

# Infrastructure for Development and Poverty Reduction

**Susan F. Stone**

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# Diverse Role of Infrastructure

## Two general roles in the economy

### a. As an Intermediate Good

- Facilitates mobility of labor, capital and other inputs to production improving productivity and reducing costs.
- Increases information flows opening new opportunities and reducing asymmetries and other market imperfections.

# Diverse Role of Infrastructure (cont'd)

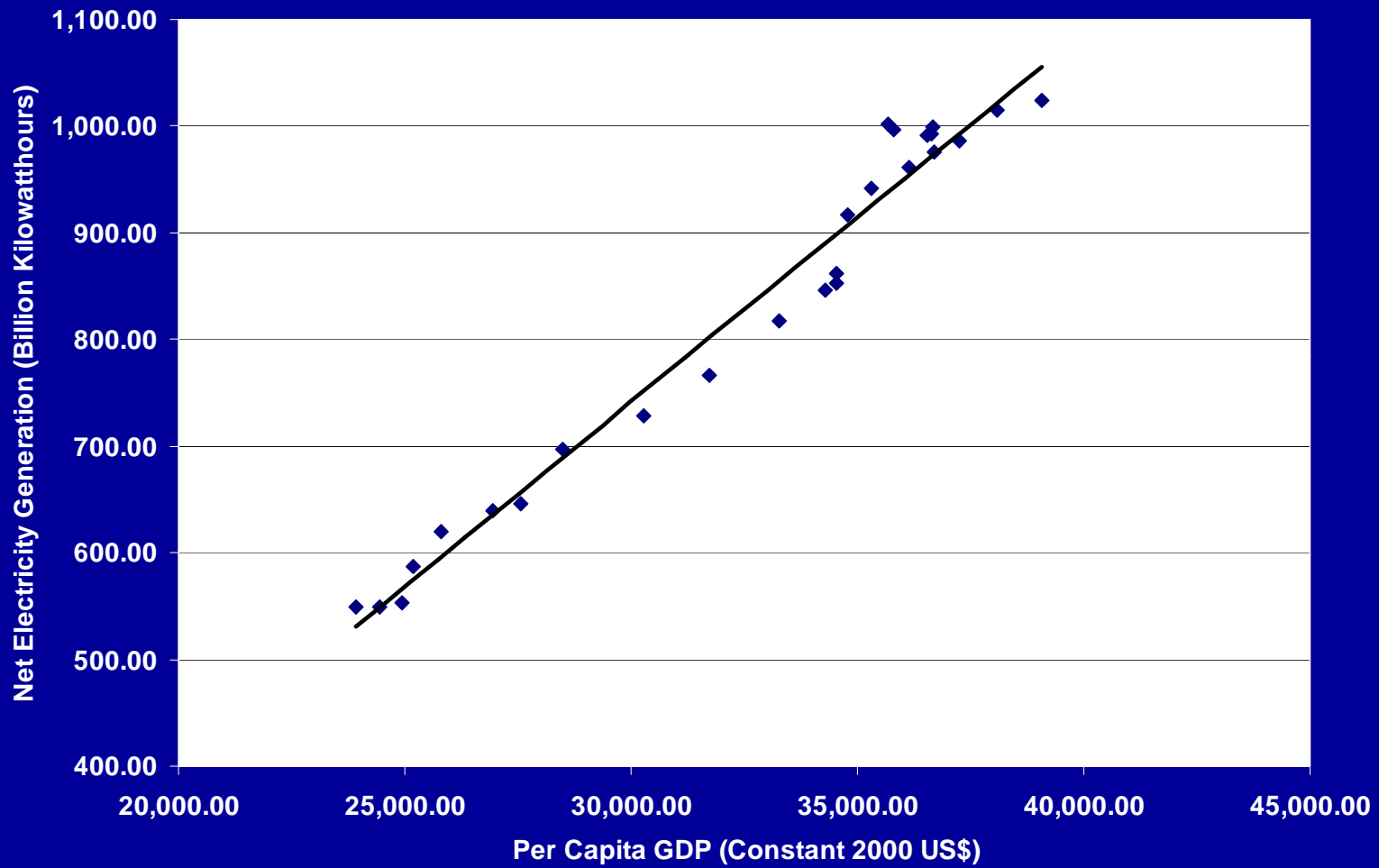
## b. As a Final Good

- Consumption of infrastructure services improves quality of life:
  - Access to power, clean water, telephones and serviceable roads and mass transit all provide people with greater mobility and improved choice leading to an improvement in welfare.

