Abstract

The existing literature opposing disintermediation adopts a very realistic but broad definition of intermediary functions, making the outcome of their arguments obvious, i.e. intermediation will always exist in one form or another. Supporters of disintermediation take a more focused definition of an intermediary, i.e. an economic player that buys from the seller and sells to the buyer and reduces their transaction costs of trading by doing so. It is difficult to reconcile the debate from these opposite ends because of the lack of a common definition of intermediaries. In this paper we have used the definition adopted by supporters of disintermediation to show that disintermediation due to web-based e-commerce is never a possibility.

The paper uses a two-stage extensive form game with simultaneous moves in the first stage to analyse the effect of web-based e-commerce on intermediated offline channel structures. The model is solved for the Nash equilibrium. Depending on the relation between the mark-up of existing offline intermediaries and the discomfort cost (associated with online channel structures) of buyers, the game has two equilibria—one in which the manufacturer continues to sell through an intermediated offline channel structure, and the second in which the manufacturer sells through a combination of direct-online-channel structure and intermediated-online and intermediated-offline channel structures.

Keywords: intermediaries, disintermediation, e-commerce, reintermediation, channel structure

Introduction

Web-based electronic commerce (e-commerce) is leading to considerable changes in industry value chains by changing the economics and structure of distribution channels (e.g. Benjamin and Wigand 1995b; Evans and Wurster 1997). These changes in distribution structures are of particular interest to the intermediaries that operated in traditional channels. The web-enabled distribution structure may result in the demise of the existing intermediaries, provide new opportunities for the existing intermediaries or attract new forms of intermediaries. The existing literature provides support for each of these outcomes. However, it is difficult to reconcile the debate from these existing works because they use different definition of intermediaries to argue their point of view. In this paper we have used the definition adopted by supporters of disintermediation and used a game theoretic approach to study the impact of web-based e-commerce on traditional intermediated-offline channel structures. Specifically, the paper addresses the following research question – Will the opportunity to trade directly through web-based channels result in (i) demise of traditional offline intermediaries,
(ii) weakening of traditional offline intermediaries, or
(iii) reintermediation by traditional offline intermediaries?

The following section reviews the existing literature on the subject. The paper then discusses the need for another debate on this issue. Finally we define a two-stage extensive form game with simultaneous moves in the first stage that is solved for the sub-game perfect equilibrium (SPE). The paper concludes with a discussion of the equilibrium outcome and some limitation of this paper’s analytical approach.

Support for Disintermediation

Academics and practitioners alike, as far back as 1987, provided arguments in favour of disintermediation due to e-commerce (Benjamin and Wigand 1995a, b; Malone et al. 1987, 1989). Malone et al. (1987, 1989) proposed that once electronic markets emerge, traditional intermediaries might be threatened due to an electronic brokerage effect, also called disintermediation (Chircu and Kauffman 1999). This effect suggests that as search costs facilitated by the information technology fall, the traditional intermediaries who play a role in reducing the search cost for the buyers and the sellers are no longer needed. Therefore, disintermediation results due to the replacement of traditional middlemen (that support the transactions) by new and improved ways for transaction support, which are made possible through technological innovations (Evans and Wurster 1997), e.g. the Internet. Bakos (1991, 1998) further argues that Internet-based electronic marketplaces leverage IT to directly match buyers and sellers with increased effectiveness and lower transaction costs, leading to more efficient ‘friction-free’ markets, and as a result, the role of the intermediary may be reduced or even eliminated leading to ‘disintermediation’. Wigand and Benjamin (Benjamin and Wigand 1995a, b) explore how purchasing and selling transaction patterns are likely to change when appropriate information technology (e.g. the Internet) provides manufacturers with the opportunity to bypass all intermediaries and reach the consumer directly. Since existing intermediaries may significantly increase the costs of the products, there is a strong incentive for their elimination from the distribution channel (Benjamin and Wigand 1995a, b). The authors also suggest that direct e-commerce between producers and their customers could lead to lower coordination costs in the trading structure by reducing or eliminating intermediary transactions and the unneeded coordination that goes with intermediation. Delivery costs will also be minimized because as each element of the distribution structure is bypassed, a physical distribution link and related inventory carrying costs will be eliminated. The consumers will also benefit from the direct trade opportunities. They will supposedly have (i) free market access to all sellers participating in the electronic markets, (ii) maximum choice at lower price, and (iii) access to a market price without market-maker profits attached, if and when interactive agents are feasible. Hoffman et al. (1995) propose that firms benefit from the use of the Web as a direct distribution channel. First, the Web potentially offers certain types of producer participation in a market in which distribution costs or cost-of-sales shrink to almost zero. This is most likely for firms in publishing, information services or digital product categories. Second, businesses on the Web transfer more of the selling function to the customer, through online ordering and the use of fill-out-forms, thus helping to bring transactions to a conclusion. This permits a third benefit in the form of capturing customer information. The technology offers the firm the opportunity to gather market intelligence and monitor consumer choices through customers’ revealed preferences in navigational and purchasing behaviour in the Web.

