Institutions and Offshoring Decision

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Motivation

- Huge literature suggests that institutions of the recipient country influence offshoring
- Contract theory suggests that institutional quality does not have the same impact on different sectors

$\Longrightarrow$ Does institutional environment affect offshoring decision differentially across sectors?

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Motivation

I test whether institutional quality affects production choices abroad differentially, depending on the sector

I show that institutions have a different impact according to the intended use of the shipped good (further manufacturing/resale)

I provide evidence using U.S. data on Direct Investment Abroad

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Related Literature

Literature on FDI and institutional quality of the receiving country:

- Corruption: Wheeler Mody (1992) JIE , Hines (1995), Smarzynska Wei (2000), Wei (2000) REStat
- Democracy: Rodrik (1996), Harms Ursprung (2002), Busse (2004)
- Political stability: Juh Singh (1996), Stevens (2000), Jensen (2003), Busse Hefeker (2005)
- Financial institutions: Hermes Lensink (2003), Durham (2004), Alfaro Chanda Kalemli-Ozcan Sayek (2004) JIE

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Related Literature

Contract theory suggests that institutional quality does not have the same impact on different sectors:
Institutions matter differentially across sectors

- Empirical papers that refer to Rauch's classification (1999): Ranjan Lee (2005), Linders de Groot Rietveld (2005), Berkowitz Moenius Pistor (2006) REStat
- Institutional quality is a source of comparative advantage in the production of complex goods: Costinot (2004), Levchenko (2007) RES, Nunn (2007) QJE, Acemoglu Antràs Helpman (2006) AER

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Related Literature

Contracts shape the boundaries of the firm:

- Hold-up problem shapes the boundaries of the firm: McLaren (2000) AER, Grossman Helpman (2002) QJE, (2003) JEEA, (2005) RES, Ottaviano Turrini (2003), Ornelas Turner (2005)
- Hold-up problem also within firm boundaries: Antràs (2003) QJE, Antràs Helpman (2004) JPE , Antràs Helpman (2006), Naghavi Ottaviano (2007)
- Empirical works on outsourcing: Bernard Jensen Schott (2005), Feenstra Hanson (2005) QJE, Swenson (2005) JIE, Nunn Trefler (2007)

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The Empirical Model

Institutional quality at country and industry level could affect:

- outsourcing abroad (offshoring outside firm boundaries)

$\Longrightarrow$ *Data are not available*

- offshoring of production (hold-up also within firm boundaries, see Grossman-Hart-Moore)

$\Longrightarrow$ *Data on multinationals*

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The Empirical Model

The offshoring decision is explained by:

- Standard determinants of FDI (vertical and/or horizontal)
- Institutional quality **at country and industry level**

I estimate the following equation:

$$flow_{ict} = \alpha + inst_{ict} + hor_{ict} + ver_{ict} + \varepsilon_{ict}$$

$flow$ = intrafirm trade between parent company and foreign affiliate

$i = 1...6$ = sector
$c = 1...62$ = country
$t = 1994, 1999$ = year

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The Data - Dependent Variable

Measures of offshoring:

Intra-firm trade data from U.S. Direct Investment Abroad, Benchmark Surveys for 1994 and 1999, BEA

I have several measures:

- Total intra-firm trade flows between U.S. parent and foreign affiliates

It can be decomposed into:

- Trade flows to U.S. parent company
- Trade flows to foreign affiliates

I can further discriminate between:

- Goods shipped to foreign affiliates for further manufacturing
- Goods shipped to foreign affiliates for resale

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The Data - Horizontal FDI

I control for determinants of horizontal FDI:

- market size: WDI
- tariffs and NTBs: CEPII
- freight and insurance costs: Feenstra World Trade Flows
- plant and corporate scale: U.S. Census Bureau

+ control for marginal corporate tax rate: WDI

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The Data - Vertical FDI

I control for determinants of vertical FDI

Low cost of production are captured by comparative advantages (Yeaple 2003 REStat)

Interaction between:

- Country factor endowments: Hall Jones (1999)
- Industry factor intensities: NBER productivity dataset

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The Data - Institutional Quality

Institutional quality gives a comparative advantage in more contract-dependent sectors

Institutions-driven comparative advantage is given by the interaction between:

- Institutional quality at country level
- Institutional intensity at industry level

