China's regional policy evolution And its influence on regional economy development

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- 1. A brief review of China’s regional economic policy during the 60 years
- 2. China's regional difference and its changes
- 3. Correlation analysis between regional policy and regional economic development
- 4. China's regional development issues and future policy orientation

1. A brief review of China's regional economic policy in past 60 years

The stage of regional policy since the founding of new China

- Since the founding of new China in 1949, the strategically regional policy mainly experienced three stages:

- First stage : Balanced development
- Second stage : Tilt to the coastal area
- Third stage : Coordinated development

（1） 1st stage: Balanced development

- **Period:** from beginning of the founding of new China to the beginning of reform and opening (1949-1978).
- **Policy means and goal:** realize regional balanced development through mandatory plan.
- **Effect:** reached balanced development at the cost of efficiency.
- **Eastern regions:** areas with good development foundation was limited by policy restriction, unable to exploit the advantage fully.
- **Central and West regions:** due to the poor natural environment conditions, the rate of return on governmental input is low.

（2） 2nd stage: Tilt to the coastal area

- **Period:** from early reform and opening up to the end of last century (1978-2000).

- **Policy means and goal:** promote rapid development for coastal area through establishment of special economic zones, open port cities, open Pudong district and other areas and introduction FDI.

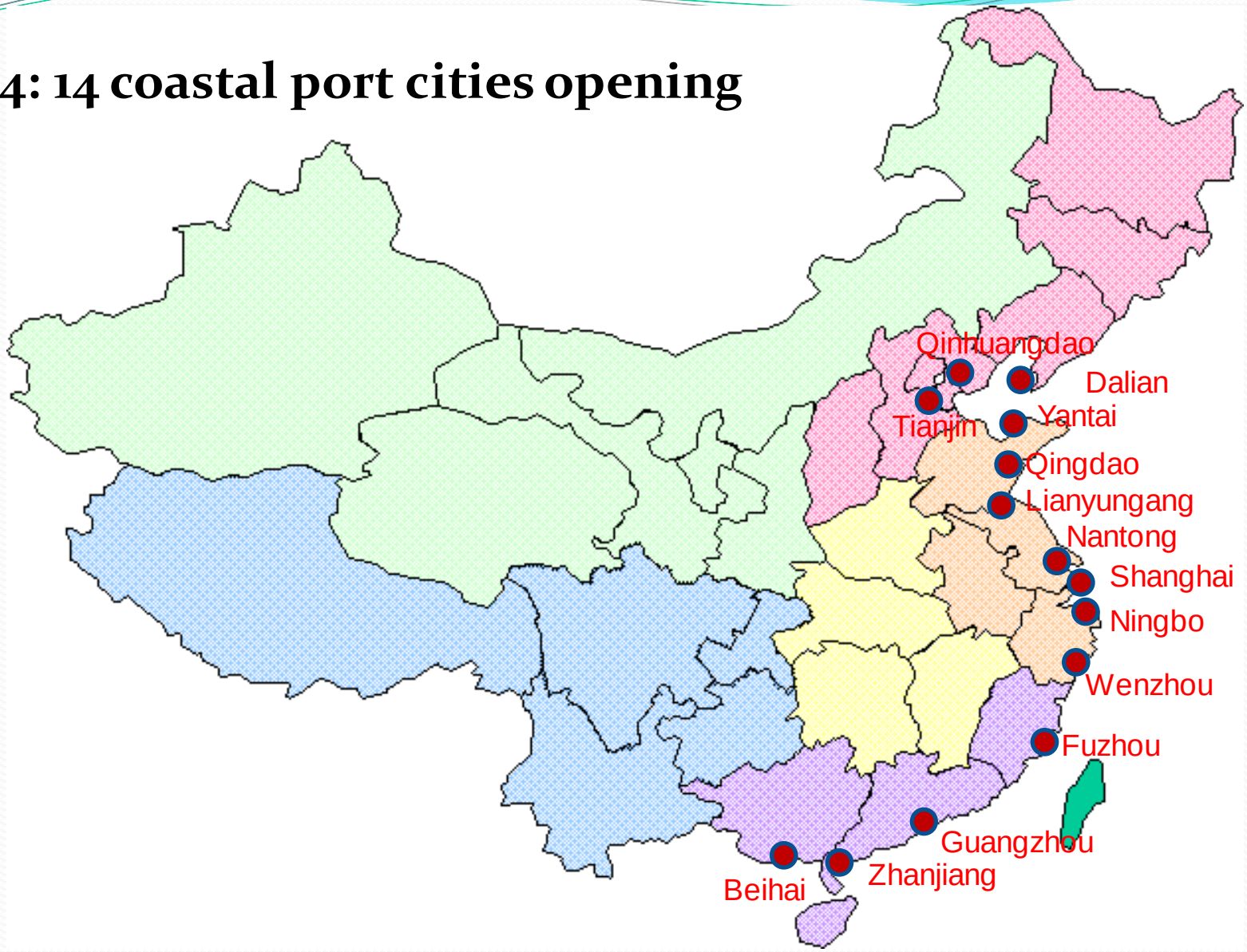
- **Effect:** coastal areas are under high speed of development for 20 years while "efficiency priority" thought being reflected. The gap between east area and central and western areas is widened.

There was a Propulsion of coastal area opening

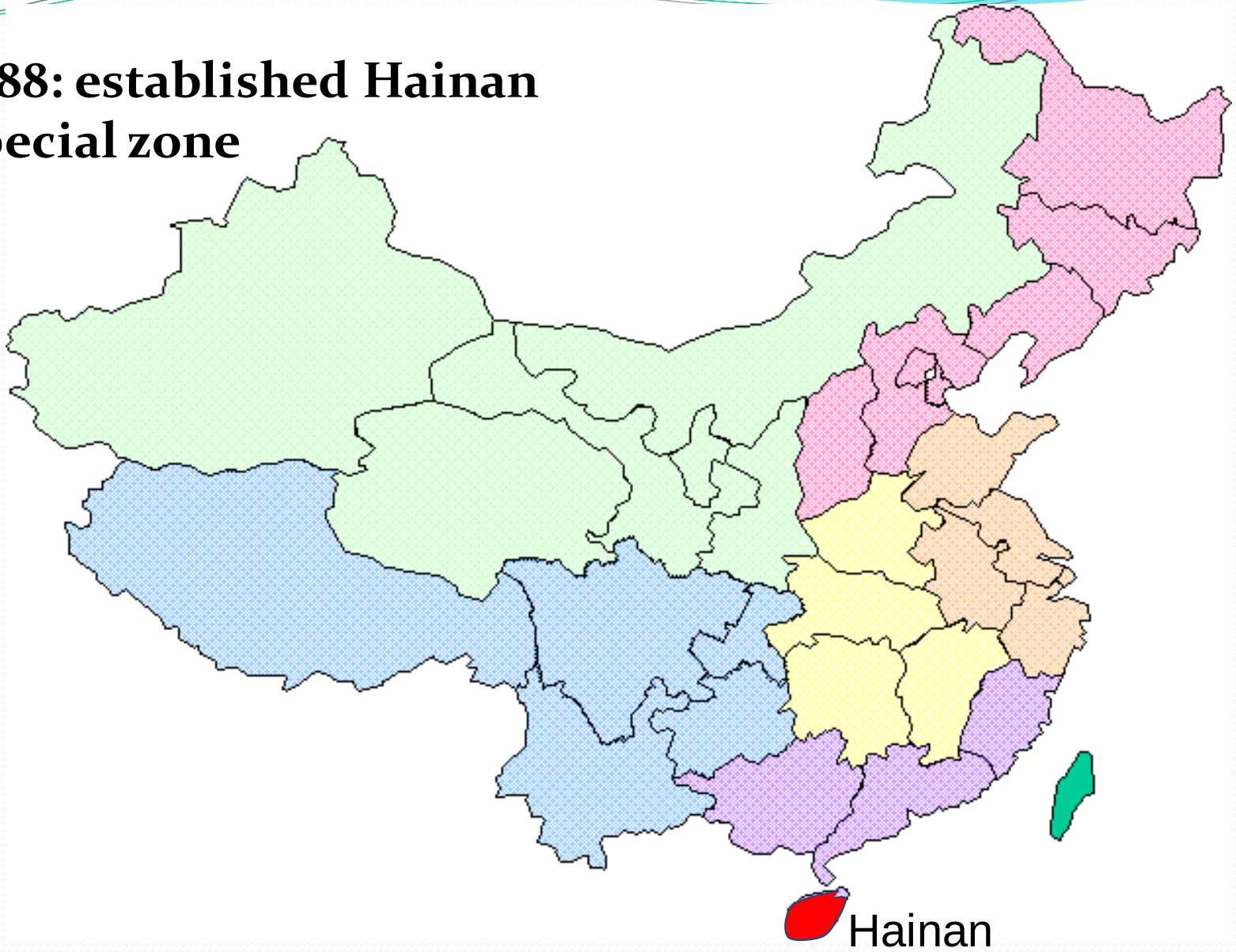
- In 1979: Establish four special economic zones.
- In 1984: Open 14 coastal port cities, and then open the "Yangtze River Delta", “Pearl River Delta“ and “Zhangquanxia" three coastal economic open zones, and later open more coastal areas.
- In 1988: Establish Hainan special zone.
- In 1990: Develop Pudong New District.

