

You say “channels”, I say “supply chains”: Shall we get it on, or call the whole thing off?*

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Abstract

There is an extensive literature in marketing on channel management and an extensive literature in operations on supply chain management. Are these merely two different names for the same idea, or distinct fields that study different questions and implement different methodologies? This paper discusses the development of these literatures and highlights their similarities and differences. Several research questions are identified that could benefit from additional collaboration between the two communities, and several new research questions are suggested that probably should be investigated jointly.

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This paper compares and contrasts two literatures, the literature on channels in marketing and the literature on supply chains in operations. These literatures have much in common but have largely developed (and continue to develop) independently. This is unfortunate. Although a merger of the two fields is unlikely, and probably not desirable, both could benefit from greater interaction, which hopefully this article will encourage to some degree. To facilitate such interaction, I begin with my own definitions to distinguish what I mean by “channels” versus what I mean by “supply chains”. I then highlight the research questions and research methodologies that are shared (and not shared) by both camps. While many articles are discussed, please note that the objective is not to provide a comprehensive review of both literatures. I conclude with a list of research domains, both current and potential, that have a significant overlap between the two communities.

1 Channels vs. supply chains

Broadly defined, “channel management” to me is about the design and control of getting products and services to customers - which firms are used to deliver goods from producers to customers and how are all firms involved paid for their services. “Supply chain management” is the tactical and strategic control of the network of firms from raw materials to finished goods. If you do not see a major distinction between these two definitions, then I agree with you - at a high level, in my opinion, channel management and supply chain management are essentially the same thing. In fact, the primary use of these two words may be merely to provide a quick test for an author’s intellectual home base - if he says “channel”, he is probably in marketing, and if she says “supply chain”, she is almost surely in operations. (I will even provide some evidence to support this.) Thus, to make some distinction between the channel and the supply chain literatures, we need to dig a bit deeper into the actual papers.

Table 1 provides a list of the 20 most cited papers published between 1995 and 2006 in either the *Journal of Marketing Research*, the *Journal of Retailing*, *Management Science*, or *Marketing Science* that contain the phrase “supply chain”.¹ I chose to restrict attention

¹ This search was conducted with the ISI Citation Index on September 15, 2006. The actual query was `ts="supply chain*" and (so="management science" or so="marketing science" or so="journal of retailing" or so="journal of marketing research")`.

to approximately the last decade because the term “supply chain” has only recent been popularized. I selected the set of journals based on my prior assumption that they are the top journals for either supply chain or channels papers.² In other words, this is a somewhat ad hoc sample. So is the sample of articles in Table 2, which provides the output of the analogous query for the phrase “channel” (i.e., same time period, same set of journals).³ (Remember, I am only trying to make a point rather than to rigorously test a hypothesis or prove anything.)

The tables offer some immediate observations. All of the “supply chain” papers were published in *Management Science*, i.e., there is not a single supply chain paper in the three “marketing” journals I have included in the set. Only two papers are found in both sets: Chen (1999) and Chen, Federgruen and Zheng (2001). The “supply chain” papers cover a relatively narrow time frame, 1998-2001, while the “channel” papers extend from 1995 to 2001, reinforcing that “supply chain” is a newer topic. The total number of citations in each table are within an order of magnitude of each other (1122 for Table 1, 1318 for Table 2), suggesting that one field is not lopsided bigger than the other in terms of research activity.

The most important observation from the two tables is that the two sets of papers rarely cite papers from the other discipline. For example, for each of the “supply chain” papers in Table 1 I counted the number of cited papers that were published in marketing journals: I included citations to any marketing paper, not just those listed in Table 2 (which would be too restrictive). Common examples are Pasternack (1985), Jeuland and Shugan (1983) and Lal (1990). For the “channels” papers I counted the number of citations that could be considered “operations papers”. (Clearly there is some room for interpretation as to what is

² *Manufacturing & Service Operations Management* is also a top journal for these papers, but due to its age, it is not include in the ISI Citation Index, hence its omission from the sample. *Operations Research* is a top journal in the ISI Citation Index, and “supply chain” papers are published in that journal, but given the journal’s methodological focus, I suspected the papers in *Operations Research* would be substantially different than “channels” papers. If *Operations Research* were included in the list, then there would only be one addition to the table, Huchzermeier and Cohen (1996). That paper studies how the structure of the supply chain influences currency fluctuation risk, which seems far removed from the marketing literature in channels. The paper it would displace, Anupindi and Bassok (1999) is potentially of greater interest to the marketing community. It studies how the placement of inventory in the supply chain (either independently controlled by two retailers or jointly controlled by the retailers) influences supplier and retailer performance in the presence of retail competition.