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The Data - Institutional Quality

Institutional quality at country level:
Kaufmann et al., World Bank:

- Voice and Accountability
- Political Stability and Violence
- Government Effectiveness
- Regulatory Burden
- Rule of Law
- Control of Corruption

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The Data - Institutional Quality

Institutional quality at industry level:

- Nunn's (2007) measure of contract intensity
  $inst_i^{nr} = \sum_j \theta_{ij} \left(R_j^{neither} + R_j^{ref\,.\,priced} \right)$

θ_{ij} = value of input j in industry i / total value of all inputs used in industry i
$R_j^{neither}$ = proportion of input j not sold on an organized exchange, nor reference priced
$R_j^{ref\,.\,priced}$ = proportion of input j reference priced.
Classification of goods by Rauch (1999)

- Herfindahl Index: measure of concentration in intermediate input use (Levchenko, 2007)

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The Choice of Estimation Technique

My dependent variable is integer and presents only positive values

Shapiro-Francia test rejects normality

$\Longrightarrow$ I consider the family of Poisson Regression Models:

- Poisson
- Zero-Inflated Poisson
- Negative Binomial
- Zero-Inflated Negative Binomial

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The Choice of Estimation Technique

Descriptive statistics

Variable	Nobs	Mean	Std. Dev.	Min	Max
Total intrafirm trade	655	563.52	4239.36	0	81829
Trade to U.S. parents	576	313.35	2378.82	0	44697
Trade to foreign affiliates	589	320.23	2151.56	0	37132
Further manifacturing	590	284.55	1870.35	0	35059
Resale	630	17.76	322.88	0	7990

mean $<$ variance

$\Longrightarrow$Overdispersion

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The Choice of Estimation Technique

Comparison of alternative estimators

Dep Var: Total intrafirm flows

	Poisson	ZIP	NB	ZINB	OLS
$inst_i$*$inst_c$	6.90***	6.79***	7.76***	7.92***	6.43***
	(.011)	(.011)	(.919)	(.927)	(.848)
constant	4.62***	5.08***	4.42***	4.40***	2.55***
	(.004)	(.004)	(.195)	(.194)	(.191)
Inflated					
$inst_i$*$inst_c$		-.347		128.32	
		(.595)		(92.85)	
constant		-.526***		-69.04	
		(.131)		(49.78)	
Log Likelihood	-846292	-692923	-2801	-2798	
BIC	1688567	1381841	1590	1598	
AIC	2703	2213	8.96	8.96	
Specification Tests	1690356	5.75	1.7e+06	0.70	
	0.000	0.000	0.000	0.242	
Adjusted R^2					0.12
BP Test					7.95
					(0.004)
SF Test					6.21
					(0.000)

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

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The Results

Total intra firm trade flows

Dep. Var: Total intra-firm flows

	(1)	(2)	(3)	(4)	(5)	(6)
$inst_i$*$inst_c$	7.093***	4.552*	7.413***	8.348***	9.048***	6.368**
	(2.28)	(2.35)	(2.54)	(2.69)	(2.58)	(3.08)
$inst_c$	0.376	-0.0393	0.0890	0.377	-0.604	-0.363
	(0.74)	(0.80)	(0.91)	(1.08)	(1.08)	(1.27)
$inst_i$	-1.176	-0.142	4.427**	-4.753**	-3.192	3.693
	(1.44)	(1.66)	(1.82)	(2.30)	(2.29)	(3.95)
sales	1.722***	1.832***	-0.251	2.034***	0.510	1.616**
	(0.25)	(0.48)	(0.48)	(0.32)	(0.42)	(0.67)
market size	1.143***	0.928***	1.118***	1.184***	1.201***	1.020***
	(0.086)	(0.13)	(0.099)	(0.087)	(0.096)	(0.13)
tariff		-0.0114**				-0.0167***
		(0.0049)				(0.0057)
corp. scale		0.0295*				0.0537*
		(0.016)				(0.031)
plant scale		-0.0382***				-0.0620**
		(0.0088)				(0.029)
freight		-21.19***				-23.16***
		(3.69)				(3.78)
corp. tax rate		0.0136				0.0154
		(0.020)				(0.020)
NTB		0.953				0.901
		(0.61)				(0.73)
$capital_i$*$capital_c$			-2.457		-5.782***	-8.592***
			(1.54)		(1.69)	(2.11)
$capital_c$			1.969*		4.363***	6.277***
			(1.10)		(1.18)	(1.46)
$capital_i$			38.33**		74.56***	86.63***
			(16.4)		(17.9)	(22.7)
$skill_i$*$skill_c$				-53.83**	-82.08***	-106.7***
				(25.6)	(29.1)	(30.6)
$skill_c$				3.567	6.481**	8.742**
				(2.81)	(3.05)	(3.42)
$skill_i$				57.74**	109.0***	30.41
				(23.2)	(25.9)	(47.3)
constant	-47.03***	-40.67***	-52.70***	-55.51***	-97.58***	-106.4***
	(3.83)	(6.69)	(12.1)	(5.11)	(14.7)	(17.9)
LR test H_0:α=0	1.4e+06	4.9e+05	1.3e+06	1.3e+06	1.3e+06	4.7e+05
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	603	425	585	585	585	425
Log likelihood	-2641	-2031	-2613	-2615	-2597	-2012

