

## Short Report on JSPS Funded Joint Bilateral Project

By

Professor Kaddour Hadri

### Aims and motivations of the project

The aim of the project is to develop new **statistical methods** for analysing **macro panel data** with strong **cross-sectional dependence**.

Because of the **recent availability of data** on numerous units (**N large**), like countries, firms, farms, households etc. observed during long period of time (**T large**), it is possible, employing this so called macro panel data, **to test more rigorously economic, social, political, regional etc. theories** and to construct more robust models.

Contrary to micro panel data where T is small, **macro panel data** have **cross-sectional dependence** i.e. the different units are correlated. This cross-sectional dependence can be due to unexpected shock affecting all the units, factors affecting all or most units not accounted for, geographical proximity of the units etc. If this cross-sectional dependence is **not accounted for** then, **tests are no longer valid and the standard errors of estimators are incorrect** and this might have **grave consequences for policies based on these flawed results**. This research seeks to find statistical methods for **correcting for strong cross-sectional dependence** observed in macro panel data.



From right to left: Prof Kurozumi & Hadri

### Departments and Institutions Involved:

- Japan Society for the Promotion of Science (JSPS, funding agency) and Itosubashi University
- British Academy (BA, funding agency) and Queen's University Belfast

### People involved:

- Professor Eiji Kurozumi and Shinya Tanaka (PhD student) from Itotsubashi University
- Professor Kaddour Hadri from Queen’s University Belfast

**How collaboration started:**

I met Professor Eiji Kurozumi at the International Symposium on Econometric Theory and Applications (SETA) meeting organized by the University of Science and Technology (Hong Kong) in 2007. During the meeting I presented a paper in which I extended results published by Professor Eiji Kurozumi. Since then we kept close contact and started joint research.

**Amount awarded:**

- JSPS: 1,874, 720 JPY (around £11,100)
- BA: £8,990.00

**Benefits from the scheme**

- I visited Japan where I presented a paper and participated in a workshop on Panel Data besides discussing our research
- Visit to Belfast and Liverpool by Prof Kurozumi and his PhD student Tanaka. Prof Kurozumi presented a paper at Queen’s University Belfast and Tanaka presented a paper at the University of Liverpool. Prof Kurozumi told me that Tanaka’s research benefited greatly from my comments.
- I introduced Professors Yao Rao and Ruijun Bu from the University of Liverpool and Takashi Yamagata from the University of York to Prof Kurozumi.
- I was also able to attend at least 3 conferences



Drinking traditional Japanese tea in Tokyo

### **Collaborative activities**

- 3 published papers in international refereed journals
- 3 papers under submission in international refereed journals (2 with Prof Kurozumi and Yamazaki (PhD student))
- 2 published papers published with other co-authors

### **Plan for the future and further application to JSPS**

- To continue our work on Panel Data
- To pursue research on commodity prices which are very important for developing countries
- Research on structural breaks including in continuous time.
- Eiji intends to work with my co-authors, Rui and Rao in the future
- We also intend to apply for JSPS funding in the future.