³ This search was conducted with the ISI Citation Index on September 15, 2006. The actual query was `ts="channel*" and (so="management science" or so="marketing science" or so="journal of retailing" or so="journal of marketing research")`.

a marketing or operations paper, but I believe my qualitative conclusion is valid under even the most liberal interpretation of each field.) The set of “channels” papers rarely cite papers in operations: only five of the papers cite papers in operations and they are all written by authors that reside in operations departments. Hence, among the papers written by faculty in marketing departments there isn’t a single citation of a paper in operations. The “supply chain” papers in Table 1 are only slightly better: 9 of the 20 papers cite a paper in marketing, but the total number of marketing cites is only 27, 1.35 cites per paper. Furthermore, most of those cites were “classic” papers written in the 1980s or early 1990s. In other words, the “supply chain” and “channel” literatures over the last ten years have largely proceeded independently of each other.

Additional insights can be obtained by delving into the specific topics and methodologies of the papers in Tables 1 and 2. Beginning with the “supply chain” papers, two of the top cited paper are about the “bullwhip effect” (Lee, Padmanabhan and Whang 1997; and Chen, Drezner, Ryan and Simchi-Levi 2000) which is the tendency for each level of a supply chain to amplify demand variability, i.e., downstream retailers experience the least demand volatility and upstream manufacturers the most. These papers identify several causes of the bullwhip effect, including trade-promotion pricing and shortage gaming, which occurs when multiple retailers inflate their orders when they believe upstream supplies may be constrained. Due to the development of inexpensive information technology such as EDI, information sharing between firms in a supply chain has received considerable attention (Lee, So and Tang 2000; Gavirneni, Kapuscinski and Tayur 1999; Cachon and Fisher 2000; Cetinkaya and Lee 2000; Cachon and Lariviere 1999; and Aviv 2001). These paper primarily study how a supplier can better use the retailer’s point of sales data to better manage inventory in the supply chain. The use of novel contracts to coordinate inventory management among independent firms in the supply chain has been an extremely active area (Lee and Whang 1999; Cachon and Zipkin 1999; Emmons and Gilbert 1998; Tsay 1999; Corbett and de Groote 2000; Chen 1999; Chen, Federgruen and Zheng 2001; Cachon and Lariviere 1999; Cachon and Lariviere 2001). Two papers discuss the outsourcing decision: van Mieghem (1999) and Novak and Eppinger (2001). Lee and Tang (1998) is about process improvement, so it is only tangentially about supply chains. Finally, Anupindi and Bassok (1999) discuss how the ownership of inventory in the supply chain is influenced by retail competition and consumer search. Overall, the supply

chain papers are primarily about inventory management and the primary methodologies are inventory theory (e.g., stochastic processes) and game theory. Retail pricing is assumed to be exogenous and pricing is discussed only in the context of contracts between firms in the supply chain.⁴ Nearly all of the papers work with stochastic demand (the exceptions are Corbett and de Groot 2000 and Chen, Federgruen and Zheng 2001). Retail competition is generally ignored in these papers (Anupindi and Bassok 1999 being an exception).⁵

Now consider the “channels” papers listed in Table 2. Some of the more highly cited papers focus on how the Internet as a new channel influences pricing and consumer choice (Brynjolfsson and Smith 2000; Lynch and Ariely 2000; Lal and Sarvary 1999). A large number of papers study behavioral issues within channels. For example, under what conditions does one member of the channel take punitive actions against the others, what explains one firm’s perception of the other firm’s commitment to the relationship, what drives buyer satisfaction, what makes cooperation efforts between channel partners successful, among others (Kumar, Scheer and Steenkamp 1995a,b; Cannon and Perreault 1999; Stump and Heide 1996; Jap 1999; Geyskens, Steenkamp and Kumar 1999; Jap and Ganesan 2000; Celly and Frazier 1996). Messinger and Narasimhan (1995) empirically evaluate signs for shifting power from suppliers to retailers in the grocery channel. Several papers study coordination between channel members either with contracts or by reassigning the tasks assigned to firms (Weng 1995; Iyer and Bergen 1997; Donohue 2000; Chen 1999; Chen Federgruen and Zheng 2001), but all of these authors reside in operations departments. Two papers focus on the role of store brands (Raju, Sethuraman and Dhar 1995; Dhar and Hoch 1997). Maltz and Kohli (1996) study communications channels within a firm, which is not really what is meant by “channels” in the other papers. To summarize, the marketing literature on channels is quite diverse, both in topics (e.g., Internet pricing to store brand management) and in methodologies (e.g., surveys of buyer satisfaction to econometric analysis to analytical models).

