

Energy Poverty in North Korea

A Study of Evidence-Based Policy Making and Data Visualizations

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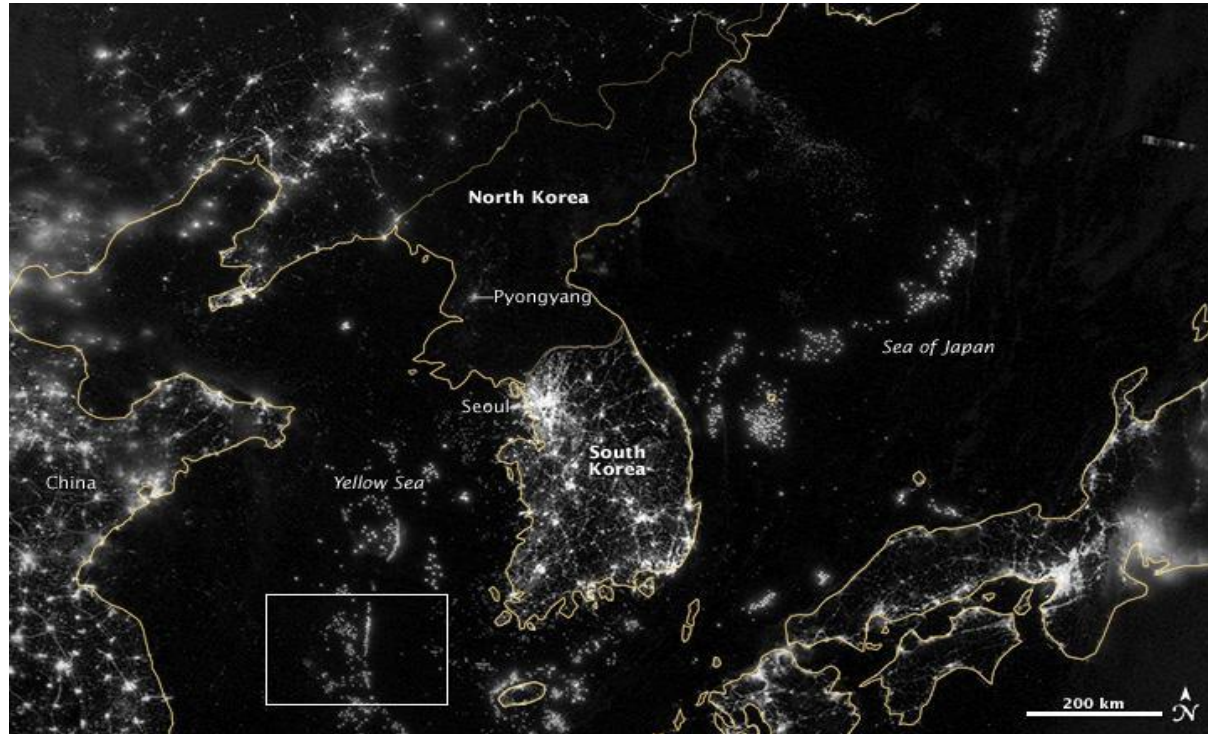
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Outline

- **Introduction**
 - **Research questions**
 - **Methodology: data visualization and evidence-based policymaking**
- **Background**
 - **Definition of energy poverty; Impact of energy poverty**
- **Findings and discussion**
- **Conclusion**

Introduction

“The worst kind of poverty is energy poverty”



Nighttime view of the Korean Peninsula on September 24, 2012 (NASA)

Research Purpose

**Investigate Energy Poverty
North Korea as a Case Study**

Research Questions

- **Demand for energy across North Korea?**
- **Supply of energy in North Korea, in comparison to other countries?**
- **Energy poverty's impact on health and development?**
- **Policy recommendations to address North Korea's energy poverty?**

Methodology

- **Five main sources of data:**
 - **DPRK Census Data (2008)**
 - **DPRK Nutrition Survey Data (2012)**
 - **International Energy Agency's data on electricity production (1990-2014)**
 - **International Energy Agency's World Energy Outlook 2016 (data for year 2014)**
 - **United Nations' Millennium Development Goals Indicators (1990-2015)**
- **Develop DVs to illustrate energy usage and the impact of energy poverty in North Korea.**

Definition of Energy Poverty

Energy poverty:

“the absence of sufficient choice in accessing adequate, affordable, reliable, high-quality, safe and environmentally benign energy services to support economic and human development”.

