

SUPPLEMENTARY MATERIAL

Table S1: Distribution of business groups in Italy and Spain by industry.

NACE Rev. 2	Italy		Spain	
	No.	%	No.	%
A – Agriculture, forestry and fishing	523	1.8	275	1.6
B – Mining and quarrying	76	0.3	69	0.4
C – Manufacturing	9,791	33.9	3,691	22.1
D – Electricity, gas, steam and air conditioning supply	690	2.4	217	1.3
E – Water supply; sewerage, waste management and remediation activities	622	2.2	231	1.4
F – Construction	1,362	4.7	1,165	7.0
G – Wholesale and retail trade; repair of motor vehicles and motorcycles	7,580	26.2	5,110	30.6
H – Transportation and storage	1,659	5.7	936	5.6
I – Accommodation and food service activities	594	2.1	625	3.7
J – Information and communication	908	3.1	549	3.3
K – Financial and insurance activities	594	2.1	571	3.4
L – Real estate activities	864	3.0	909	5.4
M – Professional, scientific and technical activities	1,401	4.9	857	5.1
N – Administrative and support service activities	1,152	4.0	768	4.6
O – Public administration and defence; compulsory social securities	2	0.0	16	0.1
P – Education	64	0.2	104	0.6
Q – Human health and social work activities	727	2.5	291	1.7
R – Arts, entertainment and recreation	195	0.7	253	1.5
S – Other service activities	75	0.3	71	0.4
Total	28,879	100.0	16,708	100.0

Notes: Authors' elaboration on *Amadeus* database. Percentage values are defined on column totals.

Table S2: Distribution of business groups in Italy and Spain by manufacturing sector.

NACE Rev. 2	Italy		Spain	
	No.	%	No.	%
CA – Food, beverages and tobacco	1,347	13.8	955	25.9
CB – Textile, wearing apparel and accessories	964	9.8	162	4.4
CC – Wood and wood products; paper and printing	492	5.0	252	6.8
CD – Coke and refined petroleum products	59	0.6	4	0.1
CE – Chemicals and chemical products	603	6.2	360	9.8
CF – Pharmaceutical, chemical-medical and botanical products	164	1.7	119	3.2
CG – Rubber and plastic products, other non-metallic mineral products	1,144	11.7	453	12.3
CH – Basic metals and metal products, excluding machinery and plants	1,633	16.7	481	13.0
CI – Computer, electronic and optical products	288	2.9	64	1.7
CJ – Electrical products	437	4.5	135	3.7
CK – Machinery and equipment N.E.C.	1,578	16.1	250	6.8
CL – Transport	388	4.0	291	7.9
CM – Other manufacturing products	694	7.1	165	4.5
Total	9,791	100.0	3,691	100.0

Notes: Authors' elaboration on *Amadeus* database. Percentage values are defined on column totals.

Table S3: Sample representativeness by country.

	Italy		Spain		Total	
	No.	%	No.	%	No.	%
EFIGE Dataset	2,983	51.73	2,783	48.27	5,766	100.00
Sample	1,406	45.30	1,698	54.70	3,104	100.00

Notes: Percentage values are defined on row totals.

Table S4: Sample representativeness by size class.

Size Class	EFIGE Dataset	Sample
Small (10-49 employees)	80.80%	78.45%
Medium (50-249 employees)	14.27%	15.63%
Large (≥ 250 employees)	4.93%	5.93%

