

## 【Grant-in-Aid for Scientific Research (S)】

### Broad Section A



#### Title of Project : Primary and Secondary Education under Declining Population: An Empirical Analysis with Administrative Data

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Keyword : Economics of Education, Fertility Decline, Administrative Data of Education

#### 【Purpose and Background of the Research】

In economics, elementary and secondary education is considered an investment in human capital, and the effectiveness of education has been the focus of many research studies. These studies were conducted mainly during the period of worldwide population growth after World War II. However, few studies exist on education policy in Japan or other developed countries that are currently facing a population decline.

In this study, we examine the effects of educational systems and policies on human capital formation, focusing on elementary and secondary education and applying a policy evaluation method based on statistical causal inference. We try to answer the question, "what kind of system is desirable for elementary and secondary education in a declining population from the perspective of welfare and human capital formation of students?"

#### 【Research Methods】

In this research project, we ask the following six questions: (1) How will the consolidation of elementary and junior high schools affect the welfare of children and students? (2) How will strengthening accountability and autonomy for educational activities in elementary and junior high schools affect children's academic ability and problematic behavior? (3) How does academic rank affect the subsequent formation of academic ability and problem behavior of children? (4) In what grade is educational policy intervention the most effective? (5) How do high school students form their career decisions? (6) How does the increase in the number of years of compulsory education affect the long-term outcomes of students? FIG. 1 illustrates the relationships among these six research themes.

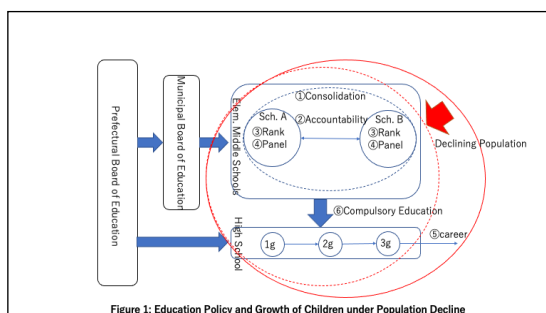


Figure 1: Education Policy and Growth of Children under Population Decline

The research method common to all research themes is to evaluate the policy effect through secondary use of administrative data by applying statistical methods based

on causal inference to the data. However, the specific research method differs depending on the theme. In (1) the effect of school consolidation, and (5) dynamic analysis of career decisions for high school students, structural estimation of theoretical models and analysis by counterfactual experiments are performed. In (2) analysis of accountability and autonomy of schools, (3) the impact of the rank of academic ability, and (6) analysis of the increase in compulsory education years, a regression discontinuity design is used. Finally, in (4) the analysis of the difference in the effect of education policy for each grade, we use the administrative panel data of education from local governments.

#### 【Expected Research Achievements and Scientific Significance】

By promoting each research theme, it is expected that the results will be published in international peer-reviewed academic journals. Further, using data from Japan, where the birthrate is declining and the population is rapidly aging, will attract broad academic and international interest. Furthermore, as shown in FIG. 1, each research theme is closely related. Therefore, comprehensively promoting the research themes while considering their mutual relationships has the significance of gaining knowledge about the desirable elementary and secondary education system in Japan under population decline.

#### 【Publications Relevant to the Project】

- Fukuda, Shin-ichi and Ryuichi Tanaka ed. *Economics of Education in Japan*, special issue in *Japan and the World Economy* (2019).
- Weese, Eric "Political mergers as coalition formation: An analysis of the Heisei municipal amalgamations." *Quantitative Economics*, 6(2), 257-307 (2015)

【Term of Project】 FY2020-2024

【Budget Allocation】 103,000 Thousand Yen

#### 【Homepage Address and Other Contact Information】

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