Foreign ownership and host country employment volatility

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Motivation and aim

- Rodrik (1997) argues that globalisation makes labour demand more elastic as multinational enterprises (MNEs) can quickly reallocate production internationally

- Aim of the study is to analyse differences in employment volatility in foreign-owned and domestic companies
  - Assess, at the firm level, whether disparities in volatility exist *per se* and whether there are differences in elasticity of labour demand
  - Take cross-country comparative view of 24/21 European countries
  - Test for the role of labour market institutions and horizontal/vertical FDI

Literature: FDI and employment volatility

- Various lines in the literature: testing differences in labour demand elasticities and "other" approaches
  - Industry level studies: FDI has contributed to more elastic labour demand (Fabbri et al. (2003), Hijzen and Swaim (2010))
  - Plant or firm level studies: foreign MNEs' labour demand is proved to be more elastic than that of domestic firms only in Ireland (Görg et al. (2009) vs. Barba Navaretti et al. (2003), Buch and Lipponer (2010), Hakkala et al. (2010))
  - MNEs have more elastic labour demand than purely domestic firms (Hakkala et al. (2010)) and foreign MNEs have more elastic labour demand than domestic MNEs (Görg et al. (2012)).
  - Employment adjustment through extensive margin: foreign owned firms conditional exit rates are higher (Bernard and Sjöholm (2003), Alvarez and Görg (2009), Wagner and Weche Gelübke (2011))
  - Employment volatility is higher in offshoring industries (Bergin et al. (2009), Levasseur (2010))
  - FDI increases worker insecurity in host and home countries (Scheve and Slaughter (2004), Geishecker et al. (2012))

Research gap

1. Extend the number of countries analysed: foreign and domestic companies differences in employment volatility / labour demand is an empirical issue
2. Study the role of institutions bilaterally: whether difference in host and home country labour market institutions matters. Build on Hijzen and Swaim (2010) who find that FDI has contributed to more elastic labour demand in countries with weak labour market institutions
3. Check whether HOR and VER FDI differ in labour demand elasticity

DATA

Database

- Use Amadeus (Bureau van Dijk) firm-level panel dataset for 2001-2009, covers on a yearly basis:
  - balance sheets
  - profit/loss statements
  - detailed information about ownership/subsidiaries
- Amadeus is a large *sample*, not a population, large firms are overrepresented
- 21 European countries are analysed – EU members + Norway – small countries, LV, LT, IE and GR could not be covered due to data issues
- Around 500 000 firms are covered

Variable definition

	Definition
Employment	Number of employees
Wage	Employment costs divided by employment in real terms
Output	Turnover (operational revenue for Denmark, Norway, UK) in real terms
Foreign ownership	Foreign versus domestically owned firms, dummy variable. Firm is taken to be foreign owned if its' global ultimate owner is foreigner (subsidiary) or its' largest shareholder is foreigner (associate). Ownership is time-invariant and fixed in the year 2009.
Horizontal vs vertical expansion	Firm is horizontally expanding if the mother and the daughter company operate in the same industry (by 2-digit NACE2008 codes), alternatively firm is vertically expanding if the owner comes from another industry. Dummy variable. Both, domestic and foreign firms, can be a result of HOR/VER expansion. Individual- or family-owned domestic companies are left out from the analysis as these owners do not have records on the field of activity. Fixed in the year 2009.
Age	Firm's age in years
No of subsidiaries	Number of recorded subsidiaries, fixed in the year 2009
No of shareholders	Number of recorded shareholders, fixed in the year 2009
Peer's employment	Employment of the business group or the largest recorded owner, fixed in the year 2009
Capital intensity	Total fixed assets per employment in real terms
Labour productivity	Turnover per employee in real terms
Beta	Variable based on each firms' short-term wage elasticity of labour demand, OLS estimation

Monetary values are deflated using GDP deflators at country and 2-digit NACE-code level.

METHODOLOGY AND RESULTS: MATCHING

Conditional volatility using matching

- Apply propensity score matching (3 nearest neighbors within 5% caliper) to build for foreign owned firms similar counterfactual from domestic firms
- Outcome variable = employment volatility measured as coefficient of variation over 5-9 years
- Treatment group = foreign firms, counterfactual group = domestic firms, match by following characteristics:
  - log(age), log(employment), no of subsidiaries, log(no shareholders), log(peer employment), log(capital per employment), log(labour productivity), NACE 2-digit industries (and country dummies).
  - -> the remaining difference between foreign and domestic firms' volatility is interpreted as difference *per se*

