



Fiscal Policy and Macro Stabilization: the Chinese Experience

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Outline

- 1. Macro Stabilization, why?
- 2. Fiscal Arrangements in China
 - ❑ Size and Components of Fiscal System
 - ❑ Vertical Arrangement
 - ❑ Automatic Fiscal Stabilizers
 - ❑ Discretionary Fiscal Policies
 - ❑ Implications for Recessions
- 3. Automatic Stabilizers Work in China
- 4. An Empirical Investigation
- 5. Why Fiscal Arrangement Works
- 6. Lessons for EU, US and Other Countries

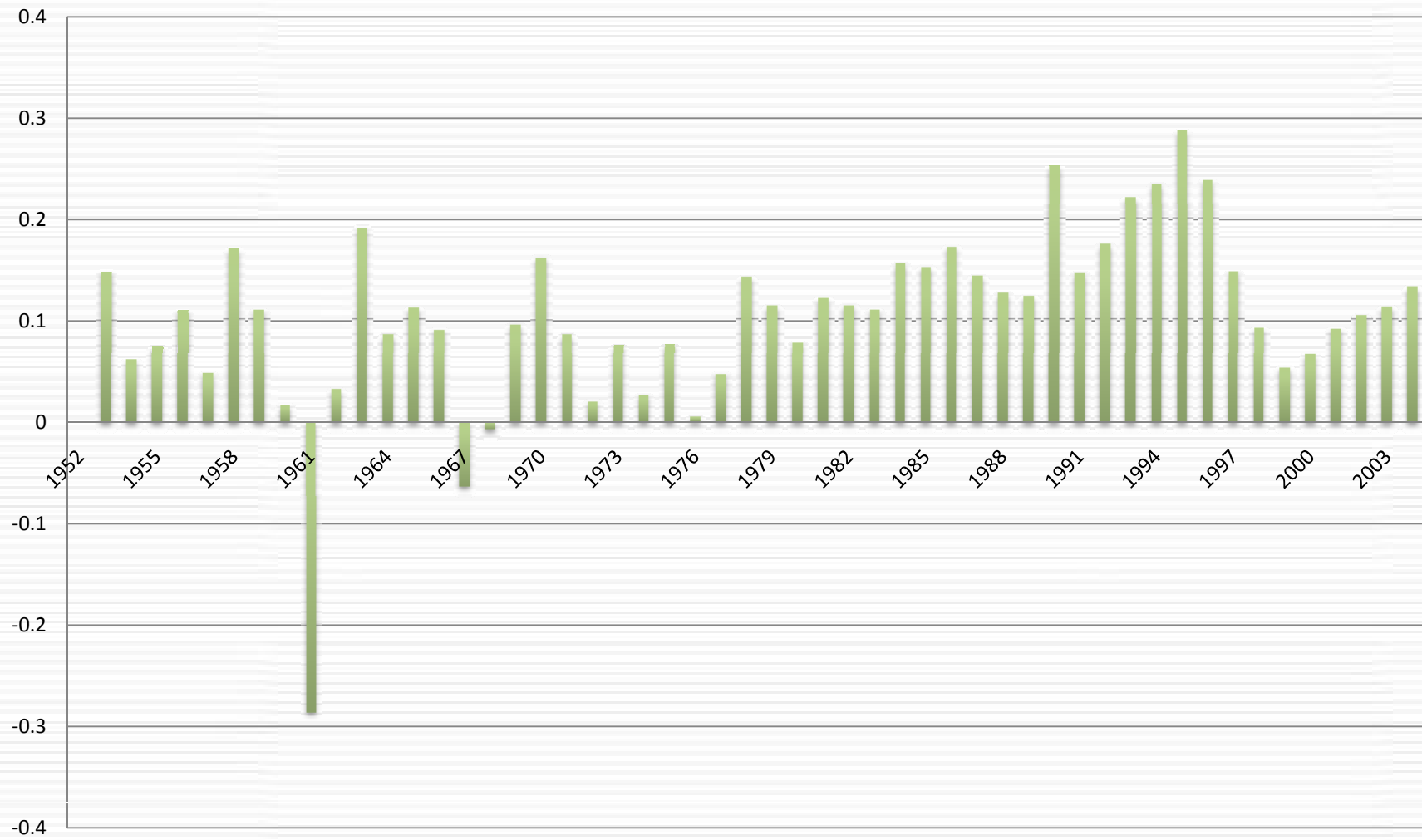
1. Macro Stabilization, why?

- Much Attention Paid to Economic Growth in China
- Limited Numbers of Studies about the Effectiveness of Chinese Fiscal Policies on macroeconomic stabilization
- Any Roles the Chinese Fiscal Policies Plays in reducing Chinese Economic fluctuations?
- Any lessons or experience for EU, US or, Japan?

1. Macro Stabilization, why?

- Compared with periods before 1978, Chinese Economic Growth has been very high and relatively stable, Why?
- Reform (from Central Plan to Market, from Closed Economy to Open Economy), Changes in Economic Structure.
- Policy issues, Monetary policy, Fiscal Policy.

Economic Growth Rate in China



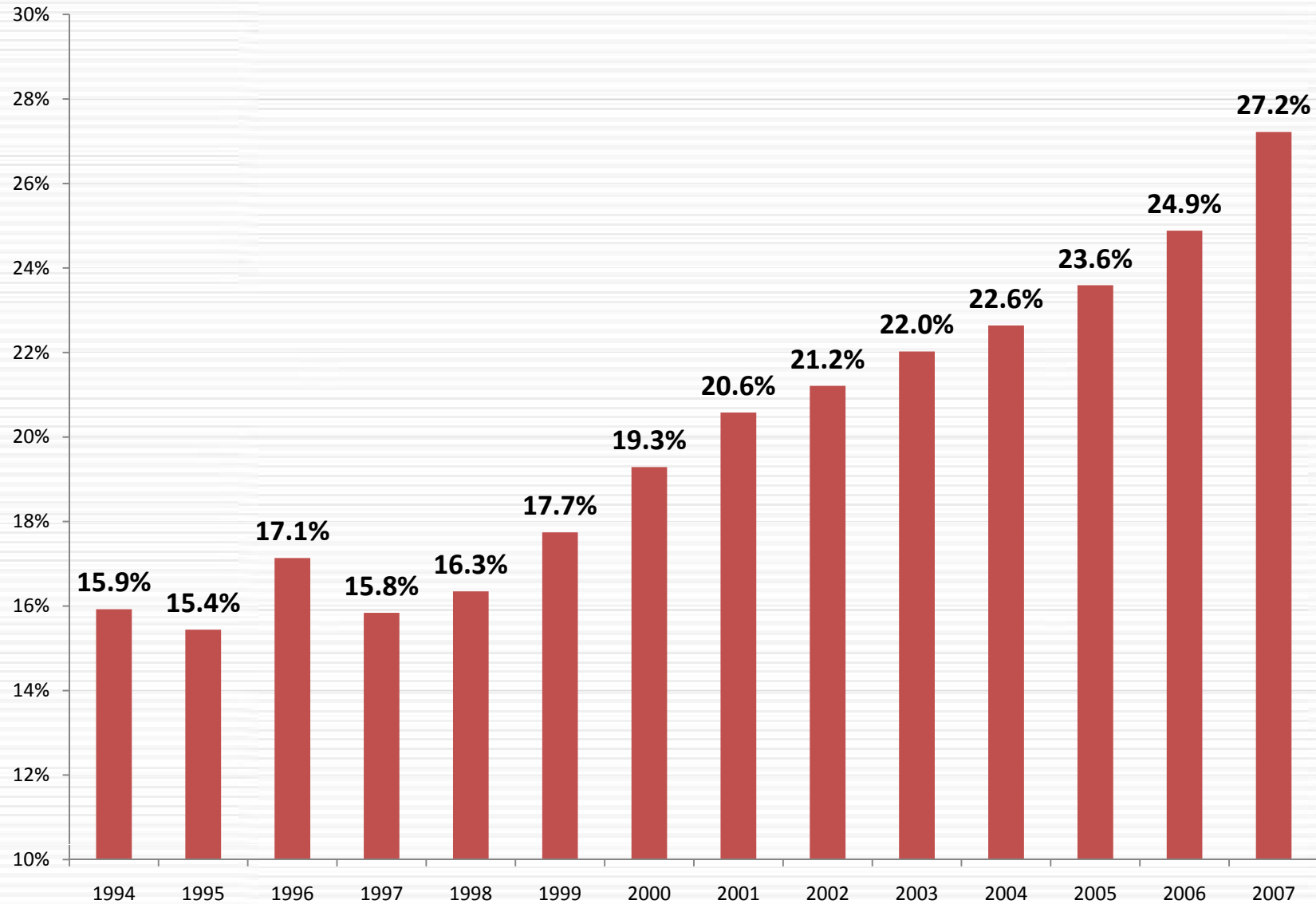
2. Fiscal Arrangement in China: An Overview

- **Chinese Government Revenue is Growing**
- **Fiscal Automatic Stabilizers relatively small**
 - ◆ Revenue Side: PIT, CIT
 - ◆ Expenditure Side: UI
- **Fiscal Instruments are limited**

