

# On the heterogeneous link between outward FDI and local domestic employment in the USA

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# 1.1. Motivation of the Paper

- Globalisation is increasing international competition among firms and local productive systems ...
  - ✓ ... but it is also allowing economic actors to exploit global connections to access new and valuable inputs to maximise efficiency and increase competitiveness (Bathelt *et al.*, 2004; Boschma and Frenken, 2010; Crescenzi and Iammarino, 2017; De Marchi *et al.*, 2018).

## 1.2. Motivation of the Paper

- However, recent economic and political events are questioning the benefits of global economic integration and internationalisation (e.g. Great Recession, Brexit, 2016 US elections) ...
  - ✓ ... underlining how decisions by domestic firms to establish new activities abroad can weaken the domestic economic structure:
    - e.g. Trump's attempts to “bring jobs back to America”.

## 1.3. Motivation of the Paper

- Is this a highly relevant issue for political debate and academic research?

## 1.3. Motivation of the Paper

**2017 Is Going To Be A Disruptive Year For U.S. Multinational Firms - Thanks To Trump**

Source: December 2016, Forbes.

**The retreat of the global company**

Source: January 2017, The Economist.

**18-12 Trump Tariffs Primarily Hit Multinational Supply Chains, Harm US Technology Competitiveness**

Source: May 2018, Peterson Institute for International Economics.

**U.S. Companies In China Losing Patience, Tell Trump 'Enough Is Enough'**

Source: July 2018, Forbes.

## 2. Research Question

- Is the active international expansion of domestic firms through brand new greenfield outward FDI detrimental for domestic labour market nowadays?
  - ✓ Is there a trade-off between outward FDI and domestic employment?
    - Is this intra-sector link driven by different knowledge intensity of sectors and/or regional labour market dynamism?
    - Is outward FDI increasing – or decreasing – sectoral and/or regional disparities in the USA?

## 3.1. USA and Outward FDI

- The USA are a suitable environment to analyse the returns of outward FDI on the domestic economy:
  1. the most recent US political view on international openness and FDI offers an interesting starting point to think about the policy implications related to the link between active internationalisation of firms and employment dynamics;

## 3.2. USA and Outward FDI

2. the USA classified as the most outward-investing economy during the last decade ...

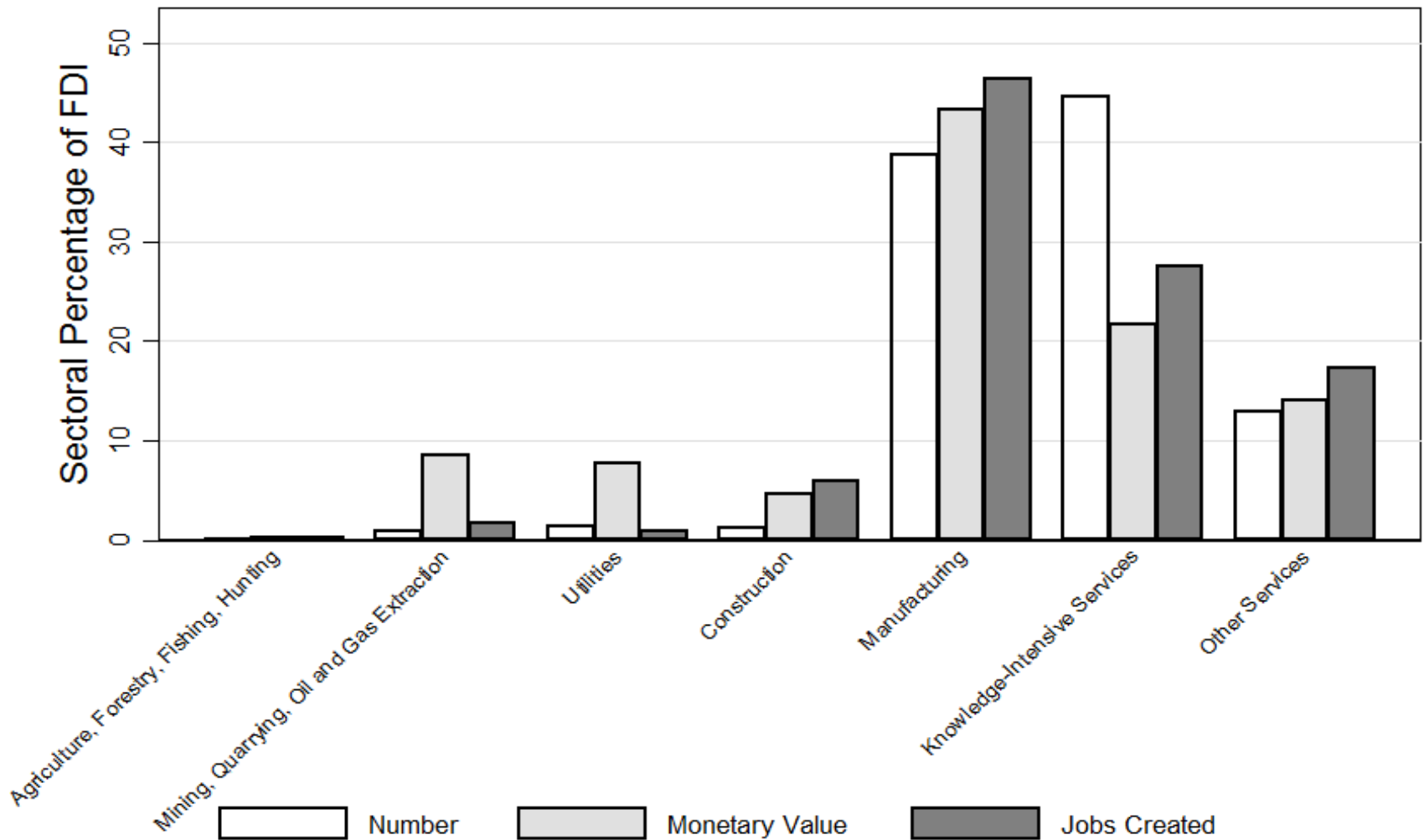
<b>Outward FDI Stock</b>	
<b>2006</b>	<b>2016</b>
USA (29.79)	USA (24.40)
UK (9.75)	China (10.74)
Germany (6.57)	UK (5.52)

Notes: Percentages on world's total are reported in parentheses. China includes Hong Kong. Elaboration on UNCTAD's data.



