

# National Seminar - Kenya

## “Kenya’s transport sector: Measuring its value chains and exploiting its potential”

Background

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# Outline

- ▶ Overview of sectoral classification of services
- ▶ Importance of transport services in Kenya
- ▶ Methodologies to Analyze Trade in GVCs
  - ▶ Quantitative instrument based on input-output tables (for information)
  - ▶ Qualitative instrument based on enterprise questionnaire
  - ▶ Conditions for success of questionnaire (collective brainstorming)
- ▶ Take Aways

# Overview of sectoral classification of Transports services

▶ There are 12 services sectors under the WTO's classification

▶ Transport services comprise

A. Maritime

B. Inland waterways

C. Air transport

D. Space transport

E. Railway transport

F. **Road transport**

- a) Passenger transport
- b) Freight transport
- c) Rental of commercial vehicles with operator
- d) Maintenance and repair of road transport equipment
- e) Pushing and towing services
- f) Supporting services for road transport

G. Pipeline

H. **Services auxiliary to all modes of transport**

- a) Cargo handling services
- b) Storage and warehouse services
- c) Freight transport agency
- d) Other

I. Other transport services

# Importance of Transport services in Kenya

- ▶ Transport sector contributes 8% to GDP and constitute a key component of the services sector
  - Employment
  - Income generation
  - Trade facilitation (domestic and regional)
- ▶ Road sub-sector accounts for over 80% passenger traffic and 76% freight
- ▶ The road network in Kenya is estimated at 160,886 kilometers of which 61,945km are classified
- ▶ The network is used by over 740,000 vehicles with an annual traffic growth rate of around 6%.
- ▶ Provides overall connectivity along main and international highways
- ▶ Connectivity to points of entry and exits
  - Sea port (Mombasa, Lamu); Inland ports (Kisumu)
  - Border points - Namanga, Busia, Isebania, Mulili (Taita Taveta), Moyale
- ▶ **Northern Corridor** - Mombasa port serves neighbouring countries - Uganda, Rwanda, Burundi and DRC through the road network

## Institutional and Regulatory Framework - Road transport sub-sector

- 1) **The State Department of Transport** - Ministry of Transport, Infrastructure, Housing and Urban Development - overall national transport policy
- 2) **Kenya Roads Board (KRB)** - coordinate development, rehabilitation and maintenance of Roads in Kenya and manage the Kenya Roads Board Fund Account
- 3) **National Transport and Safety Authority (NTSA)** - regulation of road transport and safety
- 4) **The Kenya National Highways Authority (KenHA)**- To manage, develop, rehabilitate and maintain national roads
- 5) **Kenya Urban Roads Authority (KURA)** - Development, Maintenance, rehabilitation and management of urban roads in Kenya.
- 6) **Kenya Rural Roads Authority (KeRRA)** - offer guidance in the construction, maintenance and management of the rural road network in the country.
- 7) **The National Police Service** - Enforcement of traffic rules and regulations
- 8) **Kenya Revenue Authority (KRA)** - enforcement of taxation measures
- 9) **Kenya Wildlife Service (KWS)** - in charge of 8,900 km of roads in the National Parks and Game Reserves.
- 10) **County Governments** - Fourth schedule (5) County Roads
- 11) **Other players** - Producers, freight forwarders, transporters (freight & passengers), storage & warehouses etc

# Methodologies to analyze value chains

- ▶ Definition of value Chain: A functionally integrated network of production, trade and service activities that covers stages in a supply chain from the transformation of raw materials, manufacturing, to the delivery of a finished good to a market.
- ▶ Evolved considering...fragmentation of production...organization of labour .....”just-in-time” production/delivery
- ▶ Shift of public policy from **promotion of competitiveness** to **development of capabilities**
- ▶ Analyzing GVC trade is a relatively new area necessitated by globalization and/or Industrial revolution.
- ▶ Two broad techniques exist:
  - **Quantitative methods - TiVA data and associated indicators.**
  - **Qualitative methods**
    - Questionnaires and case studies.
    - Firm-level surveys.
- ▶ Each approach has different advantages and disadvantages...

# Methodologies.....

## TiVA Data

Rigorous economic foundation.

Provides the basis for rigorous empirical analysis.

BUT data requirements are hard to meet in developing countries.

Does not capture intra-firm services purchases.

## Case Studies

Scope only limited by analyst's creativity.

Flexible, can deal with different realities on the ground.

BUT firms may be unwilling to cooperate fully.

Precise implementation varies across studies, which makes use and comparison difficult.

## Firm Surveys

Already used by many countries and international organizations.

