# Structure Change and Regional divergence in China

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**Expressions in this report are the author's view, and are not related to the institution which the author is attached**

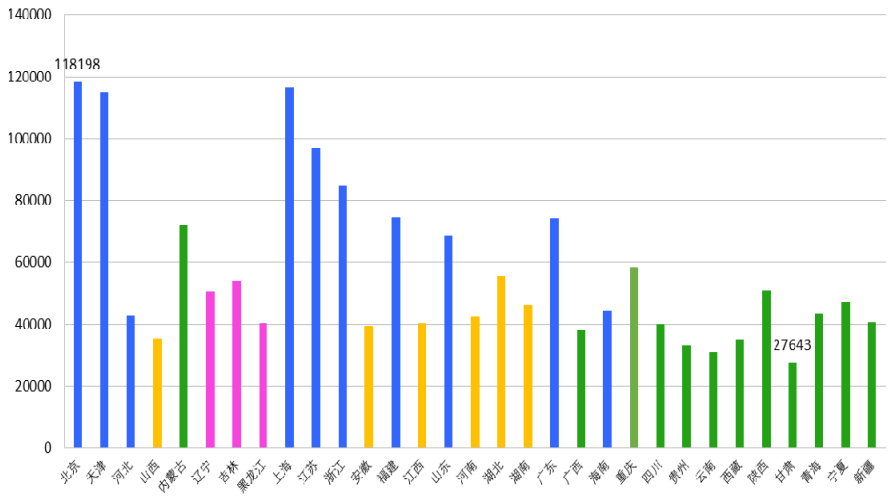
# Outline

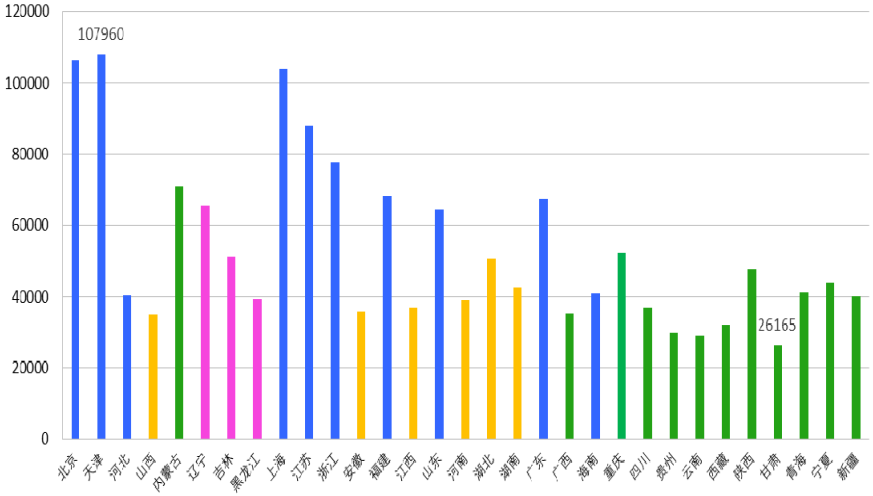
- Research background
- Database and Methodology
- Preliminary result
- Conclusions

