

# The Formation and Operation of the Multinational Enterprise

## *Lecture 3*

© Marc-Andreas Muendler  
University of California, San Diego

September 7, 2006

## *What We Don't Know: The Issues*

- How important is outsourcing for labor market turnover?  
16 percent of U.S. workers change their jobs per year, 17 percent of German workers lose their job per year with likely longer unemployment spells.  
By 2015, 3.3 million U.S. business-processing jobs might be performed abroad (Forrester Research 2002).
- Do foreign jobs boost or diminish domestic labor demand?
- What are durations of unemployment due to outsourcing? What are wages and types of jobs upon rehiring? How important is lost knowledge or experience in the rehiring process?

## *Why We Don't Know: No experiments, no data*

- Empirical assessments often require microeconomic data at the plant- or firm-level or even matched employer-employee data sets
- Few industrialized countries undertook major trade reforms; gradual trade reforms coincide with other secular processes such as ongoing entry and exit of firms, increasing demand for services, differential productivity change
- Empirical assessments of causality, rather than correlations, require econometric treatments

## *What Is Under Way: Data on experiments*

- The fall of the iron curtain provides a quasi-experiment for foreign direct investment (FDI) outflows from Western European home countries to Eastern European recipient countries
- Major trade liberalization periods in middle-income countries
- Micro-level data, including matched employer-employee data sets exist or can be created for several countries and episodes

## Home Labor Market Effects of MNEs

- Do MNE jobs abroad boost or diminish home labor demand?
- In general, imprecise questions give rise to controversial answers.  
What we really want to know:
  1. Given firm characteristics, how do changes to international wage differentials affect labor demand across locations?
  2. Given international wage differentials, how does firm performance and home employment differ across MNEs and non-MNEs?

## Some Evidence

- How do international differences in factor endowments and prices affect the operation or formation of MNEs? ...
- ... given MNE characteristics including their size and performance
- Most studies: (translog) cost-function approaches
- Slaughter (2000) for U.S. MNEs, and Konings (2004) for EU MNEs: No detectable impact of MNE production in low-wage locations on home labor demand
- Brainard and Riker (2001) and Konings and Murphy (2001): Modest substitution

## *Question 1: Labor Substitution within MNEs*

- Multinational labor demand responds to wage differentials at the
  1. *Extensive margin*: When an MNE (multinational enterprise) *first* establishes or acquires foreign affiliates, and at the
  2. *Intensive margin*: When an MNE reallocates labor across *existing* foreign affiliates.
- Estimation of the *extensive* margin has a well-defined econometric counterpart in selectivity estimation.

Derive parametric and non-parametric estimators of simultaneous multi-location selectivity

## Related Approaches

- Location choice: Devereux & Griffith (1998) for U.S.;  
Disdier & Mayer (2004): multinomial logit estimation
- Sunk exporter entry cost: Roberts & Tybout (1997)
- Labor demand, MNEs and trade: Slaughter (2000), Hansson (2001);  
Feenstra & Hanson (1999)
- Selectivity correction: Heckman (1979); Das, Newey and Vella (2003)

## MNE population with changing affiliate numbers, given presence

$N_{2000} - N_{1996}$	CEE (1)	DEV (2)	OIN (3)	WEU (4)	<i>MNE Total</i> (5)
$\leq -3$	2	3	1	15	22
-2	3	11	3	14	31
-1	6	17	11	64	98
0	186	131	145	397	859
+1	25	32	20	72	149
+2	11	11	4	16	42
+3	2	6	4	10	22
$\geq +4$	7	11	4	14	36
<i>MNE Total</i>	242	222	193	602	1,259
$\bar{N}_{2000}$	1.49	2.38	1.56	1.96	
$\bar{N}_{1996}$	1.41	2.28	1.50	2.01	

*Sources:* MIDI 1996 and 2000. MNEs with regional presence of at least one affiliate in 1996; manufacturing MNEs and their majority-owned foreign manufacturing affiliates. Locations: CEE (Central and Eastern Europe), DEV (Developing countries), OIN (Overseas Industrialized countries), WEU (Western Europe). Median number of affiliates by MNE, region and year: 1.

