PROGRESS AND SOME OBSERVATIONS AFTER THE FIRST YEAR OF CHINA'S ENVIRONMENTAL PROTECTION TAX LAW

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Introduction

The *Environmental Protection Tax Law of the People's Republic of China* (EPTL) came into force on January 1, 2018.

Has the EPTL achieved its objectives or desired effects?

- Efficiency improvement
- Firms' Behavior Change: emission, production, relocation, etc
- Fiscal Revenue

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    - 1.2 Regional Tax Rate Differentiation
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1.Implementation Results and Impact of the EPTL

/1.1 Total EPT Revenue

- Is actual EPT revenue the same as the expected one?
- If not, why not?

Actual EPT Revenue VS. Expected EPT Revenue

2018

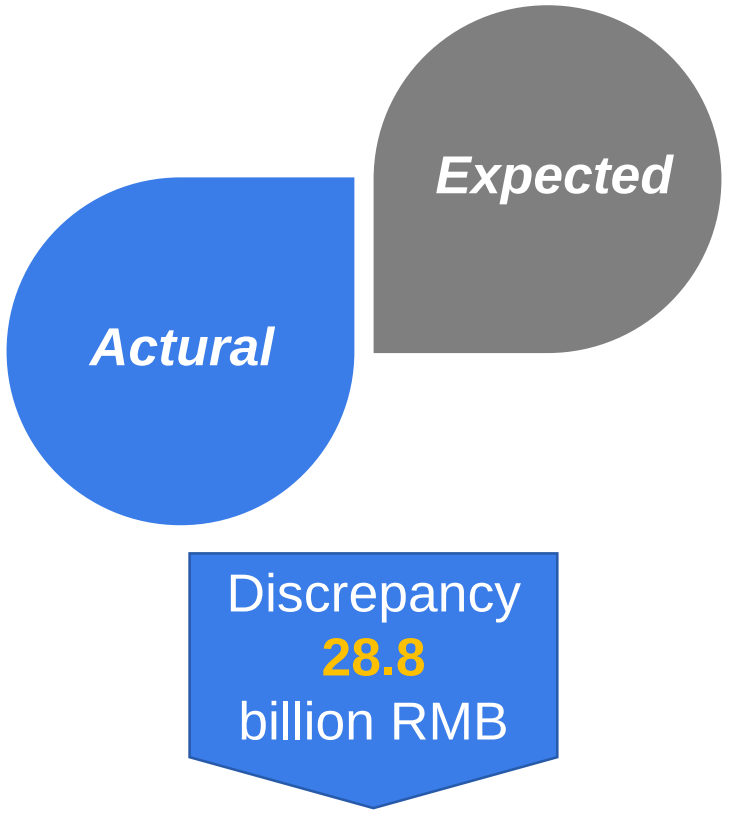
Data from the State Taxation Administration (STA)

20.5 billion RMB

318,000 EPT payers now

90% from air pollutants

mostly came from the iron and steel industry



42%

2014

Based on industrial emission data in China and EPTBR in 2014. (Wu &Chen, 2017)

49.3 billion RMB

277,724 PLS payers in 2015

89% from air pollutants

Mostly came from the thermal power industry

Actual EPT Revenue VS. Expected EPT Revenue

1. The tax stronger rigidity.
2. The slightly higher EPT rate is extended to more pollutants.
3. The autonomy for provinces on tax rates and taxable items.

Total EPT revenue was expected to be higher than that collected under the pollution fee.

The attribution for the discrepancy.

1. EPT exemptions (0.481 billion RMB) doesn't count.
2. Nationwide major pollutant emission reductions.
3. The preferential tax and the ultra-low emission limitation (ULEL).
4. Incomplete collection due to tax payer identification and emission data verification.

Nationwide Major Pollutant Emission Reductions

(Xinhua News Agency, 2018)

"The declared emissions of COD, ammonia nitrogen, SO2 and NOx have decreased compared with that of pollution fees in the same period in 2017."

The declared emissions decreased.

The expected revenue under the context of strict C&C requirements.

Pollutant emission reductions targets.

13th Five-Year Plan

In 2020 COD and ammonia nitrogen emissions will decrease by 10% compared to 2015 emissions and SO2 and NOx emissions will decrease by 15%.