# Four economic plates/regions

# Regional divergence

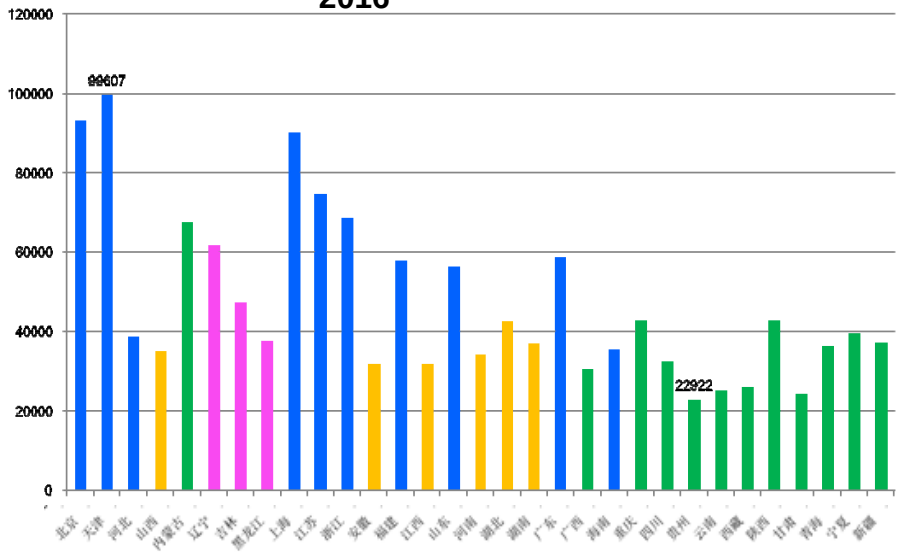
# Provincial per capita GDP



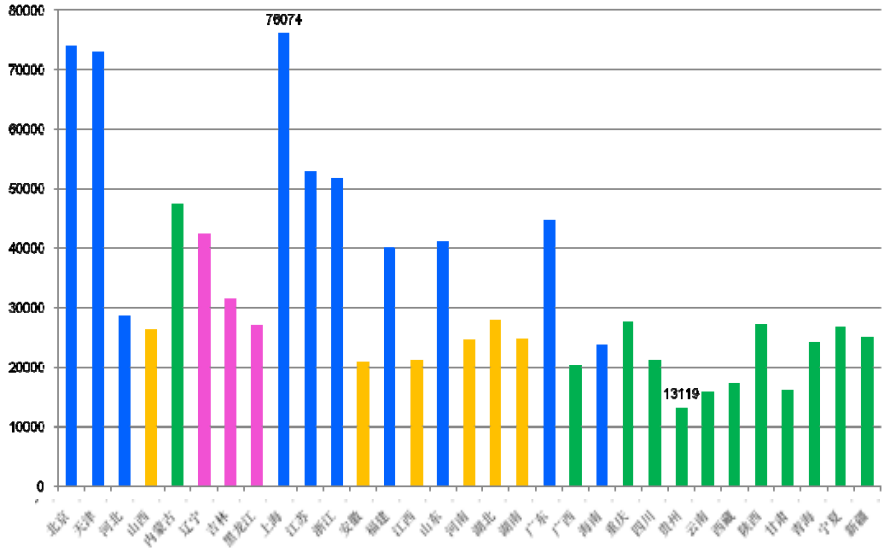




2015

2016

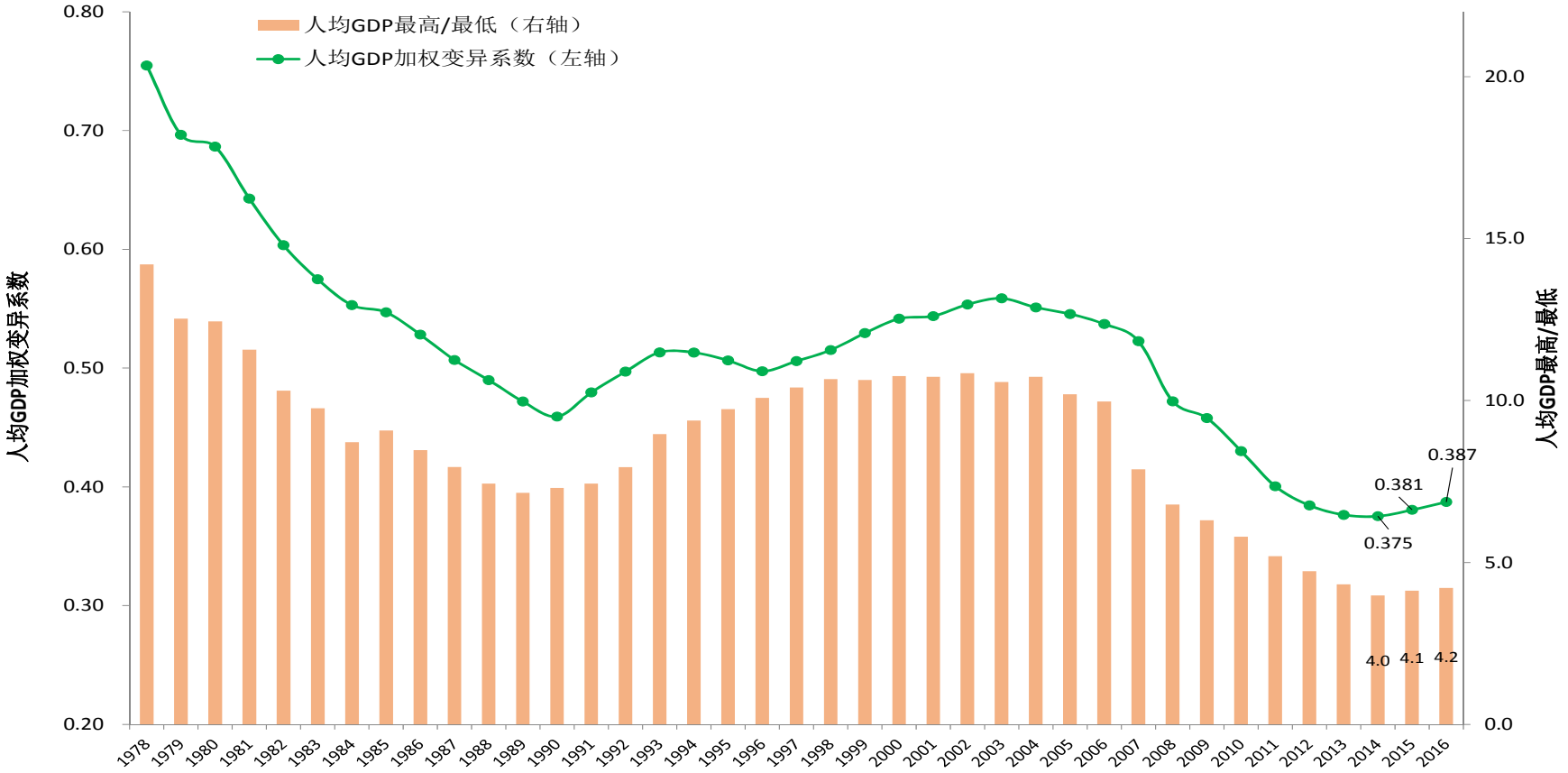



2013



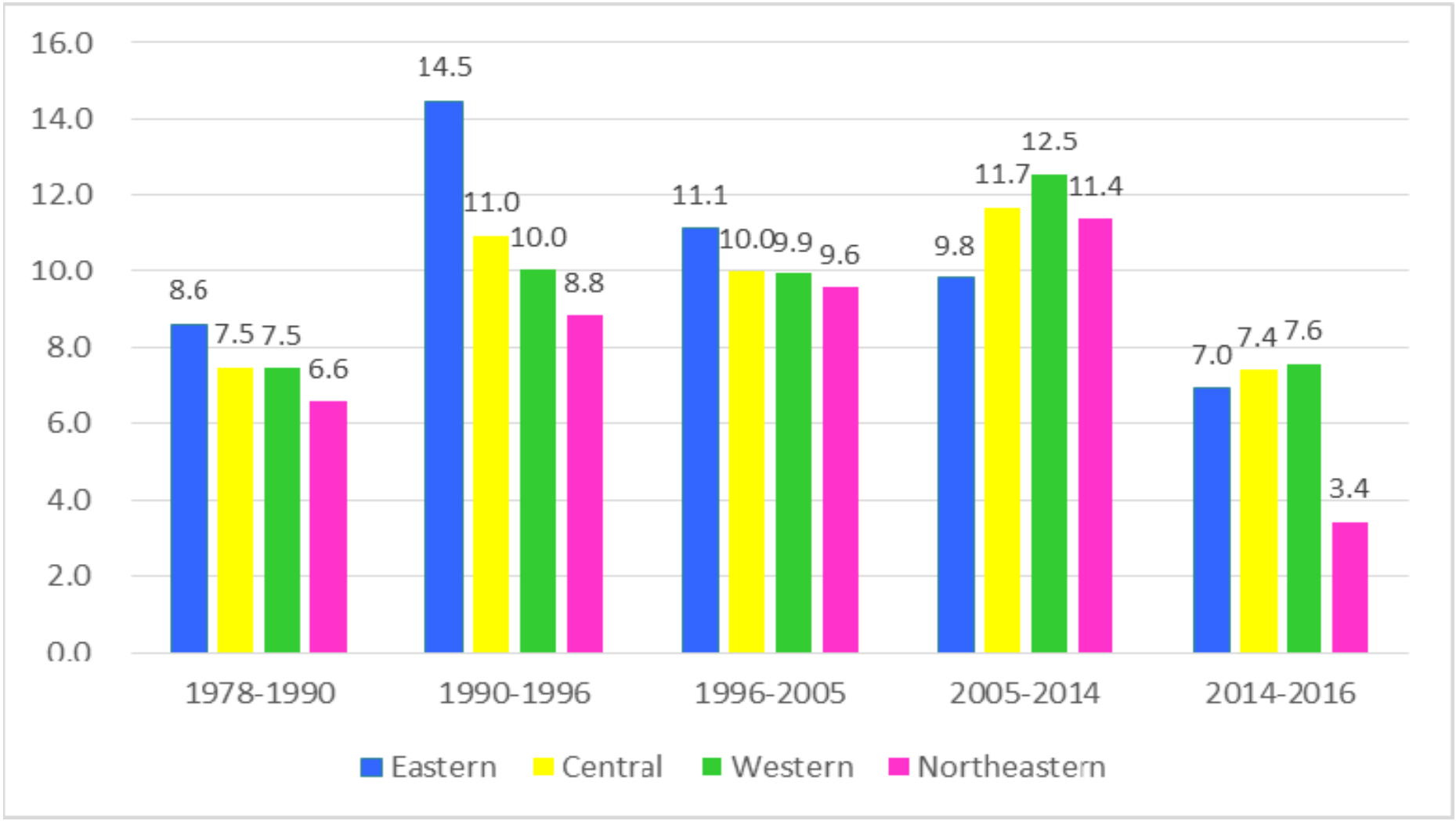

2010

# Changes of inter-provincial income disparities measured by coefficient of variation and Max/Min

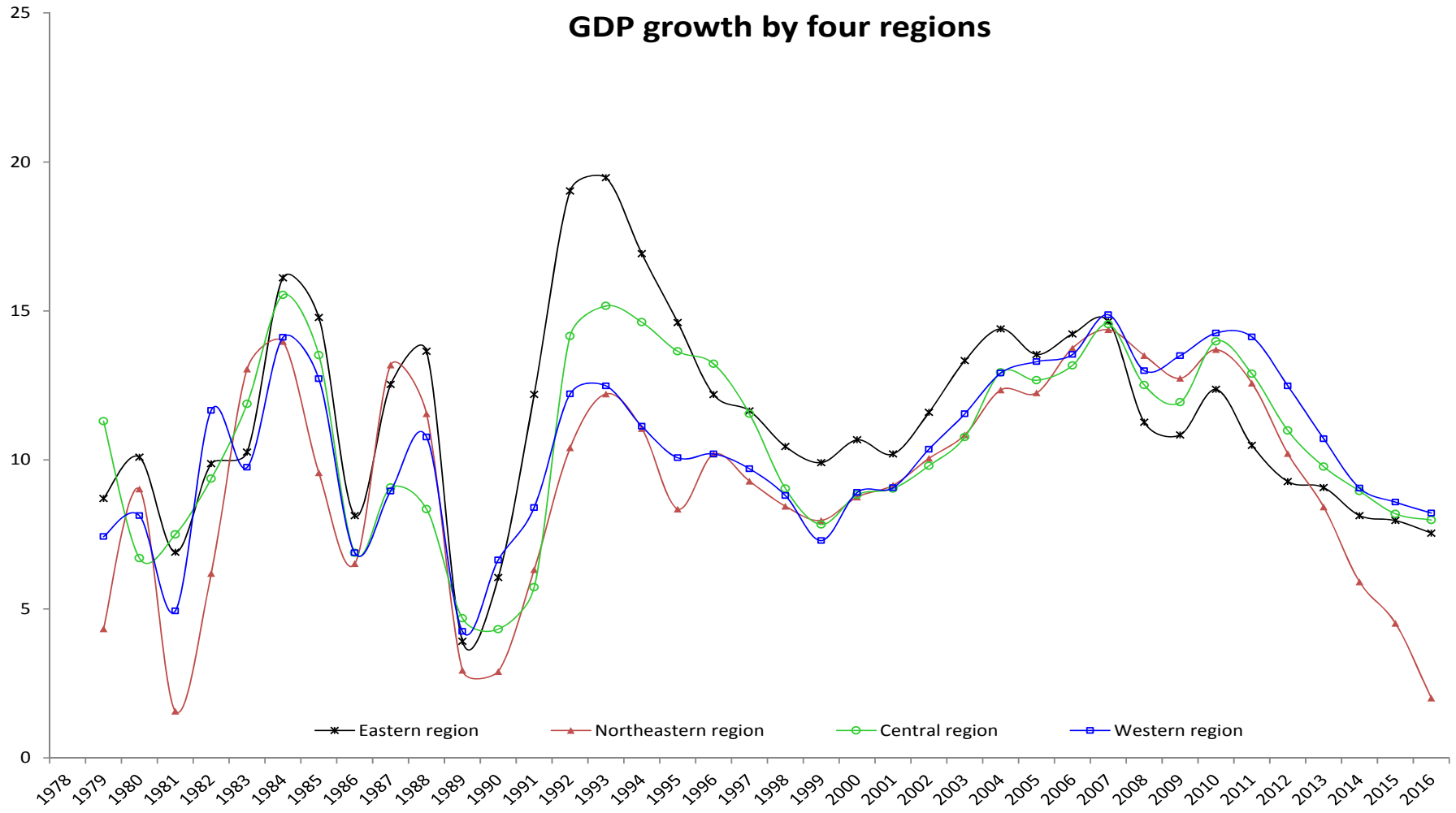



- 1978-1990 reduction of regional income disparity
- 1990-1996 rapid increase of regional income disparity
- 1996-2004 slowly increase of regional income disparity
- 2004-2014 significant reduction of regional income disparity
- 2014– increase of regional income disparity

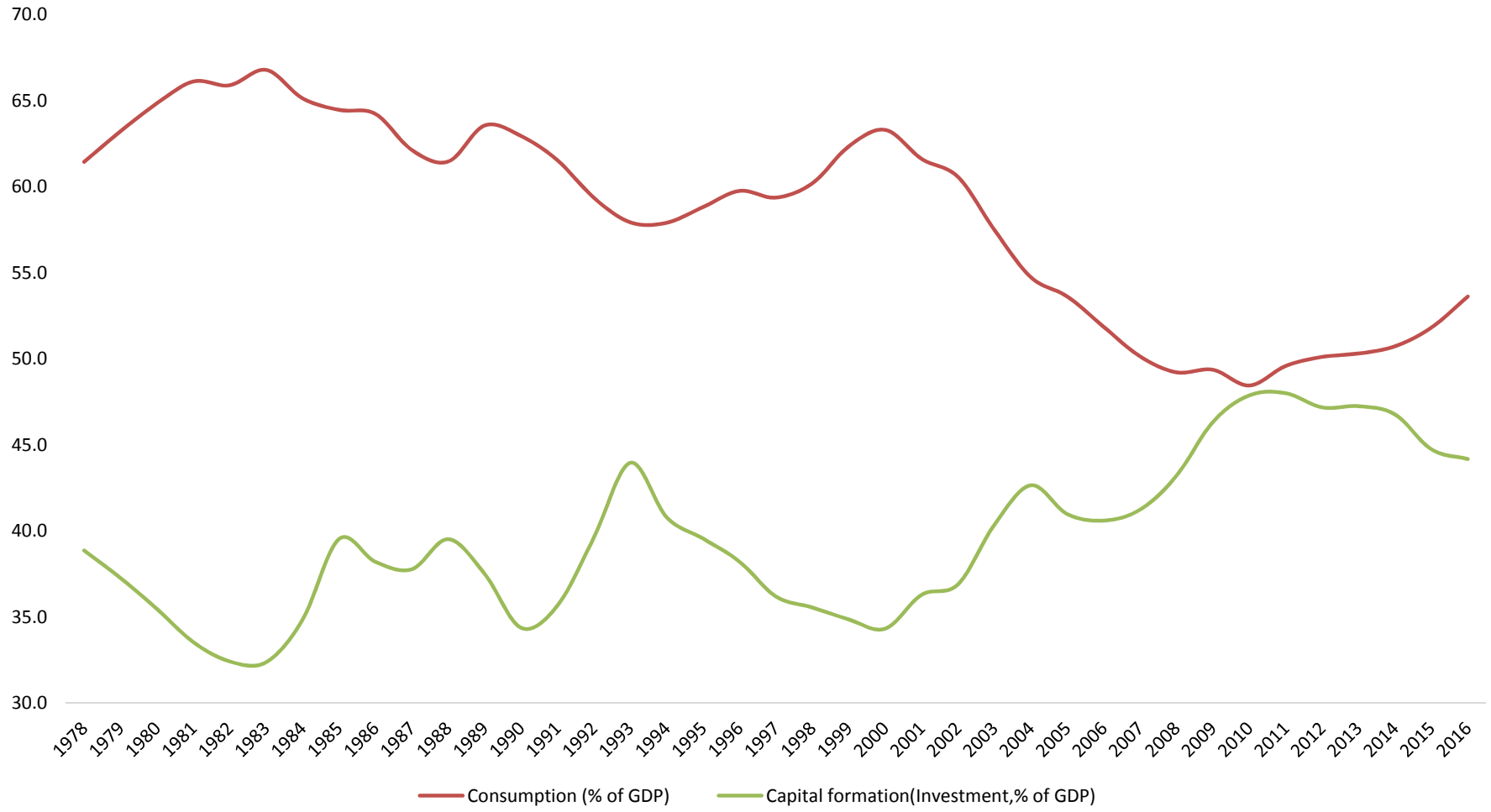
# Eastern, Central, Western, and Northeastern regions: Growth Rate of per capita GDP



