End of AY 2016 Report for SIP – Group5

Project Title

Collaborative Research in the Public Health Field

Team

GSDM ID	Name	School	Department	Year (e.g. D1)	Leader/ Member
14123	Suguru Yaginuma	Frontier sciences	Computational Biology and Medical Sciences	D1	Leader
15119	Yoshihiko Suzuki	Frontier sciences	Computational Biology and Medical Sciences	M2	Member
13107	Masaaki Imaizumi	Economics	Statistics	D3	Member
13201	Noriko Morioka	Medicine	Social Medicine	D4	Member

Objective: Explain what social/global issues that this project tried to address and why the issue is important.

<u>**Project: Evaluating policy for promoting school safe with traffic accidents**</u>

   We investigate a relation between traffic accidents with children and educational policies for promoting school safe for students. Traffic accidents are one of the biggest causes of death for children. To prevent the accidents, a lot of schools and public institutions implement educational policies for promoting safe for children. For example, the schools hold lectures about transformational risk management, and the local governments promote the use of a school bus and going to school by group.

   To support the educational policy for decreasing the number of traffic accidents by children, we evaluate an effect of the policies by statistical methods. We use information about the traffic accidents by schooling children and other situation of the implementation of the policies. Furthermore, we try to propose a policy scheme to reduce the number of the accidents.

Method: Explain through what kind of approaches you tried to achieve the objective.

<u>**Datasets**</u>

   We use a dataset that contains a time series information about traffic accidents of childhoods, and it is provided by ITARDA (Institute for Traffic Accident Research and Data Analysis; http://www.itarda.or.jp).

<u>**Policies/Efforts**</u>

   All prefectures are trying to reduce the number of traffic accidents with school children and we evaluated such efforts. We use the annual data of the ratio of the efforts for reducing the number of traffic accidents with school children in each prefecture (2004～2013)

<u>**DID**</u>

   For evaluating such efforts, we used DID. DID is the theory of causal inferences. When we use DID, we hope to evaluate the "effect" of policies/efforts. The explanation of DID is as follows. For using DID, we should make two groups, intervention group and comparison group. The comparison group is the group which did not carry out the intervention. The intervention group is the group which carried out the intervention. From the dynamics of the comparison group, we can predict the unobserved counterfactual outcome. And then, the difference between observed outcome in the intervention group and unobserved one is the "effect".

<u>**Expanding DID**</u>

   Efforts data is not a binary data but continuous. DID can be applied to binary data of policies. For applying DID to Efforts Data, we should expand DID. The problem is how to arrange the comparison(control) group and the intervention group. For solving this problem, we set the threshold for arranging group.
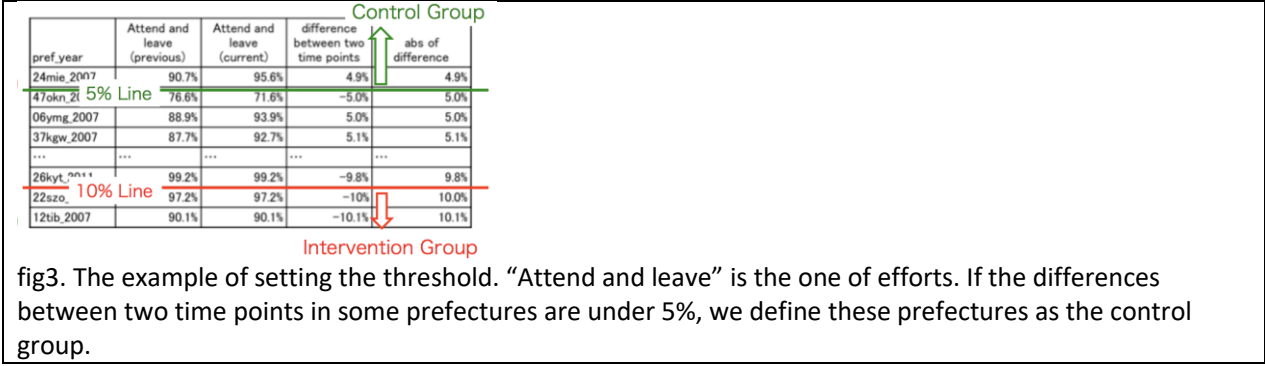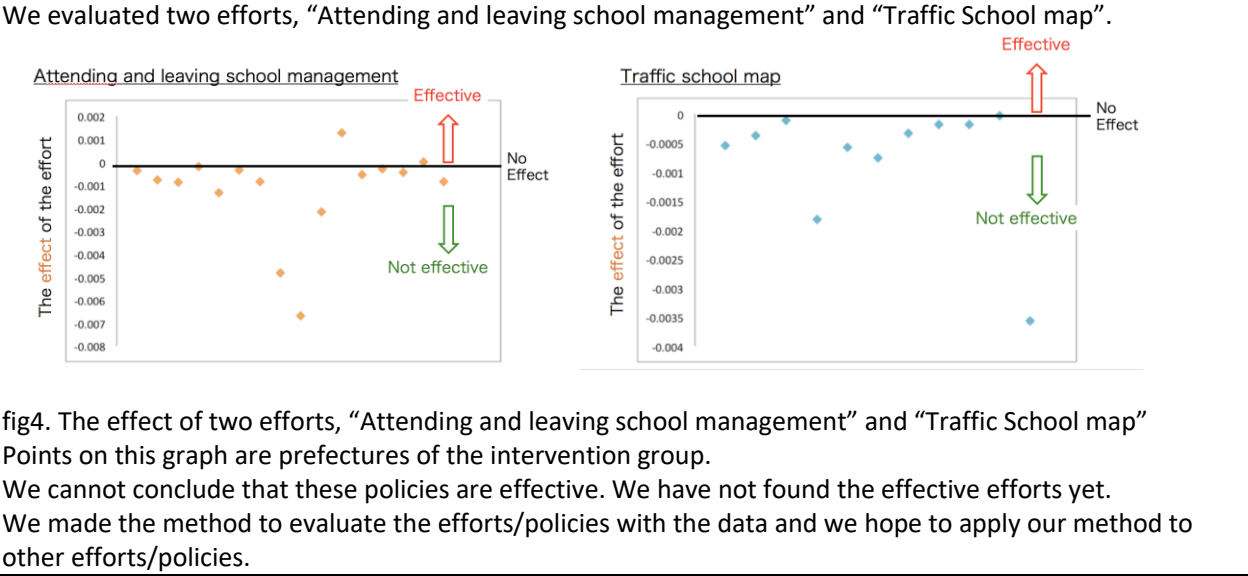
fig3. The example of setting the threshold. "Attend and leave" is the one of efforts. If the differences between two time points in some prefectures are under 5%, we define these prefectures as the control group.

Outcome: Explain what kind of results you obtained from this project and discuss how it addressed your focal social/global issues.

We evaluated two efforts, "Attending and leaving school management" and "Traffic School map".

fig4. The effect of two efforts, "Attending and leaving school management" and "Traffic School map"
Points on this graph are prefectures of the intervention group.
We cannot conclude that these policies are effective. We have not found the effective efforts yet.
We made the method to evaluate the efforts/policies with the data and we hope to apply our method to other efforts/policies.

Budget: List the budget this project implemented. *About the details, add the appendix.

Purposes	Expense
Books	0
Travel fee	0
Honorarium	0
Others	0
Total	0