中 華 經 濟 研 究 院
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AIM/CGE Modeling: Taiwan

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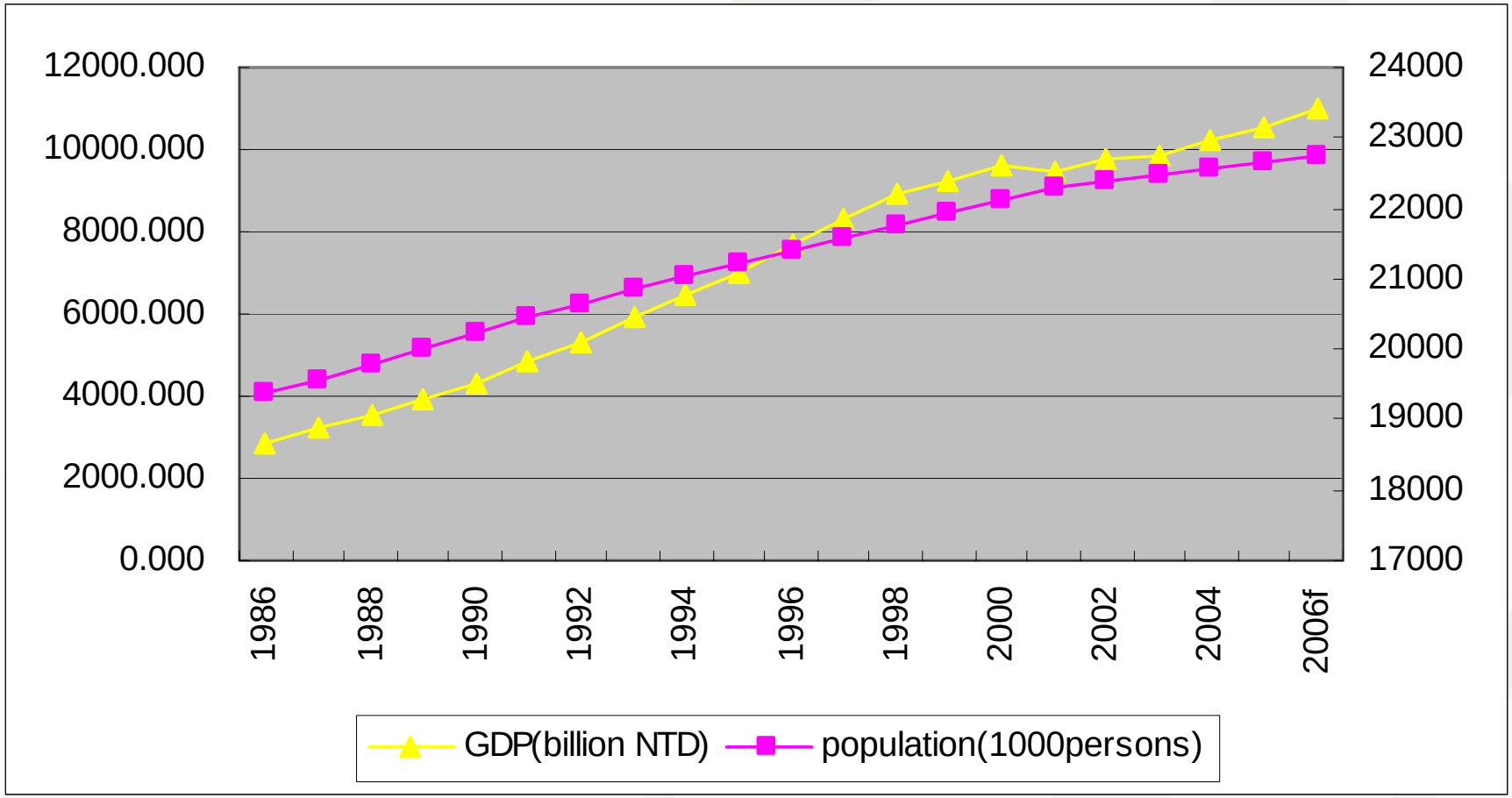
Presentation Outline

- Basic Information about Taiwan
- Environmental protection proposals
  - Taxation
- Data applied for CO2 dynamic modeling
- Expected and simulation results
- Conclusions