# Except the Northeastern, the economic growth rate of the other three regions (Eastern, Central and Western China) is getting closer



# Structure change…

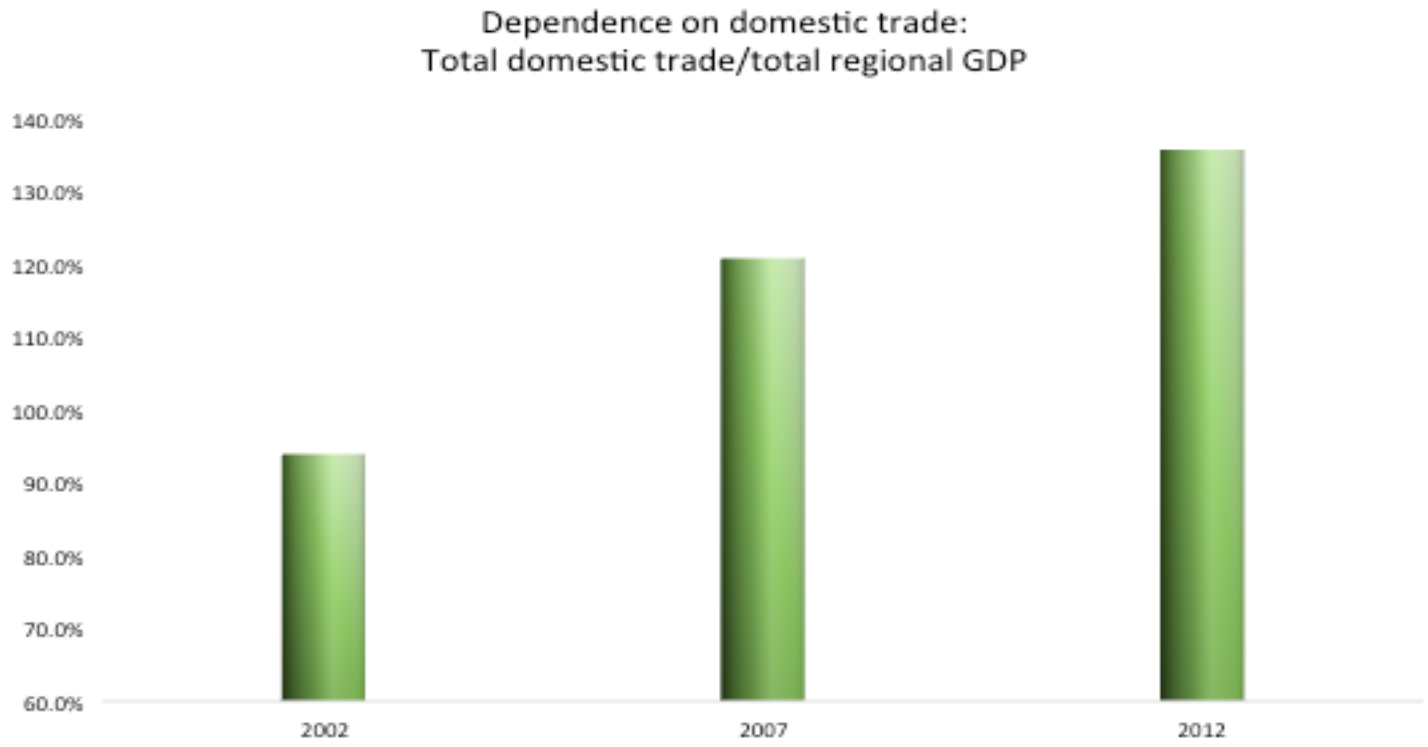


# Global Value Chain become more and more Important

- **Production fragmentation is continuously deepening**
  - **From the 1930s to the 1960s, intermediate goods trade was relatively unimportant. Today, it is about two-thirds of gross world trade, so being able to decompose intermediate goods trade has become crucial in generating a complete value-added accounting of gross trade flows. (Wang et.al, 2014)**

# Regions become more closer than before…

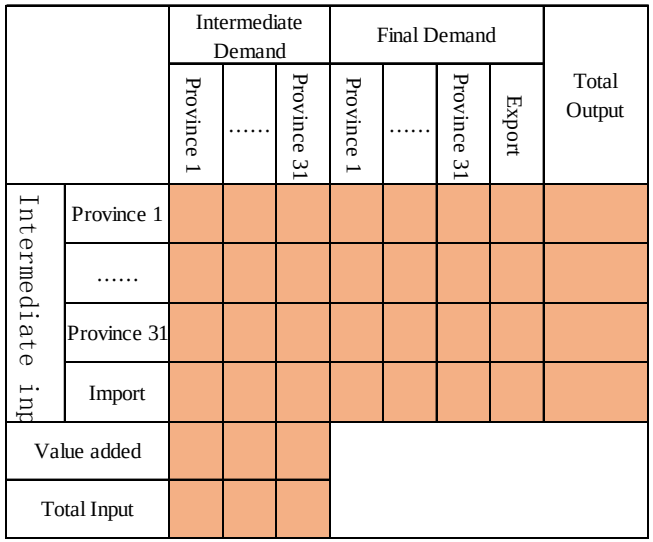
- From 2002 to 2012, the trade relations between provinces have been strengthened continuously, and the average of dependence on inter-provincial trade for all provinces has increased by more 40 percentage point.

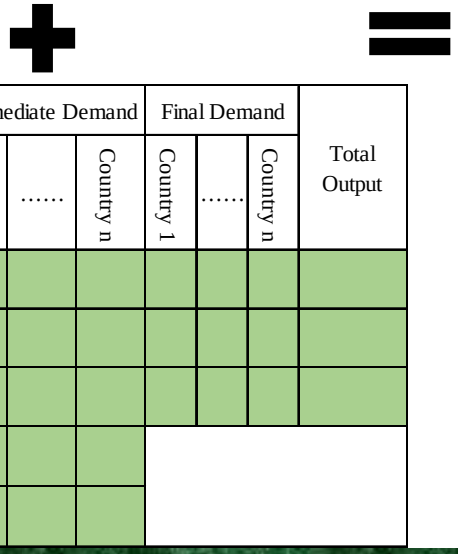


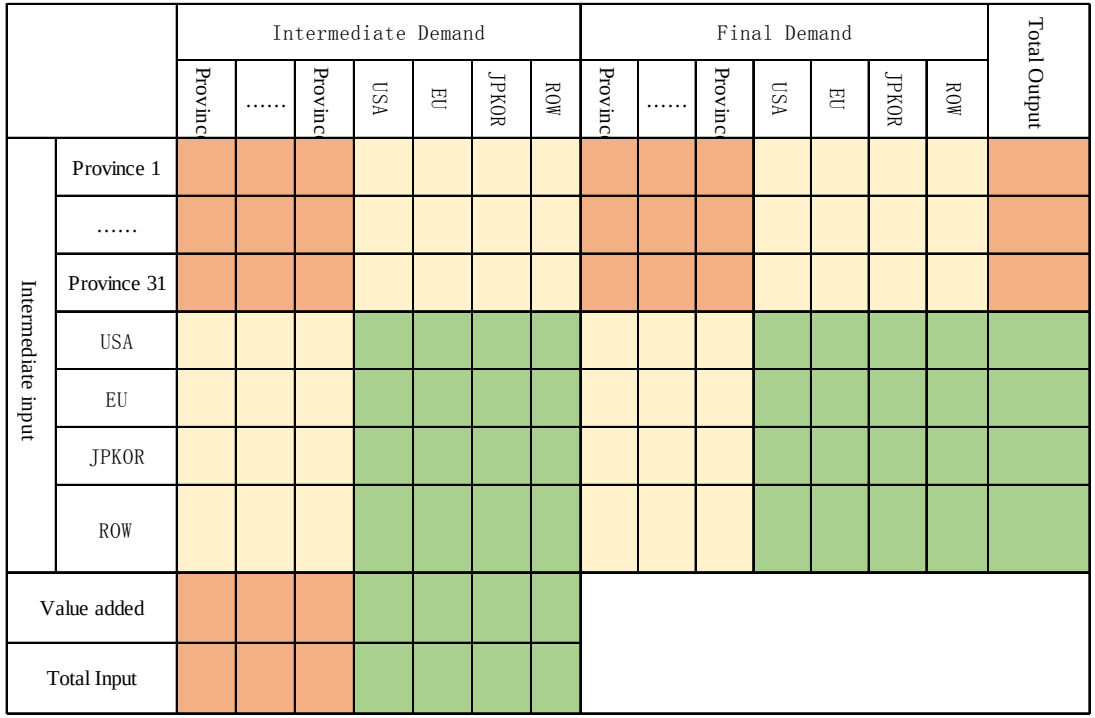
# Motivation of this study

- It does not work to analyze regional economy from traditional prospective.
- International and domestic fragmentation of production has been rising in past decades.
- We need to find a new perspective to understand the change of regional economy.

