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**Pursuing a research project entitled:**  
***“China’s Carbon Market: Mechanism Design and Policy”***

**At Columbia Consortium for Risk Management under Professor Graciela Chichilnisky**  
**September 2013 – September 2014**

**Dr. Honbo Cai’s research proposal follows.**

**A redacted version of Dr. Honbo Cai’s academic resume follows.**

# China's Carbon Market: Mechanism Design and Policy

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## *A Research Proposal*

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Climate change challenges human survival and development, and human activities that emit greenhouse gases such as carbon dioxide are generally considered as the main reason for climate change. Kyoto Protocol created the market mechanism to reduce CO<sub>2</sub> emission by emissions trading. At present, there are carbon markets in Europe and America respectively. As the world's largest CO<sub>2</sub> emitter, China has yet to establish a carbon market.

It was announced (COP15, 2009) in 2020 China's CO<sub>2</sub> emissions per unit of GDP drop by 40-45% than that in 2005, which would be formally taken into long-term plan of national economic and social development. China's "Twelfth Five-Year Plan" puts forward, China should maintain the economic growth and reduce CO<sub>2</sub> emissions at the same time. This requires China to establish market mechanism to reduce CO<sub>2</sub> emission according to the characteristic of itself. In January 2013, CO<sub>2</sub> emissions trading pilots start in Beijing, Tianjin, Shanghai, Chongqing, Hubei, Guangdong and Shenzhen, from then on China would officially start the construction of carbon market.

How to create and develop China's carbon market?

Graciela Chichilnisky is world-renowned scholar and the author of the market mechanism of Kyoto Protocol, has authored 14 books and over 250 articles published in leading academic journals. Most recent book Saving Kyoto inspired me greatly. I hope very much to answer that question under the guidance of Prof. Graciela.

- 1 theory research on the mechanism of carbon emissions trading
- 2 a survey on carbon market in EU and America
- 3 the development of VER and CDM in China
- 4 basic conditions to establish China's carbon market
- 5 different modes of China's carbon market: the voluntary or compulsory?
- 7 the impact of carbon market on China's economy and environment
- 8 structure and content of China's carbon market

## Hongbo Cai

January 2012

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### Personal Information

Family Name: Cai

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### Research Interest

International Economics: off-shoring, service trade, free trade agreement  
Carbon Emissions Trading  
China Economy

### Education

2009 Ph.D., Economics, Xiamen University, Xiamen, China

2008-2009, visiting Ph.D. student, Australian National University, Canberra, Australia

2006 M.A., Economics, Xiamen University, Xiamen, China

2004 B.A., Economics, and minor Mathematics, Fuzhou University, Fuzhou, China

### Professional Experience

2009 Asst. Prof., Economics, Beijing Normal University

### Awards/Scholarships

2011 Best Ph.D. dissertation prize in Fujian province, China

2011 Young Scientist Award, international conference "Economy and Management in the Pre-crisis Period" Plekhanov Russian University of Economics  
2010 XMU Best Ph.D. dissertation prize  
2008 An Zijie prize  
2008 XMU YaNan Scholarship, (one of XMU three most important awards)  
2008 XMU Academic Research Award for Graduate, (No.1 in XMU)  
2006 SERIChina Research Paper Prize (Top 20)

### **Teaching Experience**

International Economics, graduate, BNU  
International Trade Theory, undergraduate, BNU

### **Publications**

#### **Journal Articles:**

Cai, Hongbo, Jiang, Quan and Wang, Junhai, International Commodity Price and China Economic Fluctuation: Empirical Analysis based on Different Crude Oil Price Shocks, *International Business*, 2012, 1. (in Chinese)

Cai, Hongbo and Jiang, Quan, Test on Effectiveness of Trade Protection Policy: System Simulation Based on Artificial Neural Network, *International Economics and Trade Research*, 2012, 1. (in Chinese)

Cai, Hongbo and Wang, Junhai, The Effectiveness of Tax Policy in Smoothing China Economic Fluctuation, *Economic Theory and Business Management*, 2011, 11. (in Chinese)

Cai, Hongbo and Chen, Rujia, The Measure of Chinese Manufacturing Industries Off-shoring Based on I/O Table, *Review of Trade in Service*, Oct. 2011. (in Chinese)

Cai, Hongbo and Yang, Han, Review the Openness of Trade in Service under the Framework of CEPA, *Journal of Central University of Finance and Economics*, 2011, 9. (in Chinese)

Cai, Hongbo, Zhao, Chunming and Chen, Hao, Economic Analysis on "Buy American", *Journal of World Economy*, 2011, 7. (in Chinese)

Cai, Hongbo and Zhang, Xiangjun, Off-shoring and Labor Productivity: Evidence from China, *Frontiers of Economics in China*, 2011, Vol. 6(2). (in English)

