

GSAPS THE SUMMARY OF DOCTORAL THESIS

An Economic Approach to the Roles of Social Capital in post-Disaster Recovery and Reconstruction: Empirical studies from Japan and its implication to the Great East Japan Earthquake

4011s004-1

Go Shimada

Chief Advisor: Prof. Shunji Matsuoka

Keywords: Social Capital, SMEs development, Macroeconomic impact, Natural disasters, Panel data analysis

Background

Recent studies have confirmed that in the last two decades there has been an upward trend in the number of disasters. It is an urgent task for us to build resilient societies to external shocks. The rate of recovery after disasters varies depending on community. What are the factors that make a difference in the rate of recovery among communities? The hypothesis of this thesis is that it is social capital that makes the difference. How, then, does social capital work? This thesis proposes a fresh economic approach to social capital, using the concept of capital given by Irving Fisher (1906). He introduced the concepts of “stock” and “flow” to the discussion on capital. Social capital can be defined, then, as the stock of trustworthiness, norms, and networks. Social capital works together with human capital and other types of capital, such as physical capital, and human capital. For instance, if physical capital is connected with the social capital of an area, it will increase the social rate of return, not just the economic rate of return. This thesis argues that social capital is one of the three main components that make societies function. The others are formal institutions and markets, and these complement each other. However, when external shocks hit societies, neither markets nor formal institutions can extend all the necessary help. It is social capital that works after natural disasters to recover and reconstruct.

There is little consensus, however, how social capital works exactly. Intuitively, the importance is understandable. To formulate recovery and revitalization policy and plans, it is essential to precisely understand its role. The objective of this study is to quantitatively analyze it to fill the gap in literature, and to derive policy implications.

Research Questions

The above recognition leads to the following main research question and sub-questions.

Dose social capital really matter in the process of recovery and reactivation after disasters?

Sub-question 1 (impacts):

What are the macroeconomic impacts of natural disasters? Do disasters have long-term positive impacts on economic growth?

Sub-question 2 (recovery phase):

Did social capital work in Japan in the recovery process after disasters?

Sub-question 3 (reconstruction phase):

Have both bridging and bonding social capital promoted economic reconstruction after the Great Hanshin Awaji Earthquake?

Findings

To prove that social capital makes difference, first empirical study looked into what kind economic impacts do disasters have. Previous literature fails to capture the heterogeneous characteristics of natural disasters. Most studies use the number of disasters that have occurred in a country as an explanatory variable. Considering the nature of most disasters, their direct impact is local rather than national. For empirical study, then, it seems to be more appropriate to use disaggregated data to capture the heterogeneous nature of disasters. To tackle these issues, this study investigates the impact of natural disasters on the growth rate of gross prefectural domestic product, utilizing the 47 prefectural governments' unbalanced panel data on Japan for twenty years from 1975 to 1995. The empirical study first investigated the relationship between “average annual per capita growth rate over the

1970–98 period” and “natural log of the number of victims.” The study found a negative and statistically significant relationship. The paper employed conventional panel data analysis methods, Prais-Winsten estimation, PCSE (panel-corrected standard error) and the system GMM (General Method of Moments) since the economic model includes a lag variable, and to tackle the issue of endogeneity. Unlike several past studies, which found positive long-term effects of natural disasters, this paper found that the impacts are robustly negative according to our analyses. This study indicates that policies need to take a long-term view, not only in terms of recovery but also in terms of strategies for reconstruction.

The second study studied the roles of social capital in recovery phase. The recovery is measured by population growth. The analysis used following data as proxies of social capital: the number of community center and proportion of households' voluntary organizing disaster prevention groups among all households. This thesis studied TSCS (Time-Series-Cross-Section) data from all 47 Japanese prefectures covering 40 years from 1970 to 2009, employing proxies for social capital such as the number of community centers and proportion of households voluntarily organizing disaster prevention groups among all households. The study found quantitatively that social capital plays important roles in the process of recovery.

Regarding the reconstruction phase, the third research studied how social capital worked in Kobe to promote jobs, which are a crucial cog for reconstruction, after the Great Hanshin Awaji Earthquake. This study focused on the tertiary sector because after the earthquake there have been a structural shift from secondary sector due to the damages caused by the earthquake. The sector now accounts for 80% of employment, the most important factor for reactivation in the mid- and long-term. The study found both bonding and bridging social capital had statistically significant positive impacts to promote employment in post-disaster phase.

These empirical studies also imply the necessity of putting social capital at the center of recovery and reconstruction strategies. What happened to Tohoku as a result of the earthquake, tsunami, and nuclear power accident was the destruction of social capital on a huge scale. Population is still flowing out of the area. Even before the disaster, the population of Tohoku was declining as a result of aging. Thus, Tohoku needs to face chronic problems that existed even before the disaster, and which were amplified by the external shock. Social capital should be at the core of future planning to promote the multiplier effects of investment in physical and human capital. This is the only way to reconstruct Tohoku.

References

- Aldrich, D.P. 2012. *Building Resilience - Social Capital in Post-Disaster Recovery*. The University of Chicago Press. Chicago.
- Sawada, Y. et al. 2011, “Aggregate Impacts of Natural and Man-made disasters: A quantitative comparison”, RIETI Discussion Paper Series 11-E-203.
- Skidmore, M., Toya, H. 2002, “Do natural disasters promote long-run growth?”, *Economic Inquiry* Vol.40 (4), pp664–687.