The Present Situation of E-Commerce and a Pilot Survey on E-Commerce

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1. Introduction

Following inclusion of index for PCs as a part of the 2000 revision, Japanese CPI was further enhanced with respect to IT-related categories by addition of indices for PC printers, digital still cameras and internet access fees in the 2003 minor revision. At present, plans for the next 2005 revision are discussed. One of the focal points related to the diffusion of information technology among consumers is the possibility of the expansion of e-commerce. In this context, the present situation of e-commerce has been analyzed based on the existing statistics, and a pilot survey was conducted in November of the last year in order to clarify the impact of e-commerce on price statistics. Price comparison between direct sales by manufacturers and sales by retailers was also conducted for PCs as a supplement to the pilot survey, taking it consideration that all PC makers have begun direct sales via the internet recently, and one of the makers specializing in direct sales has made a success of its business.

2. Present situation

As shown in Table 1, “order-from-remote-place” such as mail-order, teleshopping and “order-via-the-internet” was estimated to account for 1.8 percent of household spending for goods, and 0.8 percent of the total household consumption in 1999 (bank transfers, stock trade and reservation of purchases such as ticket reservation and hotel reservation by phone/fax or via the internet are excluded here.). Thus, e-commerce was minor in the consumer market just before the turn of the century (even if including ticket reservation and other services). Probably, e-commerce has been expanding its share with a rapid increase of internet users since the beginning of this century while the traditional “order-from-remote-place” business has slowed down. At present, we do not know the exact market share of e-commerce, which is to be obtained from a new survey soon. However, several known statistics seem to support a view that it still remains minor in the market:

a) About 10 percents of households make purchases using the internet in a month as shown in Table 3.

b) Frequency of purchase via the internet is only once in two months on average. Several surveys are available on this matter. All of them are about the same.

[1] The opinions expressed in this paper are those of the authors and do not represent official views of either Statistics Bureau or Statistics Center.

c) Spending for purchases via the internet is about 67,000 yen in a year on average according to a web survey for visitors at the website of some direct marketing traders association.

Based on a) and c), e-commerce is estimated to account for 0.1 – 0.2 percent of household expenditure. It indicates the share of e-commerce is still very small although it should be noted that a sample of such a type of survey cited in c) tend to be biased.

Table 1: Percentage of "order-from-remote-place"

	in the total consumption	in spending for goods
1994	0.7 %	1.5 %
1999	0.8	1.8

Table 2: Percentage of "order-from-remote-place" in specific categories

	PCs	Books & magazines	Audio & video disks	Clothes & footwear	Health fortification
1994	4.2 %	2.6 %	10.5 %	3.8 %	17.1 %
1999	4.7	4.0	15.1	3.4	28.7

Source: *The National Survey of Family Income and Expenditure,* Statistics Bureau, MPHPT

Table 3: Purposes of use of the Internet (monthly average in 2002)

There is a household member who used the Internet in the latest month	37.0 %
E-mail	29.0
Gathering information	32.3
Purchases (order, reservation) of goods and services via the Internet	8.8
Participation in auction	3.1
Bank transfer	2.5
Transaction in financial assets such as stocks, insurance	1.6
Others	1.9

Source: *The Survey of Household Economy,* Statistics Bureau, MPHPT

Table 4: Goods and services purchased by household heads via the Internet (Nov., 2001)

Ticket booking	40.3 %
Books & CDs	36.9
PCs & related items	32.6
Miscellaneous goods for hobbies	29.1
Accessories for a dress	24.6
Food	16.0
Tour reservation	13.6
Furniture, electrical appliances & household articles	12.7

Source: *The Communications Usage Trend Survey,* Information & Communications Policy Bureau, MPHPT
The above table shows a ratio of a number of household heads purchased the relevant commodity via the Internet to a number of all household heads made purchases via the Internet in the past year.

