Regional employment effects of MNE offshoring

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Background I

- Declining costs for transportation, information and communication, and lower barriers to international trade and investment

  → increased fragmentation of production within global value chains

- At the forefront of organizing production in international networks stretching out across multiple borders are MNEs

- This mode of globalization (within MNE offshoring) entails that some production stages of the value chain are relocated to affiliates offshore, others are retained or even expanded in the activities at home (onshore)

Background II

- Previous studies analyzing the impact of such offshoring on employment in operations at home focus on employment compositions at the national level, i.e., relative demand for skills and non-routine tasks in the home country (e.g. Becker et al. 2013)
- MNEs might also be specialized functionally across regions within a country
- Larger cities often hosts of major MNE knowledge-related investments, and the functions located there are, largely, highly skilled, non-routine activities. In other parts of a country, other functions, particularly less-skilled and routine activities are performed

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Aim of the study

- MNE offshoring may have various impacts on different types of regions (larger cities, regional centers and other regions)
- Our aim is to uncover whether the relationship between MNE offshoring and onshore employment varies between different groups of regions
- More generally, we are interested in whether offshoring has contributed to the regional divergences observed in Sweden in recent years.

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The set up

- The units of analysis are Swedish MNEs and local labor market regions
- Related studies that address the regional impact of outward foreign direct investments FDI are Gagliardi et al. (2015) on Great Britain and Elia et al. (2009) on Italy. More aggregate data regional data on employment and FDI.
- Control for other factors that might influence employment trends and compositions in local labor markets, such as investment in ICT capital and the intensity of import competition from China

Preview of the results

- Increased employment in affiliates overseas by Swedish MNEs is positively (or not) related to employment in their activities in larger cities
- No (or a negative) relationship between MNE offshoring and onshore employment in regional centers and in other regions
- MNE offshoring is correlated with higher shares of skilled labor and non-routine jobs in home country employment in larger cities
- No such connection in regional centers and other regions

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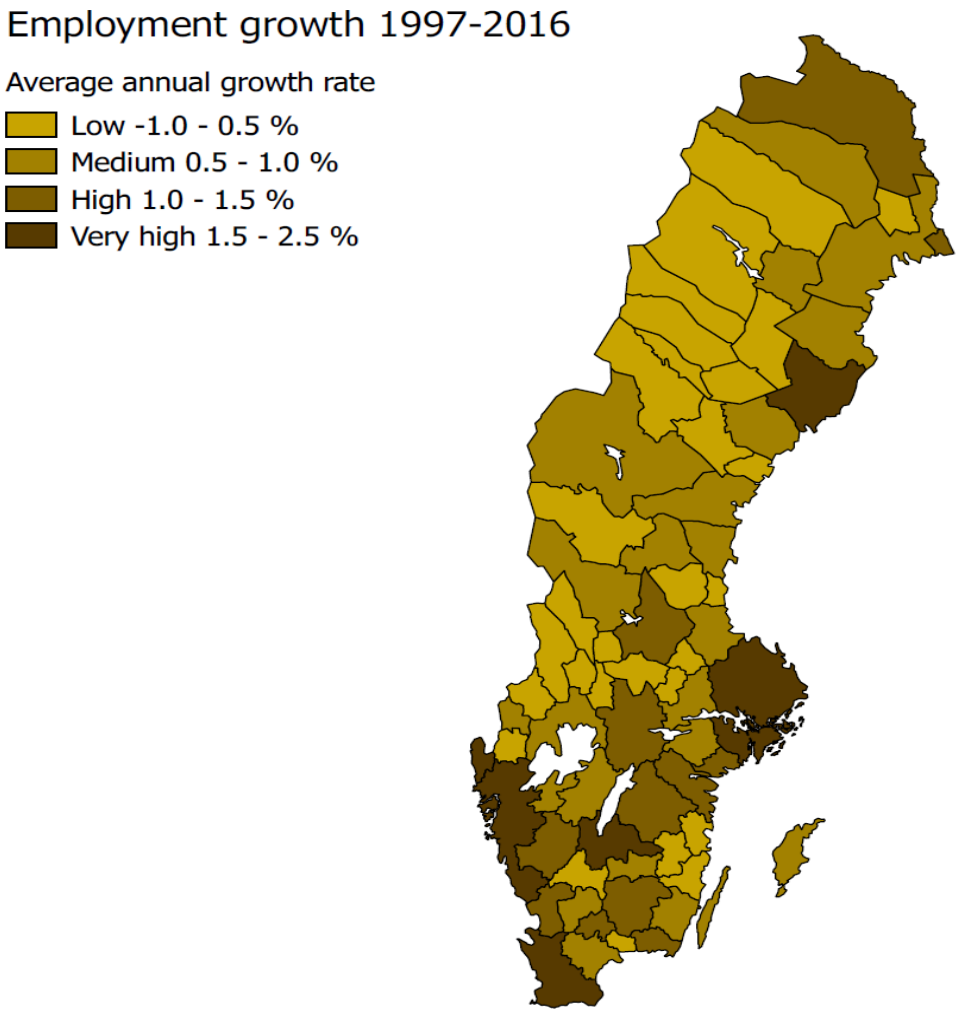
Data