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Institutions and Offshoring Decision

The Results

Intrafirm trade to U.S. parents

Dep. Var.: Intra-firm trade to U.S. parents

	(1)	(2)	(3)	(4)	(5)	(6)
$inst_i$*$inst_c$	3.506	1.347	5.252	1.412	4.347	-0.00853
	(3.31)	(3.39)	(4.12)	(4.05)	(4.28)	(4.48)
$inst_c$	2.603**	0.919	2.038	4.518***	3.571*	3.752*
	(1.10)	(1.19)	(1.55)	(1.72)	(2.03)	(2.14)
$inst_i$	1.903	0.322	5.925**	0.857	0.603	14.92**
	(2.08)	(2.41)	(2.59)	(3.39)	(3.35)	(6.54)
sales	1.665***	3.119***	-0.114	1.996***	0.624	1.909**
	(0.35)	(0.82)	(0.73)	(0.46)	(0.63)	(0.97)
market size	1.060***	0.816***	1.044***	1.147***	1.208***	1.169***
	(0.12)	(0.21)	(0.16)	(0.13)	(0.17)	(0.20)
tariff		-0.0214				-0.0859***
		(0.020)				(0.027)
corp. scale		-0.0233				-0.00223
		(0.028)				(0.053)
plant scale		-0.0129				-0.0573
		(0.016)				(0.042)
freight		-38.85***				-45.14***
		(8.39)				(9.05)
corp. tax rate		0.000650				0.0427
		(0.040)				(0.034)
NTB		-2.017**				-0.938
		(0.95)				(1.05)
$capital_i$*$capital_c$			-1.615		-5.353**	-13.31***
			(2.38)		(2.56)	(3.38)
$capital_c$			1.254		3.726**	8.558***
			(1.74)		(1.86)	(2.40)
$capital_i$			28.45		68.79**	140.2***
			(25.1)		(27.3)	(34.8)
$skill_i$*$skill_c$				-31.61	-63.77	-185.9***
				(34.0)	(40.8)	(45.9)
$skill_c$				-0.192	3.080	15.08***
				(3.85)	(4.44)	(5.17)
$skill_i$				32.51	83.94**	27.47
				(30.7)	(36.4)	(66.5)
constant	-46.48***	-52.24***	-46.16**	-53.99***	-91.40***	-141.9***
	(5.29)	(11.3)	(18.3)	(7.02)	(21.7)	(28.0)
LR test H_0:α=0	7.3e+05	2.6e+05	7.1e+05	6.9e+05	6.7e+05	2.4e+05
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	526	365	509	509	509	365
Log likelihood	-1683	-1296	-1672	-1668	-1662	-1272

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Institutions and Offshoring Decision

