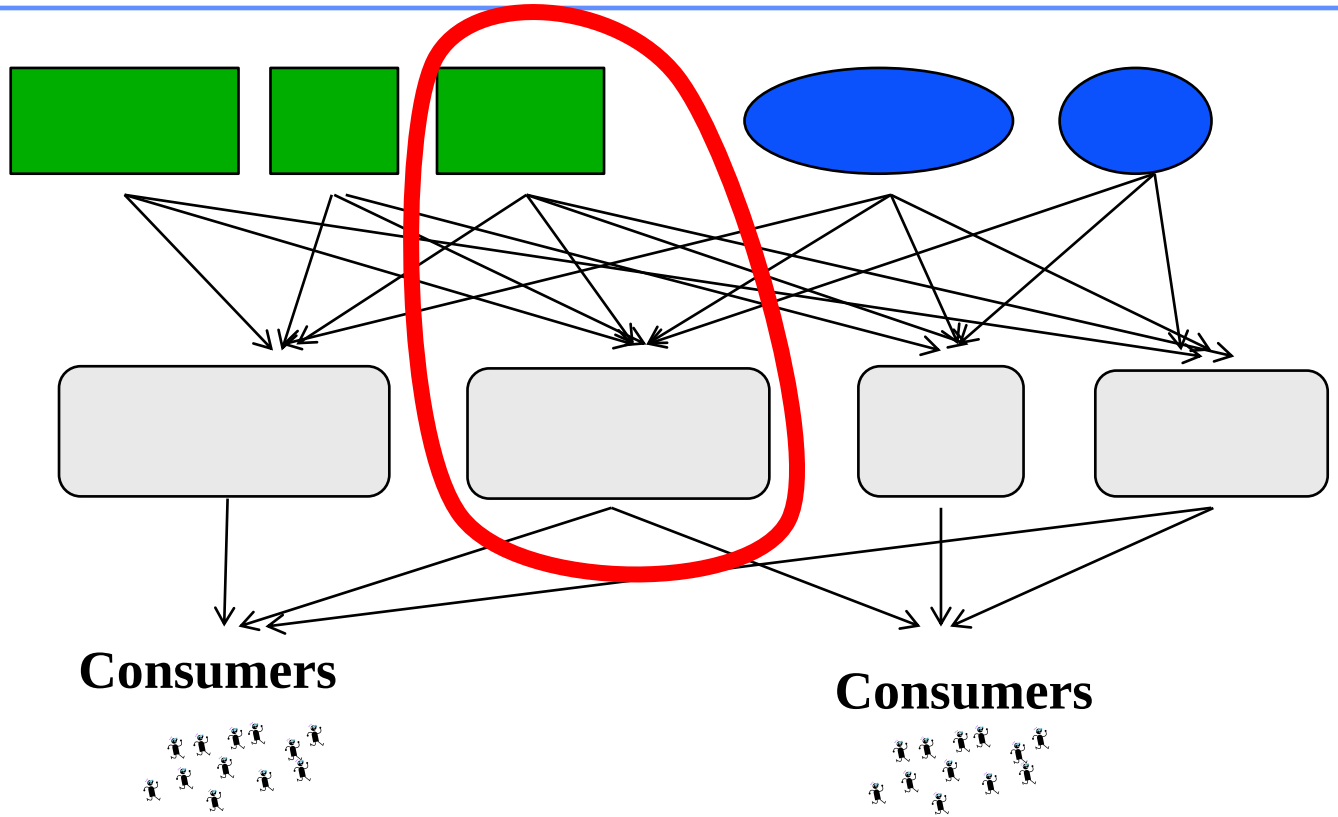
Vertical Market Structure 5

Vertical Mergers (Vertical Integration)

IO Fall 2013

Pakes and Yurukoglu

Vertical Markets in IO



Main ingredients: Buyers and sellers with market power, externalities between different groups, contracting

Road Map

- Definitions and Terminology
- Market Power
  - Restoring monopoly power, raising rivals cost, exclusion
- Efficiency
  - Catalog of efficiencies

- Empirical work in cable
- Analysis in bargaining model
- Do firms resolve transfer pricing efficiently?

Definitions and Terminology

- Vertical integration is the combination of ownership and/or control along successive portions of the production chain.