## Multi-Product Technology and Multi-Location Labor Demand

- Short-run *translog* cost function with multiple but censored outputs and inputs, imposing curvature conditions

- Short-hand for labor demand  $y_j^\ell$  at location  $\ell$  and predictors  $\mathbf{x}_{jt}^\ell$

$$y_{jt}^\ell = \mathbf{x}_{jt}^\ell \beta^\ell + \epsilon_{jt}^\ell$$

- By Shepard's lemma and scaling cost shares up with  $C_j^V / w_\ell$ ,

$$y_j^\ell = \alpha_\ell \frac{C_{jt}}{w_t^\ell} + \sum_{m=1}^L \left( \mu_{\ell m} \ln \left[ (q_{jt}^m)^{C_{jt}/w_t^\ell} \right] + \kappa_{\ell m} \ln \left[ (k_{jt}^m)^{C_{jt}/w_t^\ell} \right] + \delta_{\ell m} \ln \left[ (w_t^m)^{C_{jt}/w_t^\ell} \right] \right) + \epsilon_j^\ell.$$

## Labor Demand and Location Selectivity

- Conditional on presence, the expected outcome (labor demand) is

$$\mathbb{E} \left[ y_{jt}^{\ell} \mid \mathbf{x}_{jt}^{\ell}, \mathbf{d}_{jt}, \mathbf{z}_{j,t-\tau} \right] = \mathbf{x}_{jt}^{\ell} \beta^{\ell} + \mathbb{E} \left[ \epsilon_{jt}^{\ell} \mid d_{jt}^{\ell} = 1, \mathbf{d}_{jt}^{k \neq \ell}; \mathbf{z}_{j,t-\tau} \right].$$

- Let  $d_{jt}^k = 1$  if firm  $j$  is present in location  $k$  and  $d_{jt}^k = 0$  otherwise  
MNE  $j$  takes its FDI presence decision at  $t - \tau$

- The selection equation for location  $\ell$  is

$$d_{jt}^{\ell} = \mathbf{1} \left( H(\mathbf{z}_{j,t-\tau}) + \eta_{j,t-\tau}^{\ell} > 0 \right).$$

A parametric version of  $H(\mathbf{z}_{j,t-\tau})$  is  $\mathbf{z}_{j,t-\tau} \gamma^{\ell} - F_{j,t-\tau}^{\ell}$ .

## The Extensive and Intensive Margins

- Conditional expectation of MNE  $j$ 's employment in location  $\ell$

$$\bar{y}_{jt}^{\ell} \equiv \mathbb{E} \left[ y_{jt}^{\ell} \mid \mathbf{x}_{jt}^{\ell}, \mathbf{d}_{jt}, \mathbf{z}_{j,t-\tau} \right] = \mathbf{x}_{jt}^{\ell} \beta^{\ell} + \mathbb{E} \left[ \epsilon_{jt}^{\ell} \mid \mathbf{d}_{jt}, \mathbf{z}_{j,t-\tau} \right].$$

- *Extensive* margin of labor demand

$$\bar{y}_{jt}^{\text{-ext},\ell} \equiv \mathbb{E} \left[ \epsilon_{jt}^{\ell} \mid d_{jt}^1, \dots, d_{jt}^{\ell} = 1, \dots, d_{jt}^L; \mathbf{z}_{j,t-\tau} \right].$$

- *Intensive* margin of labor demand

$$\bar{y}_{jt}^{\text{-int},\ell} \equiv \bar{y}_{jt}^{\ell} - \bar{y}_{jt}^{\text{-ext},\ell} = \mathbf{x}_{jt}^{\ell} \beta^{\ell}.$$