The Results

Intrafirm Trade to Foreign Affiliates

Dep. Var.: Intra-firm trade to foreign affiliates

	(1)	(2)	(3)	(4)	(5)	(6)
$inst_i$*$inst_c$	7.029***	4.255**	6.224***	9.105***	8.680***	6.319**
	(2.11)	(2.14)	(2.24)	(2.50)	(2.31)	(2.94)
$inst_c$	-0.465	-0.0639	-0.480	-0.960	-1.746*	-1.382
	(0.70)	(0.74)	(0.81)	(0.95)	(0.91)	(1.19)
$inst_i$	-2.112	-0.474	4.413***	-5.359**	-2.885	2.966
	(1.34)	(1.54)	(1.67)	(2.21)	(2.19)	(3.70)
sales	1.635***	1.065**	-0.374	1.858***	0.260	0.958
	(0.24)	(0.43)	(0.41)	(0.30)	(0.39)	(0.64)
market size	1.210***	1.028***	1.231***	1.221***	1.264***	1.076***
	(0.079)	(0.11)	(0.089)	(0.083)	(0.088)	(0.12)
tariff		-0.0108**				-0.0126**
		(0.0048)				(0.0058)
corp. scale		0.0510***				0.0532*
		(0.014)				(0.029)
plant scale		-0.0360***				-0.0510*
		(0.0078)				(0.027)
freight		-18.88***				-18.07***
		(3.47)				(3.60)
corp. tax rate		0.00447				-0.00993
		(0.018)				(0.019)
NTB		1.775***				1.321*
		(0.60)				(0.69)
$capital_i$*$capital_c$			-3.476**		-5.693***	-6.109***
			(1.42)		(1.57)	(1.81)
$capital_c$			2.705***		4.379***	4.778***
			(1.00)		(1.09)	(1.28)
$capital_i$			49.66***		74.45***	62.91***
			(15.1)		(16.6)	(20.0)
$skill_i$*$skill_c$				-43.59*	-69.21**	-74.70***
				(25.3)	(27.8)	(28.9)
$skill_c$				3.632	6.431**	6.896**
				(2.69)	(2.83)	(3.12)
$skill_i$				47.93**	99.19***	20.59
				(23.4)	(25.0)	(44.8)
constant	-47.46***	-34.90***	-62.29***	-53.84***	-96.69***	-85.36***
	(3.64)	(5.73)	(11.1)	(5.07)	(13.8)	(15.7)
LR test H_0:α=0	6.0e+05	2.3e+05	5.8e+05	5.7e+05	5.5e+05	2.2e+05
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	541	381	524	524	524	381
Log likelihood	-2315	-1788	-2281	-2295	-2271	-1778

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

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The Results

Goods for further manufacturing

Dep. Var.: Goods for further manufacturing

	(1)	(2)	(3)	(4)	(5)	(6)
$inst_i$*$inst_c$	7.221***	5.830**	6.533***	9.224***	8.892***	8.708***
	(2.15)	(2.28)	(2.27)	(2.49)	(2.29)	(3.00)
$inst_c$	-0.620	-0.884	-0.630	-1.105	-1.949**	-2.203*
	(0.72)	(0.80)	(0.83)	(0.95)	(0.90)	(1.23)
$inst_i$	-2.147	-1.167	3.939**	-5.982***	-3.910*	-0.517
	(1.37)	(1.63)	(1.69)	(2.22)	(2.19)	(3.78)
sales	1.627***	0.943**	-0.257	1.912***	0.432	0.867
	(0.24)	(0.43)	(0.41)	(0.30)	(0.39)	(0.64)
market size	1.179***	0.999***	1.207***	1.196***	1.246***	1.024***
	(0.079)	(0.12)	(0.091)	(0.083)	(0.090)	(0.12)
tariff		-0.0123**				-0.0132**
		(0.0050)				(0.0061)
corp. scale		0.0511***				0.0531*
		(0.014)				(0.029)
plant scale		-0.0353***				-0.0420
		(0.0078)				(0.028)
freight		-18.17***				-17.04***
		(3.49)				(3.69)
corp. tax rate		0.00870				0.00108
		(0.018)				(0.020)
NTB		1.357**				0.925
		(0.61)				(0.69)
$capital_i$*$capital_c$			-3.459**		-5.784***	-4.218**
			(1.43)		(1.57)	(1.77)
$capital_c$			2.658***		4.425***	3.365***
			(1.00)		(1.09)	(1.25)
$capital_i$			48.74***		74.91***	43.54**
			(15.2)		(16.7)	(20.3)
$skill_i$*$skill_c$				-45.41*	-70.01**	-70.85**
				(25.7)	(28.3)	(29.0)
$skill_c$				3.704	6.426**	6.299**
				(2.73)	(2.88)	(3.11)
$skill_i$				53.78**	104.8***	34.57
				(23.7)	(25.2)	(46.3)
constant	-46.57***	-32.44***	-62.03***	-54.18***	-98.66***	-69.32***
	(3.65)	(5.68)	(11.2)	(5.08)	(13.8)	(15.7)
LR test H_0:α=0	5.3e+05	2.0e+05	5.2e+05	5.0e+05	4.9e+05	2.0e+05
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	542	385	526	526	526	385
Log likelihood	-2275	-1770	-2245	-2255	-2233	-1763