Table 5: Goods and services purchased via the Internet (Mar., 2001)

books & magazines	36.9 %
music CDs & videos	19.7
PCs	33.2
PC & game software	28.7
food, drink & liquor	34.3
Clothing, footwear & accessories for a dress	32.2
hotel & tour reservation	28.7
Cosmetics & goods for beauty treatment	16.4

Source: *The E-mail Survey on Internet Users,* Fujitsu Research Institute.
The above table shows a ratio of a number of persons purchased the relevant commodity via the Internet to a number of all persons made purchases via the Internet in the past 6 months.

As a whole, this new channel of distribution is considered to be a matter of marginal importance to the CPI compilation at present.

For all that, attention should be paid to the impact of e-commerce on price statistics because e-commerce has possibly already obtained or being expected to shortly obtain a certain portion of household spending for some specific categories. Several statistics indicate books, magazines and CDs are the most popular items in “order-via-the-internet”. However, as such items are sold at uniform prices due to the resale price maintenance system, the accuracy of price index has not been affected by prosperity of online bookstores or CD shops so far. This fact indicates that consumers prefer “order-via-the-internet” for the reason of convenience in some cases; they do not always search online shops for lower prices. On the other hand, as for other items possibly promising in the net-world such as PCs, users’ motivation to choose the online market has not yet been clarified.

3. Pilot survey for price comparison between sales on the internet and sales at retail shops

In order to clarify price differences between e-commerce and traditional retail at shops, a survey for price comparison between both channels of distribution was conducted in November of the last year as a part of a quinquennial cross-sectional price survey named the “National Survey of Prices”[2]. Because of practical reasons such that there is no reliable register of e-commerce business, and it is difficult to identify equivalent products regarded as representative in both new and traditional channels of distribution in many cases, the price comparison was conducted as a pilot survey, focused on prices of six kinds of electrical products: PCs, PC printers, digital still cameras, digital video cameras, DVD players and handy audio players. These products were selected based on the fact that PCs and related products such as PC printers are the most popular category in “order-via-the-internet” after books, magazines and CDs, and the rest four items also seem to be purchased via the internet

[2] The National Survey of Prices aims at investigating characteristics of retail stores having influence on price level such as location, size and type of stores. The regional difference index of consumer prices is compiled from the results of this survey.
See Tomohiko Sato, “Outlet Sampling Method on the 1997 National Survey of Prices”, the 4th Ottawa Group meeting, Washington, April 22 – 24, 1998.

by preference in addition to an advantage in that it is easy to identify specific products in these items.

About 300 traders in e-commerce were searched at portal sites or picked up from a list of members of direct marketing traders association. Questionnaires were mailed to them, and mailed back to our office after filling out questionnaires. In addition to a report of prices of products specified on the questionnaire, we asked them to provide basic characteristics of their business such as type of organization and size, and also give answers whether they put prices different from those of sales at stores in the case they owned retail shops. Since the main results of the National Survey of Prices need to be tabulated and released first, results of the pilot survey is not yet available.