## Selectivity Correction

- Conditional expectation of MNE  $j$ 's employment in location  $\ell$

$$\bar{y}_{jt}^{\ell} \equiv \mathbb{E} \left[ y_{jt}^{\ell} \mid \mathbf{x}_{jt}^{\ell}, \mathbf{d}_{jt}, \mathbf{z}_{j,t-\tau} \right] = \mathbf{x}_{jt}^{\ell} \beta^{\ell} + \mathbb{E} \left[ \epsilon_{jt}^{\ell} \mid \mathbf{d}_{jt}, \mathbf{z}_{j,t-\tau} \right].$$

- Parametric selectivity correction: The part of  $\eta_{j,t-\tau}^{\ell}$  that correlates with  $\epsilon_{jt}^k$  is MNE-specific and does not vary by location (alternatively, assume independence)
- Nonparametric selectivity correction:  $\mathbb{E} \left[ \epsilon_{jt}^{\ell} \mid \mathbf{d}_{jt}, \mathbf{z}_{j,t-\tau} \right]$  is a function of the propensity score and separately identified under common assumptions similar to Das, Newey & Vella (2003)

## Empirical Concerns

- Labor force composition  
Use of country-wide sector-median foreign and sector-mean home wages, which are less prone to firm-specific labor force composition effects
- Endogeneity of wages  
*Intensive margin*: Foreign affiliates of MNEs are few and small so that they have little impact on foreign wages. Controlling for location selectivity should control for endogenous bargaining effects on home wages.  
*Extensive margin*: Location selection equations are based on lagged wages.
- Share of unconsolidated affiliate-level sales to other affiliates  
Translog cost function accommodates within-MNE sales as cost savings elsewhere

## Probit Coefficient Estimates of Sunk Entry and Exit Cost Elements

	CEE (1)	DEV (2)	OIN (3)	WEU (4)
Sunk entry cost: $\gamma_N$	.872***	1.241***	1.319***	.707***
Sunk exit cost: $\gamma_X$	1.240***	.959***	.954***	1.053***
Hysteresis band: $(\gamma_N + \gamma_X)$	2.112***	2.200***	2.274***	1.760***
Marginal effect of hysteresis band	.704***	.710***	.714***	.621***

*Sources:* MIDI 1996 to 2001, 3,392 pooled observations of manufacturing MNEs and their majority-owned foreign manufacturing affiliates with two-year selection lags. Significance levels from  $\chi^2$  tests. Standard errors in parentheses: \* significance at ten, \*\* five, \*\*\* one percent.

For sunk entry costs  $\gamma_N^l$  and sunk exit costs  $\gamma_X^l$  at  $l$ , the firm-specific cost difference between presence at  $l$  and absence is

$$F_{j,t-\tau}^l = \gamma_N^l - (\gamma_X^l + \gamma_N^l) d_{j,t-\tau}^l,$$

where  $(\gamma_X^l + \gamma_N^l)$  is also called the *hysteresis band* (Dixit 1989).

## Marginal Effects in Long Probit Regressions

Predictors ( $t - \tau$ )	CEE (1)	DEV (2)	OIN (3)	WEU (4)
FDI in CEE	.619 (.234)***	.184 (.270)	.472 (.299)	-.361 (.293)
FDI in DEV	-.001 (.109)	.800 (.111)***	-.094 (.070)	-.054 (.149)
FDI in OIN	-.259 (.476)	-.485 (.326)	-.083 (.442)	-.179 (1.035)
FDI in WEU	.314 (.203)	.108 (.297)	.009 (.298)	.983 (.019)***
FDI in loc. $\times$ Home sector wage	-.0007 (.005)	-.005 (.004)	-.015 (.004)***	-.020 (.008)***
Home sector wage	.0004 (.004)	.001 (.004)	.006 (.003)*	.019 (.007)**
Obs.	2,413	2,413	2,413	2,413
Pseudo $R^2$	.559	.523	.555	.457

*Sources:* MIDI and USTAN 1996 to 2001 (UNIDO wages), pooled sample of manufacturing MNEs and their majority-owned foreign manufacturing affiliates with two-year selection lags ( $\tau = 2$ ). Standard errors in parentheses: \* significance at ten, \*\* five, \*\*\* one percent. Further regressors (not significantly different from zero at five percent level in any location excepting parent-level covariates).

