Drivers and Inhibitors to Consumer Uptake of Electronic Commerce

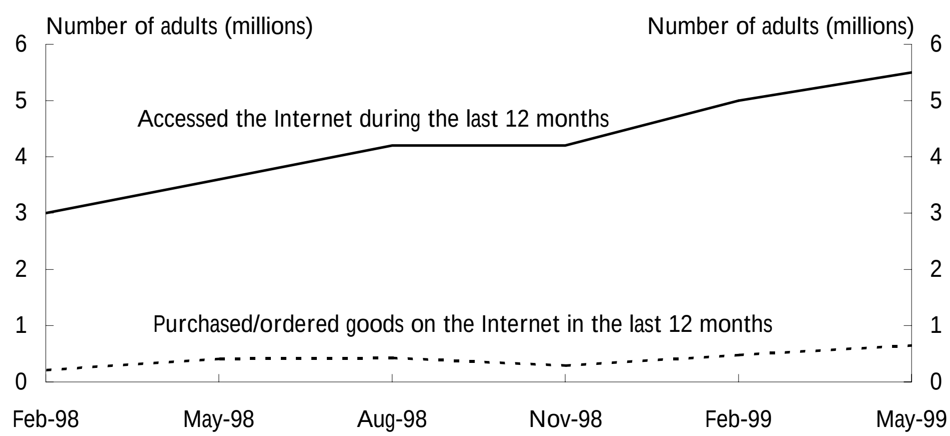
This article examines the drivers and inhibitors to the uptake of business to consumer electronic commerce.

Background

Consumer uptake of electronic commerce in Australia has been limited (see Chart 1). Although recent ABS data indicates an increase in both the rate of Internet access and the number of people purchasing online, the level of purchasing is still substantially less than that of Internet access. Estimates for the global value of business to consumer electronic commerce suggest that it will grow from in excess of US $7 billion in 1998 and approximately US $20 billion in 1999 to between US $40-80 billion by 2002.[1]

Can we expect Australia to play an increasing role in business to consumer electronic commerce? There are a number of factors that will influence its uptake by Australian consumers.

Chart 1: Internet access/purchasing in Australia



Source: ABS Catalogue No. 8147.0

1 US Government Working Group on Electronic Commerce, *Towards Digital eQuality: Second Annual Report*, 1999, http://www.ecommerce.gov.

Drivers

Price

Early empirical data about whether electronic commerce is currently providing significant price reductions is mixed. One recent survey found that prices for books and CDs online are between 9 per cent and 16 per cent lower online that offline (depending on whether or not associated purchasing costs such as delivery charges are included).[2] Similarly a survey of 32 consumer products by Ernst & Young[3] in early 1998 found that the majority of online prices were lower.

However, earlier work by the OECD and Goldman Sachs in 1997 found that prices were generally the same or even higher online than offline.[4] One possible explanation for the conflicting findings is that the online marketplace is maturing rapidly and that online prices have decreased relative to offline prices since 1997.

Lower cost structure for retailers

Electronic commerce offers the potential for reducing the cost structure of online retailers compared to their offline competitors.

Online retailers do not require physical establishments at every location where the business wants to conduct sales; like traditional direct marketers, they can conduct their business from one location without the need to lease expensive retail space, outfit stores and possess multiple inventories. Nevertheless, the cost of creating and maintaining a web site (the online equivalent of a store) should not be discounted: this can vary from relatively inexpensive (in the thousands of dollars) to hundreds of millions for sophisticated operations with a large range of products.[5]

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2 Brynjolfsson and Smith, *Frictionless Commerce? A Comparison of Internet and Conventional Retailers,* 1999, available at http://ecommerce.mit.edu/papers/friction.

