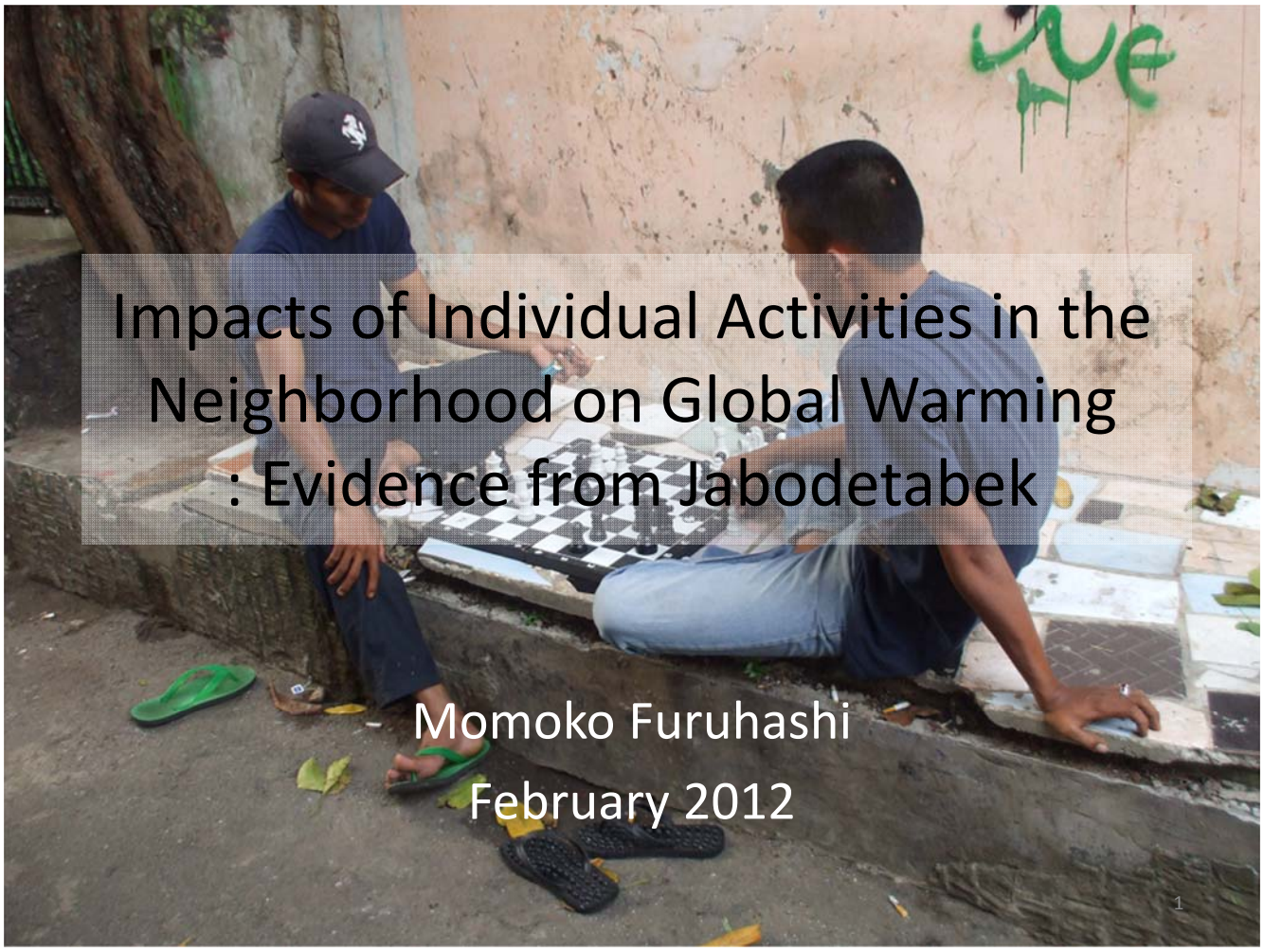


Impacts of Individual Activities in the Neighborhood on Global Warming : Evidence from Jabodetabek

Momoko Furuhashi

February 2012

Community and Global Environment Problems in Developing Countries

Importance of Community in Urban Development

Community

Improving Local Environment
Clean-up of the local area, crime prevention, etc.

