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Study on Green Production Oriented Chinese Resource Tax Reform HUANG

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Abstract

Resource and environment are amongst the primarily important requirements for human existence, moreover they are playing a particularly decisive role in success of resource-based enterprises. This essay explores the current situation and characteristics of the Chinese Resource Tax, and then analyses the relationship between Resource Tax and the green production of resource-based enterprises; furthermore this essay offers three pieces of advice on the tax reform from the respective of adding advantages to the green production of those resource-based enterprises: to implement a distinctive tax rate intending a convert in the tendency of resource selection; to adjust the criterion of tax rate setting from the prices to the pollution degrees of particular products; to transit the tax base from quantity sold to quantity exploited.

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1. Introduction to Chinese Resource Tax

Resource Tax, as is implied by the name, is a taxation that is levied on various natural resources. Resource Tax in China started in 1984; ten years later in 1994 the range of taxation was extended and the objects of taxation have since then been confined to salt production and exploitation of crude oil, natural gas, coal, ferrous metal ores and other non-metal ores. The rate of Resource Tax varies from the lowest 0.4 yuan/t to the highest 60yuan/t in light of different qualities and mining conditions of resources; and quantity sold or quantity for private use are calculated as tax base of taxable products.

The current situation and characteristics of Resource Tax in China are discussed below:

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1.1. Fixed tax amount

The tax amount of Resource Tax in China is fixed, which means that the tax payable for Resource Tax shall be computed in accordance with the assessable volume of the taxable products and the prescribed unit tax amount. (Tax payable = assessable volume*unit tax amount) Here assessable volume refers to two respects: if the taxable products are for sale then the assessable volume equals to the quantity sold; if the taxable products are for private use then the assessable volume equals to the quantity consumed. (Provisional Regulations on Resource Tax of the PRC (State Council [1993] No. 139)) In other words, the extracted resources which have not been sold or used or are unsalable are not computed into the taxable volume, that is to say, the micro economic entities do not have to undertake the tax load for the part of resources fore mentioned.

Table 1. Tax Amount of Resource Tax

Tax Item		Unit Tax Amount
Crude oil		8~30 yuan/t
Coal		0.3~5 yuan/t
Natural gas		2~15 yuan/TCM
Other non-metal ores		0.5~20 yuan/t (m^3)
Ferrous metal ores		2~30 yuan/t
Non-ferrous metal ores		0.4~30 yuan/t
Salt	Solid	10~60 yuan/t
	Liquid	2~10 yuan/t

As shown in Table 1, currently the highest unit tax amount is 60 yuan/t for solid salt, and the lowest is 0.3 yuan/t for coal. It is obvious that the unit tax amount is too low and the range is defined only by the inferiority and superiority of natural resources.

1.2. Specified tax items

At the moment Chinese Resource Tax only targets at specified natural resources, including two major types: mineral products and salts. Mineral products refers to crude oil (excluding synthetic crude oil), natural gas (i.e. the gas specially extracted or co-extracted with crude oil, excluding coal gas), coal (i.e. raw coal, excluding the washed, dressed and other processed coal products), ferrous and non-ferrous metal ores and other non-metal ores; salts include solid salt (raw sea-salt and lake-salt, well mineral salt) and liquid salt (commonly known as brine).

1.3. Simple redistribution mechanism

The unit tax amount in Resource Tax is provided within prescribed tax range by the departments concerned in the Ministry of Finance and the State Council, based on the quality and price of taxable products that are extracted or processed. China has a vast expanse of territory, the structure, development potential, exploitation and market conditions varies a lot from region to region. Where there is abundant, quality resource reserve and enjoying favorable extraction conditions would cost enterprises less and return them with high revenue; in contrast, where there is scarce, low quality resource and tough exploitation condition would bring more risks to enterprises, and the cost is usually high while the

profitability is low. Considering all these, the revenue of an enterprise cannot objectively illustrate the achievements of its operation.

2. Resource Tax and Green Production

2.1. Resource-based enterprises: shift to green production

The first step of green production is to adopt green resource and renewable resource to work in with clean energy. Resource-based enterprises lay particular emphasis on resource extraction, so in order to produce greenly the primary and the most crucial point is to select appropriate resource. In the phase of research and development, resource-based enterprises in the first place should complete a shift in the selection of preferred resource from those single-use non-renewable ones like coal, oil, metal ores and non-metal ores to those renewable resources like soil, plant, animal and microorganism etc., at the same time, new energies like solar energy, wind energy, marine energy and bioenergy which are nuisance free and conservative should be applied.

The second factor of green production is the design of green product. The products should bear a rational space for reprocessing in a way that could save power, water and other energies and demands no further consumption of resources; the products should as well bring supplementary green function so as to make up the damage to the environment when accessing the resources earlier.

In addition, storage and delivery of techniques, equipment and raw materials and organization of productive activities needed to be reinforced on the managerial level, and draining in supply and leakage accidents must be avoided, and those pollutants that have been discharged must be treated comprehensively.