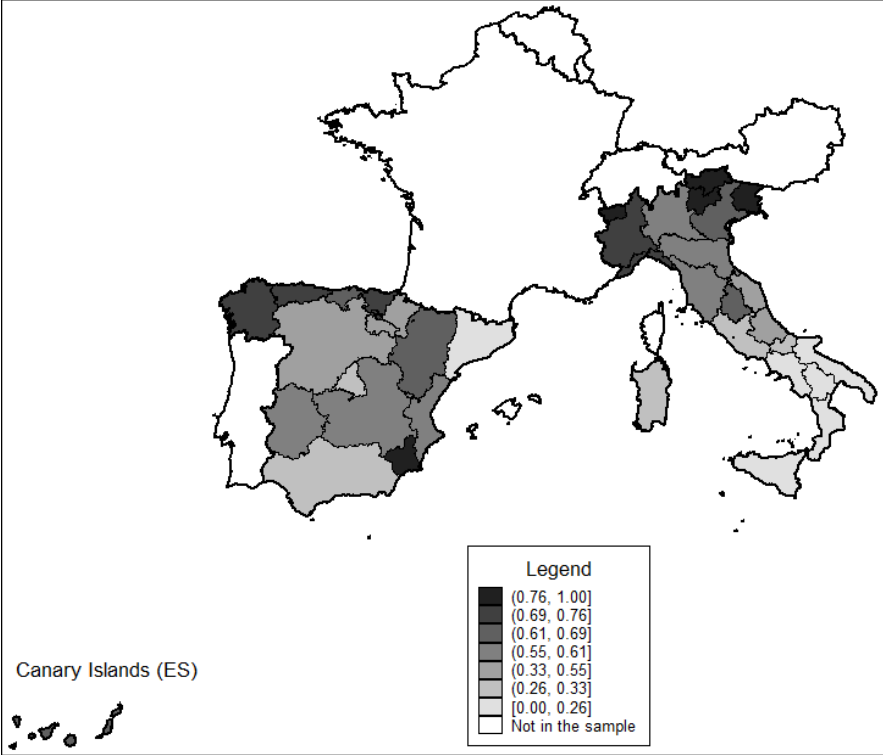
Notes: Percentage values refer to the total values of Italy and Spain.

Table S5: Sample distribution by manufacturing sector and country.

NACE Rev. 2	Italy		Spain		Total	
	No.	%	No.	%	No.	%
CA	131	9.32	304	17.90	435	14.01
CB	183	13.02	89	5.24	272	8.76
CC	104	7.40	168	9.89	272	8.76
CD	0	0.00	0	0.00	0	0.00
CE	55	3.91	72	4.24	127	4.09
CF	15	1.07	12	0.71	27	0.87
CG	163	11.59	201	11.84	364	11.73
CH	334	23.76	381	22.44	715	23.03
CI	45	3.20	31	1.83	76	2.45
CJ	65	4.62	43	2.53	108	3.48
CK	163	11.59	193	11.37	356	11.47
CL	43	3.06	60	3.53	103	3.32
CM	105	7.47	144	8.48	249	8.02
Total	1,406	100.00	1,698	100.00	3,104	100.00

Notes: Percentage values are defined on column totals.

Figure S1: Spatial distribution of the regional institutional quality index.



Notes: The index of regional institutional quality is standardised in the interval [0, 1]. The darker the shade, the better the institutional environment of a region.

Table S6: Definition of the variables and data source.