Improving Global Environment
Reduction of CO_2 emissions and pollutants, etc.

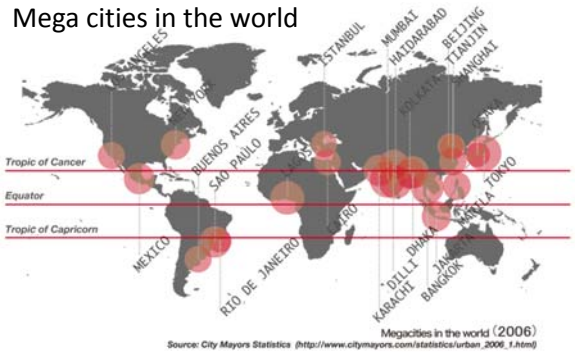
Community has significantly positive impacts on local environment (Bellair, 1996)

Few studies have shown the impacts of community on global environment (Grafton and Knowles, 2008)

Impacts of Developing Countries on Global Environment

- Rapid population/economic growth has increased the negative impacts on global environment in developing countries
- CO_2 emissions from Asian mega cities are expected to increase (Dhakal et al., 2002)

Mega cities in the world



Could communities reduce the negative impacts on the global environment in the context of developing countries?

Goal and Method

Goal

To analyze the potential impacts of community-based activities (CBAs) on the global environment

Target Area

Jakarta metropolitan area (Jabodetabek)

- Population: 28.0 million
- Area : 7315 km^2

Method

- Local interviews
  - What kinds of CBAs are observed?
- Development of hypotheses
  - How does CBAs impact on the global environment?
- Data collection
  - How much CBAs do local people do?
- Empirical verification of hypotheses
  - What factors affect CBAs and the global environment?

Communities in Jabodetabek

Interview Survey

- Period: Sep.9th 2011 to Sep.16th 2011
- Place: Cikini, Poris-gaga, Kampong-Bali
- Number of interviewees: 24

Typical community in Indonesia = Rukun Tetangga (RT)

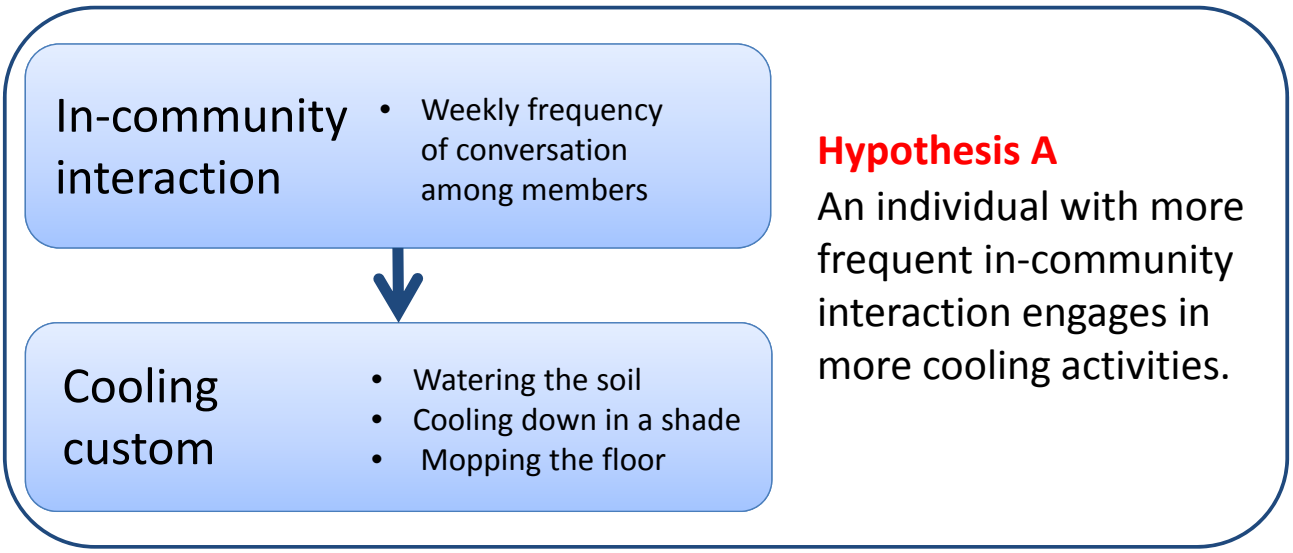
Major CBAs in RT

- Arisan (Indonesian home party)
- Religious activities
- Night watch
- Cleaning of roads and rivers

