Static model for China (exercise)

China team

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outline

- General information about the model
- analysis on the benchmark year
- proposal on policy to reduce CO2 emission
- some thinking

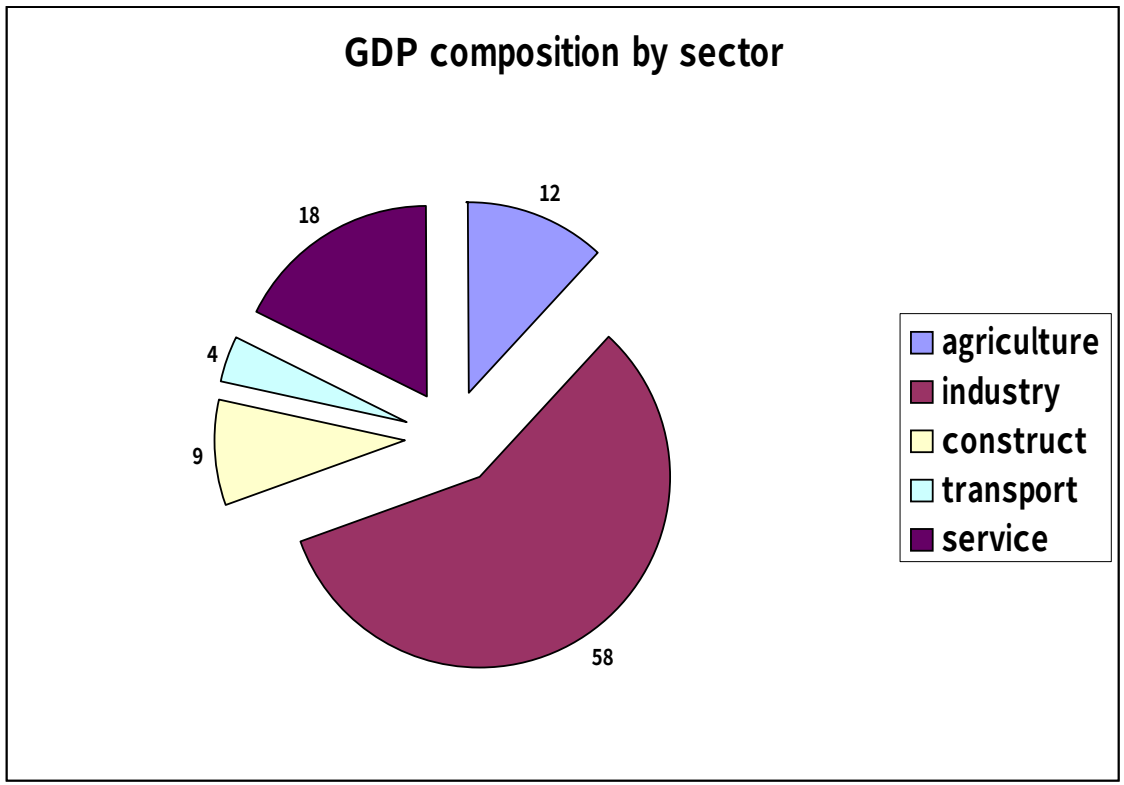
General information about the model

- based on 1997 IO table
- 40 sectors;
- 40 commodities: divide or merge?
- 5 energy goods:

  coal, natural gas and crude oil, oil products, coal products and electricity
- introducing CO2 emissions;

