

City University of Hong Kong

Department of Public Policy

Research Student Seminar

**Sustaining eco-innovations in the
construction industry: Perspective
from Hong Kong**

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by

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Abstract:

Eco-innovations, in practice, are still at a nascent state owing to its non-self-enforcing characteristic and the double externality problem associated with it. It is emphasized that it requires policy intervention across the stages of invention, innovation, and diffusion for its effective establishment in the

market. Off late, factors like technological assets, organizational measures, as well as the intent of the firm personnel, are considered to be equally important. However, the interactions among these factors have not been traced out in terms of its implementation in the construction industry and the factors that play an essential role in determining the likelihood of adoption in the future. Moreover, Hong Kong being a peculiar city, which is considered at par with the developed countries in the west and is a special administrative region of a developing country, China, has remained largely unexplored in this domain. The current study, therefore, aims to determine the factors that influence adoption of eco-innovative practices in the construction industry in the context of Hong Kong. Based on the insights from institutional theory, strategic choice theory, resource-based view, and a number of semi-structured interviews, this study develops a conceptual framework to test the data collected from 140 construction-based firms in Hong Kong. The survey is conducted from March 2018 to October 2018, and the response rate is 43%. The results reveal that stringent policies, managerial concern, and organizational measures play a significant role in motivating firms to be eco-innovative, however, the likelihood of adoption is most strongly influenced by existing eco-innovative practices. These findings support the Porter hypothesis and validate the long-standing debate on “innovation breeds innovation”. Following the completion of the aggregate quantitative analysis, case studies are being conducted for deriving theoretical and rational insights. The co-evolution of technologies, institutions and business strategies are being evaluated to mend the fragmented knowledge of neoclassical narratives of process eco-innovations in the construction industry, in order to generate pragmatic pathways on best practices for the transition of firms from a non-sustainable approach to a sustainable approach.

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Moreover, Hong Kong being a peculiar city, which is considered at par with the developed countries in the west and is a special administrative region of a developing country, China, has remained largely unexplored in this domain. The current study therefore aims to determine the factors that influence adoption of eco-innovative practices in the construction industry in context of Hong Kong. Based on the insights from institutional theory, strategic choice theory and resource-based view, this study develops a conceptual framework to test the data collected from 140 construction-based firms in Hong Kong, making a response rate of 43%. The survey is conducted from March 2018 to October 2018. The results reveal that stringent policies, managerial concern and organizational measures play a significant role in motivating firms to be eco-innovative, however likelihood of adoption is most strongly influenced by existing eco-innovative practices. These findings support Porter hypothesis and validates the long-standing debate on “innovation breeds innovation”. Following the completion of the aggregate quantitative analysis, case studies are being conducted for deriving theoretical and rational insights. The co-evolution of technologies, institutions and business strategies are being evaluated to mend the fragmented knowledge of neo- classical narratives of process eco-innovations in the construction industry.

after conducting an aggregate quantitative analysis of the factors that drive eco- innovation through a questionnaire survey of firms under the construction industry, we would conduct multiple case studies, which we believe would be ideal for deriving theoretical and rational insights. Eco- innovations, unlike regular innovations, are not self- enforcing and are associated with the double externality problem. Therefore, it is emphasized that eco- innovations need govt. intervention in the form of supportive policies on priority. Off late, factors like consumer demand, technological advancement as well as the competitiveness of the firms have been considered as equally important. However, the interaction among these driving forces has not been fully traced out. Also, the theory on eco-innovation is found to be at a nascent stage which does not resonate with its dynamics as it is traditionally studied under the neo- classical economics theory.

Therefore, to begin with, insights for this research have been derived from the merits of ‘neo- classical economics’, ‘evolutionary approach’, and the ‘resource based view’ which revealed the issues pertaining to technological system lock- ins and firm- based capacities which usually remained undefined by the neo classical approach; it would be followed by

determining how the policies (in the national level) and their instruments are designed in order to motivate firms to eco-innovate, by analyzing the innovation 'friendliness' of the policy style and the policy instruments as per the indicators provided in innovation literature by means of document review (content analysis) of the relevant policies introduced by the Chinese government. The significance of theoretical analysis lies in its ability to show why certain practices become dominant irrespective of gains or losses, and that of the policy analysis lies in its ability to demonstrate the credibility of govt.'s sticks, carrots and sermons for eco-innovation.

While determination of driving forces for eco-innovation has been evaluated thoroughly in the literature, questions about its implementation in the construction industry and the factors that can sustain these practices in the future remain unanswered. The current study aims to determine the factors that influence adoption of eco-innovative practices in the construction industry in context of Hong Kong. The study develops a conceptual framework based on notions derived from institutional theory, strategic choice theory and resource-based view and tests this framework by using data collected from 140 construction-based firms in Hong Kong.

Hierarchical regression analysis and linear regression analysis are used for testing the various relationships. The results revealed that drivers of regulatory instruments, managerial concern and organizational measures play an important role in influencing the firms to be eco-innovative.

However, in case of determining likelihood of adoption of eco-innovation in future, it is observed that although regulatory instruments and managerial concern do influence the likelihood, firms that are equipped with eco-innovative practices are most likely to adopt in future as well. Therefore, the study demonstrates a strong mediating role of eco-innovative practices on likelihood of adoption. Further the study also provides a strong evidence for a positive relationship between eco-innovation and financial profitability.

These findings support the Porter hypothesis and validates the long-standing debate on innovation breeds innovation.