Cai, Hongbo and Han, Lili, A New Phase for Sino-EU Economic Relationship, *China's Foreign Trade*, Feb. 2011, No. 495. (in English)

Zhou, Yan and Cai, Hongbo, Determinants on Total Factor Productivity of Chinese 34 Industries: 1996-2007, *Journal of Beijing Normal University*, 2011, 1. (in Chinese)

Cai, Hongbo and Meng, Yinghua, Agricultural Negotiation in Doha Round: Dead End or a Bright Future? *International Economics and Trade Research*, 2010, 12. (in Chinese)

Zhao, Chunming and Cai, Hongbo, Study on Applicability of Comparative Advantage Model in Service Trade, *Economic Survey*, 2010, 6. (in Chinese)

Cai, Hongbo and Qu, Ruxiao, Carbon Motivated Regional Trade Agreement:

Trade Policy Response to Carbon Emission Reduction, *Intertrade*, 2010, 11. (in Chinese)

Cai, Hongbo, Economic Foundation of Regional Currency Cooperation: Comparison of East-Asia and Europe, *World Economy Study*, 2010, 7. (in Chinese)

Cai, Hongbo, Song, Xiaoning and Xiong, Aizong, Economic Foundation of Currency Cooperation in East-Asia: Analysis of Economic Integration Level Based on OCA Index, *Journal of Central University of Finance and Economics*, 2010, 7. (in Chinese)

Zhou, Yan and Cai, Hongbo, International Trade, R&D Investment and Productivity Changes in China, *Journal of Nanjing University*, 2010, 3. (in Chinese)

Cai, H. and Gu, J., Financial Deepening and Regional Economic Growth, *Chinese Business Review*, 2010, Vol.9(3), No.81. (in English)

Cai, Hongbo and Huang, Jianzhong, The Efficiency of China's Free Trade Area Strategy: Analysis of Competitive and Complementary Products, *Journal of Business Economics*, 2010, 3. (in Chinese)

Cai, Hongbo and Qu, Ruxiao, Environmental Effects of U.S. Service Exports: Country-Statistics Based on Pollution Emissions from Different Industries, *World Economy Study*, 2010, 3. (in Chinese)

Wang, Bin and Cai, Hongbo, Digital Content Industry: Concept, Boundary and its International Comparison, *Finance and Trade Economics*, 2010, 2. (in Chinese)

Cai, Hongbo, Chen, Y. and Qiu, X., Change the Pattern of Foreign Trade Growth, Balance China's International Payments, *China's Foreign Trade*, 2010, No.2/471. (in English)

Cai, Hongbo, Trade Flow Effects of China's Free Trade Areas: Analysis Based on Gravity Model with Panel Data, *Journal of International Trade*, 2010, 1. (in Chinese)

Chen, Y., Cai, H. and Xu, Y., Revival Plans, Ten Key Sectors Benefit? *China's Foreign Trade*, Dec.2009, No.24/469. (in English)

Meng, Y. and Cai, H., Economic Laissez-Faire and Regulation Policy in Liberalization of Trade in Service, *Naikai Economic Studies*, 2009, 6. (in Chinese)

Cai, H. and Meng, Y., Non-trade Causes in Cross-Strait Trade: One Multi-analysis, *Asia-Pacific Economic Review*, 2008, 6. (in Chinese)

Cai, Hongbo and Huang, Jianzhong, New Progress of Research on Free Trade Agreement, *Journal of International Trade*, 2008, 7. (in Chinese)

Yan, Huaguo, Cai, Hongbo and Lin, Shu, The Economic Basis of East Asian Currency Cooperation, *Journal of International Trade*, 2008, 3. (in Chinese)

Wang, Bin and Cai, Hongbo, Telecom Market Access Control in China: Model Analysis Based on Random Test, *Journal of Finance and Economics*, 2007, 12. (in Chinese)

Cai, Hongbo, Textile and Apparel Trade Between China and U.S.: from MFA to ATC, *Journal of International Trade*, 2007, 9. (in Chinese)

Cai, Hongbo, The Research of Intra-industry Trade on Service Industry: Compare between China and ASEAN. *Finance and Trade Economics*, 2007, 7. (in Chinese)

Wang, Bin and Cai, Hongbo, Evolvement of Telecom Market: Analysis Based on Random Test, *Naikai Economic Studies*, 2007, 2. (in Chinese)

Cai, Hongbo, Decisive Factor and Answering Policy of Governmental Strategic Subsidy Policy Restrained by WTO, *World Economy Study*, 2007, 5. (in Chinese)