Matching results: employment volatility country by country

	Unconditional volatility			Conditional volatility	Obs.
	Foreign	Domestic	Dif.	Dif.	
BG	0.461	0.445	0.016	-0.018	1523
RO	0.446	0.399	0.047+	0.039	680
EE	0.311	0.317	-0.006	-0.006	2003
LV	0.337	0.345	0.008		
LT	0.322	0.358	0.036+		
PL	0.245	0.189	0.056+	0.033*	10778
CZ	0.318	0.287	0.031+	0.038*	3378
HU	0.157	0.208	-0.051		
SK	0.353	0.359	-0.006		
SI	0.242	0.251	-0.010	-0.005	2180
DK	0.162	0.153	0.010	0.016*	4211
FI	0.265	0.264	0.0004	0.011	3853
NO	0.295	0.285	0.009	0.019*	17611
SE	0.324	0.308	0.016+	0.029*	16169
DE	0.194	0.159	0.035+	0.035*	3867
FR	0.239	0.248	-0.009	-0.009	5453
IT	0.360	0.323	0.037+	0.034*	15990
GB	0.281	0.260	0.020+	0.017*	24323
AT	0.187	0.182	0.005	0.042*	682
BE	0.250	0.225	0.024+	0.029*	7116
NL	0.285	0.270	0.015	-0.008	2273
PT	0.180	0.197	-0.017	-0.018	656
GR	0.129	0.071	0.058+		
ES	0.286	0.298	-0.012+	0.010*	90395

*Employment volatility is measured as a coefficient of variation (CV) over 2001-2009, control variables from 2005. +, * indicate stat. sig. at 5% level.*

- Unconditional volatility is higher in CEE and among foreign firms (it's a sample!)
- Conditional volatility -> "similar" foreign firm has higher volatility

Matching results: *beta* and country groups

	Unconditional volatility			Conditional volatility	Obs.
	Foreign	Domestic	Dif.	Dif.	
Control for β					
Manuf., CEE	0.298	0.227	0.072+	0.042*	3343
Services, CEE	0.357	0.258	0.099+	0.074*	6632
Manuf., WE	0.211	0.212	-0.001	0.003	25739
Services, WE	0.275	0.281	-0.006	-0.002	71973
Other controls AND β					
Manuf., CEE	0.291	0.220	0.070+	0.012	3143
Services, CEE	0.346	0.243	0.103+	0.006	6025
Manuf., WE	0.212	0.214	-0.001	0.022*	24400
Services, WE	0.275	0.284	-0.009	0.023*	66897

*Employment volatility is measured as a coefficient of variation (CV) over 2001-2009, control variables from 2005. +, * indicate stat. sig. at 5% level.*

- Unconditional volatility is higher in services
- Unconditional volatility of foreign firms is around 25% higher than that of domestic firms in CEE, while there are no differences in WE
- β, firm-level short-term wage elasticity of labour demand, explains 25-42% of dif. in volatility in CEE; while it cannot explain much in WE
  - -> FO firms' higher demand elasticity in CEE does contribute to higher volatility
- Other characteristics matter more in WE -> "similar" foreign firm has higher volatility in WE (same in CEE, but the effect is stat. insig.)

METHODOLOGY AND RESULTS: LABOUR DEMAND ELASTICITIES

Estimating labour demand elasticities

- Estimate the following labour demand equation (Barba Navaretti (2003), Görg et al. (2009), Buch and Lipponer (2010), Hakkala et al. (2010)), control for the price of capital by time (and country) fixed effects:

$$l_{it} = \alpha_0 + \alpha_1 l_{it-1} + \alpha_2 y_{it} + \alpha_3 w_{it} + d_t + \epsilon_{it}$$

- Coefficients $\alpha_1, \alpha_2, \alpha_3$ capture firms' employment persistence (speed of adjustment $= (1 - \alpha_1)$), short-term output elasticity of labour demand and short-term wage elasticity of labour demand
- Test whether labour demand of foreign firms differs from that of domestic firms by:

$$l_{it} = \alpha_0 + \alpha_1 l_{it-1} + \alpha_2 y_{it} + \alpha_3 w_{it} + \alpha_4 FO_i l_{it-1} + \alpha_5 FO_i y_{it} + \alpha_6 FO_i w_{it} + d_t + \epsilon_{it}$$

- Coefficients $\alpha_1 + \alpha_4, \alpha_2 + \alpha_5, \alpha_3 + \alpha_6$ capture the same elasticities for foreign firms

Results: Labour demand elasticities

	CEE		WE	
	Manuf.	Serv.	Manuf.	Serv.
L.l	0.626*	0.844*	0.254*	0.348*
w	-0.707*	-0.600*	-0.774*	-0.675*
y	0.534*	0.363*	0.741*	0.632*
L.FO*l	-0.259*	-0.357*	0.131*	0.192*
FO*w	-0.112*	-0.123*	0.083*	0.139*
FO*y	0.067*	0.177*	-0.164*	-0.198*
No of obs	51090	105203	382579	173099
AR(2) p-value	0.185	0.004	0.067	0.000

- System GMM two-step estimates (wage predetermined, turnover endogeneous), *indicates significance at 10% level

- Foreign firms labour demand is much more elastic in CEE and much less elastic in WE (PL, CZ and HU in manuf.; BG, SI in serv.)
- Foreign firms speed of adjustment is much higher in CEE and much lower in WE (DK, PT, ES and DE, BE in manuf.; FI, AT, NL in serv.)
- Some outliers for this grouping: EE in manuf.; IT, RO, EE in serv.

