

# The Impact of Track Improvement on Railroad Productivity

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## Abstract

Japanese regional small- and medium-sized railroad companies have improved track equipments especially since 2000s. Heavy rails and concrete sleepers are examples of improved tracks. Installing these equipments may increase the productivity of railroad companies because it is said that these equipments require less frequency of track maintenance. This study investigates empirically whether these track improvement increase the productivity of railroad companies.

We estimate the production function using panel data of Japanese regional small- and medium-sized passenger railroad companies. When we estimate the function, we consider simultaneity between companies' inputs choice and productivity by applying the method proposed by Levinsohn and Petrin (2003). Then we predict the total factor productivity (TFP) and evaluate the impact of track improvement on TFP by dynamic panel data analysis.

The results indicate that heavy rails and concrete sleepers may increase the TFP of railroad companies. This may be because companies reduce the frequency of track maintenance and reduce the usage of inputs by installing these equipments.

*JEL Classification:* R40; L92; D24

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The updated version of this abstract is available from author's website (<http://tomkitamura.html.xdomain.jp>).

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