

A Brief Discussion of:

On the Grouping of Tasks into Firms  
Make or Buy with Independent Parts  
(Novak and Wernerfelt)

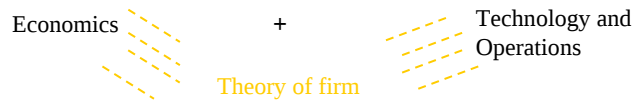
Discussion by Elie Ofek (HBS)

Agenda

- What is noteworthy about this work
- A way to think about the problem
- The “evidence”
- Make or buy? Or buy in order to make?

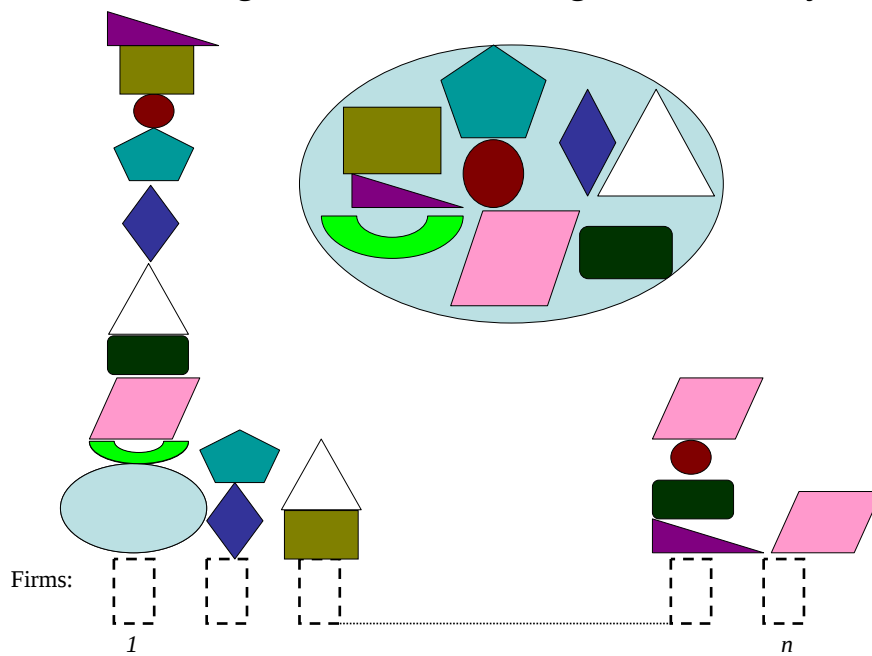
## At a Broad Level

- In true Wernerfelt fashion...big problem!
- Across fields, marketing no exception, we talk about “firms”, analyze “firms”, make predictions about “firms”...what is a firm? What dictates what specific firms do and what they don’t do? How should the industry look like?
- While this problem has mainly been in the domain of econ/strategy some OB...

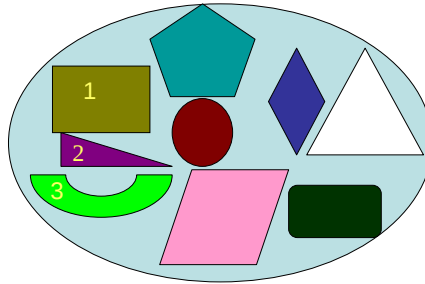


- Beyond the usual cry for “let’s see more interdisciplinary work...”
- Existing econ theory mainly about boss-employee relations
- Incentive maximization/acting in self interest is one part of it but in the end much of the economy is about moving parts working together, and production of goods
- Adaptations and adjustments are the “norm” in supply chains...think of an industry as a supply chain
- Has resulted in very nice data

## Producing a Good and the Design of an Industry



## What if Things Change...



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this happens with frequency  $a_{12} > 0$



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this happens with frequency  $a_{23} > 0$

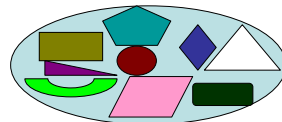


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this happens with frequency  $a_{13} = 0$

## As the Theory Goes...



The cost of accommodating the adjustment is lower within a firm than across firms  
 → Incentive to make the complete product in one firm