- Forward integration (upstream firm acquires stake in downstream firm)
- Backwards integration
- Controlling stakes vs passive stakes

- Can be merger or entry
- Integration by entry treated more favorably

Definitions and Terminology

- Intellectual history similar to vertical restraints.
- Chicago school argument that an upstream monopolist can reap the benefits of being a monopoly without integrating.
- Game theoretic models that generate integration can be bad for consumers.
- Age of empirical analysis

Market Power

- The concerns on exercise of market power are centered on the following forces

- **Restoring monopoly power**
- **Raising rivals costs**
- **Foreclosure**

- Little empirical evidence for any of these. (Doesn't mean they don't happen)
- Also facilitating collusion- ie a coordinated effect. Postpone until dynamics.

Market Power

- An example of foreclosure is that the integrated upstream unit supplies exclusively to its downstream unit.

- This has occurred in cable television regarding Regional Sports Networks (RSNs), an example I will come back to.

- Comcast SportsNet Philadelphia available exclusively on Comcast.
- Satellite subscribers could not watch professional baseball, basketball, or hockey games.

Market Power

- Raising rivals costs is a more subtle version whereby the integrated upstream unit serves the rival, but at a higher price than it would otherwise.

- This is alleged in cable, though hasn't been shown definitively.

Efficiencies

- **Eliminating double marginalization.**
- **Investment, and hold-up.**
- **Reduction in transactions costs.**
- **Reduction in monitoring or other incentive problems**

- Should always ask ourselves whether the proposed efficiency can be realized via contract rather than integration.

Overview

- Some good resources on VI are handbook chapters.

- Riordan in Handbook of Antitrust Economics
- Joskow in Handbook of New Institutional Economics
- Bresnahan and Levin in Handbook of Organization Economics.

Restoring Monopoly Power

- Recall the Hart and Tirole model
- 1 U, 2 D's. TIOLI offers by U.
- Equilibrium supported by passive beliefs

- U can only earn the duopoly profit.
- Commitment problem with secret and bilateral contracts.

- What is U integrates with one of the D's?

Restoring Monopoly Power

- If U integrates with one of the D's, it will only supply through that D (an exclusive deal), and it will not be tempted to go to the other D, because this would only hurt itself.

- Here integration restores monopoly power rather than extends it.

- If D's are differentiated, then there is an incentive to serve both.
- According to Riordan, there is partial restoration of monopoly profits in this case (but I haven't verified it).

Raising Rivals Costs

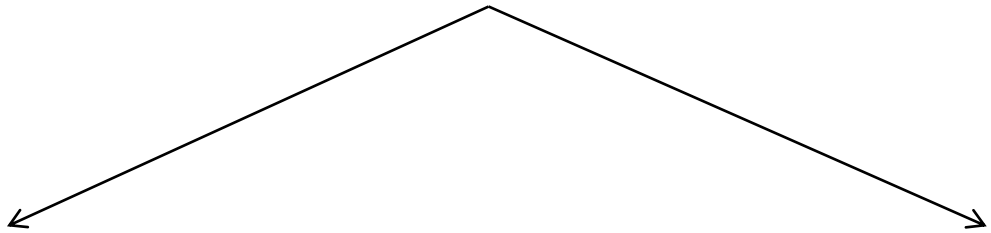
- Upstream monopolist and two downstream retailers

- Assume linear fee contracts
- Horn and Wolinsky for determining τ's (includes TIOLI offers)
- With differentiated downstream firms, there is an externality on D_{-i} when U increases its price on D_i.
- Price at i goes up, some consumers switch to –i, -i earns a mark-up on the switchers.
- If U integrates with a retailer, it internalizes that effect on its own retailer. Leads to higher price to rival.