2.2. Resource tax provides regulation and guidance for green production

2.2.1 Current resource usage situation

Table 2. Overall Energy Balance Sheet

Unit: 10 000 tons of SCE

Item	1990	1995	2000	2005	2007
Total Energy Available for Consumption	**96138**	**129535**	**136535**	**223213**	**261111**
Primary Energy Output	103922	129034	128978	205876	235445
Recovery of Energy		2312	1760	2840	3057
Imports	1310	5456	14334	26952	34904
Exports (-)	5875	6776	9633	11447	10298
Stock Changes in the Year	-3219	-491	1097	-1008	-1997
Total Energy Consumption	**98703**	**131176**	**138553**	**224682**	**265583**
Balance	**-2565**	**-1641**	**-2017**	**-1469**	**-4472**

Note: 1. Data source: Statistical Yearbook of China 2009

2. Electric power and heat are computed as equivalent heat value, so the conversion process does not include power generation and heating loss; rural industry is included in overall industry. (the same with Table 3)

As what Table 2 illustrates above, in last decade the consumption of energy resource in China has witnessed continuing balance of payments deficit, and the energy consumed has far exceeded the amount available for consumption, and the economy has been running beyond the regeneration capacity of energy resource. If things go like this, energy resources in Chinese land would inevitably exhaust. Consequently,

to zoom out this deficit should be held as the threshold of controlling and administration, only then will energy be maximally reserved and eco-environment be protected.

2.2.2Resource tax tunes green production

Firstly simple linear regression is carried out on the relevance of the total production of energy resources to the change in the Resource Tax, based on the data within last decade.

Resource Tax revenue = var1

Total production of energy resources = var2

$Var1 = \beta1 + var2\beta2 + \varepsilon$

Source	SS	df	MS			
Model	64684.0409	1	64684.0409			
Residual	6801.81285	8	850.226606			
Total	71485.8538	9	7942.87264			

Number of obs = 10
F(1, 8) = 76.08
Prob > F = 0.0000
R-squared = 0.9049
Adj R-squared = 0.8930
Root MSE = 29.159

var1	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
var2	.0017644	.0002023	8.72	0.000	.0012979	.0022308
_cons	-182.9193	37.75064	-4.85	0.001	-269.9724	-95.86615

Here statistics show that at the confidence interval of 95%, var1 =- 182.9193 +0.0017644 var2. So it is reasonable to say that the total production of energy resources is positively related to the change in the Resource Tax revenue, as shown in the following chart:
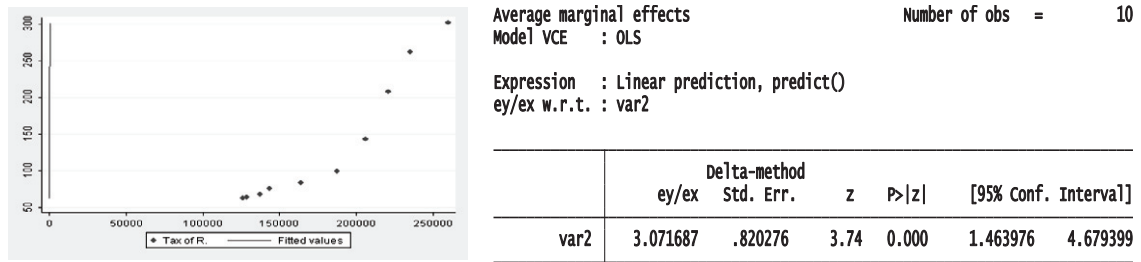

Average marginal effects   Number of obs =   10
Model VCE   : OLS

Expression   : Linear prediction, predict()
ey/ex w.r.t. : var2

	Delta-method					
	ey/ex	Std. Err.	z	P>|z|	[95% Conf. Interval]	
var2	3.071687	.820276	3.74	0.000	1.463976	4.679399

Fig. 1. (a) the relationship curve between resource tax and resoure; (b) the elasticity of total energy production.

So the elasticity of total energy production change to the Resource Tax revenue is 3.071687, far greater than 1. Conclusion can be drawn here as the total production and energy resource is extremely elastic, and Resource Tax should be employed as an effective approach to keep the consumption of resource in control.

3. Advices on Resource Taxation Reform

3.1. Differential tax rate to alter resource selection

Resources tax should purposely adjust the resource selecting activities of enterprises, and tax rate is suggested to be set differentially with the concept of environment in mind: 1) set high tax rate for non-renewable and scarce resources, and on the resources that will have great impact on the environment during exploitation; whereby the respectively high tax burden would increase the cost for enterprises to extract this item, so possibly they would abstain from the selection considering margin between cost and revenue. 2) take encouraging taxation policies in clean energy, and even use "negative tax" to subsidize the enterprises so as to popularize the utilization of clean energy.

3.2. Range of tax rate based on degrees of pollution

The rate of Resource Tax in current operation is based on the price of natural resources, which totally fails to protect resources and maintain eco-balance in environment. Price to some extent reflects the scarcity of resources, and taxation based on scarcity is beyond reproach. But prices cannot reflect the overall scarcity of resources, and further prices are able to indicate how difficult it is for certain resource to regenerate or what pollution and damage might be done to the environment while extracting and processing some resources. The authors of this essay recommend a comprehensive assessment on resource scarcity, possible pollution and resource renewability as well before setting the range of Resource Tax rate.

3.3. Extraction volume to be taxed

To have resource-based enterprises take on responsibility for the resources unsold, the tax amount of Resource Tax should be shifted to extraction volume, preventing enterprises from blind exploitation and reducing resource waste and destruction. At the same time, raise the differentiated rates at all levels to assure that taxation caused by pollution is no less than the cost for enterprises to adopt new technologies to reduce pollution, which drives enterprises to shoulder their social responsibility, apply clean green techniques in production and design their products environment friendly.

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