Reddy (2000)

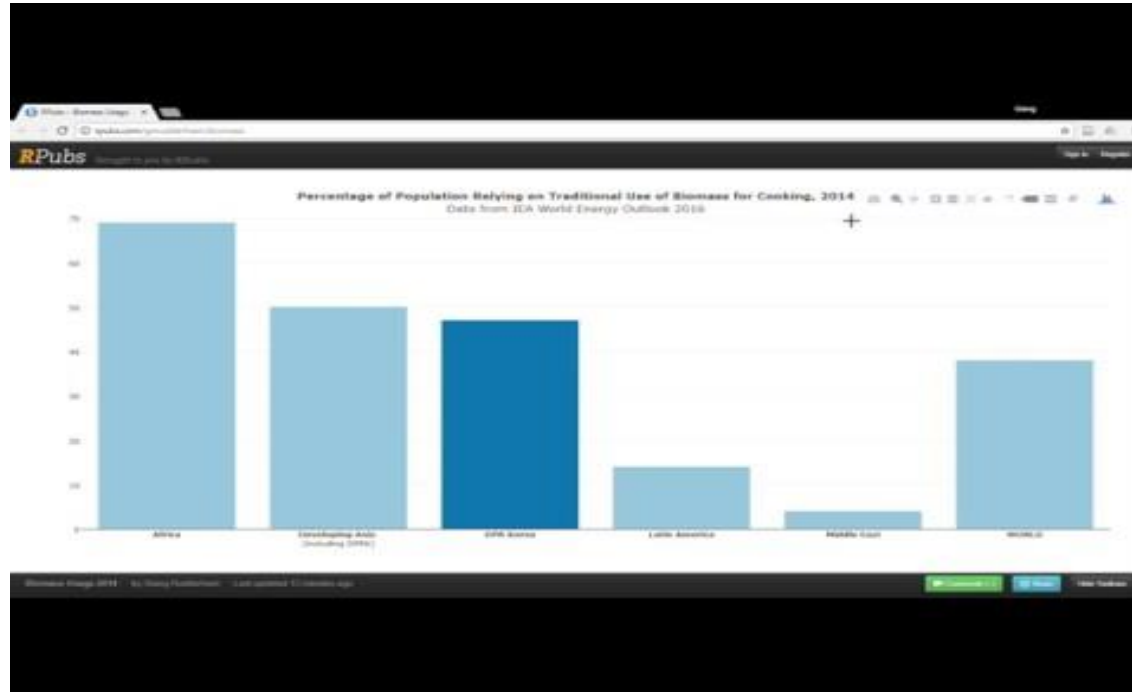
Impact of Energy Poverty on Health Care Facilities

- **Health care facilities need electricity to function:**
 - **Lighting**
 - **Storage of medication**
 - **Operation of technology such as X-ray and ultrasound**
 - **Transportation of patients**

Data Visualization to Answer Research Questions

Visualizations to illustrate the current situation of energy poverty and its consequences, with a focus on North Korea

