# One Belt One Road: Drivers of Inequality and Trade in China and Europe

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## outline

- Introduction to OBOR
- Inequality
  - In China
  - in Europe
- Trade
  - In China
  - In Europe
- Inequality and trade in China
- Very tentative conclusions

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## motivation

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## One Belt One Road

- (aka BRI) is a peaceful economic development strategy in the new century proposed by China
- for China and participating countries this is a huge opportunity for economic development
- The five principles of a peaceful coexistence are: to respect the sovereignty and territorial integrity of all countries, mutual non aggression, non-interference in the internal affairs of each other, peaceful coexistence, equality and mutual benefit.

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## One Belt One Road

- in 2013 president Xi Jingping proposed
  - a "Silk Road Economic Belt" and
  - a "21st-Century Maritime Silk Road"
- A domestic as well as an external programme
  - several Chinese provinces are involved
  - several Asian, European and African countries are also involved
- It certainly is a very long term project starting at present but launched into a far future

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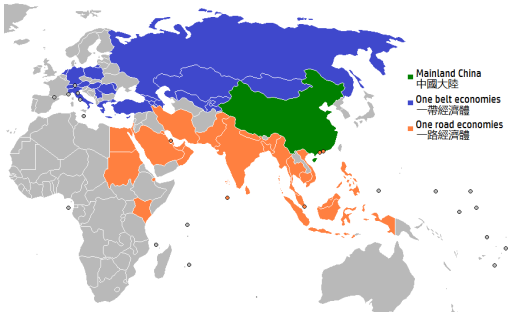
## The OBOR economies

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## Wide-angle infrastructures

- Railways (belt)
- Maritime (road)
- Airlines
- Digital
- Oil & gas pipeline

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## One Belt One Road

- A different name for quite an old story
- European and Chinese trade relationships could be traced back to well before both Europe and China, as we know them now, existed
- To what extent are we now facing a new impulse (and what kind of impulse is it)?
- What opinion do we have about it?

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## Trans-Asia trade routes (1° century CE)

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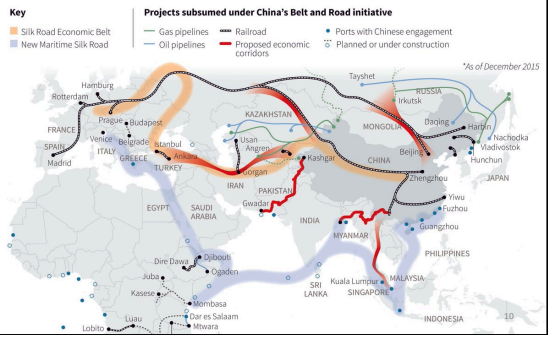
## One belt one road initiative

China's Belt and Road initiative, aims to invest in infrastructure projects including railways and power grids in central, west and southern Asia, as well as Africa and Europe.

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## Two heterogeneous entities

### European Union

**512.6 million people in 2018**
(all Europe nearly 750 million)
**28 member countries**
- (including the UK and excluding 5 applicants)
- Smallest Malta 0,437 million
- Biggest Germany 82 m

**GDP**
- 33715$ current GDPpc 2017
- 37204 $ international PPP (constant 2011)

### China

**1,415 million (estimated 2018)**
(+ 5528531 last yearly change)
**31 provinces**
- (excluding Taiwan, Macao, HongKong)
- Smallest Tibet 3 million
- Biggest Guangdong 110 m

**GDP**
- 8827$ current GDPpc 2017
- 15309$ international PPP (constant 2011)

Sources: Population: EU28 → Eurostat; China → worldometers; GDP →World Bank

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## Income inequality is a concern for both the EU and China

### European Union

- It seems inequality has peaked over 20 years ago, although the issue has been raised more recently (i.e. after the GFC)
- Due to the impoverishment of its middle class, in the "West's decade of despair" many numbers clash with the stories behind
- EU-SILC microdata

### China

- There is some agreement inequality has peaked in 2008, although varios sources either indicate 2012 or argue it could be still increasing (Li Shi, 2018)
- No doubt income inequality increased 2002-2007
- The role of the rich is crucial for evaluating inequality since 2008
- CHIP microdata

Income data quality, including homogeneous definitions through space and time essential

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- **Inequality**
  - **In China**
  - **in Europe**
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  - In China
  - In Europe
- Inequality and trade in China
- Very tentative conclusions