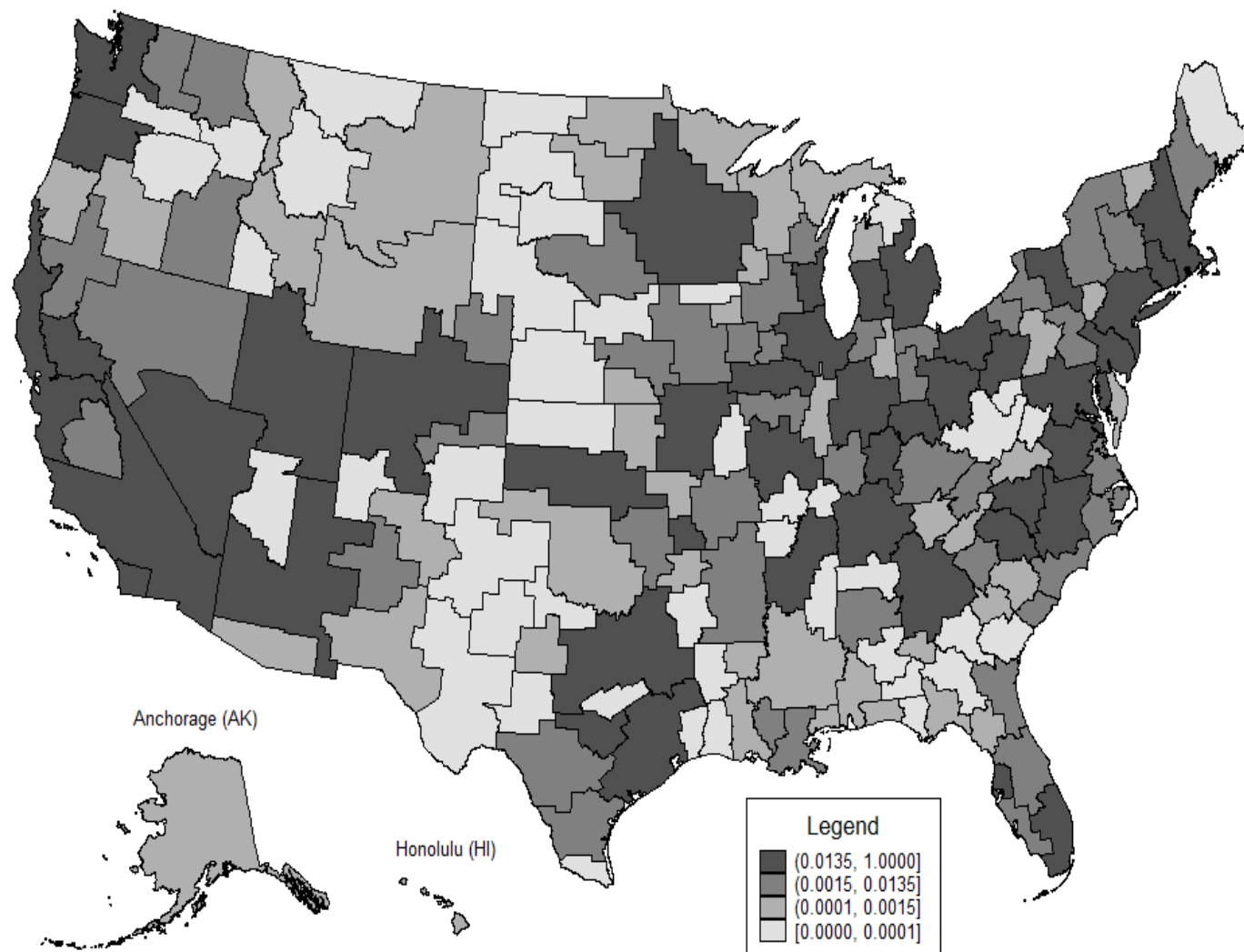
### 3.3. USA and Outward FDI

3. ... but outward greenfield FDI (*fDi Markets*) is highly heterogeneous across sectors ...



## 3.4. USA and Outward FDI

4. ... as well as across US Economic Areas (*fDi Markets*).



## 4.1. Empirical Framework

- We analyse the link between brand new greenfield outward FDI and local employment:
  - ✓ levels of employment:

$$Employment_{r,s,t} = f(OFDI_{r,s,t-1}, \mathbf{X}_{r,s,t-1}, \mathbf{Z}_{r,t-1})$$

- ✓ yearly employment dynamics:

$$\Delta Employment_{r,s,t} = f(OFDI_{r,s,t-1}, Employment_{r,s,t-1}, \mathbf{X}_{r,s,t-1}, \mathbf{Z}_{r,t-1})$$

## 4.1. Empirical Framework

- log-log functional form
- 179 EAs ( $r$ ) / 7 industrial sectors ( $s$ ) / 11 years ( $t = 2005, \dots, 2015$ )
- outward FDI in terms of jobs created abroad by US companies from EA  $r$
- region/sector-specific controls for (i) wages & salaries per employee, (ii) inward FDI
- region-specific controls for (i) population density, (ii) personal income per capita, (iii) unemployment rate, (iv) share of outward FDI with respect to USA
- EA-, industrial sector- and year-fixed effects.

