be vertically integrated. Before you go into detail about what vertical integration is, you'll first look at the supply chain of a t-shirt.

1.2 The supply chain of a t-shirt

Whichever retailer we buy our t-shirt from, whether it is an online retailer, a supermarket, market trader or high-street shop, it is likely our t-shirt is part of a supply chain that includes several firms.

Activity 4

Consider the process of making a cotton t-shirt. This starts with growing cotton plants on a farm to make cotton fibres. Once the cotton fibre is harvested it can be turned into a yarn and woven into fabric. This fabric is cut and sewn to produce the t-shirt, which is then distributed to retailers to sell to the final consumers. Use this information to create a supply chain for a cotton t-shirt.

- Retail
- Spinning and weaving
- Cotton production
- Making the garment

Match each of the items above to an item below.

- Fourth
- Second
- First
- Third

Discussion

Here is an example of the supply chain of a t-shirt.

Figure 3 The supply chain of a t-shirt.

A cotton t-shirt is a cheap, lightweight product which is not fragile. This suggests that it is easy and inexpensive to transport. As a product it has a simple design which is easy to convey to workers elsewhere. There is less need to be continuously checking design and quality. The t-shirt is therefore a commodity which may be easily moved from one firm to another or one country to another so that its supply chain can involve many firms and many countries.

1.3 Vertical integration

Although it is possible to separate out different parts of the supply chain each involving different firms, it is also possible that one firm might have a role at more than one stage of production.

Case study: Marks and Spencer and Zara

Marks and Spencer or Zara are examples of two retailers from whom we might buy a cotton t-shirt so we can say that these are two firms involved in the retail stage of production. However, the relationship each has with the earlier stages of the supply chain differs.

Activity 5

Read the following and reflect on the level of vertical integration in the two retailers Marks and Spencer and Zara. Zara forms part of the Inditex fashion group.

> Cotton is very important to M&S. Within our Clothing & Home business it is the largest raw material and on average we use around 50,000 tonnes of lint cotton each year. Our cotton fibre mainly comes from India, China, Pakistan, Turkey, Brazil, USA, Africa and Australia and our supply chain is complex. We don't own farms or factories and don't purchase raw materials directly. Most of the raw materials that go into our products are sourced in a global market and cotton is no exception.
>
> (Marks and Spencer PLC, 2018)

> Our sustainable business model is characterised by a high degree of integration of all phases of the fashion process: design, supply, product and manufacturing quality control, logistics and retail through our 7,475 stores worldwide and in 47 online markets.
>
> (Inditex Annual Report 2017, p. 27)

Discussion

As a clothing retailer Marks and Spencer are positioned towards the end of the supply chain. They are not involved in the manufacturing process, preferring not to vertically integrate their firm with the earlier stages of production. As M&S report on their website, the firm does not directly own any farms or any of the factories that produce the cotton fabric used in products available in their stores. Instead they use other firms in the supply chain who produce intermediate goods such as raw cotton fibre and fabric, or cut and sew the garments to produce the final good sold by M&S.

In contrast, Zara, also a household name in clothing retail, claim to be involved in many stages of production from design through to retail and hence can be said to be vertically integrated. As well as employing in-house designers they prefer to locate their production close to their headquarters, even owning some of their factories.

The following sections will look at the ‘life’, or supply chain, of a t-shirt in more detail. Who are the producers at each stage of production? Where are these firms located and who benefits?