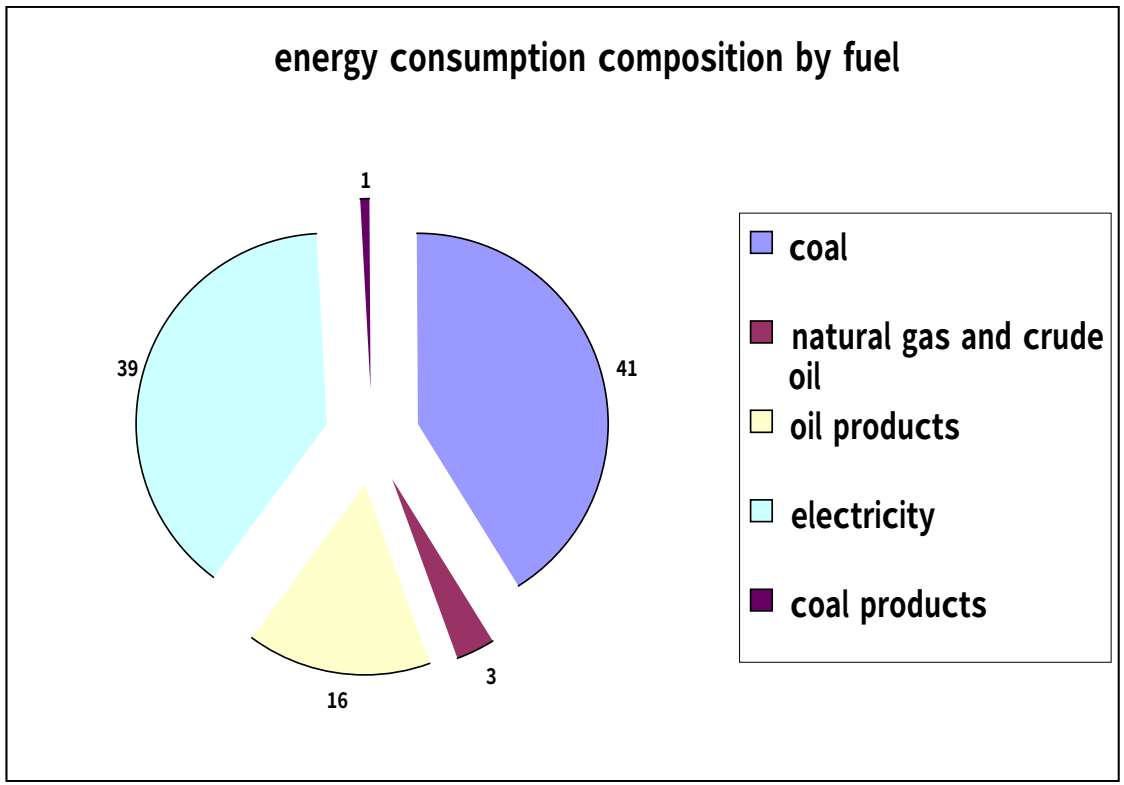
  E:¥xuyan¥China¥datachina.xls

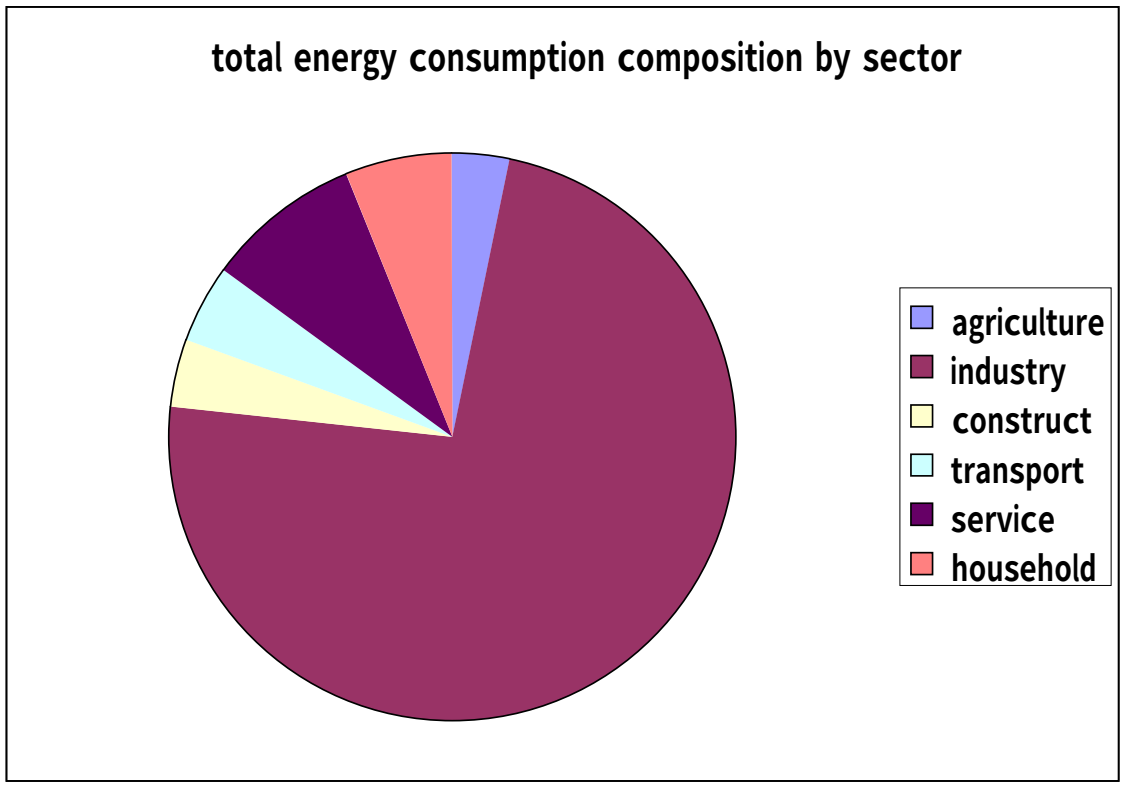
Economy and energy use

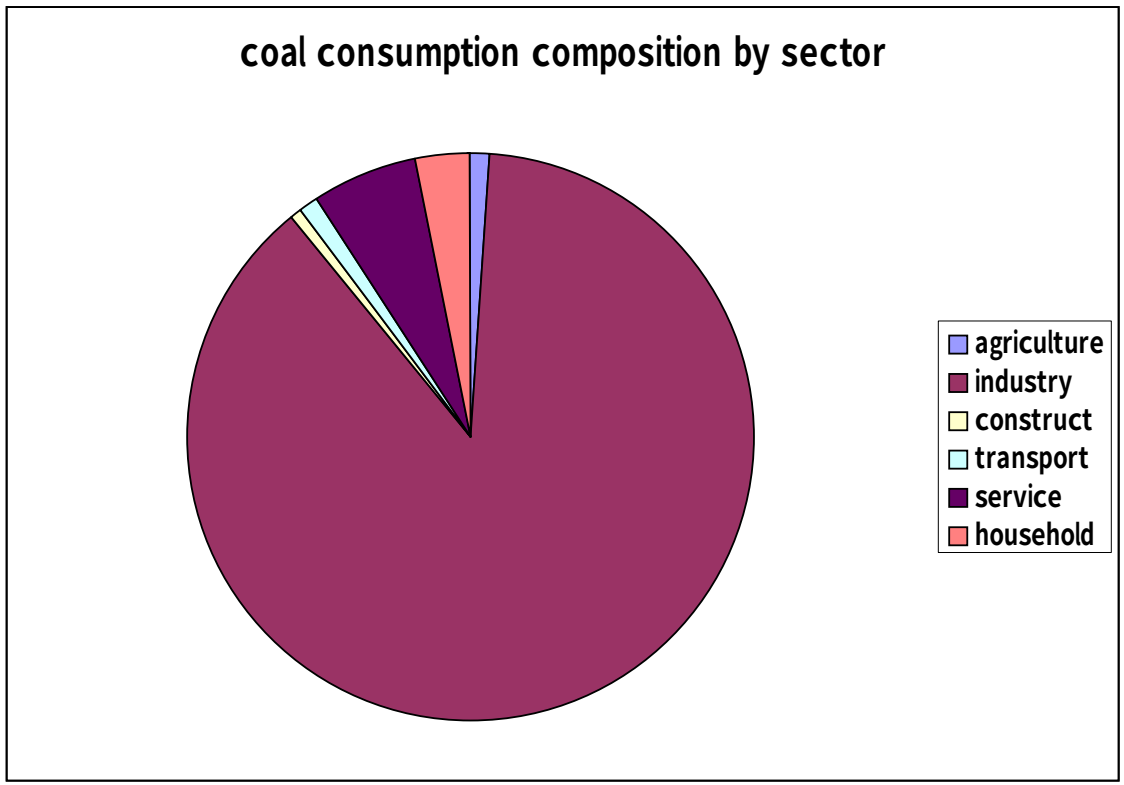

GDP composition by sector
12
18
4
9
58
agriculture
industry
construct
transport
service