Access to Energy in North Korea, *Compared to Developing Regions in the World*

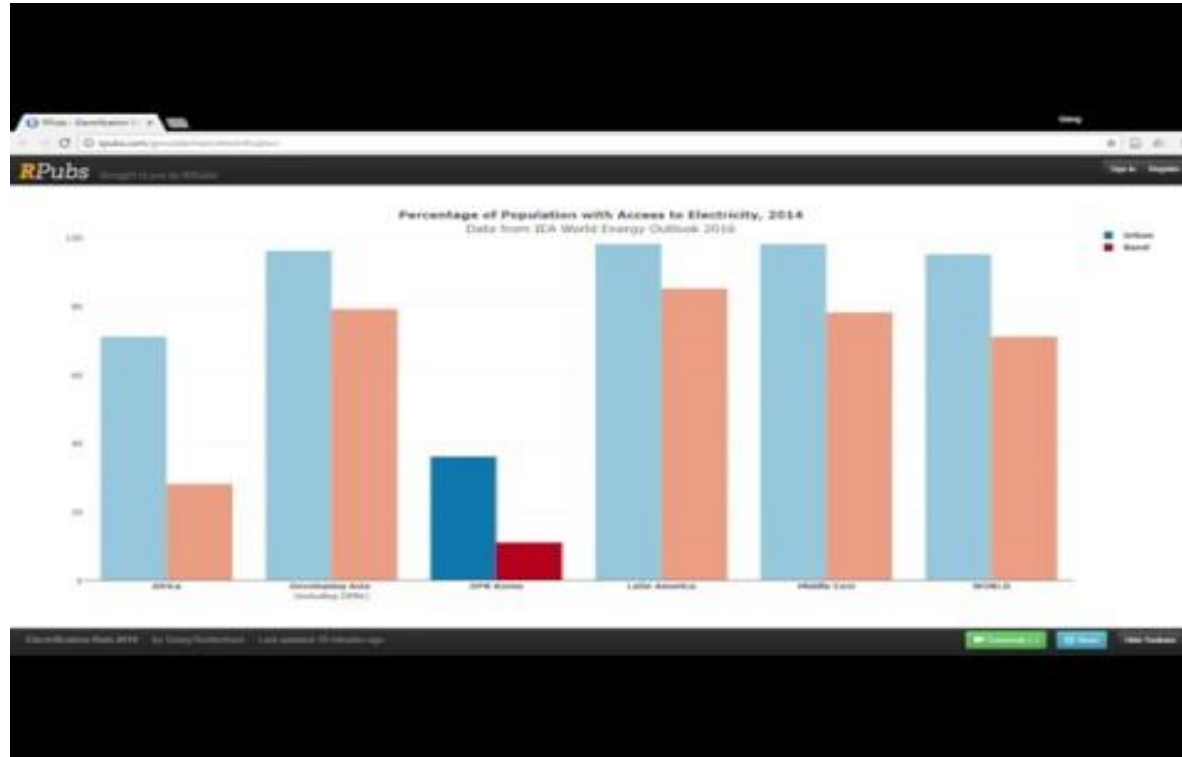


[Link](#)

Implications for Policymakers

- **Burning wood and crop is widely used**
 - **Serious consequences for health and the environment**
- **Help expand the choices of energy resources for North Korea**

Percentage of Population with Access to Electricity



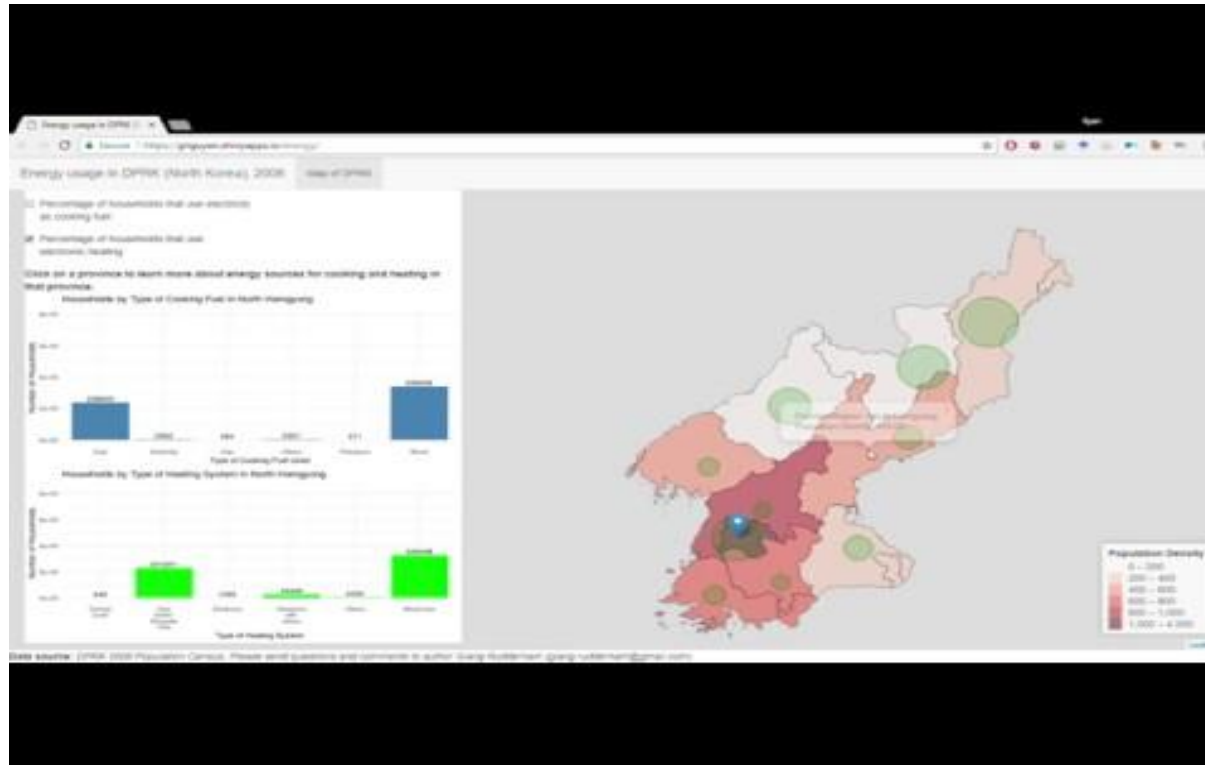
[Link to interactive DV](#)

