Work in Progress

Construction of GTAP Compatible Input Output (I/O) Table and Social Accounting Matrix (SAM) with Limited Data Base: Nepalese Experience

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Rationale

- intensive trade liberalization and open up policies since 1990 in Nepal
- Nepal’s membership in WTO in 2004 and a party to regional trade agreements such as BIMSTEC and SAFTA
- hence a necessity of better understanding of the dynamic effects of trade liberalization
- similarly need of in-depth analysis of areas that might offer potential gains for domestic producers and exporters.
- MDGs and PRSPs also demand continuous ex-ante (or ex-post) quantitative analysis for exploring better policy and program alternatives
- identify data gaps and provide feedbacks for strengthening data base system
- in view of New National Accounts estimates attempting to make them compatible with UN System of National Accounts and hence considered appropriate to construct I/O table and SAM for the year 2000/01, a benchmark year fixed for new national accounts estimates.
Initiatives and Work Progress

• initiated in December 2006 in our Institute last year with 55*55 I/O table which also helped identify data gaps
• improvement in I/O table and construction of SAM restarted in November last year and now preliminary results are ready
• 60 by 60 input output table and aggregative SAM construction work just completed and we are in a process of finalization
Sectoral Breakdown of I/O Table

• Sectors distinguished to make broadly compatible with GTAP data base system are as follows:
## Sectoral Breakdown of I/O Table

<table>
<thead>
<tr>
<th>Paddy</th>
<th>Tobacco</th>
<th>Fishing</th>
<th>Other Food Product</th>
<th>Chemical Rubber</th>
<th>Other Machinery &amp; Equip</th>
<th>Other Transport</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>Spices</td>
<td>Coal</td>
<td>Beverage</td>
<td>Non-metallic</td>
<td>Other Manufacturing</td>
<td>Air Transport</td>
<td>Education</td>
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<tr>
<td>Other Grain</td>
<td>Cattle</td>
<td>Other Mining</td>
<td>Tobacco</td>
<td>Iron &amp; Steel</td>
<td>Electricity</td>
<td>Communication</td>
<td>Other Govt. Services</td>
</tr>
<tr>
<td>Vegetable &amp; Fruits</td>
<td>Other Animal Product</td>
<td>Meat</td>
<td>Textile</td>
<td>Non-ferrous Metal</td>
<td>Gas</td>
<td>Insurance</td>
<td>Dwelling</td>
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<tr>
<td>Oilseed</td>
<td>Raw Milk</td>
<td>Vegetable Oil</td>
<td>Wear Apparels</td>
<td>Fabricated Metal</td>
<td>Water</td>
<td>Financial Intermediation</td>
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<tr>
<td>Sugarcane</td>
<td>Wool</td>
<td>Dairy Product</td>
<td>Leather</td>
<td>Motor Vehicle</td>
<td>Construction</td>
<td>Other Bus. Services</td>
<td></td>
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<tr>
<td>Other Crops</td>
<td>Timber Forest</td>
<td>Other Grain Milk</td>
<td>Lumber</td>
<td>Other Trans Equipment</td>
<td>Trade</td>
<td>Recreation &amp; Other Services</td>
<td></td>
</tr>
</tbody>
</table>
• agriculture sector disaggregated into fourteen sub-sectors In view of nature of production being different, cattle and other animal products treated separately. Likewise, timber and non-timber forest kept separately. Land and air transportations also separately presented in the table. For facilitating MDGs related analysis more closely, government services divided into four categories viz. public administration and defense, health, education and other government services.
Data Sources

- value added and input share reported in the input/output based on the information furnished by the CBS
- cost structure of the services sectors estimated based on the new surveys carried out by the CBS
- for the detailed sectoral cost structure of the manufacturing sector, manufacturing census results used which are more consistent disaggregated data sets, facilitating to construct make and use matrix
- very exhaustive cost analysis of the major agricultural commodities made at the commodity level by districts and than aggregated to derive average numbers
- in case of exports and imports, harmonized commodity codes converted into GTAP codes and there after imports reclassified into intermediate, consumption and capital goods as per sectors classified in the input/output table.
- in the absence of constructing make and use matrix for the sectors other than manufacturing different data sources enabled to make a consistent data set suitable to construct both I/O table and SAM.
Some structural Characteristics of I/O Table

• Structural Characteristics of Supply and Demand
  • Output, input structure and value added by major sectors
  • Structure of demand (intermediate, final consumption and investment demand) including exports
  • Factor distribution by major sector
Output, Input Structure and Value Added by Major Sectors

- Agriculture and Forestry
- Fishing
- Mining
- Manufacturing
- Electricity, Gas and Water
- Construction
- Trade
- Transport and Communication
- Financial Intermediation
- Real Estate and Other Business Services
- Public Administration and Defence
- Health
- Education
- Other Government
- Recreation and Personnel
- Manufacturing
Structure of Demand (Intermediate Consumption, Domestic Consumption, Investment and Imports) and Exports

- Agriculture and Forestry
- Fishing
- Mining
- Manufacturing
- Electricity, Gas and Water
- Construction
- Trade
- Transport and Communication
- Financial Intermediation
- Real Estate and Other Business Services
- Public Administration and Defence
- Education
- Health
- Other Government
- Recreation and Personnel
- Total Domestic Demand
- Total Demand
- Imports Demand
- ROW

Sectors

- Intermediate Consumption Demand
- Consumption Demand
- Investment
- Export
Factors Distribution by Major Sectors

![Chart showing factors distribution by major sectors.](chart.png)
An Aggregative SAM for Nepal

- SAM consists of four different types of accounts. First, product supply and demand is described by a set of commodity accounts, where the column shows the cost components that add up to overall supply from domestic sources, plus imports, while the rows lists the domestic demand components and exports.
second, *factor accounts* depict how value added is distributed to the domestic factors of production, and how this factor income is transformed into income accruing to the various institutional agents (government, households including firms and rest of the world) identified in the SAM

third, *current accounts* show the sources from which institutions receive income, and the uses to which they put that income. Part of it is consumed, part is redistributed among the institutional agents themselves, and the remaining is saved

fourth, additional characteristic of the SAM is that it has tried to establish the link between savings and investment through the capital accounts. Along with total receipts from remittances and capital inflow, inputs (or expenses) for foreign remittances and capital inflow are shown separately in the rest of the world account

the SAM, thus, constructed provides a base-period equilibrium data set, to be used in the numerical implementation of the general equilibrium model
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<th>Factors</th>
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<th>HHs</th>
<th>Total</th>
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<th>Grand Total</th>
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Future Plans

• once finalized next step would be construct CGE
• interested to integrate into GTAP system
• similarly keen to trade related policy analysis in general and assessment of different trading arrangements on growth and poverty in particular since we are approaching to finalize both I/O and SAM, suggestions and comments will be highly appreciated