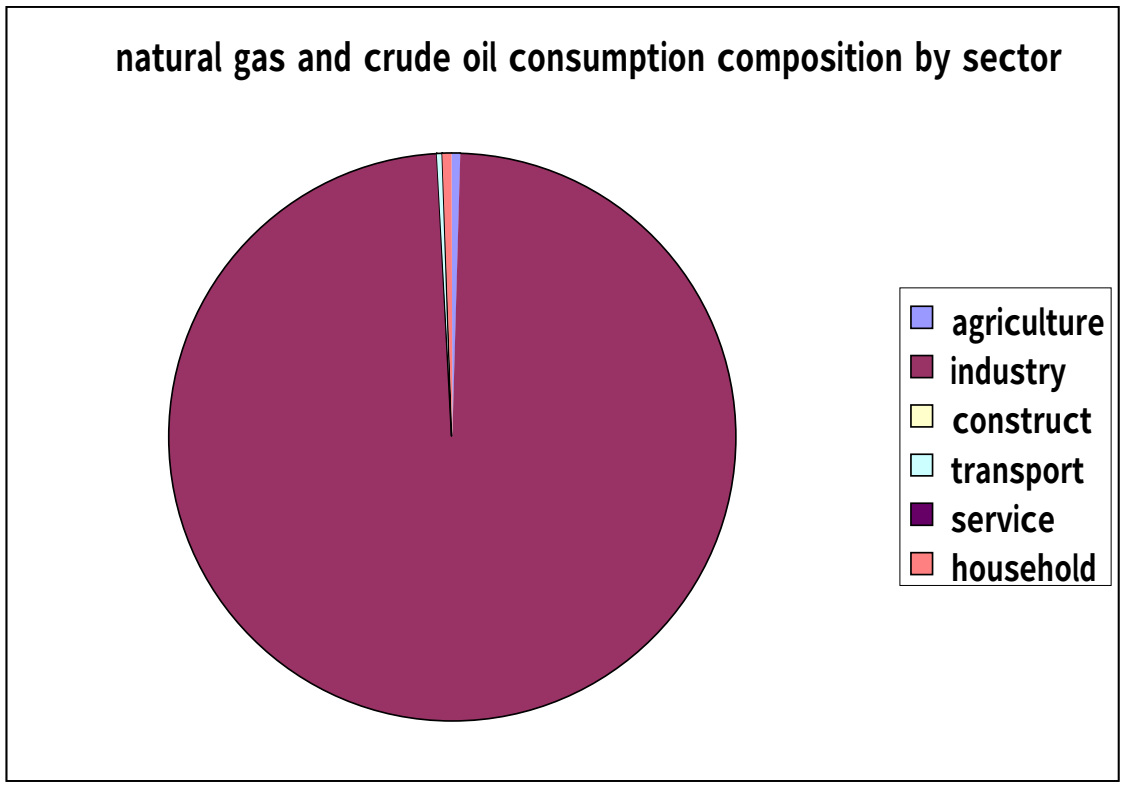
some data on energy use

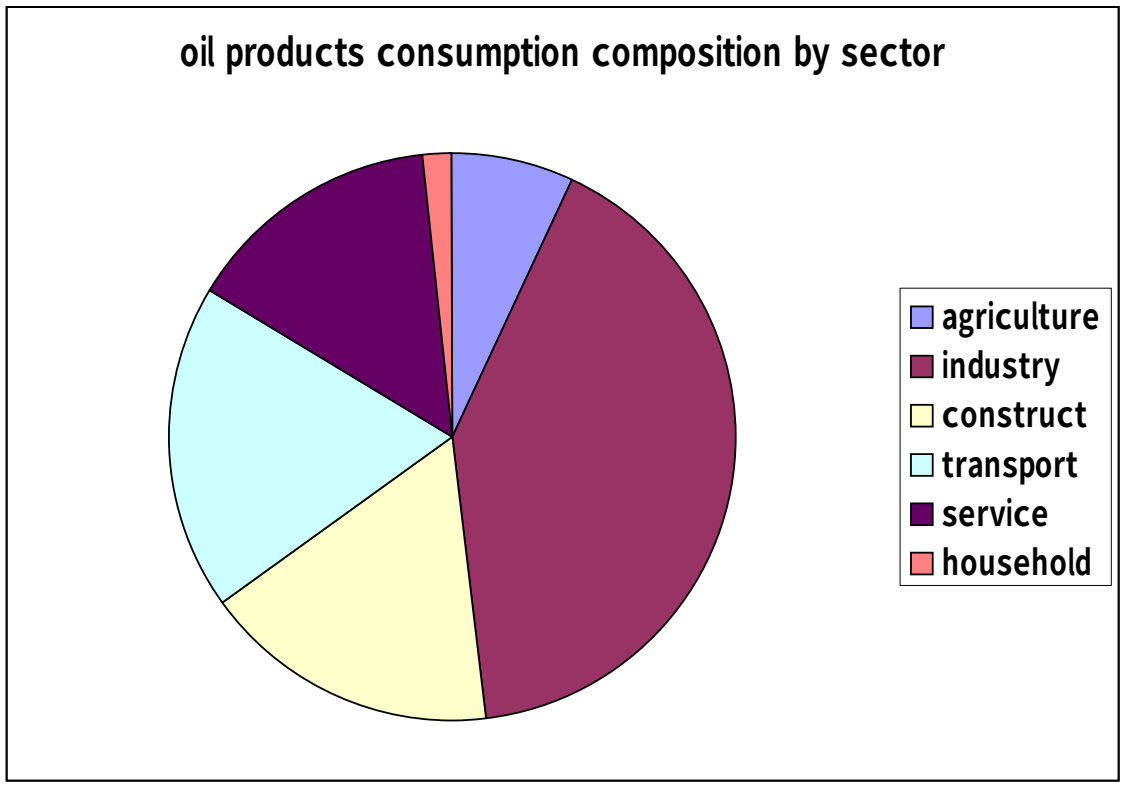
- energy intensity:
  2.06tce/10^4yen
- elasticity of energy consumption: 0.6
- per capita energy consumption: 1141.2kgtce
