

Research Master in Cognitive and Clinical Neuroscience Specialisation Neuroeconomics

Matthias Wibral
Associate Professor | specialisation coordinator

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Neuroeconomics seeks to understand and explain (puzzling) everyday behaviour.

So many choices.



What is a good and a bad choice?

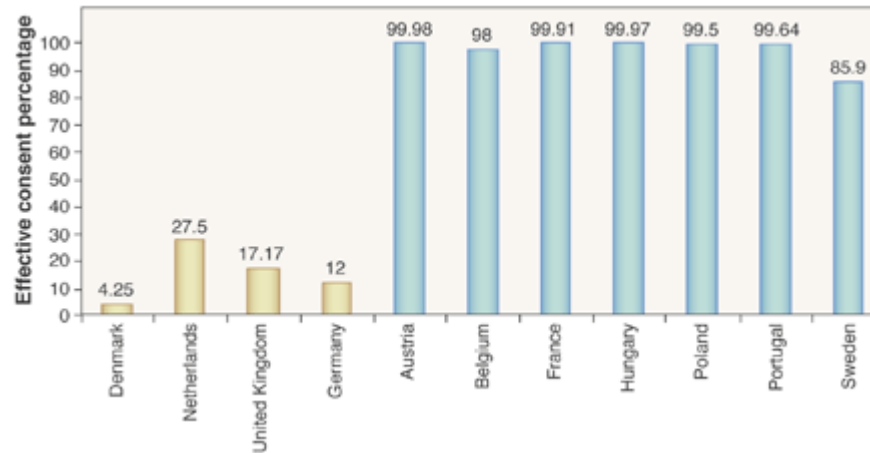
How do we choose?



Neuroeconomics seeks to understand and explain (puzzling) everyday behaviour.

The power of defaults.

Organ donation rates in different countries.



Neuroeconomics seeks to understand and explain (puzzling) everyday behaviour



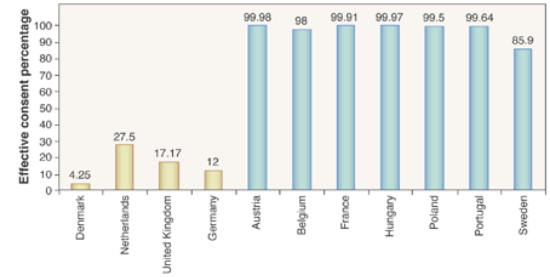
- Why are people gambling and taking insurance at the same time?

Neuroeconomics seeks to understand and explain (puzzling) everyday behaviour



- What makes us humans greedy and cooperative at the same time?

Neuroeconomics seeks to understand and explain (puzzling) everyday behaviour.

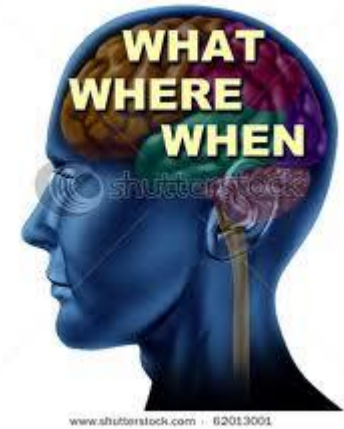


How does this all fit together?

Neuroeconomics is an interdisciplinary endeavour

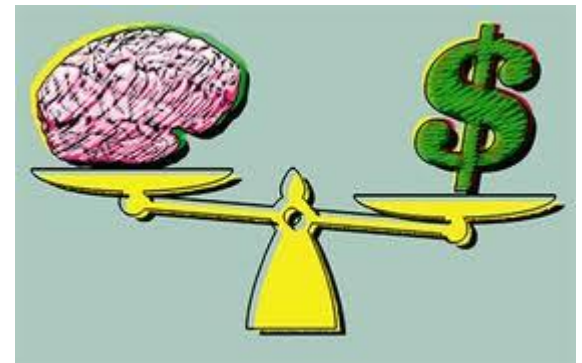
Neuroeconomics adds brain to economics.

- Neuroeconomics seeks to uncover the neuronal basis of our choices and behaviour.



Neuroeconomics adds economics to neuroscience.

- Neuroeconomics looks at the brain as a system using limited resources.



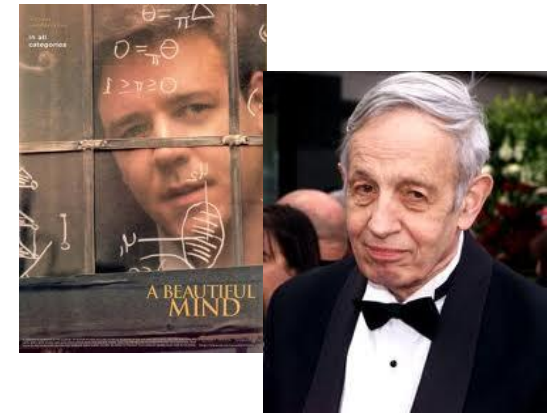
Tools and methods from economics, neuroscience, and psychology

Economics and Game Theory

Use the formal language of economics and game theory to model and predict behaviour.

Economics Experiments

Use incentivised experiments without deception to explore behaviour.



Neuroscience

Use methods from neuroscience to measure and explore neural processes underlying observed behaviour.

Psychology

Use insights from psychology (illusions, heuristics, framing effects) to improve models of behaviour.

The Neuroeconomics Curriculum.

Jointly offered by FPN and SBE, with courses at both faculties/schools!