Support for More Intermediation and Opposition to Disintermediation

The intuitive appeal of the aforementioned arguments in favour of disintermediation is substantial. However, there is a dearth of empirical evidence to support them. Moreover, disintermediation might not be the only possible outcome, since new roles for intermediaries, such as aggregation, trust provision, facilitation and matching emerge (Bakos 1991, 1998; Sarkar et al. 1995). This need for matching, and therefore intermediary roles, will be higher in markets with numerous, infrequently purchased products. In such markets, the electronic communication effect described by Malone et al. (1987) reduces the cost of IT-supported communication, but the same effect also increases the quantity of information buyers and sellers must consider in an electronic market. This provides opportunity for another form of intermediary also known as information brokers. In short Internet-based e-commerce may lead to more intermediation. Using economic, social and institutional logic, Sarkar et al. (1995) also illustrate that the outcome of greater rather than less intermediation is just as plausible as disintermediation. Their analysis suggests that any of the following four outcomes are possible – a reinforcement of existing direct producer-to-consumer links, the use of the network by producers to link directly to consumers, a reinforcement of an existing intermediary structure, and the emergence of new network-based intermediaries. They also show how an unbundling of intermediary functions suggests that the role of intermediaries is multifaceted, and producers do not easily assume all the functions. They suggest that Internet-based e-commerce enables new types of economies of scale, scope and knowledge by intermediaries, leading to the rapid evolution of many
new forms of cybermediaries (i.e. Internet-based intermediaries) who are interposing themselves between producers and consumers. Bakos (1998) also argues along similar lines. Like other markets, electronic markets also require price setting, transaction processing and coordination, inventory management, immediacy, quality guarantees and monitoring. Therefore, while the growth of Internet marketplaces might drive certain types of intermediaries to extinction, the electronic marketplaces will more than compensate for this by promoting the growth of new types of electronic intermediaries. Bakos (1991) hypothesizes that large-scale, globally distributed intermediaries, formed by industry participants in collaboration with IT companies, will emerge in the marketplace. Either by capturing dominant market share in a single industry or by becoming electronic market makers across a number of industries, such intermediaries will be capable of sustaining a competitive advantage by securing economies of scale and scope. The emergence of third-party intermediaries in electronic markets will also be enabled by buyers’ willingness to access newly available price comparison information, which might otherwise not be available in the presence of seller-controlled systems (Bakos 1997).

Support for Reintermediation

Another possible and equally reasonable outcome is reintermediation (Negroponte 1997). Although they have not specifically used the same term, a number of researchers have described a similar process, where traditional industry players have incentives to develop e-commerce capabilities and start competing in electronic markets as well. Chircu and Kauffman (1999) explain reintermediation in terms of characteristics of technological innovation, and characteristics of the intermediary itself. Most importantly though, are the types of assets that the intermediary already has in a traditional market, and its ability to reconfigure them in the e-commerce-enabled marketplace. These, they believe, are the core determinants for how well re-intermediation will succeed (Chircu et al. 1999).