- residential energy consumption per capita:
  145.7 kgtce

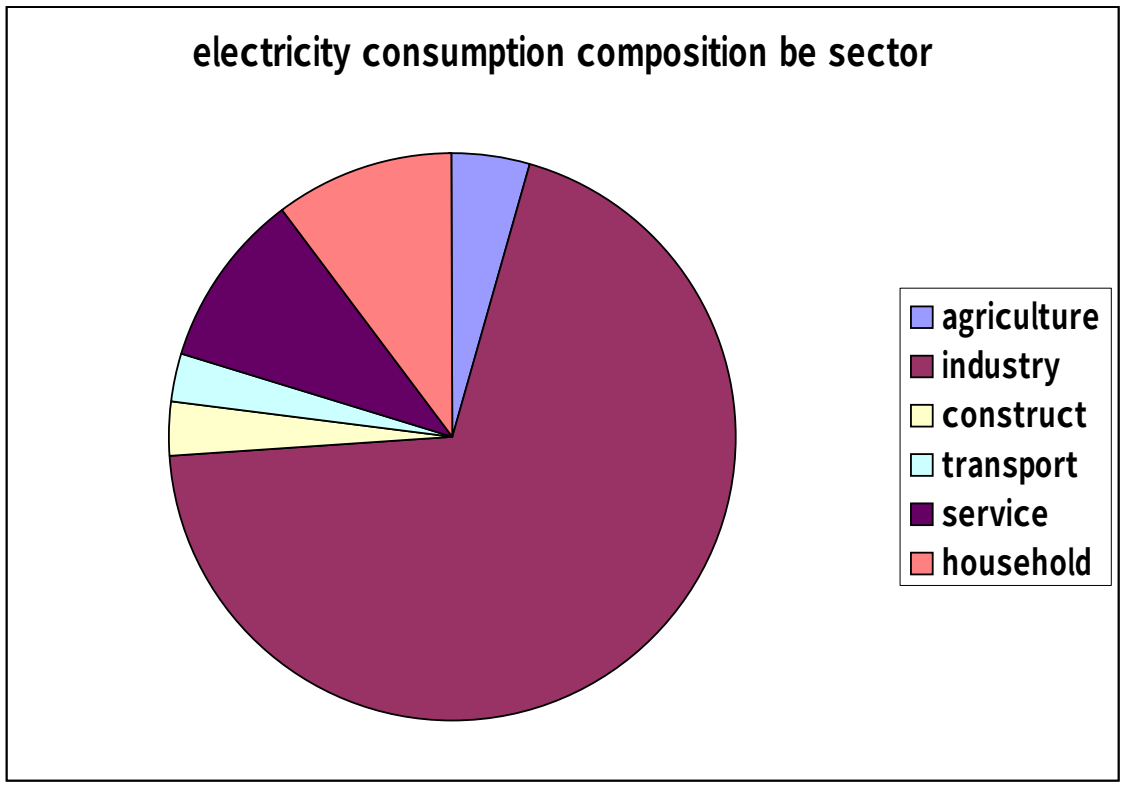

energy consumption composition by fuel
1
41
39
3
16
coal
natural gas and crude oil
oil products
electricity
coal products