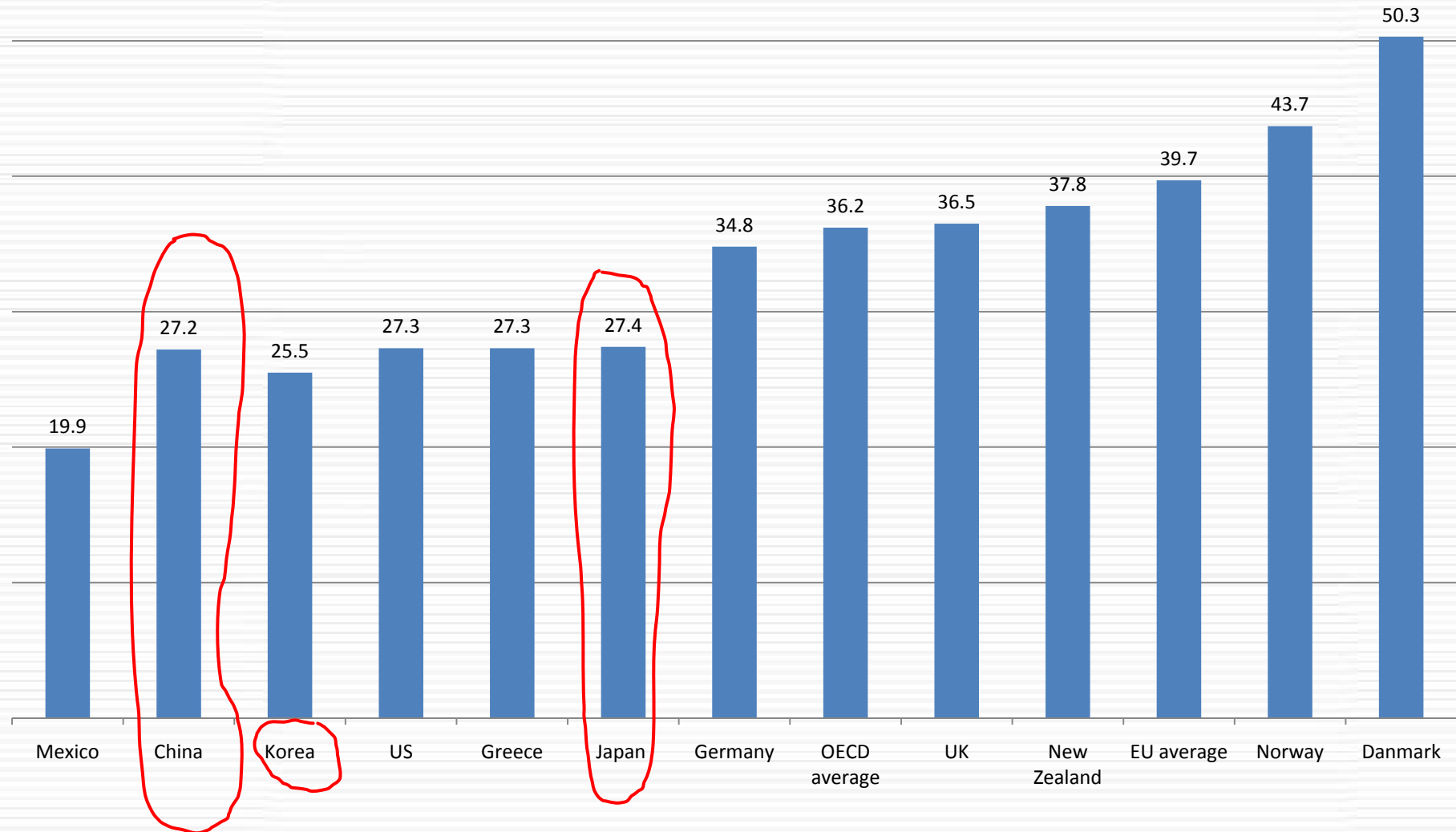
Chinese Government Revenue (1994-2007)

Year	Taxes	Pension	Extra Budget	Government Revenue	GDP	Revenue/GDP
1994	5071	742	1862.53	7675.53	48197	15.9%
1995	5974	1006	2406.5	9386.5	60793	15.4%
1996	7051	1252	3893.34	12196.34	71176	17.1%
1997	8226	1458	2826	12510	78973	15.8%
1998	9093	1623	3082.29	13798.29	84402	16.3%
1999	10315	2212	3385.17	15912.17	89677	17.7%
2000	12666	2645	3826.43	19137.43	99214	19.3%
2001	15166	3102	4300	22568	109655	20.6%
2002	16997	4049	4479	25525	120332	21.2%
2003	20466	4883	4566.8	29915.8	135822	22.0%
2004	25718	5780	4699.18	36197.18	159878	22.6%
2005	30866	6968	5544.16	43378.16	183867	23.6%
2006	37636	8626	6209	52471	210871	24.9%
2007	49449	10724	6954	67127	246619	27.2%

Size of Chinese Public Sector (1994-2007)



Government Revenue/GDP (%)



Fiscal Automatic Stabilizers

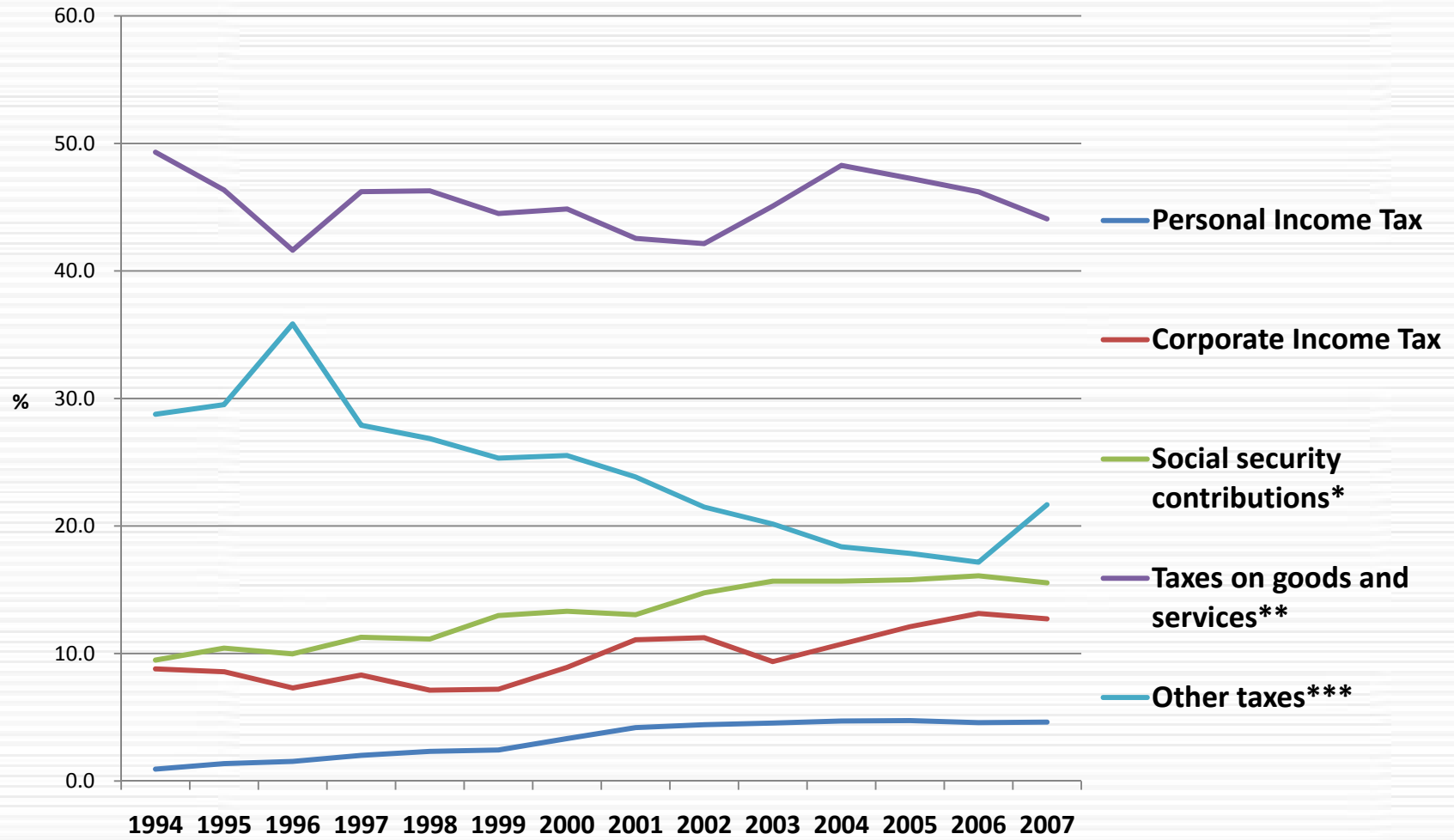
- First, Small Shares
- Second, assigned to local Governments
- The local governments are required to keep budget balanced, are not allowed to issue debt
- Consequences? N O G O O D for Fighting Recessions!