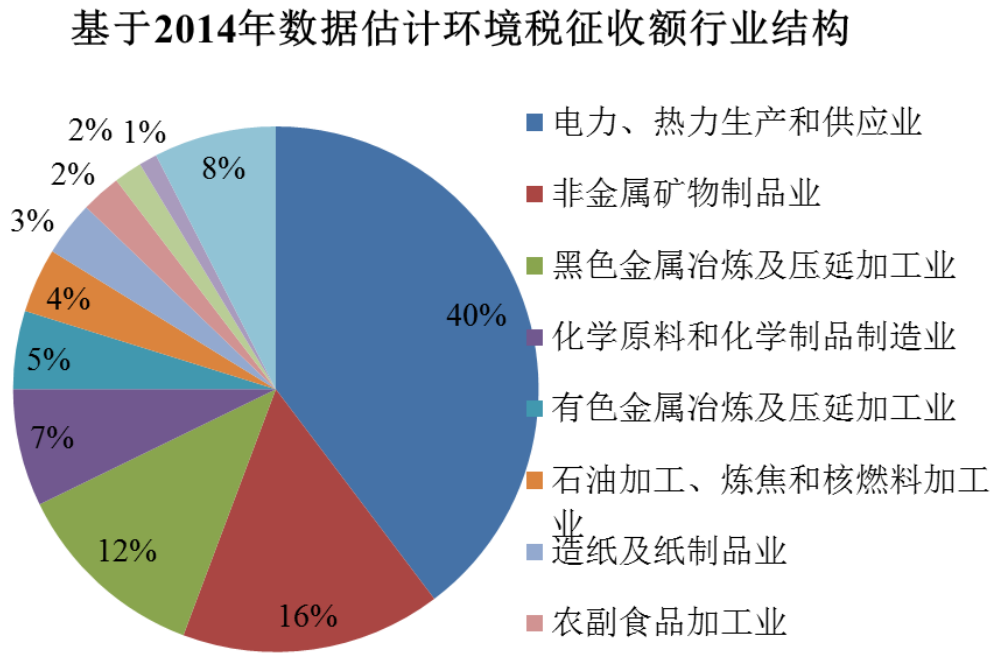
About 39.3 billion RMB in 2018

- ✓ Assuming industrial emissions decline at the same rate.
- ✓ The 60% emission reduction target was achieved in 2018.

The Preferential Tax and The Ultra-low Emission Limitation

Based on 2014 data, the estimated EPT revenue:

The Thermal Power Industry > Other Industries



EPT revenue in the first half of 2018 (from STA):

The Iron And Steel Industry > The Thermal Power Industry

The Preferential Tax

Emission Concentration /National and Local Standards	Environmental Protection Tax Discount
<70%	75%
<50%	50%

- Thermal power plants can pay EPT at a discount of 50% or 75% when they discharge SO2, NOx and dust lower than the ULEL.
- The estimated annual national EPT preferences is 3.3 billion RMB

Incomplete Collection Due To Poor Emission Data Verification

The expected revenue revised based on pollutant emission reductions

39.3 billion RMB

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The estimated annual national EPT preferences

3.3 billion RMB

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The expected revenue of EPT in 2018

36.0 billion RMB

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Actual EPT revenue

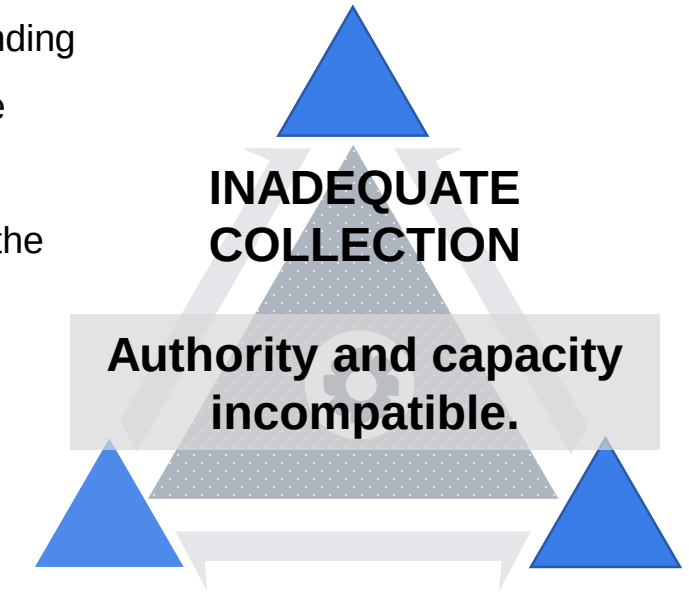
20.5 billion RMB

TAX EVASION

Incomplete Collection Due To Poor Emission Data Verification

- The tax authority lacked professional capacity
- The environmental protection authority has no authority.
  - ✓ To get access to the raw data and corresponding analysis methods applied in producing those declared data
  - ✓ difficult to obtain legal evidence to question the declarations.

Difficult Verification



Monitoring Accuracy

The accuracy of emission monitoring technology is inadequate. (Chen, et al., 2015)

Fraudulent Declarations

Fraudulent monitoring or declarations from enterprises is prevalent. (Du, 2018):In the second quarter of 2018, 13,000 (5%) EPT payers had made inaccurate declarations.

