



Regional Macroeconomic Effects of the Olympic Games in China

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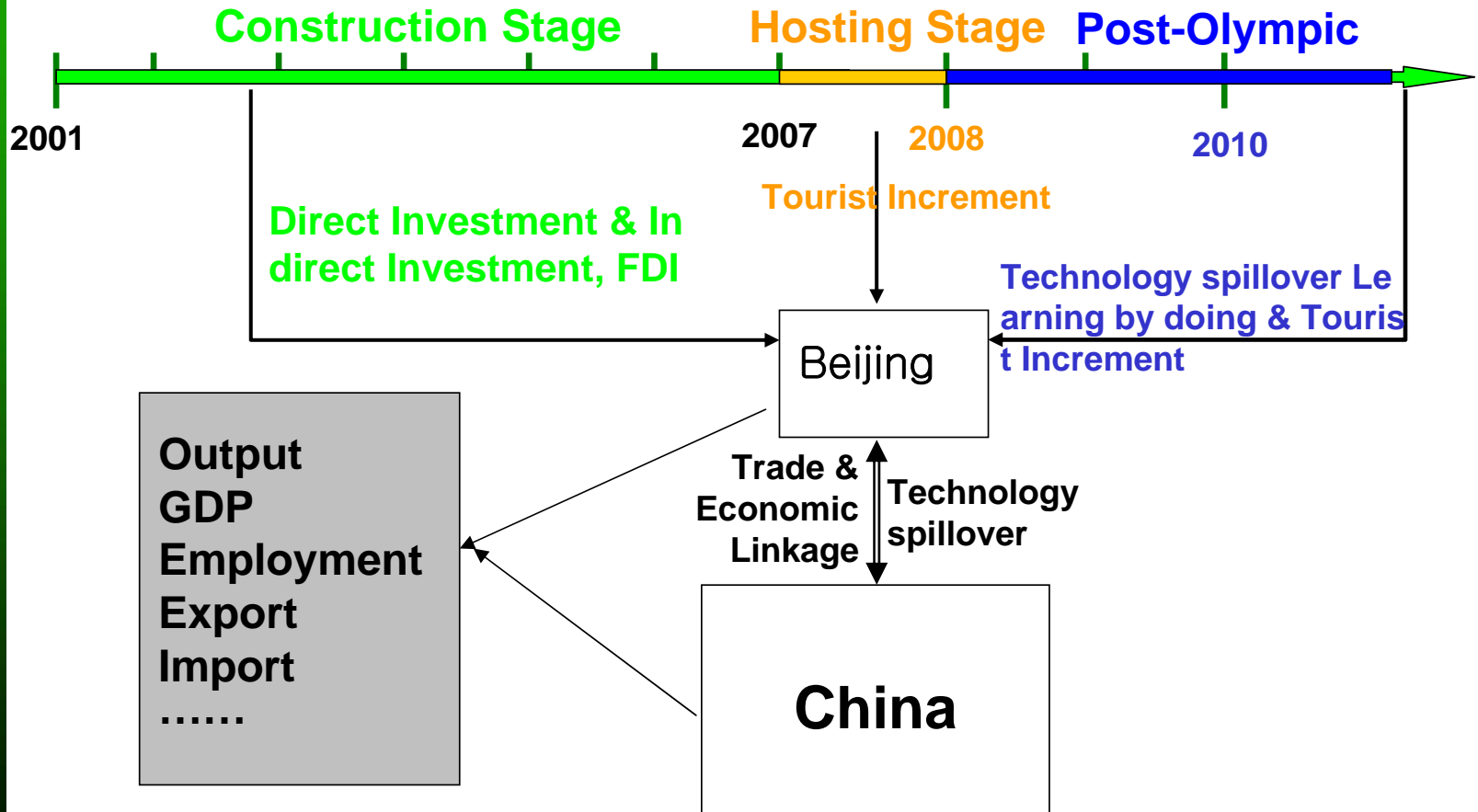
Motivation

- **To quantify the 2008 Beijing Olympic games' economic impact on the Beijing as well as Rest of China as a whole**
- **Analyze some of the intangible benefits that the China citizen that derive from the hosting the Olympic games**



Olympic Game Tangible Factors

Influence Chart



Still other intangible

- Environmental protection and health benefits
- The Olympic legacy benefit



Methodology—Two Region CGE model

- Originality:** Modified from the prototype model (Dominique, 2002) and two-region model developed by Development Research Center (Zhai and Li, 2002)
- **Two Regional Model:** Beijing and Rest of China
 - **Model Dimension:** 40 Sectors, 5 factors (1 capital, 1 land and 3 labors), 2 households;
 - **Main function:** Nested CES function for production, commodity aggregation; Nested CET function for commodity allocation, labor and capital sectoral allocation;
 - **Two Level Government:** Central and Local government,
 - **Macro closure:** Modified Neoclassical closure because the public-private investment will affect the simulation result greatly.