## 4.2. Empirical Framework

- two-digit sectors aggregated into 7 industrial sectors to match different aggregation levels available for different data series:

<b>Industrial Sector</b>	<b>NAICS Code</b>
1 – Agriculture, Forestry, Fishing and Hunting	11
2 – Mining, Quarrying, and Oil and Gas Extraction	21
3 – Utilities	22
4 – Construction	23
5 – Manufacturing	31, 32 and 33
6 – Knowledge-Intensive Services	
<i>Information</i>	51
<i>Finance and Insurance</i>	52
<i>Real Estate, and Rental and Leasing</i>	53
<i>Professional, Scientific, and Technical Services</i>	54
<i>Administrative and Support, and Waste Management and Remediation Services</i>	56
7 – Other Services	
<i>Wholesale Trade</i>	42
<i>Retail Trade</i>	44 and 45
<i>Transportation and Warehousing</i>	48 and 49
<i>Educational Services</i>	61
<i>Health Care and Social Assistance</i>	62
<i>Arts, Entertainment, and Recreation</i>	71
<i>Accommodation and Food Services</i>	72

## 5.1. Baseline Results

	Level Equation		Growth Equation	
Outward FDI <sub>r,s,t-1</sub>	0.082**** (0.003)	0.065**** (0.003)	0.006**** (0.002)	0.005**** (0.001)
Region/Sector Specific Controls	No	Yes	No	Yes
Region-Specific Controls	No	Yes	No	Yes
Employment at $t-1$	---	---	Yes	Yes
EA Dummies	Yes	Yes	Yes	Yes
Industrial Sector Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
No. of Observations	12,530	12,530	12,530	12,530
No. of EAs	179	179	179	179
No. of Sectors	7	7	7	7
No. of Years	10	10	10	10
R <sup>2</sup>	0.89	0.91	0.07	0.07
Adjusted R <sup>2</sup>	0.89	0.91	0.05	0.06
Model F Statistic [p-value]	709.03 [0.000]	206.45 [0.000]	20.49 [0.000]	5.88 [0.000]


Notes: \*\*\*\* p < 0.001. Robust standard errors are reported in parentheses.

## 5.2. Sectoral and Labour Market Dynamism Asymmetries

- Regional index of labour market dynamism defined on:
  - ✓ (regional) wages & salaries per employee;
  - ✓ unemployment rate;
  - ✓ personal income per capita.
  
- Level and growth equations augmented with three-way interactions among:
  - ✓ region/sector-specific outward FDI variable;
  - ✓ regional index of labour market dynamism in  $[0, 1]$  – from low to high dynamism;
  - ✓ vector of industrial sector dummies.

## 5.2. Sectoral and Labour Market Dynamism Asymmetries

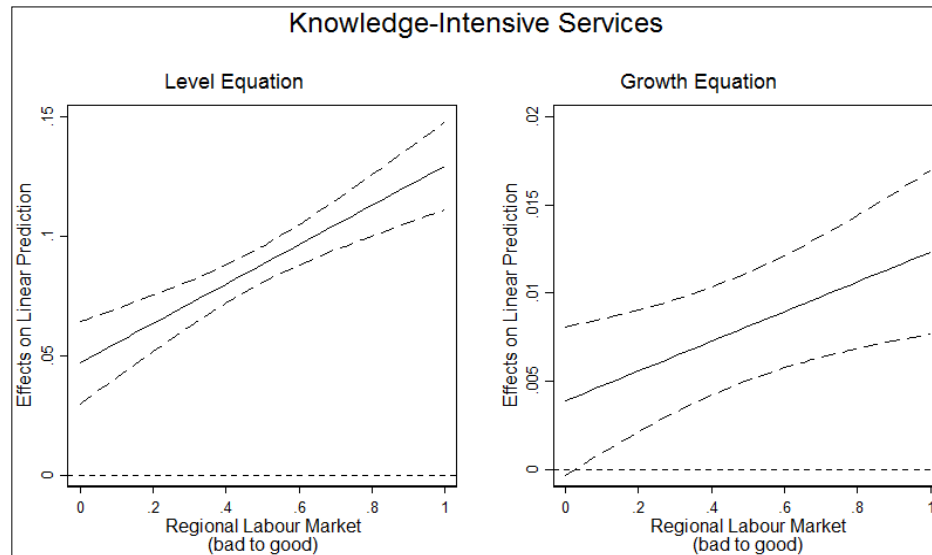
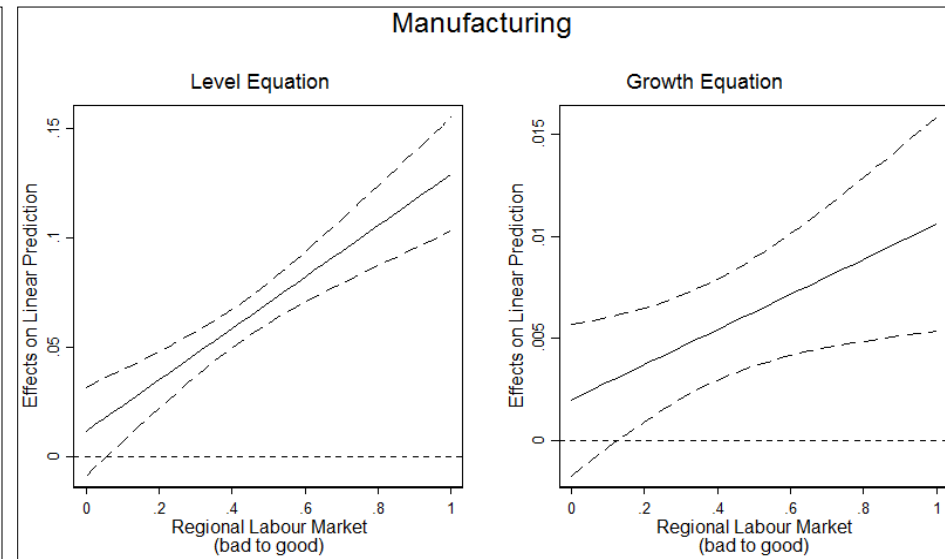
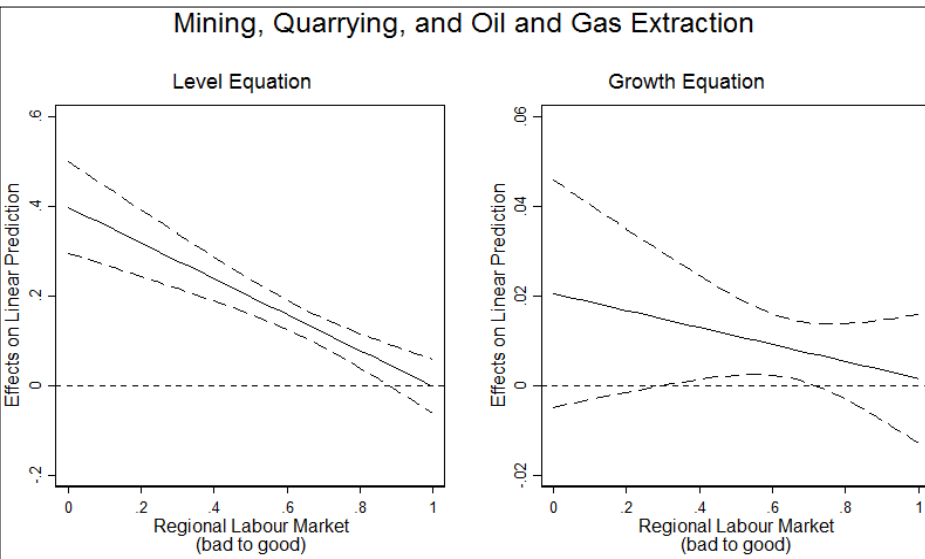
Industrial Sector	Level Equation		Growth Equation	
	Effect	Slope	Effect	Slope
Agriculture, Forestry, Fishing and Hunting	negligible	downward	negligible	upward
Mining, Quarrying, and Oil and Gas Extraction	+	downward	negligible	downward
Utilities	+	upward	negligible	upward
Construction	+	upward	negligible	downward
Manufacturing	+	upward	+	upward
Knowledge-Intensive Services	+	upward	+	upward
Other Services	+	upward	+	upward