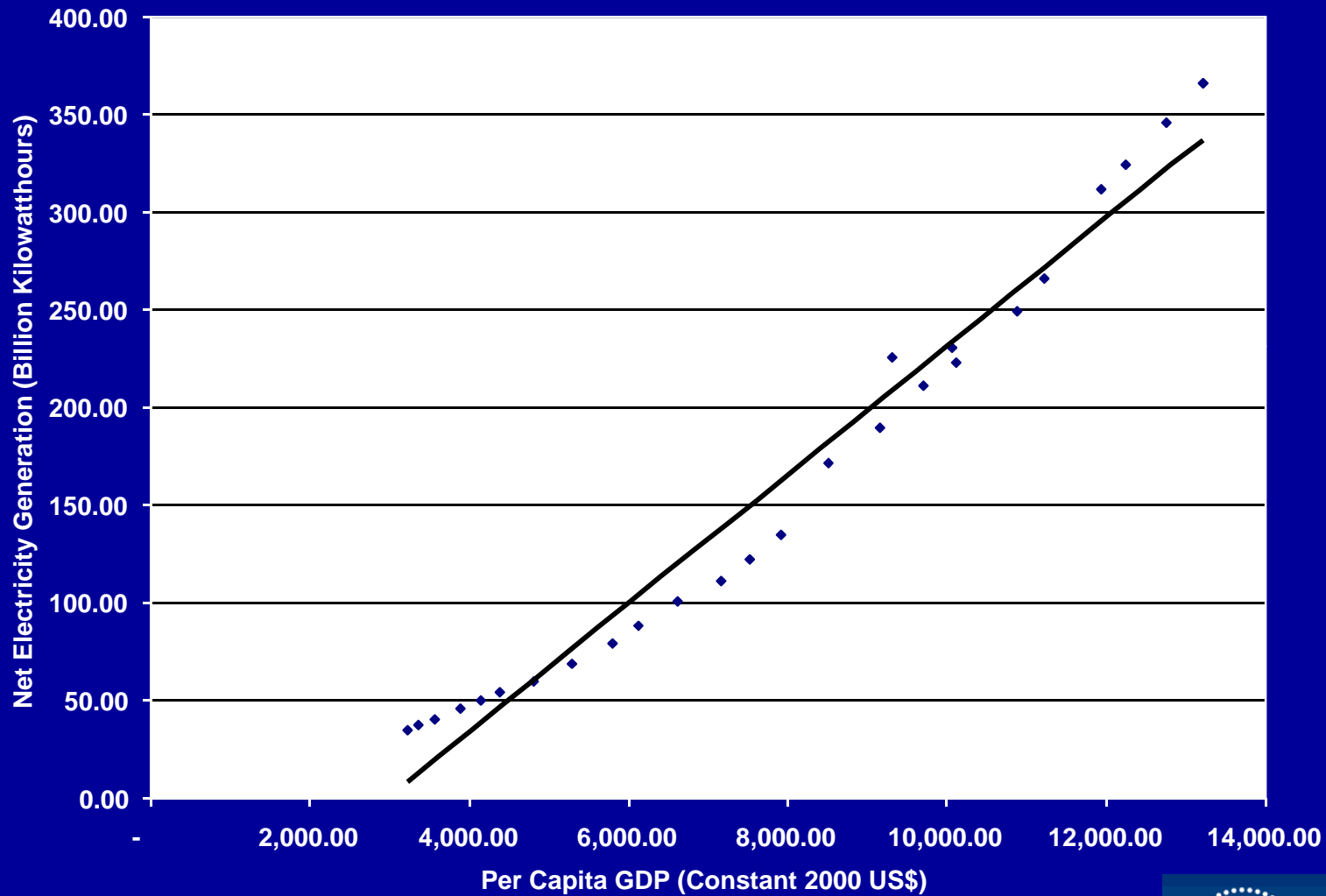
# Connection between Infrastructure and Growth