Implications for Policymakers

- **Improve electrification rate for North Korea**
- **Case study of countries prone to electricity shortage**
- **Focus on rural areas**

Case DV 2
Energy Demand and Energy Supply in
North Korea

Energy Demand and Supply



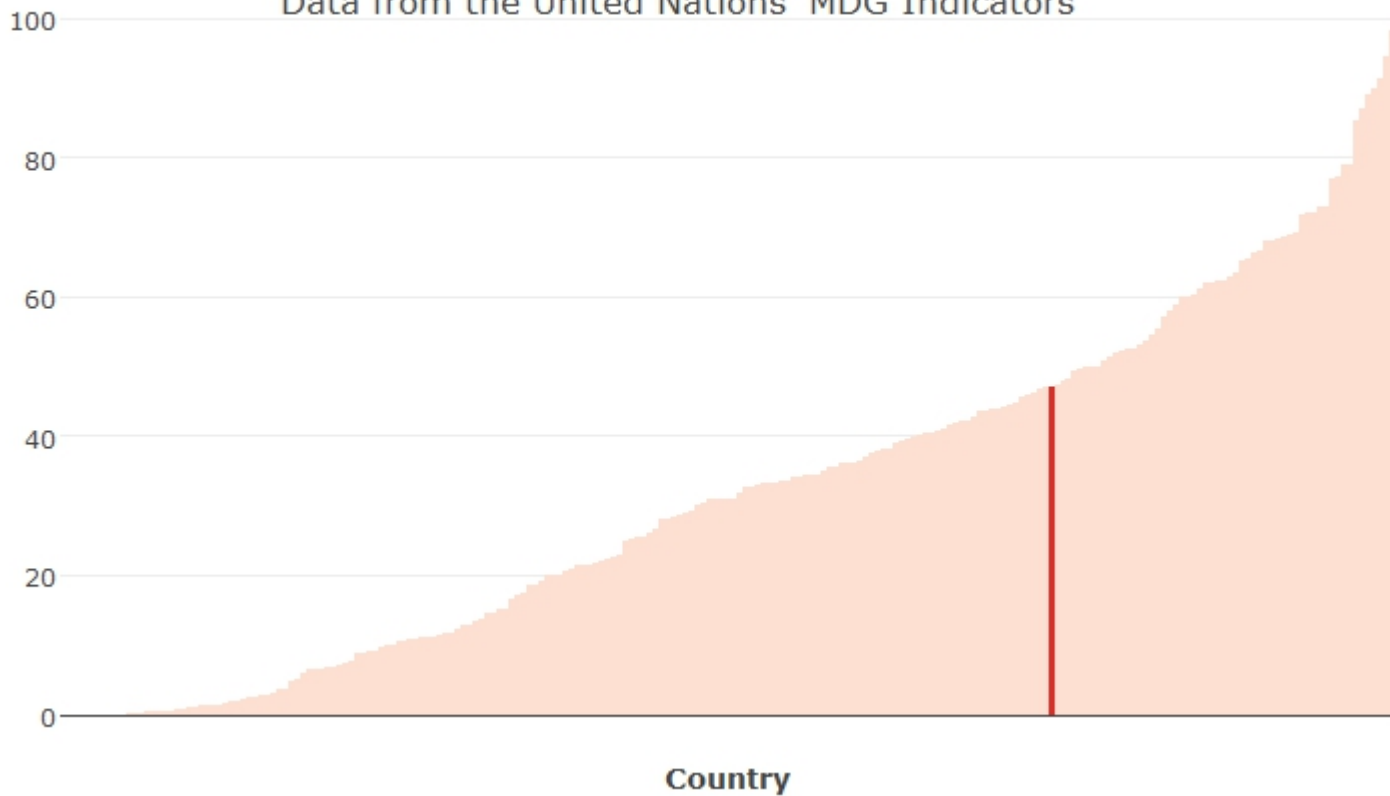
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Case DV 3