Stabilizers

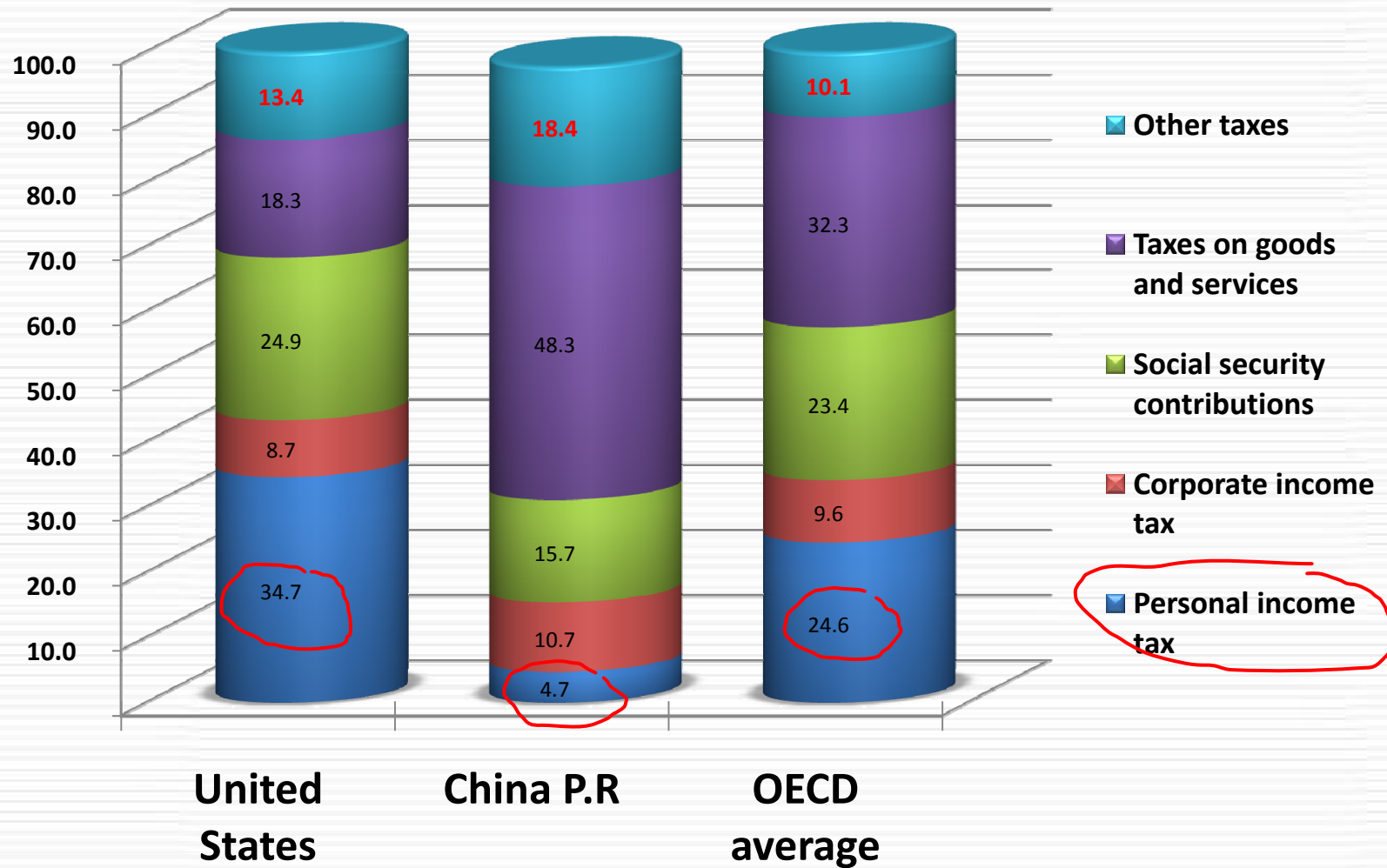
Government Revenue Structure of China P.R (%)

Year	Personal Income Tax	Corporate Income Tax	Social security contributions*	Taxes on goods and services**	Other taxes***
1994	0.9	8.8	9.5	49.3	28.8
1995	1.4	8.6	10.4	46.3	29.5
1996	1.5	7.3	10.0	41.6	35.8
1997	2.0	8.3	11.3	46.2	27.9
1998	2.3	7.1	11.1	46.3	26.9
1999	2.4	7.2	13.0	44.5	25.3
2000	3.3	8.9	13.3	44.9	25.5
2001	4.2	11.1	13.0	42.5	23.8
2002	4.4	11.2	14.8	42.1	21.5
2003	4.6	9.4	15.7	45.1	20.2
2004	4.7	10.7	15.7	48.3	18.4
2005	4.7	12.1	15.8	47.3	17.9
2006	4.6	13.1	16.1	46.2	17.2
2007	4.6	12.7	15.5	44.1	21.7

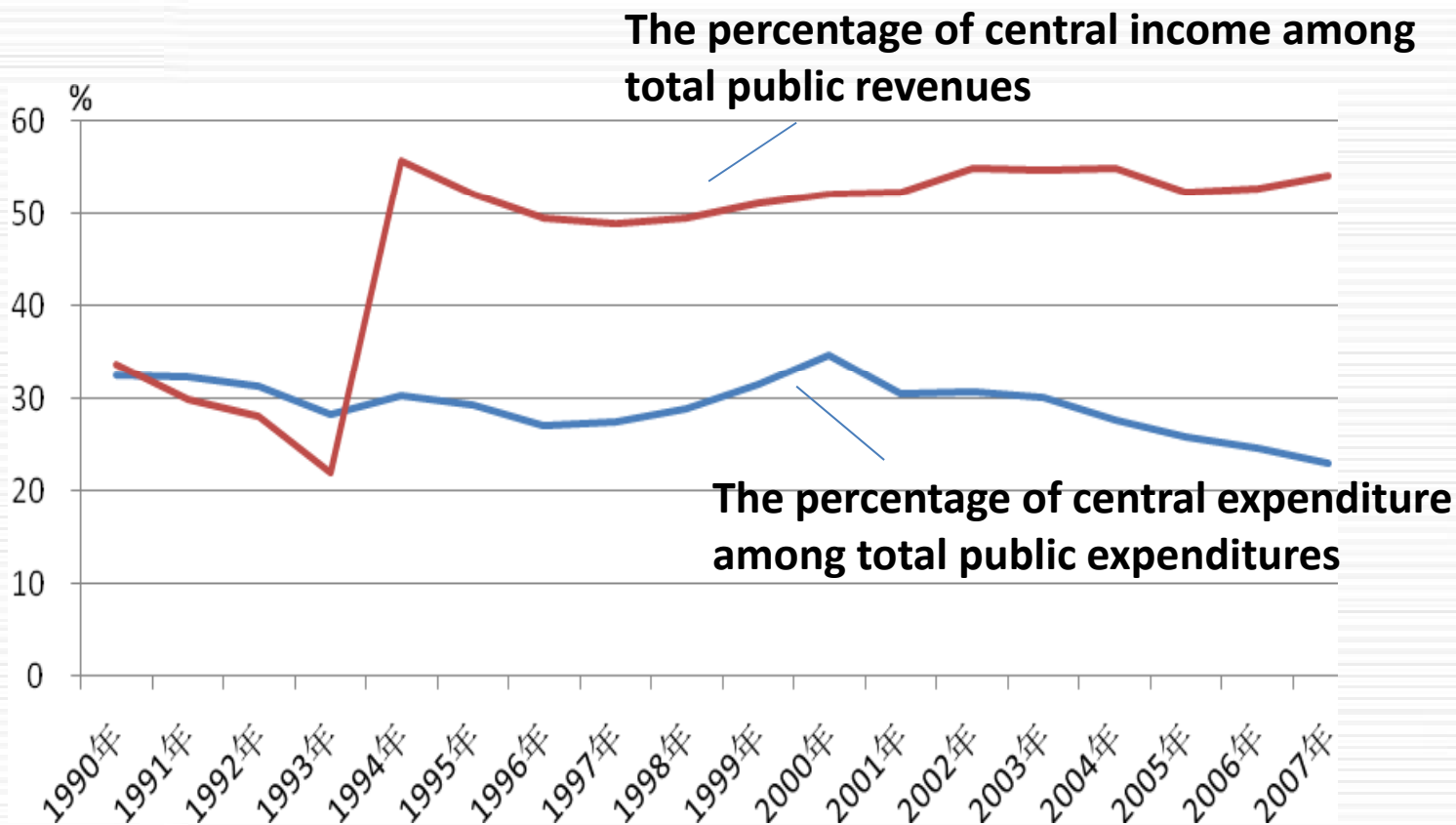
Composition of Government Revenue (1994-2007)