- Unique identification numbers of the firms enable us to link information on financial accounts and register-based labor statistics (the education levels of employees and their occupations)
- The unit of analysis is Swedish-owned enterprises that between 1997 and 2016 at least one year have employees abroad
- For the regional dimension of the analysis we use 69 local labor markets (LA regions). LA regions are constructed by merging municipalities so that commuting flows across LA regions are minimized.

Employment growth in Swedish LA regions



Source: Statistics Sweden, Register-based Labor Market Statistics (RAMS)

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Regional employment in Swedish MNEs and foreign owned firms (FOF) and skill shares in Swedish MNEs

	Swedish MNEs			FOF			Skill share SMNE		
	1997	2016	Δ	1997	2016	Δ	1997	2016	Δ
Larger	313	266	−46	168	397	230	13.7	31.7	17.9
cities	(48.5)	(52.9)	(4.4)	(55.9)	(62.5)	(6.6)			
Regional	239	174	−65	93	170	80	5.1	17.2	12.1
centers	(37.0)	(34.6)	(−2.4)	(31.0)	(26.7)	(−4.3)			
Other	93	63	−30	39	69	32	3.3	11.3	8.0
regions	(14.4)	(12.5)	(−1.9)	(13.1)	(10.8)	(−2.3)			
All	644	503	−141	301	636	335	9.1	24.1	15.1

Remark: skilled labor is defined as employees with three years or more of post-secondary education

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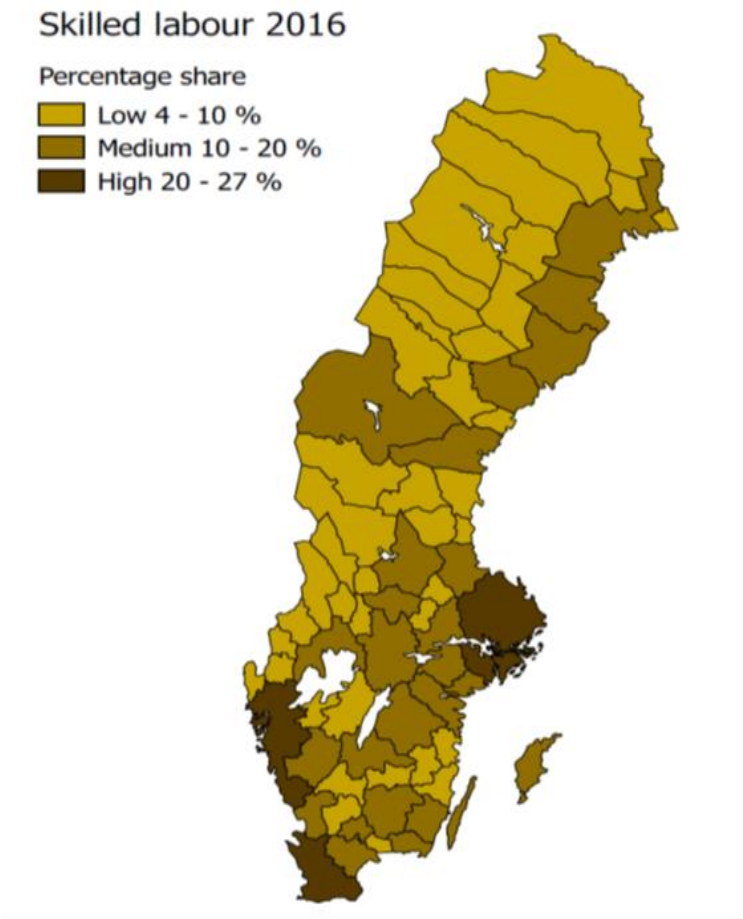
Spatial distribution of shares of skilled labor in the business sector across LA regions



