



## Resource 1

### 1a – What Do We Really Mean by Rationality?

The world that we live in is a complex one, and so economists tasked with trying to model the economic interactions within it face a significant challenge. In order to help make sense of it all, we need some way of simplifying the world that we want to model. Enter our assumption of rational decision makers!

Earlier, we defined a rational decision-maker as a utility maximiser. However, let's be a little more precise about this definition, and introduce the concept of **marginal utility**. Marginal utility is the extra utility an individual receives from consuming an additional unit of an item. For example, it could be the additional utility you gain from consuming an additional slice of pizza. An individual is a utility maximiser if they consume a good up to the point where the marginal utility from consuming an extra unit is zero. Think again about the pizza example: a utility maximiser would consume pizza up to the point where the additional utility they would get from an additional slice is zero. Think of this as the point at which you are completely full, and to consume an additional slice of pizza beyond this point would actually do more harm than good! If an individual does consume beyond the point at which marginal utility is zero, then the marginal utility of additional consumption actually becomes negative, and the overall effect of this consumption is to reduce the individual's utility!

A rational decision-maker will look to maximise their utility through the choices they make, and it turns out that if the preferences of individuals are 'well-behaved' – which just means that they obey a certain number of rules, or **axioms** – then we can actually make predictions on the choices that individuals will make. The three axioms you will be introduced to are **completeness**, **transitivity**, and **non-satiation**. Don't worry, while these axioms may sound abstract from their names, they actually help to define some very intuitive ideas!

**Completeness:** The preferences of an individual can be defined as *complete* if that individual has an opinion on the value of any item relative to the value of another item (or items). For example, if you were presented with a choice of a number of different fruits, you should have a complete set of valuations for each of the fruits and would be able to order the available choices starting from the one you preferred the most, all the way to the one you preferred the least.

**Transitivity:** Transitive preferences can be thought of as consistent preferences. Say, for instance, I prefer apples over pears. I may also then prefer pears over bananas. If my preferences are transitive, this means that I should also prefer apples to bananas, as I am being offered my most



preferred of the three choices (apples) against my least preferred option from the three (bananas). Non-transitive preferences violate this assumption.

**Non-satiation:** Non-satiation can be thought of, quite simply, as the belief that 'more is better'. For a rational person, we assume that the utility of this individual is always increasing the more they consume of a particular item.

The non-satiation axiom may seem slightly unrealistic, and you would be correct in thinking so! To account for this, economists refer to a concept called **diminishing marginal utility**. This is something you will become very familiar with as you continue to study economics. As a brief introduction, diminishing marginal utility means that the additional utility you get from consuming an additional unit of an item decreases as you have more of that item. To return to our pizza example you would probably agree that the utility you get from the first slice of pizza in a box is much greater than the additional utility you get from the final slice when you are close to being full.

### **1b - Why Is It Such An Important Assumption?**

Economists are well-aware of the limitations of an assumption such as rationality. However, it is important to realise that without assuming rationality, it would not be possible to create the economic models that give us such valuable insights into the interactions between different parts of the economy. This assumption helps to create a simplified story about how agents in an economy interact. When the axioms that we defined above are violated, say for example through preferences that are **incomplete** and **non-transitive**, it becomes much harder for economists to create the models that allow them to explore the dynamics of an economy.

For example, the neoclassical model is an approach to economics that has become the mainstream over the past century. In this model, it is assumed that an economy is made up of only two types of agents: firms, which maximise profits, and households, which maximise utility. Note here that profit is the firm's equivalent to utility. By assuming that households and firms (agents) are rational utility-maximisers, the economy is simplified to something that is much easier to model and analyse.