low to high labour market dynamism



# 5.2. Sectoral and Labour Market Dynamism Asymmetries



# 6.1. Preliminary Conclusions

- Evidence on the USA shows that:
  - ✓ active internationalisation of domestic firms is not detrimental for local domestic employment, overall;
  - ✓ however, the link between outward FDI and short-run employment dynamics:
    - varies across industrial sectors;
    - depends on the dynamism of the regional labour market;
      - higher effects of FDI on more knowledge-intensive sectors and regions with more dynamic labour market ...
      - ... so outward FDI seems to amplify sectoral and territorial disparities.

## 6.2. Preliminary Conclusions

- Given the highly unequal impacts of outward greenfield FDI on short-run domestic employment across sectors and regions ...
  - ✓ ... place-based policies and interventions addressing sector- and region-specific needs might be helpful to mitigate sector- and region-specific effects which are increasing already existing asymmetries.

# Thanks!

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All errors and omissions are our own.

# The Dataset

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<b>Data</b>	<b>Aggregation Level</b>	<b>Time Period</b>	<b>Source</b>
Employment	EA, Sector, Year	2003 to 2015	US Bureau of Economic Analysis
Greenfield FDI	EA, Sector, Year	2003 to 2014	<i>fDi Markets</i> database, Financial Times
Wages and Salaries	EA, Sector, Year	2003 to 2015	US Bureau of Economic Analysis
Population	EA, Year	2005 to 2015	American Community Survey
Unemployment Rate	EA, Year	2005 to 2015	US Bureau of Labor Statistics
Personal Income	EA, Year	2005 to 2015	US Bureau of Economic Analysis

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# Sectoral and Labour Market Dynamism Asymmetries (1)

Estimated effect of outward FDI

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	<b>Level Equation</b>	<b>Growth Equation</b>
Outward FDI <sub>r,s,t-1</sub>	0.070**** (0.005)	0.005*** (0.002)

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Notes: \*\*\*  $p < 0.01$ ; \*\*\*\*  $p < 0.001$ . Robust standard errors are reported in parentheses.

# Sectoral and Labour Market Dynamism Asymmetries (2)

Estimated effect of outward FDI by industrial sector

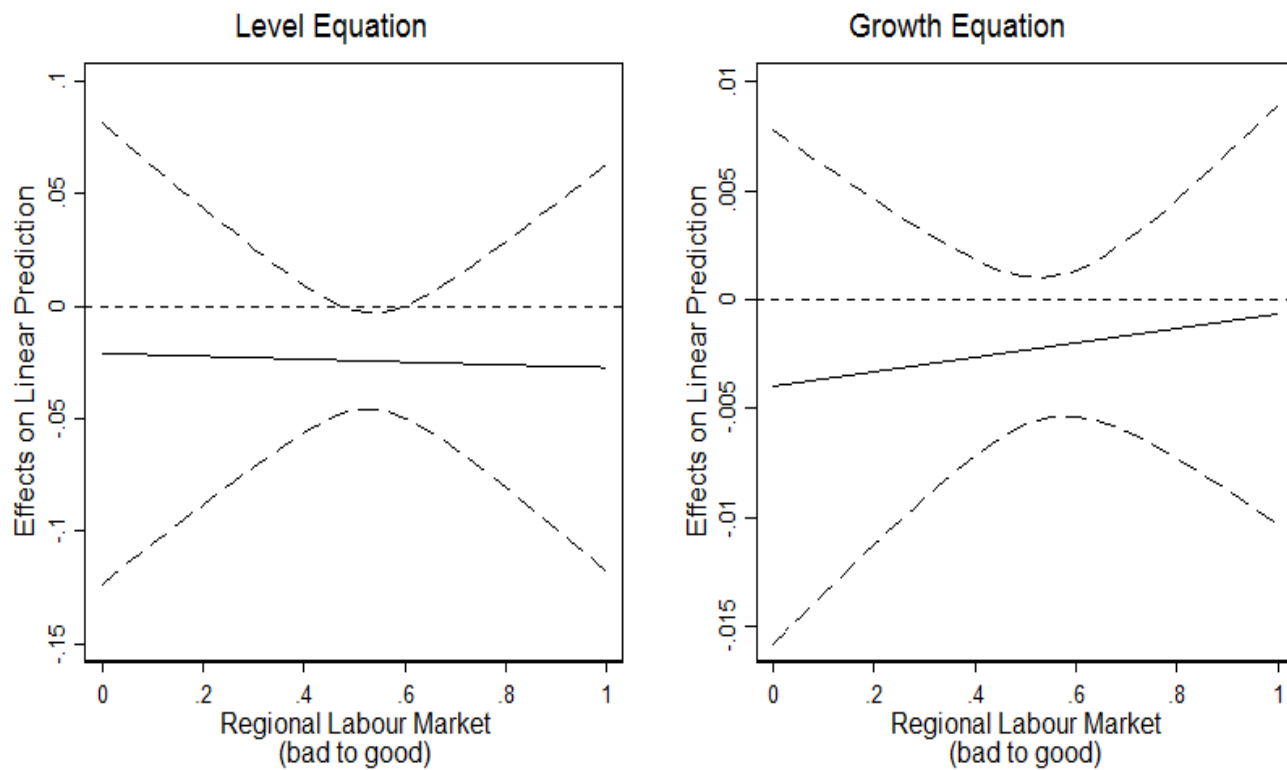
<b>Industrial Sector</b>	<b>Level Equation</b>	<b>Growth Equation</b>
Agriculture, Forestry, Fishing and Hunting	-0.024 (0.017)	-0.003 (0.002)
Mining, Quarrying, Oil and Gas Extraction	0.221**** (0.027)	0.012* (0.006)
Utilities	0.089**** (0.011)	0.004 (0.004)
Construction	0.019**** (0.005)	0.002 (0.002)
Manufacturing	0.063**** (0.005)	0.006**** (0.002)
Knowledge-Intensive Services	0.083**** (0.005)	0.008**** (0.002)
Other Services	0.039**** (0.004)	0.004**** (0.001)