Scenario Assumption

Scenario Design

(No Olympic) Business As Usual (BAU)

- Regional GDP growth rate exogenous determined, and equal to last 5 year average level;
- TFP endogenous to fit the pre-specified GDP growth rate;
- Without Olympic related shock;
- Standard Neoclassic Macro closure, $I = S$;

(Olympic Game): Comparative Scenario

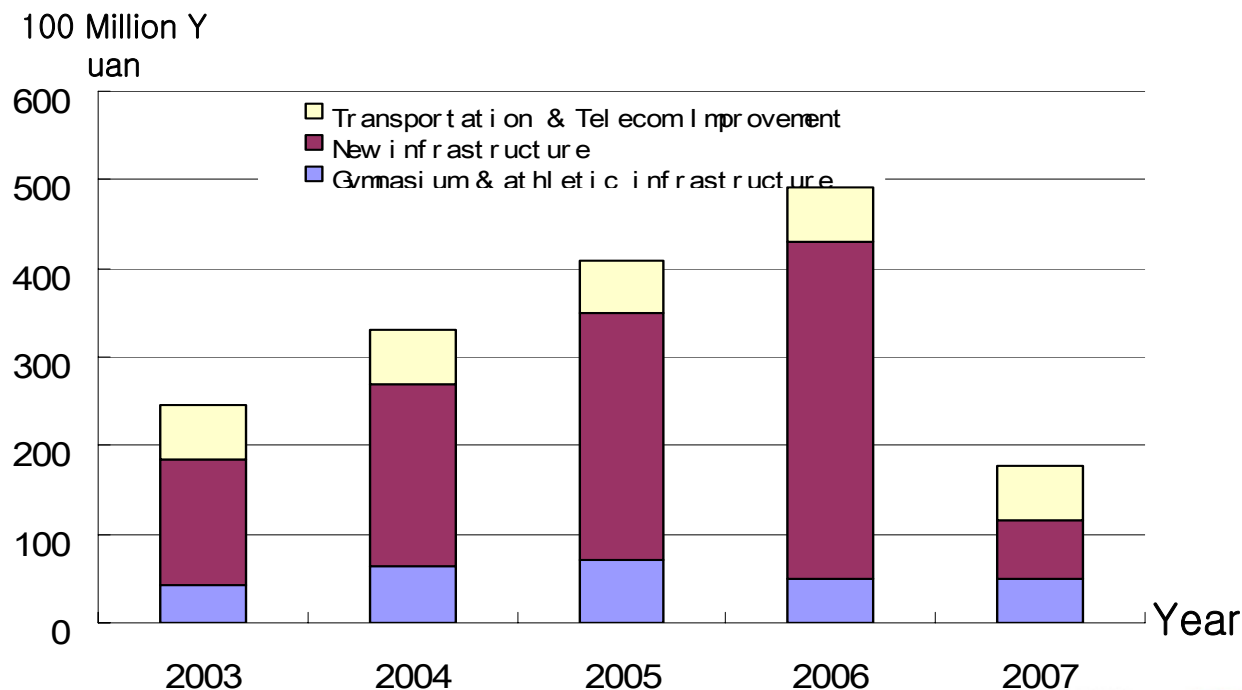
- Regional GDP growth rate endogenous determined;
- TFP exogenous fixed, equal to the BAU calibrated value;
- Olympic related influential factors as shock variables;
- Modified Neoclassic macro closure;



Shock Variable Estimate- I

Investment

	2003	2004	2005	2006	2007	Total
<u>Direct Investment</u>						
Gymnasium & athletic infrastructure	43.5	64.5	72	50	50	280
New infrastructure	141.7	205.5	276.8	380.7	66.9	1069
<u>Indirect Investment Increment</u>						
Transportation Improvement	60	60	60	60	60	300
Annual Total	245.2	330	408.8	490.7	173.9	1649