## Intensive and Extensive Substitution Elasticities

- *Cross-price elasticity of substitution*:  $\varepsilon_{\ell k} \equiv \partial \ln Y_j^\ell / \partial \ln w_k$ .

- *Cross-price elasticity of substitution for Translog*

$$\varepsilon_{\ell k}^T = \frac{\psi_{\ell k} + s^\ell s^k}{s^\ell} \quad (k \neq \ell) \quad \text{and} \quad \varepsilon_{\ell \ell}^T = \frac{\psi_{\ell \ell} + s^\ell (s^\ell - 1)}{s^\ell},$$

where  $\psi_{\ell k} \equiv \partial s_{jt}^\ell / \partial \ln w^k$  and  $s^k$  the wage bill share at  $k$

- Response of wage bill share  $s_{jt}^\ell$  to a permanent change in  $\ln w_t^k$  is

$$\psi_{\ell k} = \delta_{\ell k} + \partial \mathbb{E}[\varepsilon_{jt}^\ell | \cdot, w_{t-\tau}^k] / \partial w_{t-\tau}^k \equiv \psi_{\ell k}^{\text{int}} + \psi_{\ell k}^{\text{ext}}.$$

## Cross-wage Elasticities under Parametric Selectivity

Employment change (%) in		Wage change (by 1%) in				
		HOM (1)	CEE (2)	DEV (3)	OIN (4)	WEU (5)
HOM	<i>intensive</i>	-.574***	.051***	.011	.150***	.361***
CEE	<i>intensive only</i>	1.596***	-1.295***	-.039	-.081	-.181
	<i>extensive only</i>	.795***	-1.250***	.071	.155	-.097
DEV	<i>intensive only</i>	.651	-.071	-.912***	-.116	.448**
	<i>extensive only</i>	.772***	-.250	-.982***	.324	.656
OIN	<i>intensive only</i>	2.328***	-.040	-.031	-3.160***	.903***
	<i>extensive only</i>	.960***	-.288	.032	-2.597*	.365
WEU	<i>intensive only</i>	2.214***	-.036*	.048**	.358***	-2.584***
	<i>extensive only</i>	1.016***	-.341	.128	1.137*	-.951***

*Sources:* MIDI and USTAN 1996 to 2001 (UNIDO wages). Elasticities at the extensive and intensive margins from 1,640 stacked MNE observations. Underlying labor demand estimates from parametric selectivity-corrected ISUR estimates. Standard errors from 200 bootstraps: \*\* significance at five, \*\*\* one percent.

## Cross-wage Elasticities under Parametric Selectivity

Employment change (%) in		Wage change (by 1%) in				
		HOM (1)	CEE (2)	DEV (3)	OIN (4)	WEU (5)
HOM	<i>intensive</i>	<b>-.574***</b>	.051***	.011	.150***	.361***
CEE	<i>intensive only</i>	1.596***	<b>-1.295***</b>	-.039	-.081	-.181
	<i>extensive only</i>	.795***	<b>-1.250***</b>	.071	.155	-.097
DEV	<i>intensive only</i>	.651	-.071	<b>-.912***</b>	-.116	.448**
	<i>extensive only</i>	.772***	-.250	<b>-.982***</b>	.324	.656
OIN	<i>intensive only</i>	2.328***	-.040	-.031	<b>-3.160***</b>	.903***
	<i>extensive only</i>	.960***	-.288	.032	<b>-2.597*</b>	.365
WEU	<i>intensive only</i>	2.214***	-.036*	.048**	.358***	<b>-2.584***</b>
	<i>extensive only</i>	1.016***	-.341	.128	1.137*	<b>-.951***</b>

*Sources:* MIDI and USTAN 1996 to 2001 (UNIDO wages). Elasticities at the extensive and intensive margins from 1,640 stacked MNE observations. Underlying labor demand estimates from parametric selectivity-corrected ISUR estimates. Standard errors from 200 bootstraps: \*\* significance at five, \*\*\* one percent.