Basic Information

- Population:
  - 23 Million
- GDP:
  - 270 Billion US Dollars (Year 2001)
- CO_2 Emission:
  - 131→261Mtone/year (Year 1990 → 2004)
  - 22nd largest emission country worldwide
- Large GHG sources:
  - Steel Industry, IT Industry, Transportation


12000.000
10000.000
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24000
23000
22000
21000
20000
19000
18000
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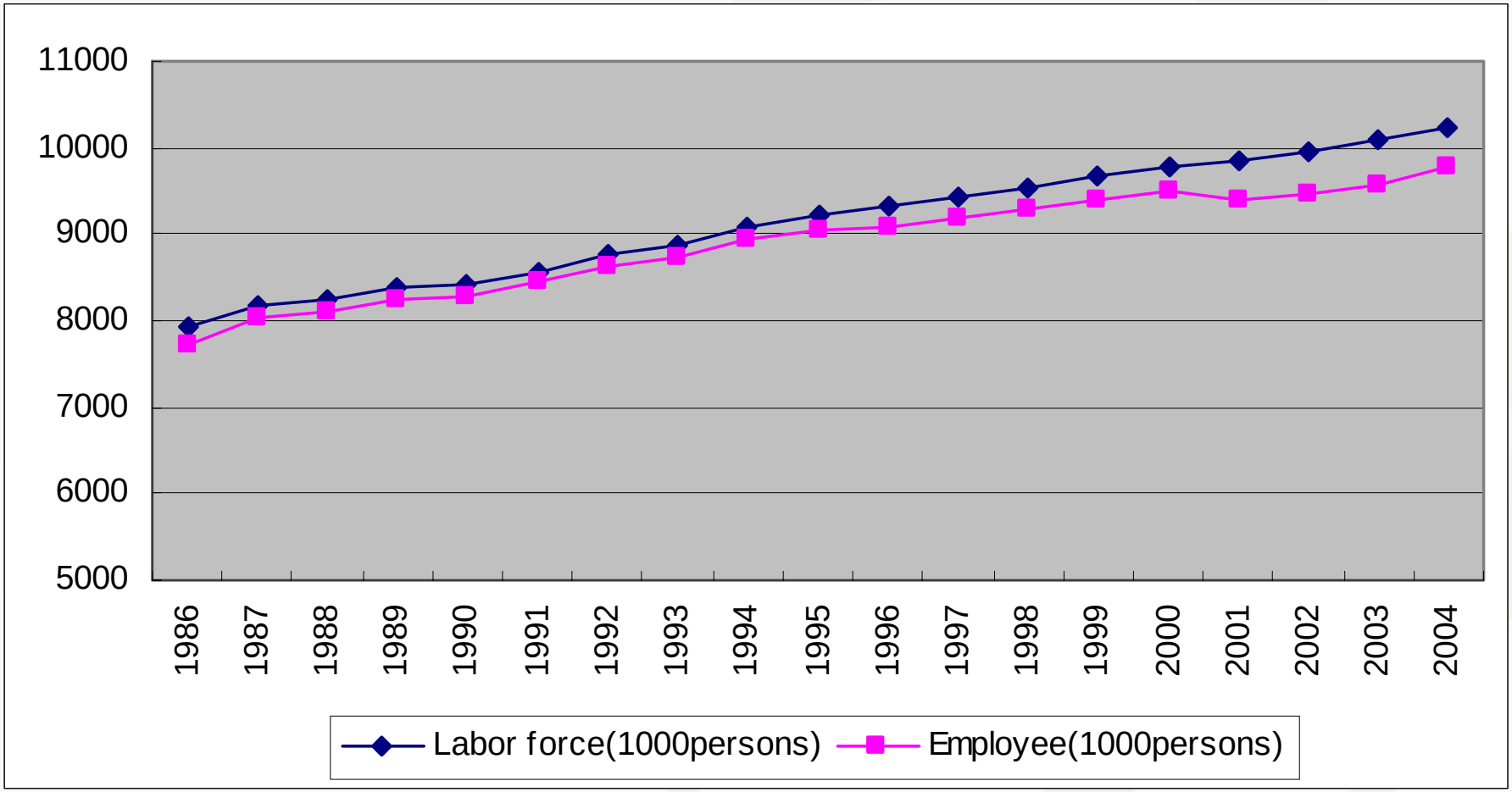
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006f
GDP(billion NTD)
population(1000persons)


