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One RMB, One External Competitiveness?

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Motivation

- Effective exchange rate (EER) is an important indicator to measure the external competitiveness of one country.
 - RMB EER-China's External Competitiveness
 - RMB EER- External Competitiveness for each Chinese Provinces?
- For China, it is not enough to have one united aggregated EER for all provinces
 - the relative large absolute trade value for each province
 - among the 31 provinces, there are 13 provinces which have a more than 10% export to GDP ratio
 - the trade partners of different provinces are quite different
 - foreign currencies matter differently for different provinces (see example)
 - the price level is different for different provinces

Example

Top 5 Trade Partners Based on Aggregated and Provincial EERs

- Aggregated EER – BIS NEER
- Provincial EER - Jiangsu
- Provincial EER - Heilongjiang

Euro Area	18.67%	United States	15.85%	Russian Federation	61.60%
United States	17.76%	Euro Area	13.65%	United States	7.33%
Japan	14.13%	Japan	12.77%	Euro Area	6.06%
Korea	8.47%	Korea	11.44%	Saudi Arabia	2.99%
Chinese Taipei	5.60%	Chinese Taipei	8.25%	Brazil	2.84%
Top 5	64.63%	Top 5	61.95%	Top 5	80.82%

One unified effective exchange rate such as BIS Effective Exchange Rate might be proper for provinces like Jiangsu, but it will misestimate the external competitiveness of provinces like Heilongjiang.

Data

- Trade data
 - the Chinese Customs Trade Statistics (CCTS)
 - the Harmonized System (HS) product classification (eight digit level)
 - Period: 2011-2013 average (same as BIS EER)
 - 31 provinces
 - 59 trade partners (same as BIS EER)
 - 40 trade partners after integrating Euro countries
- Exchange Rate data
 - Monthly average data
 - Base year: 2010