Cooling Customs in the RT

- Mop the floor
- Sit outside
  - In front of home, road, etc.
- Take shelter under tree
- Water the soil
- Take a bath

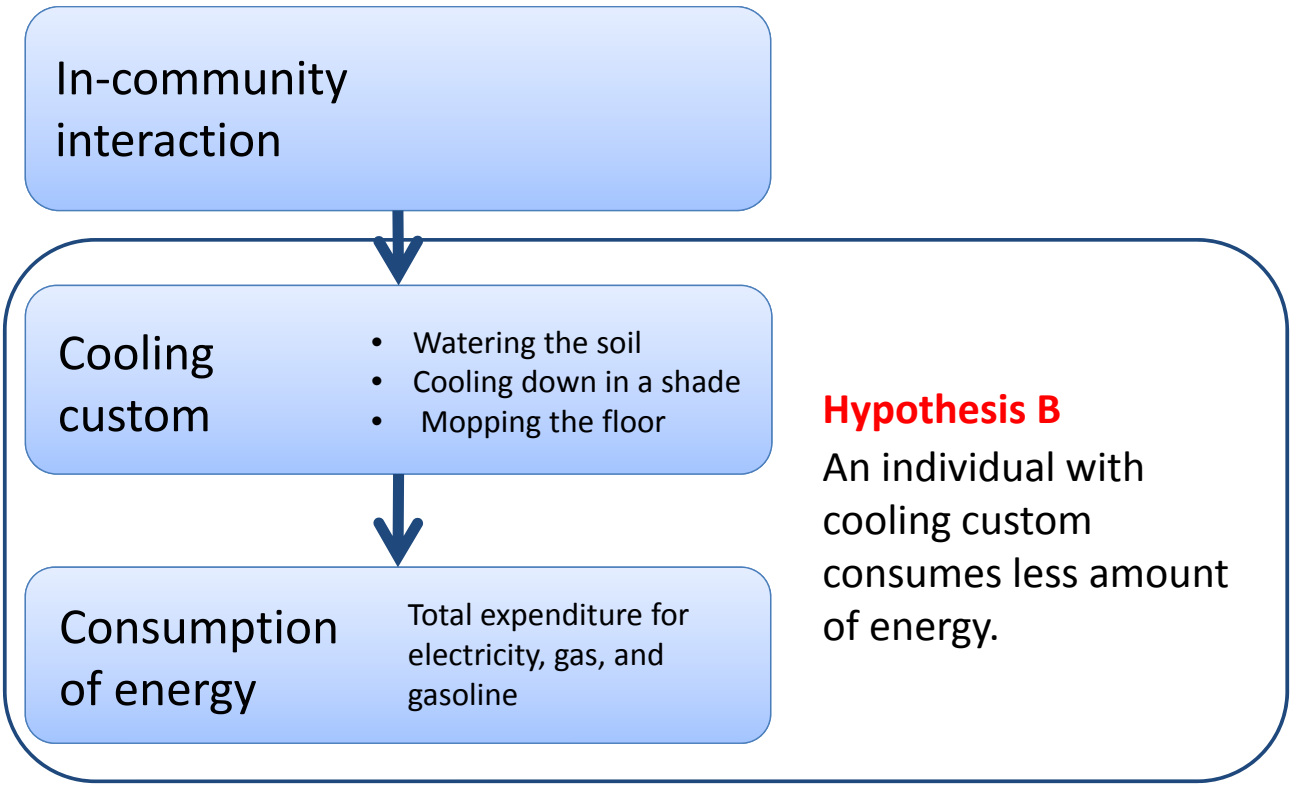
Hypothesis: In-community Interaction vs. Cooling Custom



Hypothesis A

An individual with more frequent in-community interaction engages in more cooling activities.

Hypothesis: Cooling Custom vs. Energy Consumption



Hypothesis B

An individual with cooling custom consumes less amount of energy.

