Climate Change Discourse and Environment-Friendly Practices: A Study of Renewable Energy Adoption by Indian Firms

Santanu Bhadra

Strategic Management

Indian Institute of Management Calcutta

Thesis Abstract

Firms compete not only in the business environment but also in the natural environment that provides the basic resources for production. The global discourse around climate change has put research on firms' environmental behavior at the forefront of management scholarship. According to experts, the key solution to climate change is to reduce greenhouse gas (GHG) emissions in a rapid manner. Renewable sources of energy (such as solar, wind, hydro, and biomass) have minimal impact on GHG emissions as compared to fossil fuels (such as coal, oil and natural gas), and thus adoption of renewable energy is an important environmental behavior by firms. This motivates me to study firms' adoption of renewable energy.

I consider renewable energy adoption as a strategic choice by firms, especially in an emerging economy like India, where financial and technological challenges create considerable barriers to adoption. Adoption of renewable energy requires high upfront investments and comes with technological uncertainties at this early stage. Alternatively energy efficiency is a more incremental and short term cost-reduction approach to reduce GHG emissions. Yet, as scientists and policymakers mostly agree that large scale adoption of renewable energy is the best way to meet long-term climate goals, renewable energy adoption seems more forward-looking in terms of climate policy dynamics. In addition, renewable energy adoption reduces the risk of fossil fuel dependence, and early adoption can also provide a learning advantage. Thus, I explore the variation in firms' adoption of renewable energy in the emerging economy context, and seek to understand firm ownership and institutional factors as some of the antecedents, in the following three essays.

In the first essay, I present a descriptive study to show the extent of variation in renewable energy adoption across Indian firms. I get a sense that family ownership might facilitate adoption more than non-family ownership. Similarly, firms in more developed regions might adopt more than firms in less developed regions. However, remotely located firms seem to adopt more than centrally located ones. Though I do not establish any causal relationship by this study, I certainly show dimensions of variance among firms. I also interviewed a few managers and looked into top management speeches of both family controlled and non-family controlled firms to understand their renewable energy adoption scenario. My interpretation of the management commentary suggests that the institutional context plays an important role in their decision making.

In the second essay, I try to understand the effects of ownership and institutional context through causal analysis. I argue that in the face of institutional heterogeneity, the way firms are governed can have different effects on their adoption of environment-friendly practices, depending upon the institutional context. Studying a sample of Indian manufacturing firms operating across diverse institutional environments within the country, I find that family firms with concentrated ownership are generally more likely to switch to renewable sources of energy. However, this influence is reversed among firms operating in less developed institutional environments. This suggests that family ownership may dampen substantive change in firms in the context of low regulation and enforcement, even if the change is environment-friendly.

In the third essay, I study how global linkage of the emerging economy firms might affect their climate action in terms of adoption of renewable sources of energy. I take particular interest in electricity generating firms due to the importance of energy sources in their business and their global linkage through mostly inward internationalization. I further posit that global linkage at the business group level can also be an important factor affecting the climate action of the affiliated firms. My results suggest that global linkage of the electricity generating firms is still not supportive of renewable energy adoption in the emerging economy. However, global linkage promotes adoption when the focal firm is affiliated to a business group. I also find that global linkage creates a better likelihood of adoption for a more centrally positioned affiliate in the business group.

Overall, my study suggests that owners' motivations in adopting environment-friendly practices depend much on the institutional contexts of the firms. In the presence of conflicting institutional demands of economic and environmental benefits, institutional context and ownership structure of the firm can jointly determine environment-friendly practices, supporting the institutional complexity perspective of firm behavior. From this understanding, managers can try to overcome adoption constraints, and policymakers can work towards ensuring better environmental compliances by firms.