Work in Progress

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

Presented by
D. R. Khanal
Chairman
Institute for Policy Research and Development (IPRAD)

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 out put 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

Paddy	Tobacco	Fishing	Other Food Product	Chemical Rubber	Other Machinery & Equip	Other Transport	Health
Wheat	Spices	Coal	Beverage	Non-metallic	Other Manufacturing	Air Transport	Education
Other Grain	Cattle	Other Mining	Tobacco	Iron & Steel	Electricity	Communication	Other Govt. Services
Vegetable & Fruits	Other Animal Product	Meat	Textile	Non-ferrous Metal	Gas	Insurance	Dwelling
Oilseed	Raw Milk	Vegetable Oil	Wear Apparels	Fabricated Metal	Water	Financial Intermediation	
Sugarcane	Wool	Dairy Product	Leather	Motor Vehicle	Construction	Other Bus. Services	
Other Crops	Timber Forest	Other Grain Milk	Lumber	Other Trans Equipment	Trade	Recreation & Other Services	
Jute and other plant fiber	Non-Timber Forest	Sugar	Paper & Paper Product	Electronic Equipment	Hotel Rest	Pub. Admin.	

- 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.

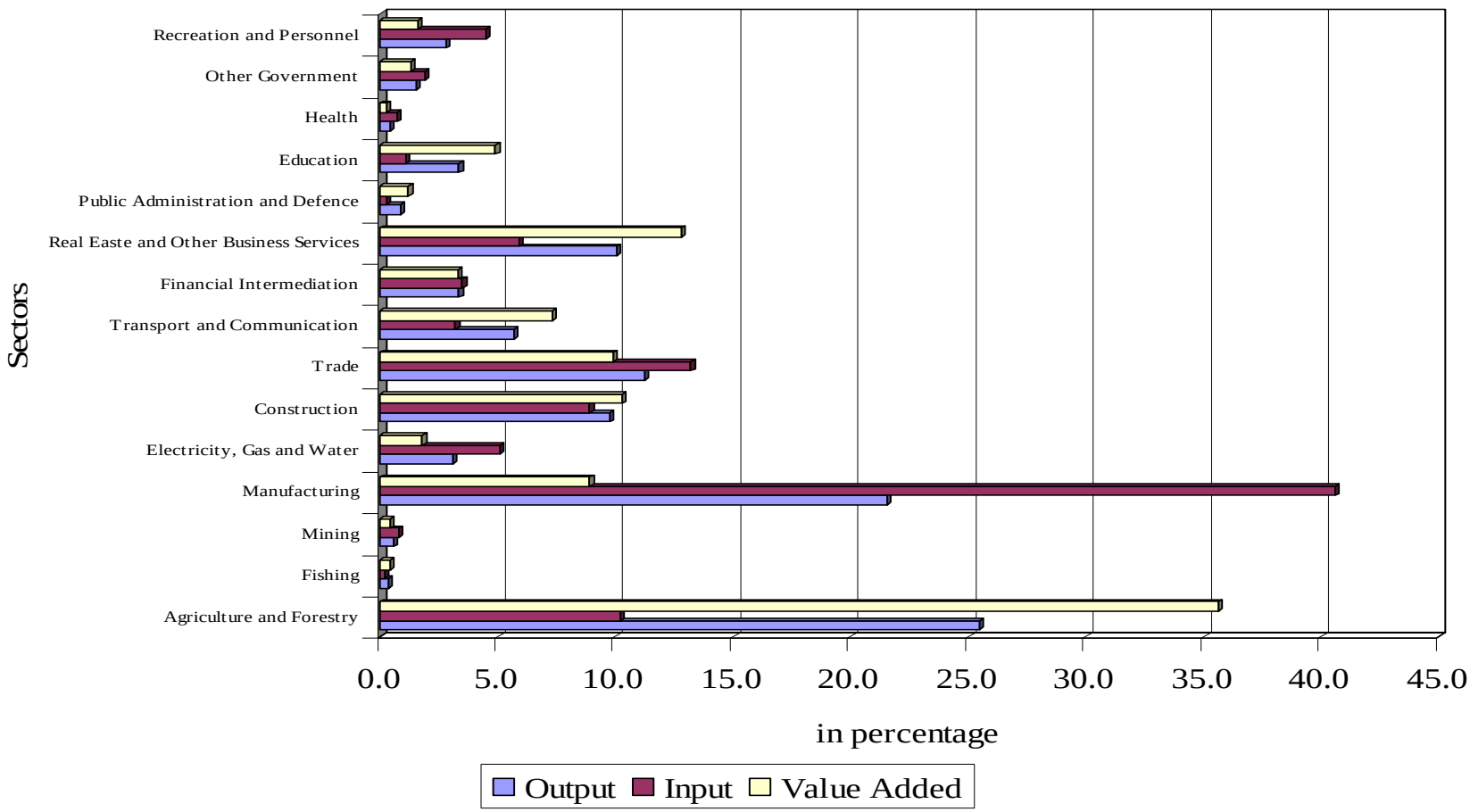
Data Sources

- 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.