## Cross-wage Elasticities under Parametric Selectivity

Employment change (%) in	Wage change (by 1%) in				
	HOM (1)	CEE (2)	DEV (3)	OIN (4)	WEU (5)
HOM <i>intensive</i>	-.574***	.051***	.011	.150***	.361***
CEE <i>intensive only</i>	<b>1.596***</b>	-1.295***	-.039	-.081	-.181
CEE <i>extensive only</i>	<b>.795***</b>	-1.250***	.071	.155	-.097
DEV <i>intensive only</i>	.651	-.071	-.912***	-.116	.448**
DEV <i>extensive only</i>	<b>.772***</b>	-.250	-.982***	.324	.656
OIN <i>intensive only</i>	<b>2.328***</b>	-.040	-.031	-3.160***	.903***
OIN <i>extensive only</i>	<b>.960***</b>	-.288	.032	-2.597*	.365
WEU <i>intensive only</i>	<b>2.214***</b>	-.036*	.048**	.358***	-2.584***
WEU <i>extensive only</i>	<b>1.016***</b>	-.341	.128	1.137*	-.951***

Sources: MIDI and USTAN 1996 to 2001 (UNIDO wages). Elasticities at the extensive and intensive margins from 1,640 stacked MNE observations. Underlying labor demand estimates from parametric selectivity-corrected ISUR estimates. Standard errors from 200 bootstraps: \*\* significance at five, \*\*\* one percent.

## Predicted Labor Reallocations

- *Counterfactual evaluation*: How much larger would parent employment be if the wage gap to foreign locations were removed? How much smaller would affiliate employment be?
- A one percent smaller wage gap between Germany and locations in Central and Eastern Europe (*CEE*) is associated with 730 more jobs at German parents and 4,000 less jobs at affiliates in *CEE*
- While these labor substitution effects between home locations and *CEE* are smaller at the margins than the effects of Western European production sites, they are considerably larger in absolute magnitude because UNIDO wages in *CEE* are only 9.9% of home wages

## Home and Foreign Employment at Manufacturing MNEs

	HOM	CEE	DEV	OIN	WEU
	(1)	(2)	(3)	(4)	(5)
Employment	1,423,086 <sup>a</sup>	245,721	332,622	319,221	394,579
Sample employment	962,726	125,199	184,560	139,240	191,854
Mean employment per MNE	1,629.0	387.6	407.4	736.7	282.6

<sup>a</sup>Predicted German employment at in- and out-of-sample MNEs, based on linear employment regressions to account for incomplete MIDI-USTAN matches.

## Counterfactual Employment Effects of a One-percent Reduction in the Home-Foreign Wage Gap

Employment effect at the intensive margin on	Permanent wage gap reduction by one percent between Home and			
	CEE (1)	DEV (2)	OIN (3)	WEU (4)
Home <sup>a</sup>	728 (101) <sup>***</sup>	161 (118)	2,141 (401) <sup>***</sup>	5,143 (526) <sup>***</sup>
Foreign <sup>b</sup> <i>extensive margin</i>	-1,954 (493) <sup>***</sup>	-2,558 (539) <sup>***</sup>	-3,074 (1089) <sup>***</sup>	-3,997 (672) <sup>***</sup>
Foreign <sup>b</sup> <i>total</i>	-3,951 (735) <sup>***</sup>	-2,120 (1698)	-8,007 (1938) <sup>***</sup>	-9,644 (1161) <sup>***</sup>

<sup>a</sup> Gap reducing foreign wage increases (1%).

<sup>b</sup> Gap reducing home wage drop (1%).

*Sources:* Own calculations based on selectivity corrected translog estimates for 1,640 German manufacturing MNEs and their majority-owned foreign manufacturing affiliates in MIDI and USTAN between 1996 and 2001 (UNIDO wages). Point estimates from parametric selectivity correction multiplied by employment in 2000. Standard errors from 200 bootstraps: \*\* significance at five, \*\*\* one percent.