Tables 1 and 2 obviously provide a limited and biased sample. For example choosing the most highly cited papers places an emphasis on older papers, thereby not providing

⁴ Recent papers have begun to explore the issue of price setting retailers, e.g., Cachon and Lariviere (2005).

⁵ Recent papers that have supply chain contracting and retail competition include Bernstein and Federgruen (2005) and Cachon and Lariviere (2005).

a sense of what the two fields are currently researching. Nevertheless, while both fields study interesting and intellectually rich problems, there clearly are topics with little overlap between them. The supply chain literature is entirely analytical, which rules out a direct connection with the behavioral literature on channels. The channels literature on the Internet is about the characteristics of a particular channel, whereas supply chain papers are more concerned with the interaction of multiple firms. The emphasis in marketing tends to be on pricing whereas the emphasis in operations is nearly exclusively on inventory management. However, it is in the domain of channel contracts and coordination that the two fields overlap significantly.

The channel coordination literature in marketing probably can be traced back to the early 1980s with key papers that include Jeuland and Shugan (1983) and McGuire and Staelin (1983). Important follow on papers include Moorthy (1987), Coughlan and Wernerfelt (1989), Lal (1990), Choi (1991), Chu (1992), Ingene and Parry (1995), Lee and Staelin (1997), Iyer (1998) and Lariviere and Padmanabhan (1997), among others.⁶ The main questions addressed in these papers include the following: what contractual forms coordinate a channel, where coordination in this sense means that the firms take actions to maximize total channel profit?; how are rents distributed among the firms in the channel?; how does competition influence the contracts needed for channel coordination?; and how does the structure of the channel influence competition and the allocation of profits?.

The root of the supply chain coordination papers is actually a paper in marketing, Pasternack (1985). (See Cachon 2003 for a review of the supply chain contracting literature.) Furthermore, even though supply chain coordination became in vogue in operations only in the mid-1990s, the main questions in these papers are essentially the same as those in the channel coordination literature: e.g., what contractual forms coordinate the channel and how will rents be distributed. Both fields also used similar methodologies: game theory, signaling theory, agency theory and competitive models such as differentiated Bertrand and Cournot. But there are two noticeable differences: the marketing papers tend to work with deterministic demand whereas the operations paper work with stochastic demand; and the marketing papers tend to ignore inventory and capacity constraints, whereas they are cen-

⁶ These analytical papers do not appear in Table 2 either because they fall outside the date range or because their citation counts do not place them in the top twenty. For completeness, their citation counts are 72, 50, 89, 54, 37, 32, 24, 22 and 20 respectively.

tral in the operations literatures. For example, in the supply chain literature buy-back contracts are used to protect a retailer from the risk of excess inventory that would require a markdown to sell. This motivation for a buy-back contract only applies with stochastic demand: with deterministic demand the retailer can plan to avoid excess inventory. But Padmanabhan and Png (1997) develop another motivation for a buy-back contract when demand is deterministic: buy-back contracts (also called returns policies) induce retailers to compete more aggressively, thereby increasing overall demand and the supplier's profits. (Buy-back contracts are also studied in the economics literature: see Deneckere, Marvel and Peck 1997 and Kandel 1996.)