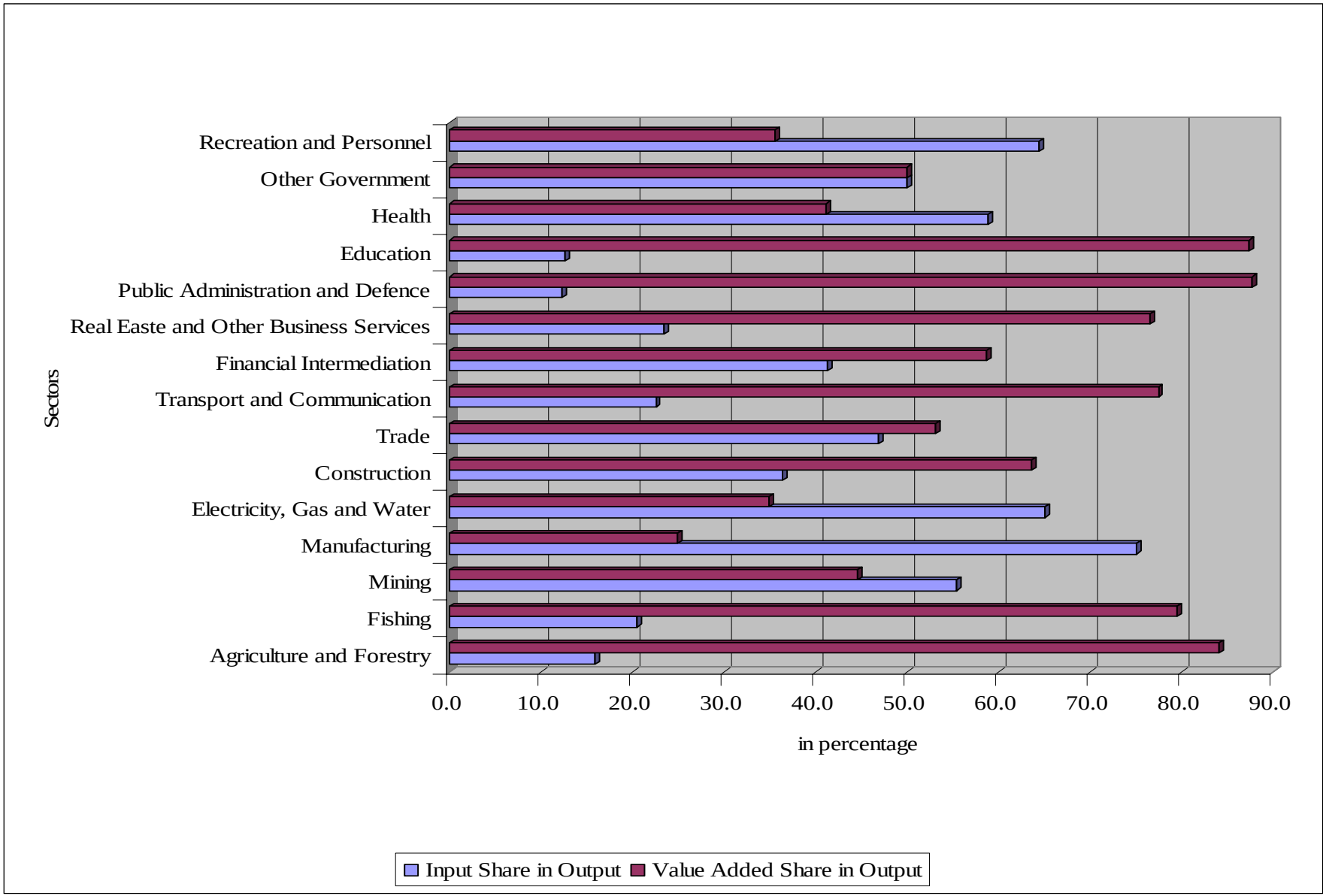
Some structural Characteristics of I/O Table