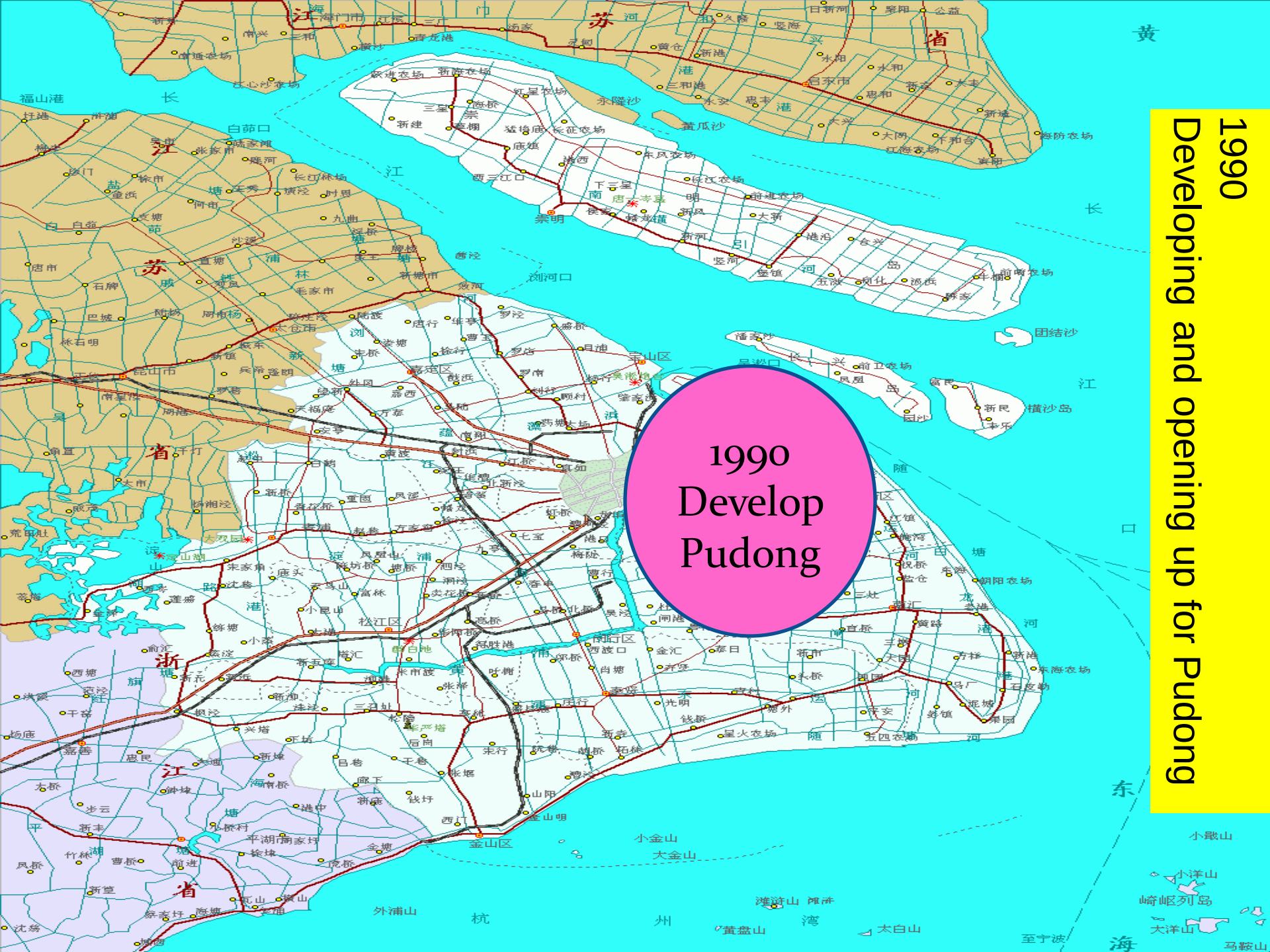
1979: established 4 special economic zones

1984: 14 coastal port cities opening

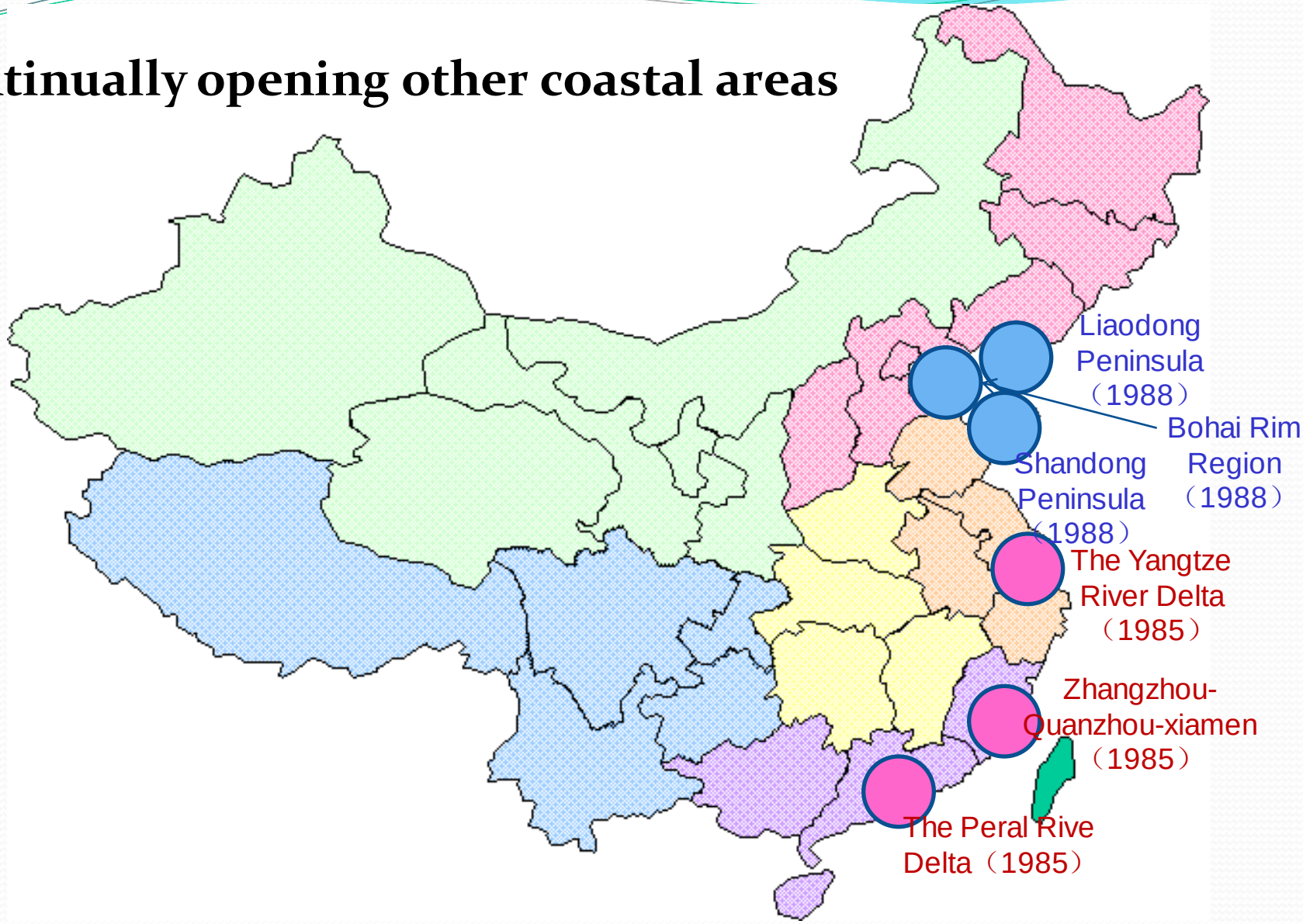


1988: established Hainan special zone




1990
Develop
Pudong
1990
Developing and opening up for Pudong

Continually opening other coastal areas



Coastal areas opening up — Gradually

- Individual cities → regions
- special economic zones → port cities → delta or peninsula coastal areas → other coastal areas

（3） 3rd stage: Coordinated development

- **period:** from the beginning of this century until now (2000-)
- **Policy means and goal:** development of western region, revitalize northeast China and old industrial bases, the rise of central China, aiming at realizing the national coordinated development of regional economy.
- **Effect:** Central and western areas get rapid development, and the gap between different regions has been narrowed in past 10years.