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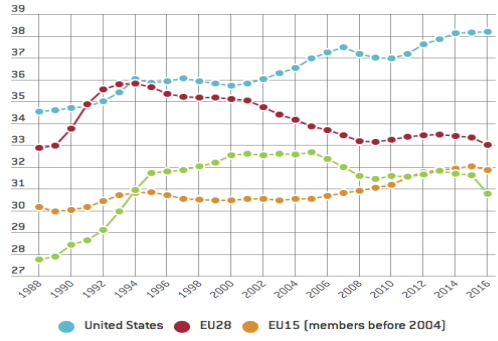
**Figure 1: Gini coefficient of income inequality in the EU and the US, 1988-2016**

www.weforum.org/agenda/2018/05/european-income-inequality-begins-to-fall-once-again




The role of EU13 By Szolt Darvas, Bruegel

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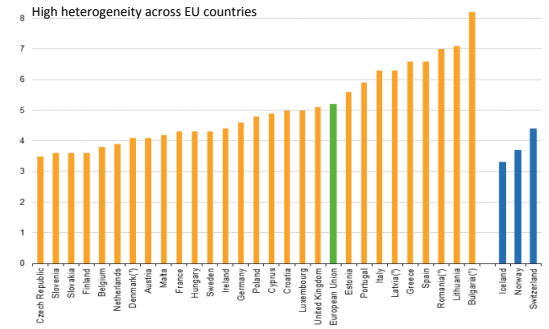
**Income inequality - quintile share ratio, 2016**

High heterogeneity across EU countries




(*) 2017 data

S80/S20 equivalised disposable income based on EU-SILC

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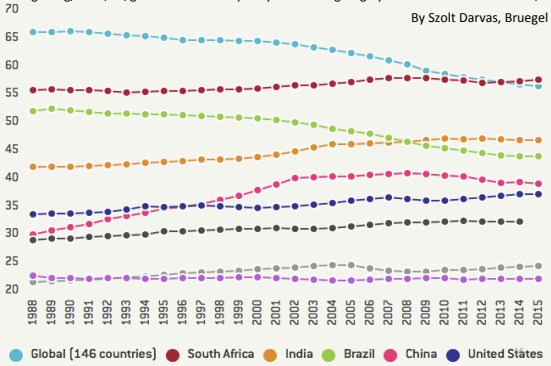
ec.europa.eu/eurostat

**Figure 1: The Gini coefficient of income inequality – globally and in selected countries, 1988-2015**

bruegel.org/2018/04/global-income-inequality-is-declining-largely-thanks-to-china-and-india/

By Szolt Darvas, Bruegel

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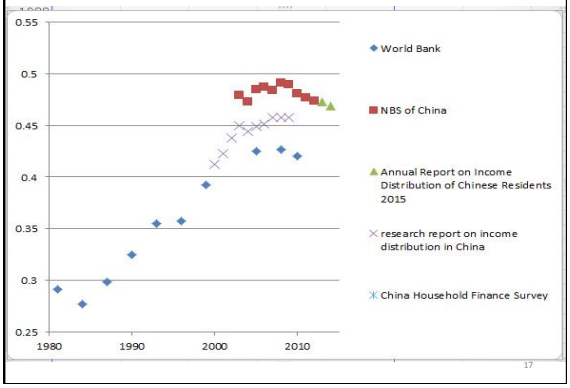
China's GINI index – estimates by various sources

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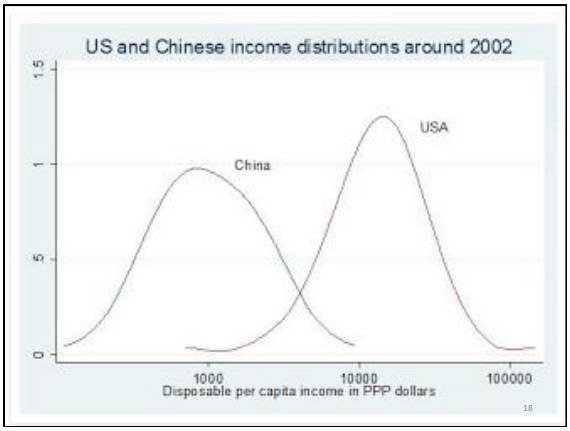


