

## Discussion

Temporary Workers, Permanent Workers, and  
International Trade: Evidence from the Japanese  
Firm-level Data  
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# Model

- Firms with more product lines
  - Less revenue fluctuations
  - More management costs⇒optimal N of product lines
  
- International trade imposes greater fixed costs and reduces the profitability of each product line
  - Firms engaging in more trade specialize in less N of product lines⇒They face more revenue fluctuations  
⇒They overcome the fluctuations by hiring more temps that do not require labor adjustment costs

## Questions:

- Less product lines => more temps (Key implication?)
- International trade imposes greater revenue fluctuations only by reducing N of product lines and not by imposing more risk (ex., exchange rate risk).
  
- Introduce more aspects of international trades?
  - Factors that increase fixed costs do not have to be international trade
  - No benefits from international trade?
    - What kind of companies choose to export?
  - Or should we focus on the key implication of this model?

Table 6: The relationship between revenue volatility and temporary worker ratio (Exporting Industry)

	model14	model15	model16
Volatility	0.0087 [3.06]***	0.0046 [1.50]	0.0088 [3.05]***
Volatility*Dum_Exp		-0.0051 [-0.68]	
Volatility*(0%<exp_share≤50%)			-0.0049 [-0.69]
Volatility*(50%<exp_share≤75%)			-0.018 [-1.04]
Volatility*(75%<exp_share)			0.0522 [2.36]**
Scale	0.0062 [3.90]***	0.0061 [3.89]***	0.0062 [3.90]***
_cons	0.2067 [44.99]***	0.2076 [44.97]***	0.2067 [45.00]***
Estimation Method	Fixed Effect	Fixed Effect	Fixed Effect
Industry dummy	No	No	No
Year dummy	Yes	Yes	Yes
R2	0.0025	0.0024	0.0025
N	200,748	200,748	200,748

Note: \*\*\*, \*\*, \* show 1%, 5%, 10% statistical significance, respectively. Export industry includes chemical products, electric machinery, general machinery, transportation equipment, precision instruments and non-metallic mineral products.

- Volatility measure
  - Already incorporate the effect of international trade?
    - Why do we interact with export intensity?
  - Calculated using only three years of data (monthly?)
- In the model, multi-product firms are less volatile bc they are more diversified (larger).
  - Why include scale separately? Some explanation necessary

- Why not look at firm-level data?
  - Why calculate N of product lines at plant-level and not firm-level?
    - Plant closure
- Why not look more closely
  - Relationship bw N of product lines and total sale fluctuation
    - Firm-level/ plant-level
    - Cross-section and time-series
    - When do firms add or remove a product line?
      - Trade off bw fluctuation and average profit margin?
  - Relationship bw export intensity and N of product lines
    - Firm-level/ plant-level
    - Time series: Can export intensity explain N of product lines after controlling for other factors?
      - At firm-level, How do we take into account product line outside Japan?
- Why not use the data on N of products in regression?
  - Separate effects from plant or firm size?
  - A key that link the export exposure to Sales fluctuation?

- Temp

- Discussion on expected and unexpected change in output?

- Role of inventories?