Consequences of Energy Poverty in Health, Environment and Social Development

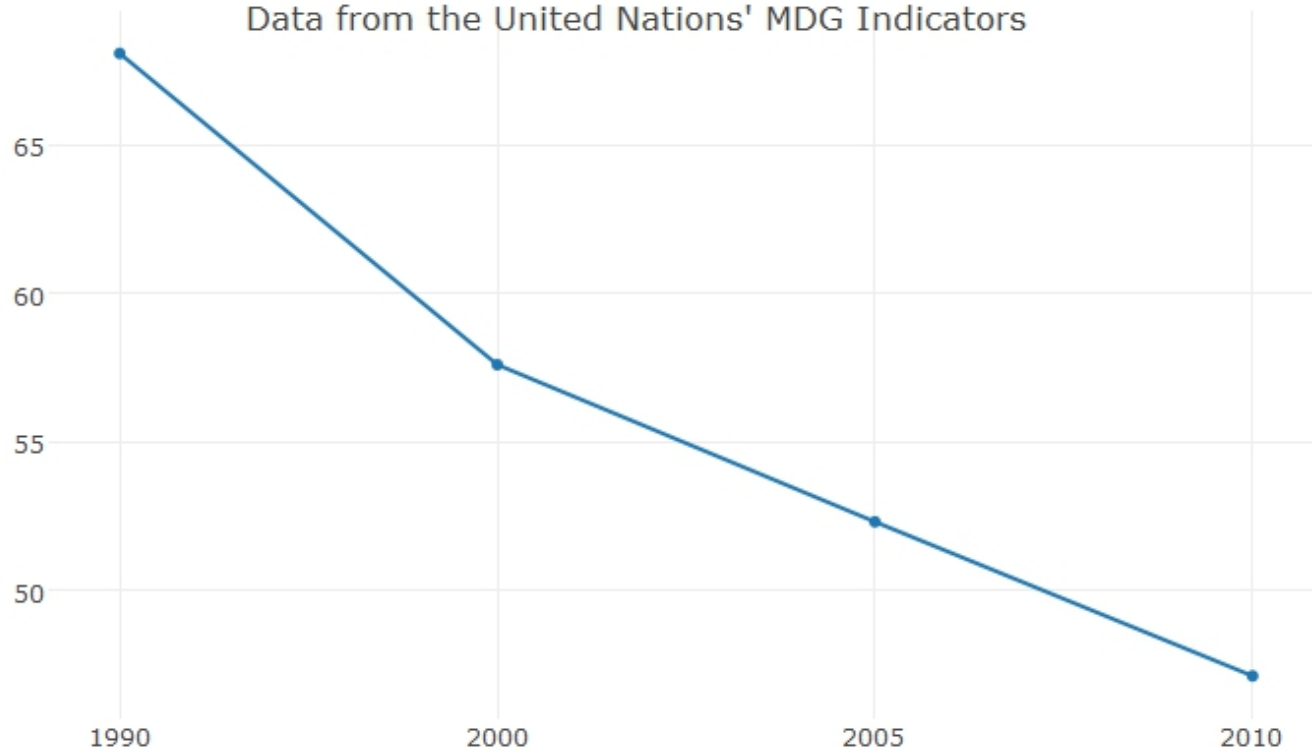
Percentage of Land Area Covered by Forest (2010) by Country