2. Actual changes of China's Regional differences during the past 60 years

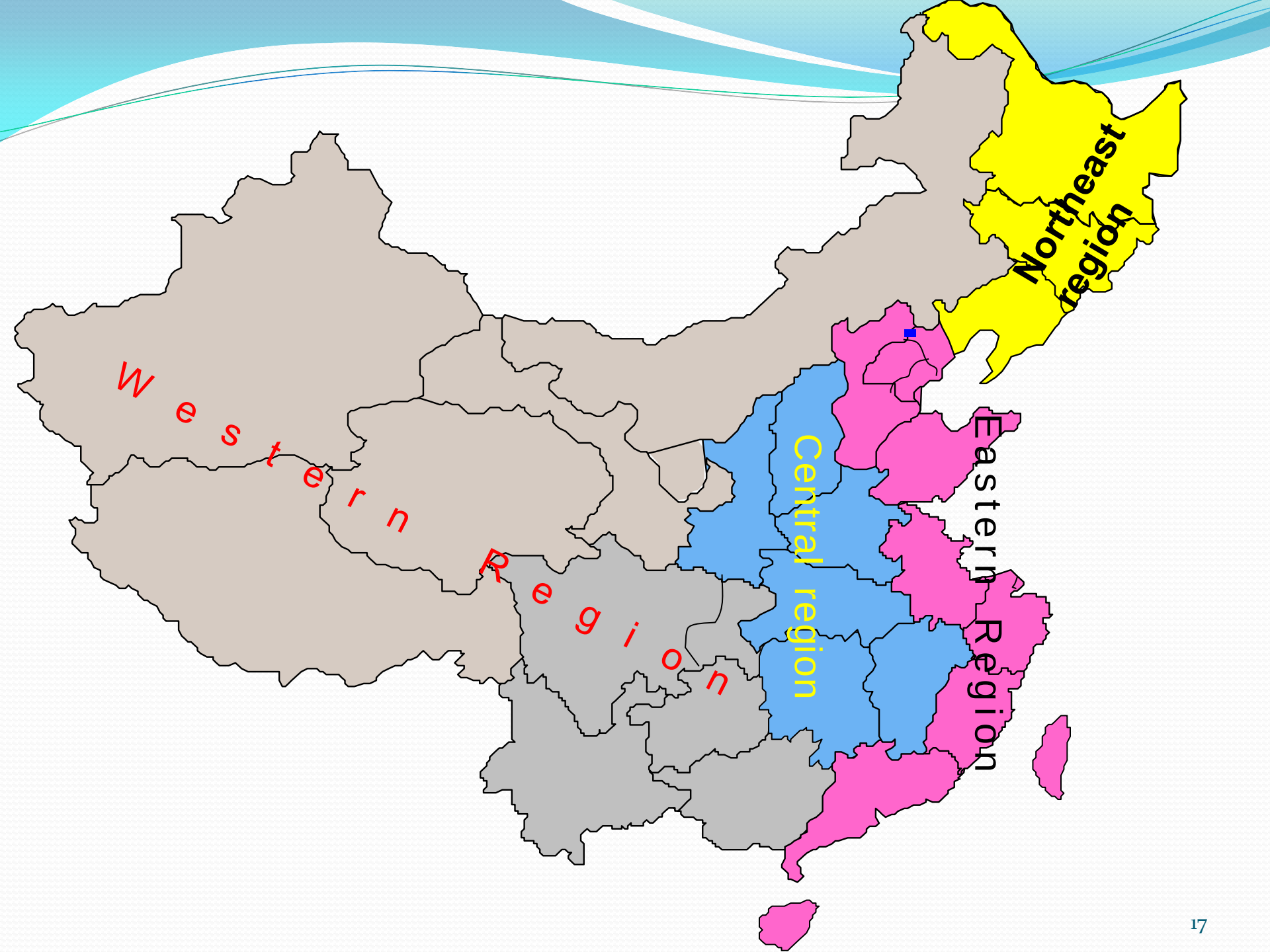
2.1 regional economic growth analysis during the past 60 years

Northeast region: Heilongjiang, Jilin, Liaoning provinces.

Eastern region: Beijing, Tianjin, Hebei, Shandong, Shanghai, Jiangsu, Zhejiang, Fujian, Guangdong, Hainan.

Central region: Shanxi, Anhui, Jiangxi, Henan, Hubei, Hunan.

Western region: Sichuan, Chongqing, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Inner Mongolia, Guangxi.

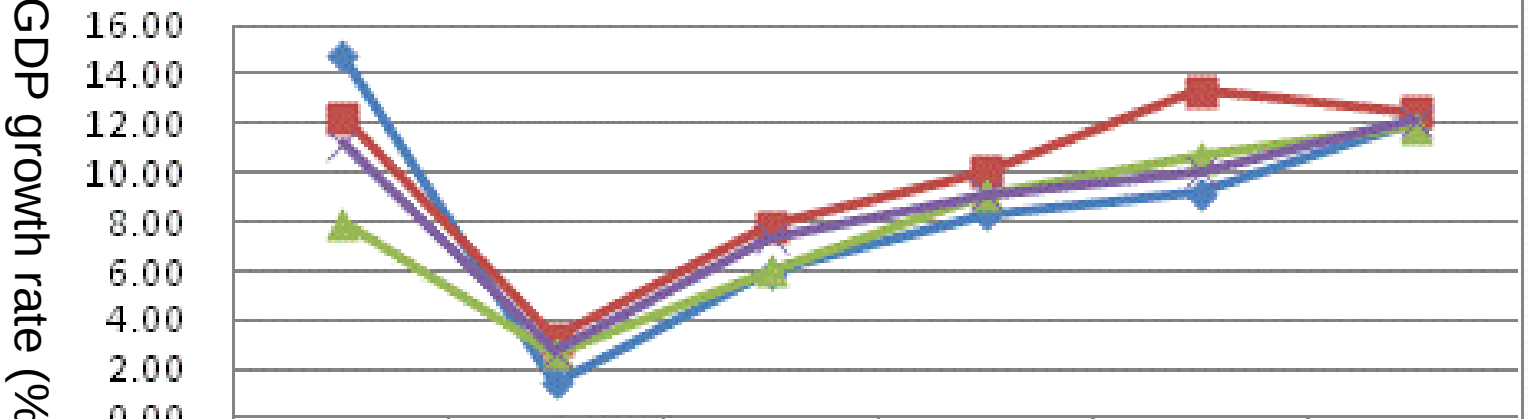

Northeast region
Western Region
Central region
Eastern Region

Timeline and Economic growth analysis

- Timeline: Use nearly 60 years of data from 1952 to 2009 , group 10 years in a section, analyzes the regional economic development reflected by each section of time series.

- The comparison of the regional economic growth: process GDP growth rate by annual smoothing.

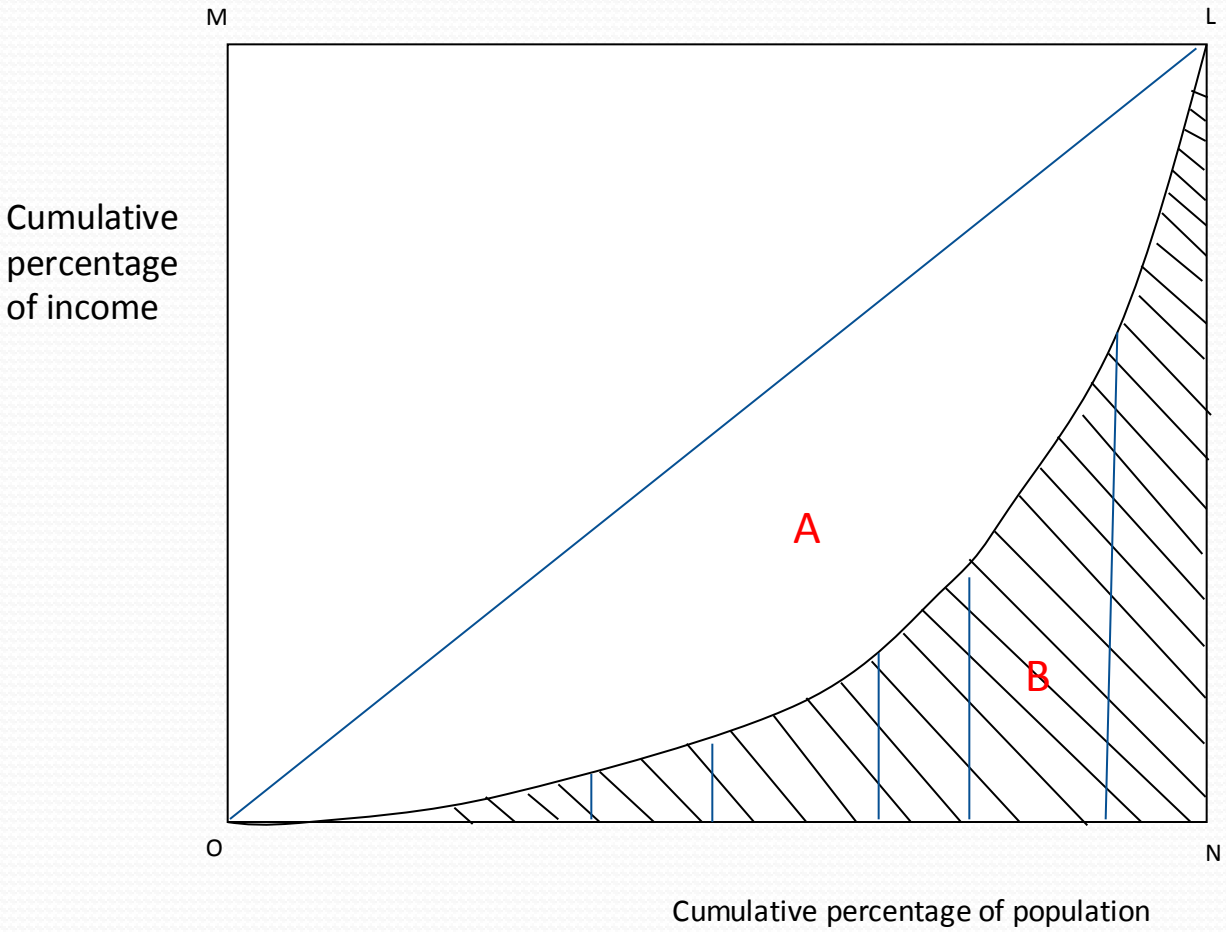
Regional GDP growth rate by time series



	1960年	1970年	1980年	1990年	2000年	2009年
Northeast	14.76	1.41	5.93	8.29	9.18	12.02
southeast	12.29	3.25	7.82	10.03	13.33	12.48
Central	7.97	2.68	6.00	9.12	10.64	11.87
West	11.21	2.72	7.37	9.09	10.05	12.13