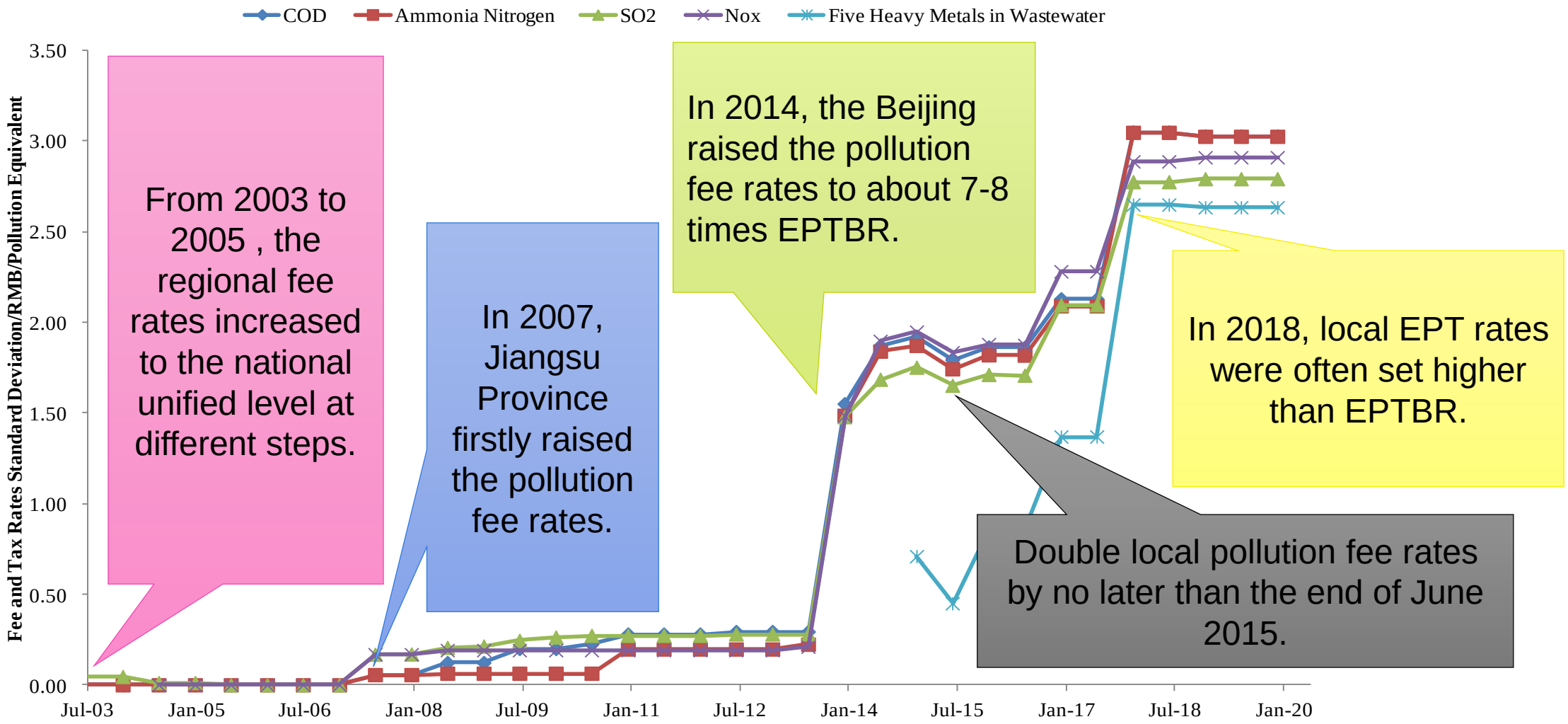
1.Implementation Results and Impact of the EPTL

/1.2 Regional Tax Rate Differentiation

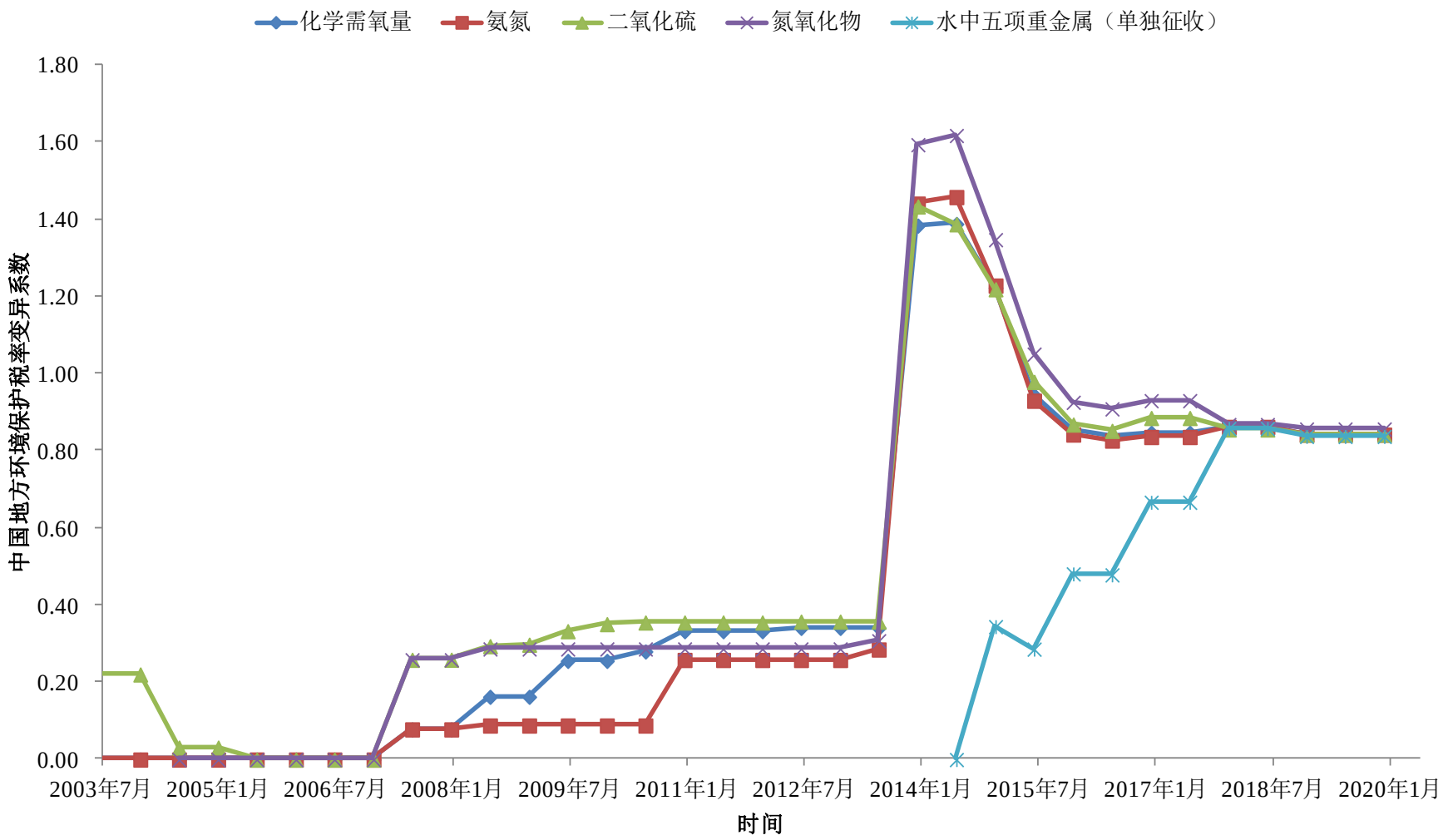
EPTL allows provinces to increase tax rates by up to ten times the base rate.

