EXECUTIVE SUMMARY

The IDE Geographical Simulation Model (GSM) was developed as an economic geography model for the purpose of predicting the effects of infrastructure development projects on the economy at the subnational level. The third-generation IDE-GSM differs from the second-generation version in the following points: (1) geographic coverage has been expanded to cover ASEAN 10+Bangladesh as well as parts of China and India, and (2) it incorporates realistic modal choice between land, sea, and air transport. These improvements enable better analysis of a wider variety of scenarios and provide more reliable results.

The third-generation IDE-GSM is a cutting-edge economic model that incorporates realistic geography and modal choice. Various analyses show that the economic impacts of logistic infrastructure developments are quite complicated and differ significantly by industry. Development should thus be carefully planned and, to that end, an analytical model like IDE-GSM has much to contribute.

The third-generation IDE-GSM confirms that regional infrastructure development projects would benefit most regions along corridors and near ports and airports. However, large-scale infrastructure development may widen existing income gaps, i.e., rich regions may become richer and poor regions may become poorer. In particular, intranational economic gaps may widen during the phase of economic development, given the restrictions on the international mobility of the labor force.

We should be very cautious when considering regional infrastructure development because the economic improvement of all involved regions is not assured. Infrastructure development might create winning industries and losing industries within a region. The economic effects of infrastructure development need to be carefully analyzed using proper analytical tools. IDE-GSM is such a tool and contributes to sound evaluation and prioritization of certain types of planned infrastructure development projects.

The test simulations presented in this paper revealed that an infrastructure development

project might lead to quite drastic modal shifts for certain origin-destination combinations. As a result, there is a possibility of under- or overunitization of specific loads/ports/airports.

Thus, we need to plan infrastructure development projects with consideration of all modes of transport. In addition, the regions affected by an infrastructure development project are often wider than one can imagine. It is thus a sensible policy option to establish an international body to coordinate regional transport infrastructure development projects. Again, an economic model with a realistic geography and modal choice like IDE-GSM has a role to play in predicting the possible modal shifts triggered by transport infrastructure development projects.

IDE-GSM is a complex system, and it is hard to predict without accurate data and a solid simulation model. We need to develop IDE-GSM further as well as facilitate the coordination of a geographical statistical system among member countries of the Economic Research Institute for ASEAN and East Asia (ERIA).

To conduct more accurate simulations with richer implications, more precise regional economic and demographic data are required at the subnational level in each country and at the subprovincial level in China and India. The establishment of uniform territorial units for geographical statistics like the Nomenclature of Territorial Units for Statistics (NUTS) in the European Union (EU) is needed. We need harmonized data as well as harmonized data collection methods in East Asia. ERIA is a suitable body to conduct capacity building for officials in national corridors connecting regions.

We also need more precise data on routes and corridors connecting regions. Information on the main routes between cities, times, and modes of transport (road, railway, sea, and air) are indispensable. Data on border costs such as tariffs and nontariff barriers due to inefficient customs clearance are also crucial for the better analyses.