Raising Rivals Costs

Un-integrated Case

$$\Pi_U(\vec{\tau}) = \tau_1 Q_1 + \tau_2 Q_2$$

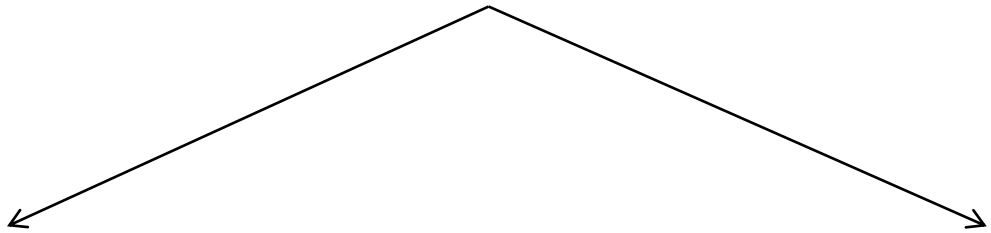


$$\Pi_{D_1}(\vec{\tau}) = (p_1 - \tau_1)Q_1 \qquad \Pi_{D_2}(\vec{\tau}) = (p_2 - \tau_2)Q_2$$

Raising Rivals Costs

Integrated Case

$$\Pi_U(\vec{\tau}) = \tau_2 Q_2 + p_1 Q_1$$



$$\Pi_{D_1}(\vec{\tau}) = \tau_2 Q_2 + p_1 Q_1 \qquad \Pi_{D_2}(\vec{\tau}) = (p_2 - \tau_2) Q_2$$

Raising Rivals Costs

- Some effects in integrated case
- Transfer fee between U and D1 drops out (elimination of double marginalization- we'll come back to this).

- Raising τ_2 drives some consumers to D1 on which the integrated U-D1 earn a mark-up.
- This means U has an incentive to raise τ_2
- It now internalizes the effect of raising τ_2 on D1.

Raising Rivals Costs

- When D1 raises its price downstream on the margin, some consumers switch to D2.
- U is selling the input to D2, so some of the lost revenue is recouped through input revenue to U from D2.
- Leads to softer downstream competition.
- My co-authors and I have been referring to this as the "Chen effect" from a 2001 RAND paper by Yongmin Chen *On vertical mergers and their competitive effects*

Raising Rivals Costs

- Putting aside elimination of double marginalization, integration in this linear contract framework has two effects that put upward pressure on final prices to consumers

- The first of these is literally raising rivals costs
- The second “Chen effect” has a similar result, and could reasonably be grouped together with the first.

Full Exclusion

- In the extreme, it might be worth raising τ_2 so high that the D2 would rather operate without the input from U.
- The economic trade off for U is of market coverage vs differentiation.
- It wants to serve D2 if there are consumers which really like D2.
- But the exclusive deal with D1 gives D1 and advantage in competition.

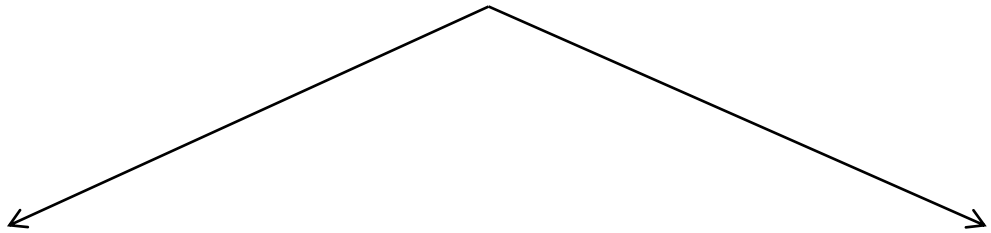
Full Exclusion

- A similar issue in reverse.
- Downstream firm refuses to offer upstream firm's product.
- Should we expect the Apple store to carry Sony products?
- More important if downstream is a bottleneck, eg electric transmission.

Efficiencies – Double Marginalization

Integrated Case

$$\Pi_U(\vec{\tau}) = \tau_2 Q_2 + p_1 Q_1$$



$$\Pi_{D_1}(\vec{\tau}) = \tau_2 Q_2 + p_1 Q_1 \qquad \Pi_{D_2}(\vec{\tau}) = (p_2 - \tau_2) Q_2$$

Efficiencies – Double Marginalization

- In the integrated case, the internal transfer price between U and D1 is irrelevant, assuming each division maximizes total firm profits (eg single manager)
- Might as well call it zero.
- If you think of double marginalization as a problem of an externality, integration removes the externality.
- This will tend to decrease prices to consumers.

Efficiencies – Investment and Holdup

- Let us consider the incentives to invest in a vertical structure.
- One upstream U and one downstream D.
- If U makes TIOLI two-part tariff offers to D, then D has no reason to invest.
- D will be “held up” by U.

