Emerging Cellular Communication Markets

Tam N. Nguyen

Dataset

World Development Indicators Dataset:

- 5656458 data entries, 6 columns
- 247 countries
- From 1995 to 2016
- Published by the World Bank
  (https://data.worldbank.org/data-catalog/world-development-indicators)

Motivation

Mobile devices are quickly becoming more affordable and more powerful. They are becoming the key piece in various business models such as car hailing, home delivery, personal payment systems, online retails, personalized education, and so on.

Recognizing emerging cellular communication markets is extremely beneficial to active players in various industries.

Research Questions

- What are the potential indicators for a good, fast growing cellular communication market?
- What are the potential top 5 cellular communication markets as of 2016?

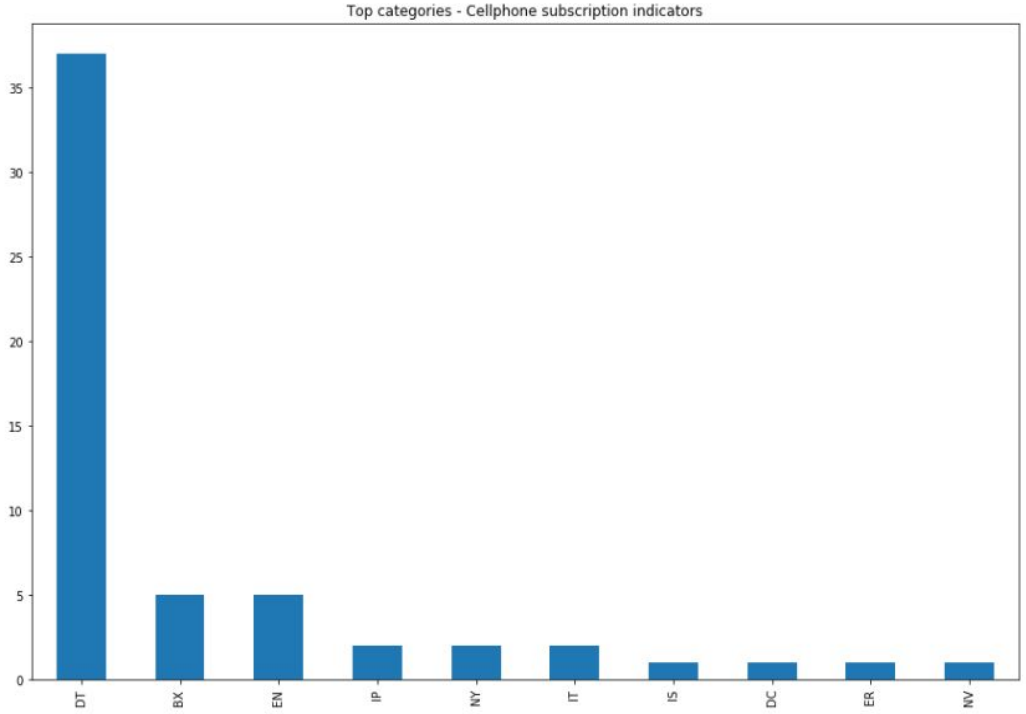
Findings : Top 10 indicators

- Agriculture, value added to GDP
- Personal remittances, received
- Net flows on external debt, total
- Container port traffic
- Trademark applications, direct resident
- Primary income on FDI, payments
- HFC gas emissions (thousand metric tons of CO2)
- Fixed broadband subscriptions
- Grants, excluding technical cooperation
- GDP, PPP

Findings : Top 10 categories of indicators

x axis : category code
y axis : number of indicators in a category that appear in the list of top 58 indicators

DT : external debt
BX : balance of payments relating to exports
EN : general environment
IP : intellectual property
NY : National accounts relating to income
IT : telecommunication infrastructure
IS : transportation infrastructure
DC : Debts relating to aid flows from DAC
ER : Environment resources
NV : National accounts - value added



Findings : Top 7 markets

1. Costa Rica
2. Peru
3. China
4. Albania
5. Mexico
6. Malaysia
7. Colombia

Research method

- Identified “Mobile cellular subscriptions” as the key indicator
- Automatically sweep through World Bank’s “World Development Indicators” database to find indicators that correlate well with the key indicator (>0.85/1)
- Pick top 10 indicators based on correlation scores, number of correlated data entries, and diversity.
- Automatically find countries that demonstrate consistent correlations with the key indicator across all selected top 10 indicators
- Normalized and combined all scores to one correlation index per country
- Identified top 7 countries with highest correlation index

* Please check the provided Jupyter Notebook source code links in the “Reference” slide for implementation details

Acknowledgements

This work was done by Tam N. Nguyen (tam.nguyen@ncsu.edu) and was :

- Based on the World Development Indicator dataset published by World Bank and reformatted for Jupyter Notebook by Kaggle
- Implemented using Jupyter Notebook with Python 3
- Under the scope of UCSD's "Python for Data Science" course
  (UCSanDiegoX: DSE200x)

References

Jupyter Notebook source codes:
https://github.com/genterist/DataScience/tree/master/CellphoneMarkets

World Bank's World Development Indicators:
https://data.worldbank.org/data-catalog/world-development-indicators

World Bank's category codes:
http://databank.worldbank.org/data/download/site-content/WDI_CETS.xls

Jupyter Notebook installation guide:
http://jupyter.org/install.html