2.2 regional economic change analysis in past 10 years

- Time: 2000-2010
- Regional division: east, central and west areas
- Method: hierarchical Gini coefficient
- Calculation methods: the trapezoidal method



Calculation Method of Location Gini Coefficient

Location Gini coefficient

Region	Gini coefficient in 2000	Gini coefficient in 2010	Regional Gini coefficient increase rate(%)
National	0.2689	0.2186	-18.46
Eastern	0.1995	0.1621	-18.74
Central	0.1334	0.0991	-25.71
Western	0.0662	0.1354	104.53

Conclusion

- Before 1970, the northeast area dramatically changes, from most rapidly to most slowly.
- 1970-2000, eastern region maintain leading role, central and western areas alternatively rise, northeast fell behind
- After 2000, regional growth rate tends to convergence.
- In past ten years, national regional difference narrows, difference between eastern and central regions are shrinking, but the difference within western area is expanding rapidly.

3. Correlation research on regional policy and regional economic development

Research method

- Policy influence index
- Correlation analysis of policy influence index and economic development
- Regional development level cluster analysis

(1) policy influence indexation

- **Time and regional division:** from 1952 to 2009, by 10 years as a cross section, the area is divided into four areas: eastern, central, western and northeast.
- Rating for regional policy in different period
- Calculation of policy index in diversified districts
- Calculation of total score for four areas

About regional policy score

- Using **Delphi method**, rating 0 to 10 points score for regional policy according to their policy influence strength.

- Final results take the average data from survey targets under different background.

calculation of regional policy influence index

- Calculate the regional policy index score for 4 areas in different time section.

- According to 31 provinces in space division, we calculate average regional policy score for 4 regions, as contrast for GDP compound growth rate.

（2） correlation analysis between regional policy influence index and economic growth

- According to the above treatment, in each 10 year section, we can statistically obtain the compound annual growth rate of GDP and average regional policy index of 31 provinces, in accordance with the spatial distribution.
- R — correlation coefficient
- x, y — respectively respect GDP compound annual growth rate and regional policy index

$$R = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sqrt{\sum(x - \bar{x})^2 \sum(y - \bar{y})^2}}$$

Correlation between regional policy influence index and economic development

Year		1960	1970	1980	1990	2000	2009
northeast Region	GDP growth rate	14.76	1.41	5.93	8.29	9.18	12.02
	regional policy influence index	89.30	15.50	0.00	10.27	4.40	46.20
Eastern Region	GDP growth rate	12.29	3.25	7.82	10.03	13.33	12.48
	regional policy influence index	15.50	18.30	5.02	42.87	37.67	48.90
Central Region	GDP growth rate	7.97	2.68	6.00	9.12	10.64	11.87
	regional policy influence index	15.50	17.25	0.75	2.70	0.00	32.50
Western Region	GDP growth rate	11.21	2.72 1	7.37	9.09	10.05	12.13
	regional policy influence index	15.50	19.06	1.53	2.57	14.30	42.04
Correlation coefficient		0.76	0.85	0.87	0.73	0.86	0.79

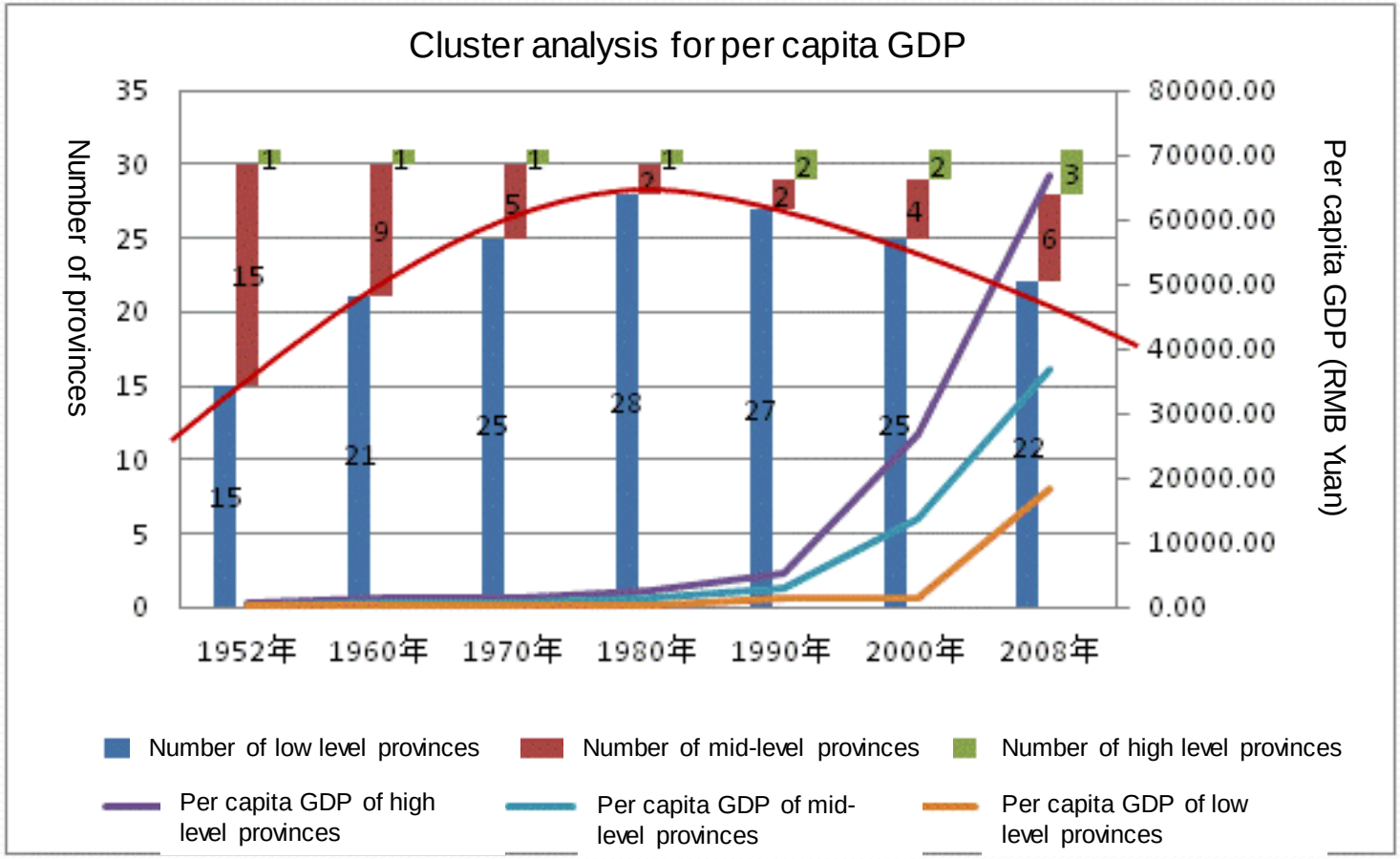
Obvious conclusion

- **(1) the regional policy influence strength is significant different in 5 time sections**
- In 1960: the northeast area is the largest, 89.30.
- In 1970: western region is slightly higher , 19.06.
- In 1980: eastern region is slightly higher, but only 5.02.
- In 1990: regional policy index gap increased rapidly, eastern region reached the highest 42.87, while other areas are basically under 10.
- In 2000: the whole pattern has not changed.
- In 2009: the regional policy influence index imbalance situation drastically improved, although with accumulative effect, the eastern region is still the strongest, but the gap greatly decreased.
- **(2) There is a positive correlation between regional policy and regional economic development.**
- In all the time section, regional GDP growth and regional policy index has a strong positive correlativity, average correlation coefficient reaches 0.81.

(3) Regional development level clustering

- Cluster the per capita GDP for 31 provinces and observe the actual effect of economic development.
- In each ten years section, cluster the per capita GDP into three categories: high, average and low.
- statistically summarize the amount of provinces in each time section.