Cai, Hongbo, Introduce Taiwan Traders' Investment into Fujian Province and Development of the Relation between Fujian Province and Taiwan in Economy and Trade, *Forward Position in Economics*, 2006, 8. (in Chinese)

Cai, Hongbo and Yan, Huaguo, The Empirical Research of Factors influencing Macroeconomic Volatility of China. *Research on Development*, 2006, 5. (in Chinese)

Huang, Jianzhong and Cai, Hongbo, The Economic Analysis of the Special Policy Given to Fujian by the Central Government and its Effects on the Economy and Trade Relation between Fujian and Taiwan. *Asia-Pacific Economic Review*, 2005, 3. (in Chinese)

Cai, Hongbo and Wang, Rongwei, Analysis of Service in Trade Open under CEPA, *Market Forum*, 2005, 6. (in Chinese)

Cai, Hongbo, Issue and Policy to Introduce Taiwan Traders' Investment into Fujian Province in New Period. *Practice in Foreign Economic Relations and Trade*, 2006, 10. (in Chinese)

### **Books:**

Cai, Hongo, (ed.) *International Trade in Services*, Textbook, Beijing University Press, 2012. (in Chinese)

Cai, Hongbo, *Bilateral Free Trade Agreements: Theoretical Reconstruction and Empirical Research*, Beijing, China Economic Publishing House, 2011. (in Chinese)

### **Reviews and others:**

Cai, Hongbo, It is time to Strengthen Absolute Advantage of Education Export for China, *China Trade News*, 14-6-2011. (in Chinese)

Cai, Hongbo and Song, Xiaoning, Why do We Feel the Tax Pain? *Tea House for Economists*, 2010, 49(5). (in Chinese)

Song, Xiaoning and Cai, Hongbo, How Much Tax does China Pay to the world? *Tea House for Economists*, 2010, 47(3). (in Chinese)

Cai, Hongbo, Zhang, Rufang and Shi, Xiaoping, Trade Liberalization and the New Imported Inputs, *Journal of Translation from Foreign Literatures of Economics*, 2010, 2. (in Chinese)

Meng, Y. and Cai, H., Regulation Policy of Service Industry and International Trade in Service, *Proceedings of the 2009 International Conference on Management and Service Science (MASS)*, EI Index, 2009.

Cai, Hongbo and Fan, Jiangbin, Liberalization of Trade in Financial Services in Southeast Asia under the ASEAN Framework Agreement on Service (AFAS), *Journal of Translation from Foreign Literatures of Economics*, 2005.3. (in Chinese)

### **Working Papers**

Cai, Hongbo, Chen, Hao and Liu, Xinhe, Off-shoring and Employment

Structure: Empirical Study Based on China, BUN-SEBA Working Paper, 2011, No.31. (in English)

Cai, Hongbo, Must the Fittest do Survive in the Free Economy? Analysis of Critical Mass and Butterfly-effect in New Product Network, BUN-SEBA Working Paper, 2011, No.15. (in Chinese)

Cai, Hongbo and Jiang, Quan, Research on Efficiency of Interconnection Policy in Telecom Market, BUN-SEBA Working Paper, 2010, No.10. (in Chinese)

### **Grants**

2011 Youth Project of China National Social Science Fund, No.11CJY037, \$150000 RMB.

2011 Key Project of National Statistical Science Fund from China National Bureau of Statistics, No.2011LZ001, \$20000 RMB.

2010 Fundamental Research Funds for the Central Universities, Beijing Normal University, No.105561GK, \$50000 RMB.

2009 Humanities and Social Science Fund from Beijing Normal University, \$12000 RMB.

2008 XMU Ph.D. Dissertation Nurture Project, \$20,000 RMB.

2008 China Scholarship Council (CSC), A\$1300/Month for candidates of doctoral degree visiting and studying abroad.

### **Refereeing**

The Journal of World Economy (in Chinese)

### **Visiting Position**

2008-2009 Visiting Ph.D. student, School of Economics, College of Business and Economics, Australian National University, Canberra, Australia

### **Conference presentations (last 5)**

12/2011 The Second International conference "Economy and Management in the Pre-crisis Period", Plekhanov Russian University of Economics, Moscow

10/2011 Chinese Society of International Trade Workshop, Xunan University, Changsha

10/2011 Chinese Association of Research on American Economy Workshop, Hebei University, Baoding

9/2011 The eleventh Forum for China Youth Economists, Beijing University, Beijing

12/2010 International Symposium on Re-thinking China's Economic Transition and Development in the Post-Crisis Era, Beijing Normal University, Beijing

### **BNU Supervision**

YAN Pei, Master program, Graduation 2014 Exp.

CAI Shunzhi (Thailand), Master program, Graduation 2014 Exp.

### **Significant BNU Administration**

Director of Master's Program in "World Economy and China", Beijing Normal University