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

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The Results

Goods for resale

Dep. Var.: Goods for resale

	(1)	(2)	(3)	(4)	(5)	(6)
$inst_i$*$inst_c$	19.47***	5.279	28.04***	20.25	14.57	-12.09
	(6.90)	(6.74)	(9.05)	(12.6)	(11.5)	(12.7)
$inst_c$	-1.675	1.958	-6.441	-7.504*	-6.054	5.103
	(2.82)	(2.43)	(4.21)	(4.17)	(4.24)	(4.92)
$inst_i$	-17.71***	-6.250	-9.005	-11.56	4.107	12.47
	(5.50)	(5.37)	(8.13)	(10.1)	(10.2)	(14.0)
sales	3.715***	-1.148	-0.758	2.137	-1.876	-1.447
	(1.04)	(1.43)	(1.22)	(1.50)	(1.38)	(2.20)
market size	2.658***	2.576***	2.398***	2.578***	2.490***	2.913***
	(0.50)	(0.51)	(0.44)	(0.46)	(0.44)	(0.59)
tariff		-0.0183				-0.0431
		(0.042)				(0.047)
corp. scale		0.183***				0.199*
		(0.037)				(0.10)
plant scale		-0.0344				-0.0630
		(0.030)				(0.096)
freight		-10.50				-8.581
		(15.3)				(15.7)
corp. tax rate		0.0669				0.0521
		(0.055)				(0.062)
NTB		0.666				0.211
		(2.10)				(2.18)
$capital_i$*$capital_c$			3.505		5.378	4.230
			(5.15)		(5.92)	(5.82)
$capital_c$			-1.485		-3.536	-3.719
			(3.91)		(4.54)	(4.47)
$capital_i$			-8.325		-22.65	-48.76
			(56.4)		(63.8)	(66.1)
$skill_i$*$skill_c$				-66.78	121.7	210.4**
				(117)	(117)	(101)
$skill_c$				13.09	-4.708	-16.10
				(11.1)	(10.9)	(10.00)
$skill_i$				-1.395	-117.9	-243.2
				(105)	(98.2)	(164)
constant	-113.3***	-59.77***	-56.65	-95.21***	-23.50	-5.554
	(17.5)	(20.5)	(46.8)	(23.6)	(55.4)	(50.0)
LR test H_0:α=0	7.2e+04	9380.19	6.6e+04	3.5e+04	1.6e+04	5427.01
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	577	396	559	559	559	396
Log likelihood	-299.1	-254.2	-290.5	-296.0	-287.4	-251.1

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Institutions and Offshoring Decision

The Results

Marginal effects for $inst_i * inst_c$

	(1)	(2)	(3)	(4)	(5)	(6)
Trade to foreign af.	466.27***	335.69*	384.69***	642.14***	489.71***	444.05**
	(147.02)	(173.27)	(143.34)	(186.97)	(138.58)	(211.55)
Further manif.	446.43***	419.55**	376.8***	598.36***	459.87***	571.67***
	(139.86)	(171.04)	(136.6)	(171.77)	(127.01)	(208.69)
Resale	1.688	0.450	1.533	1.960	0.623	-0.733
	(1.085)	(0.623)	(1.075)	(1.636)	(0.713)	0.688

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Institutions and Offshoring Decision