Unlike most analysts, Chircu and Kauffman (1999) argue that traditional non-technological middlemen have a better opportunity to reintermediate in the long run, and even strengthen their position in the market as e-commerce-able intermediaries, mainly because of their need to reconfigure their existing assets to suit the electronic marketplace, and thereby improve the returns on the investment they have made in these assets. Although they cautioned that this may not occur in every industry setting – whether it is due to the failed actions of a single competitor, or it is more a function of the broader competitive marketplace in which technological innovations occur – they nevertheless believe their framework is explanatory of many of the developments that they have observed among start-up e-commerce firms and other more traditional firms that have decided to shift strategy and remake themselves into ‘e-business’ providers. We have used the term intermediary perspective to describe the logic used by the proponents of reintermediation since they incorporate the reaction of existing intermediaries to the threat from e-commerce.

NEED FOR ANOTHER DEBATE

Literature supporting disintermediation seems to define an intermediary, from the transactions cost perspective, as an economic player who buys from a seller (e.g. manufacturer) and then sells to a buyer (e.g. end consumer). The role performed by this intermediary is to reduce the transaction costs associated with the trade. With the advanced functions provided by information technology, the role of economic player is diminishing. On the other hand literature opposing disintermediation takes a pragmatic perspective and uses a more realistic definition of intermediary functions by broadening the intermediary role to include trust provision, facilitation and matching, information brokering (Bakos 1991, 1998; Sarkar et al. 1995). However, if we take this broad definition to examine the economic activities, intermediation is always going to exist (e.g. even in case of consumer-to-consumer online trade information brokers and trust providing functions are required). Therefore, the outcome is inconsequential (i.e. intermediaries are going to exist in one form or another), and the whole debate on disintermediation becomes irrelevant. The debate however, becomes interesting if we argue the issue using a common perspective. We have used the transaction cost perspective in this paper and adopt the definition of intermediaries as economic players who reduce the transaction costs for buyer and sellers – this definition is generally used in industrial organization literature (e.g. Fingleton 1997a, b; Gehrig 1993; Rubinstein and Wolinsky 1987) to argue against disintermediation.

Besides the difference in the definition of intermediary roles, the different perspectives also fail to include all the participants in the trade, in their analysis of the issue. Supporters of disintermediation have analysed the issue mainly from the sellers’ point of view, predominantly concentrating on minimizing transaction costs. The profits for a seller are given by the equation:

\[
\text{Profits} = \text{Revenues from end-customers} - \text{Transaction Costs}
\]

Literature supporting disintermediation has assumed that the Revenues from end-customers remains more or less constant and therefore, sellers can increase their profits.
by minimizing the Transaction Costs. One way to minimize the transaction costs is to replace the intermediary in channel structure by a less costly direct channel enabled by emerging open network technologies (e.g. Internet). This line of thinking implicitly assumes that a channel structure does not have any major impact on buyers’ purchase behaviour, and therefore, on the revenues from these end-consumers. This assumption may be justified for frequently bought commodity products. For example, most buyers may not concern too much if they buy their loaf of bread from a bakery (i.e., direct seller) or the local supermarket (i.e., an intermediary). However, if the product under consideration is a high valued product such as a home entertainment system, most buyers would care about the channel structure they buy from. Therefore, the assumption in many exiting studies (supporting disintermediation), that the consumers have a zero discomfort cost attached to switching from their familiar channel structure (e.g. intermediated-offline) to a new one (e.g., direct-online-channel) is not a realistic assumption.

Another major limitation of the existing literature in understanding the conditions for intermediation and disintermediation is that most of these analyses do not incorporate the reaction of offline intermediaries with the exception of Chircu and Kauffman (1999), if a manufacturer decides to switch to a web-based direct channel. Table 1 summarizes the basic arguments used by the proponents of disintermediation, more intermediation and reintermediation and limitations of their approach.

