Introduction to the Training Programme

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Increasing demand for quantitative analysis

- Domestic Policies
- Global Policies (i.e. WTO negotiations)
- Regional Policies

Different methods

- Simple Statistical Analysis
- Ex Post Analysis: Econometric Studies
- Ex Ante Analysis: Partial Equilibrium models (for example, WITS/SMART model) and General Equilibrium Models (for example, CGE models, GTAP model)

Why do we need models?

- Complex interactions among economic agents
- Policy Matters
  - Policies have economy-wide effects;
  - Policies may have international effects;
  - Monitoring and analyzing policies;
  - Forecasting their impacts
- Modeling helps us understand complex issues and take better decisions.

What is a model?

- A set of equations
- Embody the history of theoretical and empirical economic knowledge
- Macro or/and detailed structure
- Key components
  - Behavioral equations
  - Identities
  - Exogenous inputs

Problems with Partial Equilibrium Models

- Partial = only looks at part of the economy (sector)
- Interactions among only few variables: holding all other variables constant
- Lack of sectoral inter-linkages: Limited links with other parts of economy (limited backward and forward linkages)
- Can be useful if the effects on rest of the economy are small: small sector

Why CGE Model?

- CGE models have been most widely used to analyze the impact of hypothetical policy changes that are large in scope and have a broad impact on the structure of the economy
- It takes into account complicated sectoral inter-linkages
- It can quantify the benefits and costs of proposed initiatives

Why CGE Model?...

- It can identify who benefits and who losses and by how much
- It can shed light on the supporting policy adjustments required as part of a broader economic policy framework
- CGE models are flexible and with appropriate modification in the characteristics of the model and the data set can handle a variety of issues.

Use of CGE Models in Policy Analysis

- Single country CGE models have been widely used in many countries in trade, tax policy, climate change and poverty analysis.
- Increasingly the global model (like the GTAP model), has been widely used for the analysis on the impacts of different WTO and regional trade negotiations.
- Environment issues

Types of CGE Models

- Single Country Models
- Multi Country Models
- Global Models: GTAP Model

- Static Model
- Dynamic Model

Understanding the ToR of a technique

- Every technique has its own terms of reference (ToR)
- Understanding these ToRs is very important while doing any economic assessment
- CGE models have their own ToRs
- If you can understand these ToRs you will not be demanding too much from the model

ToR of CGE Models

- We can neither include every aspect of the world economy in to a mathematical model, nor can we quantify every step of certain policy implementation precisely in a computer simulation model.
- What the best we may do is to estimate roughly what shock a policy may bring about on the world economy under certain assumptions and simplifications.

Developments in CGE models

- Imperfect competition models
- Unemployment
- Structural rigidities
- Gender: labour market (wage differential), choice between market work, domestic work and leisure
- Micro-simulation models / nano-simulation models
- Static model and dynamic model

SAM: Importance and Justification

- Social Accounting Matrix (SAM) is the structural representation of the economy rather than a data of a single year
- It represents the inter-linkages among different sectors and actors in the economy
- It works as a database of a CGE model

Important things to remember

- The choice of a model would depend on the nature of the problem to investigate and also on the modeler's perception about the economy.

- Example: Gravity model…partial equilibrium model…general equilibrium model for RTA analysis