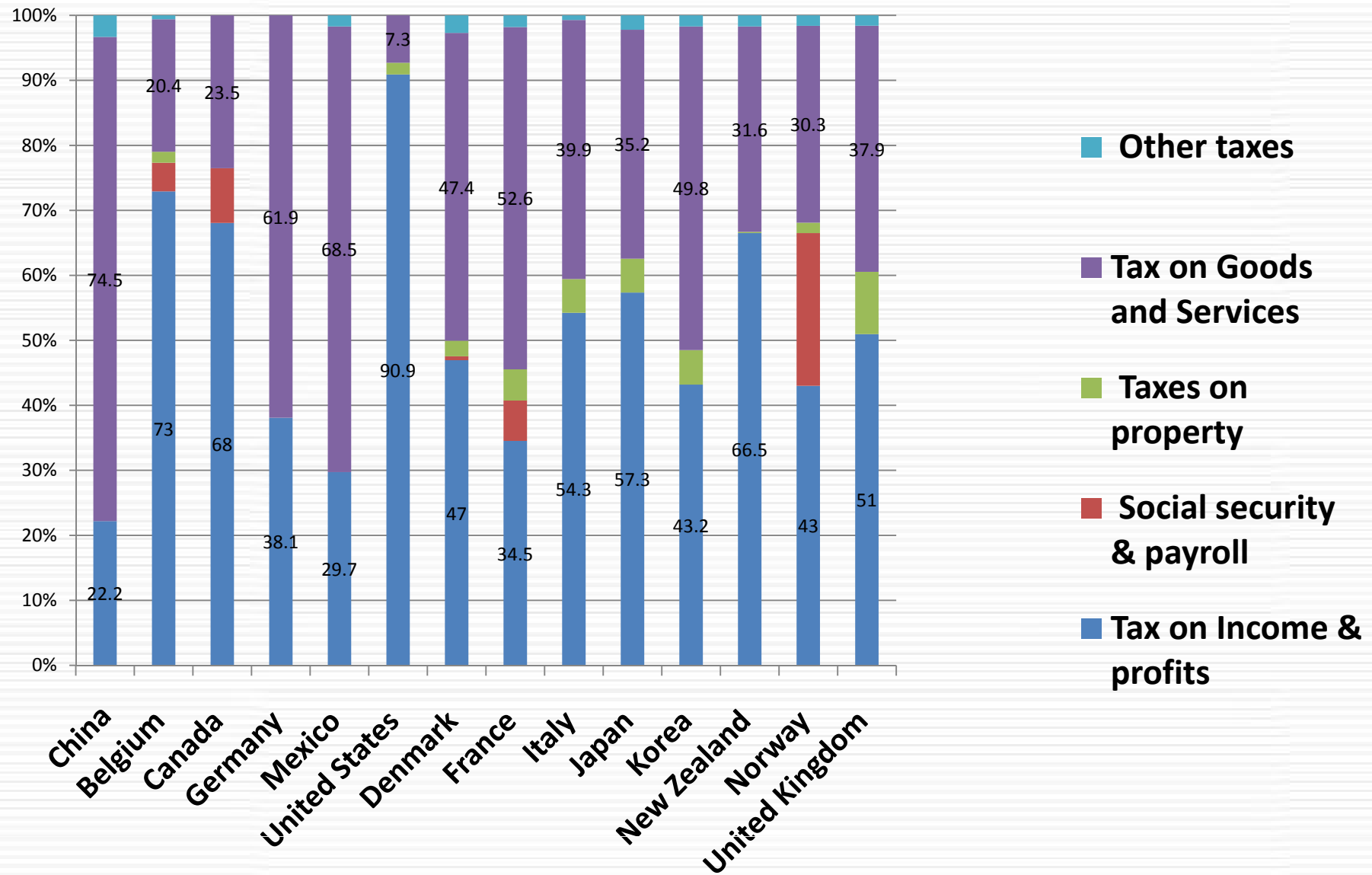
Revenue Structures: US, China and OECD Average



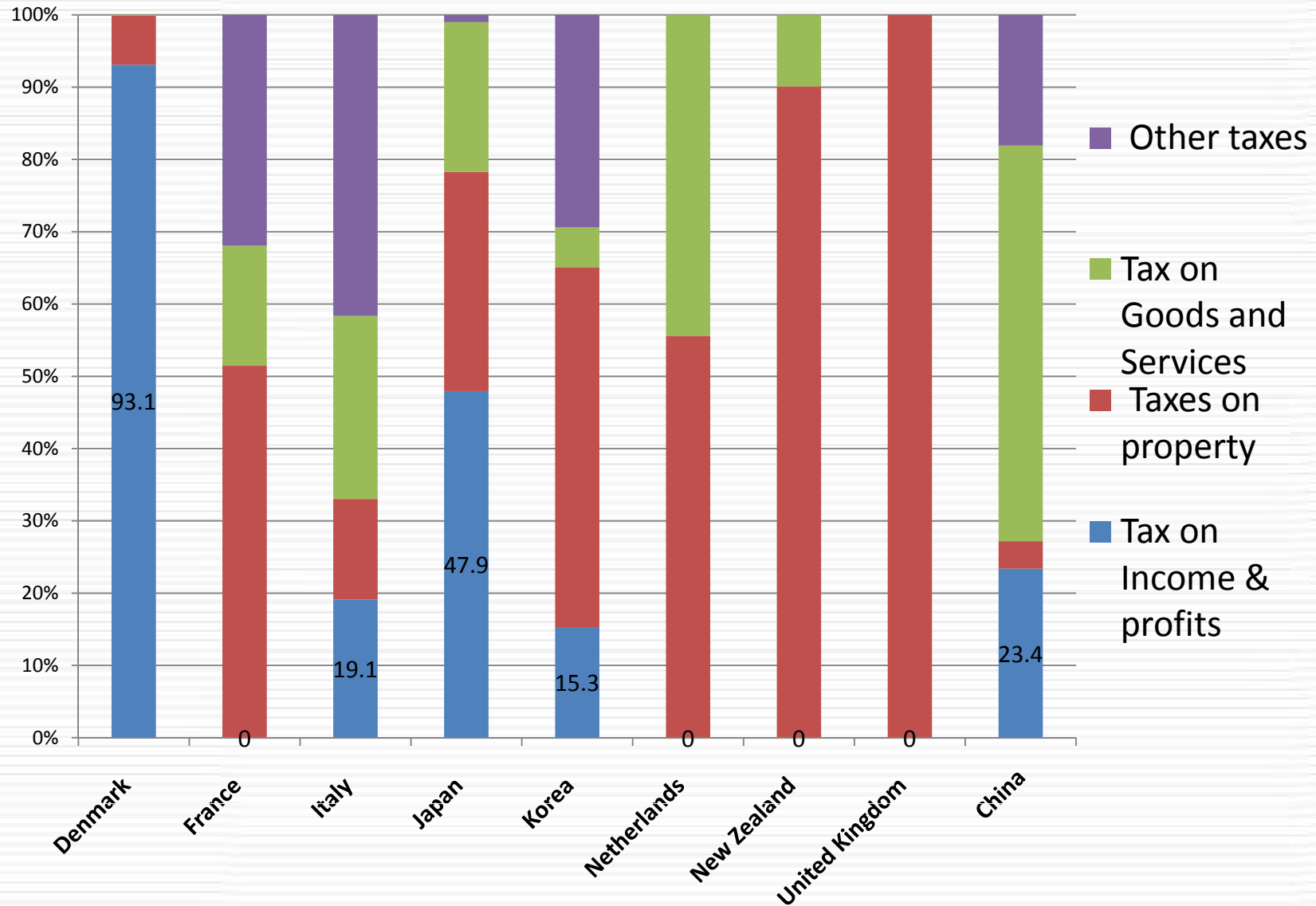
Central Government's Share in Revenue and Expenditure Sides



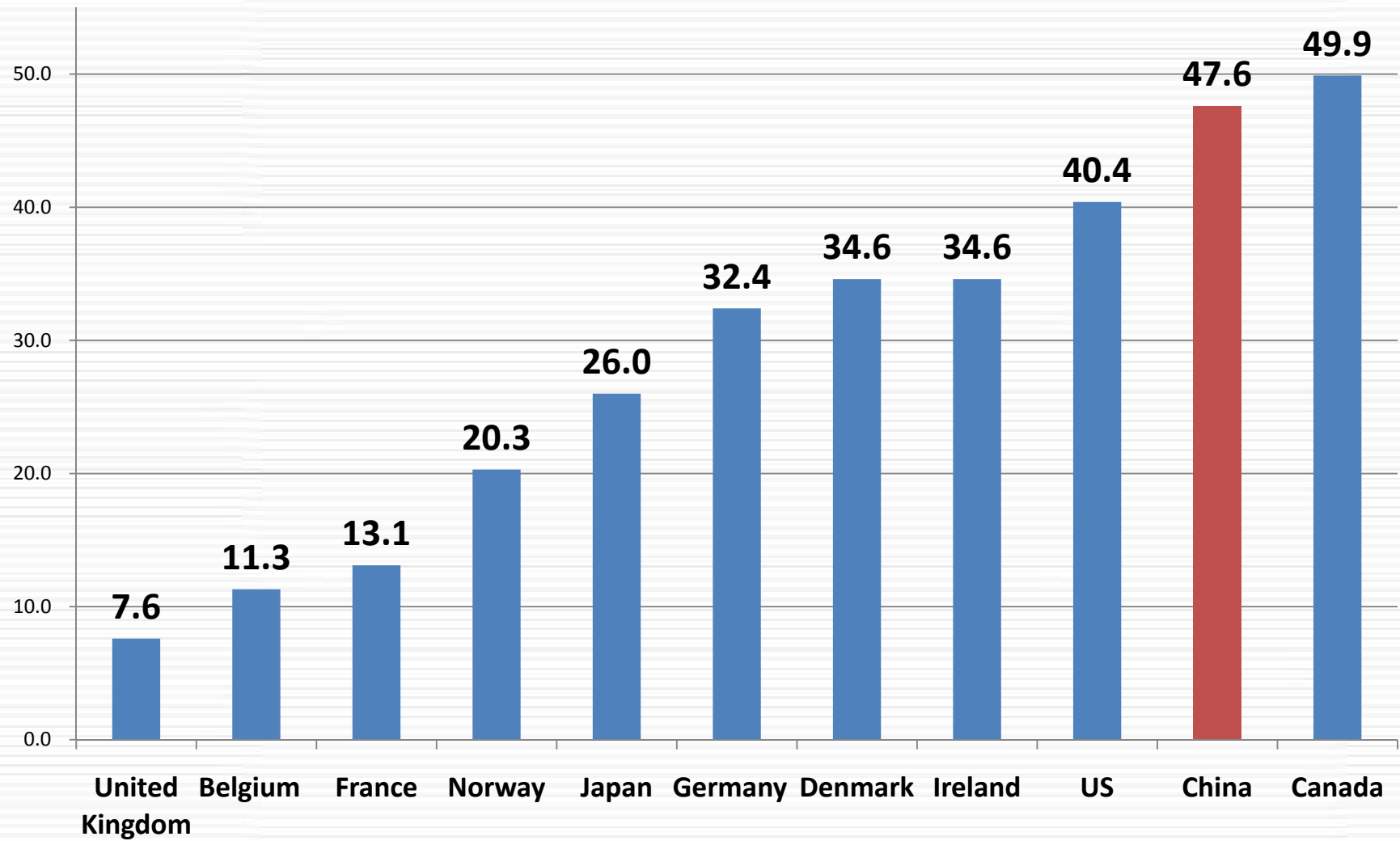
Revenue Structure of Central Government (2005)