Methodology for Computing EER

- The weight assign to country j for province i

$$W_{ij} = \frac{EX_{ij} + IM_{ij}}{\sum_{j=1}^{40} (EX_{ij} + IM_{ij})}$$

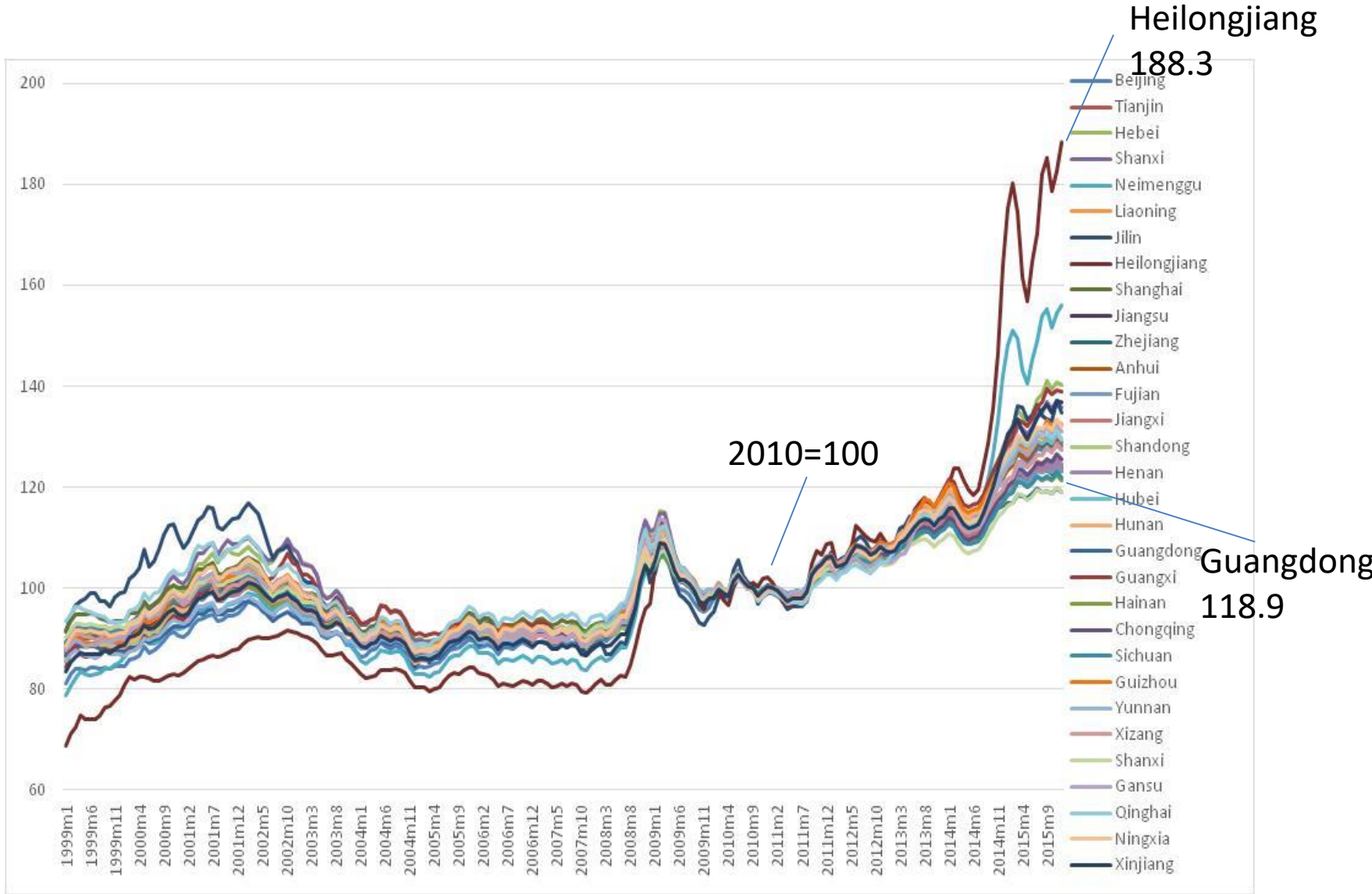
in which, EX_{ij} is the export value from province i to country j and IM_{ij} is the import value from country j to province i .

- The EER can be written as:

$$EER_i = \prod_{j=1}^{40} FX_j^{W_{ij}}$$

FX_j is the indirect quotation of RMB against currency of country j .

China's Provincial EER- A General View



Who appreciates most? Who appreciates least?

Heilongjiang	173.66%
Neimenggu	98.11%
Guangxi	64.75%
Xinjiang	64.02%
Hebei	61.36%
Beijing	58.03%
Hunan	54.16%
Shanxi	53.47%
Shandong	51.84%
Guizhou	50.55%
Zhejiang	50.45%
Ningxia	49.48%
Gansu	49.48%
Anhui	49.09%
Yunnan	48.74%
Liaoning	47.67%
Jilin	47.57%
Hubei	46.08%
Xizang	44.00%
Chongqing	43.67%
Fujian	42.85%
Jiangxi	42.79%
Tianjin	39.83%
Henan	39.29%
Qinghai	38.66%
Jiangsu	38.25%
Guangdong	37.21%
Sichuan	36.55%
Hainan	36.34%
Shanghai	34.91%
Shanxi	31.90%

FX shock matters more for those inner land area or less open area.

Who appreciates most? Who appreciates least? and Why?

