Geographical Variation and Convergence of Medical Services and Social Capital

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ANEGAWA, Tomofumi
Keio University, Graduate School of Business Administration

Summary

Among developed countries, Japan has achieved one of the highest longevity of the people with lower ratio of medical expense to GDP. This is assisted by the nation-wide health insurance introduced in 1961. Although there are little regional differences in longevity, significant geographical variances are found for medical resources, services, and cost. In response, the government has long resorted to cost containment policy with a view to raising efficiency of the inefficient regions. Empirical questions should be raised on the degrees and sources of the variance and convergence of medical cost across regions. Impact of policy should also be evaluated. Many empirical researches have been conducted on these issues as surveyed in IHEP (2007). There are, however, common shortcomings with research methods. First, most studies rely on cross-section data with only short time periods. Because regional specific effects persist over time and the convergence takes time, one needs to utilize pooled time-series and cross-section data. Second, most studies investigate the effects of explanatory variables in ad hoc fashion without theoretical framework. They fail to reach the consensus on a causal relationship in a meaningful sense.

This study uses medical cost data of the "Municipal Health Insurance" and health related data of 47 prefectures in 1981-2005 to pool time-series and cross-section data. This allows analysis on the variance and sources of the "Hospitalization", "Outpatient", and "Dental" services for the "general" and "aged" population. Using an expression of the "cost per capita (C/N)" as the product of "cost per day (C/D)", "days per event (D/E)" and "events per population (E/N)", the variance of C/N is analyzed. The large regional variance of the aged hospitalization had declined sharply in the 1990s, the source of which was mostly explained by the decline of events per population. Next this study estimates the convergence speed of the variance of (C/N), (C/D), (D/E), and (E/N) separately.

We find the convergence of the aged hospitalization and outpatient services in a "conditional sense" in which each region approaches its own stationary level within 15 years. Convergence was associated with the by E/N for the hospitalization and D/E for the outpatient. Also there are negative relationship between the convergence of (C/D) and that of (D/E), which indicates regions with higher (D/E) tend to have less (C/D) (quicker convergence) and vice versa. The increase in GDP per capita had slowed the convergence speed in C/D. The increase in doctors (physicians) per population and the nurses per population slowed the higher speed of convergence of C/D. The capacity of aged home per population increased the convergence speed of D/E while they decreased the speed of E/N. Revisions of the official medical prices, raise of the co-payment rates, and the introduction of the Health Insurance for the Aged in 1983, Long-term Care Insurance in 2000 had significant impact on convergence. Although these results have important implications for the variance and convergence, they depend on these variables in a complicated manner. Also region-specific effects are large for some regions. We cannot present a simple policy rule to govern the variance and convergence of medical cost.