Shock Variable Estimation — II

Tour & Foreign Demand

	Tourist Increment	Tour Income Increment
1984 Los Angeles	230,000	
1988 Seoul	220,000	\$1.40 Billion
1992 Barcelona	300,000	\$3.00 Billion
1996 Atlanta	290,000	\$3.50 Billion
2000 Sydney	500,000	\$4.30 Billion
2008 Beijing	600,000 (Esti.)	\$5.00 Billion
<u>2009 (Esti.)</u>		
Beijing	60,000	\$0.50 Billion
ROPRC	200,000	\$1.50 Billion
<u>2010 (Esti.)</u>		
Beijing	40,000	\$0.48 Billion
ROPRC	150,000	\$1.20 Billion



Simulation Result — I

Macro Effect

	<u>Beijing</u>			<u>ROPRC</u>		
	2003~2007	2008	2009~2010	2003~2007	2008	2009~2010
Growth Rate%						
GDP	2.4	4.1	0.6	0.5	0.7	0.6
Investment	5.6	0.2	-0.2	-0.8	0.2	0.1
Household Income	2.3	3.8	0.4	0.3	0.4	0.3
Household Consumption	2.7	3.7	0.3	0.4	0.2	0.3
ROMC Outflow	3.2	3.4	0.6	-0.2	-0.3	-0.2
ROMC Inflow	2.2	3.9	-0.1	0.5	0.7	0.6
Import	2.5	8.7	0.5	0.3	0.4	0.3
Export	1.7	37.6	1.3	-0.4	-0.1	-0.2

Beijing: Compare with the BAU scenario, the growth rate of Beijing in 2003~2007 will increase by about 2.4 percent, that is almost 31 billions Yuan per year. In 2008, the growth rate in Beijing will increase by 4.1%, and the GDP increment will amount to about 50 billion Yuan.

ROPRC: Result shows that the benefit in ROPRC is smaller than that in Beijing. From 2003~2007, the GDP growth rate will only increase by 0.5% percent annually. In the hosting year, 2008, the growth rate expected to increase by 0.7%. Compare to the BAU scenario, most of the macroeconomic index are increase below 0.7%.



Simulation Result– II

Regional Industries

	<u>Beijing</u>			<u>ROC</u>		
	2002	2005	2010	2002	2005	2010
GDP Share%						
Agriculture	3.1	-0.7	-0.3	15.7	-0.02	-0.02
Industry	34.7	0.4	-0.1	51.6	0.03	0.01
Service	62.2	0.3	0.4	32.6	-0.01	0.02
Total Employment(10 ⁴ Person	798.9	863.2	924.6	72941.1	76451.1	83329.9
Employment Share%						
Agriculture	8.5	-1	-1.7	50.5	-0.02	-0.04
Industry	30.8	1.8	-2.3	21.3	0.03	0.01
Service	60.7	-0.8	4.1	28.2	-0.01	0.03