Variable	Definition	Source
$\Delta\text{Turnover}_{imrc}$	Deflated turnover growth of firm i operating in industry m and located in region r in country c over the period 2010-2013	EFIGE, Amadeus
$\Delta\text{Value Added}_{imrc}$	Deflated value added growth of firm i operating in industry m and located in region r in country c over the period 2010-2013	EFIGE, Amadeus
$\Delta\text{Employment}_{imrc}$	Employment growth of firm i operating in industry m and located in region r in country c over the period 2010-2013	EFIGE, Amadeus
$\log(\text{Turnover}_{imrc})$	Logarithm of firm-level deflated turnover in the year 2010	EFIGE, Amadeus
$\log(\text{Value Added}_{imrc})$	Logarithm of firm-level deflated value added in the year 2010	EFIGE, Amadeus
$\log(\text{Employment}_{imrc})$	Logarithm of firm-level employment in the year 2010	EFIGE, Amadeus
Firm Type $_{imrc}$	Categorical variable for independent firm (value zero), national business group member (value one), and multinational business group member (value two)	EFIGE
Independent Firm $_{imrc}$	Dummy variable taking value one if a firm does not belong to a business group	EFIGE
National Group Member $_{imrc}$	Dummy variable taking value one if a firm belongs to a national business group	EFIGE
International Group Member $_{imrc}$	Dummy variable taking value one if a firm belongs to an international business group	EFIGE
$\log(\text{Age}_{imrc})$	Logarithm of firm-level age, defined as year 2010 minus the year of a firm's incorporation	EFIGE, Amadeus
Product Innovation $_{imrc}$	Dummy variable taking value one if a firm has introduced only product innovations in the period 2007-2009	EFIGE
Process Innovation $_{imrc}$	Dummy variable taking value one if a firm has introduced only process innovations in the period 2007-2009	EFIGE
Product & Process Innovation $_{imrc}$	Dummy variable taking value one if a firm has introduced product and process innovations in the period 2007-2009	EFIGE
R&D $_{imrc}$	Dummy variable taking value one if a firm has invested in R&D activities in the period 2007-2009	EFIGE
Investment $_{imrc}$	Dummy variable taking value one if a firm has invested in capital goods in the period 2007-2009	EFIGE
Not Internationalised $_{imrc}$	Dummy variable taking value one if a firm was not internationalised in the period 2007-2009	EFIGE
One Internationalisation Mode $_{imrc}$	Dummy variable taking value one if a firm relied on one internationalisation mode (import, export, production) in the period 2007-2009	EFIGE
Two Internationalisation Mode $_{imrc}$	Dummy variable taking value one if a firm relied on two internationalisation modes (import, export, production) in the period 2007-2009	EFIGE
Three Internationalisation Mode $_{imrc}$	Dummy variable taking value one if a firm relied on three internationalisation modes (import, export, production) in the period 2007-2009	EFIGE
Credit Constrained $_{imrc}$	Dummy variable taking value one if a firm has asked for credit without receiving it in the year 2009	EFIGE
Institution $_{rc}$	Regional institutional quality index (rule of law, government effectiveness, voice and accountability, fight against corruption)	EQI
$\log(\text{GDP Per Capita}_{rc})$	Logarithm of regional Gross Domestic Product over regional population	Eurostat
$\log(\text{Population Density}_{rc})$	Logarithm of regional population per square kilometre	Eurostat

Table S7: Descriptive statistics of dependent and continuous explanatory variables.

	Mean	Standard Deviation	Minimum	Maximum
Δ Turnover _{imrc}	0.064	0.678	-7.145	8.251
Δ Value Added _{imrc}	-0.089	0.535	-6.621	3.751
Δ Employment _{imrc}	-0.074	0.383	-4.710	3.689
log(Turnover _{imrc})	8.308	1.472	4.859	18.367
log(Value Added _{imrc})	9.415	1.256	5.136	15.643
log(Employment _{imrc})	3.464	0.967	2.303	8.837
log(Age _{imrc})	3.044	0.571	1.099	4.700
Institution _{rc}	0.518	0.188	0.000	1.000
log(GDP Per Capita _{rc})	-3.644	0.228	-4.111	-3.262
log(Population Density _{rc})	5.167	0.823	3.267	6.677

Table S8: Correlation matrix of explanatory variables.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	
log(Turnover _{imrc})	[1]	1.00																	
log(Value Added _{imrc})	[2]	0.91	1.00																
log(Employment _{imrc})	[3]	0.83	0.90	1.00															
log(Age _{imrc})	[4]	0.17	0.17	0.13	1.00														
Product Innovation _{imrc}	[5]	0.01	-0.01	0.00	0.02	1.00													
Process Innovation _{imrc}	[6]	-0.04	-0.03	-0.05	-0.04	-0.27	1.00												
Product & Process Innovation _{imrc}	[7]	0.20	0.21	0.20	0.00	-0.32	-0.34	1.00											
R&D _{imrc}	[8]	0.25	0.26	0.22	0.04	0.13	-0.03	0.32	1.00										
Investment _{imrc}	[9]	0.08	0.12	0.13	-0.02	-0.06	0.11	0.12	0.13	1.00									
One Internationalisation Mode _{imrc}	[10]	-0.04	-0.05	-0.07	0.04	0.03	0.05	-0.02	0.00	-0.02	1.00								
Two Internationalisation Mode _{imrc}	[11]	0.26	0.25	0.22	0.06	0.06	-0.08	0.17	0.20	0.05	-0.50	1.00							
Three Internationalisation Mode _{imrc}	[12]	0.28	0.27	0.27	0.06	0.04	-0.05	0.08	0.14	0.02	-0.16	-0.14	1.00						
Credit Constrained _{imrc}	[13]	-0.05	-0.03	0.00	-0.06	-0.02	-0.01	0.01	-0.01	0.00	-0.02	0.03	0.01	1.00					
National Group Member _{imrc}	[14]	0.22	0.23	0.23	-0.04	0.00	0.00	0.05	0.10	0.02	-0.02	0.09	-0.01	0.04	1.00				
International Group Member _{imrc}	[15]	0.42	0.44	0.43	0.03	0.02	-0.06	0.10	0.12	0.03	-0.08	0.11	0.33	0.00	-0.11	1.00			
Institution _{rc}	[16]	0.05	0.04	0.03	0.03	0.00	0.02	-0.03	0.04	-0.02	0.02	0.01	0.01	-0.02	0.03	-0.01	1.00		
log(GDP Per Capita _{rc})	[17]	0.18	0.19	0.08	0.17	0.06	-0.02	0.00	0.12	-0.05	0.06	0.07	0.07	-0.03	-0.01	0.06	0.24	1.00	
log(Population Density _{rc})	[18]	0.10	0.11	0.05	0.13	0.05	-0.02	-0.02	0.04	-0.05	0.04	0.02	0.04	0.01	-0.01	0.01	-0.18	0.53	1.00