The effect of regional policy influence

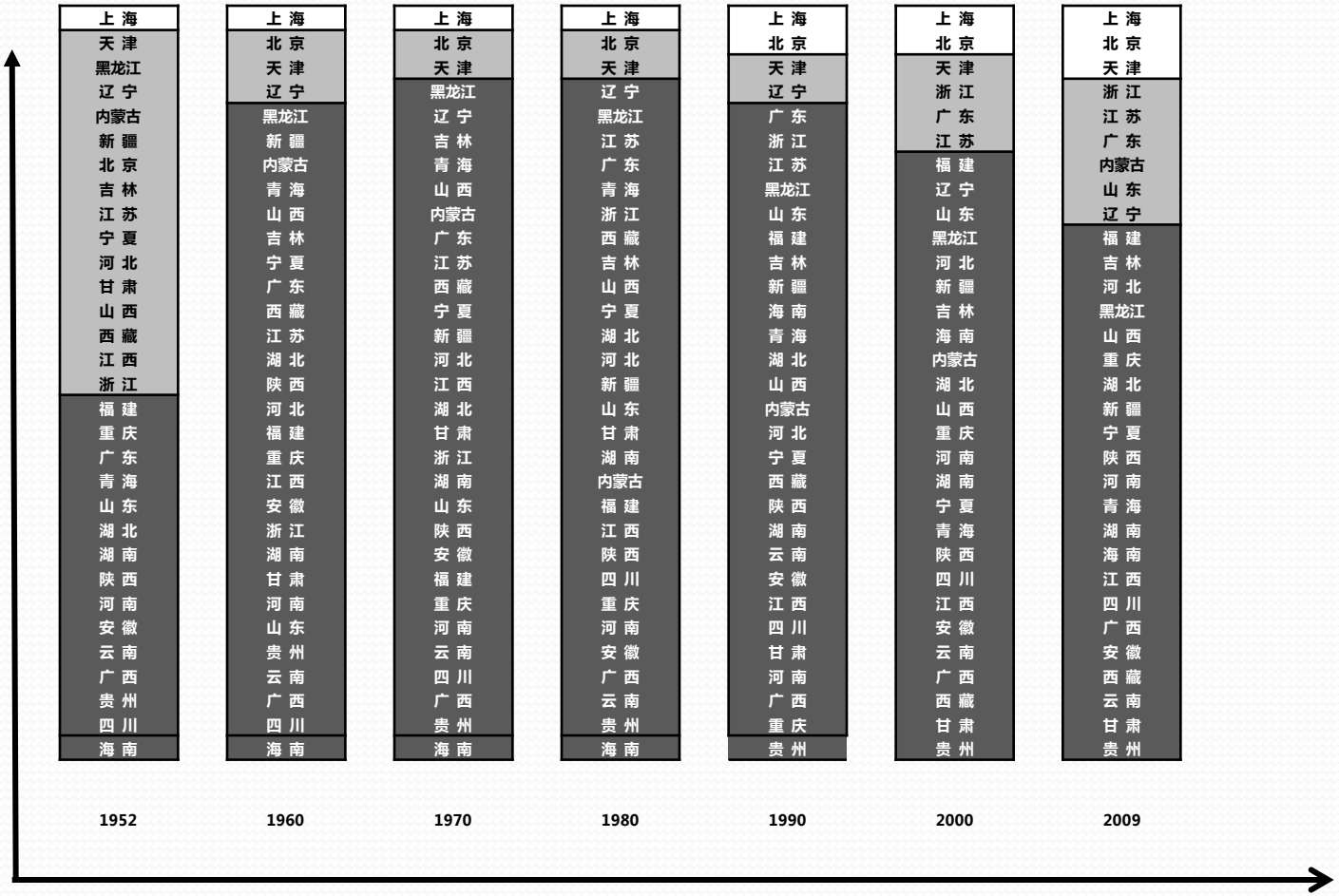


Summary of policy influence

- (1) before the reform and opening up, balanced development policy realized low level of regional balance.

- (2) 30 years after reform and opening up, intensive regional policy influence obviously narrowed regional gap.

development level clustering in each section



- 4. Problems in Regional development and thinking on future policy orientation

4.1 regional development and related policy problems

- Imbalance in China's regional development is still critical
- Difference within some regions has been expanding
- Interregional flow of factors may lead to a long period of irreversible effects
- Regional policies are too extensive

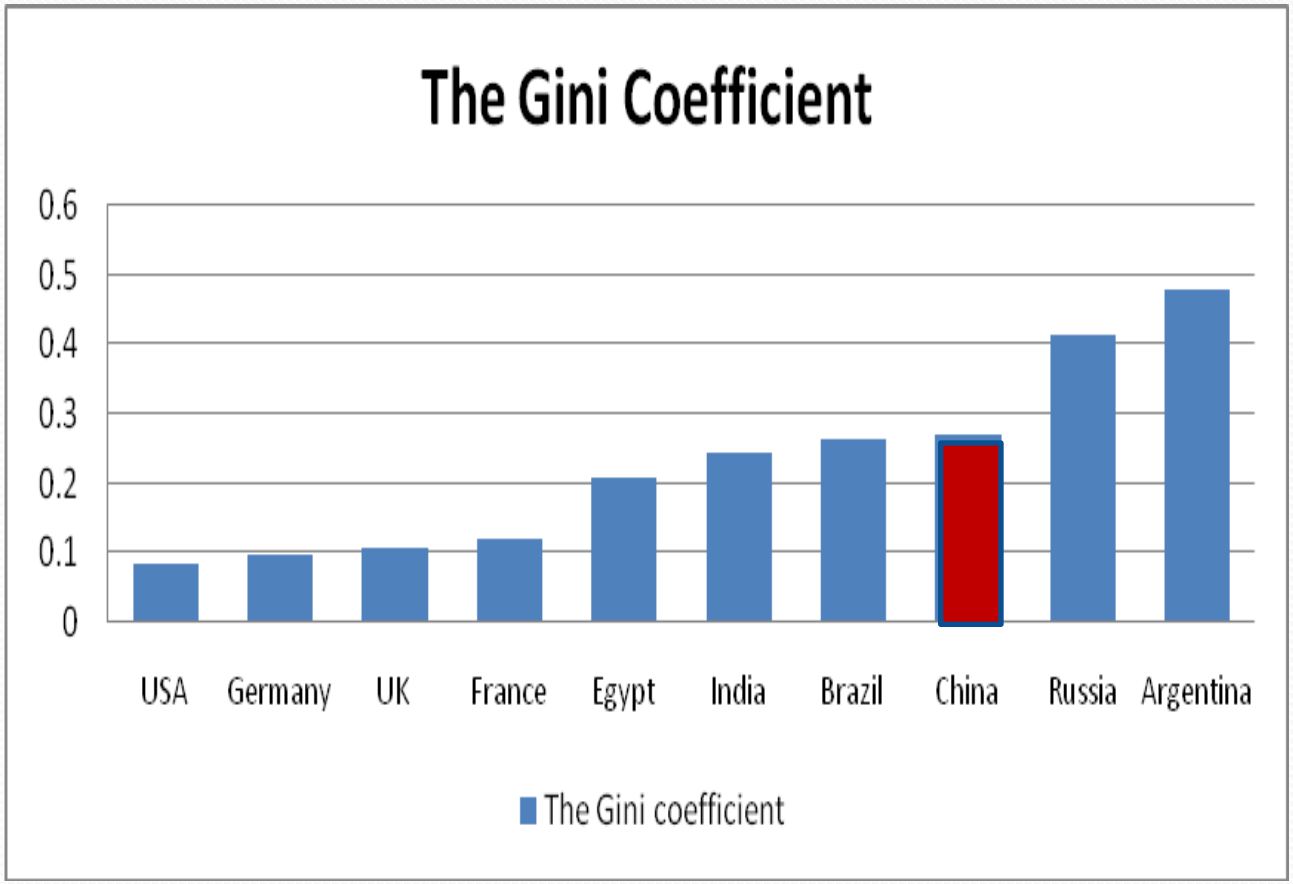
（1） Imbalance in China's regional development is still critical

- In recent years, under the influence of central and west regional policies, China's regional gap is narrowing, but still with high GINI coefficient.

- Higher than world developed countries.
- Higher than India and Brazil comparing with BRIC.

10 counties' location Gini coefficient

Countries	Gini coefficient
USA	0.085
Germany	0.098
UK	0.109
France	0.122
Egypt	0.208
India	0.246
Brazil	0.264
China	0.271
Russia	0.415
Argentina	0.48



Comparison of Location Gini Coefficient among 10 counties

（2)Differences within some regions or provinces have been expanding

- Under the background of national shrinking gap, the gap within some regions is expanding rapidly.
- From 2000 to 2010, the western region' GINI coefficient rapidly expand from 0.0662 to 0.1354.
- 12 provinces with GINI coefficient rising, including Qinghai, Hunan, Anhui expanded by more than 50%.