Efficiencies– Investment and Holdup

- Classic example is the railroad and the coal mine.
- Monopoly railroad passing through by a coal deposit.
- If someone goes to extract the coal, they have to use the railroad.
- Since railroad is a monopoly, they can “hold up” the owner of the coal mine.
- So no one builds the coal mine.
- The railroad has an incentive to do it.
- Long term contracts can also do the trick.

Efficiencies – Investment and Holdup

- This is true more generally.
- Consider Nash bargaining between the upstream and downstream firms.
- If bargaining parameters are intermediate, then neither party will realize the full value of its non-contractible investments.
- They are bearing all of the costs but sharing some of the benefits with the other side.

Efficiencies – Investment and Holdup

- Two case studies provide some evidence for this.

- Aluminum and tin are processed metal products.
- Aluminum requires bauxite which is expensive to transport.
- Largest refineries are located at mines.
- Mine-refinery integration is common (Stuckey 1983)

- Tin, on the other hand, has lower transport costs and less vertical integration (Hennart 1988)

Efficiencies – Transactions Costs

- Transactions costs
- Term that captures many different types of costs
- Could include haggling and search costs

- Why isn't the Economics department a free agent that Harvard deals at with "arms-length" every year (or every day)?

- A pain to detail all the possible contingencies in such an arrangement.

Efficiencies – Transactions Costs

- Arms-length contracting has benefits itself
- Having many different divisions within a firm can be a bureaucratic nightmare and lead to loss of focus.
- Which type of organizational structure is better likely depends on specific conditions.
- There is some older empirical work showing inputs which are more "complex" are more likely to be produced within the firm than procured from outside suppliers (Masten 1984).
- Falls under "theory of the firm"

Efficiencies – Transactions Costs

- Baker and Hubbard examine the "make vs buy" decision in trucking: *Make vs Buy in Trucking: Asset Ownership, Job Design, and Information* AER 2004.

- Logistics firms can use their own truck fleet or contract for the services of independent truckers.

- Paper argues that the advantage of using own fleet are in coordination…

Efficiencies – Transactions Costs

Ownership rights over trucks matter because contracts are incomplete with respect to trucks' schedules. In particular, shippers and carriers do not write fully contingent contracts with respect to trucks' schedules because the relevant contingencies are costly to identify *ex ante* and verify *ex post*. To see this, consider one class of scheduling decisions: how long a truck should wait at the loading dock to be loaded. A fully contingent contract would stipulate how long trucks should wait as a function of all relevant states of the world, including especially those factors affecting the benefits of delay and individual trucks' opportunity cost. Many of these factors are known only to shippers and/or carriers and are difficult to verify by outsiders. It is thus prohibitively costly to make contracts contingent on them. Schedule-setting is therefore a residual right of control that is, by definition, held by the truck's owner.[8]

Efficiencies – Transactions Costs

- The implication is that the need to adapt to changing conditions when the number of possibilities is large lends itself to “make” ie vertical integration.

- The trade-off, they argue, is that integration is associated with low-powered incentives for the trucks, for example the incentive to drive the truck carefully to preserve its value is not strong for an employee.

- Examine introduction of a new technology: the on-board computer.

Efficiencies – Transactions Costs

- In fact, there are two different stages of technological progress.
- Trip recorder which stores information about when the truck is on or off, acceleration and deceleration, and other operational measures.
- Vehicle management which has satellite tracking and communication.
- The first improves monitoring. The second improves coordination.

Efficiencies – Transactions Costs

TABLE 3—OBC ADOPTION AND ASSET OWNERSHIP

Dependent variable:	For-hire carriage share	
	Levels estimates	First-differences
OBC	**−0.144**	**−0.090**
	(0.021)	**(0.024)**
EVMS	**0.239**	**0.149**
	(0.024)	**(0.028)**

Notes: SUR estimates. Sample includes all cohorts with positive number of observations in 1987, 1992, and 1997; N = 2,773. Cohorts are weighted using Census' weighting factors times number of observations. Specifications include trailer dummies, mixed cargo dummy, distance dummies, and ln(trailer density) as controls, and allow the coefficient on the auto trailer and van dummy to vary across years to account for secular changes.

Empirical Work in Cable

- We will look at some papers that document seemingly strategic behavior by VI firms in cable.