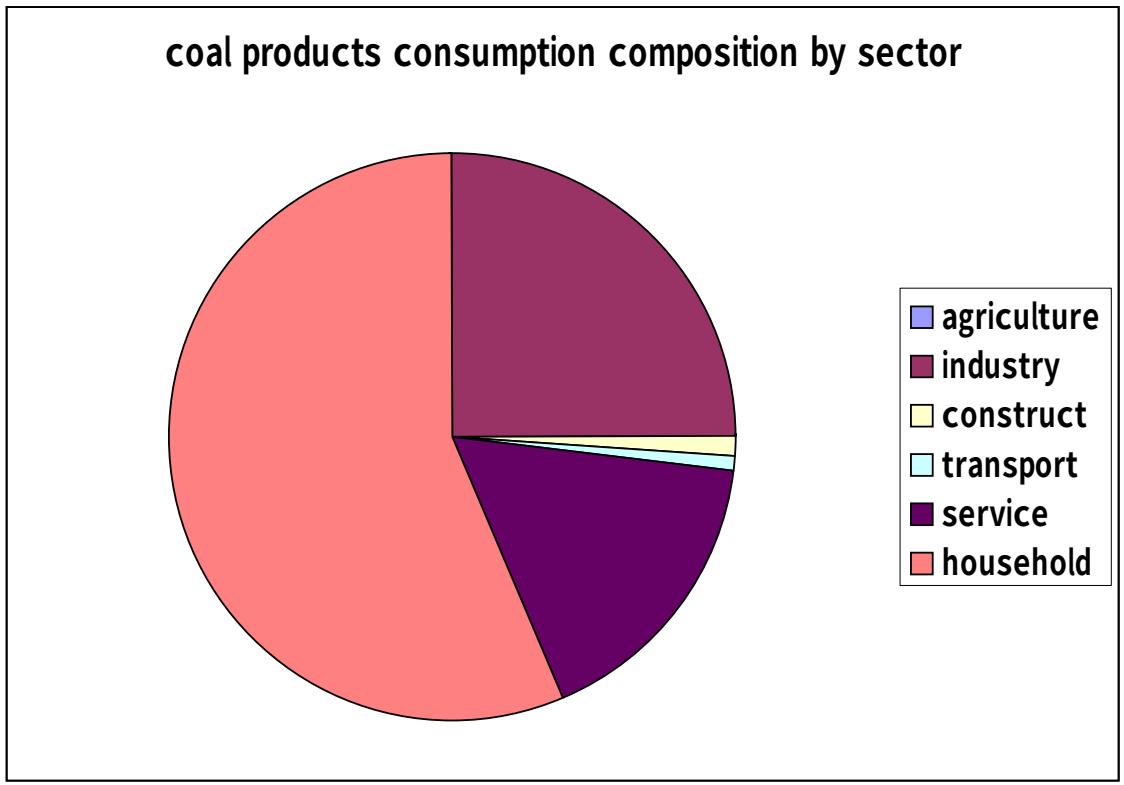

total energy consumption composition by sector
agriculture
industry
construct
transport
service
household


coal consumption composition by sector
agriculture
industry
construct
transport
service
household


natural gas and crude oil consumption composition by sector
agriculture
industry
construct
transport
service
household


oil products consumption composition by sector
agriculture
industry
construct
transport
service
household


electricity consumption composition be sector
agriculture
industry
construct
transport
service
household

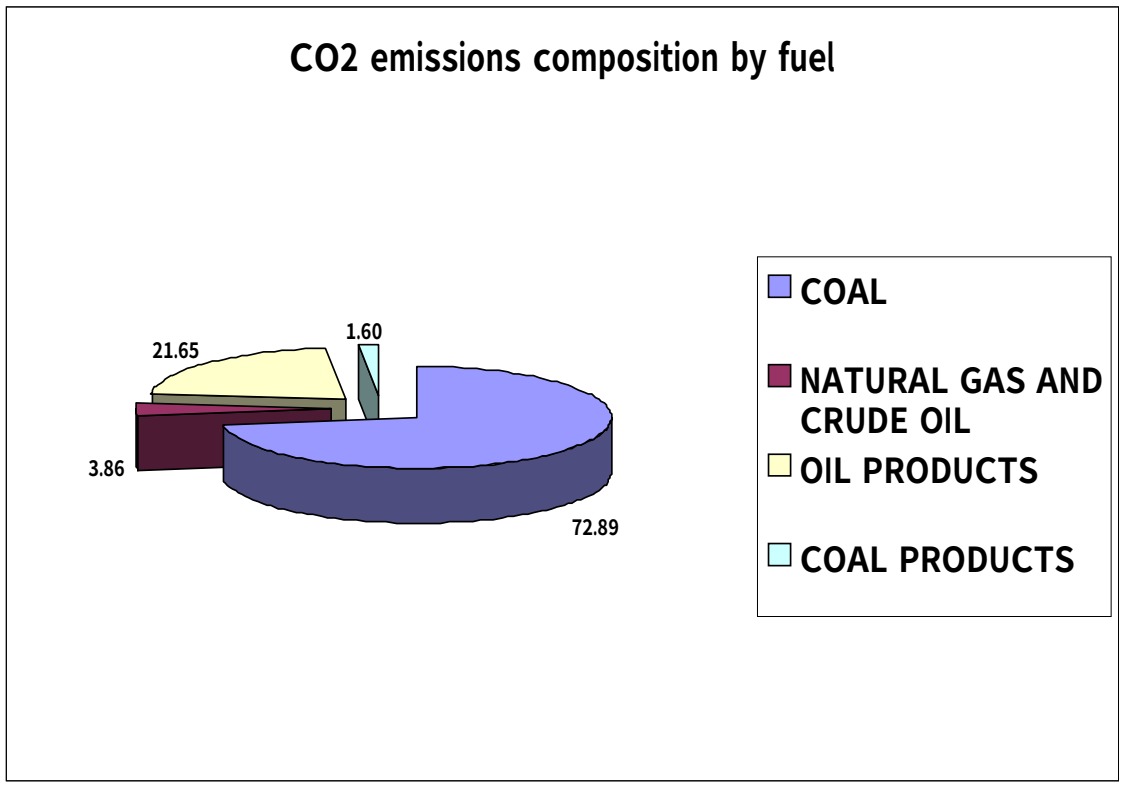

coal products consumption composition by sector
agriculture
industry
construct
transport
service
household

