



Energy

by

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Energy in the GTAP Data Base

- Collect international energy data sets, trade data, I-O tables.
- From international energy data sets, estimate money values of energy usage.
- Adjust trade and I-O data to match energy money values.

Money Values

- source data: prices, taxes, volumes
- money value = price \times volume
- volumes well known, prices ill known

Volumes

- Since GTAP 5, programs work as intended.
- Source data consistent and complete: IEA's *Detailed Energy Balances*
- Design issues significant but minor:
 - transfers
 - travelers' expenditures
 - marine bunkers
 - combined heat and power
 - emergent technologies

Prices and Taxes

- Programs orphaned
- Data sources multiple, incomplete
- Updates incomplete
- Design issues major:
 - filling in missing values
 - basic *v* end-use prices
 - gas distribution
 - price and tax variation within petroleum products

Price Data Programs

- complex
- poorly understood
- buggy
- deteriorating
- data input cumbersome and obscure

Source Data for Price Programs

- import and export prices
- basic prices
- end-use prices
- domestic tax rates
- import duty rates
- margin rates
- volume weights
- exchange rates

Price Data Sources

- IEA, *Energy Prices and Taxes*
- OLADE, *Sistema de Información Económica-Energética*
- USDoE, *Petroleum Marketing Monthly*
- USDoE, *International Energy Annual*
- Asian Development Bank, *Energy Indicators of Developing Member Countries of ADB*
- World Bank, *Survey of Asia's Energy Prices*
- LBNL, *China Energy Databook*
- TERI, *Energy Data Directory and Yearbook*

Price and Tax Data

- updated:
 - exchange rates
 - price indices
 - import duty rates
- not updated:
 - prices
 - tax rates
 - margin rates
 - volume weights

In Lieu of Up-to-Date Source Data

- Use price indices and exchange rates to adjust prices from 199x to 2001 levels.
- Do not adjust tax rates.

Price and Tax Data, GTAP 6

- prices: 1997
- tax rates: 1995
- margin rates: antique
- price indices, exchange rates: 2001
- Use price indices and exchange rates to update prices from 199x to 2001.
- Do not adjust tax rates.

GTAP 7

- Overhaul price and tax programs.
- Update all data, except:
 - margin rates
 - volume weights
 - single-issue price data sources
- Change policy on tax rates for industry.
- Minor program revisions.

Tax Rates for Industry

- Assume zero tax on energy sector usage.
- GTAP 6:
 - Conserve cross-industry average tax rate.
 - Uplift tax on non-energy sectors.
- GTAP 7:
 - Conserve tax rate on non-energy sectors.
 - Let cross-industry average tax rate fall.

Projected Status

- Programs work as intended.
- Most data are up to date.
- Margins and volume weight data are questionable.
- Some aspects of basic strategy are questionable.
- For the foreseeable future, source data are far from complete.