11000
10000
9000
8000
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6000
5000
1986
1987
1988
1989
1990
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1992
1993
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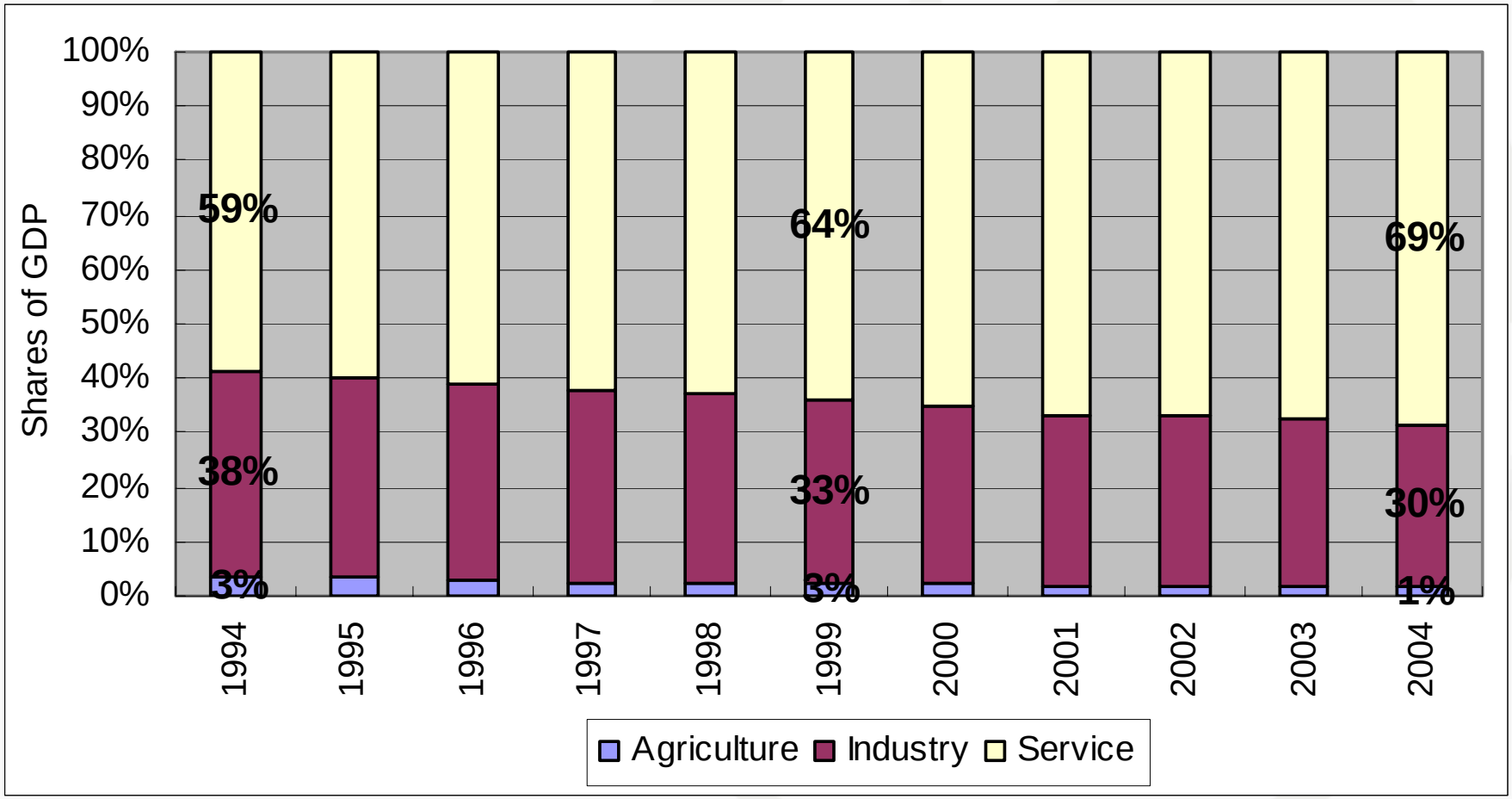
2001
2002
2003
2004
Labor force(1000persons)
Employee(1000persons)