## *Answer 1: Labor Substitution within MNEs*

- Multinational labor demand responds to wage gaps at the *extensive* (presence establishing) and *intensive* (presence using) margins
- Substantial sunk costs of MNEs' entry and exit at foreign locations make presence an infrequent margin of labor demand adjustment
- Being infrequent, adjustments at the *extensive* margin matter. Selectivity corrected cost function estimates suggest that responses to international wage differentials are similarly strong at both margins
- The question whether, given foreign competition and the international wage gap, MNEs save jobs or not remains to be asked and answered

## *Question 2: Relative Job Security at MNEs*

- Investigate how exposure of domestic jobs to foreign employment expansions at MNEs changes labor demand, ...
- ... *given* the global economic environment
- ... and *given* factor price differentials under which firms compete,
- ... but allowing firm performance to differ
- Egger and Pfaffermayr (2003)  
Barba Navaretti and Castellani (2004)

## Empirical Strategy

- Calculate an individual domestic job holder's exposure to MNE activity abroad
- Use propensity score matching to emulate the random effect of additional FDI exposure on the probability that the domestic job remains filled
- To fix ideas: Randomly assign manager with foreign languages proficiency to a domestic firm
- Match pairs of otherwise identical domestic jobs

## The Problem: The Missing Counterfactual

- The displacement outcome  $y_i$  depends in FDI treatment  $d_i$

$$y_i = \beta d_i + \alpha \mathbf{x}_i + \epsilon_i$$

- $\beta$  measures the expected difference in displacement outcomes, conditional on FDI ( $d_i = 1$ ):

$$\mathbb{E} [\beta | \mathbf{x}_i, d_i = 1] = \mathbb{E} [y_{1i} | \mathbf{x}_i, d_i = 1] - \mathbb{E} [y_{0i} | \mathbf{x}_i, d_i = 1]$$

- But worker, job, plant, MNE, and sector characteristics  $\mathbf{x}_i$  only observed in one and not the other case.  
They may systematically differ between treated and non-treated.

## Propensity Score Matching: Rosenbaum & Rubin (1983)

- Propensity score  $p(\mathbf{x}_i) \equiv Pr(d_i = 1 | \mathbf{x}_i) = \mathbb{E} [d_i | \mathbf{x}_i]$
- *Balancing of pre-treatment variables given the propensity score.*  
If  $p(\mathbf{x}_i)$  is the propensity score, then

$$d_i \perp \mathbf{x}_i \mid p(\mathbf{x}_i).$$

- *Unconfoundedness given the propensity score.*  
If assignment to treatment is unconfounded:  $y_{1i}, y_{0i} \perp d_i \mid \mathbf{x}_i$ .  
Then assignment is unconfounded given the propensity score

$$y_{1i}, y_{0i} \perp d_i \mid p(\mathbf{x}_i).$$

## Average Treatment effect on the Treated

- The ATT is

$$\begin{aligned} ATT &\equiv \mathbb{E} [y_{1i} - y_{0i} | \mathbf{x}_i, d_i = 1] \\ &= \mathbb{E} [\mathbb{E} [y_{1i} - y_{0i} | p(\mathbf{x}_i), d_i = 1]] \end{aligned}$$

- The nearest neighbor estimator of the ATT is:

$$ATT^{NN} = \frac{1}{N^T} \sum_{i \in T} \left[ y_i^T - \sum_{j \in C(i)} w_{ij} y_j^C \right].$$

$N^T$  is number of treated and  $N^C$  number of control observations.

- Mean difference in outcomes over matched (zombie) pairs

## Outcomes, Treatments, and Controls

- *Outcome*: Displacement  $y_{\tau, \tau+1} = 1$  if a worker leaves the plant between periods  $\tau$  and  $\tau + 1$
- *Treatment*: Displacement  $d_{\tau-1, \tau} = 1$  if MNE expands employment abroad between  $\tau - 1$  and  $\tau$  (in seven world regions)
- *Covariates* (pre-treatment):  $\mathbf{x}_{\tau-1}$  of worker, job, plant, MNE, and sector characteristics
- Estimate  $p(\mathbf{x}_{\tau-1})$ . Then infer  $ATT^{NN}$ .