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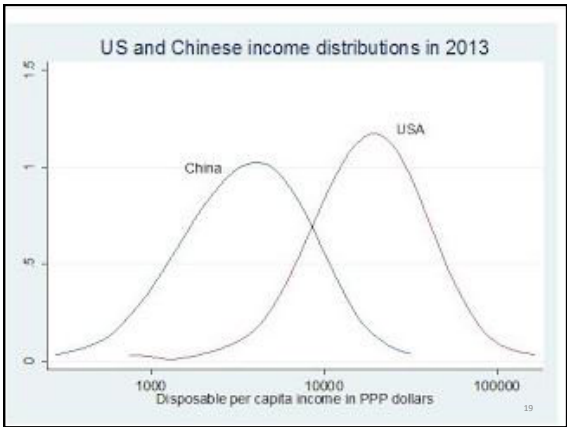
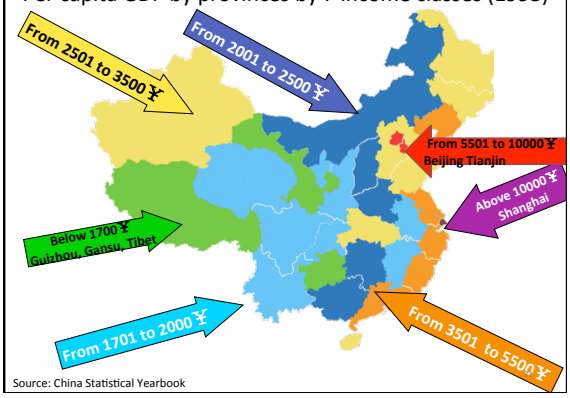



31 Chinese provinces

Per capita GDP by provinces by 7 income classes (1993)




Source: China Statistical Yearbook

Transitions from 1993 (vertical) to 2016 (horizontal)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 1 | | | | | | | | |
| 2 | | 0 | 3 | | | | | | | |
| 3 | | 1 | 0 | 1 | | 1 | | | | |
| 4 | 1 | | | 0 | 1 | 1 | | | | |
| 5 | | 1 | | | 1 | 0 | 2 | | | |
| 6 | | | | | 1 | 0 | 1 | 1 | | |
| 7 | | | | 2 | | | 0 | 1 | | |
| 8 | | | | | 1 | | | 0 | 2 | |
| 9 | | | | | | 1 | | 1 | 1 | 0 |
| 10 | | | | | | | | | | 3 |

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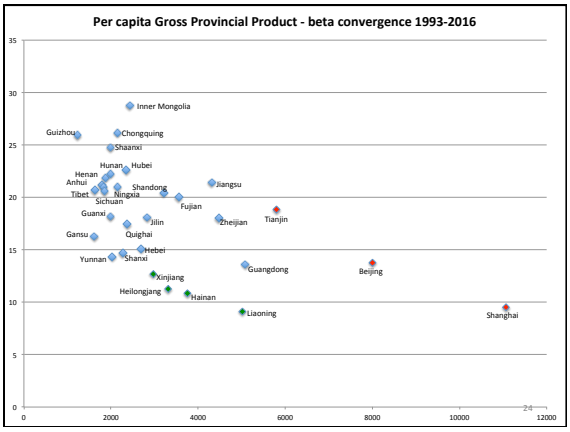
Transitions from 1993 (vertical) to 2016 (horizontal)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Gansu Guizhou | Tibet | | | | | | | | |
| 2 | | 0 | Anhui Jiangxi Sichuan | | | | | | | |
| 3 | | Guangxi | 0 | Henan | | Shaanxi | | | | |
| 4 | Yunnan | | | 0 | Hunan | Ningxia | | | | |
| 5 | | Shanxi | | | Qinghai | 0 | Chonq Hubei | | | |
| 6 | | | | | Hebei | 0 | Jilin | Inner Mongol | | |
| 7 | | | | Xinjian Heilong | | | 0 | Shandong | | |
| 8 | | | | | Hainan | | | 0 | Fujian Jiangsu | |
| 9 | | | | | | Liaonining | | Guangdong | Zhejiang | |
| 10 | | | | | | | | | | Tianjin Beijing Shanghai |