What happened on the local EPT rates?

The absolute variance of tax rates among provinces is increasing



The Relative Variance of Tax Rates In China is getting smaller.



1.Implementation Results and Impact of the EPTL

/1.3 Firms' Behavior Adjustment

Did the EPTL promote the firms to reduce emission?

A Survey in City J of Shanxi Province (February,2018)

Items	City J
Permanent Residents at the End of the Year /Million	2.34
Gross Domestic Product (GDP)/Billion RMB	135.19
Growth Rate of GDP/%	7.4
Per Capita GDP/RMB	57,819
GDP Percents for Primary, Secondary and Tertiary Industries	3.6%、53.1%、43.3%
Leading Industries	Coal, Smelting and Pressing of Metals, Equipment Manufacturing, Chemical Industry, Thermal Power, Coal-bed Methane Exploitation
COD Emission/t	25670
Ammonia Nitrogen Emission/t	3788
SO2 Emission/t	67800
NOx Emission/t	58300
Dust Emission /t	77099 (2016)
Fiscal Revenue/ Billion RMB	26.38
Growth Rate of Fiscal Revenue/%	22.1
Environmental Protection Tax Revenue/Billion RMB	Unavailable

A city representing resource-based economy in China:

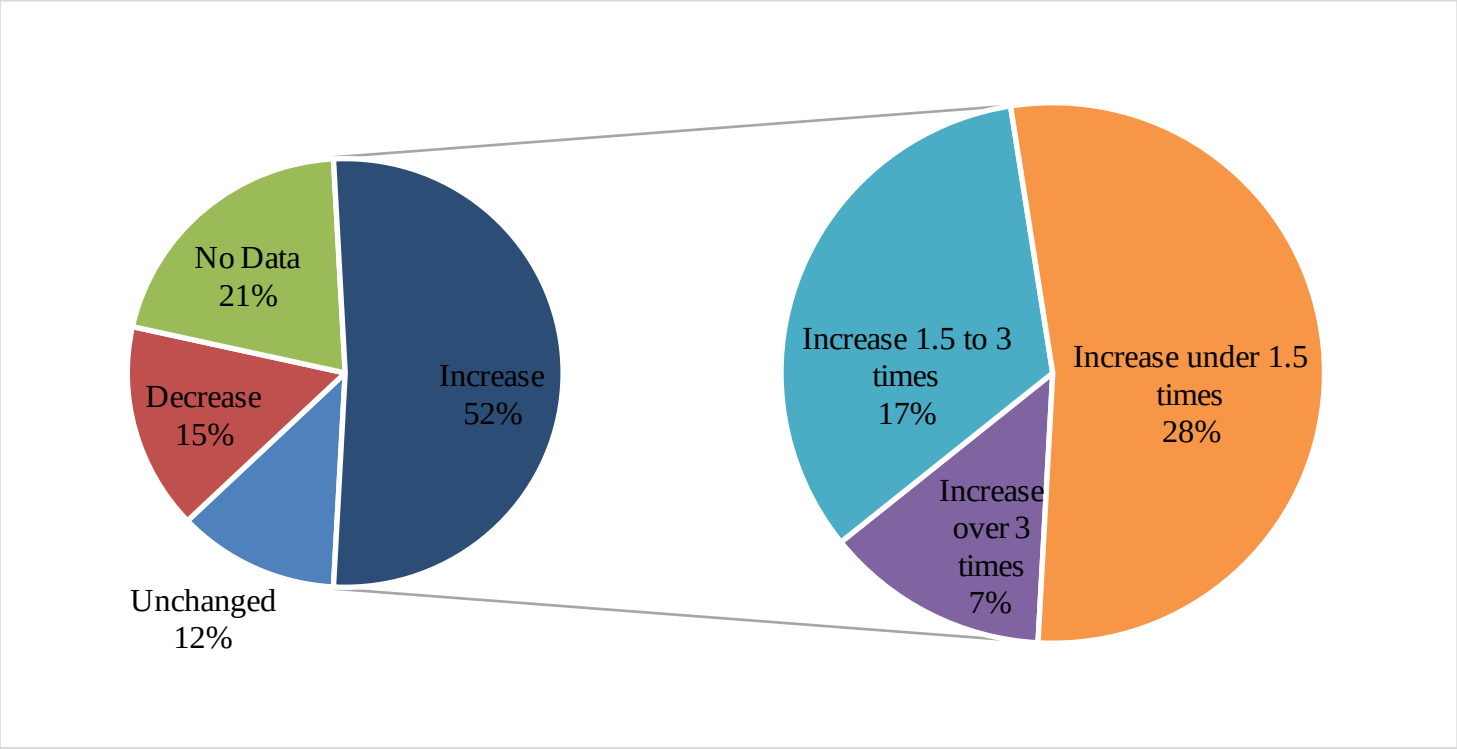
- ✓ Rich in mineral resources: coal and iron ore resources.
- ✓ Its economic development level and growth rate are at the medium level of China.
- ✓ High pollution, high energy consumption and high resource consumption.

