



# ToTEM: The First Year

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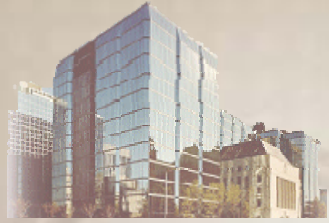
# Objectives of this presentation

- We have been using an open-economy DSGE model in a projection environment for over a year
- We faced a lot of issues in making a large DSGE model operational in a projection environment
- Our experience may be useful for other institutions
- We would love to get feedback on the way we handle these issues

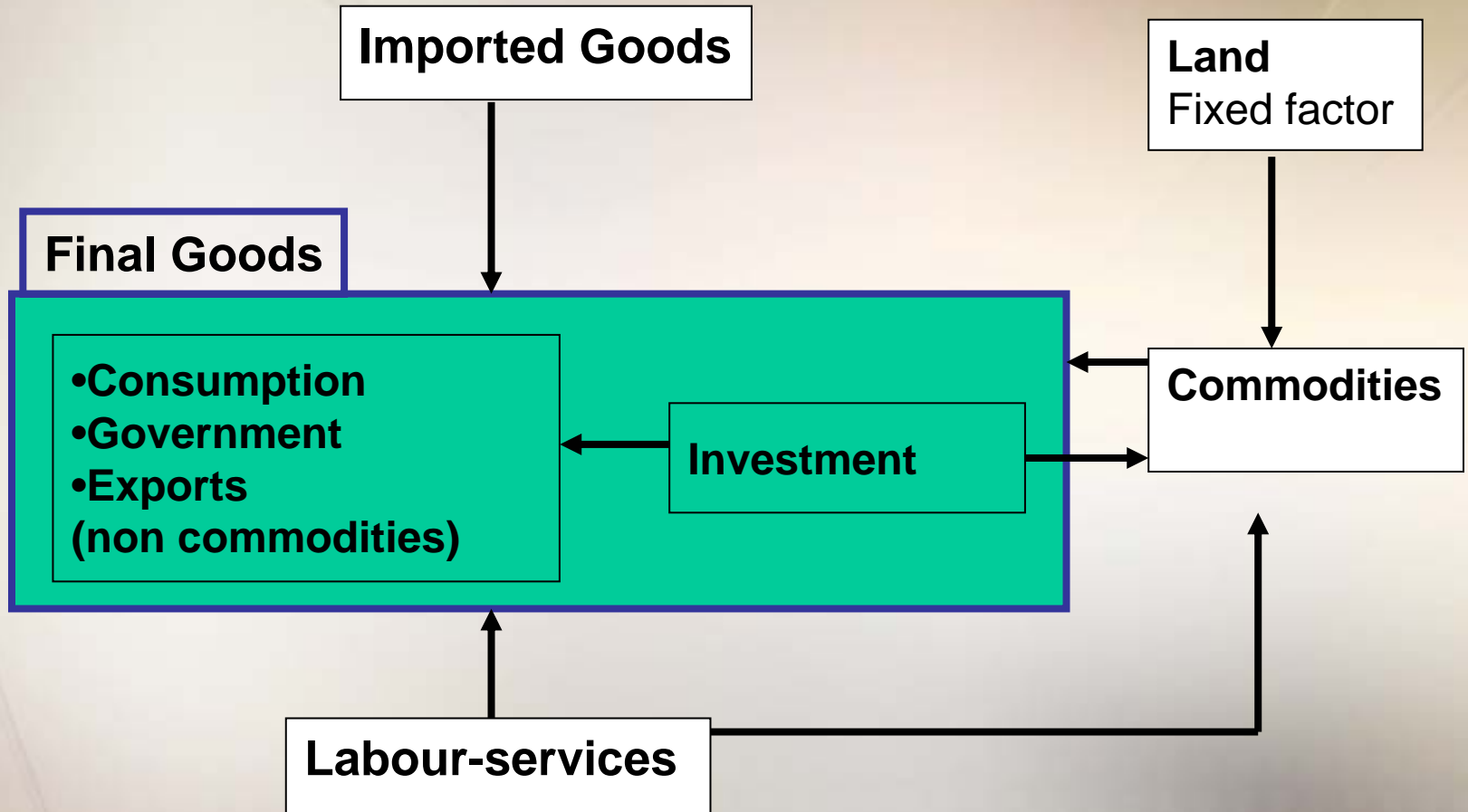


# What is ToTEM?

- ToTEM is a standard open-economy DSGE model
  - CES production function (labour, capital, imports commodities)
  - Price and wage rigidities – Calvo pricing with indexation
  - Firm specific capital
  - Habit formation in consumption
  - Adjustment costs in changing employment and investment
  - Variable capacity utilization rate
  - Optimized inflation forecast based policy rule