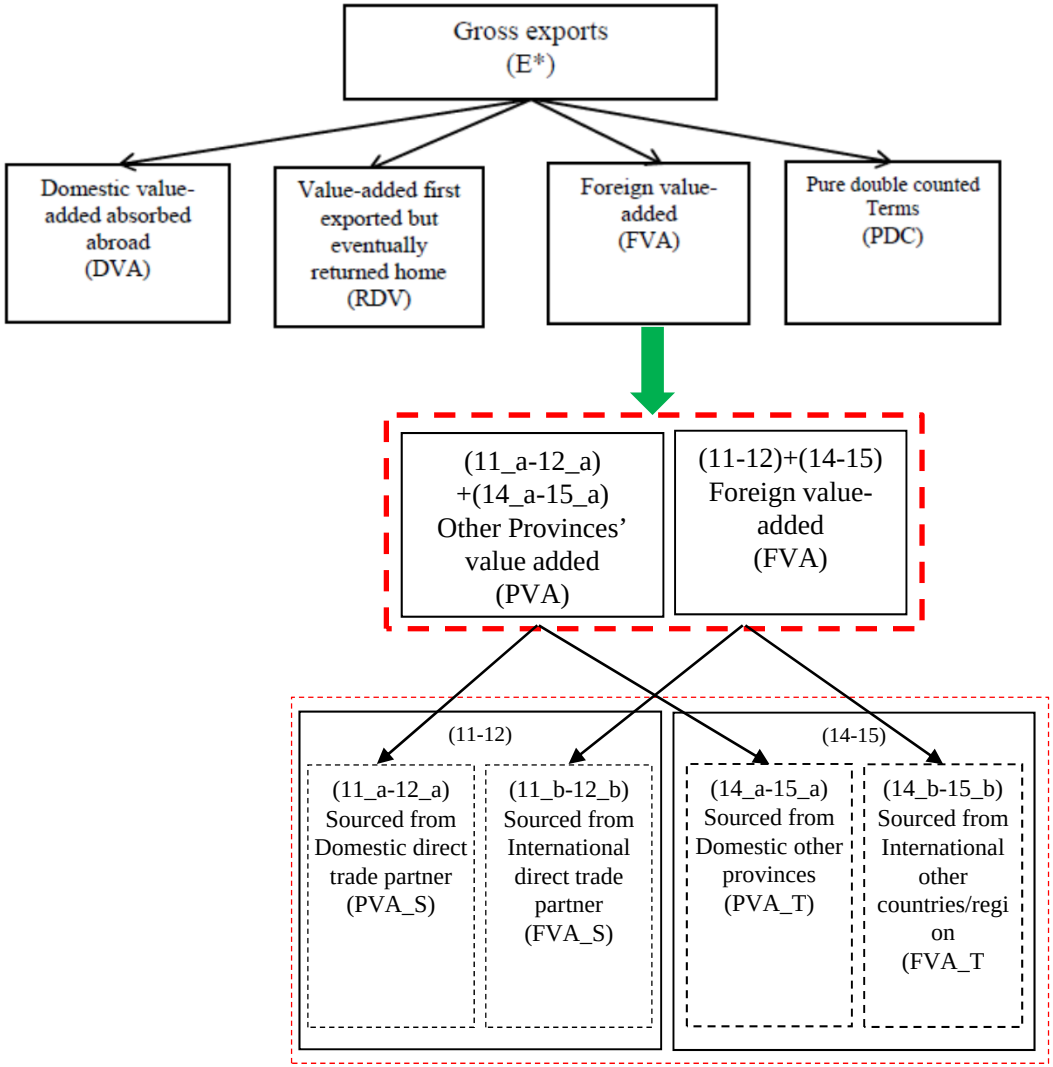
# Database


Intermediate Demand
Final Demand
Total Output
Province 1
.....
Province 31
Province 1
.....
Province 31
Export
Intermediate input
Province 1
.....
Province 31
Import
Value added
Total Input


Intermediate Demand
Final Demand
Total Output
Country 1
.....
Country n
Country 1
.....
Country n
Intermediate input
Country 1
.....
Country n
Value added
Total Input

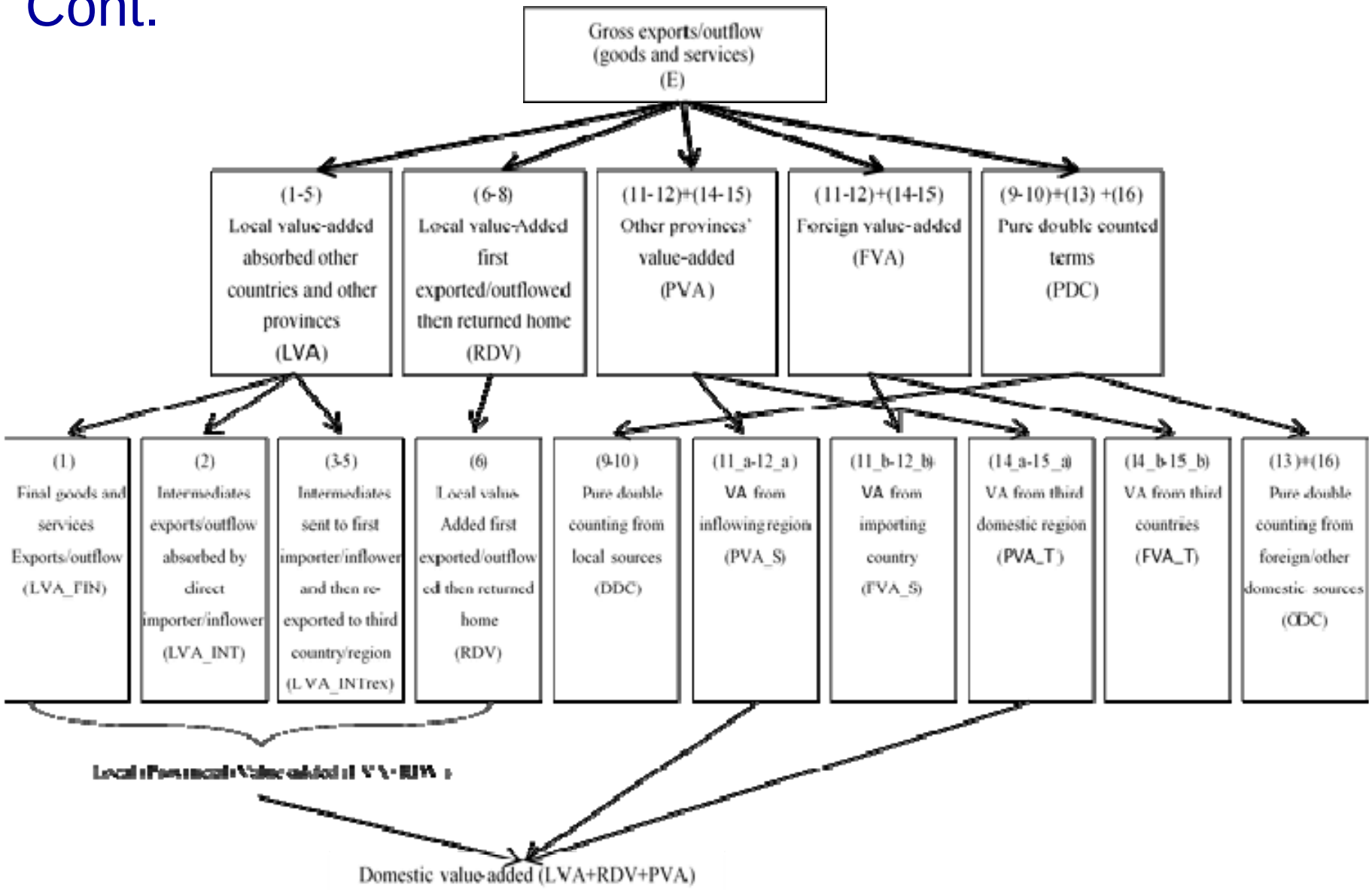

Intermediate Demand
Final Demand
Total Output
Province 1
.....
Province 31
USA
EU
JPKOR
ROW
Intermediate input
Province 1
.....
Province 31
USA
EU
JPKOR
ROW
Value added
Total Input

# Modification based on WWZ




- Based on the previous constructed global input-output table, this study modified the WWZ Methodology (see Figure 2).
- When we study China as a whole, the direct trade partners and third partner could only be foreign countries and regions. However when we study the provinces in China, the direct trade partners could not only be foreign countries and regions (international trade), but also domestic other provinces (domestic inter-province trade).
- Therefore, when we focus on provinces in China, we divides the "Foreign Value Added (FVA)" (WWZ) into two parts: one is the foreign value added components (FVA) embodied export/outflow from province in China; the other is other provinces' value added components (PVA) embodied export/outflow from province in China.

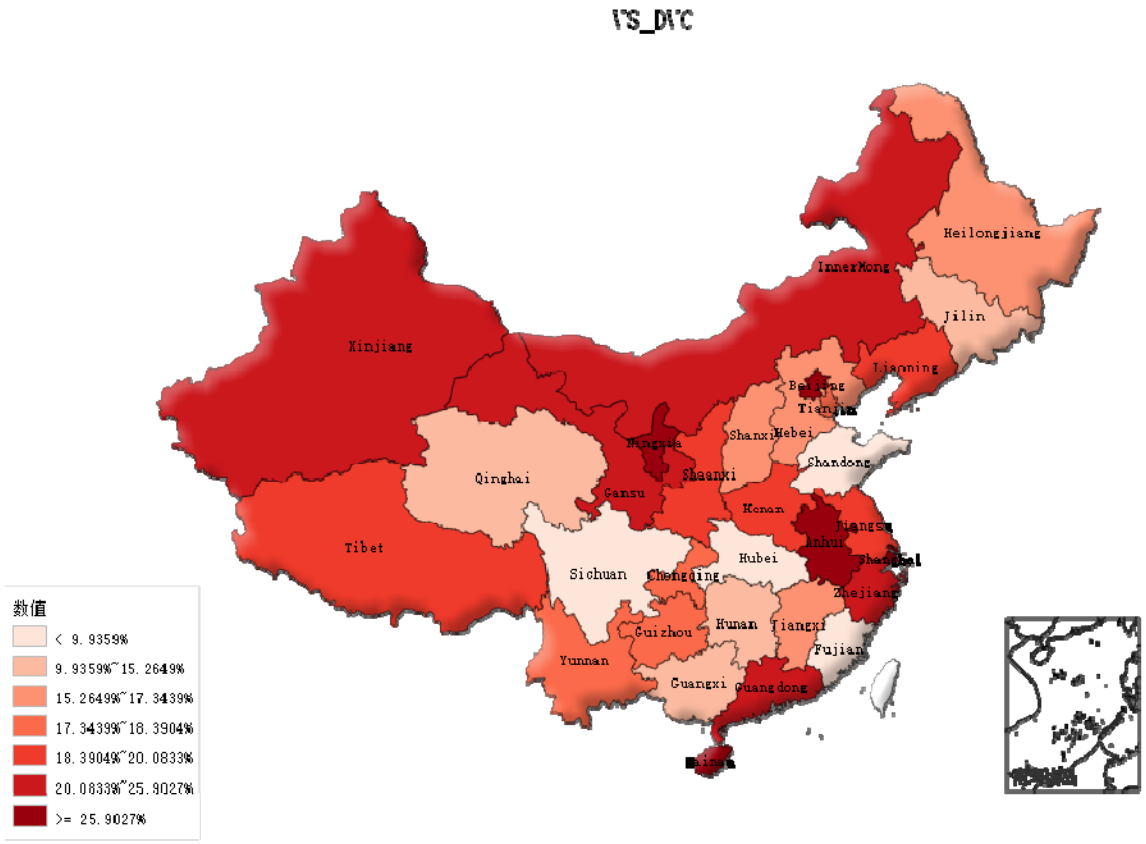
# Cont.