To address the aforementioned limitations this paper uses a game theoretic approach to analyse the effect of web-based e-commerce on traditional intermediary channel structures. Game Theory is the study of interactive decision making. In the issue under study, we are interested in situations in which a decision maker’s (e.g. producer’s) behaviour affects not only its own gains and losses, but also those of other decision makers (e.g. traditional intermediaries). Although the mathematical model that represents real-life situations is highly simplified, it is this simplicity that makes it relatively easy to analyze. The next section defines a two-stage extensive for game (with simultaneous moves in first stage) between a manufacturer, a traditionally offline intermediary, and the consumers. The game is then analysed to identify the equilibrium channel structure (e.g., disintermediation or stronger intermediation or re-intermediation etc.) resulting from the strategic choices made by players involved.

THE MODEL

Various elements of the model are explained below.
Buyers

All the potential buyers have the same intrinsic valuation, $V$, for the product. The model assumes that there is no discomfort associated with an offline-intermediated channel since the consumers had historically been trading through this channel. They have been doing so because they perceive value addition when buying product through this familiar channel structure. The consumers, however, pay a discomfort cost (proportional to their valuation of the product) when they buy from a comparatively new and unfamiliar online channel. This discomfort cost is manifested, for example, in the lack of immediate gratification, the absence of opportunity to experience the product, and difficulties with returns and exchanges etc. The discomfort cost could also be thought of as loss of any unique value brought by the traditional offline intermediaries that has yet to be replicated by technology in the online environment (see Table 2) with complete success (e.g. risk sharing, trust, personal service).

The discomfort factor, denoted by $\delta$, is directly proportional to the mismatch between the services a seller needs to provide and the effectiveness with which the online sellers can provide those services. The higher the capability of the manufacturer and the intermediary to install sophisticated and effective Internet applications to serve online customers, the lower will be the discomfort factor and vice versa.

The model also assumes that $\delta$ is distributed randomly across the population of buyers, letting $F(\delta)$ and $f(\delta)$ be the corresponding cumulative and density function, i.e.,

\[ U = \begin{cases} 
V(1-\delta) - P_s & \text{buy - online} \\
V - P_A & \text{buy - offline} \\
0 & \text{not buy}
\end{cases} \]  

(1)

The model also assumes that $\delta$ is distributed randomly across the population of buyers, letting $F(\delta)$ and $f(\delta)$ be the corresponding cumulative and density function, i.e.,

Table 2. Technology-related reasons for some of the discomfort costs associated with online channels

<table>
<thead>
<tr>
<th>Functions/services</th>
<th>Traditional intermediaries (e.g. retailers)</th>
<th>Web-based direct trade* (e.g. e-storefronts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need assessment</td>
<td>Assess customer requirements</td>
<td>Software application</td>
</tr>
<tr>
<td></td>
<td>Product configuration</td>
<td>Manual</td>
</tr>
<tr>
<td></td>
<td>Product customization</td>
<td>Available</td>
</tr>
<tr>
<td></td>
<td>Manual</td>
<td>Limited; depends on the product</td>
</tr>
<tr>
<td></td>
<td>Brochures, booklets, verbal, multimedia</td>
<td>Available</td>
</tr>
<tr>
<td>Research and Evaluation</td>
<td>Product information dissemination</td>
<td>Not high</td>
</tr>
<tr>
<td></td>
<td>Price transparency</td>
<td>By Sales Personnel, brand, perception of quality, value, etc.</td>
</tr>
<tr>
<td></td>
<td>Purchase influence</td>
<td></td>
</tr>
<tr>
<td>Consumer Risk Management</td>
<td>Trying to get a feel of the product</td>
<td>Available</td>
</tr>
<tr>
<td></td>
<td>Advise, i.e. product, warranty, finance etc.</td>
<td>By Sales Personnel</td>
</tr>
<tr>
<td>After Sales Service</td>
<td>Servicing/repair</td>
<td>Needs alliance with service providers, or in-house service centres</td>
</tr>
<tr>
<td></td>
<td>Follow-ups and customer feedback</td>
<td>Information on website</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Automated, in real time</td>
</tr>
</tbody>
</table>