GINI coefficient change in last decade

Province	GINI in 2000	GINI in 2010	Change rate (%)
Hebei	0.18/	0.21	17.82
Shanxi	0.24/	0.12	-51.01
Jinlin	0.22/	0.14	-36.73
Liaoning	0.32/	0.28	-12.52
Heilongjiang	0.34/	0.33	-1.94
Shaanxi	0.27/	0.26	-2.84
Gansu	0.38/	0.40	5.72
Qinghai	0.28/	0.42	50.48
Shandong	0.30/	0.29	-4.56
Fujian	0.25/	0.13	-49.70
Zhejing	0.19/	0.23	17.02
Henan	0.20/	0.22	8.50
Hubei	0.26/	0.30	14.86
Hunan	0.19/	0.30	54.53
Jiangxi	0.22/	0.25	11.80
Jiaangsu	0.32/	0.33	1.48
Anhui	0.25/	0.38	51.92
Guangdong	0.49/	0.34	-29.52
Hainan	0.29/	0.31	7.36
Sichuan	0.32/	0.21	-32.02
Guizhou	0.23/	0.20	-11.84
Yunnan	0.40/	0.27	-32.42
Inner Mongolia	0.24/	0.31	26.93
Xinjiang	0.41/	0.40	-1.70
Ningxia	0.35/	0.26	-23.94
Guangxi	0.24/	0.22	-10.95
Tibet	0.31/	0.25	-20.39

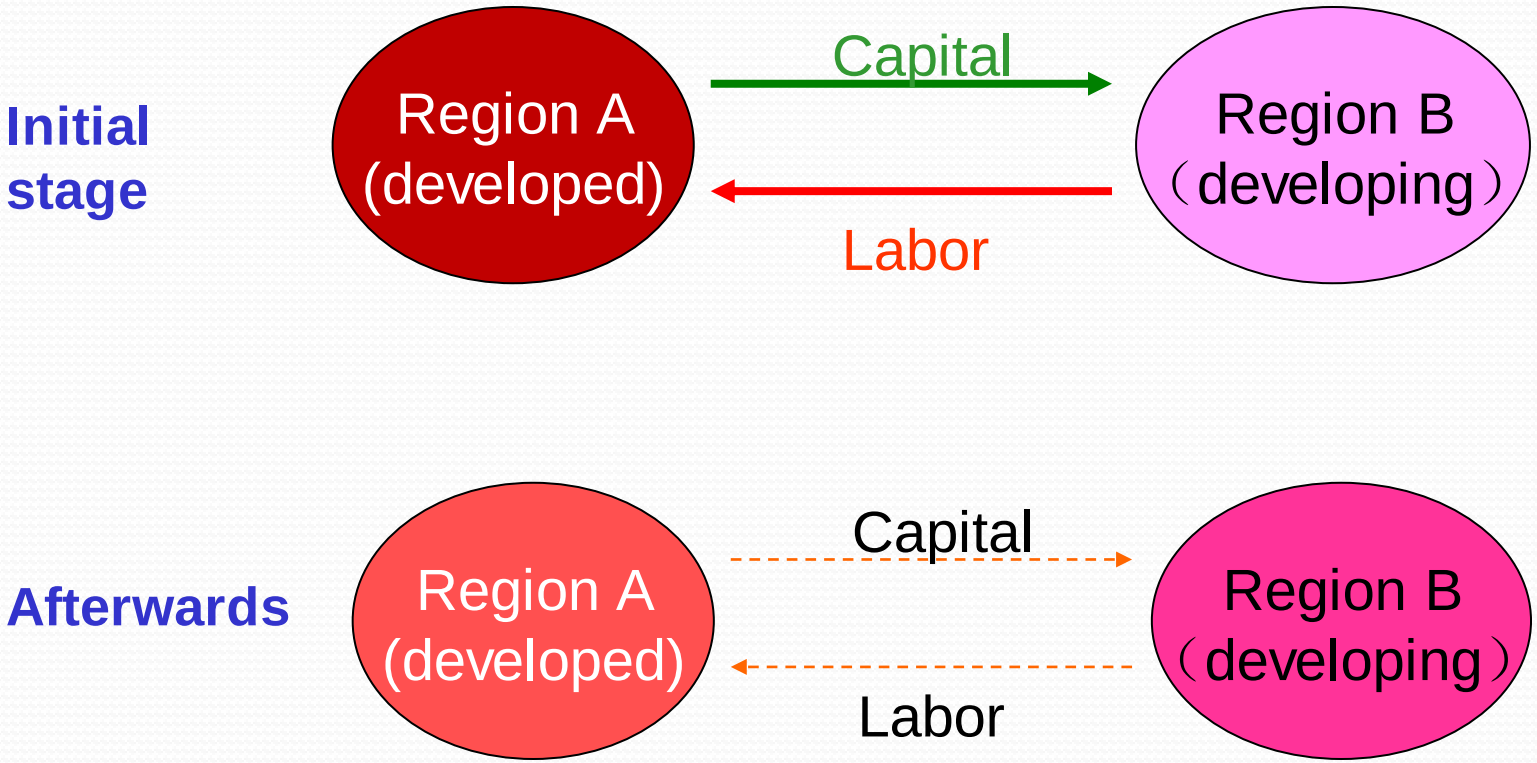
（3） Interregional flow of factors may lead to a long period of irreversible effects

- The regional policies tend to focus on a short term effect, but in fact, some factors in regional developing may have long-term and accumulating influence, which is irreversible even in a long period of time.

- New classical regional growth model used to dominate the regional economic growth analysis: given an imbalanced regional economic condition, as long as there is a perfect competitive market, the regional balance and common growth can therefore realize.

- But in China, based on the imperfect competition market , the equilibrium model is difficult to achieve.

Ideal model for New classical regional growth theory



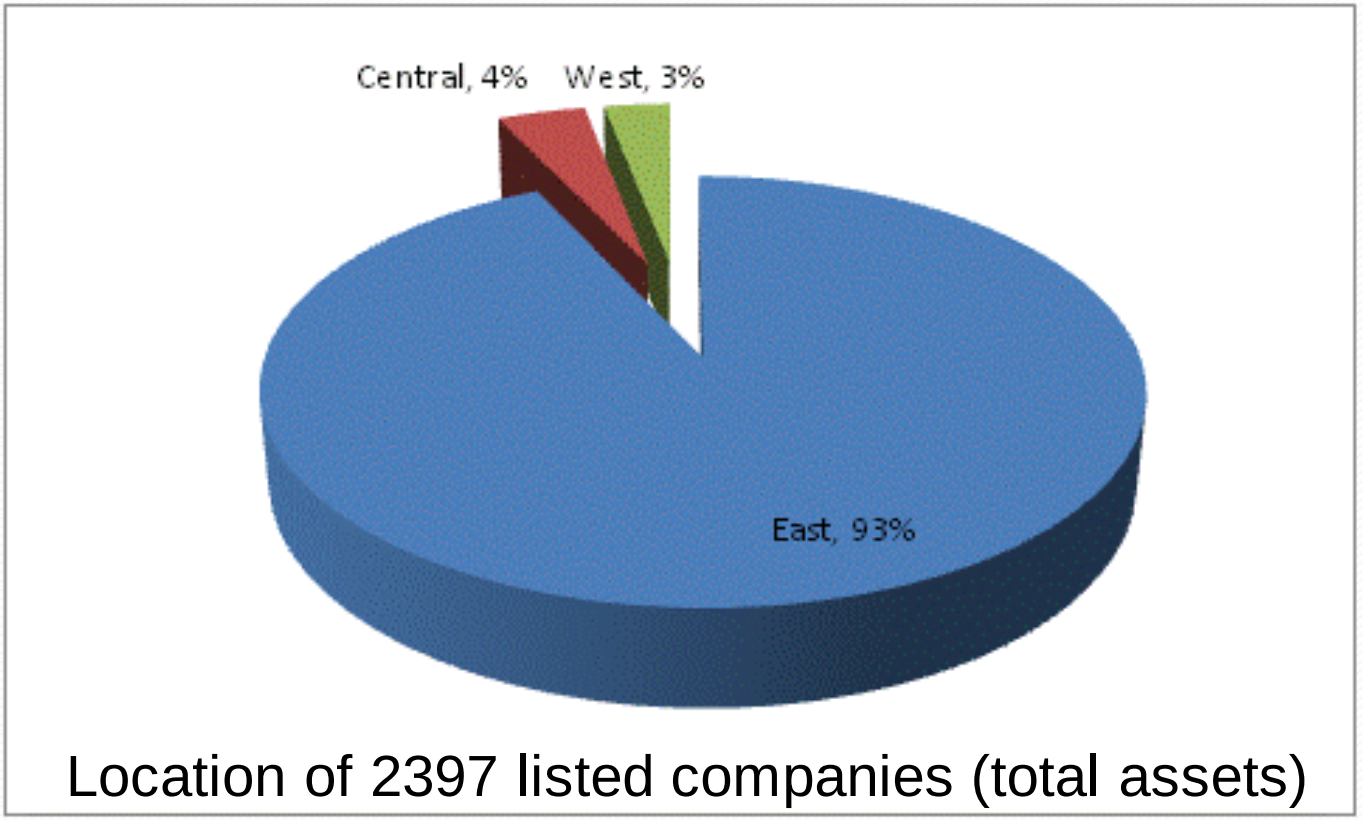
But there is inertia of factors flow in China

- In past 10 years, although regional policies for the central and west development have been strengthened, the flow of factors has not changed.
- Nowadays, factors still flow from the central and west to the east in large scale.