3 Discussed in OECD, *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda,* 1999, at 73.

4 Ibid.

5 OECD, op. cit., at 59.

Table 1: Distribution cost in US$ per transaction

	Airline Tickets	Banking (per transaction)	Bill Payments	Term life insurance policy	Software Distribution
Traditional System	8.00	1.08	2.22-3.32	400-700	15.00
Telephone Based		0.54			5.00
Internet Based	1.00	0.13	0.65-1.10	200-350	0.20-0.50
Saving (%)	**87**	**89**	**71-67**	**50**	**97-99**

Source: OECD[6]

The lack of physical stores provides flexibility to online businesses and allows them to operate nationally or internationally with little additional cost and to respond quickly to changes in demand. Similarly, online retailers automate the provision of information and the completion of transactions so that little or no human intervention is required to accept orders, although staff process orders and handle consumer enquiries.

One of the largest potential savings in electronic commerce is the cost of distributing products (see Table 2), particularly for goods or services that can be delivered digitally (often called digitised products) such as financial services, software or travel.

In the future the range of digitised goods may increase significantly; increases in bandwidth are likely to create a substantial online market for entertainment products such as films and music.

Disintermediation

Another potential source of price reductions online is the removal of intermediaries from the supply chain. The intermediaries that are most vulnerable are those whose role has been the collation and provision of information and the handling of individual transactions, as these functions can be automated online. Retailers themselves could be removed where a manufacturer sells directly to consumers online although suppliers need to be wary of damaging their traditional supply channels before their online market is established.

Distributors of goods such as CDs and videos that can be digitised and directly downloaded online are also potential candidates for disintermediation. The

6 Ibid. at 63.

online environment also has the potential to reduce information asymmetries, thus allowing consumers to compare prices quickly between different suppliers, a role often traditionally carried out by intermediaries such as travel agents. Automated web sites are also taking over the role of providing advice about product choice; for example, sites like Amazon[7] encourage consumers to provide independent product reviews. Share trading is another sector where disintermediation is beginning to occur.

The online marketplace, however, has also created a whole series of influential new intermediaries. In the unstructured Internet environment the role of intermediaries is crucial to enabling users to locate suppliers of products. Portals such as Yahoo! are the equivalent of shopping malls. These intermediaries already raise significant revenue through advertising on their sites and some charge organisations for preferential treatment in listing sites.

Other more conventional intermediaries involved in fulfiling online orders are enjoying increased business. Couriers and postal services are gaining significant new business in delivering physical goods ordered online. Telecommunications companies are, of course, crucial to electronic commerce and will benefit significantly from increasing demands for bandwidth.

It is clear that in some sectors the role of intermediaries will be reduced and possibly eliminated, leading to significant cost savings. It is also clear that new intermediaries will appear in all sectors and will add to costs. A recent OECD report concludes that disintermediation due to the removal of wholesalers and retailers is likely to be important in specific areas but the overall impact will be small.[8]

Competition

Online retailers face competition from traditional offline and direct marketing competitors. However, on the assumption that cost structures are lower online, the full benefits will only be passed on where there is competition online.

For cost savings to be passed on to consumers as reduced prices there will need to be strong competitive pressure on Internet traders.

The structure of retail markets online is significantly different. Offline, retailers operate in markets that have traditionally been narrowly confined

7 See http://www.amazon.com.

8 OECD, op. cit., at 65.

geographically. Where consumers once faced significant costs in locating suppliers outside the area where they lived, they can now deal online with suppliers anywhere in the world with little additional cost (except increased delivery costs for physical products). The number of potential suppliers of products is dramatically increased online where suppliers now compete in national or even global markets.

Another significant factor that is likely to result in increased online competition is a reduction in information asymmetries between consumers and retailers. In addition to the number of potential suppliers being increased, the cost of obtaining information from these suppliers is dramatically reduced online. This should enable consumers to compare prices quickly at little cost, thereby promoting aggressive competition between online retailers. Indeed some companies specialise in collating information from different suppliers (this can often be performed automatically) and presenting it to consumers so they can immediately locate the lowest price.