Note:* Technology could be a poor substitute for some of the services (e.g. those in italics) that a seller needs to provide to the buyers. This could be another reason for the discomfort cost associated with online channels.
Finally, all buyers are assumed to be risk-averse and they prefer the familiar offline channel over the new web-based channel when both channels offer equal utilities.

**Manufacturer**

This is a profit-maximizing firm, selling a product which is suitable for both the online and offline channels. Without loss of the generality, the production costs are assumed to be zero. The assumption means that in the following analysis all prices have to be interpreted as a deviation from 0, instead of some other positive number (i.e. the production cost). This helps us to focus on factors other than the production costs (e.g. demand in the two channels and the mark-up of the sellers in our model) when analyzing the equilibrium outcomes. The model assumes that both the manufacturer and the intermediary are equally knowledgeable about the technology required to start an online storefront and capable of deploying this technology. Therefore, both will incur the same cost when starting an online storefront. This cost is also included in the zero production cost. The assumption is necessary to separate the affect of different demands in the channels and their impact on the channel strategy of the manufacturer and the intermediary.

The model also assumes that the manufacturer is already selling through offline intermediaries. The manufacturer charges its intermediaries a price $P_A$. This price is related to the price charged by the intermediary from end customer by the intermediary, as $P_i = P_A - m$, where $i = A, B$ for offline and online prices, so as to maximize the profits for the intermediary and the manufacturer. In the initial state of the game, $P_A$ is known to the intermediary and the manufacturer and $P_i$ has been negotiated in the contract for the period under study. The various parameters, we have already defined for the model, are summarized in Table 3.

**Intermediary**

In the model the intermediary is defined as a profit maximizing entity that buys the product from the manufacturer and sells it to the end customers at a marked up price. The intermediary has traditionally been selling through offline brick-and-mortar stores.

**Timing of Decisions**

This section defines a two-stage game in which, the manufacturer and the intermediary move simultaneously in the first stage (see Table 4) and the buyers move second in the stage.

*Stage 1.* At this stage the actions taken by the manufacturer and the existing offline intermediary will determine the channel structure. These players will also decide their profit maximizing prices for the various channel structures at this stage. Both the manufacturer and the intermediary are aware of the buyer’s product valuation and the distribution of their discomfort cost.

It should be noted that given the nature of the game, that even if the intermediary and the manufacturer move in a sequence, the solution would still remain the same.

*Stage 2.* Each consumer decides whether to purchase one unit of the product. In making this decision, each consumer treats the channel structure and the end price of the product as given. After consumers’ purchase decisions are made, the manufacturer and the intermediary (if present) collect their revenues from consumers and profits are realized.

**SOLUTION**

The game is solved backwards, i.e. first Stage II is solved to get the total online and offline demand, and then Stage I is solved to identify the optimal channel structure.

### Table 3. Summary of parameters used in the model

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Possible values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 $V$</td>
<td>Positive</td>
<td>Buyer’s valuation of the product</td>
</tr>
<tr>
<td>2 $\delta$</td>
<td>0–1</td>
<td>Discomfort cost experienced by the buyers when they make their purchase from online channel. It is percentage of the valuation $V$ of the product purchased.</td>
</tr>
<tr>
<td>3 $P_A$</td>
<td>Positive</td>
<td>End price of the product in offline channel</td>
</tr>
<tr>
<td>4 $P_i$</td>
<td>Positive</td>
<td>End price of the product in online channel</td>
</tr>
<tr>
<td>5 $P$</td>
<td>Positive</td>
<td>Price at which the manufacturer sells to the intermediary</td>
</tr>
<tr>
<td>6 $m$</td>
<td>$0 \leq m &lt; V$</td>
<td>Mark-up of the intermediary in online or offline market</td>
</tr>
</tbody>
</table>
Stage II – Estimation of Demand

In the absence of any offline channel, the total online demand will be \( nF\left(\frac{V - p_B}{V}\right) \), provided that \( p_B \leq V(1 - \delta) \).

