

## ACADEMIC SEMINAR

# A Bilevel Programming Model for Tax-based SO<sub>2</sub> Emission Control

We set up a bilevel programming model for control of SO<sub>2</sub> emissions by the tax mechanism. We discuss the existence of the model solution, prove the effectiveness of emission tax mechanism, and use the data from 2001-2010 of China to test the model and mechanism empirically. Our results show that emission tax mechanism could regulate the system towards the centralized optimization goals. We show that when emission tax rate increases, the SO<sub>2</sub> emission rates in mining and power generation, and gas and water production and supply will decline while that of manufacturing will increase; at the same time, the pollution treatment cost in manufacturing will decrease while those of mining and power generation, and gas and water production and supply will rise compared with their current value. Because of bearing the pollution costs and also paying higher emission tax, it will impact not only the development of enterprises themselves but also the pricing system of national economy. Therefore, a reasonable redistribution of the tax revenue should be made together with emission tax mechanism.

## Prof Xu Qing

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Prof Xu is a professor in Business College, Qingdao University. Prof. Xu got B.S. in Mathematics in Fudan University, M.S. & Ph.D. in Operations research in Jilin University. Prof. Xu served as an associate professor in School of Management, Fudan University after working there for two years as a Postdoctoral Fellow. His main research interests include supply chain management and bi-level decision and equilibrium problem. He published more than 30 papers in core journals, and has been supported by the National Natural Science Fund projects.

**Date: 3 May 2012 (Thursday)**

**Time: 14:00 – 15:30**

**Venue: SEK210, 2/F, Simon & Eleanor Bldg.**

**Language: Putonghua**

**\*\*\* All are Welcome \*\*\***