



Universiteit  
Leiden



Institute for  
**New Economic Thinking**  
AT THE OXFORD MARTIN SCHOOL

# COMPETING WITH THE DRAGON

EMPLOYMENT AND WAGE EFFECTS OF CHINESE TRADE COMPETITION  
IN 17 SECTORS ACROSS 18 OECD COUNTRIES



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## China's manufacturing exports grew enormously

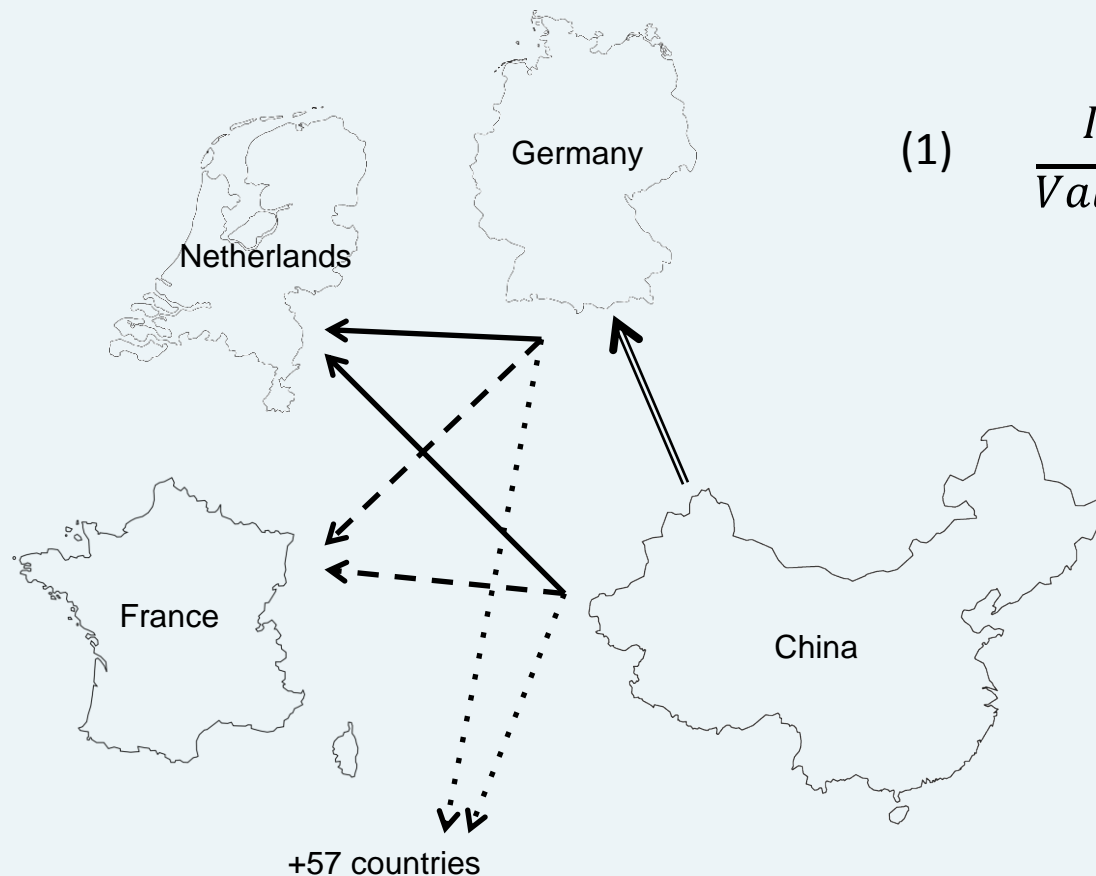
- Distributive effects given a large volume of low-skilled labour
- Globalisation generally is not found to drive wage inequality (Huber & Stephens 2014), but:
  - No specific focus on China
  - Neglect of sectoral differences in exposure
  - Indirect effects through foreign export markets ignored
- Autor *et al.* (2013; 2015): wage and employment effects for low-skilled manufacturing workers in US
- Balsvik *et al.* (2015): employment effects in Norway