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Shares of GDP
59%
38%
3%
64%
33%
3%
69%
30%
1%
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
Agriculture
Industry
Service

Environmental Protection Proposals

- Environmental Levy (on going)
  - Resource Recycling Fund (for domestic waste)
  - Soil and Ground Water Protection Fund
  - Air Pollution Abatement Fund
  - Water Pollution Abatement Fund (in process)
- Green Tax (under discussion)
  - Based on Sales Quantity
  - Based on Price/Income

Data Applied for Modeling

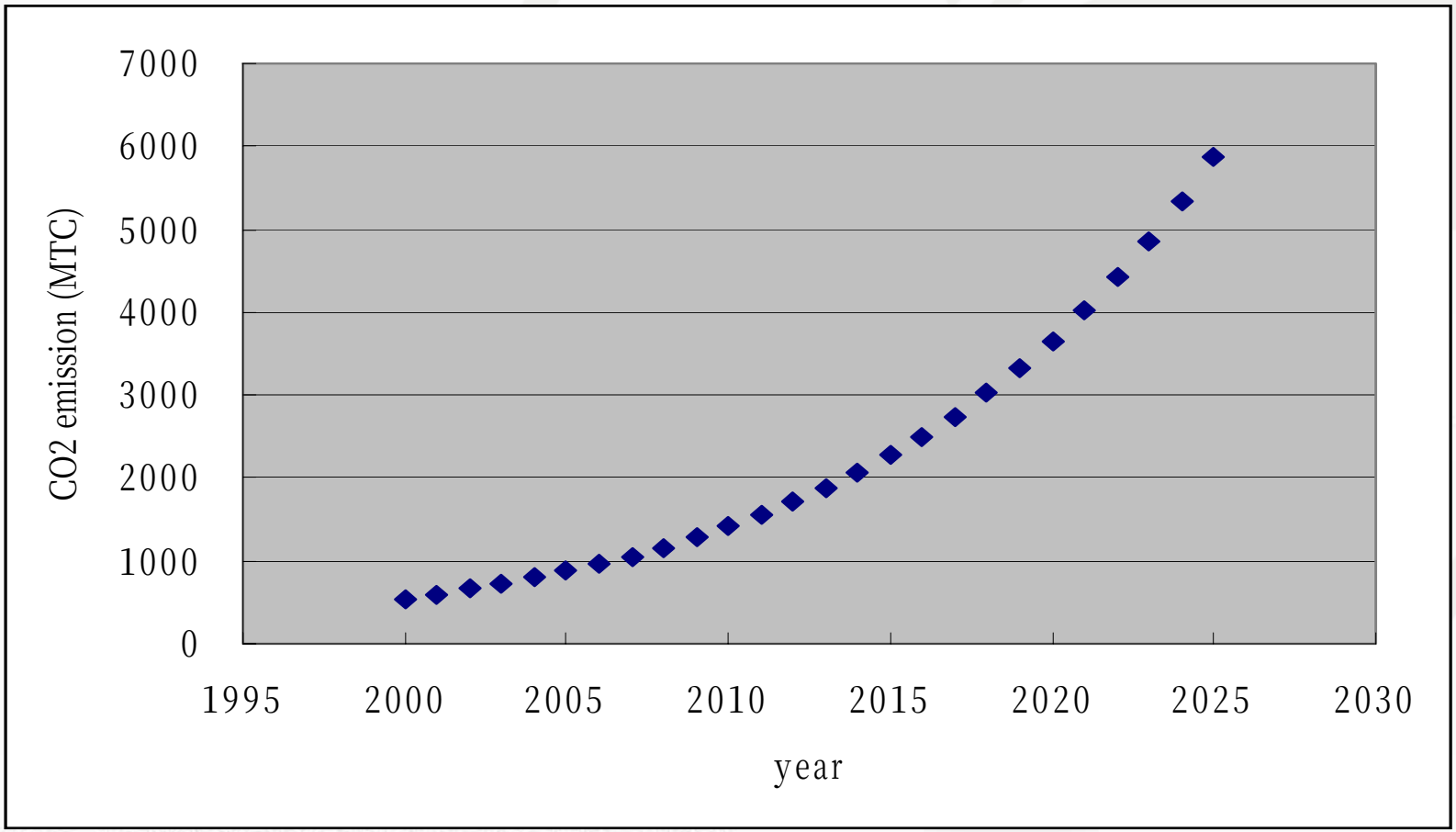
- Original Data Source:
  - National Statistics Department
- Benchmark Year:
  - 2001 or 1999
- Characteristics of Data:
  - 45x45, **160x160**, 596x160 (Commodity x Sector)
- Data for analysis:
  - 62x52 (15 energy commodities)
  - 21x21 (6 energy commodities)