Changes in Pollution Fee Rates and Environmental Protection Tax Rate in City J of China

Provisions	Before Jul. 1st, 2015	From Jul. 1st, 2015 to Jan. 1st, 2018	Since Jan. 1st, 2018
Fee/Tax Rates	50% EPTBR	● → 100% EPTBR for SO2, NOx, COD, ammonia nitrogen and five major heavy metals. ● → 50% EPTBR for other pollutants.	150% EPTBR
Taxable Pollutants Numbers	the top three conventional air/ water pollutants (with highest emissions).	the top three conventional air/ water pollutants (with highest emissions) plus five major heavy metals in wastewater.	the top three conventional air/ water pollutants (with highest emissions) plus the first category of water pollutants.
Tax fugitive emissions of air pollutants	No.	No.	Yes.

Enterprises Expected Environmental Tax Increase in City J in 2018 over the Pollution Fee in 2017

- ✓ City J would have borne EPT expenditure in 2018 of about 1.5-3 times that of 2017.
- ✓ Due to emission reduction requirements, preferential EPT rate is applied, the increase of EPT expenditure of enterprises is limited.



For over 90% surveyed enterprises with reporting data, the proportion of pollution fee to total cost was no more than 1%.

Only 52% of the samples believed that their EPT expenditure would increase.

24% thought that it would rise by more than 1.5 times.

The impact of pollution tax on business decisions is very limited.

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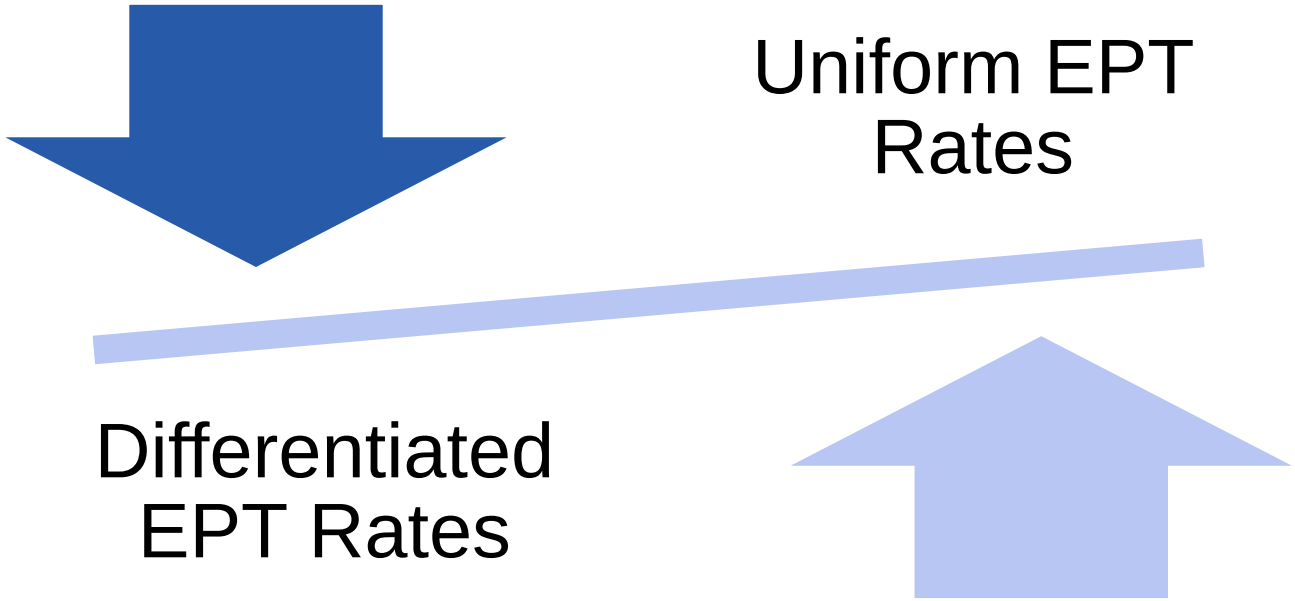
Looking to the way forward: simulation results

- ✓ Increasing tax rate?
- ✓ Differentiated tax rates vs. uniformed ones?