In the presence of an offline channel, the total online demand will be \( nF\left(\frac{p_A - p_B}{V}\right) \), provided \( p_B \leq V(1 - \delta) \), while the total offline demand will be \( n[1 - F\left(\frac{p_A - p_B}{V}\right)] \), provided that \( p_A \leq V \). The total offline demand, in absence of any online option, will be \( n \) if \( p_A \leq V \) and zero otherwise. All the demand faced by the intermediary is passed on to the manufacturer. In the case of competition between manufacturer’s direct-online-channel structure and intermediated-online-channel structure, the total online demand is equally shared among them.2

Stage 1: Choice of Channel Structure

The payoffs for the manufacturer and the existing intermediary for various channel structures are summarized in Table 5.

Solving for Subgame Perfect Equilibrium (SPE)

It has already been assumed that in the initial state the manufacturer is selling through an offline intermediary. The best option for the intermediary is to remain offline (with a payoff of \( nm \)), since its payoff is reduced if it switches to online channel (\( \pi_1^I > \pi_1^F \)) or sells through both online and offline channel (\( \pi_1^I > \pi_1^O \)). However, if the intermediary decides to remain offline, the manufacturer is better off by adding a direct online-channel to its channel structure (i.e. \( \pi_1^I > \pi_1^F \)), provided that \( m \geq \delta V \). When the manufacturer adds a web-based direct channel to its existing offline intermediated-channel structure, the intermediary is better off by adding an online channel to its already existing offline channel (because \( \pi_1^I \) is always greater than both \( \pi_1^O \) and \( \pi_1^F \)). When the intermediary starts selling through both online and offline channel, the manufacturer would continue selling directly through online channel (in addition to selling through the intermediary) because \( \pi_1^F > \pi_1^O \), when \( m \geq \delta V \). This analysis leads to the first proposition:

**Proposition 1:** When \( m \geq \delta V \) (i.e., the mark-up of the intermediary is more than the reduction in online prices due to the discomfort cost of buying online), the optimal channel structure for both the manufacturer and the existing intermediary involves direct online and intermediated online/offline selling by the manufacturer.

This would imply that intermediation would become stronger due to the emergence of direct selling from the manufacturer. Also, reintermediation will take place since the offline intermediary would venture into online market to compete with the manufacturer’s direct channel structure.

However, if \( m \geq \delta V \), the manufacturer has no incentive to start direct selling through a web-based channel, and it continues selling through the intermediated offline-channel structure. In this case the intermediary also has no incentive to switch to an online channel strategy or include an online channel in its overall channel strategy. This leads to the second proposition:

**Proposition 2:** When \( m \geq \delta V \), the equilibrium outcome will be that the product is sold through an intermediated offline channel structure, i.e. the status quo will be maintained.
If, however, $m \geq V[1 - (1 - \delta)F(\delta)]$ the manufacturer has an incentive to start selling through a direct-online-channel structure (i.e. pure disintermediation). But $m \geq V[1 - (1 - \delta)F(\delta)]$ implies that $m \geq \delta V$ (see equation 4). Under this condition, as already shown, the equilibrium defined in Proposition 2 is also a possibility. This equilibrium will be threatened only if $\pi^M_3 > \pi^M_2$, which is never true.3 This leads to the fourth proposition:

**Proposition 4:** The equilibrium – that the manufacturer sells through direct online channel and through intermediated online and offline channel – will hold and pure disintermediation would not take place as long as the mark-up of offline retailers satisfies the condition: $m > V[1 - (1 - \delta)F(\delta)] > \delta V$.

