RESEARCH STATEMENT

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As an economist, I want to be involved in research to tackle real-world phenomena. My research philosophy is that economic research should be motivated from empirical facts; however, empirical research should be guided by solid economic theory. Therefore, my research is in both applied microeconomic theory and empirical microeconomics. I am currently working on research questions regarding climate change, which needs to be resolved by various economic agents such as scientists, governments, voters, and international organizations. Hence, my research is focused on political economy, public economics, energy economics, and environmental economics. Moreover, I want to work in interdisciplinary studies as I believe that climate change must be tackled by multiple disciplines and interactions among them. I am willing to get involved in any type of collaborations with other disciplines such as natural science, environmental science, and political science.

My dissertation is entitled “A Microeconomic Approach to Climate Change.” The Department of Economics has recognized my research accomplishments with the Alfred S. Eichner Prize in Economics for the most innovative and path-breaking dissertation research in 2015. The following are the title of each chapter in my dissertation.

2. “The Strategy of Manipulating Climate Change Skepticism”
3. “Endogenous Coalition Formation of Climate Change Agreements”

The abstract of each chapter is as follows.

1. CHEAP TALK AND CLIMATE CHANGE: A THEORY OF DISCORDANT CLIMATE CHANGE POLICIES (Job Market Paper)

A political party’s ideological position regarding climate change can be either pro-growth or pro-environment. However, the ideological position itself does not sufficiently explain climate change denial. To study this issue, I develop a cheap-talk game of the three parties associated with climate change: the government, the climate scientist, and the median voter. I show that a credibility gap is created between the scientist and the government if the preference of the scientist is not perfectly aligned with that of the government. In the case where climate change is likely to be a serious problem, the credibility gap leads to too much burning of fossil fuels. The credibility gap is eliminated and the ex-ante social welfare is maximized if and only if the scientist’s preference is perfectly aligned with that of the government. This is endogenously achieved when the government is allowed to appoint its optimal scientist without election concerns. In the case where the government has election concerns, if the median voter perceives an alarming
message from the climate scientist, then even a “right-wing” government must choose an aggressive climate change policy to avoid losing the election. Accordingly, it will prefer to appoint a climate scientist who is unlikely to send an alarming message. Thus the government deliberately creates a credibility gap which may cause distorted climate change policies in a democratic society. Nevertheless, the model predicts that countries with more democratic political institutions will have climate change policies that are more targeted towards renewable energy. I test this prediction with cross-sectional data from 133 countries worldwide in 2011. I show strong empirical evidence that supports my theoretical prediction.

2. The Strategy of Manipulating Climate Change Skepticism  
(In Progress)

I develop a climate-change policy game between two decision-makers under incomplete information. The decision-makers choose progressive or conservative actions towards climate change. Climate scientists can manipulate the decision-making by sending publicly observed cheap-talk messages. The likelihood of cooperation on climate change is reduced by a conservative scientist if actions are strategic complements. The conservative scientist can do this by sending skeptical messages that trigger a spiral of climate change skepticism. This reduces the welfare of both decision-makers. If actions are strategic substitutes, a progressive scientist can send alarming messages that cause one decision maker to be progressive. This reduces his welfare but benefits the other decision-maker. The conservative scientist cannot communicate effectively if actions are strategic substitutes, and the progressive scientist is equally ineffective if actions are strategic complements.

3. Endogenous Coalition Formation of Climate Change Agreements  
(In Progress)

I develop a coalition formation game where asymmetric countries endogenously form a coalition structure of climate agreements. I show that an equilibrium coalition structure depends on the voting rule. I work out a simple four-country example with two large and two small countries under complete information. In the open membership game, the equilibrium coalition structure has two coalitions where each coalition has one large and one small country. In the coalition unanimous game where smaller countries have the right to move first, the equilibrium coalition structure has two coalitions: one with three countries and the other with a singleton coalition of a small country. If larger countries have the right to move first, the equilibrium coalition structure has two coalitions: one with two large countries and the other with two small countries.

Future Research

I plan to continue on theoretical and empirical microeconomic research regarding climate change. As another project, I may proceed with empirical research to measure “the fears of losing power” for climate change policies in the U.S. Political preferences are different across states and cities; and many climate change policies are implemented by local governments. I may gather a panel-data set to examine the fears of losing power in the U.S. Specifically, I may test a conditional hypothesis that environmental preferences have a stronger positive effect on climate change policies in the conservative (right wing) states (or cities) as compared to the progressive (left wing) states (or cities).
my theoretical model of climate change policies, if the median voter’s ideological position is closer to the left wing, the right-wing government implements stronger climate change policies; and the left-wing government can implement its unconstrained climate change policies. Thus I predict that environmental preferences of cities (or states) would have stronger positive effect on climate change policies in the right-wing party governing cities (or states) as compared the left-wing party governing cities (or states).