Notes: \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ ; \*\*\*\*  $p < 0.001$ . Robust standard errors are reported in parentheses.

# Sectoral and Labour Market Dynamism Asymmetries (3.1)

Estimated effect of outward FDI by industrial sector and labour market dynamism

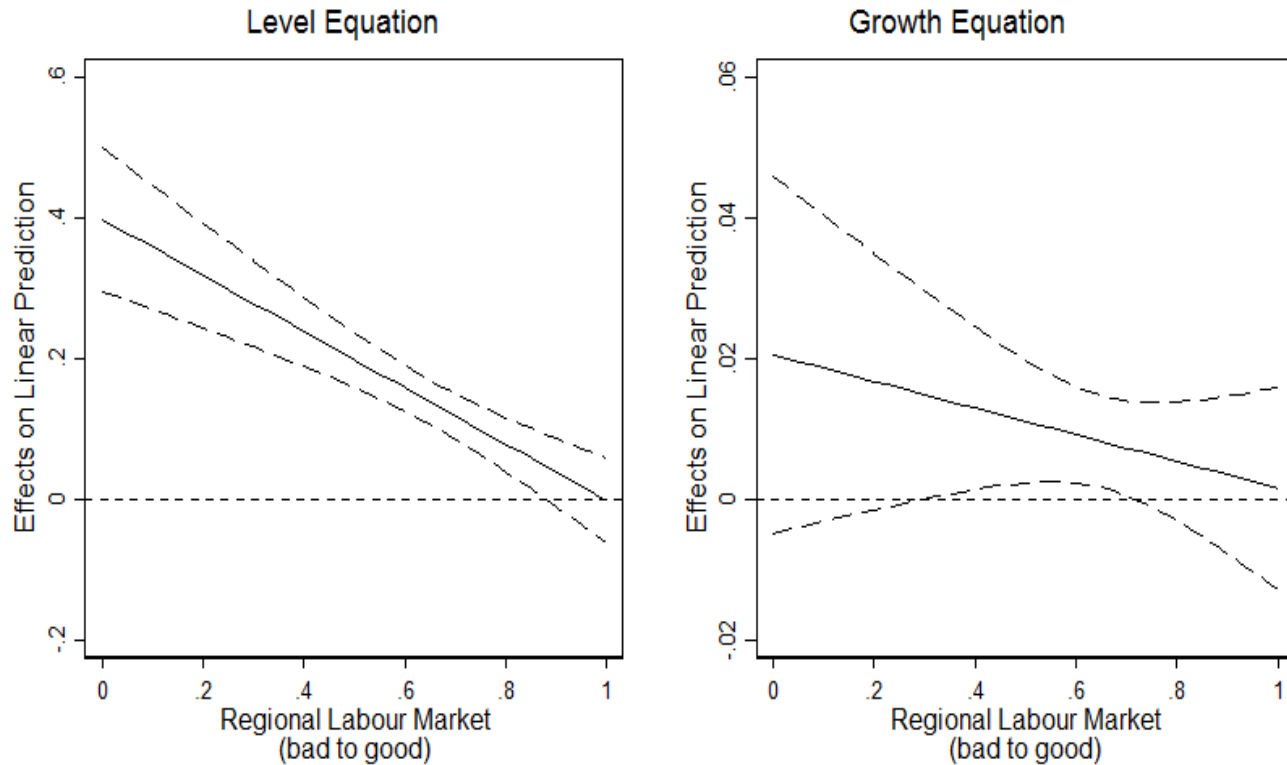
## Agriculture, Forestry, Fishing and Hunting