Data from the United Nations' MDG Indicators



[Link to interactive DV](#)

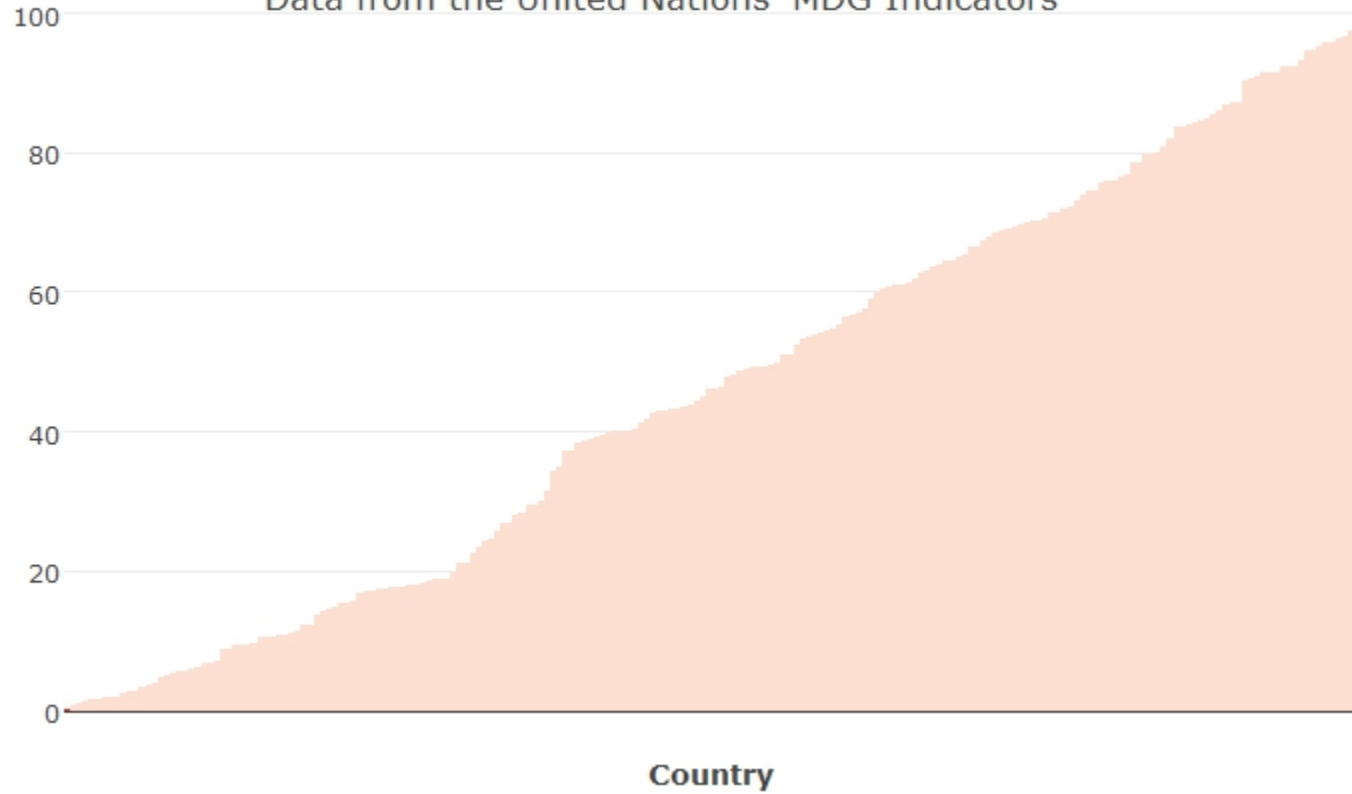
Percentage of Land Area Covered by Forest, DPRK, 1990-2010,
Data from the United Nations' MDG Indicators