Source: Statistics Sweden, Register-based Labor Market Statistics (RAMS)

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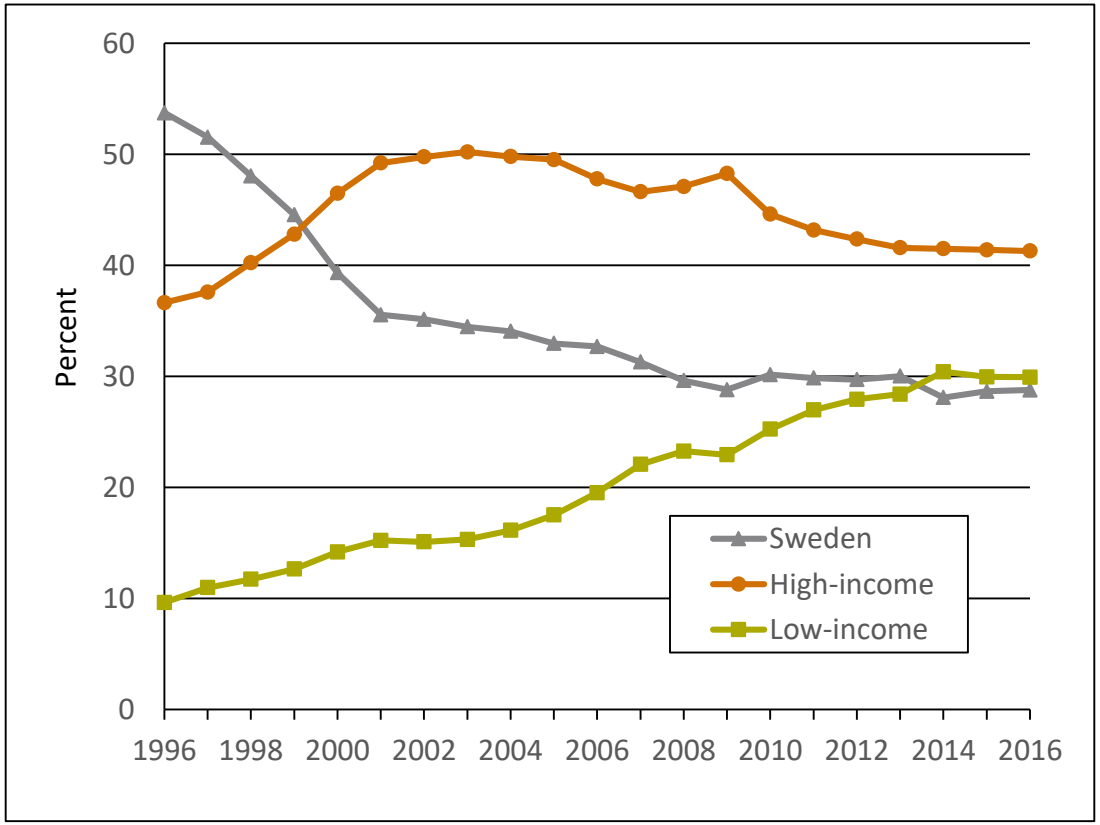
Employment shares in Swedish MNEs at home and abroad