Electronic commerce can lower some traditional barriers to entry to consumer markets. The removal of the need to establish physical outlets allows online retailers to adjust their product range quickly, enabling them to enter new markets more easily.

Despite the reduction in search costs online, there is evidence that market leaders are able to charge a premium over less well known retailers that do not have a brand name or reputation.[9] This tendency by consumers to favour well known retailers even when their prices are higher is a challenge to strengthening competition online.

Empirical research would seem to indicate that there is still a significant level of price dispersion online suggesting there is still significant potential for online suppliers to charge premium prices, through product differentiation and/or increased segmentation of the market. The survey conducted by Brynjolfsson and Smith[10] also found a significant level of price dispersion. An investigation of prices offered by online travel agents found price dispersion of

9 Brynjolfsson and Smith, 1999, op. cit., at 21.

10 Ibid. at 16.

25 per cent and even after accounting for product differentiation a difference of 20 per cent remained.[11]

Price discrimination

Electronic commerce increases the ability of retailers to segment their market. On the assumption that those with increased human capital (more time available) have a higher price elasticity of demand than those with less human capital, products can then be marketed using a number of different channels to ensure profit maximisation. For instance, a sophisticated site could market a product to affluent but impatient consumers where minimal time is required to complete a transaction. The same product could be offered at a lower price on another site that collated price information or on a site that was more difficult and, therefore, time consuming to use. Finally, the same product could be auctioned off at an even lower price to consumers who had even more time to engage in the long and potentially fruitless auction process. There is anecdotal evidence that this is happening already.[12]

In addition, the ability of online traders to retain personal information about consumers (see discussion below under privacy) raises the possibility of tailoring prices to individuals based on information which could indicate an individual's likely price elasticity for a particular product, such as previous purchasing behaviour, income, interests and personal circumstances such as marital status.

Non-price factors

In addition to lower prices there are a number of non-price factors that may drive consumer uptake of electronic commerce.

Convenience

One of the most obvious benefits of online trading is that retailers can be accessed by consumers regardless of physical location or time. As staff are not required to operate a site, only to maintain it, web sites are open for business all day, every day. For some consumers, depending on their life style, this

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11 Hann, Clemons, Hitt, *The Nature of Competition in Electronic Markets: An Empirical Investigation of Online Travel Agent Offerings*, 1998, summary available at http://www.cob.ohio-state.edu/%7Eacctmis/coll/98_99/hann.html.

12 Ibid. at 14-17 contains a discussion of these possibilities in more detail including examples where this may already be occurring.

could offer significant benefits over traditional retailing. Consumers are able to research purchases, compare prices and place orders whenever they wish. These benefits are more important for consumers who due to a disability or distance are unable to access a large range of conventional retailers.

These benefits are to some extent offset by the time taken for the delivery of physical products (not applicable to digitised products). Consumers may also have to take a greater role in looking for relevant information that may be provided by sales staff in an offline environment. They also need to make more decisions about whether to trust information from sources that they are not familiar with. This may amount to a shifting of costs from the business to the consumer.

Choice

The centralisation of distribution and the efficiencies derived by the elimination of multiple inventories means suppliers can offer a wider range of products than their offline competitors. Where the large offline bookstore offer around 150 000 books, a large online bookstore can offer 2.5 million.[13]

The ability of online traders to deal globally may also make the provision of specialist goods viable online where a retailer operating offline would find it impossible to achieve an economic scale of operation.

Customisation

Online suppliers have more flexibility to customise the products or services they offer to individual consumers' needs. Online retailers can obtain more information about their customers that will allow them to tailor products. With centralised distribution of products it is also possible to allow consumers to customise their purchases without the limitations of an individual store's inventory.[14]

Finally, whereas it is difficult to customise many traditional offline products like news services, their digitised versions sold online could easily be customised at little cost to meet individual preferences.[15]

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13 US Department of Commerce, *The Emerging Digital Economy*, 1998, at 41. Available at http://www.ecommerce.gov/emerging.htm.