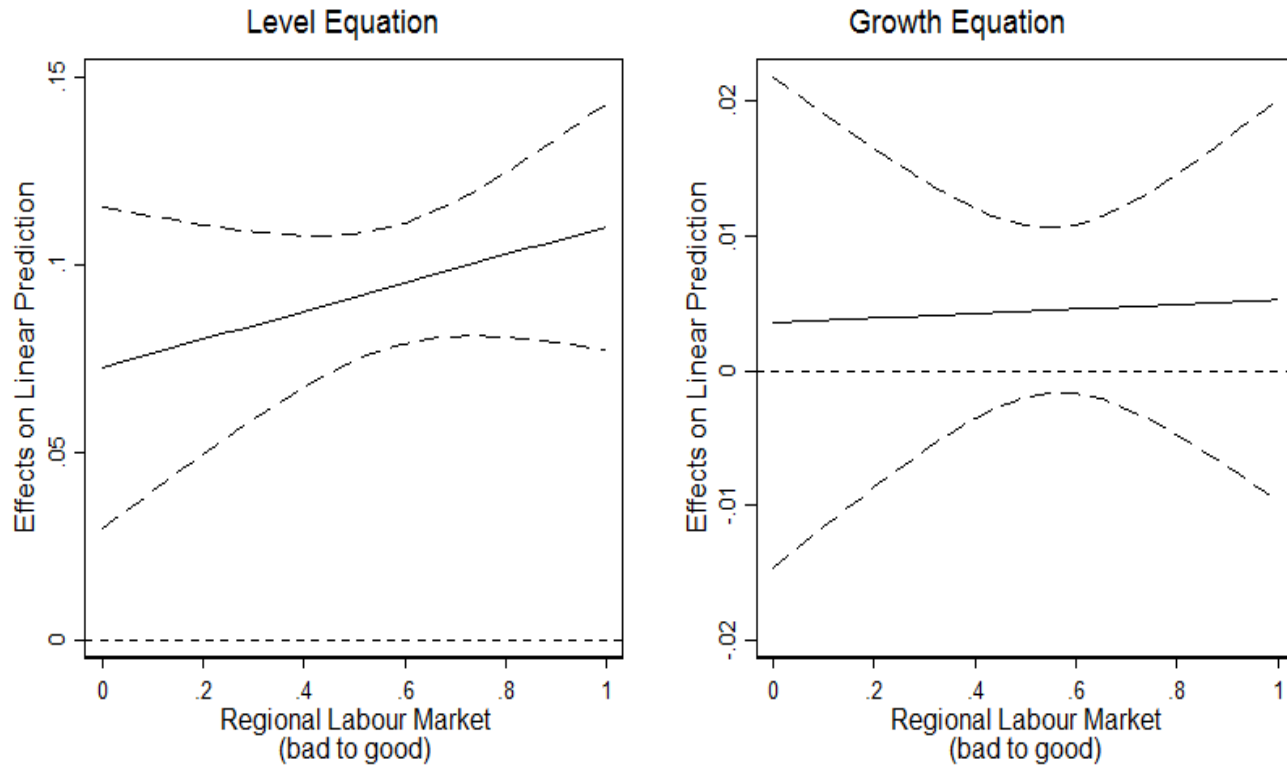
# Sectoral and Labour Market Dynamism Asymmetries (3.2)

## Mining, Quarrying, and Oil and Gas Extraction



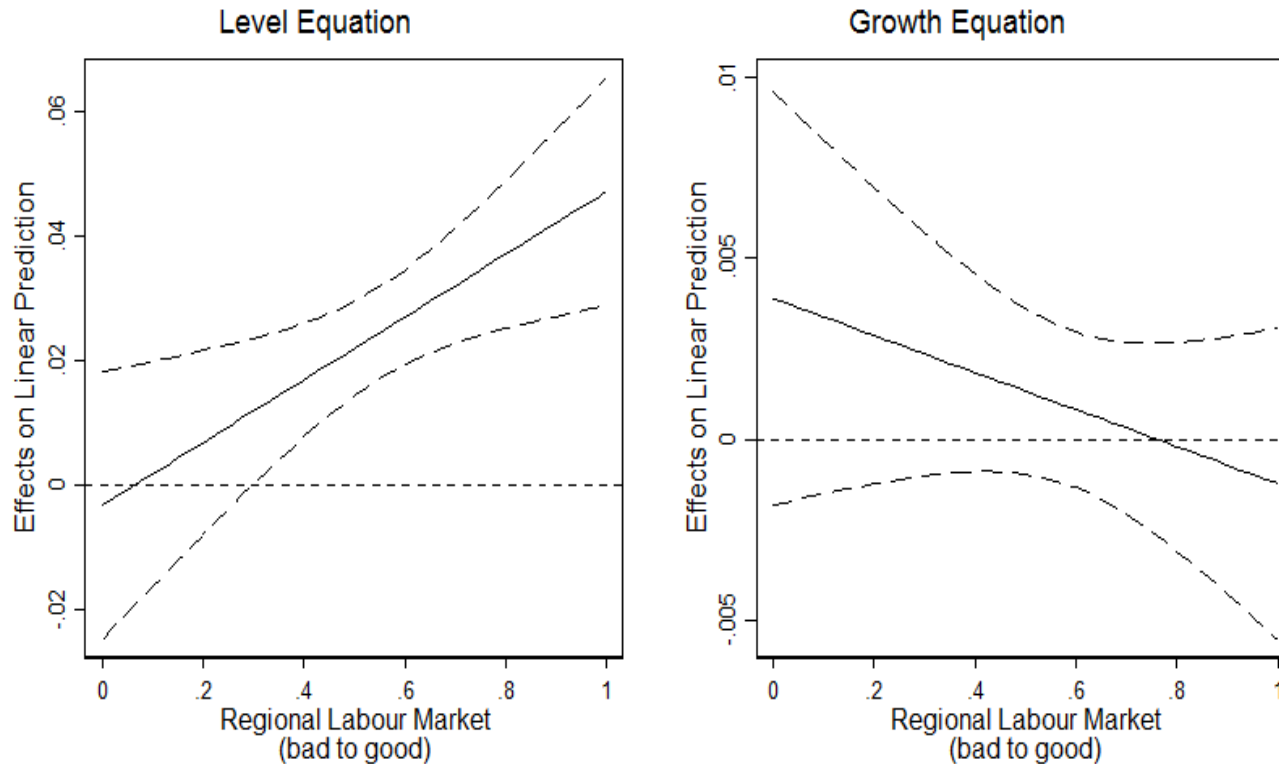
# Sectoral and Labour Market Dynamism Asymmetries (3.3)