Revenue Structure of Local Government (2007)



Local Government Revenue as a Share of Total Government Revenue (2001, %)



Unemployment Insurance

	Months	UI as a Share of Salary (%)	Total UI Expenditure as a Share of GDP
Belgium	unlimited	60	2.06
Danmark	48	90	1.91
France	23	57-75	1.67
Germany	12	60	2.27
Japan	10	50-80	0.46
Netherlands	18	70	2.43
Norway	24	62	0.87
Spain	24	70	1.5
US	6	53	0.37
China	12	20	0.07

Limited Fiscal Instruments

1. Tax Cuts	Effects	Availability for Chinese Policy-makers
1.1. Non-refundable lump-sum tax rebate	1.02	no
1.2. Refundable lump-sum tax rebate	1.26	no
1.3. Temporary tax cuts		
payroll tax holiday	1.29	no
Across the board tax cut	1.03	infeasible
Accelerated depreciation	0.27	infeasible
1.4. Permanent tax cuts		
Extend alternative minimum tax patch	0.48	no
Make Bush income tax cuts permanent	0.29	no
Make dividend and capital gains tax cuts permanent	0.37	yes
Cut in corporate tax rate	0.3	?
2. Spending Increases		
2.1. Extending UI benefits	1.64	?
2.2. Temporary increase in food stamps	1.73	?
2.3. General aid to state governments	1.36	?
2.4. Increased infrastructure spending	1.59	yes

2. Fiscal Arrangement in China: Implications for Fighting Recessions

The Chinese Automatic Stabilizer arrangement is unique.

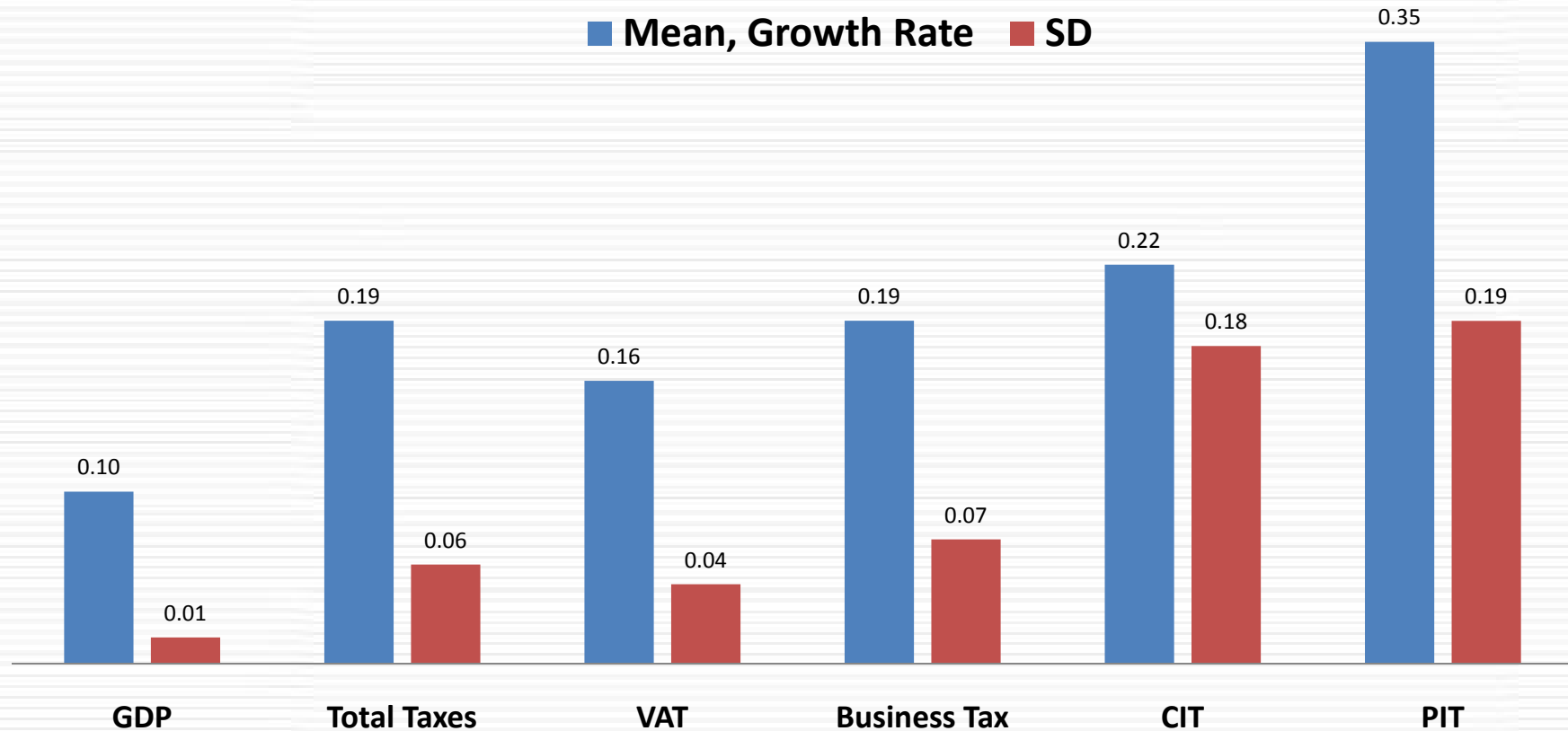
The Fiscal Tools are limited

WE, therefore, should not expect Chinese Fiscal System plays important roles in dealing with Recessions.

However,,,,

3. Automatic Stabilizers Work in China

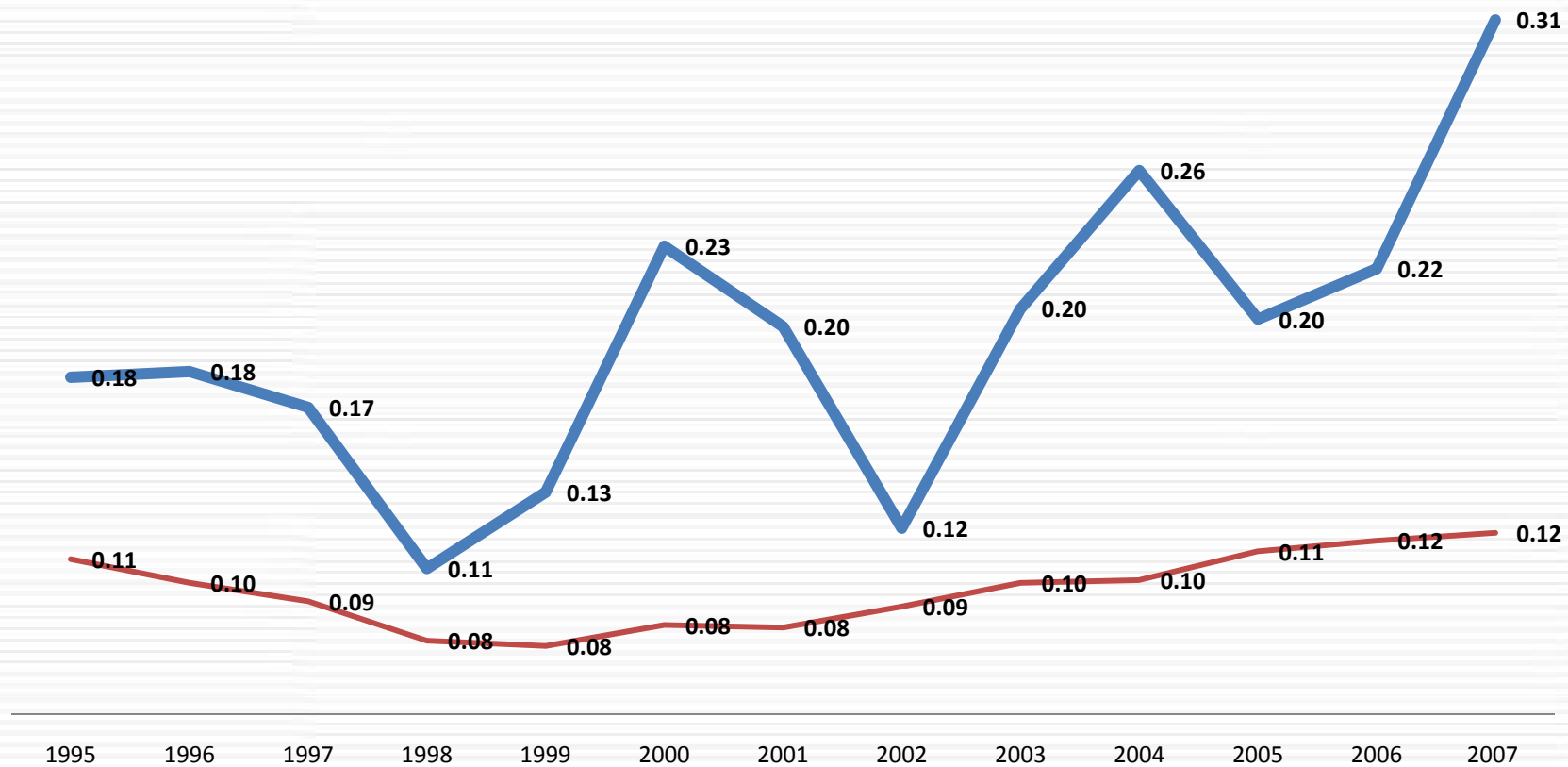
GDP and Taxes: Growth Rates and SD (1995-2007)