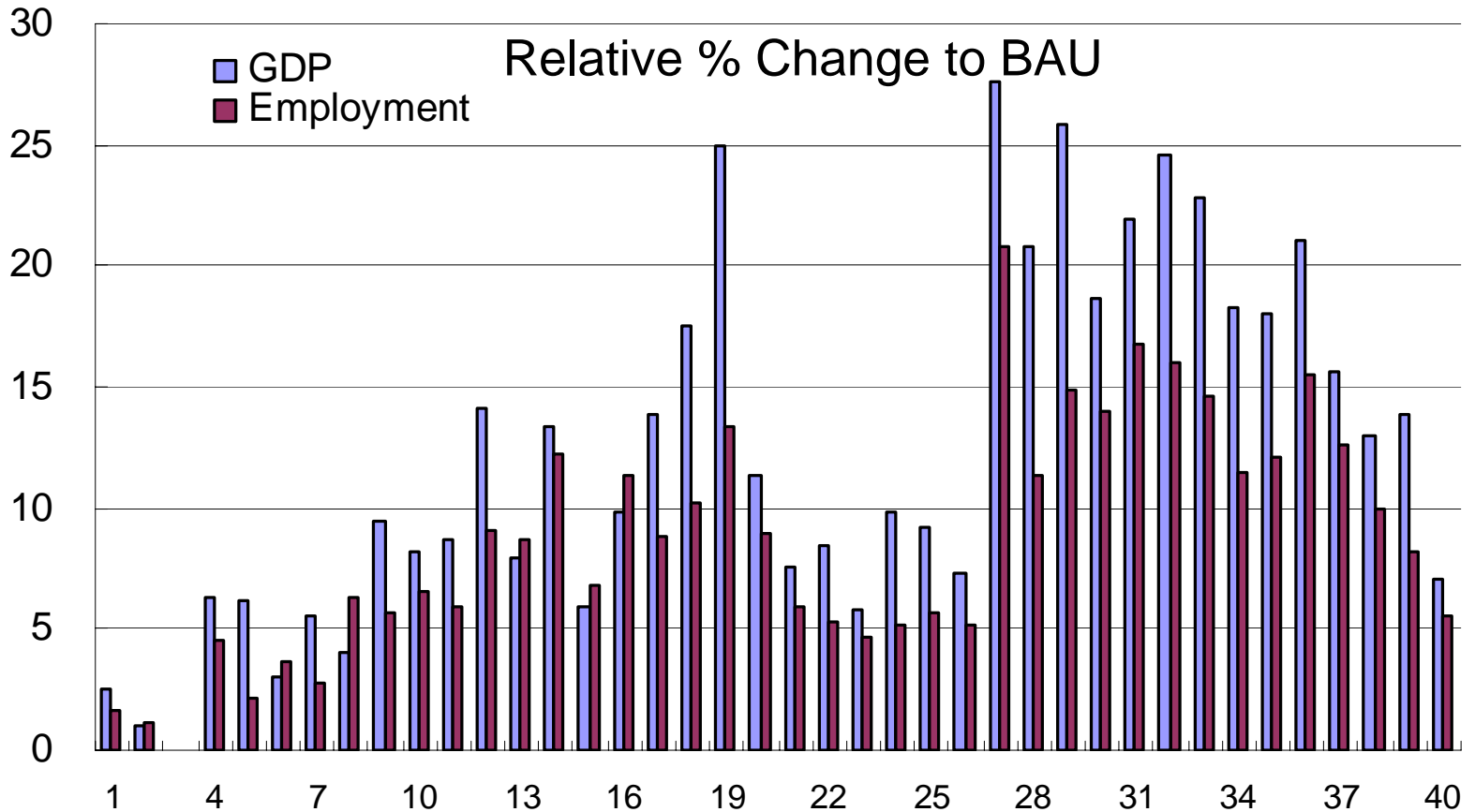
Beijing: Industries and service would become the most profitable sectors, the composition of agriculture, industry and service would be 2.4: 34.9:62.5 in 2007, and 2.1: 33.4:64.5 in 2008. As for employment, the sectoral employment would also change with the same direction of GDP. From 2003~2007, Beijing will increase about 230 thousand job chance per year, among which 140 thousand employment in industrial sectors and 90 thousand employment in service sectors. And in 2008, the total employment increment will be 310 thousand, 263 thousands are in service sector.





Simulation Result--III

Beijing Sector Impact



GDP: Construction, Passenger transportation, Restaurant Hotel, Telecom and equipment manufacture, broadcasting, social service ,etc, would be the most beneficial sectors.

