別表5



No.2

In Chapter 3, I propose a new approach for multidimensional evaluation when achievements in different dimensions are not easily comparable. Our approach can be applied to measurements of well-being based on capability approach such as human development or multidimensional poverty. In measurements of such things, we should respect (i) monotonicity to each achievement and (ii) incomparability across different dimensions. However, any method currently in use does not respect (i) or (ii). I introduce a new axiom *dimensional independence* that captures incomparability across different dimensional evaluation and show that our methods satisfy both of monotonicity and dimensional independence. Moreover, in a certain class of methods, I find a unique method that satisfies monotonicity, dimensional independence, and minimal lower boundedness. I apply this method for measurement of human development and compute new human development indices of 188 countries.

In Chapter 4 (co-authored with Yuta Nakamura and Noriaki Okamoto), we study the measurement of population ageing. Population ageing is one of the most serious problems in many developed countries. The level of population ageing is often measured by "usual" measures such as the share of the older population, mean age, median age, and the dependency ratio. However, these measures violate elementary properties for measuring population ageing. We propose a new measure of population ageing that overcomes drawbacks of the measures currently in use. We introduce a new condition called the *working age principle*, which is a sensitivity condition to thickness of the working age population. Our measure is the only measure that satisfies monotonicity, continuity, separability, normalization, and the working age principle.