Data Sources for Measuring the Digital Economy

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Outline

- Preamble
- Possible Data Sources
- How to Transform the Source Data
- Challenges in Accessing Data
- Overcoming Data Access Challenges
- Contribution of Mobile Money Services to GDP – Kenyan Case
- Future plans

Preamble[1]

- *Def – Digital Economy* is transformative impacts of digital technologies on economic activity
- Widespread use of digital platforms by businesses, governments, organizations etc. has resulted to generation of huge data from clients
- Fast adoption of new technologies in businesses, homes and individuals – has led to generation of high frequency data

Preamble2

Measuring the Information Society through Big Data for Kenya

- International Telecommunication Union (ITU) in collaboration with
  - Communication Authority of Kenya (CA)
  - Kenya National Bureau of Statistics (KNBS)
- Objectives
  - Explore innovative ways to utilize big data as a new data source to complement current official data sources
  - Develop new methodologies - with a possibility of replicating for countries with similar data infrastructure
  - Compile statistics/indicators for information society
  - Capacity building

Possible Data Sources[1]

- Data sources for measuring the digital economy
  - Telephone operators
  - Social media platforms
  - Company websites
  - Digital payment platforms
  - E-Commerce platforms
  - Government web-based platforms
  - Machine to machine connected to internet
  - Survey to supplement the sources above

Possible Data Sources2

- Data coming from these sources could revolutionize way of doing business for statistical organizations if fully taken advantage of
  - new set of data that are technicality impossible to achieve with traditional statistical surveys
  - complement data collected through traditional sources
  - Timeliness/velocity – can produce near real time results
  - Cheap – saves on time and costs compared to traditional statistical surveys

How to Transform the Source Data to Measure the Digital Economy

- Currently there is a thin line between many of the economic activities of Digital Economy and other economic activities as defined in the ISIC
- Difficult for statisticians to measure the digital economy
- As a starting point, there is need for an internationally agreed definition of “Digital Economy”.
- To avoid overlap with other economic activities, there is need for clarification on issues of
  - Industrial classification
  - Products
  - Valuation
  - Etc.
- Do we need
  - Introduction of an industry in ISIC for Digital Economy
  - A satellite account for Digital Economy
  - Or both?
- Technically, new data sources make much logic when they are integrated with other sources such as those from traditional sources

Challenges in Accessing Data[1]

- Providers consider the data to be confidential
  - Due to risk of disclosure if shared by a third party
  - Sensitive for businesses
- Getting access to data requires
  - Procedures and
  - Regulatory and Legal processes
- Lack of sufficient guidelines on digital economy – what data to collect
- Inadequate capacity - providers

Other Challenges During Big Data Project – Kenya

- Errors in some data received from data providers sometimes because
  - they did not understand the methodology
  - or their systems were not configured to collect and store the data in the required format
- Eventually some data were not provided as requested due to confidentiality
- Resources - private companies usually cannot quickly reallocate their resources to external, non-commercial projects (such as this project)

Overcoming Data Access Challenges[1]

- National Statistical Offices (NSOs) should invest in capacity building
  - Human capacity
  - Tools to be use in analyzing the digital economy – ensuring compatibility between providers' systems and those of analysts
  - Physical infrastructure
- Collaboration between compilers of statistics and data providers
  - Review of statistical laws to cater for collection of requisite data
  - MOUs
  - Clear administrative procedures on how the data should be shared
- Address issues of
  - Privacy concerns raised by a data providers
  - Data protection/security e.g. is anonymization sufficient?
- Put in place a strong coordinating mechanism to determine the roles and responsibilities for all stakeholders
- Resource mobilization

Overcoming Data Access Challenges2

- In the case of Kenya the following had to be done during a project on Big Data
  - Official invitations for participate in the project (from ITU to CA and KNBS)
  - Official letters to providers of necessary reference data (from KNBS)
  - Official letters from CA to all licensees informing them of the project and seeking their cooperation
  - Confidentiality and non-disclosure agreement between CA and the ITU data scientist
  - Confidentiality and non-disclosure agreement between CA and data providers

Contribution of Mobile Money Services to GDP – Kenyan Case[1]

- Mobile money service providers
  - Telecommunication companies – provide the platforms
  - Airtime agents
  - Banks
  - Retail outlets (supermarkets, shops, pharmacies, hardwares etc)
  - Other agents
- Commission is paid to agents by the telecommunication companies
- Explicit estimates only compiled for Airtime Agents
- For the other agents contribution to GDP is treated as part of secondary economic activities for the respective agents e.g. retail trade for supermarket agents

Contribution of Mobile Money Services to GDP – Kenyan Case[2]

- Gross Output = commission paid to mobile money agents (by telecommunication companies - FS)
- Gross output for Airtime Agents = Commission paid*number of Airtime Agents/Total Mobile Money Agents
- Intermediate consumption is estimated from survey of services then adjusted to account for other activities that the Airtime Agents are engaged in
- Classification – considered to be a secondary economic activity of the telecommunication industry

Future Plans: Big Data for Mobile Money Services – Kenya[1]

- A planned pilot project on Big Data on mobile money services
  - has expanded rapidly since its launch in 2007 and plays an important role in financial transactions in Kenya
- Collaborating institutions; IMF Statistics Department, Kenya National Bureau of Statistics, Central Bank of Kenya and National Treasury
- Specific objectives of the project - an analysis of how mobile money transfer data can be used to measure
  - specific services
  - transfers (including international remittances flows)
  - financial inclusion
  - certain Sustainable Development Goals (SDGs) indicators (i.e. gender equality

Future Plans: Big Data for Mobile Money Services – Kenya2

- In addition, the project targets to
  - document the lessons learned
  - develop potential methodological guidance that can be used in countries with similar data infrastructure in future
  - develop instructional material

The end