TSE Tsz Kwan
謝　梓君

Abstract

Carbon emission reduction is global public goods whose benefits cannot be restricted and does not reduce its availability for others. When individuals contribute to global public goods, they often simultaneously contribute to local public goods which are private to the individuals. For example, they reduce air pollutants in the local area by switching to renewable energy option and reducing energy use. Public goods are impure in reality. What is the effect of local benefits on the contribution to carbon emission reduction? To answer this question, we conduct two games: infinitely repeated public goods (PG) game and infinitely repeated transboundary public goods (TPG) game.

Chapter 2, titled "Cooperation and Cognitive Ability in the Infinitely Repeated Public Goods Game," investigate the relationship between cooperative behavior and cognitive in infinitely repeated PG game. We use equilibrium selection concepts to predict the human behavior and use strategy frequency estimation method and one period ahead strategy method to elicit the employed strategies. We find that when the probability of continuation increases, subjects with high cognitive ability more frequently employ cooperative, lenient, and forgiving strategies. However, we cannot find the same trend in low cognitive ability group.

Chapter 3, titled "Cooperation and Cognitive Ability in the Infinitely Repeated Transboundary Public Goods Game," investigate the relationship between equilibrium selection and cognitive in infinitely repeated TPG game. TPG game is an extension of PG game which players receive more information from the local group, and marginal per capita return (MPCR) are heterogeneous across local groups that high MPCR among local groups and low MPCR among counter groups. We follow the same approach in Chapter 2 to analyze the results. We find the same trend as Chapter 2 that when the probability of continuation increases, subjects with high cognitive ability more frequently employ cooperative, lenient, and forgiving strategies. However, we cannot find the same trend in low cognitive ability group.

Chapter 4 titled "The Effect of Individual Characteristics, Belief on Partners and Inequality Aversion in Two Games," investigates how individual characteristics and belief affect contribution levels in two games. Firstly, by comparing PG game and TPG game, we find that the effect of local benefit in impure public goods positively affects contribution among subjects with high cognitive ability when the probability of continuation is high, but not subjects with low cognitive ability. General trust level positively affects contribution among low cognitive ability subjects. We find that more high cognitive ability partners are matched, higher the individual contribution in both high and low cognitive ability group.