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Market-based instruments in China for energy security and climate change

Perspectives of carbon tax beyond 2012

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Background

- Energy security in question by 2020 (SAMMCEET, 2008)

2020	Estimated production	Estimated consumption
Coal	2.5-2.8 bn t	2.8-3.5 bn t
Oil	210 mn t	600 mn t (im dependency up to 60%)
Natural gas	133-150 bn m3	170 bn m3

- New energy efficiency (EE) targets: must be ambitious

Period	1990-2005	2005-2010	2011-2020
Unit GDP EE	47% (16% each five years)	20% planned	30%-40%??

- Most of the actual EE policies are of command-and-controls (CAC). They are reinforced by the recently published state notice Guo Fa (2009) No.38 (国发[2009]38号) (26/09/09) as policies for production structure amelioration.
- Climate change negotiation:
 - Uncertainty for an implementation of border adjustment by EU
 - Difficulty of determining comparable efforts between CAC and ETS (cf. Article 10(a)§17 of the Package).

Limit of CAC for EE target in mid term

- Unit GDP energy consumption (BSC): total energy consumption/total GDP
- Divide Chinese economy into two major sectors by energy intensity:

$$EC = \frac{E_a + E_b}{Y_a + Y_b}$$

- Limits of CAC for EE:
 - Merely focused on industries (production, thermal elec, etc.) with a finished number of inefficient installations.
 - Increasing energy consumption from transport and building sectors
- **Conclusion:** market-based instruments will play bigger role in the future in China as key element ensuring energy security and reducing GHG emissions.

Market-based instruments in China

- Possible types: Carbon tax, Energy tax, Resource tax, Environmental tax
- Already emphasized by central government: the CPC Central Committee conference in December 2007 on economic issues which demanded “speed(ing) up in implementing fiscal and tax policy, pricing policy and financial policy saving energy and reducing CO2 emission”.
- Actual costs on fossil fuels in China (SAT, CH):

	Coal/coke	oil	Natural gas
VAT	17%	17%	13%
Consumption tax	0	0.1-0.28yuan/l on finished gasoline products	0
Resource tax	0.3-5yuan/t Domestic average price: 800yuan/t	8-30yuan/t Domestic price of finished oil(gasoline, diesel, etc.) varies with world price	2-15yuan/k m3 Domestic average price: 80yuan/k m3
Import tariff	0%	0%	20%
Export tax	10% for coal 40% for coke	0%	0%
Export VAT refund	0%	0%	0%

Carbon tax: new positions emerging in Sept.

- Leaders: SU Ming, MOF; FAN Gang, China 50 Economists Forum; ERI, NDRC.
- Proposal of SU Ming, Research Institute for Fiscal Science, MOF

	2012	2020
Carbon tax (yuan/t CO ₂)	10	40
Coal (yuan/t)	19.4	77.6
Oil (yuan/t)	30.3	121.2
Gasoline (yuan/t)	29.5	118
Diesel (yuan/t)	31.3	125.2
Natural Gas (yuan/km ³)	2.2	8.8

- FAN Gang: Given the year 2004 where the Chinese GHG emission from fossil fuels arose to 1.32 billion t c-eq, if 100 yuan/t c-eq was levied on fossil fuels, the tax revenue could reach 132 billion yuans, that is to say, 6% of the total tax revenue of year 2004 in China (2.42 trillion yuans). Of course, neither the effect on final amount of fossil fuels nor on total tax revenue is considered.
- ERI (Energy Research Institute, NDRC): In all three scenarios, GDP will decrease slightly (0.08% to 0.45%) while GHG emission reduction may attain to 19% in 2020 and 24% in 2030 with regard to the 2005 baseline. Energy efficiency will also be improved 23% by 2030 comparing to 2005. (IPAC model)

	2005	2010	2020	2030
Carbon tax 1	0	100	150	200
Carbon tax 2	0	50	75	100
Carbon tax 3	0	20	30	40

Possible implementations of CT

- **ERI:** From a long term view, the combination of carbon tax and energy tax should be the proper way for implementation. Another possibility is to implement carbon tax without waiting for the possible implementation of energy tax and to start with a very low level (10-20 yuan/t C eq) and gradually increase the tax rate to 300-400 yuan/t C eq. For both measures, the carbon tax agenda should be publicly announced 3 to 4 years before its implementation so that investors may consider using new energies rather than being locked in by technology.
- **SU Ming:** First, include carbon contents on the ongoing resource tax and consumption tax. This manner does not require an establishment of a new tax and thus should have fewer obstacles to implement while it increases the complication of tax design. Second, create directly a new carbon tax beside the resource and consumption tax. This demands more efforts in tax creation. Last, include carbon tax as one item of environment tax. As China tends to create the new environment tax in order to respond to the degrading environment by financial means in the short future, carbon tax, together with sulfur tax, wasted water tax, etc. could be included as items of environment tax.

Obstacles so far

- Institutional discrepancy: dep. of Climate Change, NDRC and dep. of Treaty and Law, MFA; MOF, MOFCOM, SAT and MEP are excluded so far from climate affairs in China.
- Creation of new tax, administrative delays (rf. Case of fossil fuels tax)
- Conflict with energy tax

Energy tax: an implementation lesson for carbon tax

- 1997, Road Law approved by People's Congress first included the clause of changing "road maintenance fee" into "gasoline added fee".
- 1998, ZHU Rongji, proposed to convert fees into tax in order to centralize the revenue collection function by tax of the central government and particularly, he recommended taking gasoline tax as the testing and starting point which requires to abolish the fees collected at that time by Ministry of Transportation and transform them to a function of Ministry of Finance.
- 1998, People's Congress refused twice ZHU's proposal.
- 1999 October, the 12th meeting of the 9th Conference of the Standing Committee of National People's Congress has finally approved article 36 of the revised Road Law which indicates that state could collect road maintenance fund by levying tax and detailed administrative procedures were dedicated to the State Council.
- No real implementation so far...

Fees vs taxes: another challenge

	Tax	Fee
Property	Fix, mandatory	Flexible, compensatory
Imp. Procedure	Legislative	Administrative
Basis	All	Specific
Revenue usage	General budget	Partially specific

Conclusion

- Carbon tax could be an efficient solution for China to obtain EE targets, as well as an instrument fighting against climate change.
- A first agenda should be around 2012-2015
- Specific channels (forms of tax, category of tax, basis of tax, etc.) need further clarification.

Some references

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