Could be adapted to track GVC linkages, and services use; currently poorly done in most cases.

BUT firms may be unwilling to cooperate fully without legal sanction.

Difficult to develop a rigorous sampling frame in developing countries due to high levels of informality.

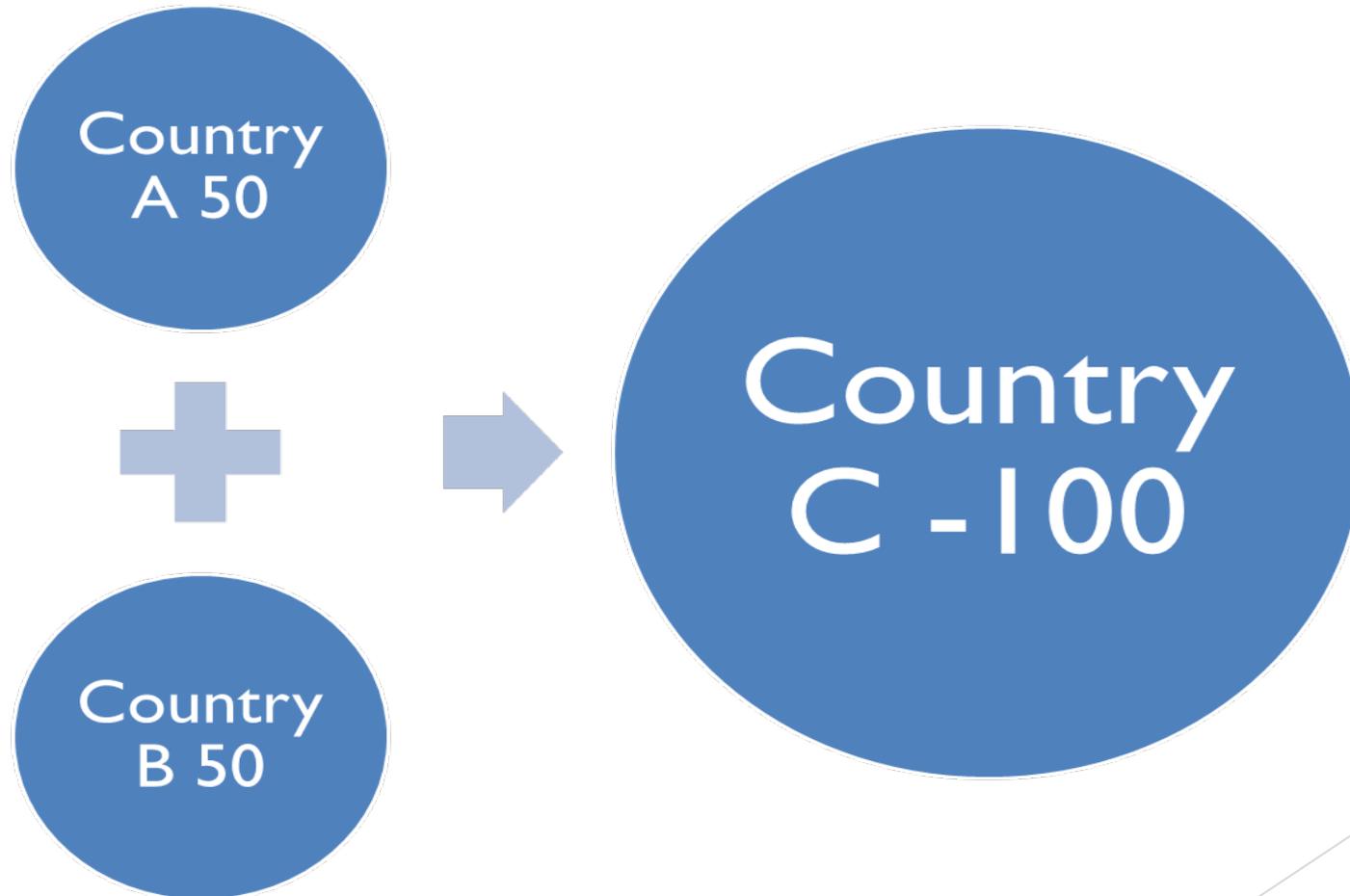
# Methodologies.....

- ▶ Analysis of RVCs and GVCs in Africa is in the very early stages, in particular for services.
  - Less developed on the ground than in Europe, North America, and East and Southeast Asia, due to higher trade costs.
  - Limited data availability.
    - Bilateral trade in services data.
    - Firm-level data.
    - Supply-use tables and input-output tables.
  - Available literature focuses on tracking distribution of resources through (mostly domestic) value chains, less consideration than elsewhere of cross-border element.