Expected Impacts

- on Economy
  - Lower wages
  - Less household consumption
  - Less manufacturing activities
- on CO2 emission
  - Higher rate → Lower CO2 emission

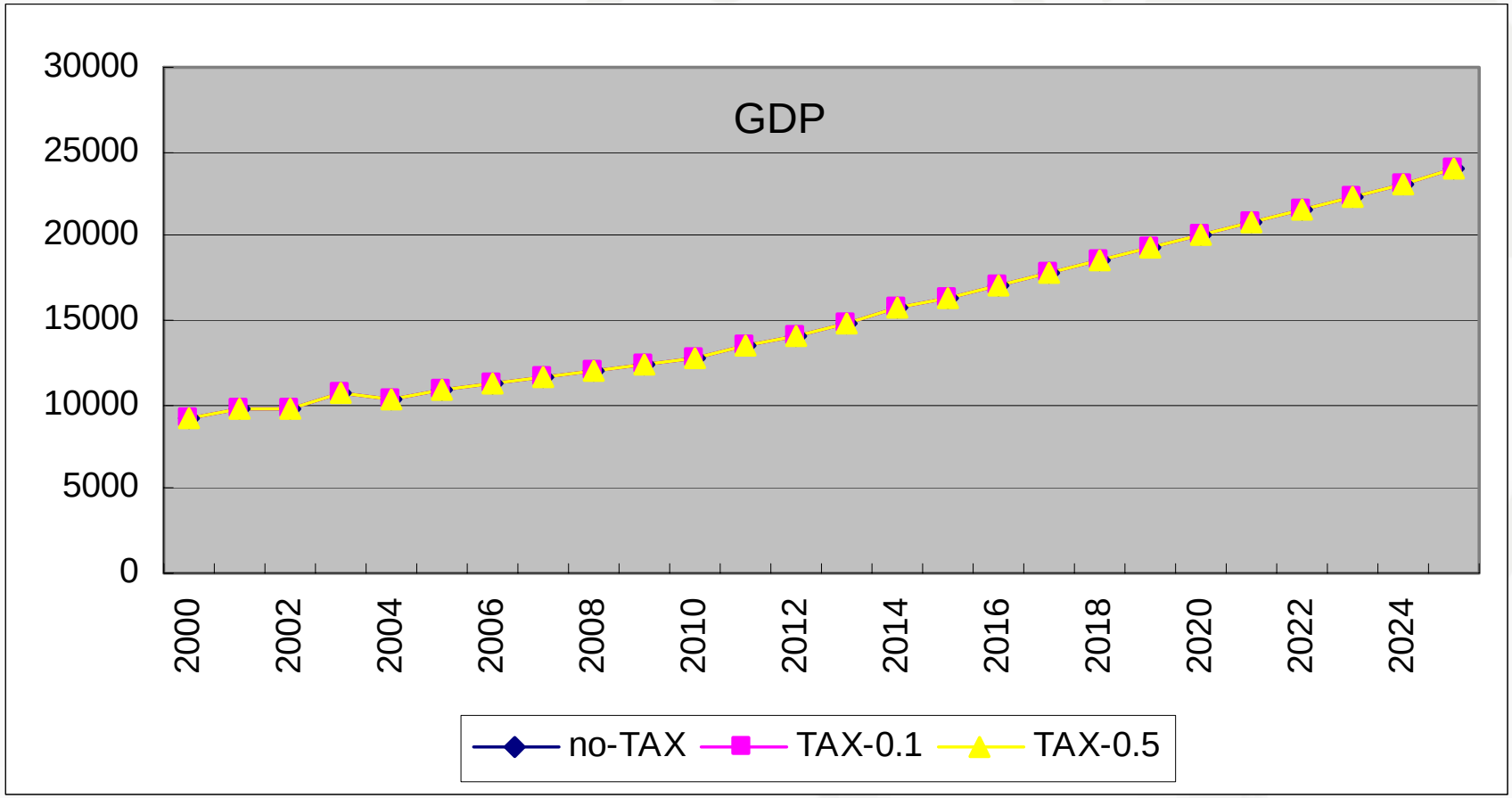
Simulation Result (1)