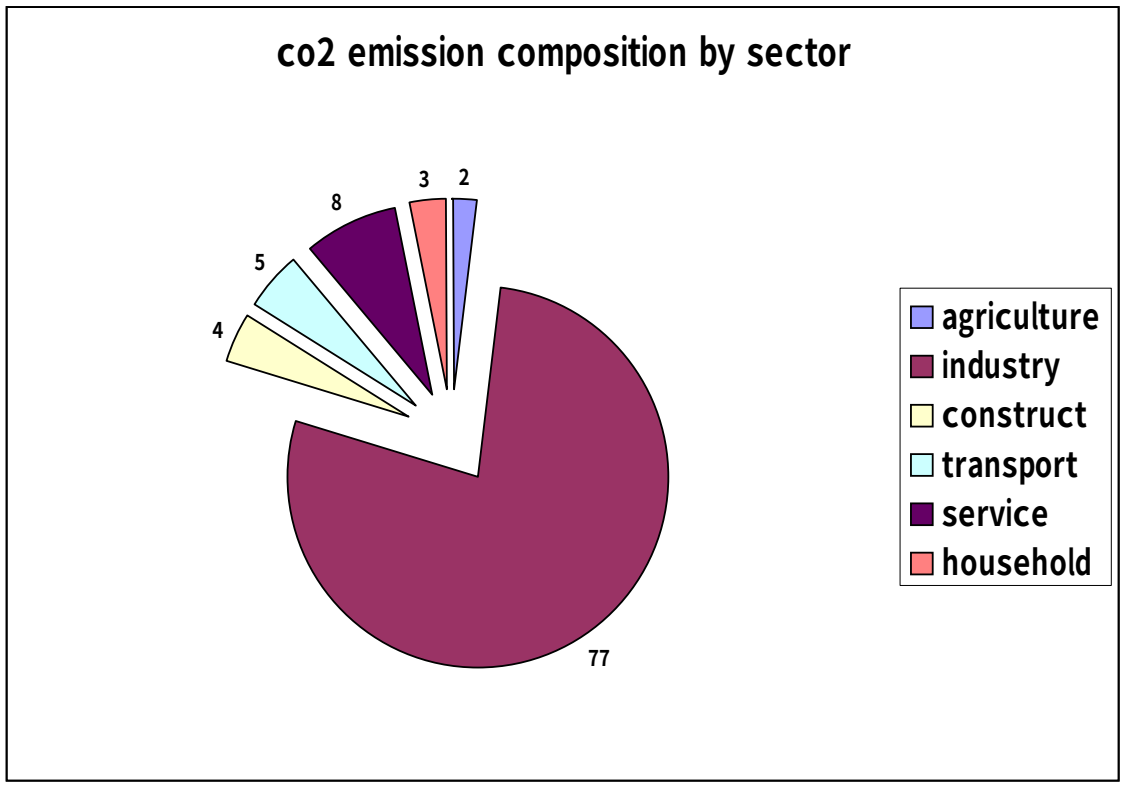
some finding about energy use

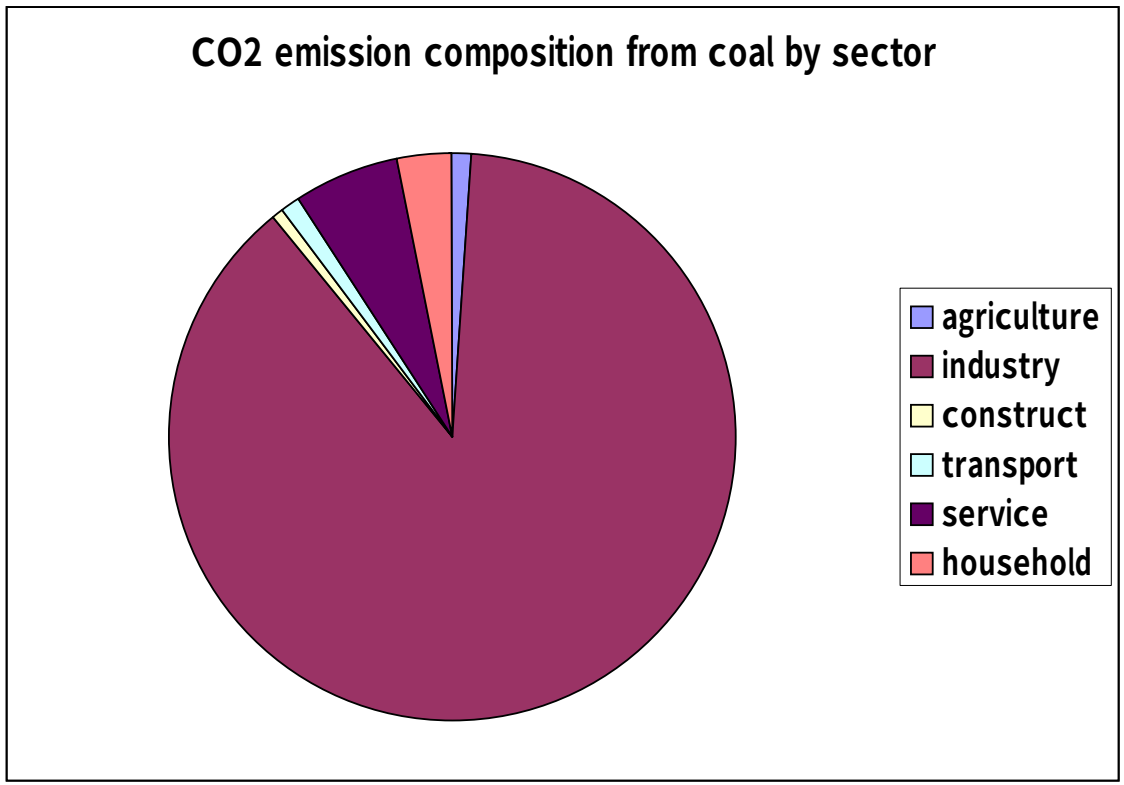
- in the total energy supply, coal and electricity covers the most part;
- Industry sector amounts to the biggest part in the total energy consumption;
- but for specific energy type, there is some difference