- Overall picture is not great, in that we don't know all that much about VI, and progress is going to be slow.

Cable Industry

- An often cited paper on VI is about the cable industry.

- Tasneem Chipty, AER 2001: *Vertical integration, market foreclosure, and consumer welfare in the cable television industry*

- Cross section of local cable systems for 1991.
- Some channels are integrated with owners of cable system.
- Cable has had some of the biggest vertical mergers: Turner-Time Warner in 1996, DirecTV-News Corp in 2003, and Comcast-NBCU in 2010.

Cable Industry

- Chipty focuses on the following genres:

- Home shopping: QVC and HSN
- Movies: HBO, Showtime, AMC

- In the latter category, AMC is “basic” while HBO and Showtime are premium
- QVC jointly owned by Comcast and TCI
- HSN no shared ownership with downstream
- HBO owned by Time Warner, AMC by Cablevision and TCI, Showtime by Viacom

Cable Industry

Both descriptive statistics and regression analysis suggest that integrated operators TCI and Comcast engage in the exclusion of rival shopping service HSN. The raw data show that 28 percent of all systems carry HSN, while only 6 percent of Comcast and TCI systems carry HSN. Similarly, 9 percent of all systems carry both QVC and HSN, while only 5 percent of Comcast and TCI systems carry both shopping services. Table 4 presents the estimated marginal effects for two different specifications, with and without channel capacity. Controlling

Cable Industry

Both the descriptive statistics and the regression analysis suggest that the premium operators do tend to exclude AMC from their basic package. The descriptive statistics show that 32 percent of all systems carry AMC, while only 25 percent of Time Warner and Viacom systems offer AMC. Table 5 presents estimated marginal effects, with and without channel capacity. Controlling for demographics and systems characteristics, the premium operators Time Warner and Viacom are about 15 percent less likely to offer AMC. These estimates are statistically significant and robust across specifications.

Next, I investigate whether premium operators'

This analysis also provides evidence of efficiency gains from vertical integration. Estimated marginal effects show that operators who own AMC are 33 percent more likely to carry it. These estimates are statistically significant and robust across specifications. As in the case of the home shopping services, these results show that operators have a strong preference to carry their own programming.

Cable Industry

- Take away's:

- Systems carry channels that share their ownership more often
- Some evidence that don't carry channels which compete with their own channels

- On the latter, 9% vs 5% percent and 32% vs 25 % might not be economically significant.

Cable Industry

- Using some better data, Crawford, Lee, Vieira, Whinston, and me have revisited this issue looking at 25+ channels and panel data over 14 years: 1998-2011.

- We also looked at positioning and tiering.

- Confirm results on own-carriage.
- Effects on rivals is not as strong.
- Both effects are concentrated on non-leader channels.
- Still work in progress.

Channels in Study

Table 1: Genres and the channels in them.

Genre	Channels Included
Children's Cartoons	Boomerang, Toon Disney, NickToons
Classic Movies	**AMC** (up to 2006), Fox Movie Channel, TCM
Outdoor	Outdoor Channel, **OLN** (up to 2005), Sportsman Channel
Women's Targeted	Lifetime group (**Lifetime**), Oxygen, WE
Home Shopping	**QVC**, HSN, ShopNBC, ACN
News	**CNN**, **Fox News**, MSNBC
Sports News	CNNSI, ESPNews
Financial News	Bloomberg, **CNBC**, CNNfn
Music Videos	Fuse, **MTV2**
Indie/Foreign Films	Sundance, IFC
Young Women	Style, **E!**, **Bravo** (2004 on)
Young Latino	Si TV, MTV Tr3s

Notes: Leaders within each genre are presented in **bold**. See text for details.