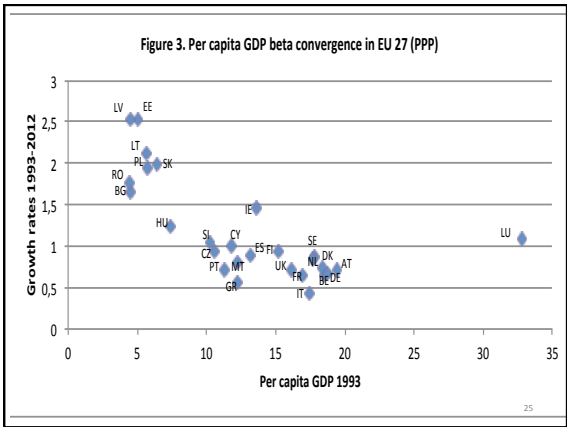
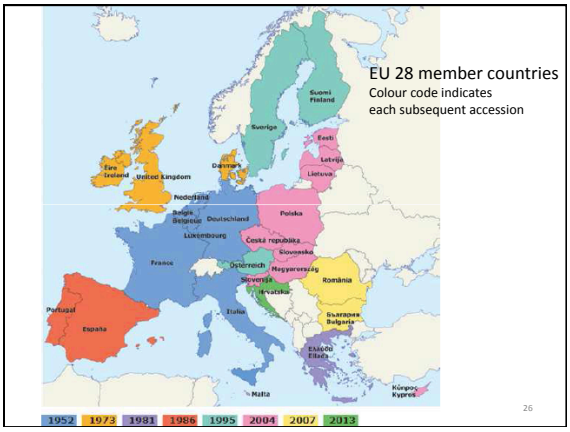
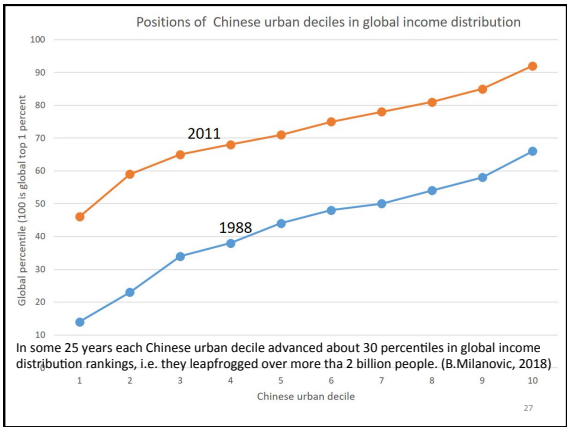


Figure 3. Per capita GDP beta convergence in EU 27 (PPP)
Growth rates 1993-2012
Per capita GDP 1993
LV EE LT PL SK RO BG HU IE SI CY CZ ES FI PT MT GR UK SE NL DK AT FR BE DE IT LU
25


EU 28 member countries
Colour code indicates
each subsequent accession
1952 1973 1981 1986 1995 2004 2007 2013
26


Positions of Chinese urban deciles in global income distribution
Global percentile (100 is global top 1 percent
2011
1988
Chinese urban decile
In some 25 years each Chinese urban decile advanced about 30 percentiles in global income distribution rankings, i.e. they leapfrogged over more tha 2 billion people. (B.Milanovic, 2018)
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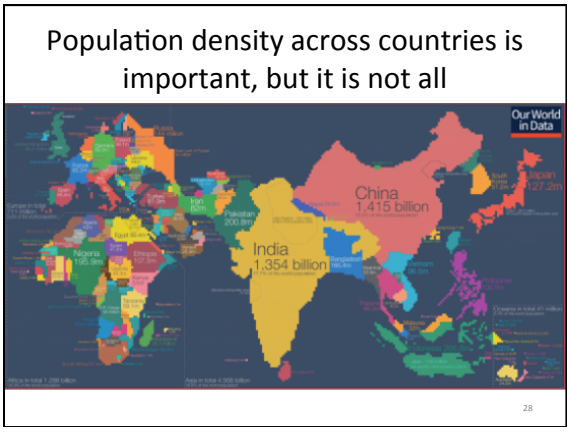
Population density across countries is important, but it is not all
Our World in Data
China
1.415 billion
India
1.354 billion
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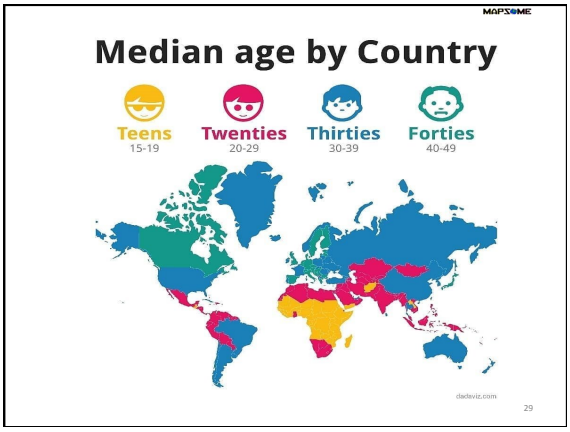
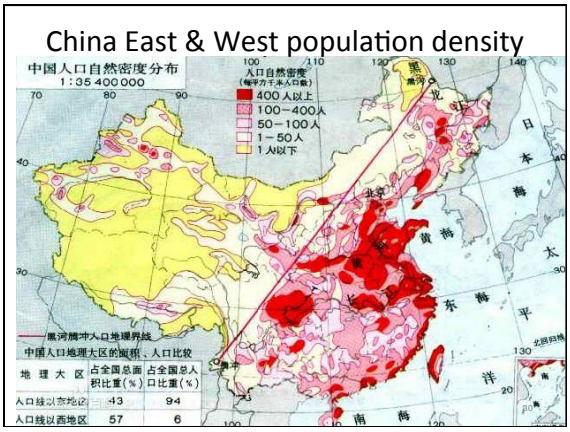
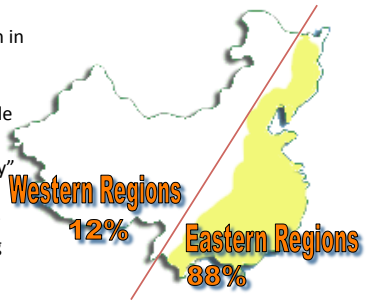