To summarize, the supply chain and channel literatures have not really “got in on” all that much. In some sense this is somewhat surprising. It would seem that the keys to active interaction is a common set of questions and a similar toolbox of methodologies. The questions asked are indeed quite similar, and there is an overlap in the methodologies used between the two fields, so it is not entirely clear why there is a lack of “cross-pollination”. It is possible that methodological barriers are indeed generated by the analytical complexities associated with capacity constraints and stochastic demand. It is also possible that the lack of “cross-pollination” is due to organizational boundaries and the pressures to publish in one's own community (channels people primarily sit in marketing departments, supply chain people reside in operations departments). For example, it can be challenging to attend conferences and network with colleague in your own discipline, leaving little time for engaging in these activities in another discipline. Whatever the reason for their isolation, it is clear to me that both groups would indeed benefit from more active engagement. For example, seeing the world through another discipline's “eyes” could spawn new research questions and paradigms.

The next section discusses several research areas that I feel could be of direct interest to both a “supply chain” and a “channels” person.

2 Opportunities for interaction

The union of channels and supply chains is most likely to occur with analytical models based on methodologies from economics (e.g., game theory, asymmetric information, competing firms, principal-agent dynamics, repeated games, etc.) Ideally there should be in the model

both pricing and some operational issue like inventory, constrained capacity, or queuing dynamics. It does not require much thought to identify several research questions that meet these conditions. This section provides my initial list.

Trade promotions. Trade promotions are temporary discounts offered by a manufacturer to a retailer or distributor. Because they are temporary, it is easy to demonstrate that a retailer should rationally take advantage of the promotion by purchasing a large quantity, a much larger quantity than can be sold during the trade promotion period. This type of pricing has received considerable attention in the marketing literature. Buzzell et al. (1990) and Blattberg and Levin (1987) identify many operational costs associated with trade promotions, while Abraham and Lodish (1987) develop expert systems to evaluate the profitability of different trade promotions. Analytical models of trade promotions are developed by Lal (1990), Gerstner and Hess (1991), Neslin et al. (1995) and Dreze and Bell (2003). These papers offer justifications for the presence of trade promotions and compare trade promotions to other forms of promotions (e.g., consumer coupons or scan back deals). In the supply chain literature trade promotions are identified as a cause of the bullwhip effect (Lee, Padmanabhan and Whang 1997), but otherwise have not received much attention, despite the fact that essentially all of the “marketing” papers incorporate inventory into their analysis (it is hard to avoid the issue of inventory with trade promotions given that the forward buying of inventory is the main consequence of the promotion).⁷

Markdown management. Selling off product that is still on a store’s shelf at the end of a selling season clearly involves both the issue of pricing and inventory, so markdown management should be of keen interest to researchers in both marketing and operations. Markdown management becomes a channel/supply chain issue when one addresses the question of who should be in charge of deciding what to markdown, when to markdown and where to markdown. The literature on buy-back contracts, which are also known as returns policies, begins to address this issue: why should a manufacturer offer a retailer to buy-back inventory at the end of a selling season? (See, Pasternack 1985, Padmanabhan and Png 1997). But these papers assume the retailer returns product rather than offering markdowns to consumers.

⁷ The issue of temporary consumer promotions is clearly related to the issue of trade promotions, even though consumer promotions probably would not be considered in the domain of channels/supply chains. There has been some joint work by marketing and operations faculty on consumer promotions (e.g., Ho, Tang and Bell, 1998), but clearly more joint work would be beneficial.

Tsay (2001) begins to address the question of how the manufacturer should influence the retailer's markdown decision (via markdown money), but clearly there could be even more work in this area. For example, little is known with respect to whether the manufacturer should offer to buy back inventory (and then what the manufacturer would do with the inventory it buys back) or offer to support a retailer's markdown. Adding competition, both between manufacturers and retailers, would add further richness. Furthermore, how should markdowns be managed in a channel/supply chain when consumers are strategic, i.e., consumers can rationally anticipate the price path over time as well as the likely availability of product? (The topic of strategic consumers is currently a very active area in operations, whether in the context of supply chains or not. This seems to be another opportunity for greater collaboration between marketing and operations.)

