We apply the RAEM-Light model to analyze the distribution of social benefits due to highway network projects from the viewpoint of spatial equity. The RAEM-Light model has some innovative features. The spatial behavior of producers and consumers is explicitly described and is endogenously determined by using econometric production and consumption functions. This model applies a slightly different concept than the traditional Spatial Computable General Equilibrium model that does not depend on the input-output data. It is therefore well suited for analyzing detailed areas where official input-output data is not available, i.e. its zones are subdivided into the city and neighborhood area level.

In this paper, we analyze two highway network scenarios. In Scenario 1, the regional economic impacts due to the present highway network are simulated. In this base case simulation we conclude that the present highway network has a low score on spatial equity, in particular because of negative impacts on rural areas. In Scenario 2, we analyze the planned highway network case in rural areas. As compared to Scenario 1, the negative impacts due to the implementation of the highway network are reduced, especially in rural areas.

This comparative analysis quantified the effectiveness of the two network structures from the viewpoint of spatial equity. A theoretically and quantitatively comprehensive study from the viewpoint of spatial equity on the effects to infrastructure development has not yet been conducted; however, the results of the comparative analysis are promising for an economic assessment of the highway networks from the viewpoint of spatial equity.