Uniform or Differentiated EPT Rates



disparate industries with different pollution abatement cost

? **Better Cost-effectiveness**

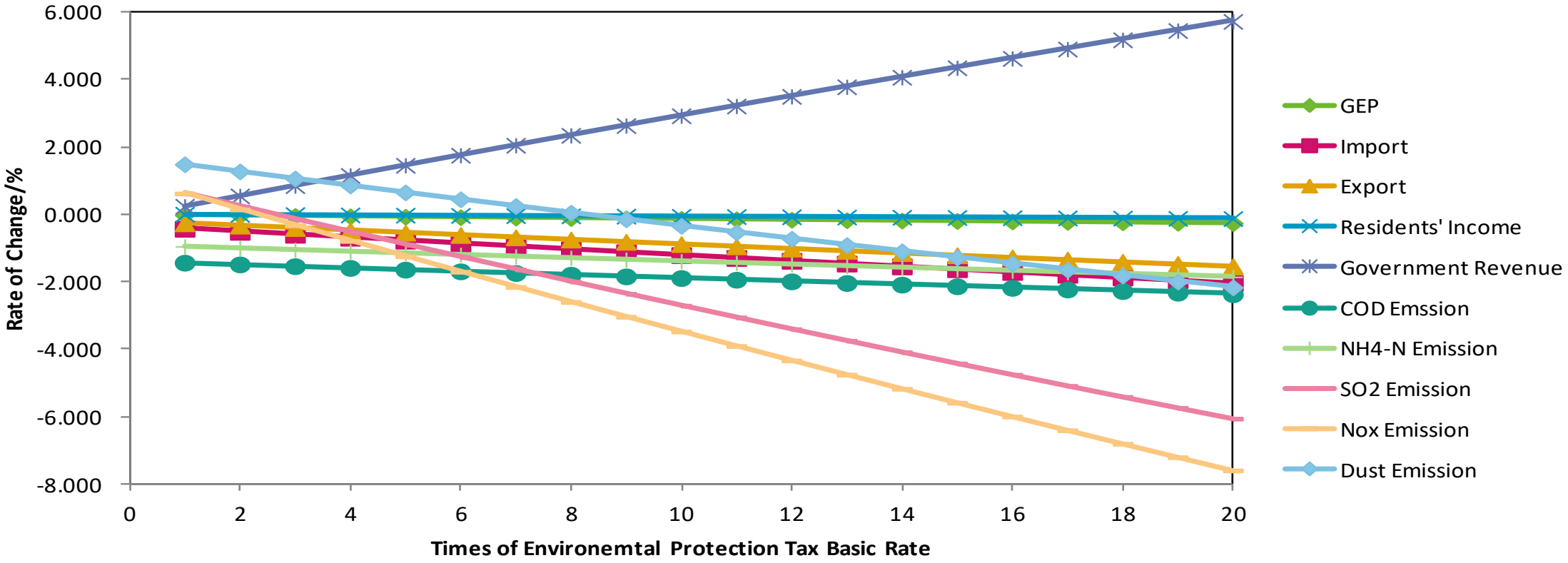
- ✓Major air pollution industries
- ✓Fossil energy industries

A fourteen-sector CGE model based on China's input-output table in 2015 was built.

CGE Model Scenarios

Scenarios		Sub-scenarios		
Uniform EPT Rates	All Industries	From 1 EPTBR to 20 EPTBR		
Differentiated EPT Rates	Non-heavy Air Pollution Industries	Low Tax Rate (1 EPTBR)	___	___
	Heavy Air Pollution Industries only(A)	The EPT rates of air pollutants in heavy air pollution industries are increased with the times of EPTBR.		
Differentiated EPT Rates	Non-heavy Air Pollution Industries only(C)	Low Tax Rate (1 EPTBR)	Medium Tax Rate (5 EPTBR)	High Tax Rate (10 EPTBR)
	Heavy Air Pollution Industries(B)	The EPT rates of air pollutants in heavy air pollution industries are increased synchronously with the proportion of pollution abatement costs		