Great differences in regional capital flows and cumulative effect

- National— 2397 listed companies
- East: 60%
  - Beijing 207
  - Shanghai 196
  - Jiangsu province 224
- West: a few listed companies
  - Tibet 10
  - Qinghai 10
  - Ningxia 12

severe regional difference for 2397 listed companies' assets

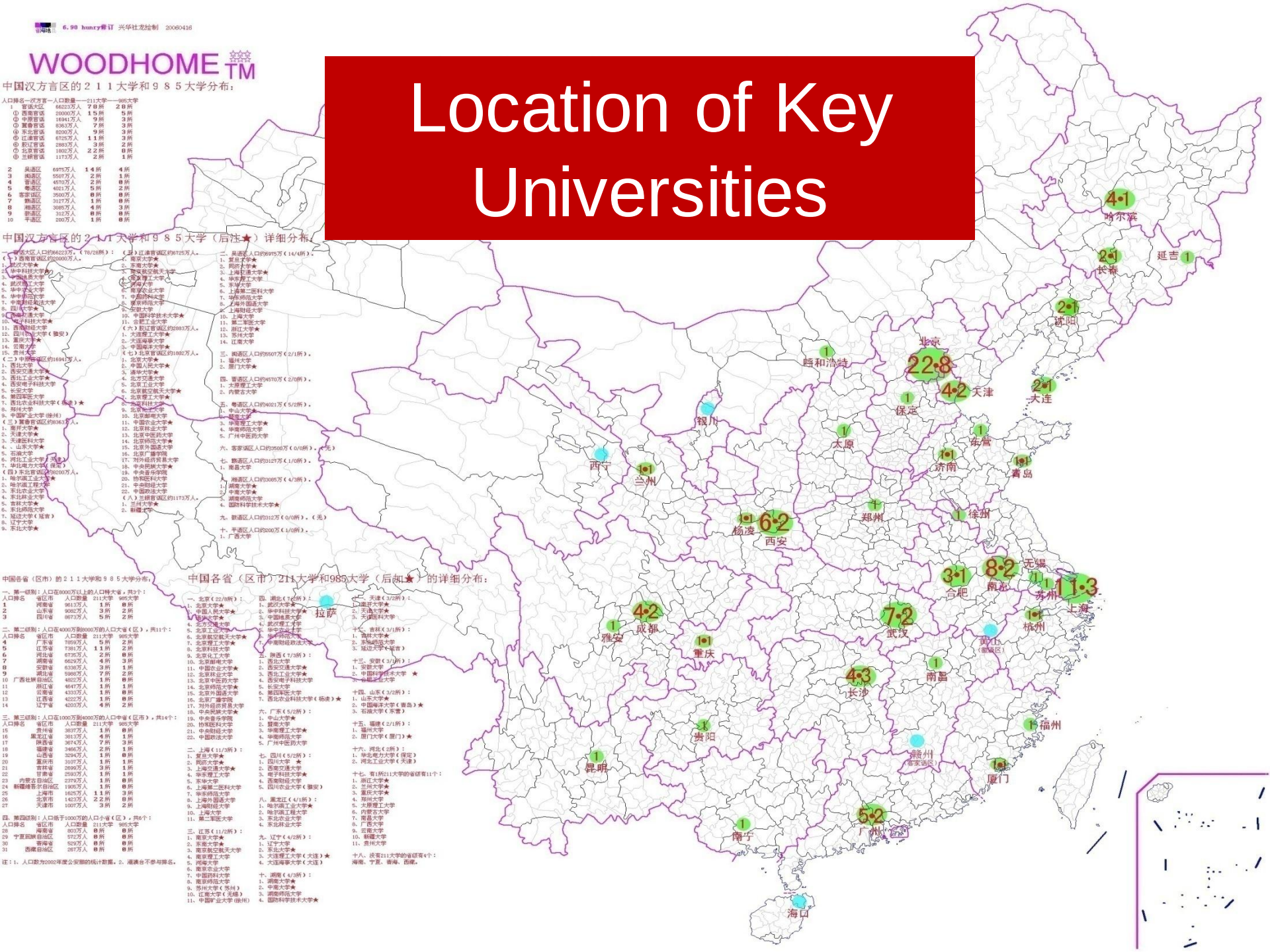


Location of 2397 listed companies (total assets)

Regional imbalance of talent flow

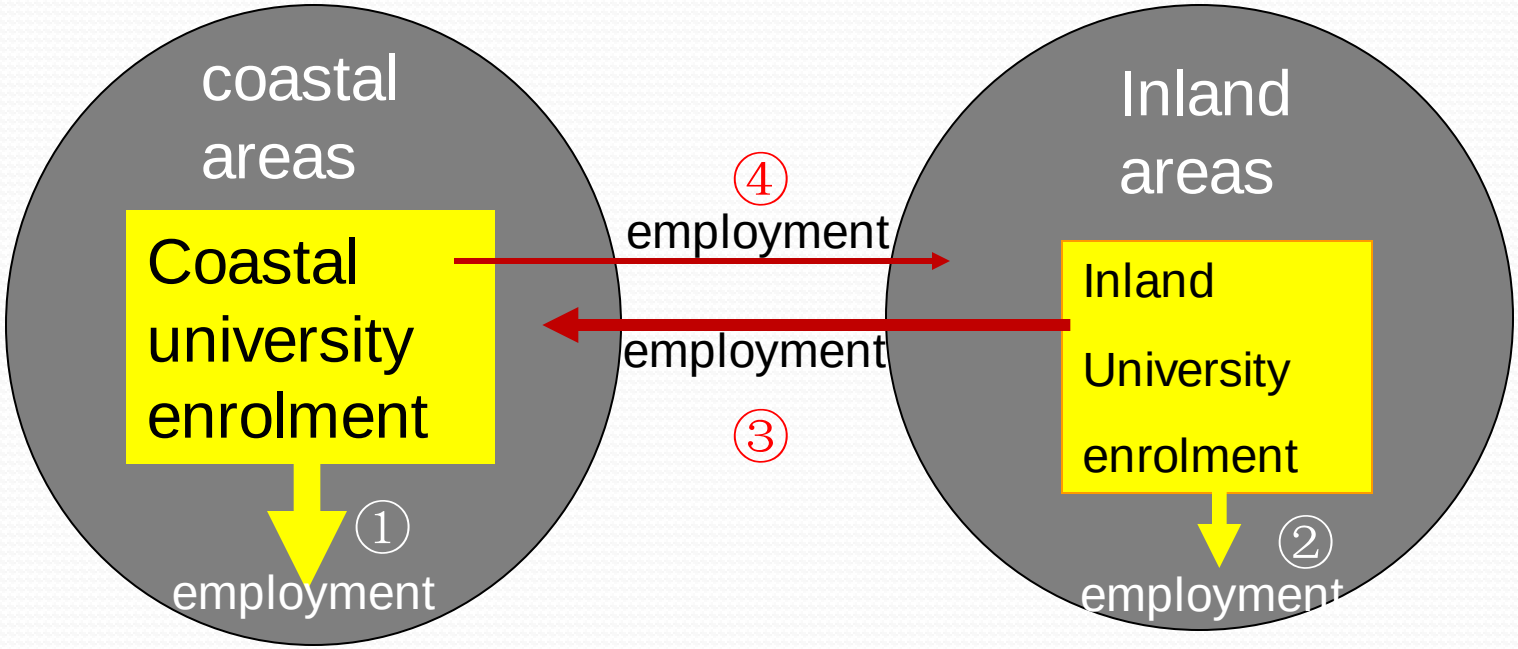
- As the primary form of talent allocation, both university enrolment and employment are imbalanced among regions.

Location of Key Universities



Asymmetric flow of talent

Costal area get talent=①+③
Inland area get talent=②+④



Asymmetric university enrolment and employment between coastal and inland regions

The size of the boxes stand for university enrolment scale

The size of the arrows stand for employment scale

Regional talents screening

- In addition to the imbalance of college students first employment, large scale of talent flow across the region is quite strong, and the flow is unbalanced.
- A large number of entrepreneurs and scientists in central and west migrate to the east. While few case happen in the opposite direction.