MAPSOME
Median age by Country
Teens 15-19
Twenties 20-29
Thirties 30-39
Forties 40-49
29


China East & West population density
中国人口自然密度分布
1:35 400 000
400人以上
100—400人
50—100人
1—50人
1人以下
黑河腾冲人口地理界线
中国人口地理大区的面积、人口比较
地理大区
占全国总面积比重(%)
占全国总人口比重(%)
人口线以东地区 43 94
人口线以西地区 57 6

## REGIONAL DISTRIBUTION OF FDI IN CHINA

**Infrastructures** are more developed than in other parts of the country, too

- Easy access to trade by sea
- "Modern industry" endowment
- Closeness to other areas experiencing rapid growth

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- **Trade**
  - **In China**
  - **In Europe**
- Inequality and trade in China
- Very tentative conclusions

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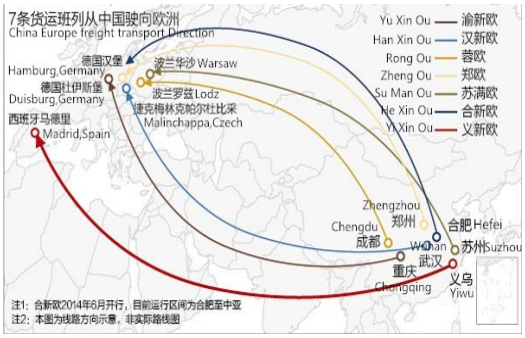
China has officially launched 8 Central European teams

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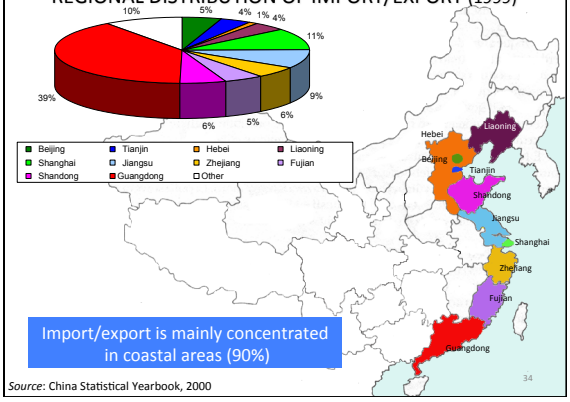
## REGIONAL DISTRIBUTION OF IMPORT/EXPORT (1999)




Import/export is mainly concentrated in coastal areas (90%)

*Source*: China Statistical Yearbook, 2000

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  - In Europe
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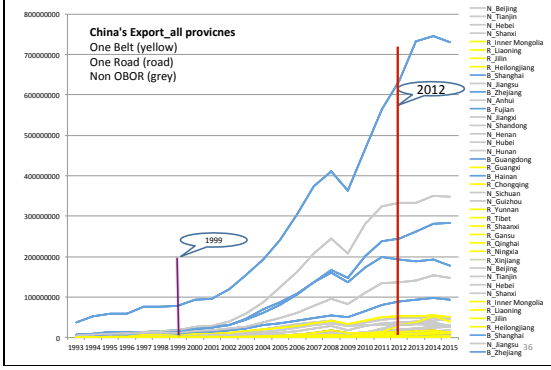
**China's Exports at the provincial level 1993-2015**

Road provinces export more than both non OBOR and Belt provinces.