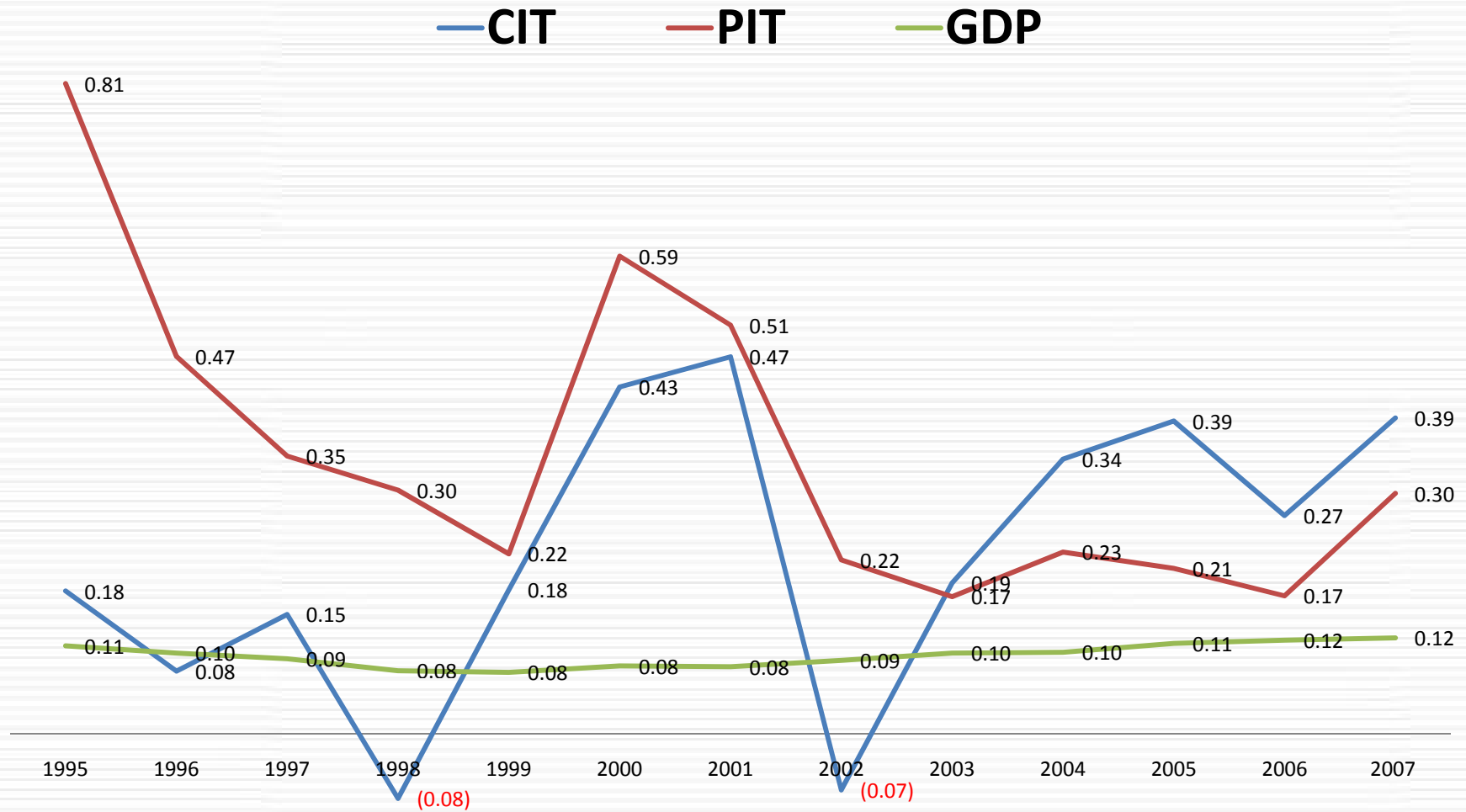
Taxes Have Been Sensitive

Growth Rates: GDP vs. Total Taxes

— Total Taxes — GDP

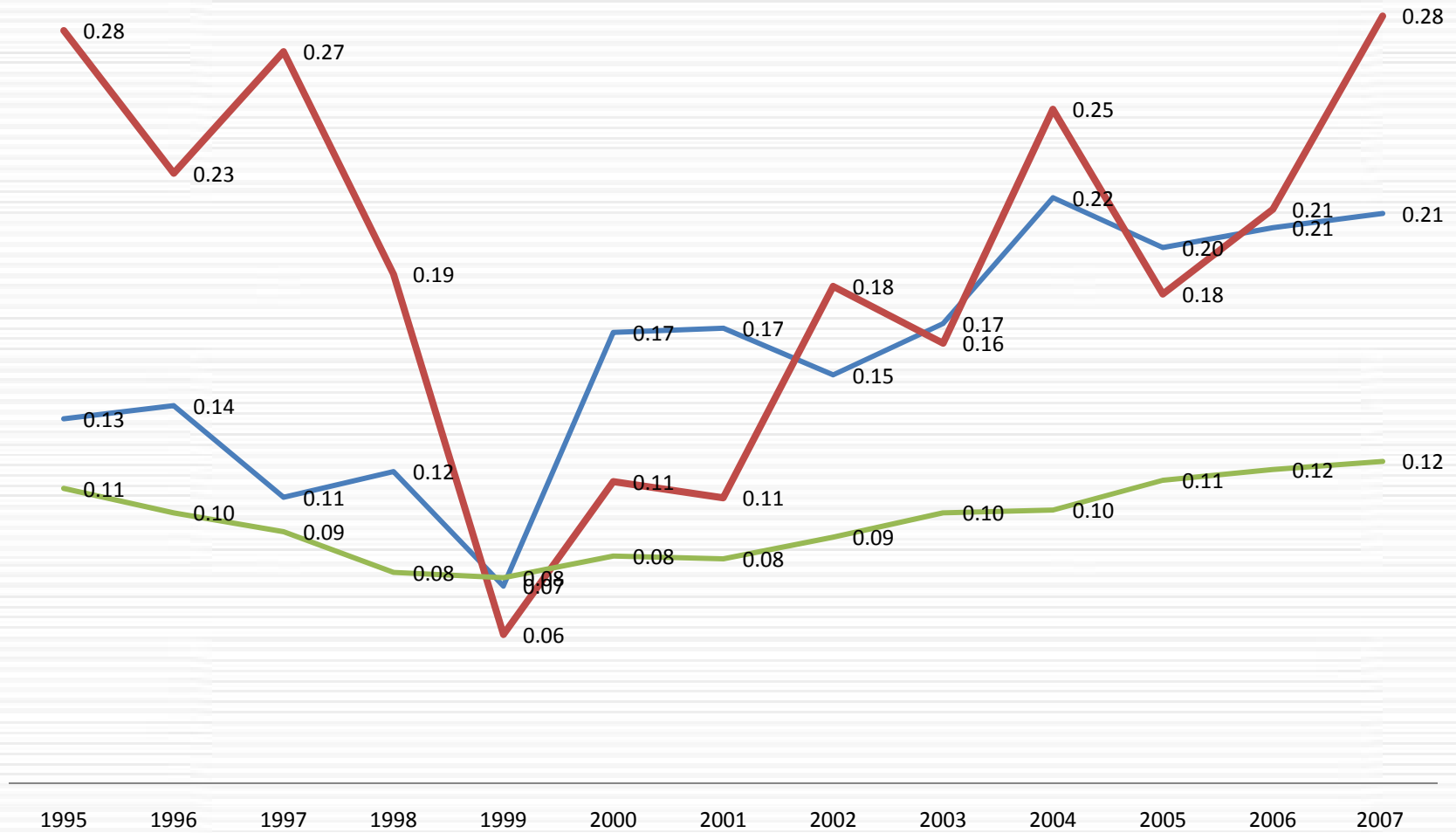


Taxes have been Sensitive, in particular, CIT and PIT,



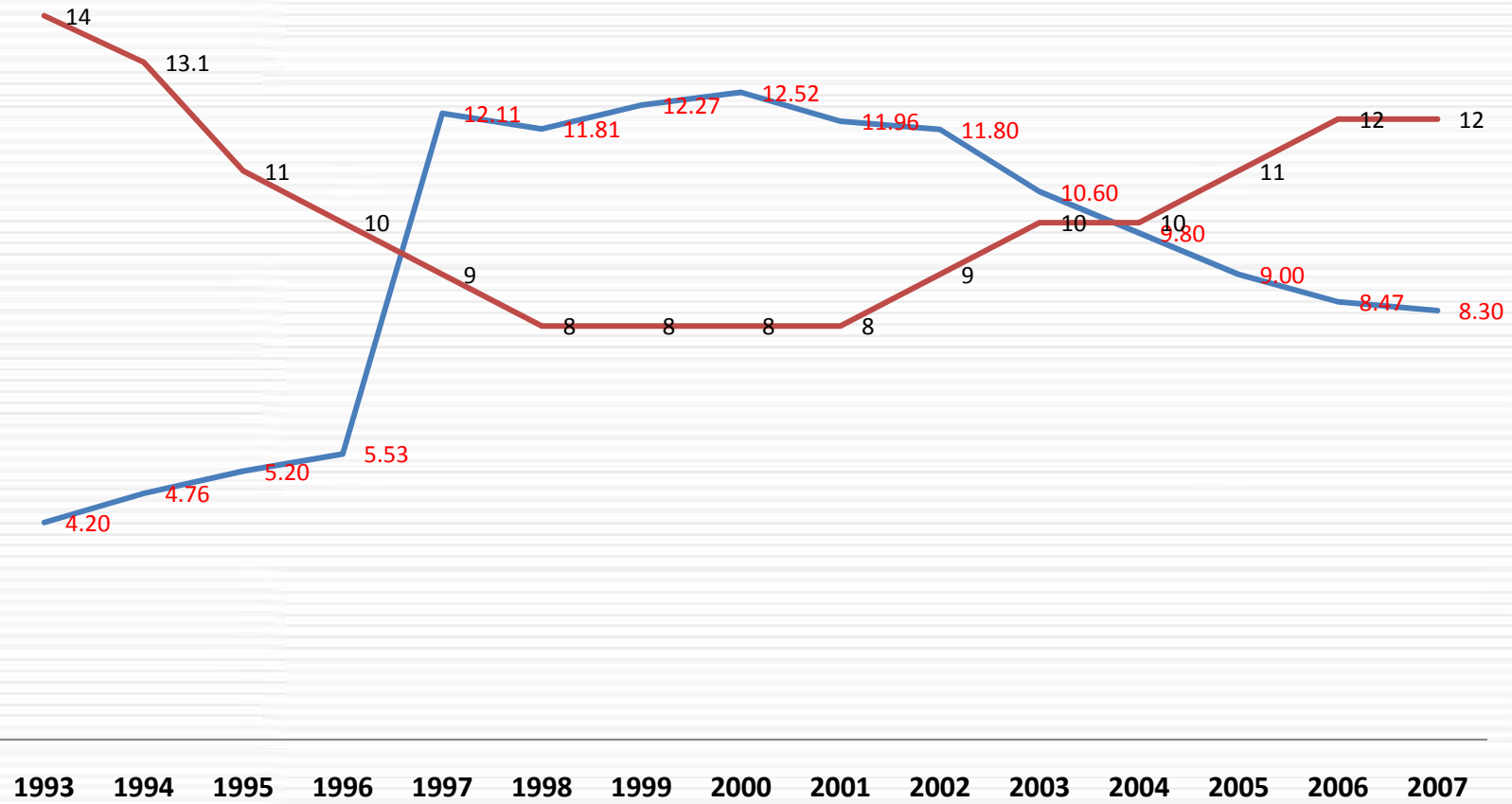
Moderate Fluctuations in Growth Rates of VAT and Business Tax

— VAT — Business Tax — GDP



Unemployment Rates and GDP

— Unemployment (million) — GDP Growth Rate %