## Utilities



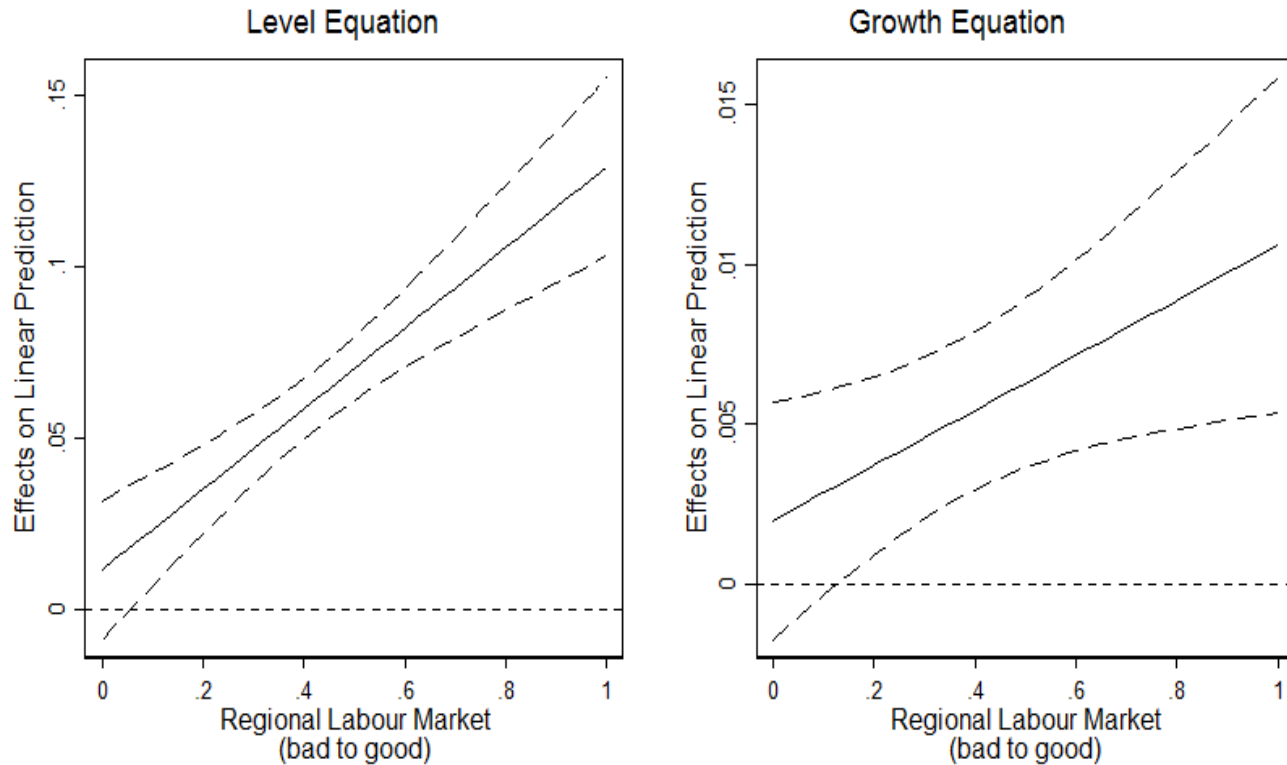
# Sectoral and Labour Market Dynamism Asymmetries (3.4)

## Construction



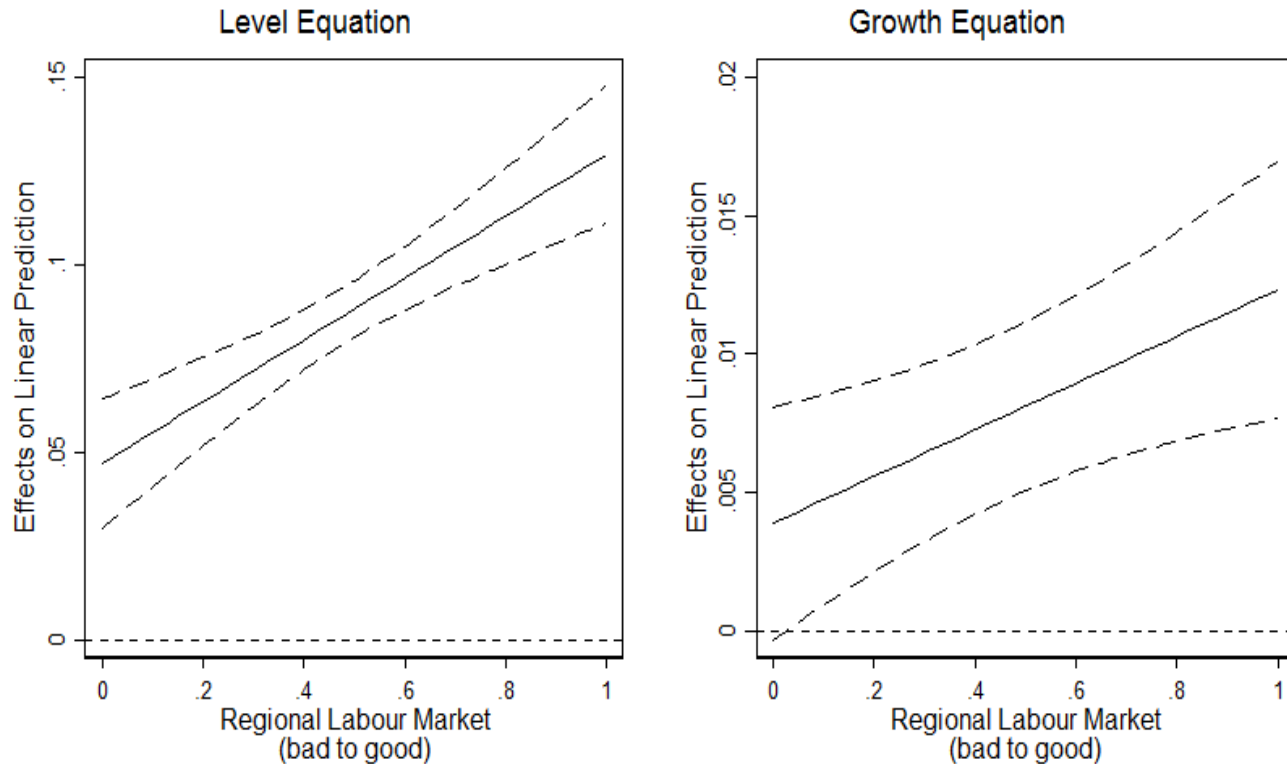
# Sectoral and Labour Market Dynamism Asymmetries (3.5)