Table S9: Correlation between endogenous variables and instrumental variables.

Instrumental Variable	Endogenous Variable		
	Institution _{rc}	National Group Member _{imrc}	International Group Member _{imrc}
Literacy Rate _{rc} ^{1870s}	0.317 [0.000]	...	...
$\log(\overline{\text{Assets}}_{imrc}^{2003-2007})$	...	0.621 [0.000]	0.713 [0.000]
Similarity to Type _{imrc}	...	0.468 [0.000]	0.524 [0.000]

Notes: The table reports correlation coefficients, with p-values in brackets.

Table S10: Correlation between dependent variables and instrumental variables.

Instrumental Variable	Dependent Variable		
	$\Delta\text{Turnover}_{imrc}$	$\Delta\text{Value Added}_{imrc}$	$\Delta\text{Employment}_{imrc}$
Literacy Rate $_{rc}^{1870s}$	0.023 [0.202]	0.029 [0.109]	0.020 [0.278]
$\log(\text{Assets}_{imrc}^{2003-2007})$	0.007 [0.705]	0.025 [0.165]	0.006 [0.721]
Similarity to Type $_{imrc}$	0.008 [0.661]	0.021 [0.235]	-0.022 [0.213]

Notes: The table reports correlation coefficients, with p-values in brackets.

Table S11: Premium of international business group members with respect to national business group members – OLS estimates.

Dependent Variable	Δ Turnover _{imrc}	Δ Value Added _{imrc}	Δ Employment _{imrc}
	(1)	(2)	(3)
National Group Member _{imrc}	Ref.	Ref.	Ref.
International Group Member _{imrc}	0.127** (0.061)	0.122*** (0.044)	0.051* (0.030)
Institutional Quality and Control Variables	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes
Number of Firms	627	627	627
R ²	0.10	0.23	0.07
Adjusted R ²	0.06	0.19	0.06

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors are clustered at the NUTS-2 level, and are reported in parentheses. All specifications include a constant term. National group members are set as the reference category (“Ref.”).

Table S12: Correlation between endogenous variables and IV for share of the ultimate owner.

Instrumental Variable	Endogenous Variable	
	National Group Member _{imrc}	International Group Member _{imrc}
Ultimate Owner _{imrc}	0.167 [0.000]	0.265 [0.000]

Notes: The table reports correlation coefficients, with p-values in brackets.

Table S13: Correlation between dependent variables and IV for share of the ultimate owner.

Instrumental Variable	Dependent Variable		
	$\Delta\text{Turnover}_{imrc}$	$\Delta\text{Value Added}_{imrc}$	$\Delta\text{Employment}_{imrc}$
Ultimate Owner _{imrc}	0.028 [0.123]	0.053 [0.330]	0.039 [0.295]

Notes: The table reports correlation coefficients, with p-values in brackets.

Table S14: TSLS estimates on turnover, value added, and employment growth with additional IV capturing the share of the ultimate owner.