- Difficult to separate and quantify how much infrastructure affects growth (or production) from how much growth affects infrastructure.
- Regardless of the direction of causality, studies have shown there is a strong relationship between the two.
- For example:
  - The following graphs show the relationship between per capita GDP and net energy generation between 1980 and 2005.

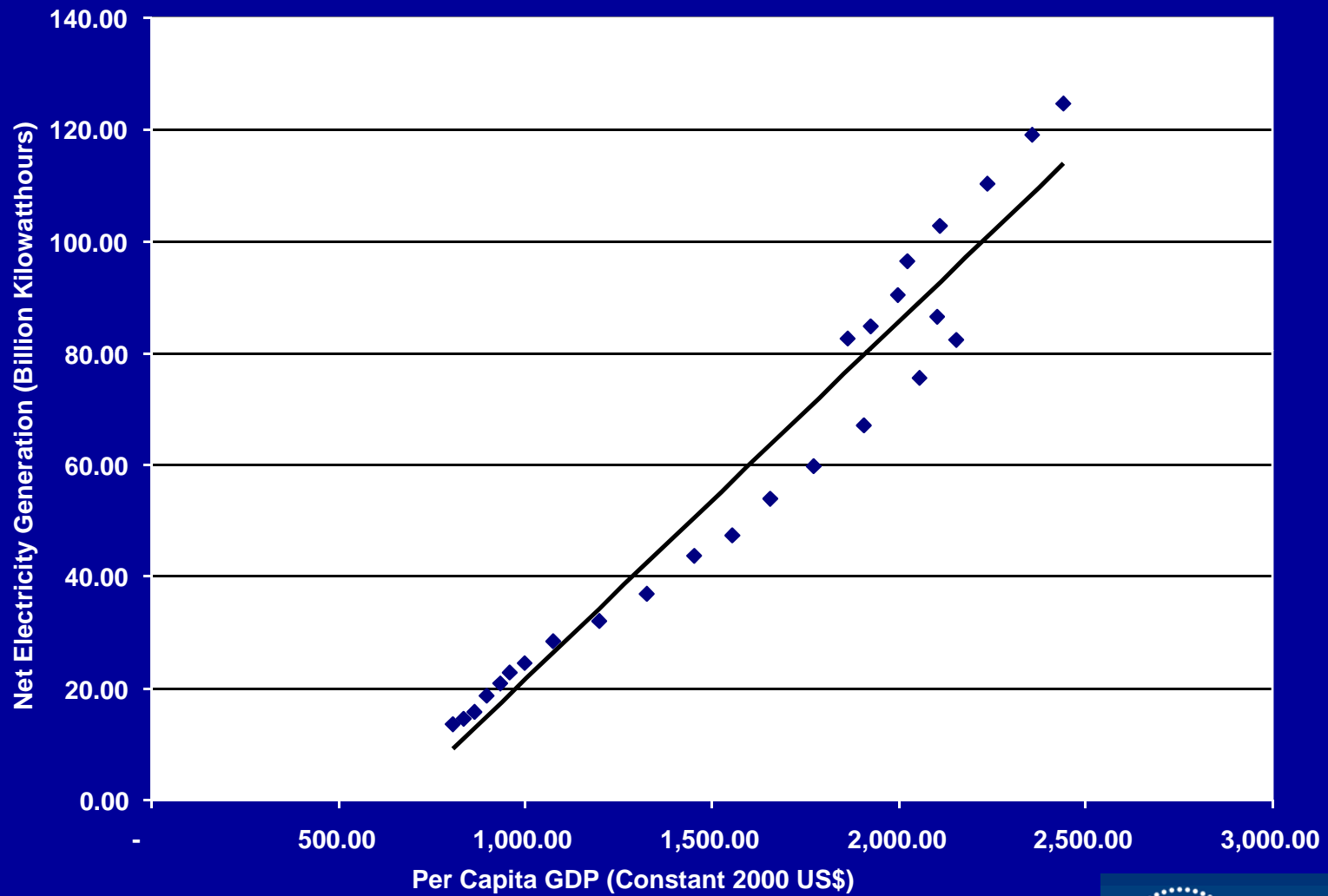
# Japan



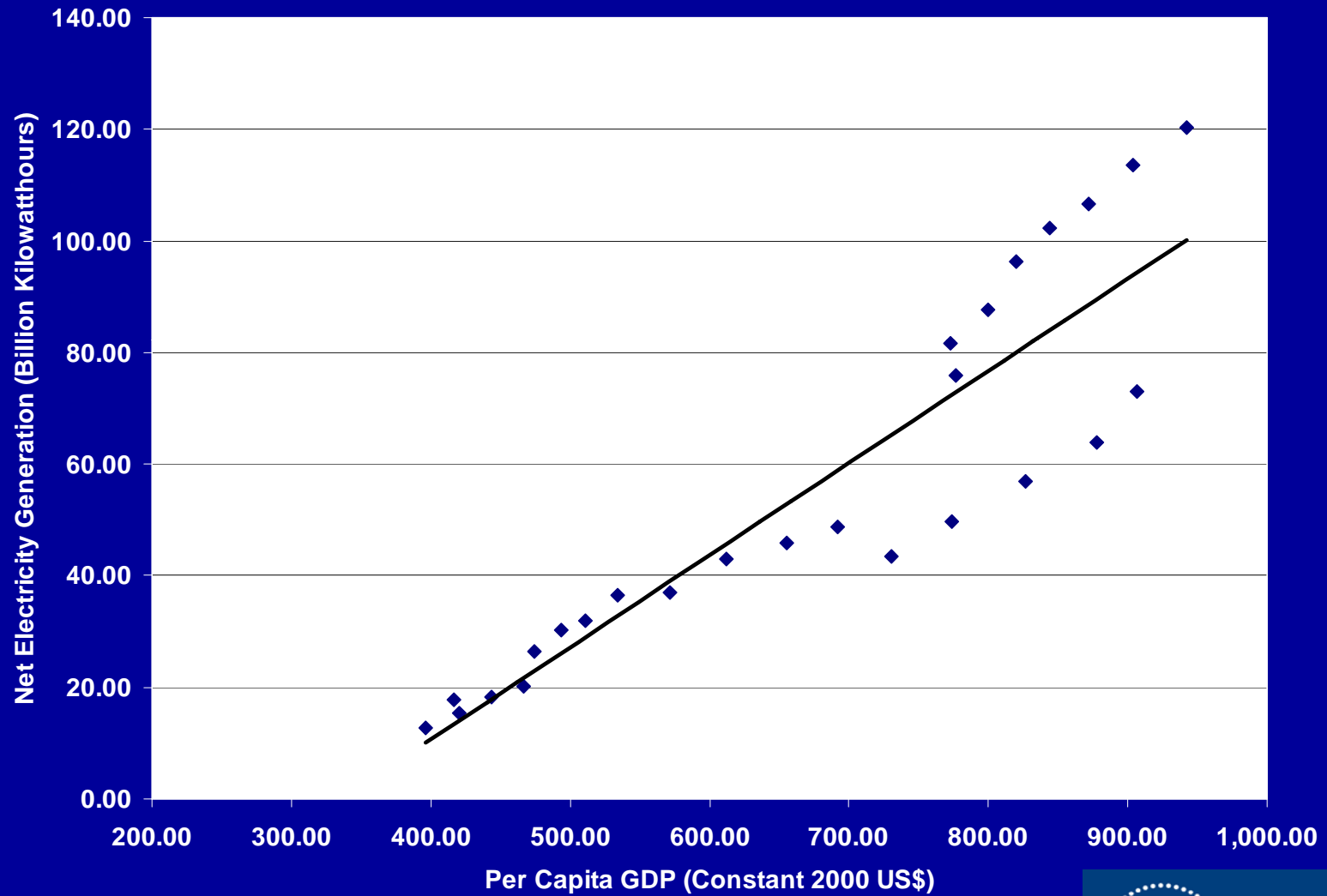
# Republic of Korea



# Thailand



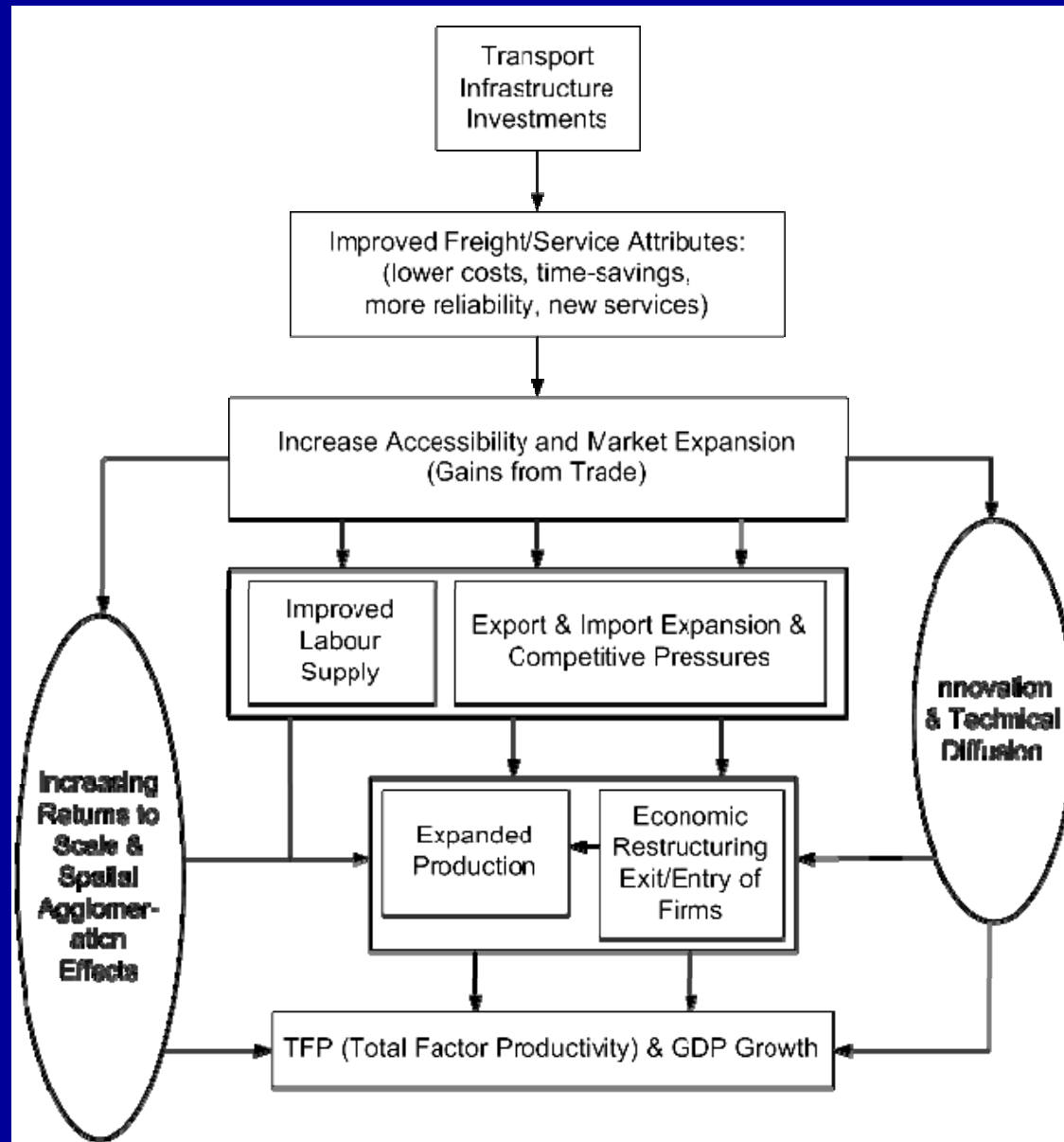
# Indonesia



# Infrastructure and Economic Activity

- As both an input and an output, Infrastructure plays a role throughout the economy.
- In this sense, it has an general equilibrium impact and is often best studied from this approach.
- However, in empirical studies involving general equilibrium, causality is difficult to assign.

