BEE-2021: Lecture topics and details

Introduction, on behavioural insights and environmental economics, by *Oben Bayrak*

Oben Bayrak's focus will be individual decision making, by focusing on an introduction to behavioral economics such as behavioral biases, methodology and examples of experiments. Then, discussing prominent theories particularly and frequently observed behavioural patterns in economic experiments. Main discussion will be formed around the question of how do we interpret behavioural insights in the context of environmental economics.

Behavioural Economics and the Environment: An Overview and some Welfare-related reflections, by *Chandra Kiran Krishnamurthy*

This lecture will begin with a short introduction to the basic types of environmental problems of interest to this course, with particular focus on the theme of the rational individual and collective decision making for environmentally relevant goods, with both the choice and the mechanism context to be explored. A few real-world policies will be used as motivating examples for individual decisions and collective decision making and the associated policies. A discussion of welfare, formal and informal, along with paternalism, will be presented. Finally, some specific illustrations and real-world examples will be presented for how the postulated simple rational behaviour can differ in reality from expectations. Attention will be drawn to the challenges involved in identifying deviations from basic rationality assumption and "conditioning factors" involved in many contexts.

Environmental dilemmas and coordination games, by *Elin van der Heijden*

Prof. Eline van der Heijden's lecture starts with a short introduction to several types of environmental problems and briefly reviews how some of these environmental social dilemmas have been studied experimentally and discusses some recent contributions, both of lab and field experiments. Then, discussing some specific topics in more detail: cooperation in (dynamic) coordination games, provision of environmental conversation by means of payments for ecosystem services, the role of leadership. Focus is on instruments that can be used to improve coordination and cooperation.

Adding ambiguity into the context, by *Sara Le Roux*

Dr. Sara le Roux focusses on the concept of Equilibrium under Ambiguity (EUA). Then the lecture proceeds to apply the equilibrium concept to analyze games that simulate the effects of climate change in various choice situations: Mitigation: We will firstly model the ambiguity countries face while coordinating in a manner that would mitigate harmful emissions that cause climate change. Adaptation: Next we will study the effects of ambiguity on individuals deciding whether to invest in infrastructure that will adapt to the harmful effects of climate change, such that they can prevent losses due to climate change catastrophes. Insurance: Finally, alongside mitigation and adaptation mechanisms, we must consider insuring optimally in the face of ambiguous climate change catastrophes that can be viewed as low probability/high impact events.

Economic experiments and ecological systems, by *Therese Lindahl*

Dr. Therese Lindahl's focus is the value added of using experiments to study social ecological systems. The lecture will be about exploring the value added of using experiments to study social-ecological systems. She will first talk about controlled behavior experiments, where the specific emphasis is typically on capturing relevant features of ecosystem dynamics such as regime shifts and their inherent uncertainties, spatially distributed resources, asymmetrically distributed resources, resource interdependencies. These experiments are often applied to common pool resource settings, they have

been performed both in lab and in field settings and we will cover both types of studies. She will also talk briefly about the value added of using social simulation experiments to study social-ecological systems, especially when they are used in combination with controlled behavioral experiments.

Incorporating evolutionary insights into behavioural environmental economics by *Jessica Barker*

The main contribution of behavioural economics has been to show that individuals often do not exhibit behaviour consistent with our predictions about how 'rational' agents should behave. This has revolutionised our understanding of human behaviour, and has also had major impact on policy-making, through its use by government behavioural science units. However, the focus of behavioural economics has largely been descriptive, cataloguing an ever-growing but inconsistently categorised list of biases and heuristics that have been uncovered. To make sense of this list, and to allow us to use our knowledge of behaviour to better design interventions to promote pro-environmental behaviour, we need to incorporate an understanding of why people behave the way they do. Evolutionary biology provides just such a perspective on human (and other animal) behaviour. For any question about why we see a given behaviour, there are four complementary answers (often referred to as Tinbergen's four levels of analysis). Firstly, we can point to the proximate psychological mechanisms that caused the behaviour, such as feelings of risk aversion. Secondly, we can describe the developmental mechanisms over an individual's lifetime, such as learning from parents or peers. Thirdly, we can explain human behaviour from its origins in other species. Fourthly, we can analyse the effects of behaviour on an individual's evolutionary fitness, and ask why that behaviour has been maintained by natural selection. It is this fourth type of explanation that should be incorporated more into behavioural environmental economics, as it sheds light on what types of behaviour are considered 'rational', can help us make more consistent predictions about how individuals should behave in different context, and can guide us in designing better interventions.

Framed field experiments, by *Arild Angelsen*

Prof. Arild Angelsen's focus on Framed Field Experiments (FFEs): Since 2000 (Cardenas), a series of FFEs on natural resource use and management in developing countries have been conducted. FFEs have, compared to lab experiments, a realistic task (e.g. harvesting of trees) with a relevant population (e.g. real forest users) and conducted in the participants' natural environment. The experiments are usually framed as a common pool resource game (CPR), creating a social dilemma between individual collective payoffs. The lecture aims to, first, give a broad overview of FFEs, some typical resource management situations, and possible policies. Second, it will summarize the experimental studies and the main (policy) conclusions that can be drawn from these.