[Link to interactive DV](#)

Internet Users Per 100 Inhabitants (2014) by Country

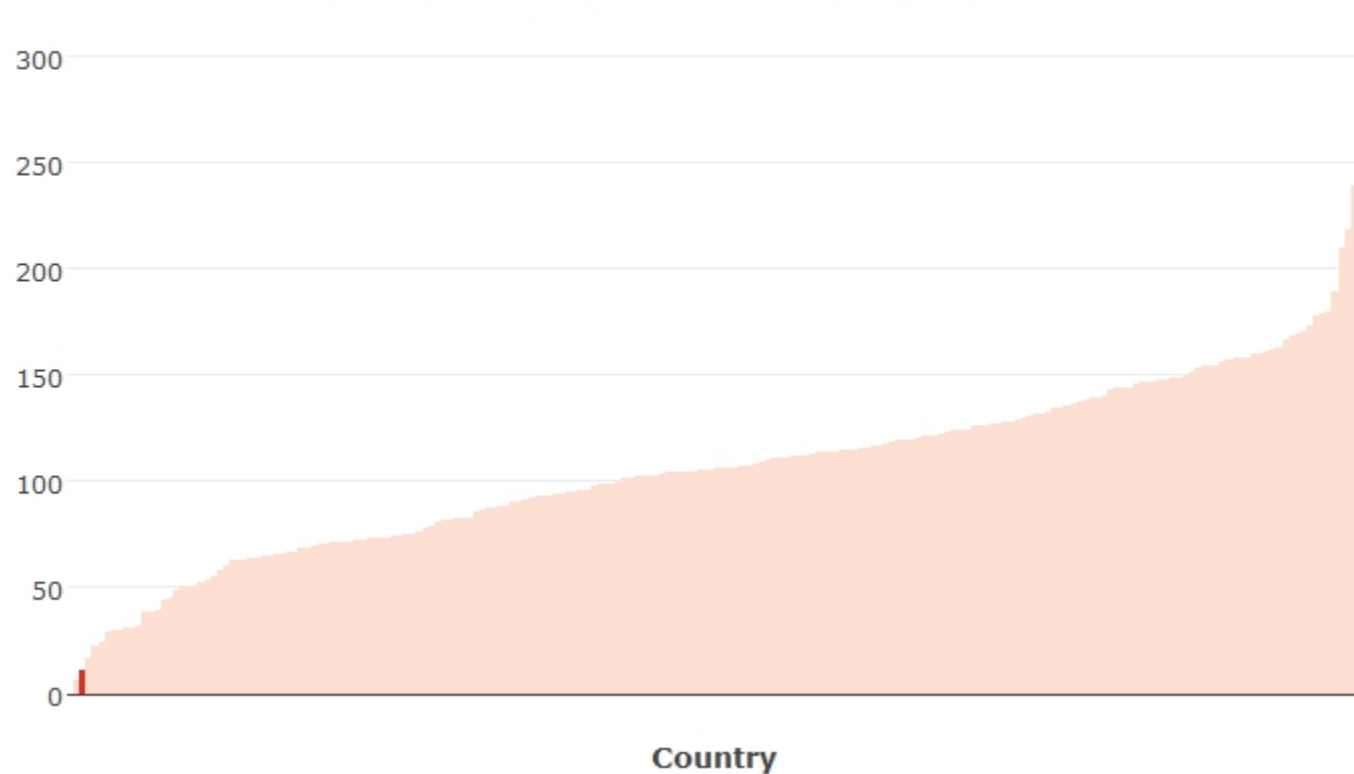
Data from the United Nations' MDG Indicators



[Link to interactive DV](#)