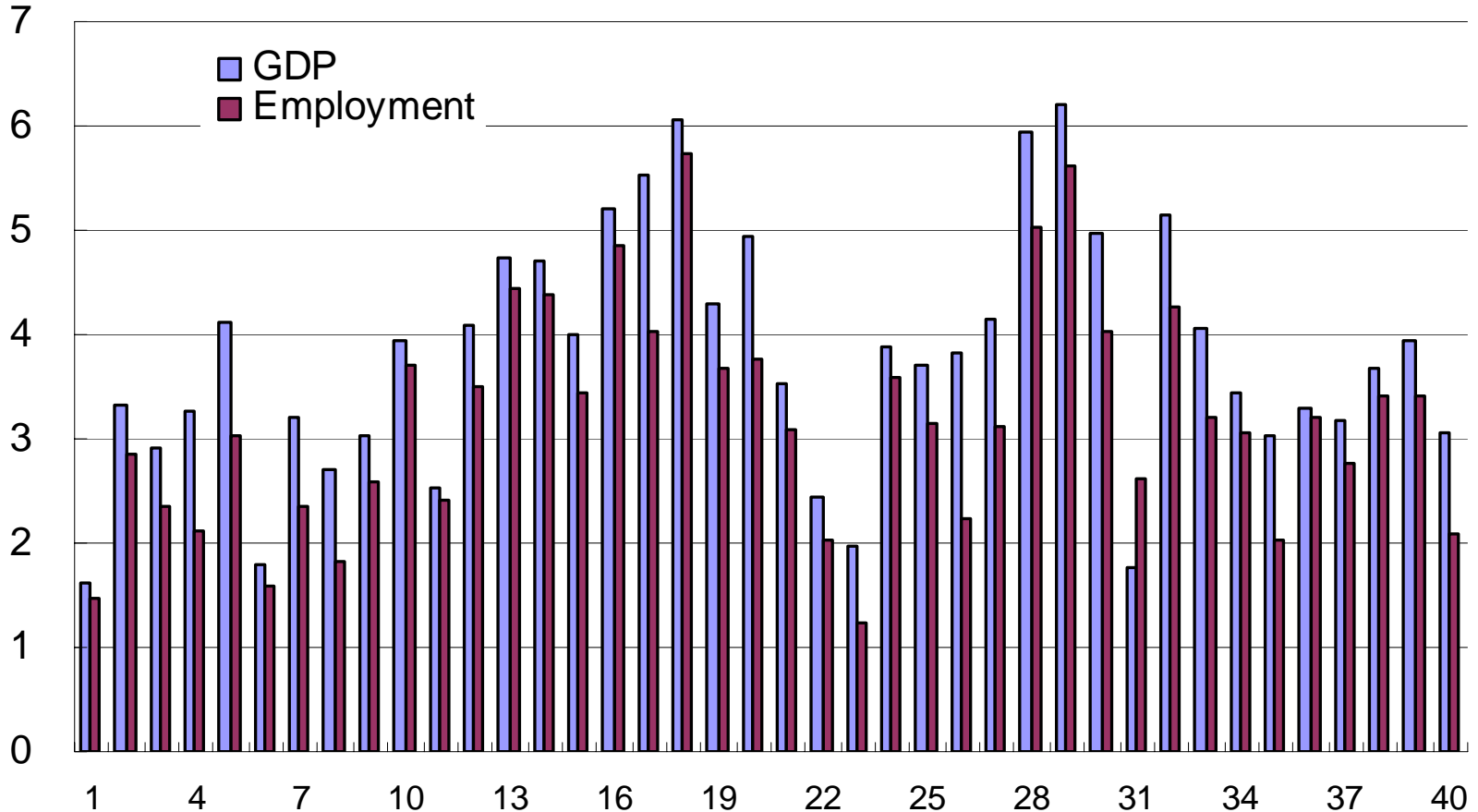
Employment: Similar trend with the GDP change.





Simulation Result-IV

ROMC Sector Impact



GDP: Passenger transportation and transportation equipment manufacture, Metal and non-metal mining, Restaurant Hotel, Metal and non-metal product, social service, etc, would be the most beneficial sectors.

Employment: Similar trend with the GDP change, but smaller than the GDP change value.





Policy Implication-I

- **Market-Oriented Multi-Channel Financing**

On one hand, it can reduce the government-dependent Olympic investment and alleviate the government burden; On the other hand, it will help to prevent the central government put excessive regional investment in Beijing while reduce investment in the other region. Therefore, to avoid to exacerbate the already exist regional disparity in China.

- **Be aware of the government deficit**

The Olympic gymnasium investment should be strictly limited to the budget. Any investment expansion should be prohibited to control the government deficit to an acceptable level.





Policy Implication-II

- **Take the advantage to accelerate structural change**

Beijing, should take the full advantage of its strength, such as human resource advantage, technique advantage and capital advantage; and stress more on the electronic, telecom, environmental protection industries and the high quality services, while leave other industrial development opportunity for the rest of China and make the ROPRC to enjoy more development opportunity from Olympic game.

- **Planning for the future gymnasium use**

For the better utilization of the gymnasium and improve the utilization efficiency.





End

Thank you