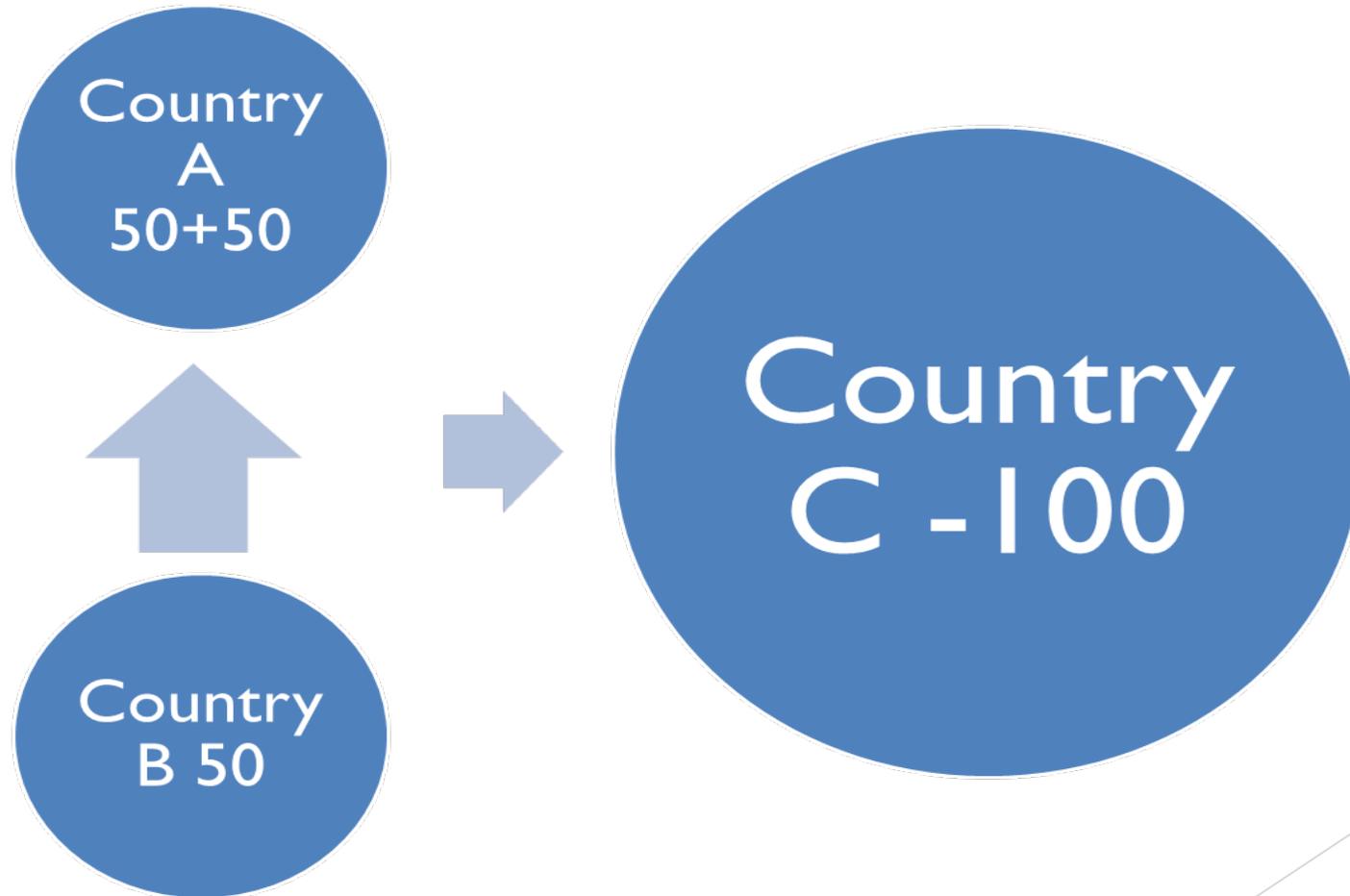
# Quantitative Analysis: Rationale

- ▶ Trade is measured on a gross shipments basis, i.e. invoice price (or potentially a reference price).
- ▶ Trade in value added (TiVA) data are an important entry point into RVC/GVC analysis.
- ▶ TiVA data help track some embodied services trade
- ▶ TiVA allows for decomposition of exports in gross shipments terms into value added components by source.
- ▶ Includes the importing country as a source; Source is typically a sector-country pair.
- ▶ Need to identify/distinguish value added components within services sectors (standalone RVCs/GVCs) and also value added of services as a component within other sectors (embodied services in RVCs/GVCs).