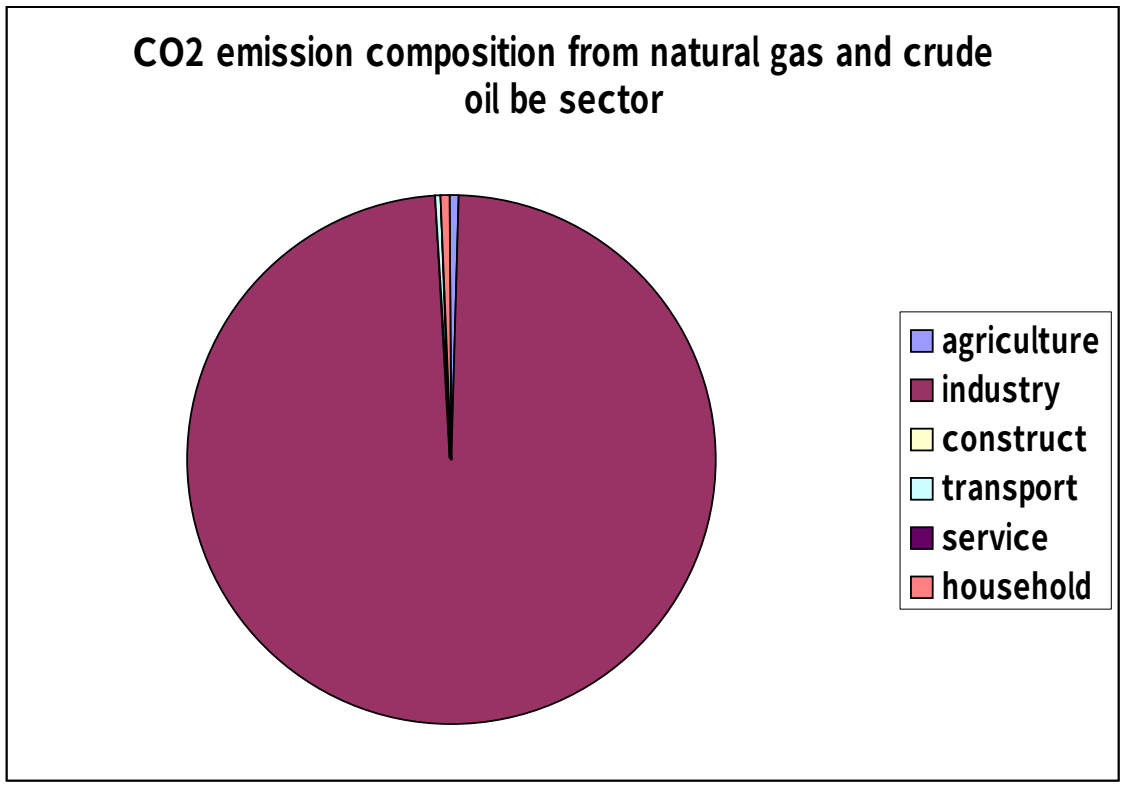
CO2 emission

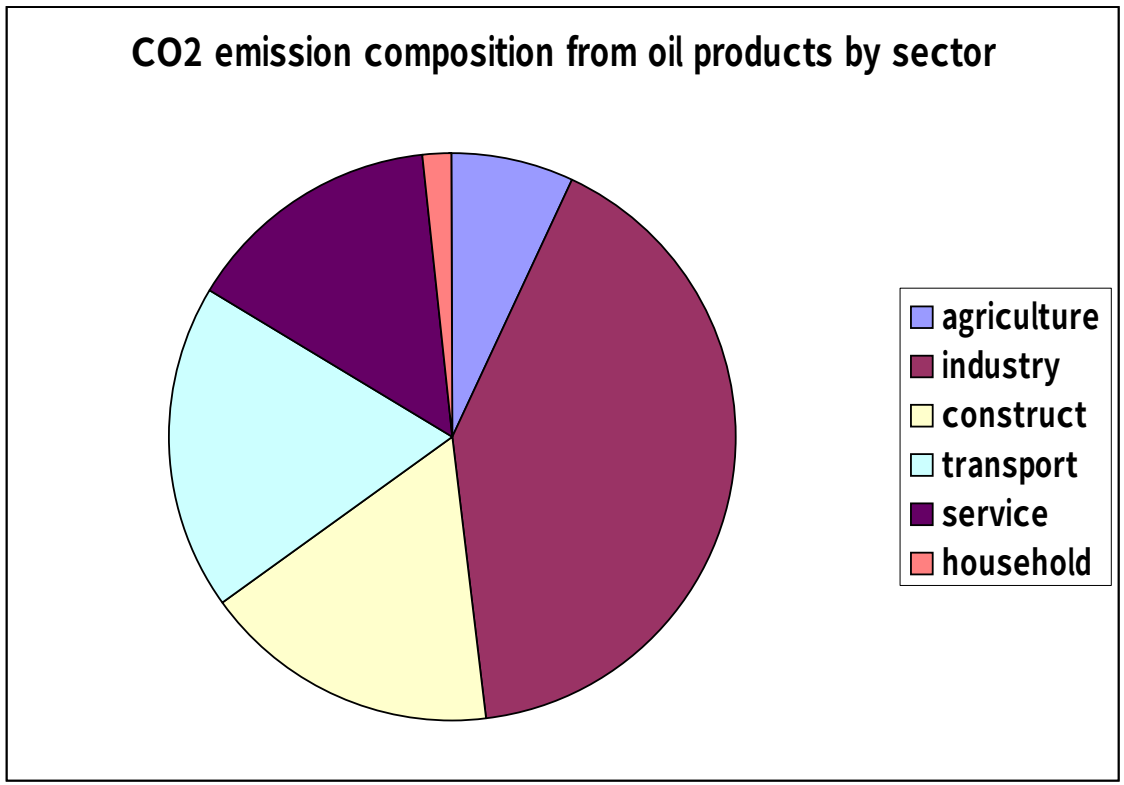
total CO_2 emission:
0.96 billion ton Carbon
(real data:0.89
from CDIDA)