The curriculum:

- A. Behaviour and Mind (at SBE at FPN)
- B. Neuroscientific Methods (at FPN)
- C. Research Skills (at FPN and SBE)
- D. Research (at FPN and SBE)

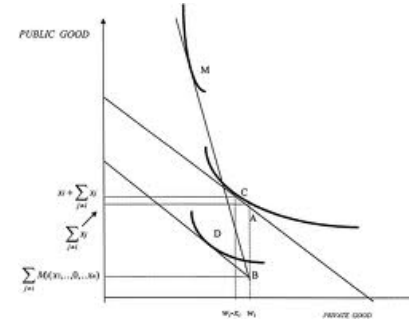
Behaviour and mind



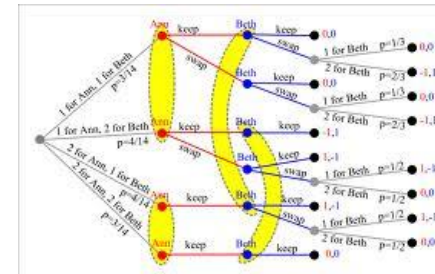
Psychology ~ Neuroscience
~ Economics



Social Neuroscience



Decision & Equilibrium Theory



Game Theory & Information



Behavioural Economics

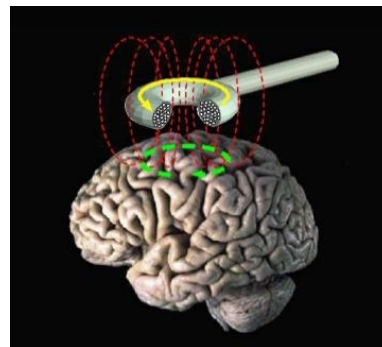
Neuroscientific methods



Imaging (fMRI)

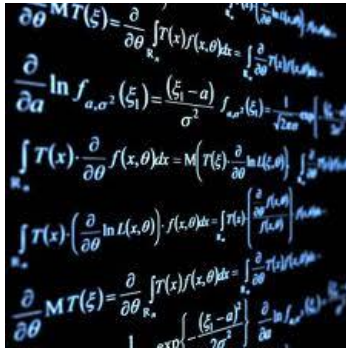


Electroencephalography (EEG)
Magnetoencephalography (MEG)



Transcranial Brain Stimulation (TMS)

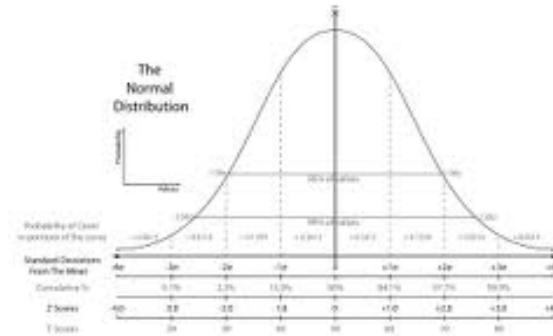
Research skills



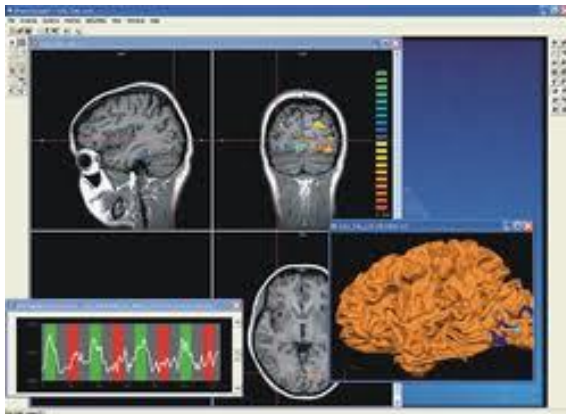
Handwritten mathematical formulas on a chalkboard, including:

$$\frac{\partial}{\partial \theta} \ln f_{a, \sigma^2}(\xi_i) = \frac{(\xi_i - a)}{\sigma^2} - \frac{1}{2\sigma^2} \left(\frac{\xi_i - a}{\sigma} \right)^2$$
$$\int T(x) \cdot \frac{\partial}{\partial \theta} f(x, \theta) dx = M \left(T(\xi) \frac{\partial}{\partial \theta} \ln L(\xi, \theta) \right)$$
$$\frac{\partial}{\partial \theta} \ln L(\xi, \theta) = \int T(x) \cdot \frac{\partial}{\partial \theta} f(x, \theta) dx = \int T(x) \cdot \frac{\partial}{\partial \theta} \left(\frac{1}{\sigma^2} \exp \left(-\frac{(\xi - a)^2}{2\sigma^2} \right) \right) dx$$

Mathematical Research Tools



Advanced Statistics



MATLAB & Brain Voyager



Experimental Economics Methods

Your own research

Almost the whole second year is dedicated to research:

A. Research Grant Writing

B. Research Internship and Master Thesis

In Maastricht: Excellent multidisciplinary research group at FPN and SBE.

Abroad: Students have joined research groups at CalTech, Cambridge, Duke, MIT, Oxford, ETH Zurich, etc.

Topics: Range from individual decisions to social behavior.

Methods: Range from behavioural research to fMRI, TMS, ...

Career focus

Optimal basis for fundamental and applied research in neuroeconomics and decision sciences:

- PhD careers at economics, psychology, or neuroscience department

Excellent preparation for advice in decision making and conflict resolution:

- Consultant and advisor at institutions and organisations.

More information? Questions?

- Meet us at the information market:
Yme Brantjes (1st year student)

Matthias Wibrals (me, track coordinator)

m.wibrals@maastrichtuniversity.nl



- Visit our Research Master website or www.neuroeconomics.nl

 masterinfo-fpn@maastrichtuniversity.nl

 maastrichtuniversity.nl/fpn/masters

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