# Example of Infrastructure linkage to Economic Activity



# Evidence of Infrastructure's Role in Economic Activity

- Using cross-country data, a number of studies have confirmed the significant impact of infrastructure - particularly telecommunications and roads - on economic growth and productivity.
- A recent study has shown that, in developing countries, rates of return on infrastructure are higher than for overall capital investments.
- Implies that developing countries have underinvested in infrastructure (as compared with developed countries).

# Connecting Infrastructure and Poverty

- Infrastructure affects poverty in two significant ways:
  - Supports the process of growth on which poverty reduction depends.
  - Helps poor access basic services that improve lives and income opportunities.
- At its best, infrastructure can draw poverty reduction, service provision and growth into a reinforcing cycle.

# Infrastructure and Poverty Impacts

- Lack of adequate infrastructure
  - limits competition which can lead to monopolistic pricing, particularly in rural areas.
  - hinders market participation of the poor.
  - limits ability to participate in educational opportunities.
  - creates barriers to adequate health care.

# Infrastructure and Impacts on Poor

- In contrast, adequate investment can lead to an improvement in welfare across the board:
  - water and sanitation access explains a substantial portion of the difference in infant and child mortality.
  - better transportation increases school attendance.
  - electricity access allows more study time.
  - enhanced access to roads and sanitation are important determinants to reducing income disparities.
  - Improved rural roads have raised productivity and land values for poor farmers.