## Quantitative method: Rationale



## Quantitative method: Rationale



# Quantitative method: Rationale

- ▶ The deeper the RVC/GVC model proceeds, the more of a disconnect there is between GDP, world trade, and bilateral trade.
  - ▶ Measuring trade in value added tries to untangle this picture by identifying:
    - ▶ Value added of 50 units originating in B.
    - ▶ Value added of 50 units originating in A.
    - ▶ Total world trade in value added of 100 units.
- ▶ In the second example, B ships 50 units of intermediates to A, which adds 50 units of value itself, before shipping to C.
  - ▶ Gross value trade statistics show:
    - ▶ World trade of 150 units.
    - ▶ Exports from B to A of 50 units.
    - ▶ Exports from A to C of 100 units.
    - ▶ Exports from B to C of 0 units.

# Data Requirements for Measuring Trade in Value Added

- ▶ Bilateral trade data by sector: record of gross shipments moving across borders.
  - ▶ Goods
  - ▶ Services
- ▶ Input-Output table: measure of how each sector uses the output of each other sector. Needs to combine:
  - ▶ Goods
  - ▶ Services
  - ▶ All countries of interest.

# Data Requirements for Measuring Trade in Value Added

- ▶ The national I-O table tells us, for each sector, how much of its output:
  - ▶ Is used by other sectors as an intermediate input.
  - ▶ Enters into final consumption.
- ▶ At the same time, it also tells us, for each sector, how much of the total value of its output:
  - ▶ Is made up of intermediate inputs from other sectors.
  - ▶ Is value added.
- ▶ Some countries also apportion outputs across export destinations, and inputs across import sources.
  - ▶ If not, we apply the “proportionality assumption” to trade data: products are used by importing sectors in the same proportions in which they are imported.

# Limitations of Quantitative Methods

- ▶ Lags in preparation of I-O tables partly due to high costs, technical capabilities and poor data quality
- ▶ Extending an I-O table to a multinational framework (MRIO) is an extremely complicated undertaking:
  - Harmonization of I-O tables by sector.
  - Harmonization of trade data with harmonized I-O tables.
  - Balancing bilateral and sectoral flows.
- ▶ Poor coverage of informal trade, even though this is a major issue in some African countries.

# Limitations of Quantitative Methods

- ▶ MRIOs only identify “Mode 1” services trade, i.e. pure cross-border transactions. But services experts believe “Mode 3” (commercial presence) is dominant in most sectors.
  - ▶ Actually, Mode 3 trade is counted as DVA, not FVA, because the supplying firm is located in the home country.
  - ▶ This can be corrected if firm-level surveys make it possible to disaggregate SUTs and thus I-O tables by type of firm (domestically versus foreign owned). Ongoing OECD and APEC project.
- ▶ Current MRIOs do not distinguish firms by size (SMEs and others), so we cannot see different RVC/GVC roles of smaller firms.
  - ▶ This can be corrected as above if firm-level surveys make it possible to disaggregate the IO table. Ongoing OECD and APEC project.
- ▶ MRIOs do not make it possible to identify GVC/RVC linkages at a micro-level.
  - ▶ Dealing in sectors rather than activities or tasks. Over time, makes it hard to observe “moving up” except in a very macro sense.
  - ▶ Impossible to identify linkages at the firm-level, or roles played by particular firms (supplier, lead firm, etc.).

# Qualitative Methods: Rationale

- ▶ MRIOs only capture third-party transactions, i.e. transactions between a firm (or establishment) and another party.
  - Very limiting in a services context, as most firms provide many services internally.
  - An interesting research question for RVCs/GVCs is to know how firms manage the process of supplying services internally versus procuring them externally.
  - This cannot be "fixed" by better or additional data within the MRIO context, but requires a completely different approach.
- ▶ More fundamentally, it is hard to tell the story of RVC/GVC development with data.
  - Macro observations, but...
  - The action is at the level of individual firms linking up with others.

# Qualitative Methods: Rationale

- ▶ Use of structured interviews is a favoured approach:
  - ▶ Identify a value chain(s)
  - ▶ Select the firm or firms to be interviewed.
  - ▶ Supply an interview instrument ahead of time.
  - ▶ Interview a senior executive to go through the instrument and take down responses.
  - ▶ Writing up case study based on the interview, and having it validated by firm management.