Dependent Variable	$\Delta\text{Turnover}_{imrc}$		$\Delta\text{Value Added}_{imrc}$		$\Delta\text{Employment}_{imrc}$	
	(1)	(2)	(3)	(4)	(5)	(6)
Independent Firm _{imrc}	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
National Group Member _{imrc}	0.009 (0.050)	0.172 (0.185)	-0.014 (0.022)	0.195 (0.220)	0.004 (0.022)	0.575 (0.481)
International Group Member _{imrc}	0.193*** (0.064)	0.558** (0.251)	0.113**** (0.021)	0.380** (0.150)	0.064*** (0.019)	0.401* (0.226)
Institution _{rc}	0.379** (0.192)	0.424*** (0.148)	0.223** (0.102)	0.260*** (0.095)	0.232* (0.131)	0.211 (0.270)
Independent Firm _{imrc} × Institution _{rc}	...	Ref.	...	Ref.	...	Ref.
National Group Member _{imrc} × Institution _{rc}	...	-0.353 (0.298)	...	-0.421 (0.394)	...	-1.115 (0.915)
International Group Member _{imrc} × Institution _{rc}	...	-0.748* (0.421)	...	-0.496* (0.255)	...	-0.750* (0.447)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firms	3,104	3,104	3,104	3,104	3,104	3,104
R ²	0.02	0.02	0.06	0.06	0.06	0.11
Adjusted R ²	0.02	0.01	0.05	0.05	0.05	0.10
First-Stage F Statistic on Excluded IV [p-value]						
Institution _{rc}	13.97 [0.000]	31.89 [0.000]	27.97 [0.000]	32.35 [0.000]	19.40 [0.000]	40.39 [0.000]
National Group Member _{imrc}	51.42 [0.000]	51.67 [0.000]	62.16 [0.000]	51.23 [0.000]	50.19 [0.000]	64.79 [0.000]
International Group Member _{imrc}	47.30 [0.000]	32.18 [0.000]	46.63 [0.000]	31.67 [0.000]	48.06 [0.000]	12.32 [0.000]
National Group Member _{imrc} × Institution _{rc}	...	39.85 [0.000]	...	39.75 [0.000]	...	92.48 [0.000]
International Group Member _{imrc} × Institution _{rc}	...	26.20 [0.000]	...	26.10 [0.000]	...	11.38 [0.000]
Hansen J Statistic (p-value)	0.396	0.103	0.131	0.504	0.205	0.553

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors are clustered at the NUTS-2 level, and are reported in parentheses. All specifications include a constant term. Independent firms are set as the reference category (“Ref.”).

Table S15: TSLS estimates on turnover, value added, and employment growth removing highly collinear variables.

Dependent Variable	$\Delta\text{Turnover}_{imrc}$	$\Delta\text{Value Added}_{imrc}$	$\Delta\text{Employment}_{imrc}$
	(1)	(2)	(3)
Independent Firm _{imrc}	Ref.	Ref.	Ref.
National Group Member _{imrc}	0.190 (0.294)	0.151 (0.222)	0.763 (0.449)
International Group Member _{imrc}	0.779** (0.354)	0.381*** (0.147)	0.507** (0.194)
Institution _{rc}	0.311 (0.230)	0.198** (0.088)	0.321 (0.238)
Independent Firm _{imrc} × Institution _{rc}	Ref.	Ref.	Ref.
National Group Member _{imrc} × Institution _{rc}	-0.386 (0.531)	-0.334 (0.394)	-1.421 (0.855)
International Group Member _{imrc} × Institution _{rc}	-1.138* (0.650)	-0.476* (0.256)	-0.842** (0.376)
Control Variables	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes
Number of Firms	3,104	3,104	3,104
R ²	0.04	0.04	0.03
Adjusted R ²	0.03	0.04	0.02
First-Stage F Statistic on Excluded IV [p-value]			
Institution _{rc}	41.04 [0.000]	41.12 [0.000]	42.34 [0.000]
National Group Member _{imrc}	70.69 [0.000]	68.48 [0.000]	72.09 [0.000]
International Group Member _{imrc}	41.77 [0.000]	39.41 [0.000]	15.45 [0.000]
National Group Member _{imrc} × Institution _{rc}	55.26 [0.000]	53.49 [0.000]	19.26 [0.000]
International Group Member _{imrc} × Institution _{rc}	34.09 [0.000]	32.73 [0.000]	13.19 [0.000]
Hansen J Statistic (p-value)	0.918	0.654	0.672

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors are clustered at the NUTS-2 level, and are reported in parentheses. All specifications include a constant term. Independent firms are set as the reference category ("Ref.").