Gross exports/outflow (goods and services) (E)
(1-5) Local value-added absorbed other countries and other provinces (LVA)
(6-8) Local value-Added first exported/outflowed then returned home (RDV)
(11-12)+(14-15) Other provinces' value-added (PVA)
(11-12)+(14-15) Foreign value-added (FVA)
(9-10)+(13) +(16) Pure double counted terms (PDC)
(1) Final goods and services Exports/outflow (LVA_FIN)
(2) Intermediates exports/outflow absorbed by direct importer/inflower (LVA_INT)
(3-5) Intermediates sent to first importer/inflower and then re-exported to third country/region (LVA_INTrex)
(6) Local value Added first exported/outflowed then returned home (RDV)
(9-10) Pure double counting from local sources (DDC)
(11_a-12_a) VA from inflowing region (PVA_S)
(11_b-12_b) VA from importing country (FVA_S)
(14_a-15_a) VA from third domestic region (PVA_T)
(14_b-15_b) VA from third countries (FVA_T)
(13)+(16) Pure double counting from foreign/other domestic sources (CDC)
Domestic value-added (LVA+RDV+PVA)

# Global Value Chain and Domestic Value Chain

# The participation of each province in domestic value chain

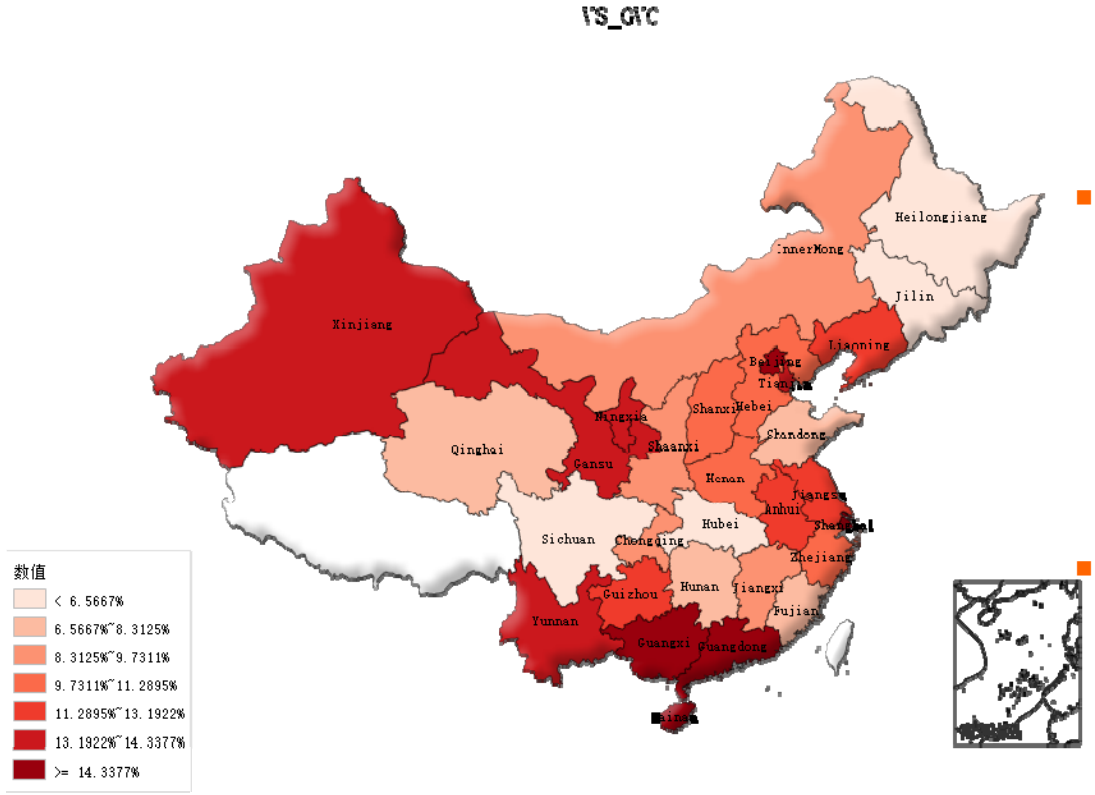
**Vertical Specialization in domestic value chain (DVC)**




- Besides the three economic circles (Jing Jin Ji Area, Yangtze River Delta, Pearl River Delta), most of provinces in the North have high participation rate in domestic value chain (DVC)

# The participation of each province in global value chain

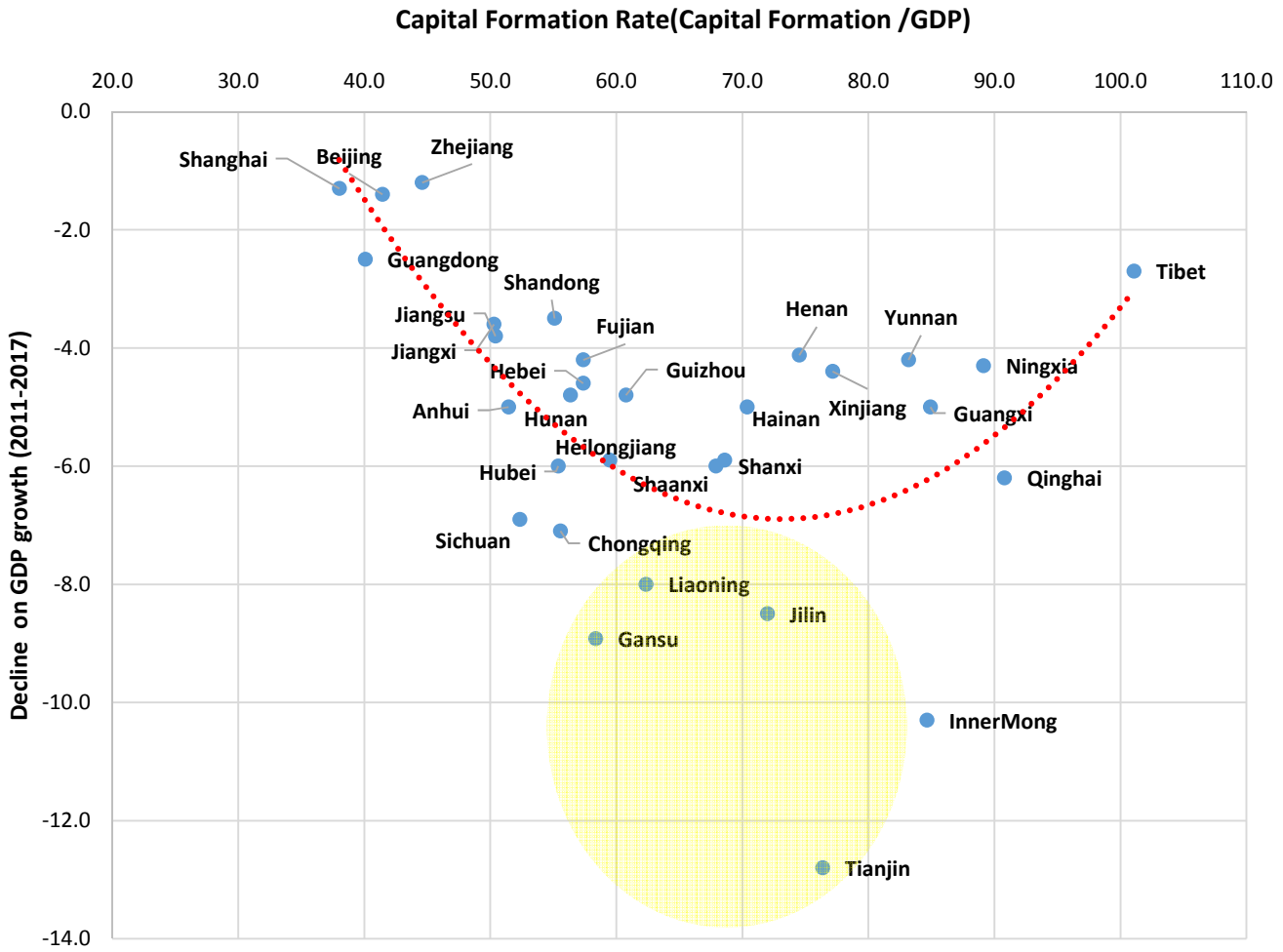
**The VS index of each province in GVC**




- The participation in GVC of the border areas are significantly higher than that of the hinterland.
- The participation in GVC of the three economic circles (Jing Jin Ji Area, Yangtze River Delta, Pearl River Delta) is higher than that of other regions
- The participation in GVC of provinces near the coastal area is higher than that of province far away from the coastal area.

