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## Social capital and local public transportation in Japan

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## ABSTRACT

Local public transportation except in metropolitan areas in Japan faces operating difficulties due to business deficits. In recent years, central and local governments have taken social benefits into account to support local public transportation, but social benefits calculated in their cost-benefit analyses seem to be insufficient to evaluate them. Especially since the great earthquake in 2011, Japanese people have begun to rethink the importance of network and trust in neighborhoods, which can be called as 'social capital,' based on mobility. Therefore, focusing on 'social capital,' this paper tries to find the role of local public transportation beyond social benefits. Specifically, it makes an empirical analysis on the relationship between the indexes of 'social capital' and local bus services using cross section data. As a result, network and participation indexes standing for 'social capital' in each prefecture positively correlate with the level of local bus services. Also, according to our survey research in Toyama, introduction of a new LRT line is likely to have considerably changed the activities of residents along the line and has tended to promote more opportunities to come into contact with others than before. Those studies shed light on the role of public transportation from the standpoint of 'social capital.'

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## 1. Introduction

Local public transportation in Japan is, in principle, provided by ordinary private companies on a self-paying basis. As a result, many services in regional areas have been closed for decades due to business deficits. In the 2000s, declining population as well as increased motorization has worsened the situation. Central and local governments support local public transportation to some degree, but government subsidies are not sufficient to sustain these networks. Even though governments take not only operational profits but also social benefits into account, it is often the case that even those benefits calculated in their cost-benefit analyses do not cover social costs.

However, another idea seems to have gradually become widespread in recent years that local public transportation might have a potentiality to revitalize regional societies. For example, the Sanriku Railway in the Tohoku region of Japan, which suffered devastating damage from the great earthquake in 2011 succeeded in reopening all of the line in 2013. Local governments and people strongly supported the reconstruction of the railway and celebrated

its reopening ceremony in tears. As far as I know, there was no calculation based on cost benefit analysis.

Even in Japan, nobody criticizes this reopening as an unscientific decision. This is not just because local public transportation is essential for local people in general, but because people come to think of public transportation as means to bond and bridge people and society. 'Kizuna,' which means emotional ties and bonds in Japanese, was selected as "the word of the year" in 2011, and reopening public transportation was regarded as a symbol of ties and bonds. In other words, consciously or unconsciously, Japanese think about the role of social capital (SC), "reciprocity, social networks and trust", through their harsh experience of the disaster caused by the earthquake. Some sociologists and economists often use the term 'social capital' in describing Japanese social basis for well-organized activities in disastrous areas.

So far, however, there has not been much research into the relationship between SC and public transportation. Empirical analyses in this field are needed. Therefore, this paper explores quantitative analyses on the relationship between SC and local public transportation.

The paper is organized as follows: Section 2 outlines the situation of local public transportation and SC in Japan, and Section 3 briefly reviews previous literature. In Sections 4 and 5, we

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analyse the relationship between SC and local public transportation in Japan using macro cross-sectional data by prefecture and micro survey data collected in Toyama city. Section 6 discusses the results and conclusions.

## 2. Overview of local public transportation and social capital in Japan

Local public transportation in Japan has drastically declined in the past decades. Bus services have decreased by 11,000 route-km from 2006 to 2011, which is 2.7 percent of the total bus services in Japan. Regarding railways, more than 650 km of lines, also representing 2.7 percent of the total railway operation, have been abandoned since 2000. The main reason for these closures is that patronage has decreased due to the decline in population as well as increased motorization, but some of the lines in regional cities were closed in spite of carrying quite a few passengers – mainly students. Private transportation companies can, in principle, freely discontinue their services following certain procedures after the deregulation in the early 2000s, closing their loss-making lines even though they may be crowded in peak hours.

Central and local governments have not ignored the problem at all. In 2007, the Act on Revitalization and Rehabilitation of Local Public Transportation was enacted, and several programs to support regional railways, buses, and ships have been provided by central and local governments since then. The official project to support upgrading tramways to LRT (Light Rail Transit) systems was also established at that time. Social benefits have been more seriously taken into consideration to support local public transportation.