Ownership Matrix

Ownership Matrix	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cartoon Networks													
Boomerang	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Toon Disney	-	-	-	-	-	-	-	-	-	-	-	N/A	N/A
Nicktoons	N/A	N/A	N/A	N/A	N/A	-	-	-	-	-	-	-	-
Classic Movies													
AMC	25%/75%	25%/75%	25%/75%	60%	80%	100%	100%	100%	100%	N/A	N/A	N/A	N/A
TCM	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Fox Movie Channel	-	-	-	-	-	-	-	-	-	-	-	-	-
Outdoor Networks													
Outdoor Life Network	16.6/14/33	16.6/14/33	33/14/33	100%	100%	100%	100%	100%	N/A	N/A	N/A	N/A	N/A
Outdoor Channel	-	-	-	-	-	-	-	-	-	-	-	-	-
Sportsman Channel	N/A	N/A	N/A	N/A	N/A	-	-	-	-	-	-	-	-
Women's Nets													
Lifetime	-	-	-	-	-	-	-	-	-	-	-	-	-
WE	25%/75%	25%/75%	25%/75%	60%	80%	100%	100%	100%	100%	100%	100%	100%	100%
Oxygen	N/A	N/A	20%/20%	20%/20%	20%/20%	20%/20%	20%/20%	20%/20%	-	-	-	-	-
Home Shopping													
QVC	43%/57%	43%/57%	43%/57%	57%	57%	-	-	-	-	-	-	-	-
HSN	20%	20%	20%	-	-	-	-	-	-	-	-	-	-
ShopNBC (Valuevision)	-	-	-	-	-	-	-	-	-	-	-	-	-
Jewelry Television (ACN)	-	-	-	-	-	-	-	-	-	-	-	-	-
Specialty News													
CNN International	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
CNBC World	N/A	N/A	-	-	-	-	-	-	-	-	-	-	-
Music Videos													
Fuse (MuchMusic USA)	50%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	-
MTV2	-	-	-	-	-	-	-	-	-	-	-	-	-
Indie/Foreign Films													
Sundance	-	-	-	-	-	-	-	-	-	-	100%	100%	100%
IFC	25%/75%	25%/75%	25%/75%	60%	80%	100%	100%	100%	100%	100%	100%	100%	100%
Young Women's Nets													
Style	10%/55%	10%/55%	10%/55%	55%	55%	55%	55%	55%	100%	100%	100%	100%	100%
E!	10%/55%	10%/55%	10%/55%	55%	55%	55%	55%	55%	100%	100%	100%	100%	100%
Bravo	N/A	N/A	N/A	N/A	N/A	N/A	-	-	-	-	-	-	-
Sports News													
CNN SI	100%	100%	100%	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ESPNews	-	-	-	-	-	-	-	-	-	-	-	-	-
News													
CNN	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Fox News Channel	-	-	-	-	-	-	-	-	-	-	-	-	-
MSNBC	-	-	-	-	-	-	-	-	-	-	-	-	-
Headline News	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Financial News													
CNNfn	100%	100%	100%	100%	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CNBC	-	-	-	-	-	-	-	-	-	-	-	-	-
Bloomberg Television	-	-	-	-	-	-	-	-	-	-	-	-	-
Young Latino Nets													
Si TV	N/A	N/A	N/A	N/A	N/A	N/A	10%	10%	10%	10%	10%	10%	10%
MTV Tr3s	-	-	-	-	-	-	-	-	-	-	-	-	-

TWC	Cablevision	Comcast	AT&T/Comcast/Cox	TWC/Charter
	TCI(98) or AT&T(99/00)	AT&T/Cablevision	AT&T/Comcast	

Note 1: AT&T has 25.5% of all Warner Channels from 2000 to 2002
Note 2: Brighthouse is integrated with TWC

Empirics: Carriage

Outcome (carriage, tier, positioning) for channel c on system i in year t

Channel capacity, Digital Upgrade System, Number of Overbuilders

$$y_{cit} = \alpha_1 VI_{cit} + \alpha_2 SysOwnsInSameGenre_{cit} + \boldsymbol{\beta X}_{it} + \eta^1_{ct} + \eta^2_i + \sum_j \eta^3_{jt} \mathbb{1}_{ijt} + \epsilon_{cit}$$

Channel x Year effects

System Fixed Effects

Owner Fixed Effects (eg Adelphia systems become Comcast systems)