# The Northeast Sink and investment-driven Value Chain

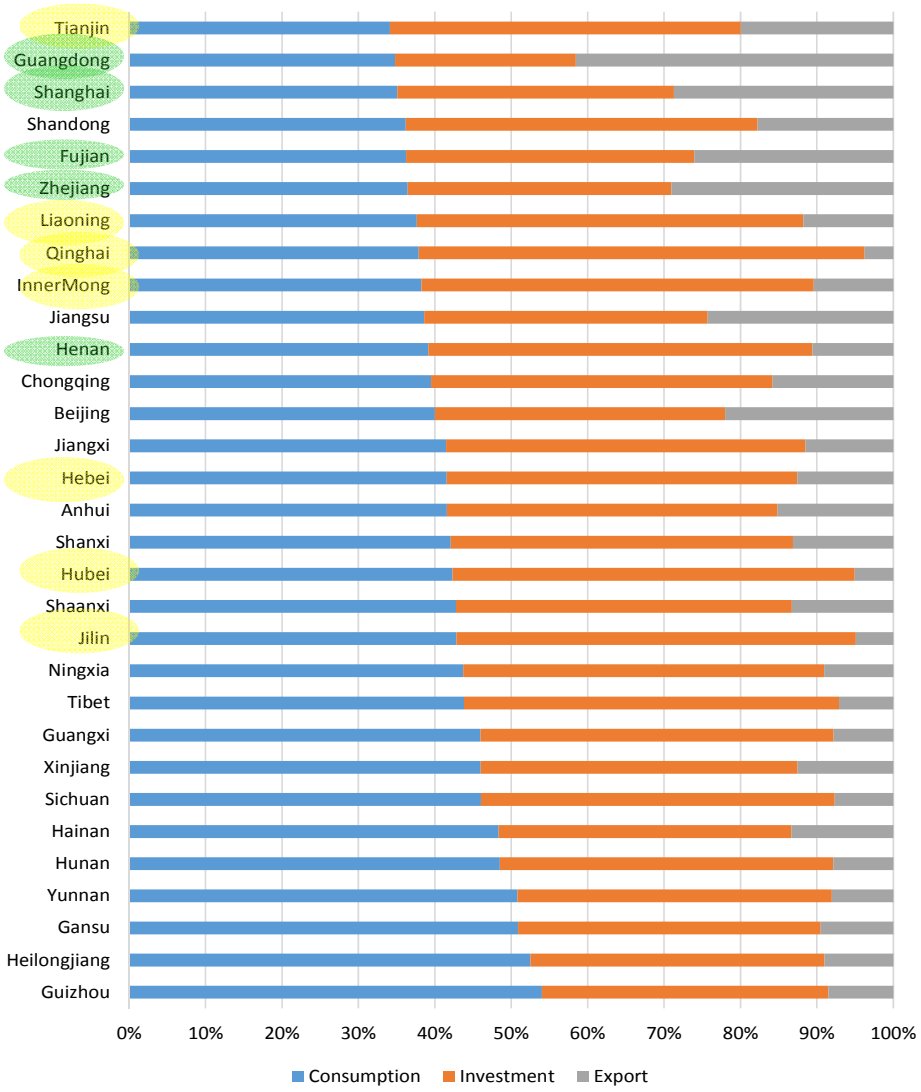
# The investment vs. Decline of growth



# Hard to find the answer within province

- Production fragmentation makes regions closer and the driving force of regional economy is getting more and more complicated.
- As for each province, its investment rate (Capital formation rate, capital formation/GDP) can not show its indeed dependency economy on investment.
- For a open-economy, there exist “spillover effect” for capital formation/investment, i.e. one province’s investment may result in value added in other province. In other words, one province’s value added can be caused by investment in other provinces.
- $$Total\ dependency\ on\ ivestment = \frac{VA\ caused\ by\ its\ own\ investmetn + VA\ caused\ by\ investment\ of\ other\ provinces}{its\ own\ GDP}$$

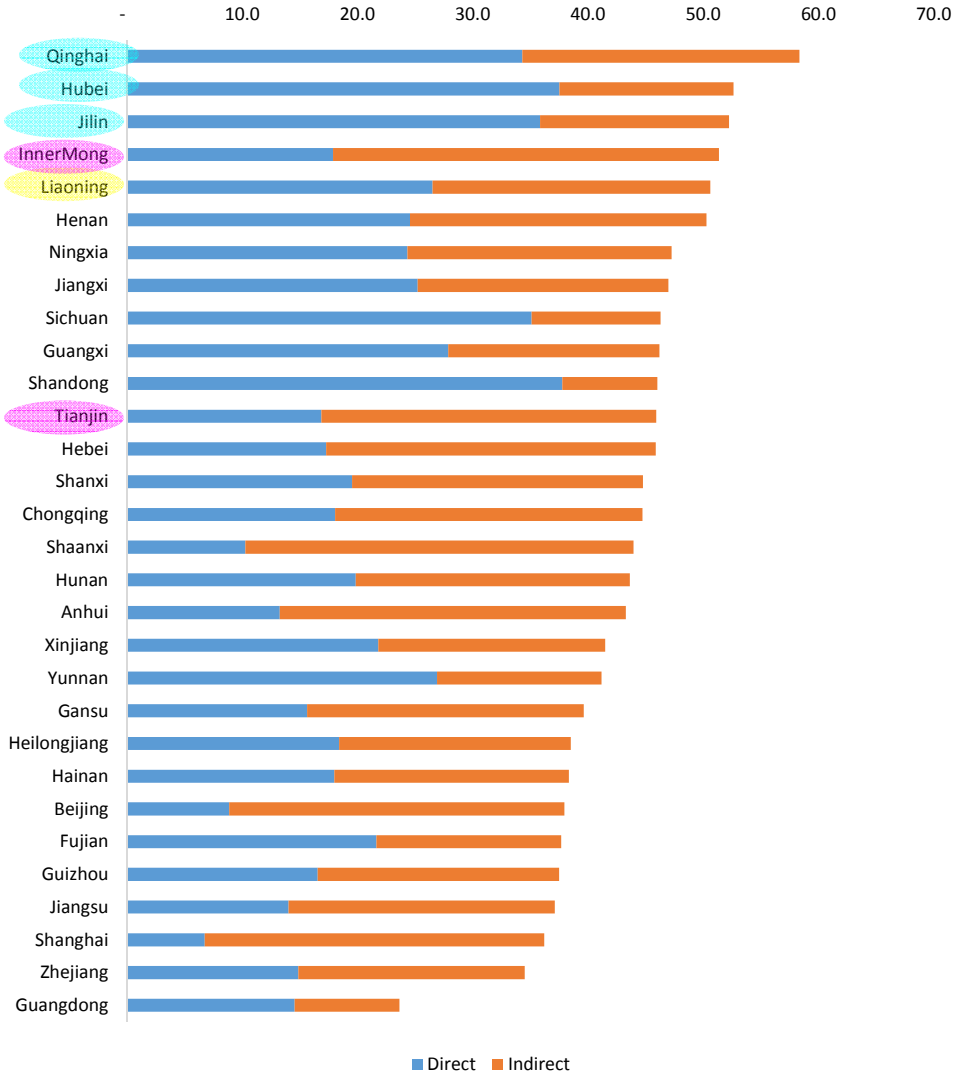
# Driving force of regional economy



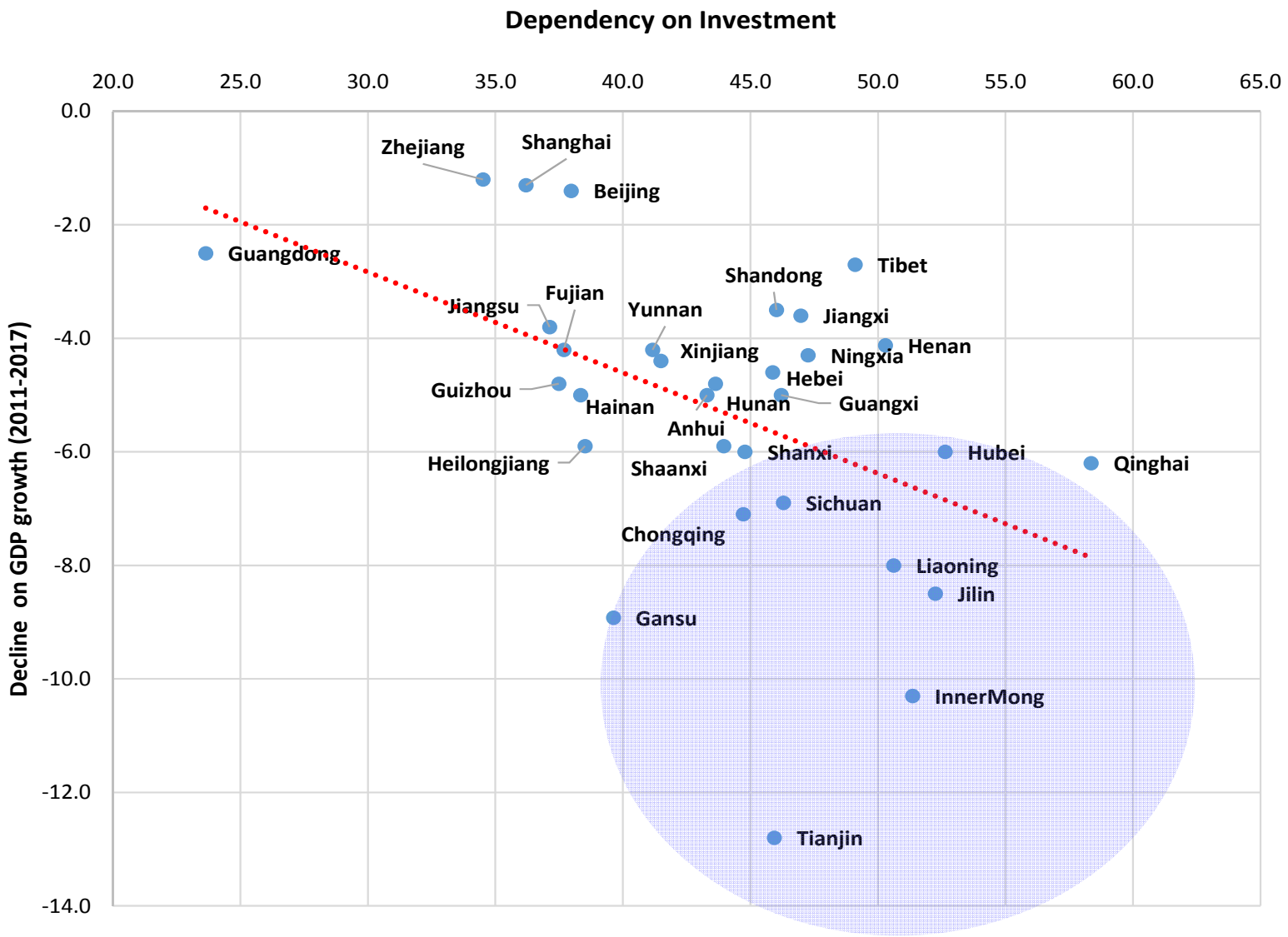

- **Compared with consumption, investment and exports are more volatile, which have become the main factor affecting regional economic fluctuations.**
- **From economic driving force's perspective, all provinces can be roughly divided into three categories:**
  - More export-driven : some eastern coastal provinces (Pearl River Delta, Yangtze River Delta, Fujian)
  - More investment-driven: Jilin, Liaoning, Inner Mongolia, Tianjin, Hebei, Hubei, Qinghai, etc.
  - Other