Remark: High-income countries are the ”old” OECD countries

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Econometric specifications

$$L_{jrt} = \beta_1 OE_{jt} + \beta_2 R_1 OE_{jt} + \beta_3 R_2 OE_{jt} + \delta_1 E_{jt} +$$

$$+\delta_2 E_{rt} + \delta_3 ICT_{rt} + \delta_4 M_{rt}^{China} + \gamma_j + \gamma_r + \gamma_t + \varepsilon_{jrt}$$

L_{jrt}: employment in MNE *j* in region *r* at time *t*

OE_{jt}: offshore employment in MNE *j* at time *t*

$R_1 = 1$ if region *r* is a larger city region

$R_2 = 1$ if region *r* is a city region

E_{jt}: total employment in MNE *j* at time *t* (in Sweden and abroad)
Control for whether MNE *j* is succesful overall or waning or declining

γ_j is a MNE-specific fixed effect, γ_r is a region effect, γ_t is a year effect, and ε_{jrt} is an error term

Other independent variables

Structural changes and business cycles affects regions and regional employment differently depending on a region's industrial structure

$$E_{rt} = \sum_i (E_{irt-5}/E_{it-5}) \times E_{it} = \sum_i \tau_{irt-5} E_{it}$$

τ_{irt-5}: pre-existing industrial composition in industry *i* at time *t*

The prosperity of a region is positively related to employment in MNEs in that region

Similar constructions of variables to control for regional trends in investments in ICT (ICT_{rt}) and import competition from China (M_{rt}^{China}). Replace E_{it} with ICT_{it} or M_{it}^{China}.

Growing ICT_{rt} and increased M_{rt}^{China}

→ negatively related to employment of less-skilled labor

→ increased relative demand for skilled labor

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Offshore employment and onshore employment regionally

	Total	Less-skill	Skill	Total
Larger	0.0151	0.0103	0.0048	0.0004
cities	(2.11)	(2.86)	(1.31)	(0.05)
Regional	−0.0004	−0.0002	−0.0002	−0.0151
centers	(−0.71)	(−0.56)	(−0.90)	(−4.57)
Other	−0.0010	−0.0009	−0.0002	−0.0158
regions	(−1.25)	(−1.34)	(−0.80)	(−4.59)
MNE emp.				0.0145
E_{jt}				(4.60)
R^2(overall)	0.0596	0.0469	0.0657	0.1157
Obs	289,140	289,140	289,140	289,140

Remark: The estimates on the control variables ICT_{rt} and M_{rt}^{China} have the expected sign (negative) and are significant for less-skilled labor and insignificant for skilled labor. The coefficient on structural changes E_{rt} is positive (expected) and significant for total employment (and less-skilled labor).

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Offshoring and regional employment: share of skilled labor

	Skill share
Larger cities	0.0669
	(5.97)
Regional centers	0.0035
	(0.35)
Other regions	0.0163
	(1.20)
Import competition	2.8×10^{-8}
M_{rt}^{China}	(3.01)
R^2(overall)	0.1289
Obs	108,157

Remark: In addition, the control variables ICT_{rt} and E_{rt} are included in the specification. However, the estimates are insignificant. OE_{jt} is replaced by the employment share in affiliates abroad OES_{jt}.

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Concluding remarks I

- Employment in Sweden has grown faster in larger cities than in regional centers and other regions. The results in the paper suggest that offshoring and fragmentation within Swedish MNEs are contributing factors behind such development.

- Changes in offshore employment affect onshore employment differently depending on which type of region in the home country the activities of the MNE is located.

- MNE offshoring *complements* onshore employment in larger cities or *substitutes* onshore employment in regional centers and other regions.

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Concluding remarks II

- MNE offshoring is correlated with higher shares of skilled labor in activities at home, while there is no relationship between MNE offshoring and skill shares in regional centers and other regions.
- MNE offshoring might be a driving force behind the increased shares of skilled activities in larger cities.
- A reason for this is that skill-intensive activities benefit from agglomeration forces, which tend to be strongest in larger cities.