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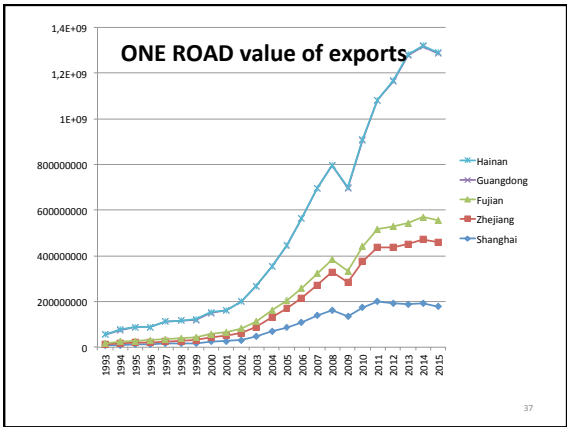
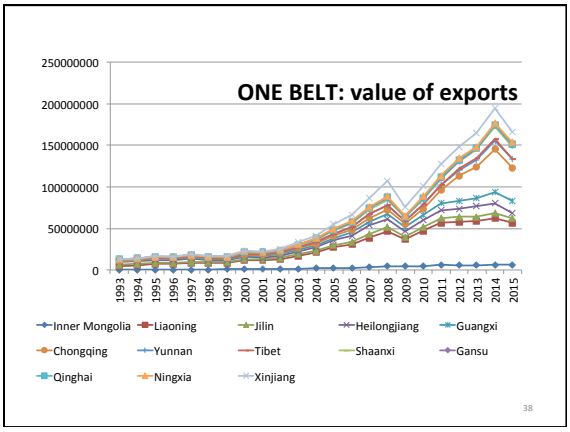
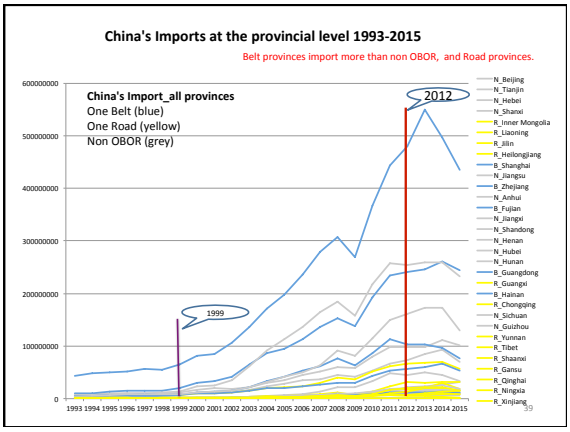
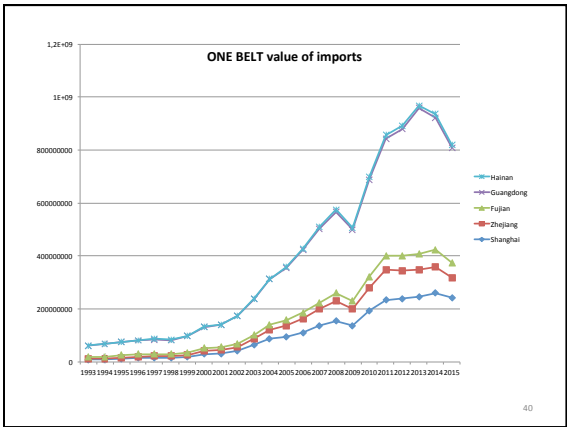
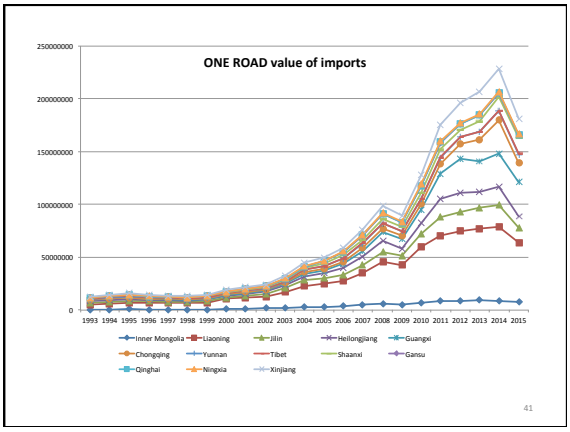

ONE ROAD value of exports
Hainan
Guangdong
Fujian
Zhejiang
Shanghai
37


ONE BELT: value of exports
Inner Mongolia
Liaoning
Jilin
Heilongjiang
Guangxi
Chongqing
Yunnan
Tibet
Shaanxi
Gansu
Qinghai
Ningxia
Xinjiang
38


China's Imports at the provincial level 1993-2015
Belt provinces import more than non OBOR, and Road provinces.
China's Import_all provinces
One Belt (blue)
One Road (yellow)
Non OBOR (grey)
1999
2012
39