## MNE and Non-MNE Characteristics

	MNEs		non-MNEs	
	mean	s.d.	mean	s.d.
<i>Outcome: Worker displacement</i>				
Displacement, $t$ to $t+1$	.14	.34	.18	.38
<i>Treatment: FDI expansion</i>				
Indic.: For. empl. change, $t-1$ to $t$	.64	.48	.02	.15
<i>Worker-level variables</i>				
Annual wage in 1,000 EUR	35.3	11.6	26.8	13.9
Upper-secondary schooling or more	.16	.37	.08	.28

*Sources:* Linked MIDI and BA data,  $t = 2000$ . 5% random sample of workers in manufacturing in FDI exposed and non-FDI exposed establishments. Regions: WW (World-Wide), APC (Asia-Pacific developing Countries), CEE (Central and Eastern European countries), EMU (European Monetary Union member countries), ODV (Other Developing countries), OIN (Overseas Industrialized countries), OWE (Other Western European countries), RCA (Russia and Central Asian countries).

**Average Treatment effect on the Treated**

	OLS	ATT		
		Worker & Estbl. predictors	<i>add</i> Sector predictors	<i>add</i> Lagged predictors
WW	-.045 (.003) <sup>***</sup>	-.021 (.010) <sup>**</sup>	-.014 (.012)	-.026 (.009) <sup>***</sup>
APC	-.043 (.003) <sup>***</sup>	-.007 (.018)	-.019 (.007) <sup>***</sup>	-.069 (.018) <sup>***</sup>
CEE	-.045 (.003) <sup>***</sup>	-.027 (.012) <sup>**</sup>	-.019 (.013)	-.068 (.017) <sup>***</sup>
EMU	-.043 (.003) <sup>***</sup>	-.031 (.009) <sup>***</sup>	-.022 (.009) <sup>**</sup>	-.007 (.011)
ODV	-.040 (.003) <sup>***</sup>	-.021 (.005) <sup>***</sup>	-.016 (.006) <sup>***</sup>	-.020 (.006) <sup>***</sup>
OIN	-.035 (.003) <sup>***</sup>	-.039 (.012) <sup>***</sup>	-.002 (.013)	-.056 (.018) <sup>***</sup>

*Sources:* Linked MIDI and BA data,  $t = 2000$ . 5% random sample of workers in manufacturing in FDI exposed and non-FDI exposed establishments. Regions: WW (World-Wide), APC (Asia-Pacific developing Countries), CEE (Central and Eastern European countries), EMU (European Monetary Union member countries), ODV (Other Developing countries), OIN (Overseas Industrialized countries).

## *Answer 2: Relative Job Security at MNEs*

- Most plausible hypothesis: Explanation for lower displacement rates at FDI-expanding firms is FDI itself
  
- Less plausible competing hypotheses:
  - Prior advantage makes employment safer and FDI more likely.
  - Acquisition of ownership advantage makes employment safer under simultaneous FDI expansion.
  - Simultaneous sector-wide changes (in foreign trade) affect MNEs differently from domestic firms, merely coinciding with FDI.

## Assessing the Competing Hypotheses

- Less plausible competing hypotheses:
  - Prior advantage? *But* manifested in observables (prior FDI, higher labor productivity), and controlled for
  - Simultaneous acquisition of ownership advantage? *But* Rosenbaum (2002) bounds show that confounding factor would have to be equivalent to increase in secondary-schooled workforce from zero to a hundred percent of workforce
  - Simultaneous sector-wide changes (in foreign trade)? *But* concomitant variables show no evidence for erroneous attribution

## Concluding Remarks

- Newly available matched employer-employee data are bound to provide more definitive assessments of MNE effects on labor markets
- The gains from offshoring are gains from trade (partly from novel sources of comparative advantage) and long-term in nature
- Worker displacements can be costly in the short term and can have lasting effects on the income distribution
- The benefits of trade may differ for different institutional environments and factor markets