

Productivity and Innovation in Japanese Construction Industry

Koki Arai and Emi Morimoto

In the construction industry in Japan, increasing productivity is treated as a priority issue, and various measures have been put in place, focusing on i-Construction in particular.

In economics, productivity equals the output (or added value) divided by the input factors, which include capital, labour, and intermediate inputs (the necessary raw materials). In the construction industry, discussions of productivity improvements focus on the rate of change of the Total Factor Productivity (TFP), which compares the rate of change of added value with the rate of change of the various input factors.

In order to determine the key issues in productivity, performance, and quality in the Japanese construction industry, we conducted the following investigations.

Firstly, we analysed the elements affecting TFP in the Japanese construction industry by examining multiple factors from the Japan Industry Productivity Database including Technological Innovation Effect, Weather Effect, Efficiency Increase Induction, and Effect of Construction Investment.

Secondly, we analysed the behaviour of innovative companies. Drawing on construction work procurement data from all eight regional development bureaus of the Ministry of Land, Infrastructure, and Transport, we investigated the factors underlying such growth. Surprisingly, innovative companies did not comprise a large proportion of successful bidders, nor was there any special relationship between the successful bid rate and the market since prior participation. However, innovative companies were more likely to win bids when the total procurement budget was high and when procurement was conducted via competitive bidding.

Thirdly, we conducted a questionnaire survey and semi-structured interviews with industry professionals and stakeholders to identify issues regarding innovation.

In order to enhance construction industry innovation in Japan, we suggest that it is important to (i) not rely on a patent policy to drive innovation, (ii) create an environment which encourages competition, and (iii) develop an ongoing initiative that encourages and rewards innovation.

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Address: 1-1 Daigaku-cho, Yachiyo-city, Chiba, Japan, 296-0003

Faculty of Management and Administration, Shumei university

E-mail: koki.arai@nifty.ne.jp