ONE BELT value of imports
Hainan
Guangdong
Fujian
Zhejiang
Shanghai
40


ONE ROAD value of imports
Inner Mongolia
Liaoning
Jilin
Heilongjiang
Guangxi
Chongqing
Yunnan
Tibet
Shaanxi
Gansu
Qinghai
Ningxia
Xinjiang
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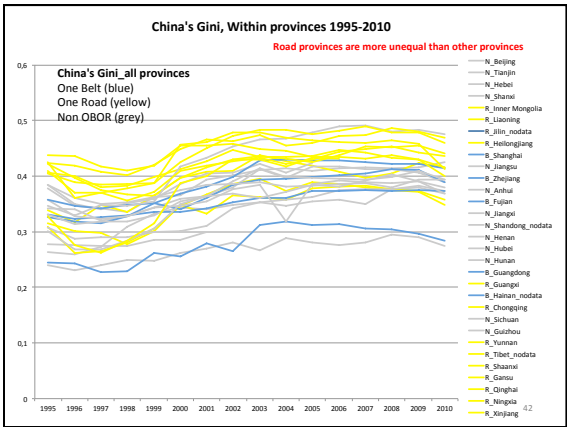
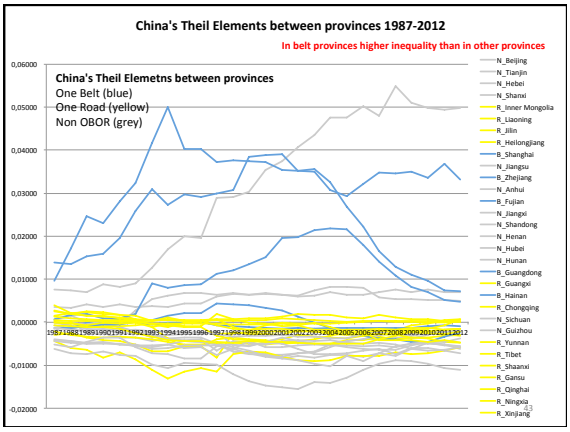

China's Gini, Within provinces 1995-2010
Road provinces are more unequal than other provinces
China's Gini_all provinces
One Belt (blue)
One Road (yellow)
Non OBOR (grey)
42




## The evolutions

- 1995-2010 complete data for panel
- The values of import and export of all provinces increased rapidly.
- The Gini (within provinces) of all provinces increased slightly.
- The Theil elements (between provinces) changed a little, but five provinces.

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## Inequality → Import & Export

- $Y_{it}=\alpha_i+\beta_1X_{1,i,t}+\beta_2X_{2,i,t}+...+\beta_mX_{m,i,t}+\varepsilon_{it}$
- Y ➔ dependent variables: import, import per capita, import over grp, export, export per capita, export over grp.
- $X_m$ ➔ Independent variables: Theil elements, Gini coefficient, GRP, per GRP, population, consumption, railways.
- $\alpha_i$ (i=1…n) is the unknow intercept for each entity
- β the coefficient for independent variables and control variables.
- $\varepsilon_{it}$ the error term.

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## China's inequality → Import & Export

- Dynamic panel data estimators: GMM estimation (Arellano and Bond, 1991)
- Between provinces: Export, Theil Elements, Per GRP, Consumption.
- Within provinces: Import, Export, Gini, per GRP, GRP, population, railways.

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## Between provinces

| | export | export | export | export |
|---|---|---|---|---|
| l.export | 0.951*** | 0.901*** | 0.703*** | 0.703*** |
| | (0.022) | (0.046) | (0.103) | (0.105) |
| Theil | -1.6e+09*** | -1.9e+09*** | -2.0e+09*** | -2.0e+09*** |
| | (3.9e+08) | (5.3e+08) | (6.5e+08) | (6.5e+08) |
| percapita GRP | | 527.118 | 245.161 | 245.626 |
| | | (278.356) | (227.276) | (221.300) |
| consumption | | | 5218.428** | 5230.771** |
| | | | (2207.331) | (2271.910) |
| railways | | | | -1.2e+06 |
| | | | | (2.8e+07) |
| Dummy year 2001 | | 9.3e+06 | 2.5e+07** | 2.5e+07** |
| ... | | (7.5e+06) | (1.1e+07) | 9.8e+06) |
| | export_pc | export_pc | export_pc | export_pc |
| l.export_pc | 0.897*** | 0.823*** | 0.807*** | 0.805*** |
| | (0.014) | (0.043) | (0.089) | (0.089) |
| theil | -2.2e+05*** | -2.4e+05*** | -2.5e+05*** | -2.5e+05*** |
| | (8.3e+04) | (5.9e+04) | (9.3e+04) | (9.4e+04) |
| percapita GRP | | 0.134 | 0.106 | 0.103 |
| | | (0.105) | (0.117) | (0.117) |
| consumption | | | 975.963 | 1110.120 |
| | | | (3466.195) | (2487.325) |
| railways | | | | 2.8e+06 |
| | | | | (1.1e+07) |