- **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

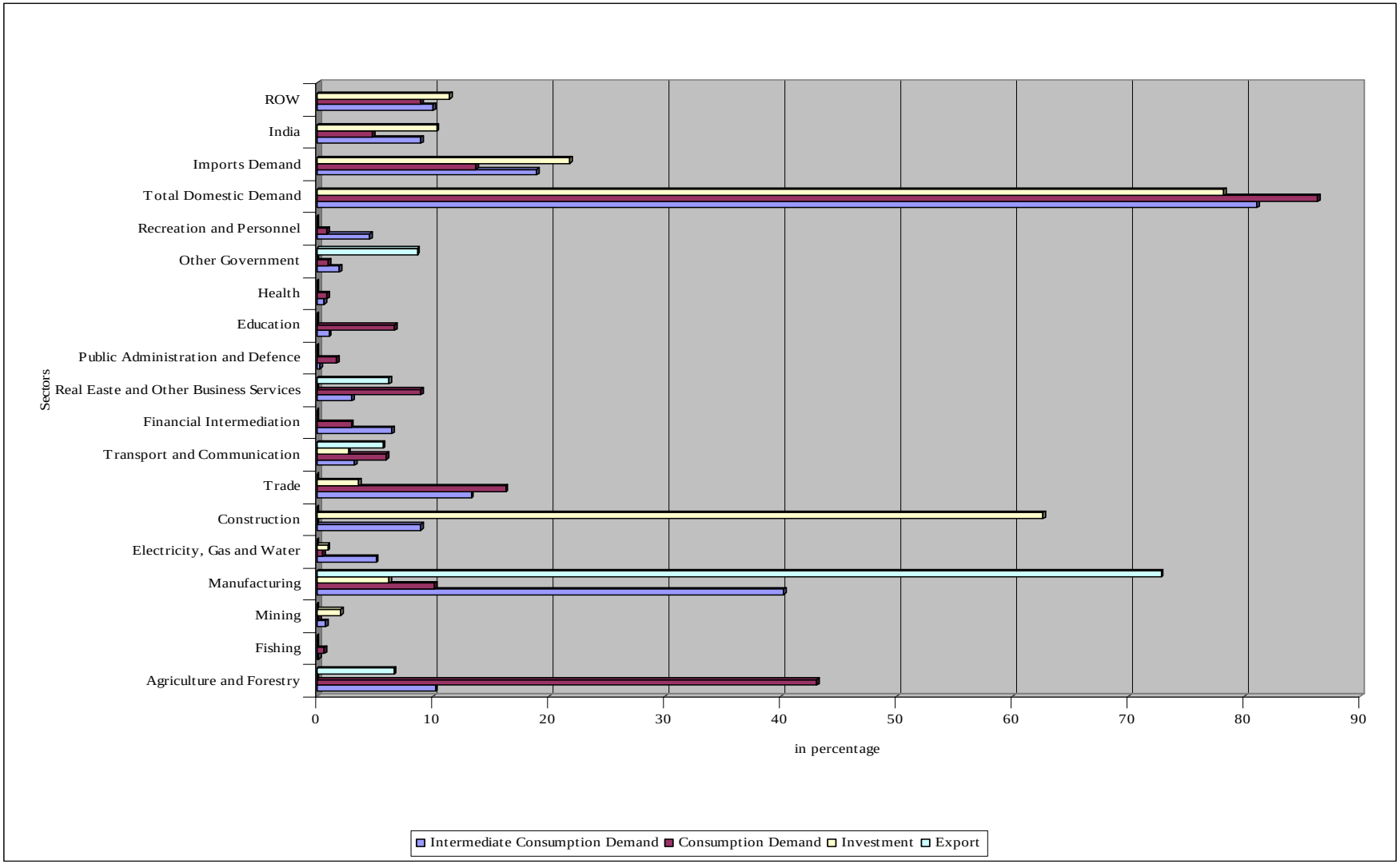
Output, Input Structure and Value Added by Major Sectors