However, ordinary people were generally against injecting public money into local public transportation. For example, Towada Kanko Electric Railway Company in Aomori prefecture closed its railway line in 2012 because local governments along the line rejected its request to use public money for maintenance. At that time the governor of Towada city said, “tax payers do not accept to use public money to support one of private companies”. It is a typical phrase in Japan. People take it for granted that public transportation should be profitable. Local governments were also reluctant to support public transportation because of their financial difficulties. Furthermore, costs to revitalize and rehabilitate local public transportation are often much higher than social benefits calculated based on the official manual. As a result, the number of low-budget community bus services increased, but local public transportation networks continued to deteriorate in regional areas outside metropolitan areas. No LRT system has been introduced other than the one in Toyama city.

Statistically, areas without public transportation, where there is neither a bus stop within 500 m, nor a train station within 1 km, amount to 30.9 percent of habitable land in Japan. Furthermore, those areas are expanding not only in rural districts but also in sprawling suburbs of regional cities. 2.4 million people live in such areas and rely on only cars for transportation, and some of them, who cannot drive themselves, are at risk of social exclusion. In fact, the issue of isolated people with limited access to shopping facilities has become a social problem often discussed in the mass media in recent years. Social exclusion is becoming a reality among people without cars in Japan.

On the other hand, the concept of SC became widespread among academia in Japan in the 2000s. We have a lot of studies by political scientists, sociologists, economists, etc. Sakamoto (2010) summarizes the prior research, making the following two points. “Firstly, social capital in Japan as a whole steadily grew until the early 1990s, but it started to decline around the turn of the century and this trend continues. Secondly, social capital has declined more

remarkably in social networks or participation rather than in trust and reciprocity. This means that Japanese civic engagement has gradually diminished both in will and action over the past decade”. It seems to me that SC has been undermined in line with declining public transportation and expanding social exclusion.

In the meantime, the great earthquake hit Japan on March 11, 2011. Since then, Japanese seem to have begun to think about the role of SC through their harsh experiences even though they do not explicitly talk about SC. As I mentioned above, reopening of local public transportation was celebrated as a symbol of “Kizuna”, emotional ties and bonds in Japanese. Serious discussions at that time led the government to legislate the 2013 Basic Act on Transport Policy, which was enacted as the first comprehensive legislation on transport policy in Japan. It states that “it is important to appropriately satisfy the basic demands of citizens and others for transport by allowing the functions of transport to be sufficiently exerted over the future, in light of the fact that transport ... is indispensable for stabilizing and improving the lives of the citizens and for soundly developing the national economy” (Article 2).

The establishment of the new law was an epoch-making event. Some optimistically expect the role of public transport will be discussed from wider perspectives, including SC, rather than manualized cost-benefit calculations. However, there is little quantitative evidence of the relationship between public transportation and SC as far as I know. If we show some evidence, it will be of great use not only for academic people but also policy-makers, who will reconstruct and revive local public transportation using public money.

## 3. Literature

While a great number of studies tackle a variety of issues on SC, there are not so many discussions from the standpoint of public transportation. Social exclusion has been a key issue since the late 1990s, and the UK Social Exclusion Unit published its well-known report in 2003, which has influenced transport planners and policy-makers around the world. In those studies, however, the concept of SC has not necessarily been explicitly discussed.

Regarding studies using the term SC, we can find Putnam's idea in Putnam (2000) as a starting point. He criticizes America's car-dependent society, describing how “increased commuting time among the residents of a community lowers average levels of civic involvement even among non-commuters” in his influential book. Then, Shove (2002) and Urry (2002) explain the role of mobility or travel using the term SC. In their contexts, SC heavily depends on mobility, including private cars as well as public transportation. They argue that, contrary to Putnam's discussion, car travel is also an important tool for society. Gray, Shaw, and Farrington (2006), focusing on rural areas, also explains the close relationship between community transport, SC and social exclusion. However, many transport researchers have been more interested in the role of public transportation in reducing social exclusion or promoting social inclusion rather than SC itself, which may appear fuzzy for some of them.

It is Currie and Stanley (2008) that clearly summarizes theoretical links between SC and public transportation. It presents three groupings: public transport and mobility, public transport and ‘livable’ cities, and traveling with others as social interaction, explains the mechanism of these close linkages, and sets research challenges, particularly quantitative ones. Then, Stanley, Stanley, Vella-Brodrick, and Currie (2010) finds that, based on their survey research and statistical tests, “the ability to have good bridging networks appears to be related to increased trip making and promotion of social inclusion but not necessarily self-assessed well-being which satisfied by bonding networks”. Furthermore, Stanley,

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