**DISCUSSION AND CONCLUSION**

In conclusion, opportunity provided by web-based e-commerce will never result in pure disintermediation. Propositions 1 and 2 could be used to predict the post-Internet equilibrium channel structure, for any product category, by estimating the parameters $m$ (i.e. mark-up in that industry), distribution of $\delta$ and the product valuation $V$. One should be careful not to interpret the equilibria as deterministic outcomes since they depend on the relationship, $m \geq \delta V$ or $\frac{m}{V} < \delta$.

Since $\delta$ is a distribution, the probability that $\delta > \frac{m}{V}$ or $1 - \frac{m}{V}$ will determine if the channel structure will change. Thus the probability that equilibrium described by Proposition 2 will exist is high for products for which the distribution of discomfort cost of buyers is skewed towards higher values of $\delta$ (e.g. jewellery, second hand cars), and low for products for which the distribution of discomfort cost of buyers is skewed towards low values of $\delta$ (e.g. books, DVDs). In the latter case, the equilibrium described by Proposition 2 is more likely to exist.

The equilibrium described in Proposition 1 is already visible in the PC industry, where manufacturers (e.g. IBM) are selling through direct online channels, and intermediated online and offline channels (e.g. through Best Buy). The buyers are comfortable buying PCs 160
online, as is evident from the large number of machines sold online, so the term $\delta V$ is reduced. As a result even low mark-ups in the industry should satisfy the condition $m \geq \delta V$ for this industry. This equilibrium is also visible in the travel industry where airlines are selling directly through their websites, and also through offline and online travel agents. In this case also the discomfort cost of consumers is low for online channels and therefore traditional intermediaries can exist even with low mark-ups.

The equilibrium described by Proposition 2 would be visible in industries characterized by products with high product valuation and therefore high discomfort cost of buying online and comparatively low mark-ups (i.e. $m \leq \delta V$). In these industries the manufacturers would in all likelihood continue to sell through intermediated offline channels (e.g. automobiles). Existing intermediaries, in intermediated markets, can safeguard their position in the offline-channel structure by keeping their mark-up price in control, because if it increases above the threshold value (i.e., $\delta V$), they will have to face competition from the direct online channel and will have to invest in developing online channels of distribution in order to compete successfully. Also, different values of $\delta$ for different products implies that the manufactures and the intermediary will have to offer different online prices to different buyers – a pricing strategy too complex to implement. One way around this is to use the expected value of this discomfort cost to arrive at mark-up value.

The analysis has its limitations. The assumptions about the consumer choice between the online and offline channels are straightforward. It is important to acknowledge, however, that consumer choice is guided by more complex heuristics that need to be studied independently. Another limitation of the game, as described in the paper, is that it does not take into account the channel strategies of other intermediaries and producers selling competing products. In many industries, characterized by intense competition, intermediaries are very likely to take into account the channel strategies of the competing intermediaries, as well as those of the producers of the products they sell, before formulating their own channel strategy. Also, the model assumes that the transaction cost of selling and the market size are the main criterion for deciding the optimal channel structure. Firms, however, use many other factors like product attributes, control and flexibility offered by the channel, and distribution density provided by the various channel options. Finally, the role of information technology in influencing the decision of the buyers and sellers has been not explored in more detail, an issue particularly important to the IS discipline. The simplistic game, however, is important for a flexible but sturdy model and despite these limitations, the analysis does provide us with important insights in understanding the effect of open public networks on the channel structures.

Notes

1. Only those consumers with discomfort cost $\delta \leq \frac{V - \beta_B}{V}$ will buy online, and the proportion of buyers with $\delta \leq \frac{V - \beta_B}{V}$ is $nF\left(\frac{V - \beta_B}{V}\right)$.
2. Undifferentiated product.
3. If $\delta$ is assumed to come from one of the widely assumed distribution, e.g. Uniform, Normal, it could be algebraically verified that $\pi_D > \pi_S$ hold for all possible values of $\delta$ from these distributions.

References