# Direct vs. indirect dependency

- Provinces with sharp slowdown in GDP growth：
  - More dependent on their own investment (directly dependent): Qinghai, Hubei, Jilin
  - More dependent on other provinces for investment (indirect dependence): Inner Mongolia, Tianjin
  - Both direct and indirect dependencies are high: Liaoning
- Not even within Northeast
  - Liaoning， Jilin vs. Heilongjiang

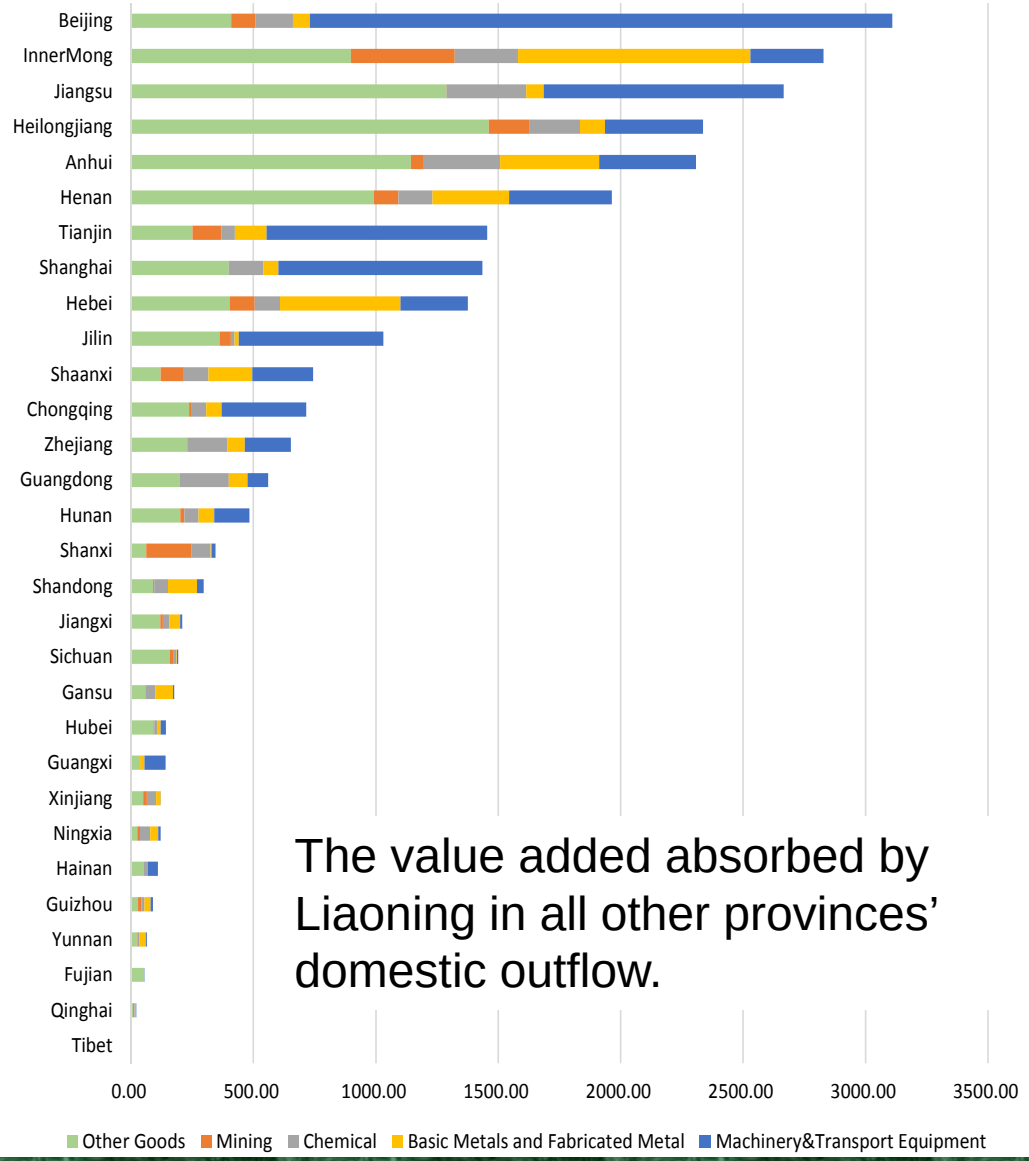


# The investment vs. Decline of growth



# Liaoning: Investment-led VC of heavy & chemical industry

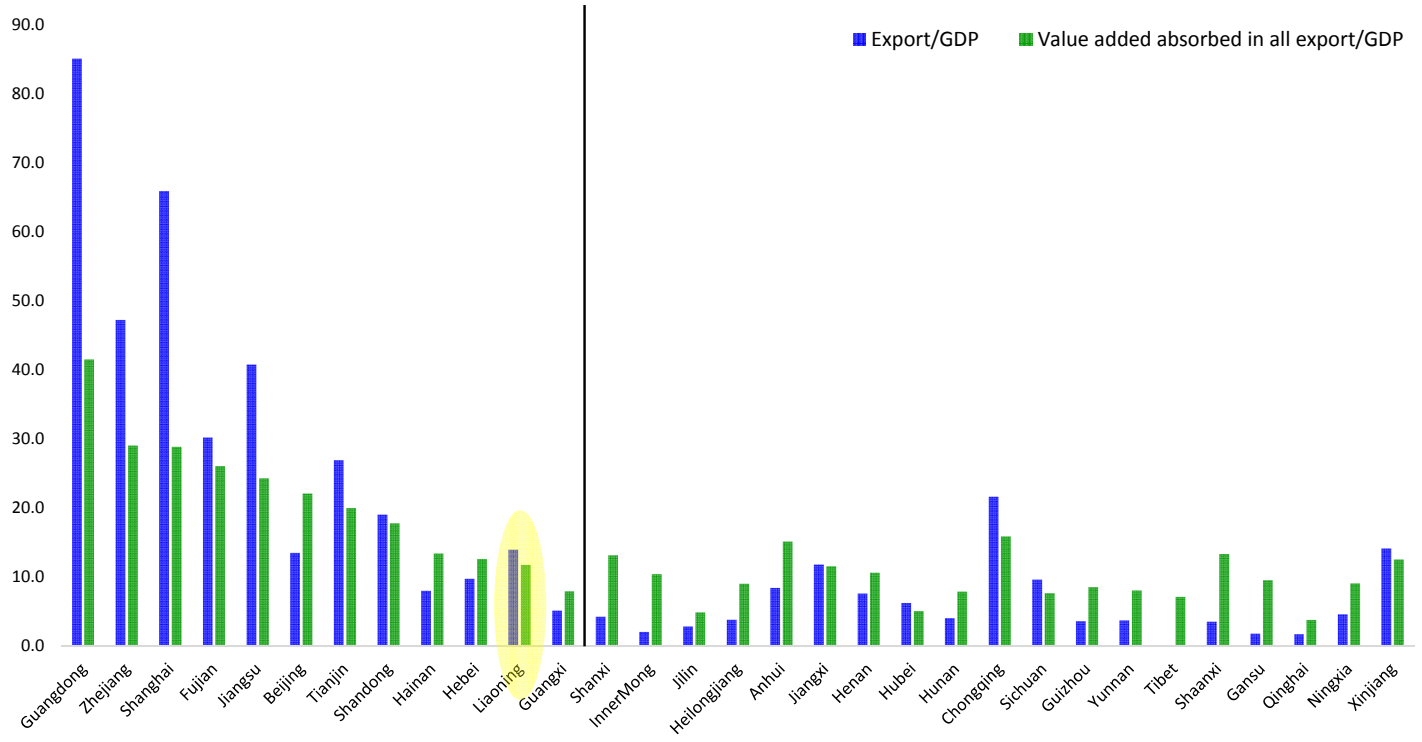
- As for the value added in domestic merchandise trade, the domestic trade of heavy & chemical products is the main source of value added in Liaoning.
  - Basic Metals and Fabricated Metal
  - Machinery & Transport Equipment




The value added absorbed by Liaoning in all other provinces' domestic outflow.

# Liaoning: a very "Closed" coastal provinces

- From an trade perspective, Liaoning's dependence on export is lower than many other coastal provinces.
- From an value-added perspective, Liaoning's dependence on export is not only lower than all other coastal provinces except Guangxi, but also some inland provinces.

