CGE model development (3) Detailed CGE <1> Static & economy-oriented CGE



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Detailed diagram





Features of this sample

- Material balance is taken into account
 - Elasticity of substitution among commodities in the same category such as domestic goods and imported goods is 0 or
- > Quantity of energy is introduced using physical unit
 - Reference price shows ¥/physical unit
- Import and export are accounted in balance at household.
 - Import and export are treated as a kind of endowment, but their quantities are calculated endogenously.
 - →Introduction of auxiliary variables
- Small country assumption
 - International import and export prices are defined in advance.
 - Possible to convert to "larger country assumption"
- Investment is defined as negative endowment
 - Investment indicates future consumption.
 - It is assumed that total quantity of investment is calculated in advance.
- Stock change and waste generation from final demand are regarded as endowment.
- Combusted fuel and fuel as a material is classified.



sector and commodity

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sector		commodity	
A01	Agriculture, forestry and fishing	A01	Agriculture, forestry and fishing
A02	Coal mining	A02	Coal
A03	Crude oil mining	A03	Crude oil
A04	Natural gas mining	A04	Natural gas
A05	Other mining	A05	Other mining
A06	Food products and beverages	A06	Food products and beverages
A07	Textiles	A07	Textiles
A08	Pulp, paper and paper products	A08	Pulp, paper and paper products
A09	Chemicals	A09	Chemicals
A10	Petroleum products	A10a	Gasoline
		A10b	Jet fuel
		A10c	Kerosene
		A10d	Light oil
		A10e	Heavy oil
		A10f	Naphtha
		A10g	LPG
		A10h	Other petroleum products
A11	Coal products	A11a	Cokes
		A11b	Other coal products
		A11c	Pavement material



sector and commodity

sector		commodity	
A12	Non-metallic mineral products	A12	Non-metallic mineral products
A13	Basic metal	A13	Basic metal
A14	Fabricated metal products	A14	Fabricated metal products
A15	Machinery	A15	Machinery
A16	Electrical machinery ,equipment and supplies	A16	Electrical machinery ,equipment and supplies
A17	Transport equipment	A17	Transport equipment
A18	Precision instruments	A18	Precision instruments
A19	Other manufacturing	A19	Other manufacturing
A20	Construction	A20	Construction
A21a	Nuclear power plant	A21	electricity
A21b	Coal power plant		
A21c	Oil power plant		
A21d	Gas power plant		
A21e	Hydro power plant		
A22	Town gas	A22	Town gas
A23	Water supply	A23	Water supply
A24	Wholesale and retail trade	A24	Wholesale and retail trade
A25	Finance and insurance	A25	Finance and insurance
A26	Real estate	A26	Real estate
A27	Transport and communications	A27	Transport and communications
A28	Service activities	A28	Service activities



Prepared data

- > U matrix (commodity X sector) for input
- > V matrix (sector X commodity) for output
- Combustion rate of each energy (sector X energy)
- Energy price

Above data is developed using Excel sheet.



Next steps

- Introduction of CO2 emissions
- Introduction of larger country assumption (optional)
- Introduction of dynamic system