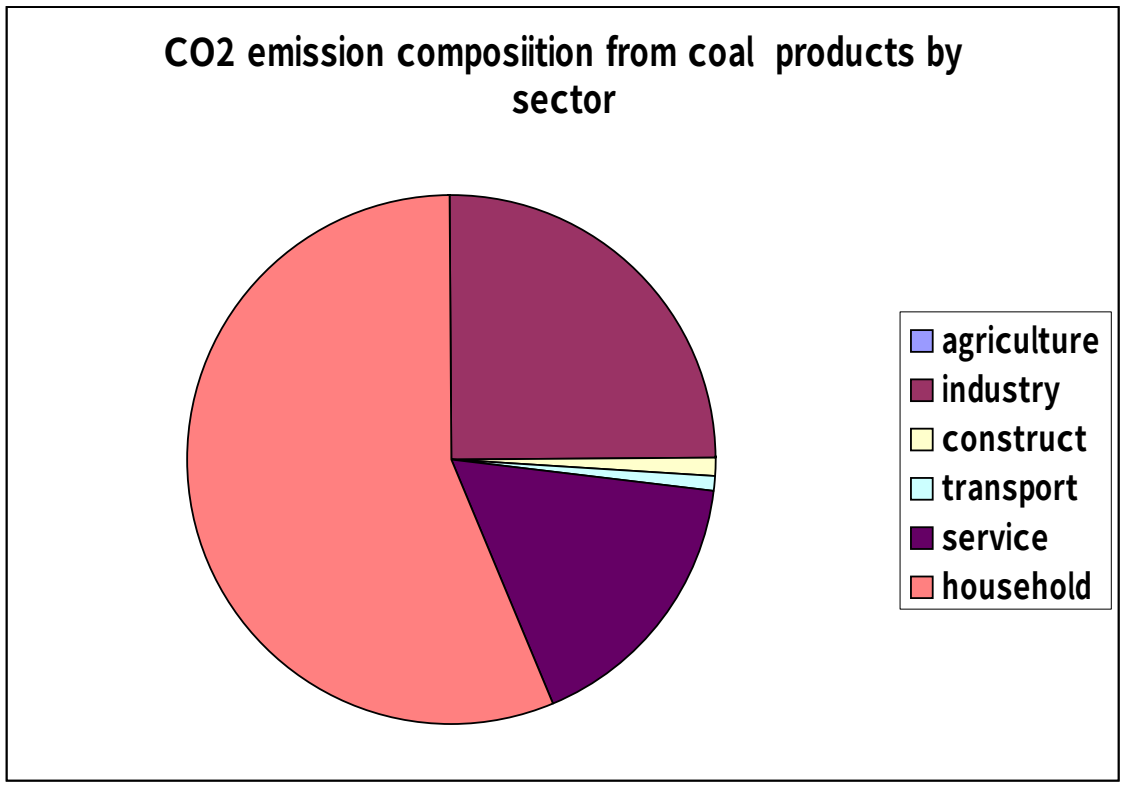

CO2 emissions composition by fuel
1.60
21.65
3.86
72.89
COAL
NATURAL GAS AND CRUDE OIL
OIL PRODUCTS
COAL PRODUCTS


co2 emission composition by sector
2
3
8
5
4
77
agriculture
industry
construct
transport
service
household


CO2 emission composition from coal by sector
agriculture
industry
construct
transport
service
household


CO2 emission composition from natural gas and crude oil be sector
agriculture
industry
construct
transport
service
household


CO2 emission composition from oil products by sector
agriculture
industry
construct
transport
service
household


CO2 emission composiition from coal products by sector
agriculture
industry
construct
transport
service
household

some finding about CO2 emission

- in the total CO2 emission, coal is the biggest part;
- Industry sector amounts to the biggest part in the total CO2 emission;
- but for specific energy type, there is some difference

policy to reduce CO2 emission

- improve energy efficiency
- how to improve?

  regulation;

  tax and subsidy;

  technology transfer

energy consumption for main energy intensive products by comparing China with selected countries

coal consumption for power supply(thermal power plant (gce/Kwh)

country	1980	1985	1990	1995
China (over 6MW)	448	431	427	412
Japan	338	338	331	330
United States	378	376	373	370

Energy consumption for steel production(kgce/t)

country	1980	1985	1990	1995
China (key enterprises)	1201	1062		976
Japan	705	640		656
United States	880	761	757	
United Kingdom	794	721		721(1994)

benefits from energy efficiency improvement

- energy safe
- reduce CO2 emission
- lessen local pollution
- GDP benefit

some thinking

- how to modify original data and assign value to key parameters is more difficult than writing model itself;
- how to apply such model according to specific objective is very important;
- use the output from other types model such as end-use model is also important:

Thank you all!