Table S16: TSLS estimates on turnover and value added controlling for size dummies.

Dependent Variable	Δ Turnover _{imrc}	Δ Value Added _{imrc}
	(1)	(2)
Independent Firm _{imrc}	Ref.	Ref.
National Group Member _{imrc}	0.198 (0.241)	0.149 (0.222)
International Group Member _{imrc}	0.506** (0.202)	0.364** (0.151)
Institution _{rc}	0.352 (0.304)	0.203** (0.091)
Independent Firm _{imrc} × Institution _{rc}	Ref.	Ref.
National Group Member _{imrc} × Institution _{rc}	-0.392 (0.464)	-0.336 (0.392)
International Group Member _{imrc} × Institution _{rc}	-0.666** (0.336)	-0.458* (0.259)
Control Variables	Yes	Yes
Industry Dummies	Yes	Yes
Country Dummies	Yes	Yes
Number of Firms	3,104	3,104
R ²	0.03	0.04
Adjusted R ²	0.02	0.04
First-Stage F Statistic on Excluded IV [p-value]		
Institution _{rc}	41.26 [0.000]	41.44 [0.000]
National Group Member _{imrc}	64.51 [0.000]	64.20 [0.000]
International Group Member _{imrc}	34.92 [0.000]	34.62 [0.000]
National Group Member _{imrc} × Institution _{rc}	50.13 [0.000]	49.96 [0.000]
International Group Member _{imrc} × Institution _{rc}	28.56 [0.000]	28.55 [0.000]
Hansen J Statistic (p-value)	0.890	0.639

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors are clustered at the NUTS-2 level, and are reported in parentheses. All specifications include a constant term. Independent firms are set as the reference category (“Ref.”).

Table S17: Probit and IV-LPM estimates on innovativeness.

Dependent Variable	Innovativeness _{imrc}			
	Probit		IV-LPM	
	(1)	(2)	(3)	(4)
Independent Firm _{imrc}	Ref.	Ref.	Ref.	Ref.
National Group Member _{imrc}	0.136 (0.099)	0.138 (0.085)	0.044 (0.039)	0.536 (0.368)
International Group Member _{imrc}	0.166* (0.099)	0.222** (0.106)	0.056* (0.034)	0.992**** (0.071)
Institution _{rc}	0.180* (0.108)	0.226**** (0.049)	0.156* (0.092)	0.702**** (0.094)
Independent Firm _{imrc} × Institution _{rc}	...	Ref.	...	Ref.
National Group Member _{imrc} × Institution _{rc}	...	-0.156 (0.110)	...	-0.996 (0.690)
International Group Member _{imrc} × Institution _{rc}	...	-0.253* (0.149)	...	-1.877**** (0.033)
Control Variables	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes
Number of Firms	3,104	3,104	3,104	3,104
Pseudo R ²	0.15	0.15	...	...
R ²	...	...	0.70	0.72
Adjusted R ²	...	...	0.69	0.72
First-Stage F Statistic on Excluded IV [p-value]				
Institution _{rc}	...	...	32.02 [0.000]	17.46 [0.000]
National Group Member _{imrc}	...	...	68.60 [0.000]	48.00 [0.000]
International Group Member _{imrc}	...	...	70.56 [0.000]	92.51 [0.000]
National Group Member _{imrc} × Institution _{rc}	...	...	...	34.61 [0.000]
International Group Member _{imrc} × Institution _{rc}	...	...	...	88.17 [0.000]
Hansen J Statistic (p-value)	...	...	...	0.447

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$; **** $p < 0.001$. Standard errors are clustered at the NUTS-2 level, and are reported in parentheses. All specifications include a constant term. Independent firms are set as the reference category ("Ref.").