But adding a tasks/part to co-produce in the same firm entails a fixed cost  
 Moreover, the more parts there are in a firm the higher the within-firm adjustment cost  
 → Incentive to have multiple firms make the different parts

Firms:



How many firms, how many parts each firm should produce, which parts

Implications tested:

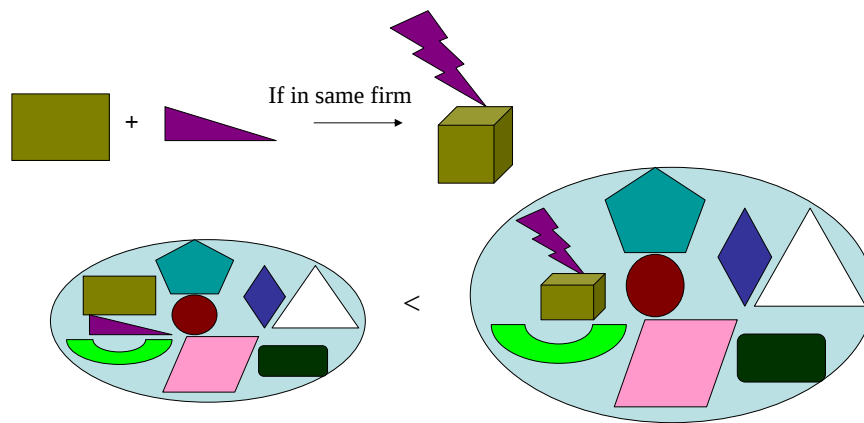
1. Parts with greater adjustment frequency are more likely to be grouped together (or co-produced by the same firm)
2. If there is an optimal partitioning going on at the supply chain level, then we should expect more adjustments inside the firm than just by the direct “pairwise” analysis

## The Empirics

- What data do they use to test the implications?
  - for every pair of parts a measure (0-6) the “frequency with which there needs to be a mutual adjustment”
  - whether the parts are co-produced
  - each car is a “supply chain” of parts treated independently
  - adjustment frequency matters! Explains 1/3 of the variance in the partition
- Issues with the adjustment frequency measure:
  - subjective data they, single item/complement with expert
  - is there agreement across eight supply chains on adjustment frequency for each pair?
  - particularly since there is variance in the partition itself, whereas the theory predicts they should be similar
  - In cases where a pair is not co-produced, do both firms agree on the frequency?
- Issues with cost assumptions:
  - No direct evidence that adjustment costs in the firm are much lower than across, and how that depends on firm size
  - There could be variance in these costs whereas theory assumes identical per-pair
  - No direct evidence on fixed costs (that part of the theory is not corroborated, and we can think of reasons why may not entirely hold; discount factor, competence)

## Why Else Would Firms Justify Co-Production?

- What if it is not only about adjustment costs?
- For example, what if some elements yield economies of scope or complementarities?



## Example

- Computers

Classic case of a product with multiple components/parts: central processor, network card, memory, graphics card, and many more elements...

August 2006, in a bet the company type move, AMD buys ATI for \$5.4Billion

<http://ati.amd.com/>

- If you asked AMD and ATI VPs of product development:

“With what frequency do the graphics processor and central processor require mutual adjustment?”

Would the answer be the same before and after the acquisition?

Problem: the “buy in order to make” scenario raises reverse causality issues....

## Minor Thoughts/Future Research (if time...)

- Recall that the theory related to the full industry design problem of: How many firms, how many parts each firm should produce, which parts should each firm produce -- was way too complex; bounded rationality will limit the ability to implement

- Authors suggest finding examples with less parts (say 10) where the complexity should be much less acute.
- Another thought, in the automobile case, if we believe the theory, then over time we should see the % of co-produced parts with more frequent adjustment growing over time; this would also alleviate some of the causality concerns

- Is there a reason for firms to want to stay “independent” ? Let’s not forget that each component has to be made irrespective of the interdependencies with other components (heterogeneity in skills, leverage/highest bidder for their services, rigidities in large firms)

- RBV?