Empirics: Carriage

Table 5: Channel Carriage

VARIABLES	(1) carriage	(2) carriage	(3) carriage
VI*leader	-0.0306	-0.0384	-0.0396
	(0.1208)	(0.1212)	(0.1202)
VI*non_leader	0.0834**	0.0748*	0.0762*
	(0.0405)	(0.0402)	(0.0405)
SysOwnsInSameGenre*leader	0.0113	0.0008	0.0002
	(0.0441)	(0.0420)	(0.0458)
SysOwnsInSameGenre*non_leader	0.0175	0.0115	0.0149
	(0.0407)	(0.0403)	(0.0396)
Digitally Upgraded System	0.2934***	0.2468***	0.2400***
	(0.0116)	(0.0119)	(0.0119)
Number of Overbuilders	0.0071	-0.0046	-0.0070**
	(0.0048)	(0.0035)	(0.0034)
Channel Capacity	0.0002***	0.0002***	0.0002***
	(0.0000)	(0.0000)	(0.0000)
Channel-Year F.E.	Yes	Yes	Yes
Demographics	Yes	No	No
Operator F.E.	Yes	Yes	No
Operator-Year F.E.	No	No	Yes
System F.E.	No	Yes	Yes
Observations	2,714,509	2,741,557	2,741,557
R-squared	0.5304	0.5583	0.5590

Standard Errors Clustered by Operator-Channel
*** p<0.01, ** p<0.05, * p<0.1

Empirics: Tiering

Table 6: Channel Tiering

	(1)	(2)	(3)
VI * leader	-0.1184	-0.1421	-0.1582
	(0.1747)	(0.1645)	(0.1526)
VI * non_leader	-0.1863	-0.2198	-0.2382
	(0.1770)	(0.1682)	(0.1646)
SysOwnsInSameGenre*leader	0.0919	0.0685	0.0357
	(0.1082)	(0.1119)	(0.1109)
SysOwnsInSameGenre*non_leader	0.1661**	0.1580*	0.1527*
	(0.0839)	(0.0857)	(0.0891)
Digital Upgrade Systems	0.6232***	0.4707***	0.4726***
	(0.0306)	(0.0283)	(0.0298)
Number of Overbuilders	-0.0050	0.0238***	0.0145**
	(0.0120)	(0.0078)	(0.0071)
Channel Capacity	0.0001***	-0.0001**	-0.0000
	(0.0000)	(0.0000)	(0.0000)
Channel-Year F.E.	Yes	Yes	Yes
Demographics	Yes	No	No
Operator F.E.	Yes	Yes	No
Operator-Year F.E.	No	No	Yes
System F.E.	No	Yes	Yes
Observations	1,058,055	1,061,703	1,061,703
R-squared	0.6378	0.6998	0.7012

Standard Errors Clustered by Operator-Channel

*** p<0.01, ** p<0.05, * p<0.1

Empirics: Positioning

Table 7: Channel Positioning

	(1)	(2)	(3)
VI_leader	-14.8326	-18.9251	-18.8209
	(14.7874)	(14.3326)	(14.3033)
VI_non_leader	-29.4968*	-34.4768**	-33.5310**
	(15.3135)	(14.2692)	(14.4076)
SysOwnsInSameGenre*leader	12.7342	3.2420	7.6451
	(9.4245)	(10.2513)	(10.4610)
SysOwnsInSameGenre*non_leader	20.0164*	15.9007	18.2262
	(11.2203)	(11.0281)	(11.1688)
Digital Upgrade	34.5176***	39.8718***	41.9894***
	(4.3417)	(4.1980)	(4.5549)
Number of Overbuilders	11.3271***	2.3874*	1.2618
	(2.3355)	(1.3279)	(1.1089)
Channel Capacity	0.0242***	0.0041	0.0022
	(0.0046)	(0.0040)	(0.0047)
Channel-Year F.E.	Yes	Yes	Yes
Demographics	Yes	No	No
Operator F.E.	Yes	Yes	No
Operator-Year F.E.	No	No	Yes
System F.E.	No	Yes	Yes
Observations	1,070,241	1,073,900	1,073,900
R-squared	0.4775	0.5740	0.5752

Standard Errors Clustered by Operator-Channel
*** p<0.01, ** p<0.05, * p<0.1

Empirics: Viewership

$$\log(1 + h_{ict}) \quad = \quad \alpha_{ct} + \gamma_c X_{it} + \beta_c \log(chpos_{ict}) + \epsilon_{ict}$$