14 US Department of Commerce, 1998, op. cit., at 44.

15 Ibid.

Inhibitors

Internet access

A barrier to the uptake of electronic commerce may be the cost of access to the Internet, which requires outlays on access devices and telecommunications services. Currently, the only common access device is a personal computer. With current prices of between $1,500-$2,500, this remains a relatively expensive purchase for many people. Other less expensive access devices may emerge which would improve cost of access and ease of use. Nevertheless, Internet access in Australia is continuing to increase (see Chart 1).

Deregulation of the telecommunications market and increased competition among providers will be an important factor in reducing the cost of Internet access for both consumers and businesses.[16] Rapid introduction of new technologies that will increase the availability of high bandwidth Internet connections will also be important to many digitised products (such as video).

Trust

Many surveys have indicated that a lack of trust is a major impediment to the further development of business to consumer electronic commerce.[17] Unlike traditional forms of purchasing, consumers generally do not have personal contact with a representative of the retailer and are dealing with an organisation that is physically distant (often in another country). Web sites do not necessarily give an accurate indication of whether or not the retailer is reputable. In addition, many retailers are relatively new and do not have established brand names to engender consumer trust.

Some characteristics of the Internet make trust a more important issue online than offline. Consumers need to provide retailers with more information about themselves to enable delivery and payment. Many purchases, particularly physical goods, are delivered after payment is made, unlike the offline environment where payment and delivery can be effected concurrently.

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16 OECD, *The OECD Observer*, No. 208, October / November 1997 at 15.

17 See, for example, http://www.nfow.com/nfointeractive/nfoipr81699.asp.

Privacy

Privacy is often nominated as one of the greatest concerns online by consumers.[18] The reasons for this increased concern can largely be traced to the ability of organisations to track the actions of consumers more efficiently online than offline. Obtaining equivalent information offline would generally be uneconomic. Once this information has been obtained it is then relatively simple to collate it with that of other sites to obtain a much more detailed profile of a consumer that can then be sold back to retailers.

Despite consumer concerns about privacy many online retailers provide very little information about how they handle consumers' information. A recent survey by Consumers International[19] found that only 17 per cent of sites enabled consumers to decline the receipt of future communications from the retailer, while only 14 per cent allowed consumers to opt not to have their information passed on to third parties. Although there would appear to be some indication that information disclosure in this area is improving,[20] many retailers do not appear currently to be addressing consumer concerns about privacy. It is also important to note that these surveys only look at whether businesses disclose their policies, not whether these policies are likely to meet consumers' expectations or conform to accepted guidelines in this area such as the OECD *Guidelines on the Protection of Privacy and Transborder Flows of Personal Data*.[21]

Clearly privacy represents a major concern to many consumers and on the assumption that this will lead to consumers avoiding sites that do not adequately address their concerns, it would be reasonable to expect that market pressure will lead to increased disclosure by businesses. However, due to the relatively high cost to consumers in analysing individual privacy policies and the technical knowledge required to do this, many consumers may simply decide not engage in transactions online.

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18 See, for example, the result of research by Forrester Research Inc. at http://www.forrester.com/ER/Press/Release/0,1769,177,FF.html.

19 Consumers International, *Consumers @ Shopping: An international comparative study of electronic conmmerce*, 1999, available at http://www.consumersinternational.org.

20 US Government Working Group on Electronic Commerce, 1999, op. cit., at page iv.

21 OECD, *Guidelines on the Protection of Privacy and Transborder Flows of Personal Data,* Paris, 1980, http://www.oecd.org.

Security

Concerns about security of payment mechanisms are, like privacy, often nominated by consumers as reasons not engage in online transactions.[22] Security generally consists of two distinct issues: the security of the payment information as it is transmitted through the Internet to the retailer, and secondly, the trustworthiness of the retailer.

