

Fighting Climate Change

I. TOPIC DESCRIPTION

Climate change is one of the most devastating crises that humanity has ever faced. Largely caused by greenhouse gas emission, climate change is bringing about many serious issues such as melting glaciers, rising sea levels, extreme weather events and the extinction of many plant and animal species. Fighting climate change has thus become one of the most pressing matters of our time. Tackling this urgent issue requires a global effort to cut down carbon emission and to promote a more sustainable economy.

Policy makers have long focused on economic and technological instruments for combating climate change. Two major market-based instruments are tradable permits and carbon taxes. They both aim at internalizing negative externalities and changing the incentive structures of emission. Getting the carbon price at the right level is thus very crucial to its effectiveness. Various countries have implemented such policies at the national and regional levels; however, the average price of emissions worldwide is only \$2 a ton, which seems to be far less than the optimal level (Parry, 2019). Experimental evidence has shown that introducing a price mechanism could have a significant impact on social norms, which might crowd out people's intrinsic motivation to behave ethically (e.g. Gneezy & Rustichini, 2000; Falk and Szech, 2013). One might find it interesting to investigate what are the potential impacts of carbon pricing on social norms. Transition to renewable energies could also largely reduce carbon emission, which offers a promising opportunity for ecological success. How should we properly design renewable markets and economic instruments to tackle climate change?

Besides the economic instruments, changes in individual behaviour is also of great significance to tackle climate crisis. Shifts in individual food, transportation and energy consumption choices could all contribute to a greener economy. One could think about how to design effective behavioural interventions to nudge people into more sustainable lifestyle.

Moreover, research has shown that the way in which we communicate climate change to the public has a nonnegligible impact on people's behaviour (e.g. Spence and Pidgeon, 2010). How should we frame and communicate climate issues to gain more public support of pro-environmental policies and to increase public engagement of environmentally friendly behaviour?

In addition, social media, digital technology and artificial intelligence could also provide new opportunities to fight climate change. For instance, Alipay, a major online payment platform in China, allows its users to track their daily carbon emissions. It rewards its users with green energy points for low carbon activities such as walking or biking to work and buying environmentally friendly products. The points are then used to build virtual trees on users' App. For each virtual tree built within the App, Alipay responds by cooperating with local NGOs and planting a real tree in a conservation area. By August 2019, more than 100 million trees have

been planted by Alipay. One might find it interesting to explore how to design social media, digital technology and artificial intelligence to combat climate change.

II. SCOPE OF THE SEMINAR

Please note that no topics will be handed out. Instead, participants will develop their own research question in the broad field of Fighting Climate Change. Using their own creative abilities, students design an economic experimental or field study that answers their research question. Students will work in groups of up to four, depending on the total number of participants. If the process of group formation is unsuccessful, participants will be assigned.

The seminar starts with an introductory meeting on Wednesday, April 22 at 14:45 in building 05.20, room 1C-02. Ideas for experiments or field studies will be presented in blocked events on May 27. Each presentation should last max. 20 minutes. Full attendance in all meetings is required for successful participation in the seminar. Seminar papers of 8 – 10 pages, as well as two abstracts (one with 70-100 words, one with 150-200 words) are to be handed in by July 26.

Grades will be based on the quality of presentations in the seminar (40%), the seminar paper (40%) and the abstracts (20%). Students can improve their grades by 0.3 for good and constructive discussion contributions or by 0.7 for excellent and constructive discussion contributions. Application will be possible via the centralized platform until the 20th of January.

Please note that we will ask you for a brief description of the topic and research idea you are interested in, in order to ensure a well-balanced variety in the seminar. Prior attendance of the courses “Economics and Behavior” and/or “Auction and Mechanism Design” is recommended but not required. For further questions, please contact Lixuan Zhao (lixuan.zhao@kit.edu).

III. SOURCES OF INSPIRATION

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- Parry, I. (2019). *Putting a Price on Pollution Carbon-pricing strategies could hold the key to meeting the world's climate stabilization goals*. [online] *International Monetary Fund, Finance & Development*, pp.16–19. Available at: <https://www.imf.org/external/pubs/ft/fandd/2019/12/the-case-for-carbon-taxation-and-putting-a-price-on-pollution-parry.htm> [Accessed 8 Jan. 2020].
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