## Manufacturing



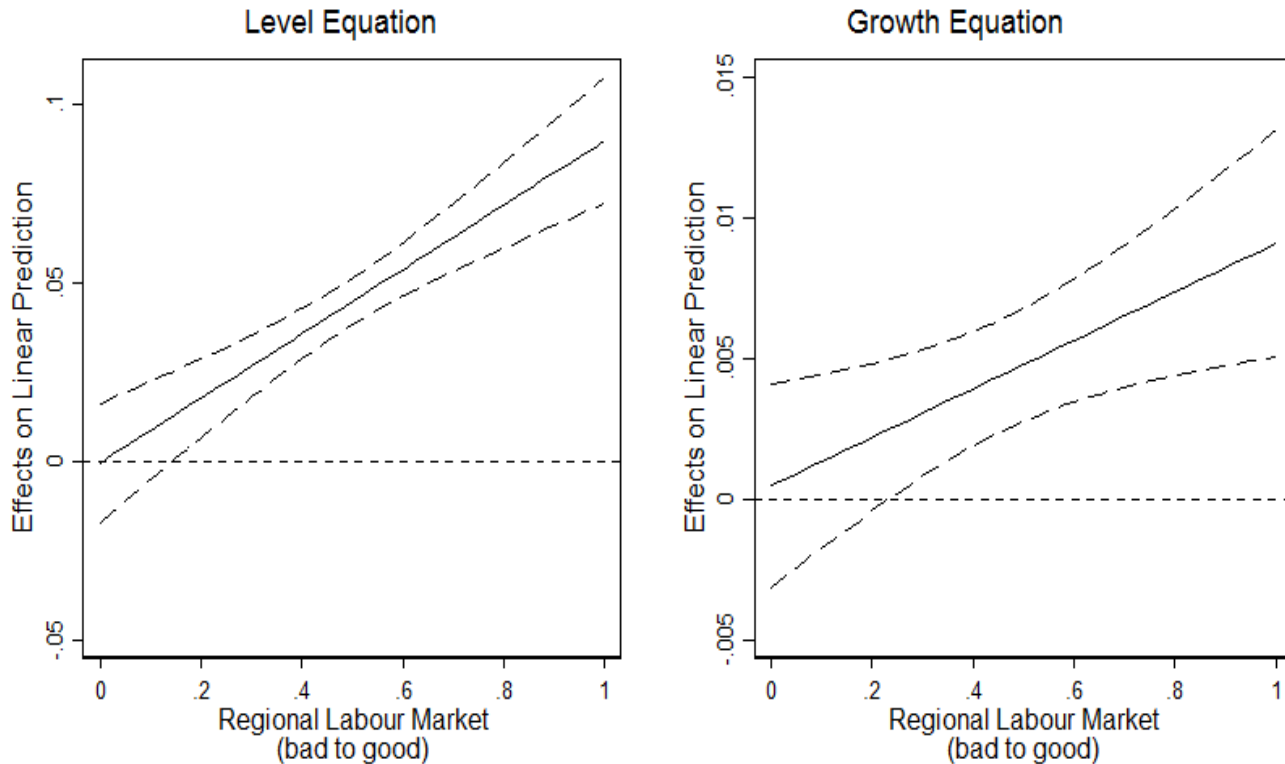
# Sectoral and Labour Market Dynamism Asymmetries (3.6)

## Knowledge-Intensive Services



# Sectoral and Labour Market Dynamism Asymmetries (3.7)

## Other Services



# Robustness: Endogenous Outward FDI (1)

- Identification strategy exploits two-year lagged industrial sector-specific variations in the monetary value of outward FDI projects set up by EU-28 companies, and realised in countries other than the USA:
  - ✓ idea:
    - to identify the effect of industrial sector-specific outward FDI realised by US companies with the outward FDI dynamics characterising EU-based companies;
  - ✓ validity:
    - presence of correlation between location choice determinants for US and EU-28 multinational companies;
    - absence of correlation between the dynamics of US domestic employment and EU-28 outward FDI in countries other than the USA.

## Robustness: Endogenous Outward FDI (2)

- “Shift-share” IV *à la* Bartik (1991):

$$IV_{r,s,t} = \left( \frac{\text{Employment}_{r,s,2003}}{\sum_{r=1}^{179} \text{Employment}_{r,s,2003}} \right) \times \left( \frac{OFDI_{EU,s,t}^{MV} - OFDI_{EU,s,t-2}^{MV}}{\text{Outward FDI}_{EU,s,t-2}^{MV}} \right)$$

- ✓ industrial-sector specific changes of outward FDI from EU-28 countries between  $t$  and  $t-2$  are assigned to US EAs using their shares of sectoral employment in 2003.



# Robustness: Endogenous Outward FDI (3)

	Level Equation		Growth Equation	
Outward FDI <sub>r,s,t-1</sub>	0.045*** (0.015)	0.486**** (0.048)	0.005** (0.002)	0.009*** (0.003)
Region/Sector Specific Controls	Yes	No	Yes	No
Region-Specific Controls	Yes	No	Yes	No
Employment at <i>t-1</i>	---	---	Yes	Yes
EA Dummies	Yes	No	Yes	No
Sector Dummies	Yes	No	Yes	No
Year Dummies	Yes	No	Yes	No
First-Stage F Statistic on IV [p-value]	18.14 [0.000]	14.10 [0.000]	18.34 [0.000]	12.78 [0.000]
Under-identification Test [p-value]	15.15 [0.000]	21.11 [0.000]	15.26 [0.000]	22.51 [0.000]
H <sub>0</sub> : Exogenous Variable (p-value)	0.166	0.349	0.755	0.190

Notes: \*\* p < 0.05; \*\*\* p < 0.01; \*\*\*\* p < 0.001. Robust standard errors are reported in parentheses.