On "Int'l Joint Ventures and Internal vs. External Technology Transfer: Evidence from China"

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International Joint Venture in China

- IJV: a subset of FDI: who and what's the impact
- Carefully matched firm-level observations from 1998-2007: a rich source of information
- LOTS of result, with broadly robust findings
- Impressive work: push trade/FDI literature beyond country- and industry-level analyses

Main Questions

- Partner selection: what firm characteristics make them "domestic partner" in IJV?
- Internal, external, and "intergenerational" spillovers from IJV firms to others
- Heterogeneity in firm responses? by partner country, industry, WTO accession, regulatory policy

General Approach

- Main regression setup: by firm i, year t:

$$y_{it} = \alpha + \beta_1 \text{"\$}_{it}\text{"} + X'_{it}\gamma + \lambda_j + \lambda_t + +(\lambda_r) + (\lambda_i) + \varepsilon_{it}$$

- $y_{it} \in \{\text{TFP, Patents, New Prod, Sales, Export Ratio}\}$

- $\text{"\$}_{it}\text{"} \in \{\text{JV}_i, \text{Parter}_{it}, \text{SPILL}_{jt}\}$

- where $SPILL_{jt}^{JV}$ and $SPILL_{jt}^{PT}$: sales share of JV or Partner firms, by industry j

Main Findings

- "Sensible" partners are chosen (large, young, productive, subsidized, **Export Ratio**...)

$$y_{it} = \alpha + \beta_1 \text{"\$}_{it}\text{"} + X'_{it}\gamma + \lambda_j + \lambda_t + +(\lambda_r) + (\lambda_i) + \varepsilon_{it}$$

- Controlling for size, age, foreign share, FE's,...:
- Newborn (IJV) firms: $\beta_1 > 0 \Rightarrow$ internal technology transfer
- Partner firms, with IPWs: $\beta_1 > 0 \Rightarrow$ inter-generational transfer
- SPILL: $\beta_1 > 0 \Rightarrow$ external transfer
- Various robustness checks: do observe heterogeneity

Questions/Clarifications

- Modes of FDI has changed "drastically"

Table 1: Mode of FDI in China (Realized FDI value in current billion USD)

	1997	**2002**	**2007**	**2012**
Equity joint venture	19.5	15.0	15.6	21.7
% of total FDI flows	43.1	28.4	20.9	19.4
Contractual joint venture	8.9	5.1	1.4	2.3
% of total FDI flows	19.7	9.6	1.9	2.1
Wholly foreign-owned enterprise	16.2	31.7	57.3	86.1
% of total FDI flows	35.8	60.2	76.6	77.1
Share company with foreign investment	0.3	0.5	0.7	1.6
% of total FDI flows	0.6	0.9	0.9	1.4
Total FDI	45.3	52.7	74.8	111.7

Data Source: China Statistical Yearbook

Time-Varying "Compliments"

- Drastic decline in IJV, from over 60% of FDI in 1997, 40% in 2002, to around 20% by 2007
- Serous trend here!
- Why? Benefit of IJV shrinking? Regulation change? WTO?

Correlated WFOE and JV?

- Data: universe of firms divided into:
  - 1) JV firms: 24% (ave foreign equity shares)
  - 2) JV Partner firms: 12%
  - 3) Other Chinese firms: 1%
- i.e. the compliment (untreated) of $SPILL_{jt}^{JV}$ are 2 and 3
- The universe seems incomplete:
  - where do WFOEs fit in?
  - where does the other 80% of FDI go?
- Omitted variables? Inducing bias via some ε_{jt}?
- If industries with high JV also have high FDI, the spillover measured may not be "spillover" but effect of other forms of FDI

Selection on Unobservables?

- Results generally robust, but less convinced it's through "technology transfer"
- Interpretations of causality not unreasonable, but mostly assumed
- Is "controlling for observables" enough for identification?
- Alternatives to "technology transfer" storty?
  - selection on high *expected* performance?
  - Heterogeneity/composition effect: as demonstrated in 3.4.
  - How much does trend play a role? include lagged y_{it-1}?
  - DiD? Synthetic cohort analysis?

Relate back to Trade/FDI Literature

- What have we learned from this Chinese firm-level analysis?
  - SPILL effect appears larger than Keller and Yeaple (2009)
  - Chinese data? at industry or regional level?
- FDI: horizontal vs. vertical?
- control for trade by industry? e.g. Export Ratio: characteristics or endogenous?
- *SPILL*: share of IJV-involved firms.
  - By itself capture "competition"? 2 firms and 2000 firms, both can be 50%.
  - Why dropping regional FE?

Summary

- Very nice work, convincing and robust evidence of firm level differences
  - more dynamics: trends, lagged dep var; add'l controls X_{jt} (omitted variables?)
- Not as convinced that IJV is the *cause* of the observed differences
  - selection problem somewhat addressed, e.g. IPW, firm fixed effect
  - but more can be done, esp Seleciton on Unobservables
- Paper well-written and carefully executed, but does read a bit too "pushy" on a fixed interpretive lens
  - stories tend to pop up with each results (absorptive capacity, ..etc.), could use more focus