Collection of Data

Questionnaire surveys on the local people's in-community activities and opinions on the global environment

Overview of Survey

- Method: Face-to-face interview
- Implementation: Local survey company

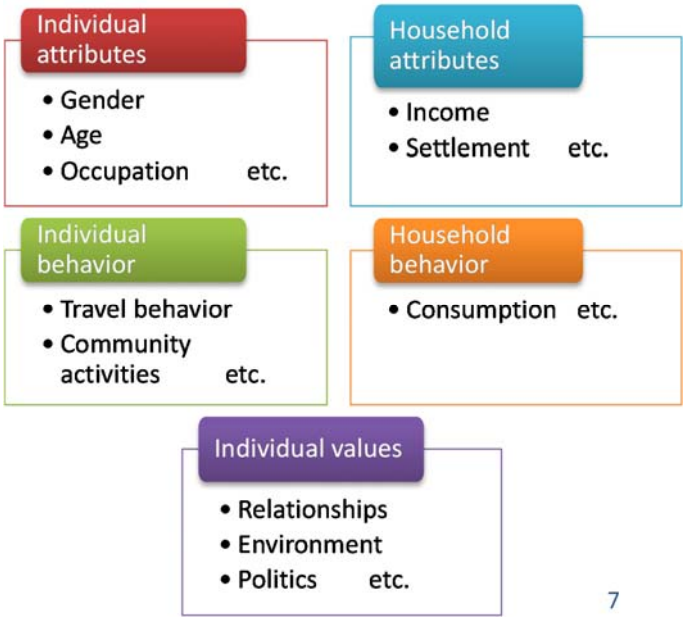
Preparatory Survey

- Period: Sep. and Nov. 2011
- Place: Cikini, Poris-gaga
- Number of respondents: 237

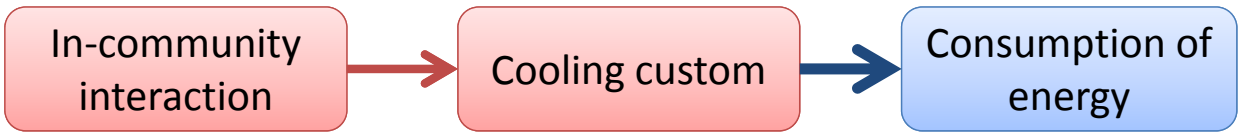
Large Scale Survey

- Period: Nov. to Dec. 2011
- Place: Jabodetabek
- Number of respondents: 1,000

Questions in the Surveys

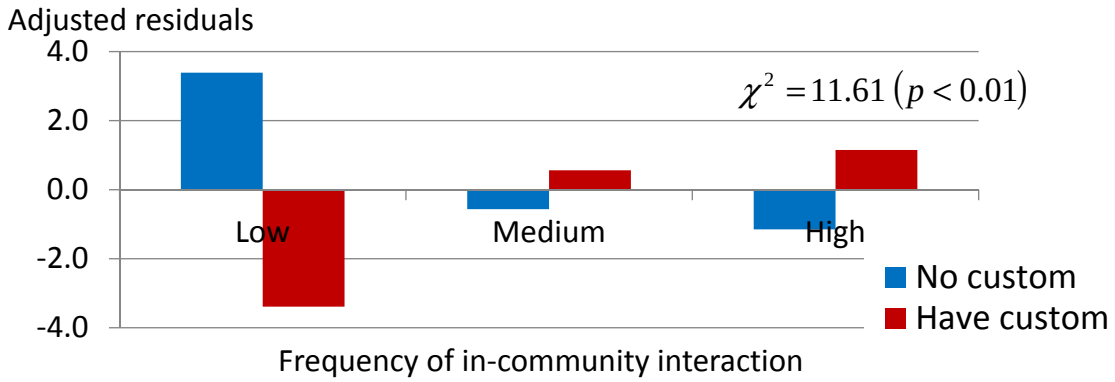


Verification of Hypotheses: Hypothesis A



Hypothesis A

Statistical test of difference in distributions



Frequency of in-community interaction has a significantly positive correlation with cooling customs.