## China's influence on wage inequality

- Complementing knowledge on determinants of wage inequality (Rueda & Pontusson 2000; Pontusson *et al.* 2002; Oliver 2008; Martin & Swank 2012; Oesch 2013)
- Focus on China, using sectors as units of analysis, and taking into account competition in foreign export markets
- Assessment for 18 OECD countries with diverse political and economic institutions
- Complementary to deindustrialisation literature (Rehm 2009; Wren 2013; Dancygier & Walter 2015)

## Trade competition with China

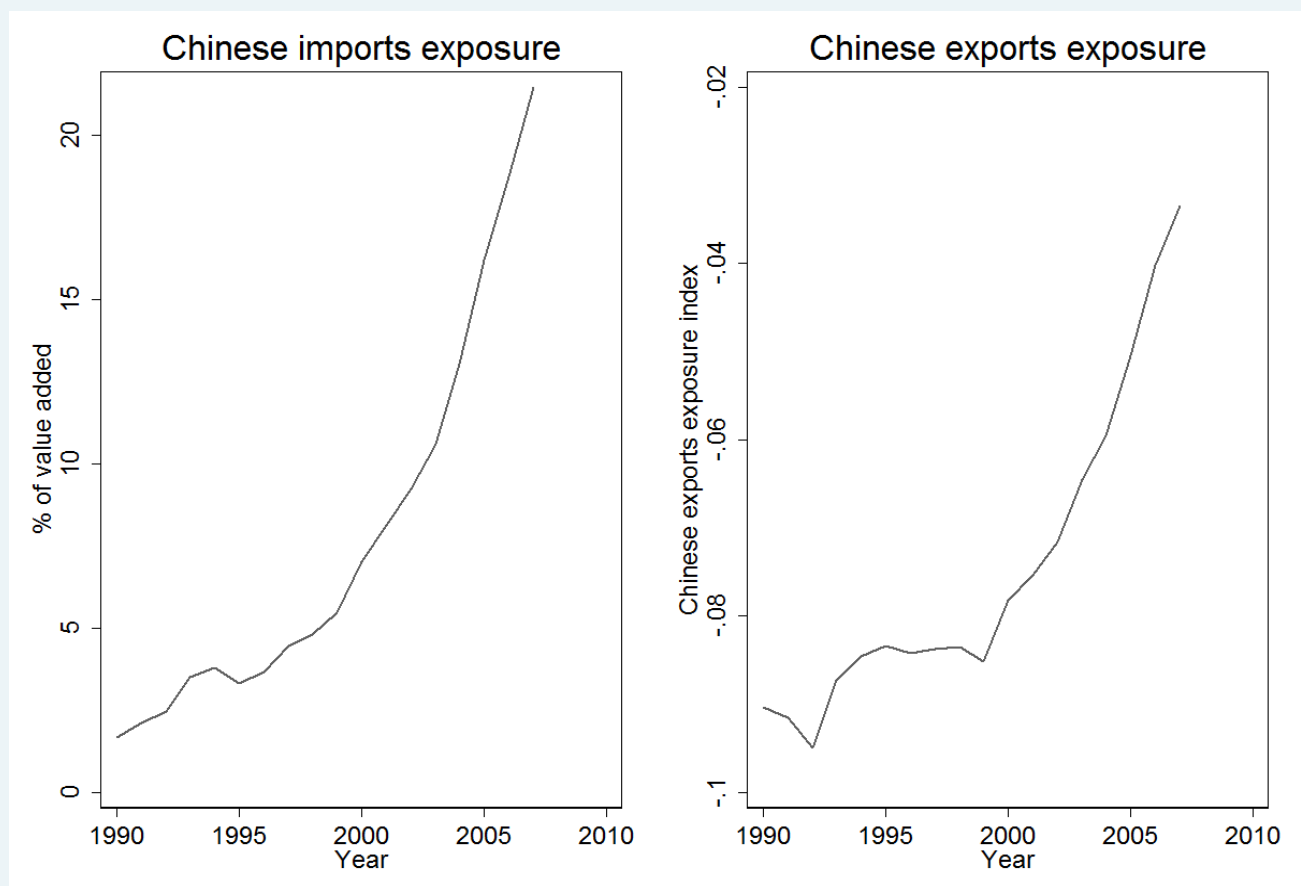
- Will lead to lower labour demand low-skilled in OECD countries due to:
  - Substitution away from local production to China
  - Increased competition in foreign markets
- Positive effects high-skilled due to increased productivity (Melitz 2003; Bloom *et al.* 2012)