Allocation. When a manufacturer's capacity is limited the manufacturer needs to allocate the scarce capacity among retailers/distributors. This can give rise to shortage gaming (Lee Padmanabhan and Whang 1997) on the part of retailers: if each retailer believes they will receive a fraction of their order, they are likely to inflate their order in an effort to garner a larger allocation. Products go on allocation routinely in high technology markets (e.g., new microprocessors or advanced memory chips) but allocation also occurs in medium technology (e.g., automobiles) and low technology markets (e.g., Bounty paper towels). There is a supply chain literature that studies allocation (e.g., Cachon and Lariviere 1999a,b,c and Zhao, Deshpande and Ryan 2005), but, to the best of my knowledge, the topic of allocation has not registered with marketing researchers. However, there is a connection to the channels literature. For example, in marketing there is interest to understand how a manufacturer can induce a downstream retailer to engage in costly effort to enhance demand or build the brand (e.g., Chu and Desai 1995 and Desai and Srinivasan 1995). For example, when Mercedes introduced the M-Class SUV they required dealerships to invest in substantial showroom improvements in order to qualify to receive the new vehicle. Allocation can therefore be another tool for a manufacturer to influence retail behavior and this tool can either complement or substitute for other incentives offered to a retailer. Allocation also has an impact on consumer perceptions of a brand (which I presume is of interest to marketers). For example, consumers routinely rank Toyota vehicles near or at the top of their list, but also rank Toyota dealerships near the bottom. Toyota dealerships may score poorly due

to their aggressive sales tactics, which may be due to Toyota's very aggressive allocation policy (if a dealer does not sell her vehicles quickly, the dealer may lose some of her future allocation of vehicles).

Contracts. Both in the channels and in the supply chain literatures there is considerable interest to understand what types of contracts are used between trading partners and why they are used. The development of cheaper information technology has enabled firms to more efficiently monitor each other's activities, thereby allowing them to implement more elaborate contracts. As I have already discussed, this is an area in which there has been some interaction between the two groups. But the area is so dynamic and rich that I am sure there are opportunities for further interaction and new ideas. For example, Raju and Zhang (2005) study how contracts are influenced by a dominant retailer and Cui, Raju and Zhang (2005) consider how a preference for fairness may influence the contracts a supplier offers a manufacturer, but neither issue has been addressed in the supply chain literature. Similarly, Lariviere and Porteus (2001), Cachon (2003) and Perakis and Roels (2005) study the performance of simple, non-coordinating contracts, but such an analysis has not appeared (to my knowledge) in the marketing literature.⁸ Although I have focused on analytical modeling, both disciplines could benefit from additional empiricism. (It is my impression that empirical skills are better established in marketing than in operations, so operations probably stands to benefit even more from empirical studies.) For example, we have identified numerous types of contracts that could be implemented in a practice (revenue sharing, buy-back, price protection, etc.) but we have very little knowledge as to the frequency each of these contractual forms are implemented and the contexts in which they are applied. More importantly, we have yet to develop testable theories that would suggest why one contractual form should be observed in a market or not. Research to address these issues should be well received by both communities.

The list of fruitful overlaps could be extended further⁹, but I believe my list is sufficiently illustrative to convey my main point: at the very least, channel and supply chain researchers need to be aware of what is going on in the other discipline, because such awareness is

⁸ The argument for a simple contract, such as just a wholesale price contract, is that it may perform nearly as well as a coordinating contract while being easier to implement.

⁹ Here are two other examples: assortment planning and selling durable goods. Both problems involve the coordination across firms, pricing and potentially inventory management.

likely to lead to new research paths and hopefully more extensive joint collaboration. We are working on very similar problems, usually using the exact same methodologies, so the needed conditions for breaking organization boundaries are in place.

To conclude, I believe there are opportunities for some broad minded marketing and operations researchers to expand their horizons when they consider channel/supply chain issues. This requires each side to read papers in journals outside their home discipline, and more importantly, it requires these researchers to present their work in joint seminars (and others to attend).

Once we figure out how to get the channels and the supply chain people together, we can start working on hooking up the pricing people in marketing with the revenue management folks in operations.

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Table 1: The twenty most cited "supply chain" papers from 1995-2006.

