



17th International Input-Output Conference

TITLE: STUDY ON INDICATORS OF ENERGY EFFICIENCY IN PRODUCTION

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ABSTRACT:

Indicator of energy use per unit of GDP is widely used in China, for example: using the indicator to compare energy efficiency in different countries and in different regions, to compare energy efficiency of China in different period. Particularly it is used as important indicator to evaluate work on energy use of central government and local governments. For example, in "Eleventh Five years Program" of China it is written that the indicator of energy use per unit of GDP in 2010 must be decreased by 20% with that in 2005. We think indicator of energy use per unit of GDP is not an ideal indicator of energy efficiency, particularly, it cannot perfectly show the Change of energy use intensity of production, as it has been commonly used. In China the indicator is often used to compare energy efficiency of production. There are following issues: First, numerator of the indicator is energy consumption, which includes not only production energy consumption, but also household energy consumption. Then the indicator is affected by the proportion of production energy consumption to household energy consumption Second, denominator of the indicator is GDP, which is in value unit. Then the indicator is affected by three issues: a. Price change; b. Change of exchange rate, when it is used to compare energy efficiency between two countries. For example, in 2003 the average exchange rate of USD to the Renminbi is 100: 828.6. On January 21, 2009 it is about 100: 684. Then, if we use the indicator to compare the difference of energy intensity between China and USA. It often will give a wrong result. c. Structure change. In the paper we discussed a new indicator of energy consumption of production---index of overall energy consumption of production. In order to calculate the index, first, we have to select a basket of products in physical units and services which are very important from view of energy consumption, for example, energy consumption of crude steel, thermal electricity, coal mining, synthetic ammonia, cement, kilometer of railway freight traffic, kilometer of high way passenger traffic and etc. Second, in order to calculate it, we have to determine the weights of these products and services. It means we have to determine the amounts of these physical products and service Third, we will organize surveys to get information of energy consumption of these products and service in two years, or two regions.. Final, on the basis of these data of energy consumption in two



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years, we will calculate index of energy consumption of production between two years. We made a suggestion to the Chinese Political Consultative Conference in March of 2008, the Chinese Academy of Sciences also proposed a document to the State Council of China. The proposal was accepted by the government and National Bureau of Statistics is planning to use the index in 3 years.