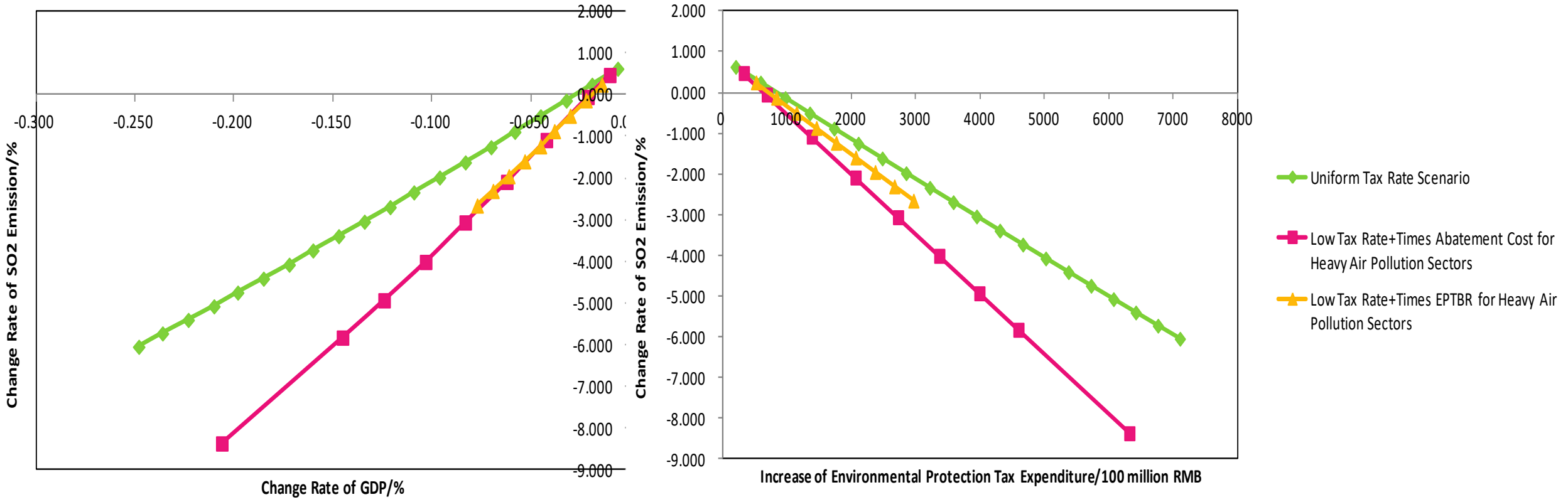
CGE Model Simulation On Uniform EPT Rates



The Simulated Impact of Uniform Environmental Protection Tax Rate in China

- ✓ Raising the EPT rate could increase limited reduction rates of pollutants with less negative impact on the macro-economy.
- ✓ Emission reduction of air pollutants is more sensitive to higher EPT rates.

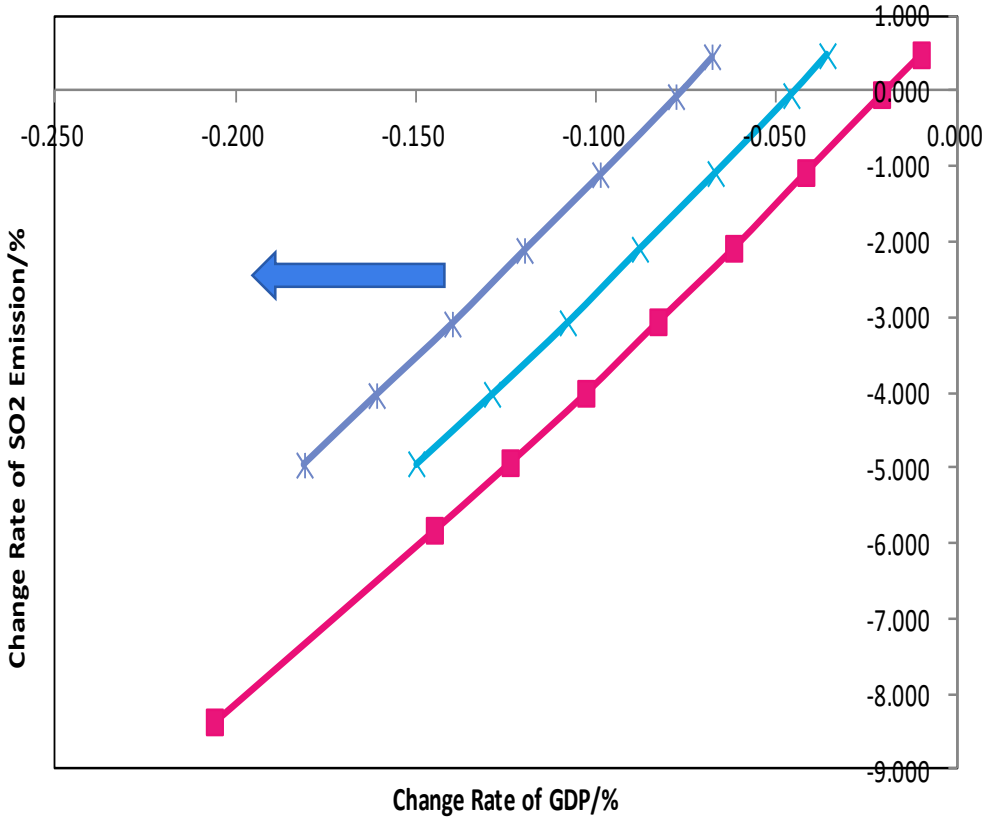
CGE Model Simulation On Differentiated EPT Rates