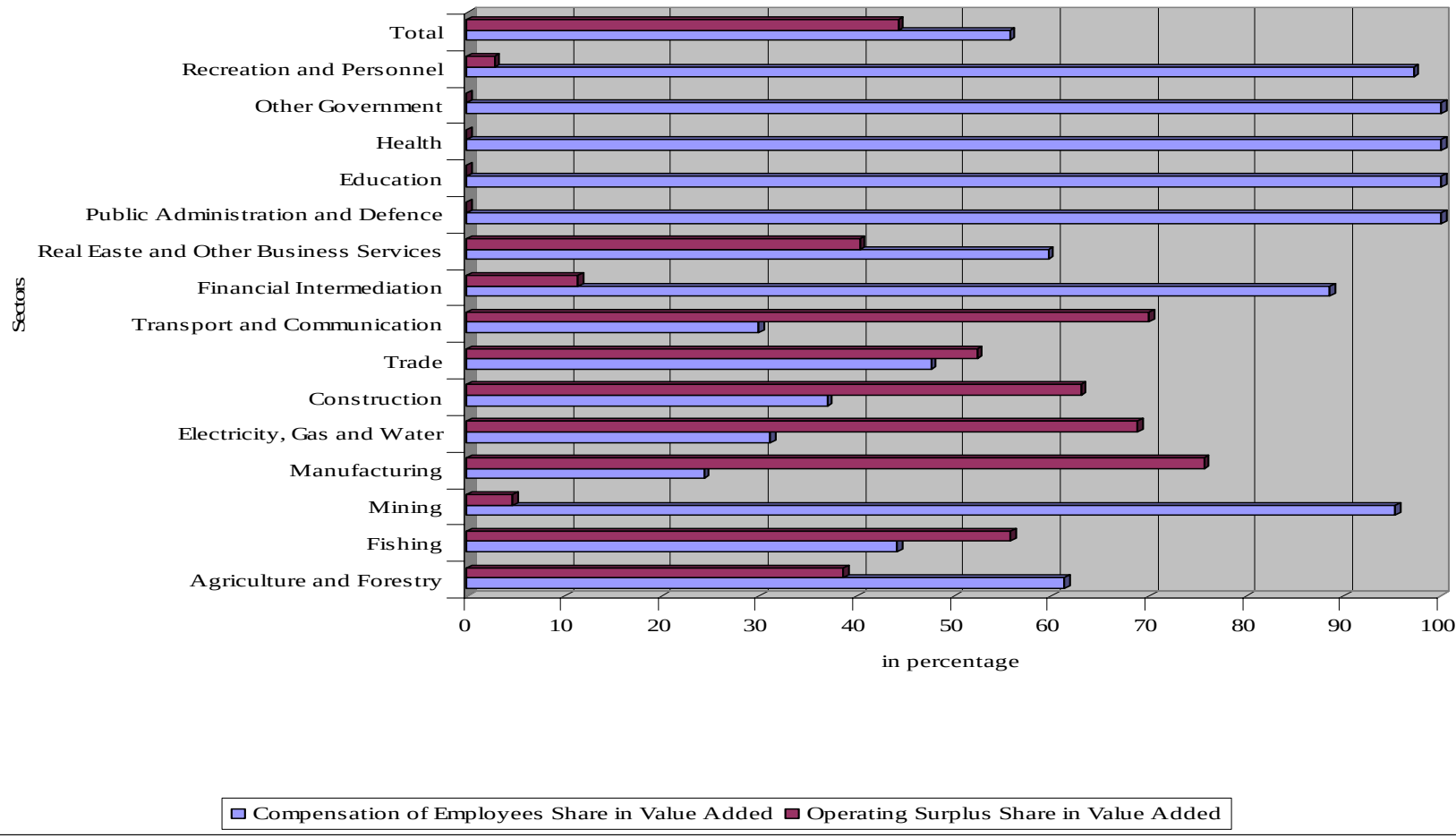
Output, Input Structure and Value Added by Major Sectors



Structure of Demand (Intermediate Consumption, Domestic Consumption, Investment and Imports) and Exports



Factors Distribution by Major Sectors



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

An Aggregative SAM for Nepal

				Institutions (Current)				Institutions (Capital)			Grand Total
		Commodities	Factors	Govt	HHs	Total	ROW	Govt	HHs	Total	
Commodities	Int. Demand	278228		40150	348662	388812	99610	31268	80775	112043	878693
Factors		424943					5470				430413
Institutions (Current)	Govt	28766		16159			65595				536760
	HHs		426643	5597.1							
	ROW	146757	3770	1816.1							152343
Institutions (Capital)	Govt			130374.9			-18332.4				112043
	HHs										
Total		878692	430413	536760			152343	31268	80775	112043	

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