Results: elasticities and labour market institutions

	CEE				WE			
	EPL		UD		EPL		UD	
	Man.	Serv.	Man.	Serv.	Man.	Serv.	Man.	Serv.
L.l	0.566*	0.850*	0.584*	0.849*	0.243*	0.348*	0.236*	0.356*
w	-0.711*	-0.580*	-0.692*	-0.590*	-0.776*	-0.670*	-0.776*	-0.681*
y	0.630*	0.379*	0.600*	0.382*	0.751*	0.638*	0.758*	0.637*
L.FO*l	-0.136*	-0.356*	-0.230*	-0.356*	0.154*	0.167*	0.174*	0.172*
FO*w	0.012	-0.151*	-0.088*	-0.059	0.083*	0.117*	0.133*	0.148*
FO*y	-0.018	0.207*	0.047	0.132*	-0.167*	-0.182*	-0.165*	-0.187*
L.DI*FO*l	-0.004	-0.004	0.024*	0.012*	-0.007	-0.006	-0.004	0.009*
DI*FO*w	0.048*	0.075*	0.106*	0.029	0.019	0.013	0.018*	0.023*
DI*FO*y	-0.048*	-0.051*	-0.059*	-0.008	0.004	-0.003	-0.009	-0.012*
Obs.	48027	99840	48027	1000090	379815	816857	380170	817624
AR(2) p	0.167	0.033	0.195	0.024	0.052	0.010	0.079	0.011

- CEE hosts FDI from more regulated labour markets, median FDI comes from country with 16% higher UD and 8% higher EPL
- WE hosts FDI from less regulated labour markets, median FDI comes from country with 17% lower UD and EPL
- Add interaction terms of DIFFERENCE in institutions (DI = host inst. / home inst.) with FDI
- -> The elasticity of labour demand tends to be smaller in the subsidiaries/associates of foreign-owned companies originating from the home country with a more flexible institutional framework than the one in the host country and vice versa

Results: Case studies of institutions: US->WE, DE->CEE

	US FDI to WE		German FDI to CEE	
	Man.	Serv.	Man.	Serv.
L.l	0.254*	0.333*	0.603*	0.818*
L2.l	0.0001	0.009*		
w	-0.723*	-0.627*	-0.641*	-0.582*
y	0.718*	0.670*	0.546*	0.393*
L.FO*l	0.223*	0.300*	-0.239*	-0.477*
L2.FO*l	-0.036*	-0.055*		
FO*w	0.174*	0.198*	-0.135*	-0.157*
FO*y	-0.258*	-0.251*	0.062	0.206*
Obs.	260440	802467	34342	75996
AR(2) p	0.954	0.056	0.340	0.116

- US firms' labour demand is much less elastic in Western Europe than that of domestic firms
  - Adjust for volatility in headquarters?
- German firms' labour demand is much more elastic in Central and Eastern Europe than that of domestic firms
  - Direct volatility to subsidiaries/associates?

Results: elasticities and HOR vs. VER FDI

	CEE				WE			
	HOR FDI		VER FDI		HOR FDI		VER FDI	
	Man.	Serv.	Man.	Serv.	Man.	Serv.	Man.	Serv.
L.l	0.584*	0.863*	0.605*	0.852*	0.250*	0.344*	0.247*	0.347*
w	-0.695*	-0.599*	-0.706*	-0.599*	-0.774*	-0.670*	-0.775*	-0.675*
y	0.611*	0.377*	0.580*	0.366*	0.741*	0.639*	0.746*	0.634*
L.FO*l	-0.197*	-0.487*	-0.258*	-0.400*	0.132*	0.116*	0.132*	0.221*
FO*w	0.002	-0.066	-0.120*	-0.151*	0.134*	0.051	0.064*	0.165*
FO*y	-0.038	0.163*	0.045	0.186*	-0.227*	-0.125*	-0.141*	-0.221*
Obs.	35182	75079	38601	88202	334824	1032438	351731	1131665
AR(2) p	0.103	0.054	0.135	0.048	0.034	0.002	0.040	0.002

- Horizontal FDI is usually market seeking, while vertical FDI is efficiency seeking
- Around 1/4 of FDI is horizontal, in CEE and WE
- Vertical FDI's employment is much more wage-cost sensitive, but only in CEE

SUMMARY

Summary

- Unconditional employment volatility of foreign firms is usually higher than that of domestic firms
- After matching, the "similar" foreign firm has roughly 10% higher volatility than that of domestic firm
- Short-term wage elasticity of labour demand can explain substantial part of volatility differences in CEE, while "other" characteristics are more relevant for WE

- Foreign firms labour demand is much more elastic in CEE and much less elastic in WE
- Hosting FDI from more regulated labour markets contributes to higher l-demand elasticities and vice versa
- Vertical FDIs employment is much more wage-cost sensitive, but only in CEE

THANK YOU!
COMMENTS & QUESTIONS...

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