Economic Slowdown is followed an Increase in the Growth Rate of Infrastructure Expenditure



4. Empirical Analysis

- (1) Fiscal variables and output fluctuations
- (2) Fiscal variables and consumption fluctuations
- (3) Fiscal variables and private GDP fluctuations

Data Descriptions

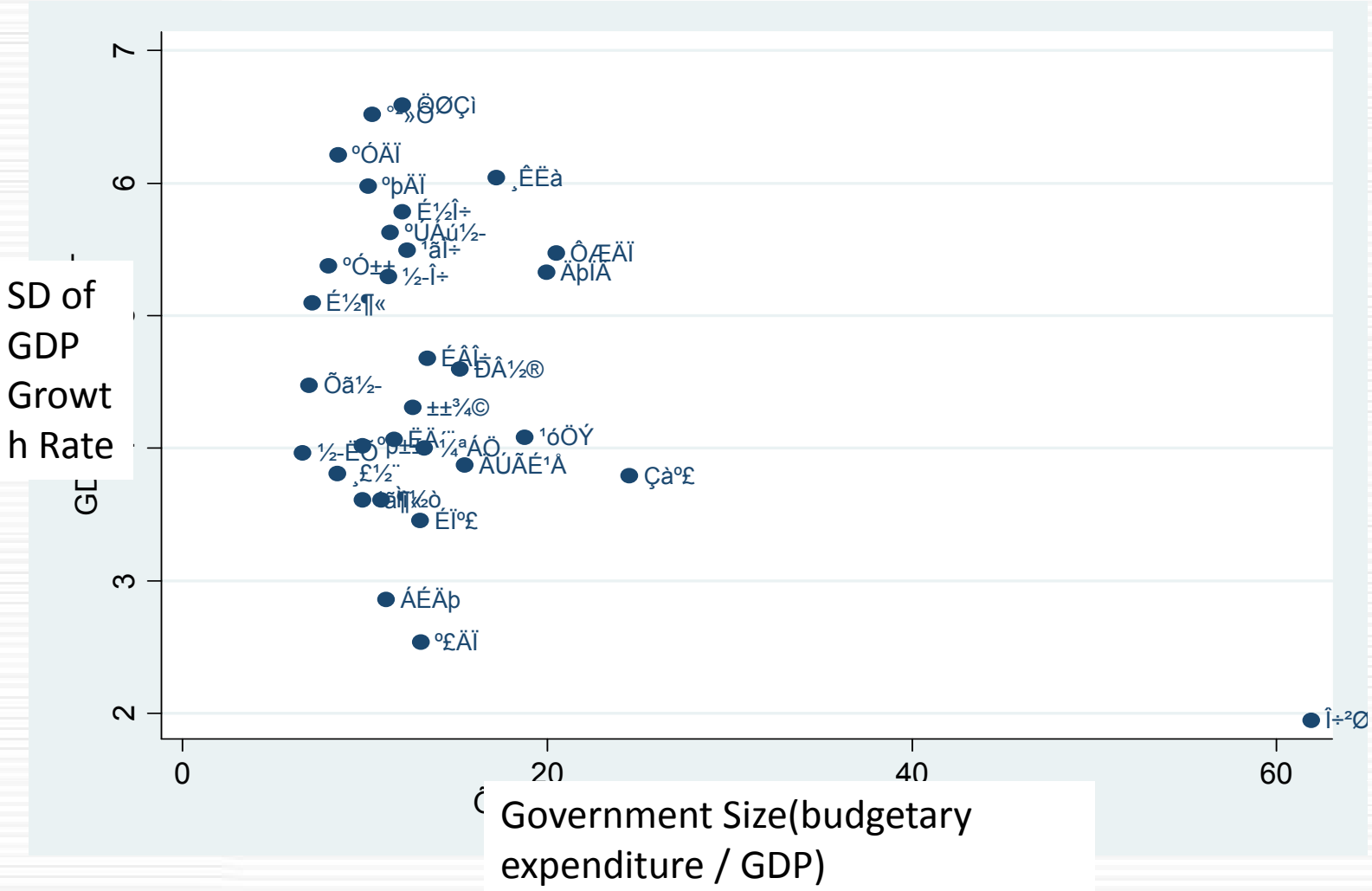
- Fiscal variables: **budgetary revenue & expenditure, extra-budgetary revenue & expenditure, transfer payment of central government**
- **We have some tables and graphs for details below.**