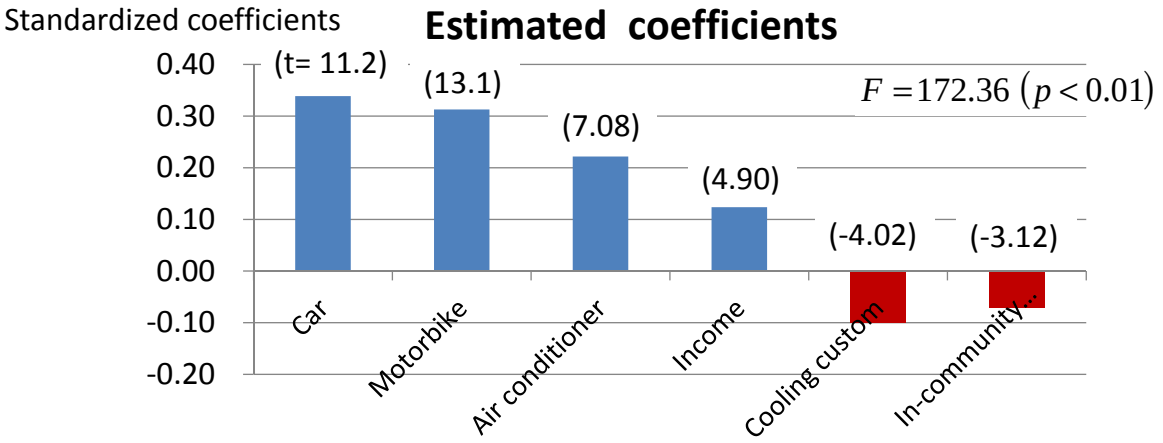
Possible reasons

- Knowledge of cooling custom may be shared among members through interactions.

Verification of Hypotheses: Hypothesis B

In-community interaction → Cooling custom → Consumption of energy

Hypothesis B



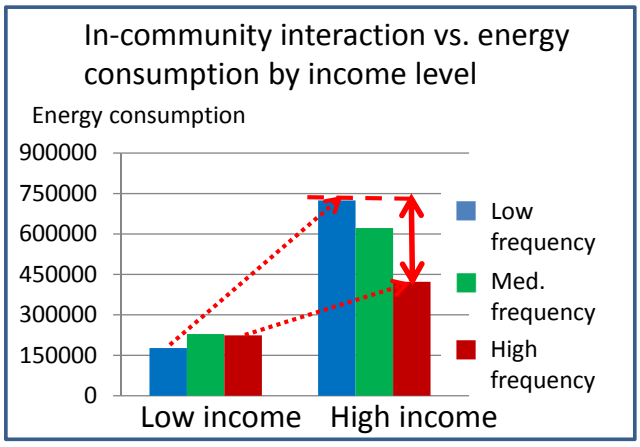
Cooling custom have a significantly negative impact on energy consumption

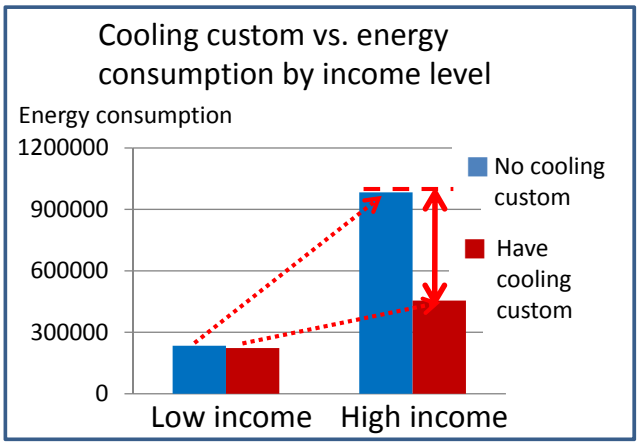
Possible reasons

- Cooling custom should reduce the use of air conditioner or electric fan

Impacts on Energy Consumption by Income

In-community interaction and cooling custom have more impacts on energy consumption for higher income individuals.





This might imply…

Promotion of in-community interaction may have a **larger impact** on **future energy consumption** as the income level of local people grows.

Conclusions

1. In-community interaction has a significantly **positive impact** on implementation of cooling custom, resulting in a significantly **negative impact** on energy consumption.

2. In-community interaction and cooling custom have greater impacts on reduction of energy consumption for individuals with **higher income level**.

Further Issues

- The causal relationship that the frequency of in-community interaction impacts the cooling custom should be further researched.