# Key Issues of Implementation

- ▶ Given that the aim is to produce informative case studies that complement and extend quantitative analysis, we can be more flexible in firm selection.
- ▶ In a broad sense, we want the outputs to be representative of firms as a whole. So we need:
  - ▶ Firms of different sizes (SMEs and large firms).
  - ▶ Firms at different points in the value chain (upstream and downstream).
  - ▶ Firms managed by women and by men.
  - ▶ Locally owned and foreign-invested firms.
- ▶ Perhaps the most important consideration is the firm's willingness to cooperate with the research and make information available.
- ▶ An imperfectly placed cooperative firm is more useful than a perfectly placed uncooperative firm.

# Key Issues of Implementation

- ▶ In the ideal case, identify an RVC/GVC operating in our country, identify the individual firms involved in it, and interview them all.
  - ▶ Obtain a complete “map” of the value chain.
  - ▶ Capture inter-relationships among firms.
- ▶ In the more common case, interview a small number of firms that may or may not be in the same value chain, and look to complete the data in so far as we can.
  - ▶ Make the best of the available information.
  - ▶ Fill in the blanks in the case study, if possible, from background information provided by the interviewee, or general research.

# Freight transport and value chains - some examples

- ▶ **Agriculture commodity chains** - fertilizer and equipment as inputs, tea, coffee, horticulture, cereals etc as outputs
  - ▶ Modes - Trucks, rail-trucks, cargo-ships, cargo-planes
- ▶ **Energy commodity chains** - Oil, natural gas
  - ▶ Modes - Trucks, rail-trucks, pipeline
- ▶ **Manufacturing industry** - movement of finished and semi-finished products
  - ▶ Modes - depends on cargo type - perishable/non perishable; bulk/containerized
- ▶ **Construction industry** - movement of cement, sand, bricks etc
  - ▶ Modes - trucks, rail-trucks

# Interview Template

## Case Study Notes

1. Name of firm
2. Data on firm

Line of business

Annual Turnover

Markets in which firm operates: Domestic and exports (foreign) sales

No of employees

Globally:	Males	females
In plant/factory/office under study	males	females

3. Specification of product/service being studied:
4. Description of entire value chain including the location of production stages and input and output for each stage of production:
5. Identification of the production stage and location at which the value chain begins and ends in the analysis:
6. Total number of jobs in the identified value chain
  - a. Permanent
  - b. Temporary
7. Identifying the service inputs and how they are supplied (starting from the beginning of the chain)

# Interview Template

*(Complete attached table in the format indicated below)*

Table 1: In-house and 1<sup>st</sup> tier outsourced service inputs + how/from where they are supplied

Firm:

Product/service:

Auxiliary Service	In house services	outsourced	Characteristics of outsourced suppliers <ul style="list-style-type: none"> <li>• Arm's length or corporate relationships</li> <li>• Type, name, location, size and ownership</li> </ul>	Bundled /unbundled	Notes
a. Cargo-handling service					
b. Storage and warehouse services					
c. Freight transport agency services					

# Interview Template

8. Identifying the main items of value in terms of service inputs, innovation potential and employment shares:

*(Complete attached table in format indicated below)*

Table 2: Rankings by value contribution and other attributes

Firm:

Product/service:

Listing of auxiliary service inputs	Top service inputs in terms of contributions to total costs	Observations on technology and scope for innovation	Number of jobs involved in supplying the identified service	Notes

# Key Issues of Implementation

The intended output is a case study, ideally of a whole value chain, but in some cases just of a single firm.

Most firms will request anonymity, so the case study can describe the sector and activities, but should not use the firms' names or any identifying information.

The case study should be a narrative describing the use of services within the relevant value chain, and especially the cross-border dimension.

The filled in interview instrument should not be reproduced in full.

Use it as the basis for developing a long form narrative.

Typical length is 20-30 pages.

# Take Away

- ▶ Trade in value added data are an important entry point into RVC/GVC analysis. But they are incomplete in important respects.
- ▶ Important to supplement data work with case studies, based on a rigorous framework such as a structured interview instrument administered at the firm level.
- ▶ Ideally, interviews should be conducted throughout a value chain. In many cases, though, it will only be an individual firm.
- ▶ Interviewers should aim to interview a mix of firms based on size, activity, and gender of owner / senior manager. However, strict representivity in the statistical sense will not be possible for a limited scope project.
- ▶ Output is a narrative case study built up from the firm's responses and the interviewer's general research on the value chain.

# Resources

- ▶ Patrick Low and Gloria Pasadilla (2015) “Services in Global Value Chains: Manufacturing-Related Services” (APEC), <https://bit.ly/2TuMPs3>.

THANK YOU