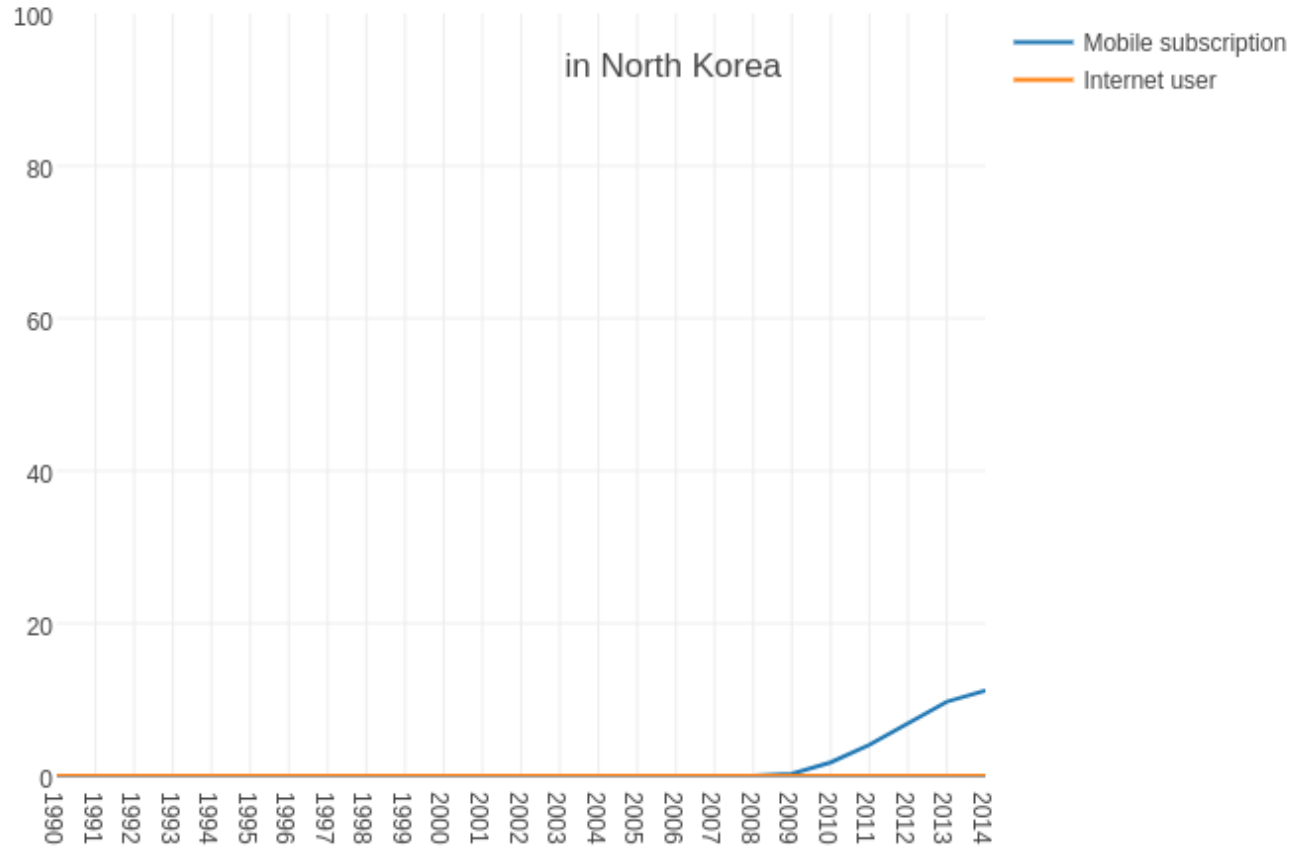
Mobile-cellular Subscriptions Per 100 Inhabitants (2014) by Country

Data from the United Nations' MDG Indicators



[Link to interactive DV](#)

Mobile-cellular and Internet Subscriptions per 100 Inhabitants



[Link to interactive DV](#)

Implications for Policymakers

- **Consequences of energy poverty:**
 - **Correlation with forest degradation and social development**
- **Case study of countries prone to electricity shortage**
 - **Other countries with more pressing needs**

Conclusions

- **Merits and drawbacks of data visualization for energy policy development**
 - **Visual tool to aid data analytics**
 - **Missing data**
 - **Correlation is not causation**
- **Future research agenda**
 - **Case studies for other countries in transition**

Thank you!

Please send questions and comments to
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