Jiangsu		Guangdong		Shanghai		BIS Weight	
United States	15.85%	Hong Kong	27.40%	Euro Area	17.62%	Euro Area	18.67%
Euro Area	13.65%	United States	13.18%	United States	17.57%	United States	17.76%
Japan	12.77%	Euro Area	8.66%	Japan	14.11%	Japan	14.13%
Korea	11.44%	Japan	8.45%	Korea	6.23%	Korea	8.47%
Chinese Taipei	8.25%	Chinese Taipei	7.38%	Chinese Taipei	5.25%	Chinese Taipei	5.60%
Top 5	61.95%	Top 5	65.07%	Top 5	60.77%	Top 5	64.62%
Heilongjiang		Neimenggu		Guangxi		BIS Weight	
Russian Federation	61.60%	Russian Federation	34.16%	United States	13.45%	Euro Area	18.67%
United States	7.33%	Euro Area	9.06%	Brazil	11.96%	United States	17.76%
Euro Area	6.06%	Australia	7.93%	Hong Kong	9.79%	Japan	14.13%
Saudi Arabia	2.99%	Japan	7.67%	Euro Area	8.92%	Korea	8.47%
Brazil	2.84%	United States	7.09%	Australia	8.84%	Chinese Taipei	5.60%
Top 5	80.82%	Top 5	65.92%	Top 5	52.95%	Top 5	64.62%

Quite similar

Stark different

One exchange rate, one effect?

Appreciation level and Export Dependence Ratio

	Appreciation level	Export/GDP
Guangdong	37.21%	54.66%
Shanghai	34.91%	50.58%
Zhejiang	50.45%	38.48%
Jiangsu	38.25%	29.74%
Fujian	42.85%	26.55%
Chongqing	43.67%	21.92%
Tianjin	39.83%	19.11%
Beijing	58.03%	16.22%
Xinjiang	64.02%	14.01%
Shandong	51.84%	13.89%
Liaoning	47.67%	12.52%
Xizang	44.00%	11.97%
Jiangxi	42.79%	11.59%
Guangxi	64.75%	8.74%
Anhui	49.09%	8.67%
Sichuan	36.55%	8.26%
Yunnan	48.74%	7.73%
Ningxia	49.48%	6.98%
Hebei	61.36%	6.91%
Henan	39.29%	6.61%
Hainan	36.34%	6.40%
Heilongjiang	173.66%	5.70%
Hubei	46.08%	5.51%
Guizhou	50.55%	5.26%
Gansu	49.48%	4.83%
Shanxi	31.90%	4.43%
Shanxi	53.47%	4.09%
Hunan	54.16%	3.87%
Qinghai	38.66%	3.31%
Jilin	47.57%	2.49%
Neimenggu	98.11%	1.85%

One exchange rate, one effect?

Appreciation level and GDP per capita

	Appreciation level	GDP per capita
Gansu	49.48%	26,165
Yunnan	48.74%	29,015
Guizhou	50.55%	29,847
Xizang	44.00%	31,999
Shanxi	53.47%	35,017
Guangxi	64.75%	35,190
Anhui	49.09%	35,997
Jiangxi	42.79%	36,724
Sichuan	36.55%	36,836
Henan	39.29%	39,131
Heilongjiang	173.66%	39,462
Xinjiang	64.02%	40,036
Hebei	61.36%	40,255
Hainan	36.34%	40,818
Qinghai	38.66%	41,252
Hunan	54.16%	42,968
Ningxia	49.48%	43,805
Shanxi	31.90%	48,023
Hubei	46.08%	50,654
Jilin	47.57%	51,852
Chongqing	43.67%	52,330
Shandong	51.84%	64,168
Liaoning	47.67%	65,524
Guangdong	37.21%	67,503
Fujian	42.85%	67,966
Neimenggu	98.11%	71,903
Zhejiang	50.45%	77,644
Jiangsu	38.25%	87,995
Shanghai	34.91%	103,141
Beijing	58.03%	106,284
Tianjin	39.83%	107,960

Conclusion

- Based on our calculation, the gap between the highest appreciation province to the lowest appreciation province is 141%, showing the stark difference in the external competitiveness among different provinces.
- Aggregated EER cannot fully reveal the external competitiveness of different provinces, especially for those less developed, inner land provinces.
 - Current FX policy in fact subsidizes big export provinces by compressing the external competitiveness of inner land provinces.
- It is necessary to establish the provincial level EER in order to reveal the external competitiveness properly.

Further Work

- 1. Consider price effect to construct provincial REER
- 2. Make empirical applications (EER & Trade)
- 3. Construct well-around EER for provinces



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Thank you !