$$(1) \quad \frac{Imports_{ijt}}{Value\ added_{ijt}}$$

$$(2) \quad \sum_p \left( \frac{Exports_{ijpt}}{Exports_{ijt}} \times \frac{(Chinese\ exports_{ipt} - Exports_{ijpt})}{Total\ exports_{ipt}} \right)$$

## China's role is rapidly expanding



## **Dependent variables (EU-KLEMS)**

- Relative sectoral employment size
- Share hours worked and wage bill low and high-skilled

## **Control variables**

- Sectoral:
  - Total excluding Chinese imports (OECD STAN)
  - ICT capital compensation (EU-KLEMS)
- Country:
  - Bargaining coverage and coordination (ICTWSS)
  - EPL (OECD)
  - Left government (Comparative Political Dataset)

## Estimation method

- Non-stationary annual time-series
- Error correction model (De Boef & Keele 2008)

$$(3) \quad \Delta y_{ijt} = \alpha_0 + \alpha_1 y_{ijt-1} + \beta_0 \Delta x_{ijt} + \beta_1 x_{ijt-1} + \beta_2 z_{it-1} + \varepsilon_{ijt}$$

- Panel-specific AR(1) error term and panel-corrected standard errors
- 17 sectors in 18 countries between 1990-2007



|                                |                   | $\Delta$ Relative<br>employment<br>size | $\Delta$ Share<br>hours worked<br>low-skilled | $\Delta$ Share<br>hours worked<br>high-skilled |
|--------------------------------|-------------------|---|---|--|
| Chinese imports                | $\Delta$<br>(t-1) | -0.177<br>-0.259**                      | 7.317<br>-4.612*                              | 2.513<br>-0.631                                |
| Chinese exports<br>competition | $\Delta$<br>(t-1) | -0.141**<br>0.001                       | 0.060<br>-0.782**                             | 0.111<br>0.596***                              |
| Total imports                  | $\Delta$<br>(t-1) | 0.001<br>-0.003**                       | 0.167**<br>0.008                              | 0.054<br>0.018                                 |
| Technology                     | $\Delta$<br>(t-1) | -0.048<br>-0.012                        | 2.605<br>-3.114***                            | -0.091<br>3.073***                             |
| Value added                    | $\Delta$<br>(t-1) | 0.028***<br>0.004                       | 0.070<br>0.009                                | 0.101<br>0.194***                              |
| Bargaining coverage            | (t-1)             |   | -0.007  | 0.001  |
| Bargaining coordination        | (t-1)             |   | -0.136**                                      | 0.022  |
| Left government                | (t-1)             |   | 0.001   | 0.000  |
| EPL                            | (t-1)             |   | 0.436***                                      | -0.103*  |
| Unemployment rate              | (t-1)             |   | -0.028**                                      | 0.002  |
| GDP per capita                 | (t-1)             |   | 0.023***                                      | -0.005   |
| Lagged dependent<br>variable   | (t-1)             | -0.026***                               | -0.012**                                      | 0.009  |
| Constant                       |                   | 0.007                                   | -1.014***                                     | 0.262  |
| N                              |                   | 4270                                    | 3777  | 3777   |
| Adjusted R2                    |                   | 0.120                                   | 0.180   | 0.080  |

