

Economic analysis of the impact on food safety caused by the climate change based on Chinese agriculture-multi-regional CGE model--the case study of paddy production

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Abstract: Adopted the conclusion of other research, which was the impact analysis of paddy yield under the climate change in the future 50 years, by construction of Chinese agriculture- multi-regional CGE model, this paper study on the impact of climate change to china food safety, the result show that: in the suppose of the yield of rice decrease 5%, 10%, 15%, respectively, under the climate change: (1)The impact on macroeconomic coming from paddy yield reduction caused by climate change is not serious but cannot be neglected, although the result show that the most impact is in the range of one or two decimal. (2) Paddy yield reduction, the characteristics of impact on grain production sector is that: firstly, the impact is serious on the major rice producing areas. Secondly, the impacts on the main producing areas of wheat and corn are greater than that of the other areas and these impacts are serious. (3) The characteristics of impact on livestock sector is that firstly, the impact result on the major rice producing areas is also extended to the livestock sector. Secondly, the impact on the main producing areas of wheat-corn is also expanded to the livestock sector, which feeds depend on wheat-corn production, and these impact is also serious. (4) The characteristics of impact on agricultural products processing industry is as same as the grain production sector and livestock production. Firstly, the impact result on the major paddy producing areas is also extended to the livestock sector and then effected the agricultural product processing industry which the raw material depend on paddy production. Secondly, the impact on the main producing areas of wheat-corn is also expanded to the livestock sector, which feeds depend on wheat-corn production. and then effected the agricultural product processing industry, which the raw material depend on wheat-corn production and these impact is also serious. (5) The impact on the industrial and service sectors caused by paddy yield reduction is relative small. The major impact is mainly on the food-related manufacturing industry and on transportation and warehousing which related with the transport of food and catering industry. In summary, the negative impact of paddy yield reduction caused by climate change on macroeconomic and sector can not be ignored. For the loss of the major rice producing areas and grain producing areas can be compensated by subsidy. In the same time, innovation of agricultural production techniques and farming managing such as rice breeding, seed

coating, seed germination, sprout cultivation and suitable scale production is very important.

Keywords: climate change, food safety, Chinese agriculture- multi-regional CGE model.