Size and structure of local governments

Region	Revenue		Expenditure		Intergovernmental Transfer		Extra-budget Revenue		Extra-budget Expenditure	
	94-99	94-04	94-1999	94-04	94-99	94-04	94-99	94-04	94-99	94-04
BEIJING	8.17	9.87	10.96	12.62	1.33	1.22	5.00	4.19	4.40	3.73
TIANJIN	7.09	7.52	10.03	10.90	1.47	1.59	3.67	3.03	3.36	2.79
HEBEI	4.54	4.72	7.08	8.02	0.81	1.69	3.10	2.71	2.86	2.50
SHANXI	6.51	6.54	10.44	12.05	1.37	3.11	6.07	5.44	5.43	4.89
INNER Mongolia	5.68	5.83	13.00	15.48	2.78	5.85	3.16	2.65	2.92	2.43
Liaoning	6.57	6.89	9.90	11.16	1.52	2.46	4.20	3.79	3.82	3.40
Jilin	5.73	5.65	11.69	13.27	2.67	4.83	4.02	3.47	3.77	3.22
Heilongjiang	5.40	5.75	9.32	11.40	2.22	4.00	3.04	2.66	3.02	2.56
Shanghai	9.42	10.70	11.43	13.03	1.26	0.93	3.04	2.86	2.76	2.41
Jiangsu	3.81	4.83	5.45	6.60	0.47	0.45	3.73	3.80	3.45	3.51
Zhejiang	3.65	5.09	5.50	6.95	0.35	0.34	4.62	4.36	4.13	3.94
Anhui	5.49	5.64	8.68	10.38	1.40	2.96	4.27	3.53	3.92	3.29
Fujian	5.78	5.97	8.11	8.49	0.45	0.56	5.16	4.74	4.65	4.31
Jiangxi	5.50	5.66	9.87	11.28	2.31	3.82	4.48	4.37	4.09	3.99
Shandong	4.35	5.02	6.31	7.10	0.53	0.69	3.35	3.07	3.10	2.85

Region	Revenue		Expenditure		Intergovernmental Transfer		Extra-budget Revenue		Extra-budget Expenditure	
	94-99	94-04	94-1999	94-04	94-99	94-04	94-99	94-04	94-99	94-04
Henan	4.54	4.71	7.44	8.53	1.06	2.09	3.40	3.17	3.08	2.95
Hubei	5.10	5.40	8.49	9.89	1.50	2.75	3.05	2.95	2.78	2.77
Hunan	5.10	5.27	8.80	10.16	1.39	2.83	5.17	4.64	4.93	4.41
Guangdong	7.12	7.78	9.26	9.85	0.24	0.22	2.96	3.07	2.52	2.61
Guangxi	5.72	6.43	10.04	12.30	1.27	2.99	5.13	4.51	4.68	4.08
Hainan	7.79	7.64	11.88	13.05	1.60	3.52	4.36	3.65	4.06	3.42
Chongqing	4.81	5.85	8.74	12.06	1.93	4.02	1.93	3.73	4.30	3.55
Sichuan	6.29	6.23	9.91	11.59	1.11	3.08	5.35	4.62	4.72	4.17
Guizhou	6.89	7.71	14.82	18.77	2.49	6.36	4.30	3.96	3.95	3.58
Yunnan	8.61	8.73	19.04	20.49	1.52	3.89	4.11	3.67	3.71	3.34
Xizang	5.29	4.90	55.66	61.88	15.96	28.36	2.20	1.74	1.90	1.40
Shanxi	5.71	6.15	10.76	13.40	2.02	4.61	3.69	3.62	3.42	3.33
Gansu	6.10	6.11	14.31	17.22	2.92	6.50	3.91	3.73	3.55	3.45
Qin Hai	5.41	5.77	19.08	24.52	6.31	12.82	3.09	2.82	2.93	2.64
Ningxia	6.21	6.66	15.66	19.94	4.60	9.56	4.10	4.00	3.84	3.72
Xinjiang	5.28	5.90	12.44	15.21	3.01	5.79	4.26	3.81	3.88	3.41

Government Expenditure and Standard Deviation of GDP Growth Rate



4.2 fiscal variables and output fluctuation (SD of GDP Growth Rate)

- Regression function:

$$\sigma(\text{gdprate})_i = \alpha + \beta \text{Gov.size} + \varepsilon_i$$

$$\sigma(\text{gdprate})_{it} = \alpha + \beta \text{Gov.size}_{it} + \varepsilon_i + v_{it}$$

4.2 Results

variables	1994-2004 cross-section regression		Panel Regression: fixed effect		Panel Regression: random effect		Hausman
	coefficient	R ²	coefficient	R ²	coefficient	R ²	
Rev	-2.01 (0.92)**	0.14	-9.28 (1.36)***	0.35	-3.57 (0.76)***	0.13	25.39***
Exp	-0.86 (0.48)*	0.10	-5.99 (0.99)***	0.29	-1.06 (0.40)***	0.02	29.95***
Transfer	0.00 (0.25)	0.00	-1.32 (0.32)***	0.16	-0.25 (0.17)	0.03	15.45***
Extrabudget inc	1.90 (0.79)**	0.15	1.85 (1.03)*	0.03	1.15 (0.62)*	0.04	0.71
Extrabudget exp	2.01 (0.56)***	0.20	0.66 (0.98)	0.01	0.69 (0.57)	0.06	0

- Budgetary revenue & expenditure can remarkably smooth fluctuation of GDP, so does transfer payment though not significantly;
- Extra-budgetary income & expenditure can otherwise aggravate output fluctuation.

4.3 fiscal variables and consumption fluctuation (consumption growth rate)

- Regression function:

$$\sigma(\text{consummerate})_i = \alpha + \beta \text{Gov.size} + \varepsilon_i$$

$$\sigma(\text{consummerate})_{it} = \alpha + \beta \text{Gov.size}_{it} + \varepsilon_i + v_{it}$$

4.3 Results

Variables	1994-2004 cross-section regression		Panel regression: fixed effect		Panel regression: random effect		Hausman
	coefficient	R ²	coefficient	R ²	coefficient	R ²	
Rev	0.25 (1.63)	0.00	-6.33 (1.80)***	0.12	-1.58 (1.11)	0.02	11.16***
Exp	0.93 (0.45)**	0.07	-4.68 (1.26)***	0.13	0.03 (0.56)	0.10	17.55***
Transfer	0.60 (0.20)***	0.17	-0.79 (0.37)**	0.05	0.08 (0.21)	0.11	8.04***
extrabudget inc	1.02 (1.53)	0.15	2.26 (1.24)*	0.04	1.04 (0.94)	0.01	2.23
extrabudget exp	1.20 (1.51)	0.02	1.93 (1.23)	0.03	0.87 (0.93)	0.01	1.74

- Hausman test reject random effect;
- Fixed effect panel regression suggests strong inhibited effect of budgetary revenue & expenditure and transfer payment toward consumption.

4.4 Impact of Fiscal Policy on Private GDP

- Private GDP=GDP- government expenditure
- Estimation Equations:

$$\sigma(\text{privategdprate})_i = \alpha + \beta \text{Gov.size} + \varepsilon_i$$

$$\sigma(\text{privategdprate})_{it} = \alpha + \beta \text{Gov.size}_{it} + \varepsilon_i + v_{it}$$

4.4 Results

Variables	1994-2004 cross-section regression		Panel regression: fixed effect		Panel regression: random effect		Hausman
	coefficient	R ²	coefficient	R ²	coefficient	R ²	
Rev	-0.86 (0.48)**	0.10	-9.28 (1.36)***	0.35	-3.57 (0.76)***	0.13	25.39***
Exp	-2.01 (0.78)*	0.14	-5.99 (0.99)***	0.29	-1.06 (0.40)***	0.02	29.95***
Transfer	0.00 (0.25)	0.00	-1.32 (0.32)***	0.16	-0.25 (0.17)	0.03	15.45***
extrabudget inc	1.90 (0.79)**	0.15	1.85 (1.03)*	0.03	1.15 (0.62)*	0.04	0.71
extrabudget exp	2.01 (0.56)***	0.20	0.66 (0.98)	0.01	0.69 (0.57)	0.06	0.00

- Budgetary revenue & expenditure and transfer payment can remarkably smooth fluctuation in private GDP;
- Extra-budgetary income & expenditure can otherwise aggravate output fluctuation.

5, A Puzzle?

- Theoretically, the Chinese Fiscal System should not work!
- Empirical Evidence Shows that The System works well.

5, A Puzzle?

- No.1, Decentralized Decision-making,
- No.2, Political System Matters (1) : Local Government may not be able to Play Nash Game. For Example, Local governments are required to increase infrastructure Expenditures which may be a stimulus for their neighbors.

5, A puzzle?

No.3, Political System Matters (2) : Local governments follow State Counsel's Decisions. For example, Hanzhou, Feb. 10th, 2009, Issued 1 billion Yuan Consumption Vouchers . Another Example, Local governments like Beijing, follow State Counsel's decision to deal with housing bubble.

5, A puzzle?

- No.4, Political System Matters (3)
- MOF Issued 200 billion Yuan Bond for Local Governments such as Sichuan, Shanxi, Henan etc.

5, A puzzle?

- No. 5, the Existence of Household Register System, the “run-to-the-bottom” problem disappears.

6, Lessons for Other Countries

1. Automatic Stabilizers Works
2. Coordination matters
3. Fiscal Federalism+ Unitary Government is good for macro stabilization.



THANK YOU!

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