

# Urban Economics and Analysis

The Neoclassical Micro World

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Spring 2024

# Introduction

This presentation is based on the typoscript

De neoklassieke micro-wereld.

Available at <https://pvmouche.deds.nl/manus.html>

It deals with the fundamental assumptions concerning the real-world structure of (standard) neoclassical microeconomic models. These assumptions play a (may be hidden) role in the Text Book of Brueckner.

The author of the presentation/typoscript is open for scientific discussion: comments on the typoscript are more than welcome!

# Economics

- Economics is an aspect (social) science with scarcity as the most important aspect.
- Micro-economics is the science that studies how economic agents use relatively scarce resources and alternatively applicable resources to satisfy identifiable needs.
- The central problem is the allocation problem: which articles are produced, how are they produced and who gets what?
- Standard neoclassical microeconomics concerns the theory which in the majority of microeconomics textbooks, like the (famous) Intermediate Microeconomics text book of Varian, is dealt with.

## Microeconomic neoclassical models

- A scientific model is a representation of a phenomenon, object, structure, or system. It is created to understand and explain observations and phenomena and to make predictions.
- Neoclassical microeconomics uses mathematical models in which the real world is formalised.
- Therefore neoclassical models have a mathematical and real world structure.
- Unrealistic real world assumptions are not necessarily bad. (Dealing with 2 goods instead of  $n$ .)
- With models one wants to understand what is happening and to make predictions.
- Making economic predictions is very difficult: what is more difficult to send a rocket to the moon (so that it is expected to land there safely) or to predict (fairly precise) the interest rate in one and a half years?

# Real word assumptions

Three types of real world assumptions for neoclassical microeconomic models:

- Neoclassical fundamental (NF): typical neoclassic.
- Mathematical comfortable (MC): more simple mathematical analysis.
- Model-based comfortable (MBC): not to much modelling.

Below we now present these assumptions in (almost) the same order as in the mentioned typoscript.

## Real world assumptions

- MBC-1: Time is not explicitly part of the real world structure.
- NF-1: Each article is measurable.
- MC-1: Each article is continuous.
- NF-2: Each article and subject is an economic one (i.e. subjects exchanges articles).
- MC-2: There are a finite number of subjects.
- MBC-2: Exchange happens without transaction costs.
- MBC-3: Each article is a private one (i.e. rivalrous and excludable).

## Real world assumptions

- MBC-4: There is no rest of the world.
- MBC-5: There is complete information.
- NF3: There is no communication. And there is cooperation between subjects only in the sense of their presence on markets where exchange takes place.
- MBC-6: Each consumer has a time independent preference relation.
- MBC-7: There is no endowment effect. (So not an “NF assumption”!)
- NF-4: Each consumer has a rational preference relation.
- NF-5: In case of utility, this is ordinal.

## Real world assumptions

- MBC-8: There are only one output production process with one strict distinction between which article types are inputs and which article type is output.
- MBC-9: The production (factor) space is  $\mathbb{R}_s^+$ .
- MBC-10: For every producer there is a production function that given a production factor bundle provides a certain quantity of the output article. (Cfr. NF-6)
- MBC-11: There are no external effects.



## Real world assumptions

- NF-6: Exchange is voluntary.
- MBC-12: Exchange satisfies the non discriminatory standard procedure and is done by means of fixed exchange rates.
- NF-7: For each couple of articles there is a market.
- MC-3: all exchange rates are positive.
- NF-8: all markets are free of arbitrage and exchange rates satisfy  $p_{ij} = p_{ik}p_{kj}$ .
- MBC-13: Exchange is indirect via money and money is not an explicit article.
- NF-9: Each subject has a goal rational motivation.
- NF-10: Each subject is intelligent.

## Real world assumptions

- NF-11: The motivation of every consumer is to determine the best possible good bundle in his consumption space.
- MBC-14: The consumption space for a consumer consists of the bundles of goods that he can buy given the prices of the goods and his budget.
- NF-12: The motivation of each producer is profit maximisation.
- NF-13: The motivation for the government is maximisation of social welfare.

## Real world assumptions

- MBC-15: It is impossible for an economic subject as consumer to leave or to enter a market.
- MBC-16: Each market is perfect (i.e. no subject has market power).
- NF-14: The price mechanism leads to a general equilibrium allocation.

## Summarizing

Typical for standard neoclassical microeconomic theory is that it is based on arbitrage free markets, equilibrium thinking, measurable economic articles and rational intelligent non-communicating economic agents with self-interest as motivation for their actions. In addition in case of utility this is ordinal, exchange is voluntary. The motivation of every consumer is to determine the best possible good bundle in his consumption space. The motivation of each producer is profit maximisation. The motivation for the government is maximisation of social welfare.

Now it is time to look how so-called “behavioural” economics differs from neoclassical economics. A very interesting article dealing with this question is

*R. Aumann, A synthesis of behavioural and main-stream economics, Nature Human Behaviour, 3, 666-670, 2019.*