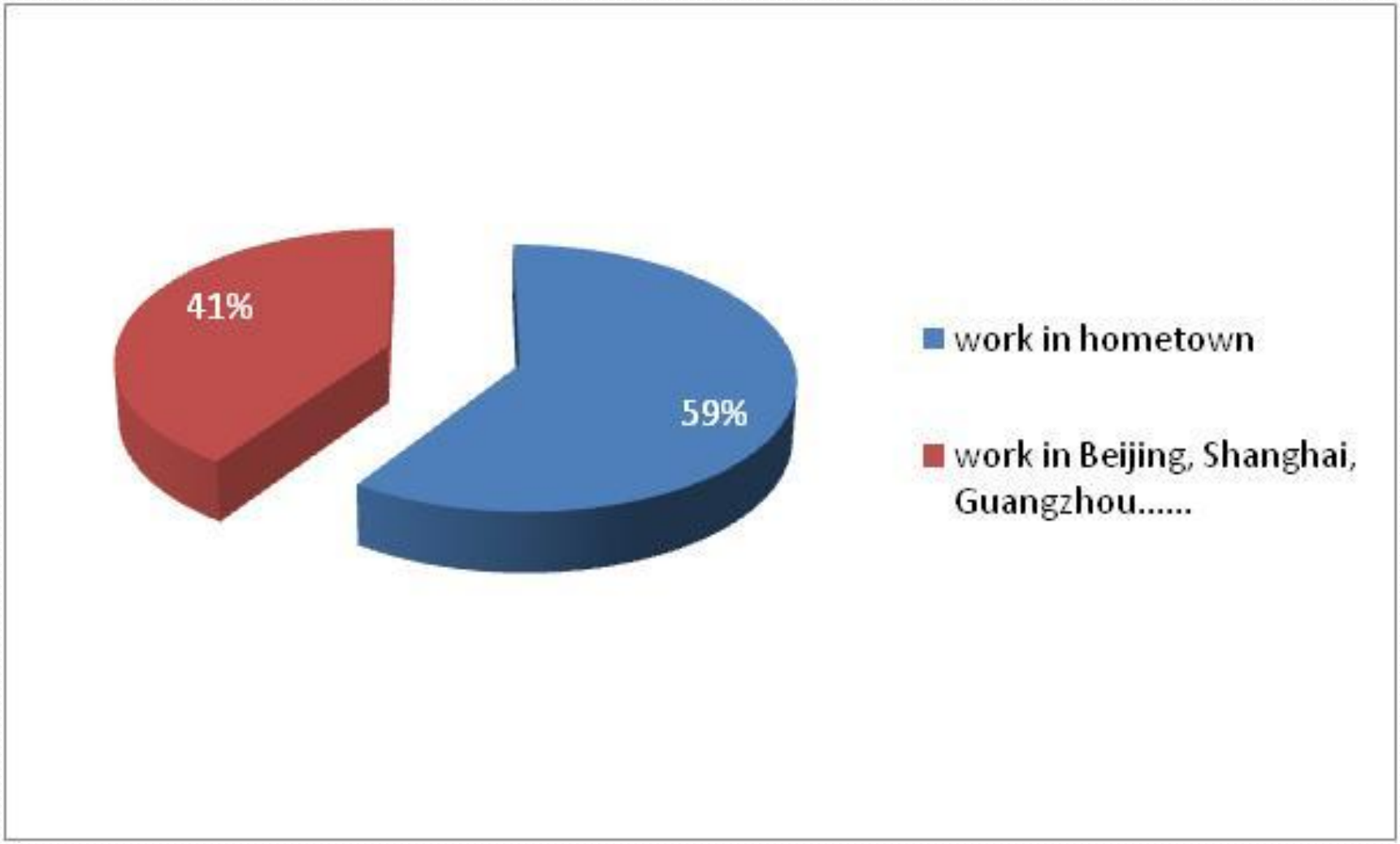
The results of a questionnaire answered by 440 senior-level talents

- 147 flow
  - horizontal flow (eastern - eastern, central-central, western- western) accounted for 36%
  - reverse flow (western → central and eastern, central → eastern) reaches as high as 52.4%
  - consequent flow (eastern → central and western, central → western) only account for 11.6%
- 293 people without flow
  - subjective reverse flow tendency
  - hope to eastern — 83.3%
  - hope to the central and west — 16.7%

General human capital flow is still in an unbalanced state

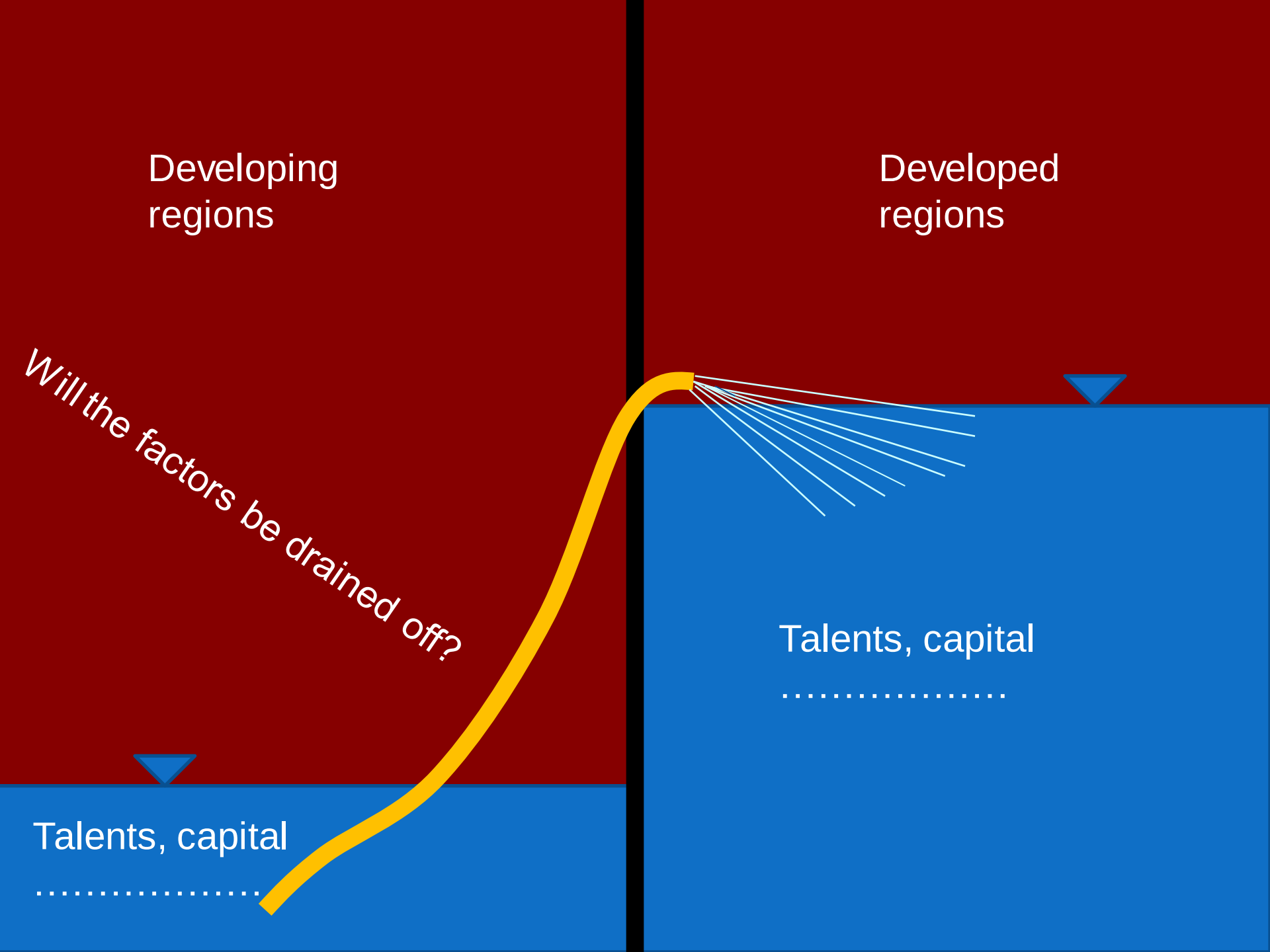
- Large scale of population migration from the central and west to the east continues and the result will be irreversible, even in future generations.
- Migrant workers' younger generations will rarely return.
- Case: Gushi county in Henan province
  - household population 1.722 million
  - permanent population only 1.024 million

Employment of Gushi County population



Advantage or disadvantage?

- From a point of view, population migrate from rural areas to cities may improve rural land scale management, but without creative young people, where is the impetus of economic development?


Developing regions
Developed regions
Will the factors be drained off?
Talents, capital
.....
Talents, capital
.....

（4）Too extensive regional policy

- Though major regional policies can narrow the regional gap in national level, they may lead to imbalance in different regional level.
- Some regional policies have vague goal, or rather chaotic.
- For example, dozens of regional revitalization planning in the past thee years.

4.2 Thinking of future regional policy orientation

- Regional policy orientation should balance both efficiency and fairness
- Regional policy should pay attention to construct regional sustainable ability
- Regional policy should be more accurate

（1） Balance efficiency and fairness in Regional policies

- “priority to efficiency and due consideration to fairness“ moves to ”equal stress on efficiency and fairness”.

(2) Construct regional sustainable development ability

- The past regional policies focused on infrastructure and material investment, large projects, industrial transfer, but not really pay attention to human resources.
- For the poverty-stricken areas and ethnic minority areas, in addition to education, there should be long-term stable policies to attract talents, such as "*Regional Seniority Sequence*".

（3） From Extensive to Precise

- Avoid only benefiting large cities or a few areas of good condition in developing regions

- Pay attention to poverty areas within developing regions, relatively less developed areas within developed regions, and rural areas in the shadow of large cities.

Thank you