4. Price comparison between direct sales by makers and sales at electrical stores

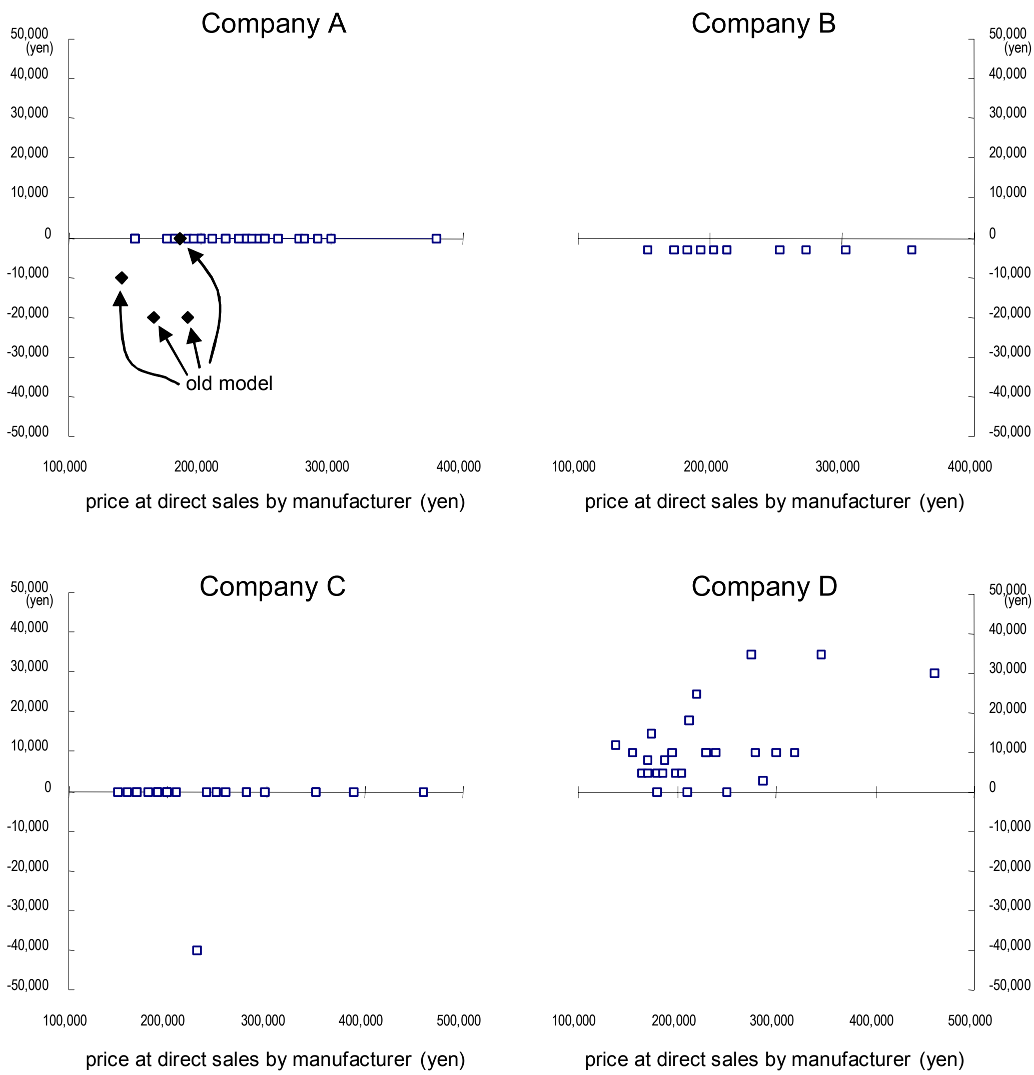
Besides the pilot survey, price comparison between direct sales by makers and sales at electrical stores were conducted for PCs as a supplement to price comparison between online retailers and traditional retailers by the pilot survey. Four major PC makers not specializing in direct sales and a major PC maker specializing in direct sales were selected. Prices at their website for direct sales were compared with prices of the same products at six major electric stores in Tokyo as to the former four companies.

As shown in Chart, results vary from company to company. In the case of company A, prices at direct sales are identical with those of major stores except old models disappearing from the market. Old models tend to be priced much lower by major retailers. Company C is in a similar situation. However, there is a difference in that old models have already disappeared in the case of company C. One of the new models is priced much lower by major retailers instead. This model is a handy type, and considered to be special. In the case of company B, all models are priced slightly lower by major retailers. The Price gaps are constant to 3,000 yen in all models.

The cases of company A, B and C imply there is a strong relationship between prices at makers' direct sales and major retailers, and prices are not so different at the time new models appear in the market although we speculate that retailers reduce prices afterward while makers do not change the prices. To the contrary, company D offers lower prices at its website than major retailers. One notable difference from the other three companies in its sales policy is that model numbers assigned for direct sales are different from those of sales at shops. It is possible for consumers to identify an equivalent product and compare the prices based on information accessible at the website but it is not easy work and takes time for consumers not acquainted with PCs. This fact may form the sharp contrast with the other three companies.

