

1 Volume 1

2 Volume 2, Economics

2.1 Study Session 4, Microeconomic Analysis

2.1.1 Reading 13, Elasticity

In the following, we consider

- elasticities of demand
 - ◊ price elasticity
 - ◊ income elasticity
 - ◊ cross price elasticity
- elasticities of supply.

2.1.1.1 Elasticities of demand

We talk about

- price elasticity of demand
- cross price elasticity
- income elasticity.

2.1.1.1.1 Price elasticity of demand

2.1.1.1.1.1 Meaning

LAMBERT-METHOD:

The **price elasticity of demand** (called b) indicates the following: how much (in percent) does the demand change if the price change is 1 percent? The answer is as follows:

- if the prices changes 1 percent, the demand changes η percent.
- If the price changes b percent, the demand changes $\eta \cdot b$ percent.

It is important to know that the elasticity, in most cases, is negative. This means that if the price rises, the quantity demanded goes down. If the price goes down, the quantity demanded rises.

KEEP IN MIND:

All in all, a negative elasticity indicates that price and demand move in opposite directions.

2.1.1.1.1.2 Regions

We talk of different types of elasticity:

- elastic demand
 - ◊ if the price elasticity is superior to 1
- inelastic demand
 - ◊ if the price elasticity is inferior to 1
- perfectly elastic demand
 - ◊ if the price elasticity is infinitely large
- perfectly inelastic demand
 - ◊ if the price elasticity is equal to 0.

Fig. 1 shows the different types of elasticity.

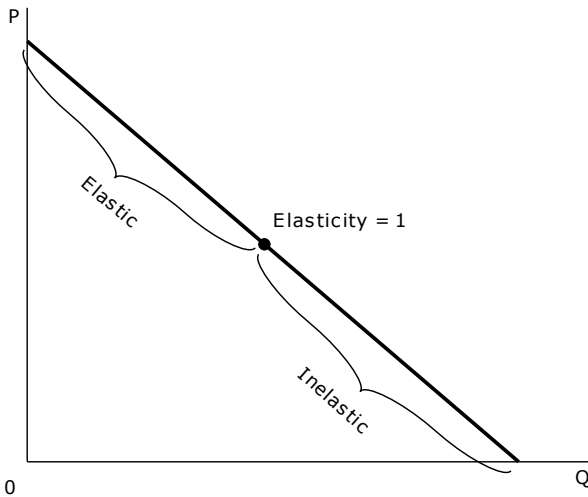


Fig. 1: Elasticities of demand

It is important to know that most demand curves have different (to be more precise: infinitely many) elasticities.

But there are certain demand function that have one and only one elasticity of demand, i.e. it stays constant on the entire function. This is the case with

- perfectly inelastic demand
- perfectly elastic demand
- unit elastic demand.

There are some goods with which the demand does not react at all if the price rises or falls, this **demand** is called **perfectly inelastic**.

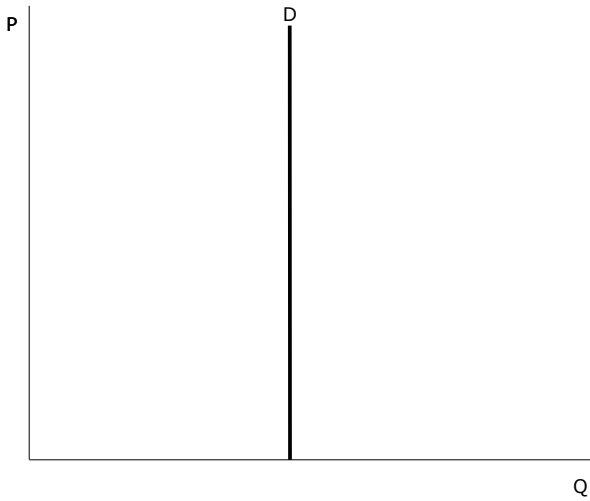


Fig. 2: Perfectly inelastic demand

Example 1:

Many consumers feel very dependent on gas and cigarettes. They realize that prices are rising, but they do not react to this, their demand is not going down.

The opposite holds true with perfectly elastic demand functions: if the price rises at one cent only, people are not buying the good any longer. The following fig. 3 shows that a perfectly elastic demand is completely horizontal.

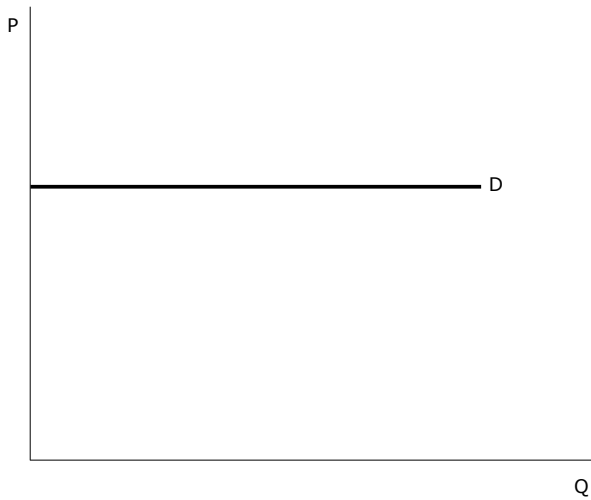


Fig. 3: Perfectly elastic demand

At a **unit elastic demand**, the price elasticity is 1 at the entire function (to be more precise, it is -1).

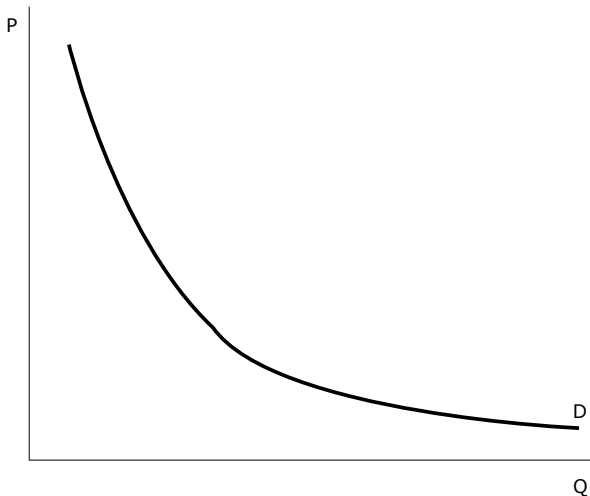


Fig. 4: Unit elastic demand

2.1.1.1.1.3 Total revenue and elasticity

If we raise the price, the quantity demanded of a good normally goes down. But what happens to the revenue a supplier can earn? Since revenue equals price multiplied by quantity, we do not know the reaction in the first place. But look at this:

- if demand is elastic,
 - ◇ and we reduce the price by 1 percent,
 - the quantity demanded rises by more than 1 percent,
 - so revenue goes up,
- if demand is inelastic,
 - ◇ and we reduce the price by 1 percent,
 - the quantity demanded rises by less than 1 percent,
 - so revenue goes down.

Of course, we also know the reaction of rising prices:

- if demand is elastic,
 - ◇ and we raise the price by 1 percent,
 - the quantity demanded decreases by more than 1 percent,
 - ◇ so revenue goes down,