Robustness-Panel Estimates

Fixed versus Random Effects

	Intrafirm trade to foreign affiliates		Goods for further manifacturing		Goods for resale	
$inst_i$*$inst_c$	3.775***	3.777***	3.706***	3.739***	3.571	2.963
	(0.99)	(0.99)	(0.99)	(0.99)	(3.72)	(3.64)
$inst_i$	-3.332***	-3.299***	-3.216***	-3.210***	-5.830**	-5.348*
	(0.71)	(0.71)	(0.71)	(0.71)	(2.85)	(2.75)
$inst_c$	-0.739**	-0.670*	-0.855**	-0.786**	0.852	-0.252
	(0.36)	(0.35)	(0.37)	(0.36)	(1.49)	(1.09)
sales	0.349***	0.349***	0.373***	0.371***	0.891**	0.874**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.35)	(0.35)
market size	0.281***	0.323***	0.300***	0.338***	0.320	0.785***
	(0.053)	(0.051)	(0.053)	(0.050)	(0.31)	(0.16)
constant	-11.87***	-13.02***	-12.64***	-13.68***	-22.33**	-33.90***
	(1.88)	(1.82)	(1.86)	(1.81)	(9.09)	(5.97)
Log likelihood	-1790	-2205	-1761	-2171	-160.3	-288.2
Estimation	FE	RE	FE	RE	FE	RE
Hausman test	2.76		4.47		3.61	
	(0.737)		(0.484)		(0.607)	

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%;

Estimates with country effects

Institutions and Offshoring Decision

Robustness

Panel Estimates

	Total intra-firm flows	Intra-firm trade to U.S. parents	Inta-firm trade to foreign affiliates	Goods for further manufacturing	Goods for resale
$inst_i$*$inst_c$	4.111***	2.208	3.777***	3.739***	2.963
	(0.98)	(1.41)	(0.99)	(0.99)	(3.64)
$inst_i$	-3.251***	-1.156	-3.299***	-3.210***	-5.348*
	(0.71)	(1.04)	(0.71)	(0.71)	(2.75)
$inst_c$	-0.693**	0.612	-0.670*	-0.786**	-0.252
	(0.35)	(0.52)	(0.35)	(0.36)	(1.09)
sales	0.334***	0.335***	0.349***	0.371***	0.874**
	(0.099)	(0.13)	(0.10)	(0.10)	(0.35)
market size	0.324***	0.411***	0.323***	0.338***	0.785***
	(0.049)	(0.059)	(0.051)	(0.050)	(0.16)
constant	-13.10***	-16.91***	-13.02***	-13.68***	-33.90***
	(1.74)	(2.21)	(1.82)	(1.81)	(5.97)
LR test vs pooled	334.79	184.74	297.13	277.91	37.59
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	603	526	541	542	577
Log likelihood	-2509	-1566	-2205	-2172	-288.2

Panel estimates with country random effects. Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Institutions and Offshoring Decision

Sensitivity

Results with Herfindahl Index

	Total intra-firm flows	Intra-firm trade to U.S. parents	Inta-firm trade to foreign affiliates	Goods for further manufacturing	Goods for resale
$inst_i$*$inst_c$	1.990*	0.597	2.282**	2.155**	-0.867
	(1.03)	(1.47)	(1.03)	(1.04)	(6.23)
$inst_i$	-0.434	0.951	-0.842	-0.789	2.497
	(0.73)	(1.06)	(0.70)	(0.71)	(4.98)
$inst_c$	1.531**	3.414***	0.571	0.562	3.777
	(0.65)	(0.98)	(0.62)	(0.62)	(3.30)
sales	2.320***	2.551***	2.059***	2.047***	3.200***
	(0.24)	(0.34)	(0.22)	(0.22)	(1.06)
market size	1.139***	1.161***	1.197***	1.158***	2.426***
	(0.083)	(0.12)	(0.078)	(0.078)	(0.43)
constant	-54.47***	-59.93***	-52.61***	-51.52***	-106.6***
	(3.79)	(5.45)	(3.53)	(3.57)	(15.5)
LR test H_0:α=0	1.4e+06	7.5e+05	6.2e+05	5.4e+05	7.0e+04
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	603	526	541	542	577
Log likelihood	-2650	-1688	-2321	-2282	-303.1

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Institutions and Offshoring Decision

Conclusions

- Institutions do matter in offshoring decision
- Impact is different across sectors: institutions are more important in the production of more complex goods
- Empirical evidence using different measures of intra firm trade
- Institutional quality does not impact when considering final goods

Institutions and Offshoring Decision

Conclusions

Results are robust using:

- different measures of intra-firm trade
- different control variables
- different specifications (pooled/panel)
- different measures of institutional quality at country and industry level

Thank you!