Spatial Interdependence and the Utility of Investment Liberalization

Clint Peinhardt[1] Jude C. Hays[2]

[1]University of Texas at Dallas

[2]University of Pittsburgh

International Political Economy Society 2010
November 13, 2010

Motivation

- What can countries do to attract FDI?
  - Endowments
  - Institutions
  - Policies
- Of the three, policies are the easiest to manipulate
- But policies are not chosen in isolation (Simmons and Elkins 2004, Neumayer and Plümper 2010)
- Likewise, FDI flows to one country are often contingent on nearby markets or global production networks
- Our contribution: consider the effectiveness of policy changes on FDI in space, but also use spatial methods to consider other structural factors in FDI competition

Literature Review

- Early FDI models (Markusen 1984, Helpman 1984) are two country models that consider each potential capital importer in isolation
  - Horizontal FDI ("tariff jumping" or market seeking)
  - Vertical FDI (efficiency seeking)
- Newer FDI models (Bergstrand and Egger 2007) extend the number of countries, and FDI choices become strategic:
  - Export platform FDI, in which one country serves as a regional production center and exports to other nearby countries
  - Complex vertical FDI, where different countries combine in one chain of production

Country-level receipts of FDI are contingent on a country's structural location in global markets, but very few previous empirical tests allow for such interdependence.

Spatial Models of FDI

FDI Motivation	Spatial Lag	Surrounding Market Potential
Pure horizontal	0	0
Export platform	$-$	$+$
Pure vertical	$-$	0
Complex vertical	$+$	0

Additionally, just as policy diffuses via non-geographic, market-based networks, so may FDI.

Our Research Design

Simultaneous estimation of the determinants of FDI & Financial Openness

- First round: small sample of OECD countries, 1986-1995
  - US Outward FDI Stocks & Flows
  - Openness measure specific to FDI (Shatz 2000)
  - S-2SLS/S-3SLS and full information maximum likelihood
- Second (current) round: larger sample, 1970-2006
  - US Outward FDI Stocks & Flows
  - Chinn-Ito measure of financial openness
  - Multiple imputation (Amelia II)
  - S-2SLS/S-3SLS (so far)

Small Sample Results (OECD Countries & FDI Openness)

- FDI liberalization has a positive and statistically significant effect on FDI stocks, even after we allow for reverse causation and common unobservable determinants
- Surrounding market potential not statistically significant
- Geographic spatial weight positively related to openness, not significant for FDI variables
- Competitors spatial lag was correlated with both stocks and flows
- Different estimators (S-3SLS and S-ML) yielded quite different estimates of the spatial weights
- But our small sample had too many missing countries for us to identify the spatial (geographic) patterns

Large Sample Results (Financial Openness)

- Much stronger evidence of geographical interdependence (both in policy and in flows)
  - If neighbors receive lots of FDI flows, country receives fewer
  - But large surrounding market potential more than compensates for this loss
  - At the means of each, large surrounding markets are worth 5.6 times the average loss from those markets receiving a lot of FDI
- Openness does not generate FDI, but low levels of FDI can lead to increased openness
- Moving from S-2SLS to S-3SLS, the geographic spatial lag loses significance, perhaps due to IV efficiency issues (next step: FIML estimation for the large sample models)

S-2SLS Large Sample Results

DV: US FDI Flows				
	(1)	(2)	(3)	(4)
Spatial Lag	-0.225^{**}			-0.080
	(0.094)			(0.089)
Export Sim.(+)		0.281		0.369
Spatial Lag		(0.258)		(0.273)
Export Sim.(-)			0.237	
Spatial Lag			(0.317)	
Market Proximity	0.085^{***}	0.064^{***}	0.068^{***}	0.07^{***}
	(0.018)	(0.016)	(0.016)	(0.017)
Skill Difference	125.145^{***}	33.889	56.065	24.407
	(44.40)	(70.261)	(69.236)	(72.745)
Bilateral Trade	373.13^{***}	360.22^{***}	366.76^{***}	360.95^{***}
	(66.422)	(67.87)	(66.88)	(67.52)
Political Risk	-7.405^{*}	7.716^{*}	-7.208^{*}	-8.308
	(4.419)	(4.510)	(4.225)	(4.618)
Openness	41.273	9.815	19.079	14.22
	(45.006)	(44.016)	(42.961)	(44.849)
GDP	0.056^{***}	0.036^{***}	0.046^{***}	0.039^{***}
	(0.015)	(0.013)	(0.013)	(0.014)
Temporal Lag	0.415^{***}	0.403^{***}	0.407^{***}	0.405^{***}
	(0.024)	(0.023)	(0.023)	(0.024)

Conclusion

- Competition for FDI in both samples
  - Small sample: market competitors
  - Large sample: geographic
- Modes of FDI entry depend greatly on sample
  - Small sample: horizontal
  - Large sample: export platform
  - These results are more fragile, apparent only in S-2SLS models
- Openness does not translate into US FDI flows
  - Small sample: no relationship
  - Large sample: negative relationship (countries with strong fundamentals can afford to restrict)

3SLS Large Sample Results (DV: Openness)

Variable	Coefficient	Std. Err.	Z-score
DV: Fin. Openness			
US Interest	-0.019	0.003	-7.288
Nationalist Exec	0.008	0.041	0.190
Polity	0.003	0.002	1.654
Trade Openness	0.001	0.000	3.532
GDP	0.00	0.000	2.912
Common Law	0.035	0.399	0.087
Foreign Aid	0.000	0.000	1.337
Currency Peg	-0.048	0.016	-2.936
Reserves	0.003	0.003	0.849
Temporal Lag	0.884	0.008	113.82
Spatial Lag	0.024	0.012	2.005
FDI Flows (inst)	0.000	0.000	-3.355

3SLS Large Sample Results (DV: Flows)

Variable	Coefficient	Std. Err.	Z score
DV: FDI Flows			
GDP	0.044	0.016	2.845
Skill Difference	97.990	44.074	2.223
Political Risk	-8.023	4.257	-1.885
Bilat. Trade	368.791	65.314	5.646
Market Proximity	0.072	0.019	3.859
Temporal Lag	0.405	0.024	16.875
Spatial Lag	-0.032	0.125	-0.253
Openness (inst)	39.209	49.928	0.785