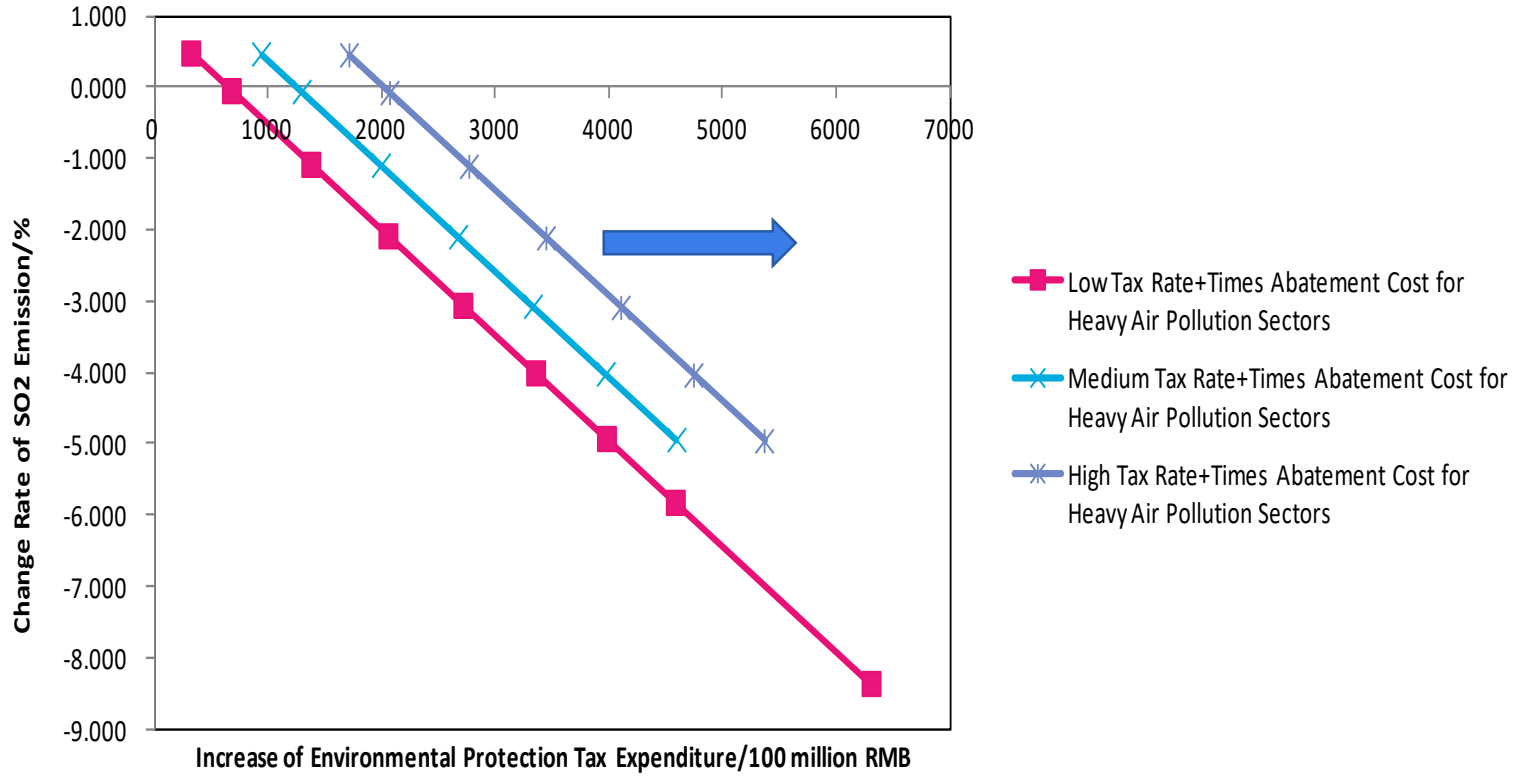


Comparison Between Uniform And Differentiated Environmental Protection Tax Rates On The Impact of GDP and Tax Expenditure in China

- ✓ While the tax rates of other sectors remains unchanged in Scenario (A) , raising the tax rates of heavy air pollution sectors will significantly promote air pollution reduction, and can achieve a higher emission reduction effect at a smaller macro-economic cost than that of uniform EPT rates .
- ✓ The ratio of the emission reduction and GDP decline caused by Scenario (A) & (B) is close.
- ✓ Scenario (B) can reduce the total EPT expenditure and enterprises burden while achieving greater emission reduction. The policy efficiency will be higher.

CGE Model Simulation On Differentiated EPT Rates (C)





Comparison Between Uniform And Differentiated Environmental Protection Tax Rates On The Impact of GDP and Tax Expenditure in China

- ✓ When the tax rate of heavy air pollution sectors remains unchanged, the increase in the tax rate of other industries has little effect on the national air pollution reduction rate.
- ✓ heavy air pollution sectors play a decisive role in the effect of EPTL on air pollution reduction

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Conclusions and recommendations

Conclusion and recommendations

Total revenue from the tax was significantly less than expected.

- Command & Control policies
- Incomplete collection

Tax rate differentiation become complex after the EPTL's implementation.

- Although the absolute variance of tax rate among provinces is increasing, the relative variance is getting smaller.

The low tax rate imposed under the EPTL was insufficient to affect pollution reduction behavior.

- Command & Control leaving little room for the incentive-based pollution tax to improve efficiency.
- EPT plays a small role in cost of enterprises, the tax rate differentiation among areas might not result in "pollution havens".

Better cost-effectiveness could be achieved by differentiated tax for different industries.

Conflicts between tax bureau and environmental protection administrations compromise the EPTL's implementation.

These design faults should be rectified by future legislative amendment.

Thank you!

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