Authors	Title	Journal	Year	Times cited	Number of references to marketing papers
Lee, H; Padmanabhan, V; Whang, S	Information distortion in a supply chain: The bullwhip effect	MS	1997	261	1
Lee, H; So, K; Tang, C	The value of information sharing in a two-level supply chain	MS	2000	95	0
Chen, F; Drezner, Z; Ryan, J; Simchi-Levi, D	Quantifying the bullwhip effect in a simple supply chain: The impact of forecasting, lead times, and information	MS	2000	93	0
Gavirneni, S; Kapuscinski, R; Tayur, S	Value of information in capacitated supply chains	MS	1999	84	0
Cachon, G; Fisher, M	Supply chain inventory management and the value of shared information	MS	2000	82	0
Lee, H; Whang, S	Decentralized multi-echelon supply chains: Incentives and information	MS	1999	50	0
Cachon, G; Zipkin, P	Competitive and cooperative inventory policies in a two-stage supply chain	MS	1999	45	2
Emmons, H; Gilbert, S	Note. The role of returns policies in pricing and inventory decisions for catalogue goods	MS	1998	45	2
Tsay, A	The quantity flexibility contract and supplier-customer incentives	MS	1999	44	4
Cetinkaya, S; Lee, C	Stock replenishment and shipment scheduling for vendor-managed inventory systems	MS	2000	42	0
Corbett, C; de Groote, X	A supplier's optimal quantity discount policy under asymmetric information	MS	2000	34	1
Chen, F	Decentralized supply chains subject to information delays	MS	1999	34	3
Chen, F; Federgruen, A; Zheng, Y	Coordination mechanisms for a distribution system with one supplier and multiple retailers	MS	2001	33	5
Cachon, G; Lariviere, M	Capacity choice and allocation: Strategic behavior and supply chain performance	MS	1999	32	0
Van Mieghem, J	Coordinating investment, production, and subcontracting	MS	1999	31	0
Cachon, G; Lariviere, M	Contracting to assure supply: How to share demand forecasts in a supply chain	MS	2001	28	4
Lee, H; Tang, C	Variability reduction through operations reversal	MS	1998	25	0
Aviv, Y	The effect of collaborative forecasting on supply chain performance	MS	2001	23	0
Novak, S; Eppinger, S	Sourcing by design: Product complexity and the supply chain	MS	2001	21	0
Anupindi, R; Bassok, Y	Centralization of stocks: Retailers vs. manufacturer	MS	1999	20	5

Table 2: The twenty most cited "channels" papers from 1995-2006.

Authors	Title	Journal	Year	Times cited	Number of references to operations papers
Brynjolfsson, E; Smith, M	Frictionless commerce? A comparison of Internet and conventional retailers	MS	2000	156	0
Kumar, N; Scheer, L; Steenkamp, J	The effects of perceived interdependence on dealer attitudes	JMR	1995	116	0
Kumar, N; Scheer, L; Steenkamp, J	The effects of supplier fairness on vulnerable resellers	JMR	1995	114	0
Cannon, J; Perreault, W	Buyer-seller relationships in business markets	JMR	1999	91	0
Lynch, J; Ariely, D	Wine online: Search costs affect competition on price, quality, and distribution	Mkt Sci	2000	87	0
Weng, Z	Channel coordination and quantity discounts	MS	1995	80	10
Stump, R; Heide, J	Controlling supplier opportunism in industrial relationships	JMR	1996	76	0
Jap, S	Pie-expansion efforts: Collaboration processes in buyer-supplier relationships	JMR	1999	67	0
Maltz, E; Kohli, A	Market intelligence dissemination across functional boundaries	JMR	1996	66	0
Geyskens, I; Steenkamp, J; Kumar, N	A meta-analysis of satisfaction in marketing channel relationships	JMR	1999	61	0
Iyer, A; Bergen, M	Quick response in manufacturer-retailer channels	MS	1997	58	1
Messinger, P; Narasimhan, C	Has power shifted in the grocery channel	Mkt Sci	1995	54	0
Jap, S; Ganesan, S	Control mechanisms and the relationship life cycle: Implications for safeguarding specific investments and developing commitment	JMR	2000	45	0
Celly, K; Frazier, G	Outcome-based and behavior-based coordination efforts in channel relationships	JMR	1996	38	0
Raju, J; Sethuraman, R; Dhar, S	The introduction and performance of store brands	MS	1995	36	0
Dhar, S; Hoch, S	Why store brand penetration varies by retailer	Mkt Sci	1997	36	0
Donohue, K	Efficient supply contracts for fashion goods with forecast updating and two production modes	MS	2000	35	9
Lal, R; Sarvary, M	When and how is the Internet likely to decrease price competition?	Mkt Sci	1999	35	0
Chen, F	Decentralized supply chains subject to information delays	MS	1999	34	13
Chen, F; Federgruen, A; Zheng, Y	Coordination mechanisms for a distribution system with one supplier and multiple retailers	MS	2001	33	6