Table 9: Channel Positioning and Viewership

VARIABLES	(1) lchan_bravo	(2) lchan_cnn	(3) lchan_espn	(4) lchan_discovery	(5) lchan_lmn	(6) lchan_outdoor	(7) lchan_oxygen	(8) lchan_we
lChan_Position	-0.050088***	-0.036704***	-0.005087	-0.029938***	-0.046286***	-0.011518***	-0.047049***	-0.038132***
	(0.002150)	(0.003319)	(0.003196)	(0.003331)	(0.002915)	(0.001862)	(0.001674)	(0.001890)

Table 10: Channel Positioning and Viewership - Placebo Regressions

VARIABLES	(1) lchan_bravo	(2) lchan_cnn	(3) lchan_espn	(4) lchan_discovery	(5) lchan_lmn	(6) lchan_outdoor	(7) lchan_oxygen	(8) lchan_we
lChan_Position	-0.004962	-0.015825**	0.004198	-0.018645***	-0.001739	-0.005283	-0.005735	0.010321**
	(0.004107)	(0.006193)	(0.006825)	(0.006724)	(0.007095)	(0.003466)	(0.004096)	(0.004038)

Internet Search and Positioning

- Similar issue was at play in FTC and EC investigations into Google.
- Google Maps, Google Finance, Google Shopping come up first in search results.
- Is this a harm to competition?
- FTC concluded no.
- EC concluded yes.
- In Comcast-NBC, FCC required Comcast to move Bloomberg channel next to CNBC in some cases.

Does Integration Solve Double Marginalization?

- Bringing two units under the same ownership doesn't necessarily solve mean the elimination of double marginalization.

- For example, Comcast is rumored to make its content and distribution divisions negotiate with each other.

- Why?

Does Integration Solve Double Marginalization?

- Divisions get compensated based on how much value they generate.
- This is to induce effort by workers or managers of the divisions: “pay for performance”
- Therefore division managers have an incentive to maximize division profit not total firm profit.
- There is a trade-off in incentive provision and coordination.

Does Integration Solve Double Marginalization?

- On-going work.
- Similar model to bundling paper, with improvements and generalizations
- Also improvements in data, but I won't go into that
- I will just go through the modified specification

Model

Viewership

$$\max_{\{t_{ij}\}} \sum_{c \in C_j \cup \{0\}} \frac{\gamma_{ic}}{1-\nu_{ic}} (1 + t_{ijc})^{1-\nu_{ic}}$$

s.t.

(i) $t_{ij} \geq 0, \ = 0 \text{ for } c \notin C_j \cup \{0\}$

(ii) $\sum_{c \in C_j \cup \{0\}} t_{ijc} \leq T$

Model

Demand

Indirect Utility from Viewing

Other Characteristics

$$u_{ij} = v^*_{ij} + z'_j\psi + \alpha_i p_j + \xi_j + \sigma_\epsilon \epsilon_{ij}$$

Price

Mean Unobservable Utility

aggregation

$$s_j = \int \frac{\exp((\delta_j + \mu_{ij})\sigma_\epsilon^{-1}) dF(i)}{\sum_{k=0}^{J} \exp((\delta_k + \mu_{ik})\sigma_\epsilon^{-1})}$$

Model

Pricing and Bundling

$\Pi^{M}_{fmt}(B_{mt}, p_{mt}, z_{mt}, \tau_f) =$

(profit from sales of bundles to consumers)

+ μ(upstream profit from transfer price and ad revenue from own subscriber

+ $\mu\lambda_C$ (upstream profit and ad revenue due to sales to rivals)

where:

μ captures degree of internalization

λ_C captures Chen effect

Model

Upstream Profits for Channel when bargaining with downstream division

$$\Pi^{K}_{mt}(B_{mt}, p_{mt}, z_{mt}, \tau_{kmt}) =$$

(Profit from sales to rival distributor)

$+ \mu$(downstream profit of owned distributor)

Upstream Profits for Channel when bargaining with downstream rival

$$\Pi^{K}_{mt}(B_{mt}, p_{mt}, z_{mt}, \tau_{kmt}) =$$

(Profit from sales to rival distributor)

$+ \mu\lambda_{R}$(downstream profit of owned distributor)

Raising Rivals' cost effect

Conclusion

- We did five lectures on vertical market structure.

- Main take-aways are that theory can get messy and theory is not fully developed, even though it can already generate almost any result.

- Empirical work is overall unsatisfactory.
- Returns to writing reasonable empirical papers, though progress might be slow overall