As for makers specializing in direct sales, it is not possible to make price comparison by matched models. Thus, we chose basic models manufactured by a major maker specializing in direct sales (company E), and estimate prices of equivalent products at electric stores using hedonic regression models used for the regular CPI compilation derived from scanner data collected at major electric stores across the country. It should be noted that sometimes a significant difference between the actual price and the estimated price comes out due to differences in characteristics which are not included in the regression model explicitly. For example, almost all note PCs made by other makers are equipped with CD-RW & DVD-ROM combo drive. Therefore, types of optical disk drive are excluded from explanatory variables in our regression model. However, basic models of the company E are equipped with CD-ROM drive, and such a difference is not ignorable for price comparison. For this reason, we added some adjustment to estimated prices derived from the hedonic regression model. Our final estimation indicates prices are about the same with equivalent products manufactured by other companies as shown in Table 6.

Chart: Price difference between major electric stores – direct sales by manufacturers (PCs, Feb. 9, 2003)



Source: Prices at major electric stores were obtained from Nikkei PC Price Survey.
Prices at directly sales by manufacturers were picked up from their website.
Prices at 6 major electric stores in Tokyo were collected. An average is taken for each model after excluding the lowest and the highest prices, from which the corresponding price at direct sales by the maker is subtracted.

Taking all these results into consideration, as for PCs, we rather lean towards a view that price differences between direct sales by makers and sales by retailers are not so large that CPI compilers need to be worried about, with the proviso that further observation should be made particularly about companies putting a great deal of effort into direct sales such as company D and E.

5. Notes at the end

Since results of the pilot survey are not yet available, we feel it is not appropriate to draw the conclusion at this moment. Instead, we would like to mention some points. First, goods and services purchased via the internet – i.e. market basket for e-commerce – are expected to change gradually with an increase of female and elderly internet users. It is known that female users tend to prefer purchasing food and clothes via the internet while male users tend to prefer purchasing books, magazines and PCs. Therefore, price comparison covering a wider range of categories will be possibly required in the future. Next, in our experience, it is not difficult to find lower prices on the internet than major electrical stores as for PCs but usually sellers offering the good prices are not well known. As far as we know, there is no report that major electrical stores are defeated by online stores in price competition. Our impression is that direct sales by makers rather attract considerable attention. Several surveys revealed that many internet users feel insecure to spend a large amount of money for online shopping. Therefore, we may need to consider a possibility that lower prices offered by almost-unknown online shops do not necessarily have much effect on price index. The change in the market share should also be watched to evaluate the impact on price index.

Table 6: Actual price and estimated price of PCs sold by some maker specializing in direct sales (company E)

(yen)

	Desktop		Note	
	Actual	Hedonic	Actual	Hedonic
Oct. 2001	122,000 1)	111,578 2)	166,925 1)	151,121 2)
Oct. 2002	164,050 1) 170,800 3)	182,461 2)	177,300 1)	179,000 2) 154,284 4)

1) *Average of 4 basic models is taken. Price of 15 inch TFT-LCD display is added in the case display is optional.*
2) *The corresponding prices at electric stores are estimated using hedonic regression parameters for the official CPI compilation.*
3) *Price of optional I/O devices such as modem, stereo speakers are added. (Other makers' PCs are usually equipped with such devices, so explanatory variables for those devices are omitted from hedonic regression model.)*
4) *After quality adjustment of CD-ROM drive relative to CD-RW & DVD-ROM combo drive. (All basic models are equipped with CD-ROM drive while other makers' note-PCs are usually equipped with CD-RW & DVD-ROM combo drive, so explanatory variables for various types of optical disk drive are omitted from hedonic regression.)*