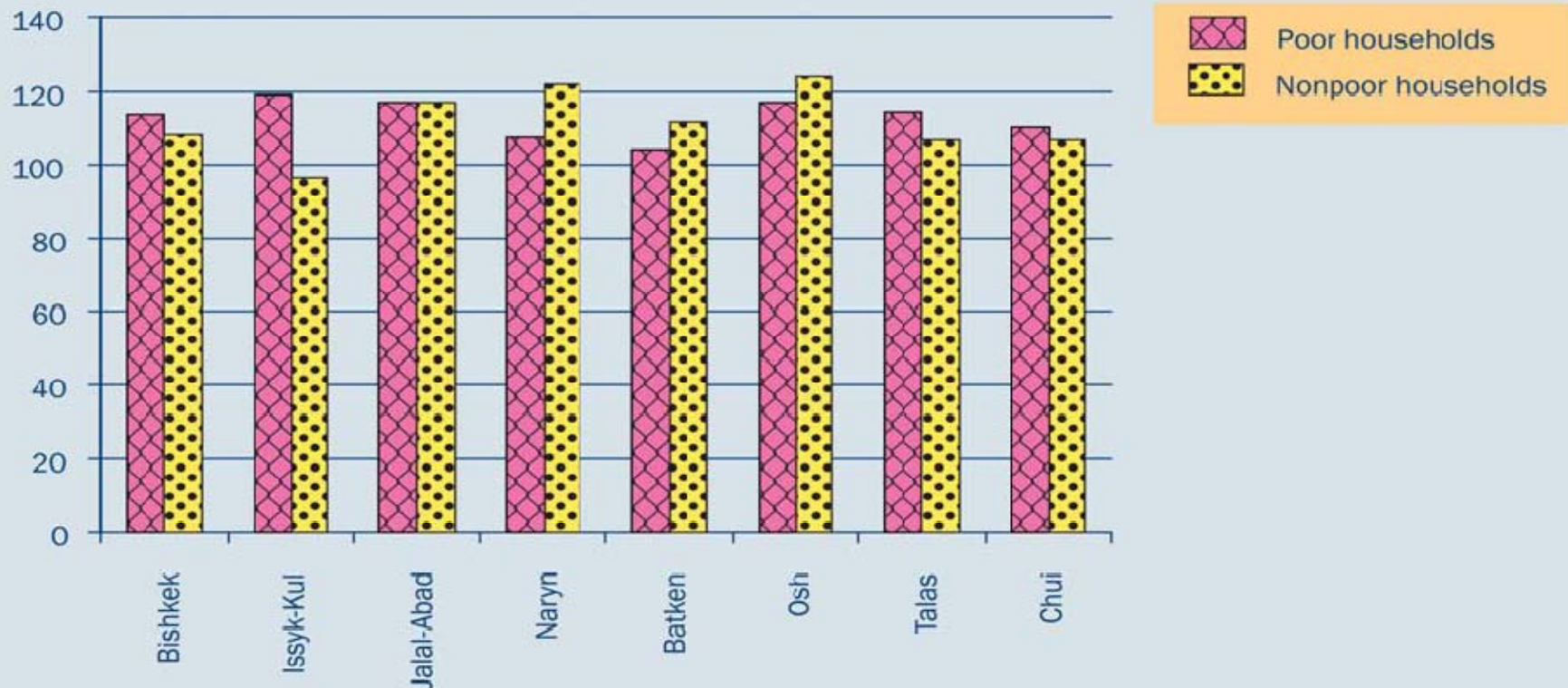
# Evidence from Kyrgyz Republic

- ADB (2006) study used general equilibrium techniques to estimate changes in income from trade policy, transport and customs reforms.
- Increasing regional cooperation in transport and customs transit was estimated to reduce external transport costs by an average of 6% for exports and 11% for imports.
- Domestic margins were also expected to fall, an average of 1.25% for exports and 1.3% for imports.
- The cumulative percentage increase (relative to 2005) in both poor and nonpoor households' aggregate income would be substantial, with the former gaining slightly less than the latter (graph on next slide).

# Affect on Household Income

**Figure 7.2: Cumulative Change in Household Income in the Kyrgyz Republic in 2006–2015 due to Increased Regional Cooperation in Transport and Customs Transit in 2006**

(Relative to 2005, in percent)



Source: Computable general equilibrium model-based simulations made by the authors.

# Infrastructure and Inclusive Growth

- Development of Economic Zones or Corridors – centred around some infrastructure such as roads, rail lines or port facilities – can lead to a two-track development process with rural communities outside these zones excluded from the economic opportunities presented there.
- Other studies have shown broad investment in infrastructure can improve access of rural communities to these zones.

# Limitations of Infrastructure for Poverty Reduction

- When there is mass poverty affecting large portions of the population, infrastructure investment may be just a part of a larger strategy of poverty reduction and economic growth.
- When poverty is highly localised and clearly linked to geographic remoteness or poor access, (for instance to adequate clean water), a targeted strategy for improving infrastructure will have maximum impact and play a large role in poverty reduction strategies.
- However, some cases where other factors impact on poverty – such as history of discrimination against particular ethnic groups or cultures, other factors may be necessary to address causes of poverty.

# Infrastructure and Development: Choices

- Not everyone benefits from infrastructure investment; nor do those that do benefit, share equally.
- While broad-based impacts on poverty may be positive, local socioeconomic impacts can sometimes be negative, for example:
  - Displacement from hydropower or other land-use development
  - Disruption of agricultural land for road construction
  - Telecommunication towers in highly populated regions
- Choices between projects with strong poverty-related impacts but limited implications for short-run aggregate growth (e.g. rural water supply) versus those with growth focus but limited poverty impacts (e.g. port development).

# Infrastructure and Development: Choices (cont'd)

- Institutions often need to make choices regarding trade-offs of infrastructure projects.
- Ensuring participation and consultation with affected groups has been shown to positively impact outcomes.
- Setting up systems to acknowledge and compensate (not necessarily monetarily) has also been shown to increase acceptance and support for projects.

***Thank You!***

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