- CO2 emission: no significant impact



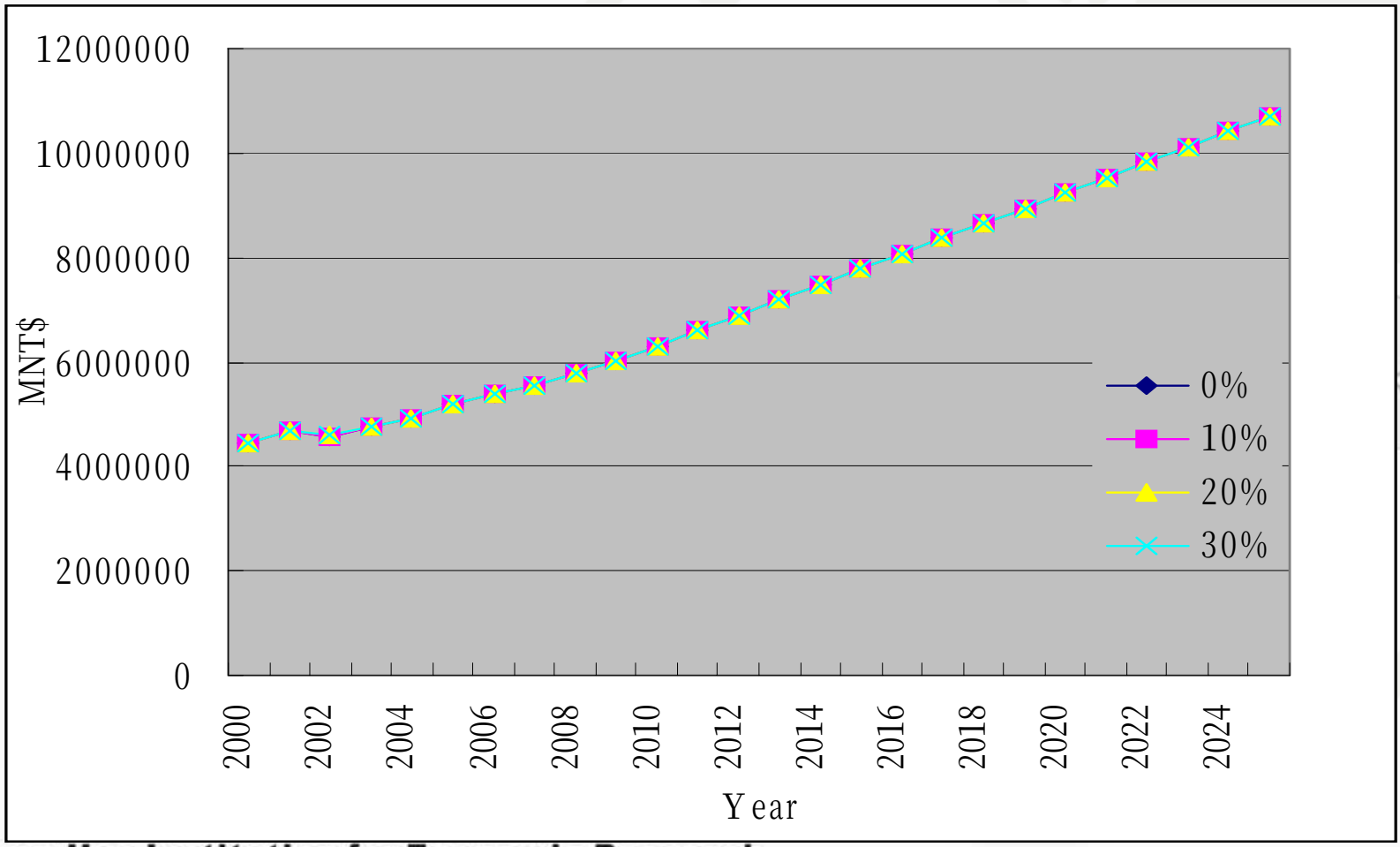
Simulation Result (2)