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## Within Provinces

| | Import ¥ | Import ¥ | Import ¥ | Export ¥ | Export ¥ | Export ¥ | Export ¥ |
|---|---|---|---|---|---|---|---|
| l.import ¥ | 1.007*** | 0.846*** | 0.797*** | | | | |
| | (0.000) | (0.001) | (0.001) | | | | |
| Gini | 6.1e+08*** | 1.0e+08*** | 8.1e+07*** | 8.8e+08*** | 8.3e+08*** | 4.1e+08*** | 3.8e+08*** |
| | (3.7e+06) | (9.5e+06) | (2.6e+07) | (2.5e+06) | (3.6e+06) | (4.9e+06) | (1.2e+07) |
| population | | 1.9e+09*** | 1.6e+09*** | | | 1.8e+09*** | 1.8e+09*** |
| | | (1.1e+07) | (5.1e+07) | | | (5.2e+06) | (1.7e+07) |
| GRP | | | 4304.184*** | | | | |
| | | | (233.176) | | | | |
| Railways | | | -7.8e+07*** | | 1.9e+08*** | | 1.2e+08*** |
| | | | (2.1e+07) | | (3.6e+06) | | (2.0e+06) |
| l.export ¥ | | | | 1.006*** | 1.000*** | 0.889*** | 0.887*** |
| | | | | (0.000) | (0.000) | (0.000) | (0.001) |

| | Import ¥ _pc | Import ¥ _pc | Import ¥ _pc | Import ¥ _pc | Export ¥ _pc | Export ¥ _pc | Export ¥ _pc | Export ¥ _pc |
|---|---|---|---|---|---|---|---|---|
| l.import ¥ _pc | 0.957*** | 0.869*** | 0.957*** | 0.858*** | | | | |
| | (0.001) | (0.001) | (0.000) | (0.001) | | | | |
| Gini | 1.9e+09 | 1.5e+09*** | 1.9e+09*** | 1.5e+09*** | 2.4e+09*** | 2.1e+09 | 2.4e+09*** | 2.1e+09*** |
| | (.) | (2.2e+07) | (1.2e+07) | (2.1e+07) | (3.2e+07) | (.) | (4.9e+07) | (5.1e+07) |
| percapita GRP | | 6322.595*** | | 7024.573*** | | 3838.324 | | 4401.494*** |
| | | (52.126) | | (51.071) | | (.) | | (51.683) |
| Railways_pc | | | 1.8e+07** | -9.8e+07*** | | | 9.8e+06 | -8.2e+07 |
| | | | (7.3e+06) | (6.3e+06) | | | (7.8e+06) | (1.2e+07) |
| l.export ¥ _pc | | | | | 0.944*** | 0.895 | 0.944*** | 0.888*** |
| | | | | | (0.000) | (.) | (0.000) | (0.001) |

Notice:***,**and*represent significance value at 1%,5% and 10%, respectively. Standard errors are in parentheses

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## Findings

- The results are significant at the 99% level, positive for Gini and negative for Theil elements.
- Inequality between provinces measured by Theil elements impacts export, Theil rises and export decreases.
- Inequality of within provinces measured by Gini impacts import and export, Gini increases and import and export increase, too.

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## outline

- Introduction to OBOR
- Inequality
  - In China
  - in Europe
- Trade
  - In China
  - In Europe
- Inequality and trade in China
- **Very tentative conclusions**

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## Very tentative conclusions

- 1. inequality always needs qualifications
- 2. trade is going to face more complex times
- 3. China regards itself as an increasingly major player
- 4. Europe does not regard itself the same
- 5. what role for the US?

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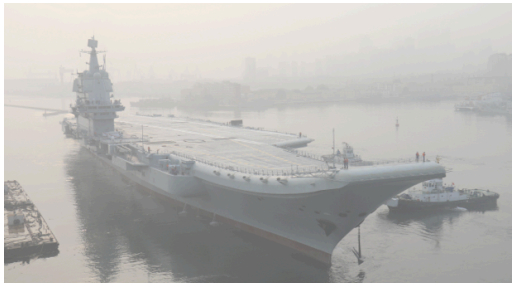
## Thanks for your attention



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