Disentangling country fixed effects in the structural gravity model for foreign direct investment: A machine learning approach

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Abstract

This study disentangles the time–varying country–specific fixed effects in the structural gravity model for foreign direct investment (FDI) by employing a machine learning method, namely Lasso. Using a sample of 37 host countries from the Organization for Economic Cooperation and Development, 63 source countries from 1999–2019, and numerous potential determinants of FDI on each of the source and host economies, we find that characteristics related to "business legislation" and "finance" categories may be important in explaining how host countries attract inward FDI. Interestingly, Lasso selection emphasizes variables in "tax policy", "societal framework", "labor market", and "attitudes and values" categories for source countries to invest in other countries, implying that a stable and open domestic condition may be an important determinant for source countries. Furthermore, in terms of prediction accuracy, Lasso approaches outperform traditional selections for host countries.

Keywords: FDI, gravity model, machine learning, lasso

JEL classification: F14, F21

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