The first issue is somewhat technical as it depends on the effectiveness of the encryption technology used in the transaction. However, for most consumer transactions liability for unauthorised transactions is not placed on the consumer.[23] Often the risk of making payments online is no greater than the risk that many consumers already take in making transactions offline. The major obstacle in this area would appear to be in educating consumers about the risks involved so that they can make fully informed decisions.

The second issue of how consumers can ensure that their security is not compromised by the business, either deliberately in the case of fraud or unintentionally, is more difficult. Consumers need to be assured that the business is bona fide and that it has appropriate procedures for handling sensitive information. The first of these is really broader than security and will be dependent on the reputation of the business as well as possibly third party endorsements. The second can be dealt with by information disclosure.

The recent study by Consumers International[24] suggests that businesses have responded to consumers' concerns about security, although globally only 61 per cent of sites clearly indicated that purchasing was secure and only 44 per cent provided additional information about the security mechanisms used, in the United States, Australia and Canada 80 per cent of sites indicated clearly that the site was secure. However, the number of sites in Australia providing additional security information was amongst the lowest at 13 per cent.

The introduction of more secure payment mechanisms is also likely to assist in reducing this inhibitor to online commerce.

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22 See, for example, http://www.nfow.com/nfointeractive/nfoipr81699.asp.

23 In Australia see proposals to modify the EFT Code of Practice at http://www.asic.gov.au/page-612.html This document also discusses the approach of countries including the United States.

24 Consumers International, 1999, op. cit., at 33.

Identification of business and contractual information

In addition to privacy and security, the disclosure of other information relating to the identity of a business and the terms and conditions of contracts is also important to engendering consumer confidence. The Consumers International Survey indicated that a significant number of sites are not providing information that would generally be required for consumers to make informed decisions about whether or not to make a purchase (see Table 2).

Table 2: Percentage of web sites providing information

Price	%	**Contractual information**	%
Total price clearly stated	76	Shown before purchase	27
Information on additional charges	40	Had to search for	29
Contact information		Not available	40
E-mail Address	83	Information on Returns	53
Address	72	Applicable law specified	23
Phone Number for Enquiries	74	Information on warranty	23

Source: Consumers International.

Third party certification

The emergence of third party verification online has been very rapid. There are already a large number of schemes operating (many based in the United States). Such schemes can help to engender consumer confidence and allow businesses without an existing reputation or brand to compete more effectively with those that are already known to consumers.

Third party schemes usually involve an operator who has an existing offline reputation as a trustworthy organisation (such as a bank, auditor or businesses association) allowing those traders who meet their conditions or code of practice to place a logo on their site. A form of alternative dispute resolution may also be included.

The market for these services is still very new and it is difficult to speculate about the future of these schemes but they do face a number of problems. The first is an increase in transaction costs, as a consumer needs to investigate thoroughly the conditions imposed on retailers to make an informed choice to trust the recommendations of a particular scheme. Although this may be worthwhile for one or two such schemes, if a consumer encountered a large number of such schemes or only encountered a particular one infrequently, it would be unlikely to be worth such an investment in understanding how the scheme operated.

Such schemes may also face the problem of how to deal with retailers who fail to live up to the conditions of the scheme. Potential sanctions include removal of authority to use a logo or expulsion from an industry association but in some circumstances, particularly where large retailers are concerned, there may be significant commercial pressures on schemes not to take such significant steps.

Overall impact

The sustained growth of the online retail marketplace will be influenced by the factors discussed above. Although there are clear benefits in lowering the cost structure of retailers, removing some intermediaries and promoting competition, the overall impact will not be known for some time. Correspondingly, a number of inhibitors, primarily the difficulties in establishing trust between retailers and consumers will clearly reduce consumer confidence and hinder the uptake of electronic commerce. But, similarly, it is too early to tell what their exact impact will be and at this early stage of development it is difficult to judge the ability of the market to solve these problems.