|                                |          | $\Delta$ Relative<br>employment<br>size | $\Delta$ Share<br>hours worked<br>low-skilled | $\Delta$ Share<br>hours worked<br>high-skilled |
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| Chinese exports<br>competition | $\Delta$ | -0.141**                                | 0.060   | 0.111  |
|                                | (t-1)    | 0.001                                   | -0.782**                                      | 0.596***                                       |
| Total imports                  | $\Delta$ | 0.001                                   | 0.167**                                       | 0.054  |
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| Technology                     | $\Delta$ | -0.048                                  | 2.605   | -0.091   |
|                                | (t-1)    | -0.012                                  | -3.114***                                     | 3.073***                                       |
| Value added                    | $\Delta$ | 0.028***                                | 0.070   | 0.101  |
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| Unemployment rate              | (t-1)    |   | -0.028**                                      | 0.002  |
| GDP per capita                 | (t-1)    |   | 0.023***                                      | -0.005   |
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| Chinese exports              | $\Delta$ | -0.141**                                | 0.060   | 0.111  |
| competition                  | (t-1)    | 0.001                                   | -0.782**                                      | 0.596***                                       |
| Total imports                | $\Delta$ | 0.001                                   | 0.167**                                       | 0.054  |
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|                                |          | $\Delta$ Wage bill<br>share low-<br>skilled | $\Delta$ Wage bill<br>share high-<br>skilled |
|--------------------------------|----------|---|--|
| Chinese imports                | $\Delta$ | 3.130                                       | 6.414  |
|                                | (t-1)    | -2.592                                      | -0.908                                       |
| Chinese exports<br>competition | $\Delta$ | 1.647                                       | -0.673                                       |
|                                | (t-1)    | -0.773***                                   | 0.537*                                       |
| Total imports                  | $\Delta$ | 0.183***                                    | 0.023  |
|                                | (t-1)    | 0.026                                       | 0.022  |
| Technology                     | $\Delta$ | 2.990                                       | 0.025  |
|                                | (t-1)    | -2.472***                                   | 3.540**                                      |
| Value added                    | $\Delta$ | 0.124                                       | 0.050  |
|                                | (t-1)    | 0.025                                       | 0.168*                                       |
| Bargaining coverage            | (t-1)    | -0.005                                      | 0.000  |
| Bargaining coordination        | (t-1)    | -0.147***                                   | 0.026  |
| Left government                | (t-1)    | 0.001                                       | -0.001                                       |
| EPL                            | (t-1)    | 0.461***                                    | -0.110                                       |
| Unemployment rate              | (t-1)    | -0.025**                                    | 0.008  |
| GDP per capita                 | (t-1)    | 0.024***                                    | -0.002                                       |
| Lagged dependent<br>variable   | (t-1)    | -0.019***                                   | 0.004  |
| Constant                       |          | -1.195***                                   | 0.439  |
| N                              |          | 3777  | 3777   |
| Adjusted R2                    |          | 0.210                                       | 0.060  |

|                                |          | $\Delta$ Wage bill<br>share low-<br>skilled | $\Delta$ Wage bill<br>share high-<br>skilled |
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| N                              |          | 3777  | 3777   |
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## **Dragon with distributive consequences**

- Chinese trade competition affects both total size and distribution
- Low-skilled manufacturing workers bear the brunt
- Findings hold for 18 OECD countries with diverse labour market institutions

## **Implications**

- Underestimation distributive effects of trade competition when export competition is ignored
- Chinese and total imports are not the same

## Sectoral definitions

| ISIC code | Full name  |
|-----------|--|
| AtB       | Agriculture, Hunting, Forestry and Fishing           |
| C         | Mining and Quarrying                                 |
| D         | Total Manufacturing                                  |
| 15t16     | Food products, Beverages and Tobacco                 |
| 17t19     | Textiles, Textile Products, Leather and Footwear     |
| 20        | Wood and Products of Wood and Cork                   |
| 21t22     | Pulp, Paper, Paper Products, Printing and Publishing |
| 23t25     | Chemical, Rubber, Plastics and Fuel Products         |
| 23        | Coke, Refined Petroleum Products and Nuclear Fuel    |
| 24        | Chemicals and Chemical Products                      |
| 25        | Rubber and Plastics Products                         |
| 26        | Other Non-Metallic Mineral Products                  |
| 27t28     | Basic Metals and Fabricated Metal Products           |
| 29        | Machinery and Equipment, not elsewhere classified    |
| 30t33     | Electrical and Optical Equipment                     |
| 34t35     | Transport Equipment                                  |
| 36t37     | Manufacturing not elsewhere classified; Recycling    |