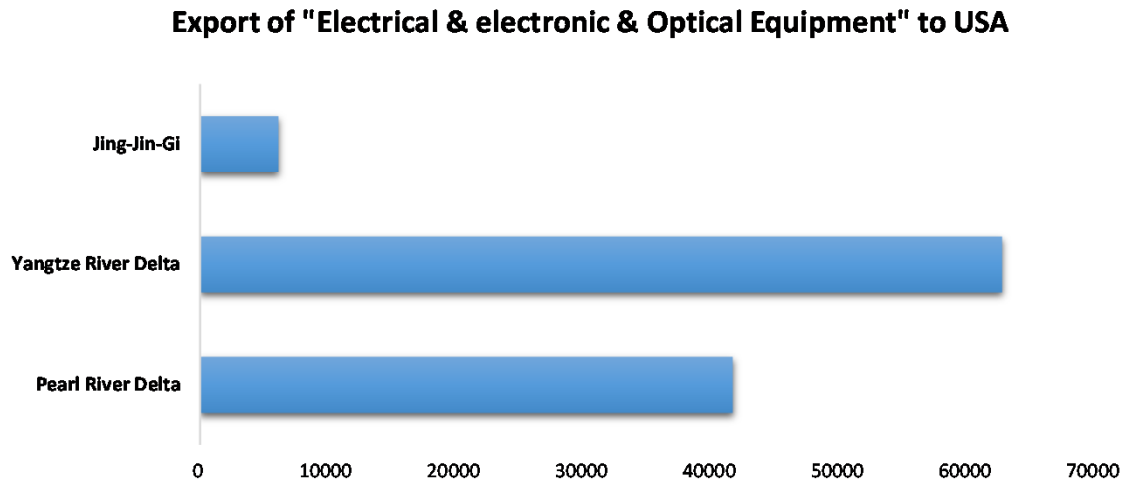


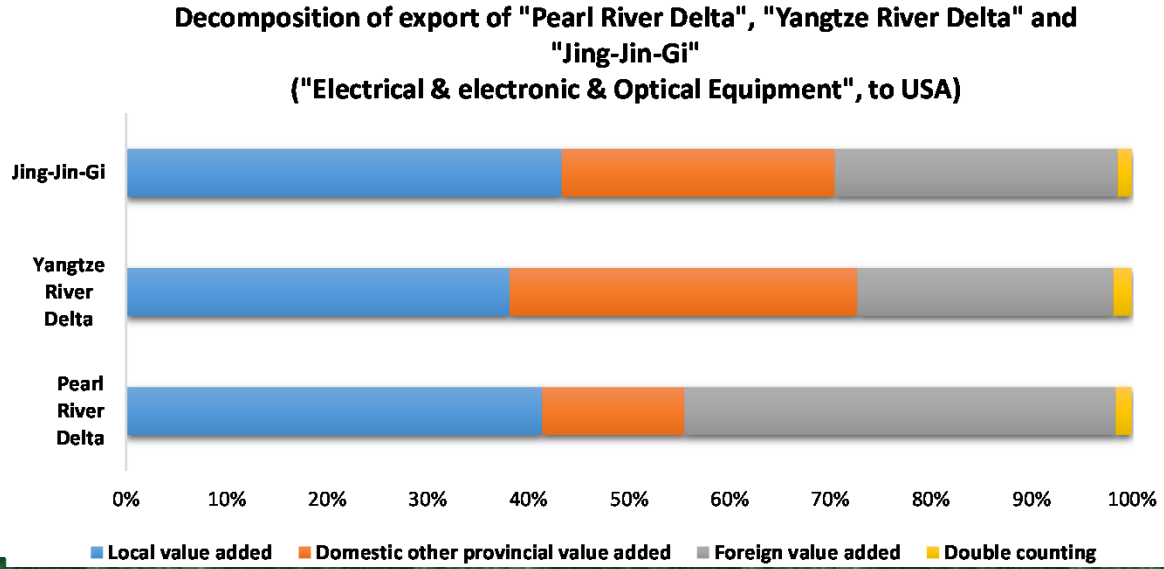
# The coordinated development of Jing-Jin-Ji

—— Comparing “Pearl River Delta” ,“Yangtze River Delta” and “Jing-Jin-Ji(Beijing-Tianjin-Hebei)” from the Prospective Of Export-led VC

# Different participation model

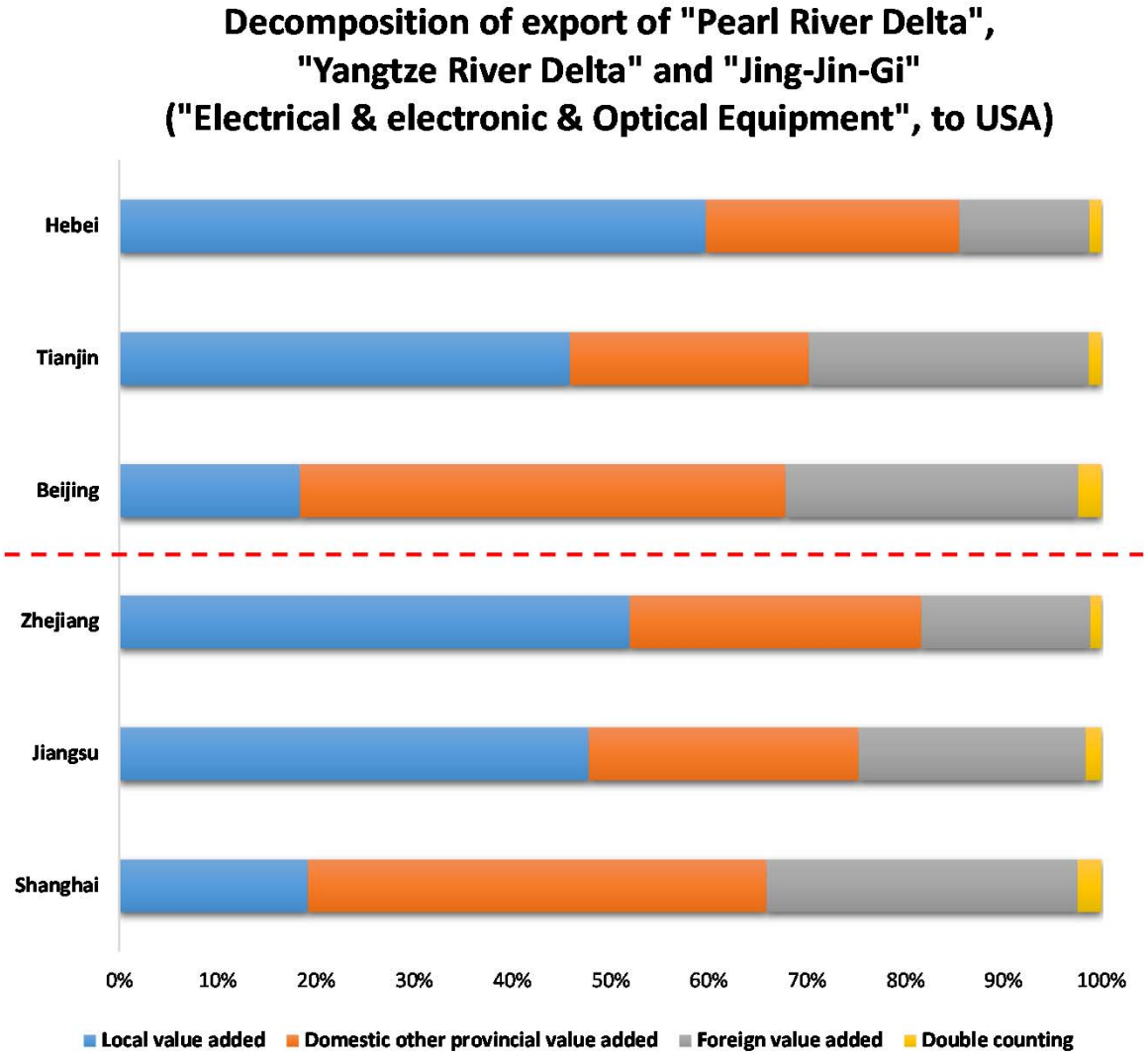
- Although the VS for three regions are all very high, the models are different.
- “Pearl River Delta” is totally different from “Yangtze River Delta” and “Jing-Jin-Ji”.



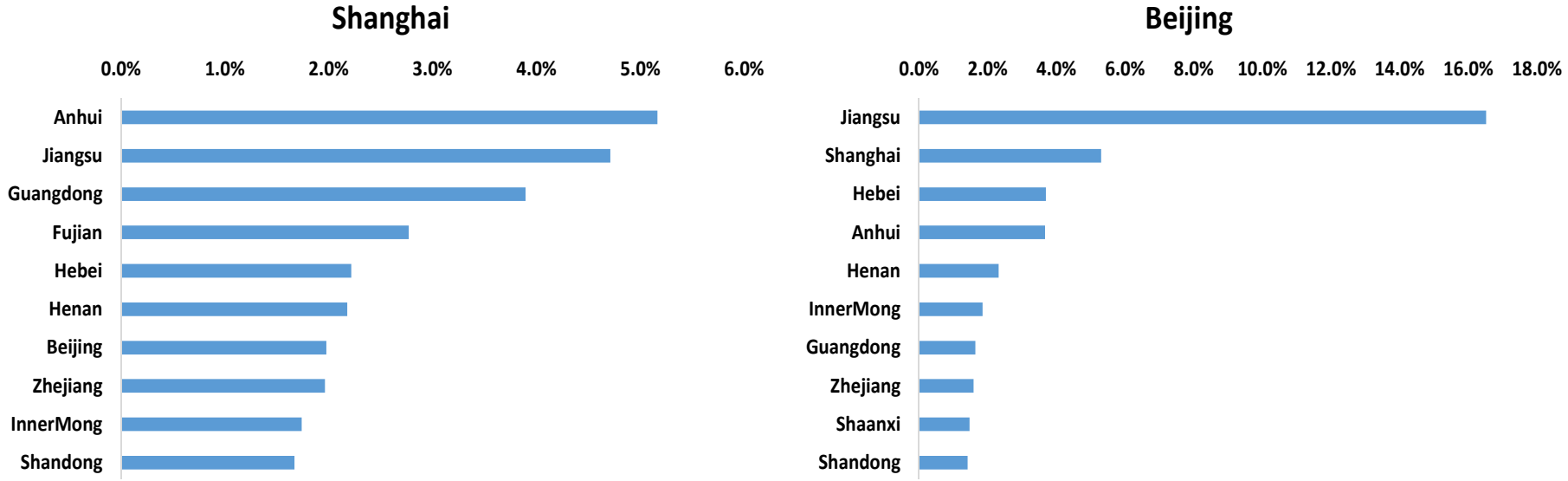
# "Yangtze River Delta" vs. "Jing-Jin-Ji"

- "1+2" model
  - Beijing is similar with Shanghai
  - Tianjin and Hebei are close to Jiangsu and Zhejiang



# Shanghai vs. Beijing

- From the point of view of the global value chain, there exists huge differences between Shanghai and Beijing: Shanghai has closer economic ties with other surrounding provinces (Anhui and Jiangsu); Beijing has more closer economic ties with Yangtze River Delta than its surrounding provinces (Tianjin and Hebei)




**Top 10 beneficiaries of export of Electrical & electronic & Optical Equipment" to USA**

# Main conclusion

- **As a whole, there are two types of value chains for China's regional economy**.
  - Export-led global value chains involving most coastal provinces and their neighboring, e.g. the Pearl River Delta and the Yangtze River Delta.
  - Investment-led domestic value chains of heavy & chemical industries involving the many provinces in the North (Northeast, North China, Northwest), e.g. Inner Mongolia, Liaoning, Hebei.

# Main conclusion

- The “Sink in the Northeast" is not a unique phenomenon in the "Northeast". The sharp economic decline not only occurred in some provinces in the Northeast, but also in some provinces in North China, Northwest China and even Central China.
- The main reason for the "Northeast Sink" is the attenuation of driving force of the investment-driven value chains of heavy & chemical industries.
- To solve the problem of “Sink in the Northeast" needs to pay attention to the upgrading of investment-driven value chains and the construction of a new value chain.

# Cont.

- Most provinces in the Pearl River Delta, Yangtze River Delta and Beijing-Tianjin-Hebei have high participation rate in the global value chain, esp. the Pearl River Delta.
- Compared with the Yangtze River Delta and Beijing-Tianjin-Hebei, the Pearl River Delta has less connection with other provinces and closer connection with foreign countries, while participating in the global value chains.
- Compared with Beijing-Tianjin-Hebei, the linkage within the Yangtze River Delta are even closer. Shanghai is more closely linked with its surrounding areas; and Beijing is more closely linked with the Yangtze River Delta.

# Thank you very much!