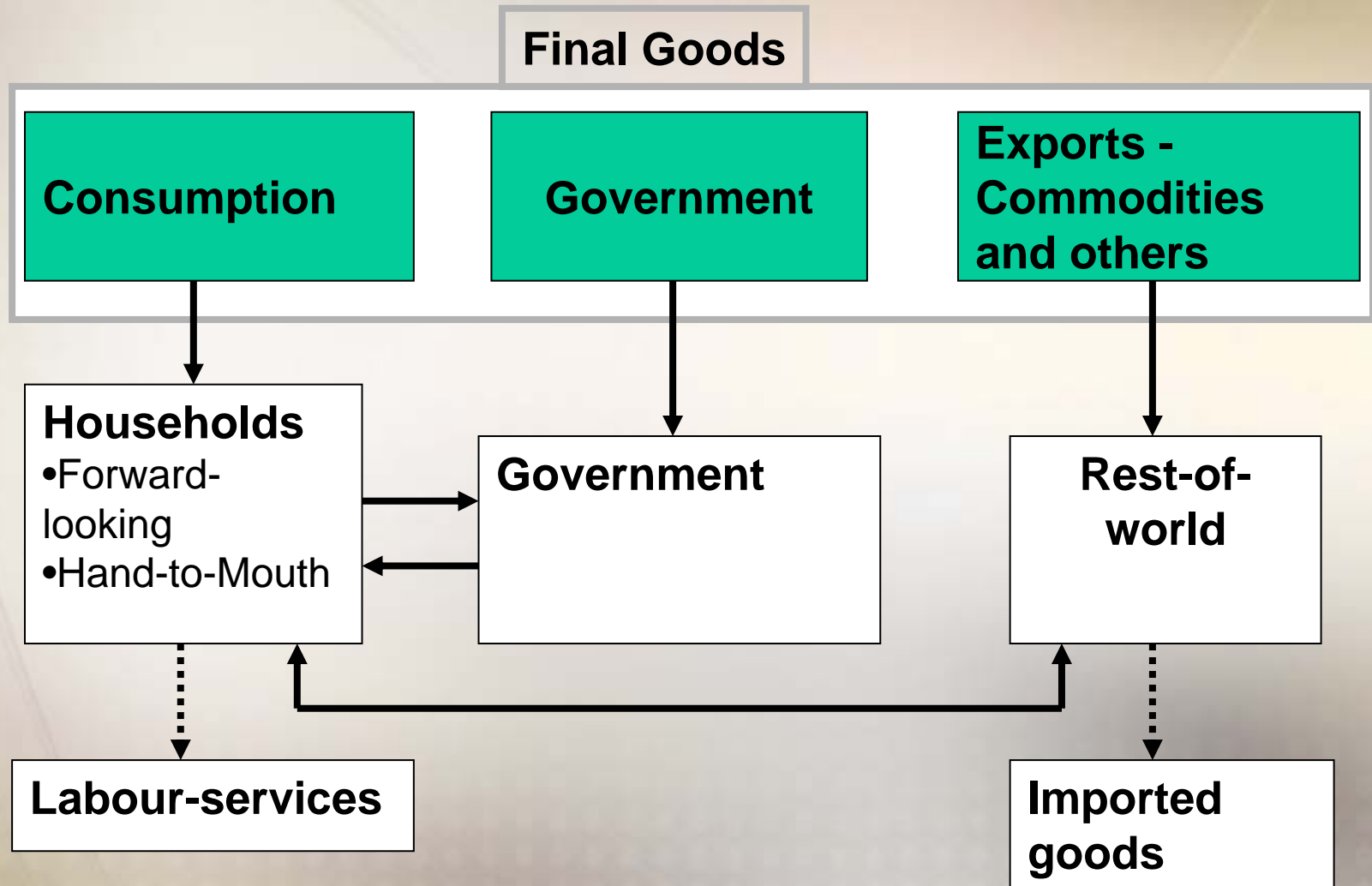


# TOTEM's Production Structure





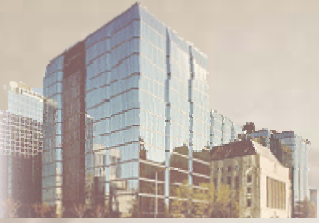
# TOTEM's demand structure





# Use of ToTEM

- Use to do policy analysis since early 2005.
- Use to produce shadow projection in 05H2
- More central role in projection since December
- Public communication to be extended



# Empirical issues: Trends

- Not all trends explain by technology
- How did we handle them?
- Relationships among trends
- Projecting trends and its impact
  - De-trended stock series
- Future work
  - Estimating trend jointly with parameters
  - Examining replacing trend by permanent and temporary shocks



# Empirical issues: Structure Vs Key Facts

- Standard DSGE difficulty to explain some key facts
  - Pro-cyclical productivity and profit margins
  - U.I.P. failure
- Added some ad-hoc features
  - Labour effort
  - Exchange rate lag
- Future work
  - Looking at cyclical externality
  - Financial information costs and other closing conditions





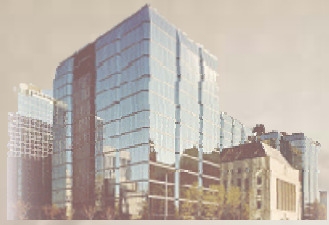
# Empirical issues: Parametrization

- First parameterized using impulse responses
  - Issue with long-term restrictions
  - Identifications of large number of shocks
  - Based on reduced-form models
  - Choice of responses
- Then parameterized using GMM
  - Choice of moments
  - Local Vs Global optimum
  - Impulse response issues
- Calibrated on the two above criteria
- Future work
  - Bayesian estimation



# Other issues

- Imposing exogenous forecast
  - Perfect foresight
- Output Gap Vs Marginal Costs



# Summary

- Structured story and strong framework
  - Clarity of “stories” that can be told
  - Structural shocks and structural interpretations
  - Impose greater discipline
  - More reflective of recent view
- Projection still dependant on judgement
  - Trends
  - Shock roots
  - Parametrization
- Important technical work and support
- Need to judge by empirical performance
  - Too much structure often not helpful on that issue



# Future Work

- Evaluate and improve empirical properties
  - Estimation and evaluation
  - Enhance richness of model
    - UIP
    - Effort
    - More differentiated sector
- Trends
  - Joint estimation
  - Replace with shocks