- GDP: no influence



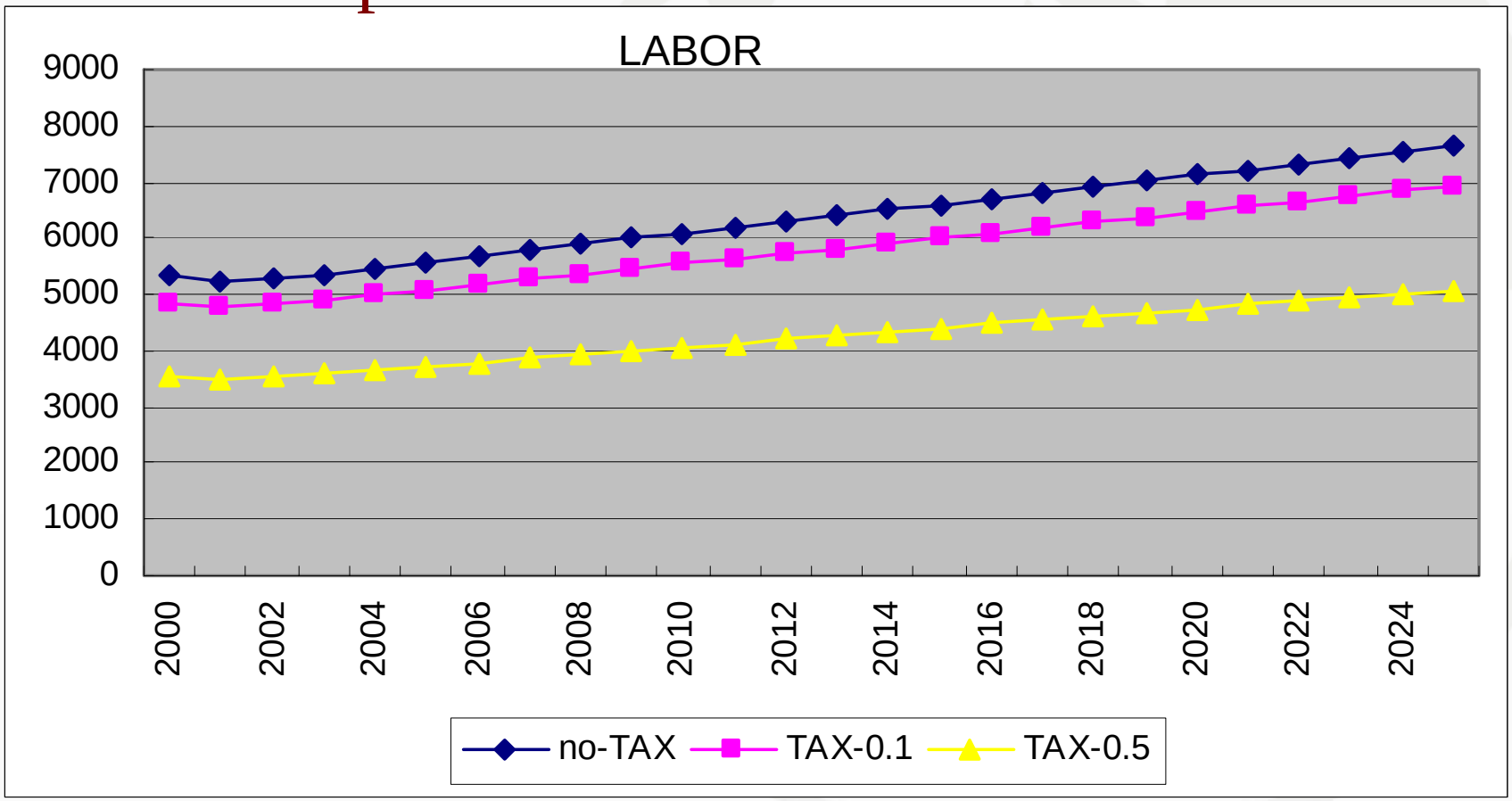
Simulation Result (3)

- Total Export: slightly increased



Simulation Result (4)

- Labor: impacts on income



Conclusions

- Re-examine programming
- Income Taxation alone has no effect on CO2 reduction if no technology improvement

Thanks!
Wishing you all the best!