

**2000 Base Corporate Goods Price Index
Hedonic Regression Model for Quality Adjustment¹
– Video Cameras–**

The Bank of Japan compiles the index of “video cameras” in the 2000 base Corporate Goods Price Index (CGPI). When the sample prices of this commodity surveyed for the compilation of the index are replaced, the quality difference between old and new sample prices are adjusted by the hedonic regression method.² The Bank updated the hedonic regression model. The details of the estimation are as follows.

- I. The price data for video cameras are retail prices at the large-size household electrical appliance retailers of all parts of Japan, taken from a Point of Sales (POS) data of GfK Marketing Services Japan Ltd.
- II. Spec. data for each product are taken from the GfK data base and brochures of the products.
- III. The sample range for analysis is the last 8 quarters, and the number of the observations is 84. The data from 2005/Q3 to 2007/Q2 are used to estimate the hedonic regression model, which is adopted from August 2007 for the CGPI. When the observations include the data of the same products as shipped in consecutive quarters, the first data is selected.³

¹ For more detail, see the “Explanation of Corporate Goods Price Index (CGPI)” on the Bank of Japan (BOJ) website, <http://www.boj.or.jp/en/theme/research/stat/pi/cgpi/index.htm>.

² The hedonic regression method is one of the quality adjustment methods. This method is used to calculate the part of the price changes that correspond to the change in quality accompanying the shift to the new sample prices.

³ The sample price of CGPI is usually replaced by the price of corresponding new product soon after its release. Therefore, use of first observation of the data to estimate may be the best corresponding to quality adjustment of the sample price.

(Appendix)

Estimation Result for Video Cameras

	2005/3Q-2007/2Q	(Ref.) 2005/1Q-2006/4Q
Box-Cox Parameter	0.050	-0.115
Estimated Model	Box-Cox Model	Box-Cox Model
Intercept	-11.748 ***	5.951 ***
LCD Size (inches)	46.211 ***	0.091 **
Box-Cox Parameter	-2.831	0.779
Effective Pixels of Moving Pictures (10k pixels)	7.425 ***	0.028 ***
Box-Cox Parameter	-0.618	0.137
Recording Systems		
DVD	--	0.036 ***
HDD	0.558 ***	0.096 ***
Hi-Vision	0.611 ***	0.105 ***
Shake Reduction		
Optical	0.199 ***	0.039 **
Flash	--	0.055 ***
Dummy for Producer		
Producer A	--	-0.034 **
Producer B	--	-0.095 ***
Dummy for Period		
2006/1S	--	
2006/2S	-0.343 ***	
2007/1S	-0.452 ***	
(Ref.) Dummy for Period (Previous estimation)		
2005/2Q		--
2005/3Q		--
2005/4Q		--
2006/1Q		--
2006/2Q		--
2006/3Q		-0.094 ***
2006/4Q		-0.091 **
Adjusted R ²	0.786	0.722
Mean of Dependent Variable	15.235	6.340
Standard Error of Regression	0.248	0.043
Number of Observations	84	77

Notes:

1. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.
2. The coefficients estimated above are White heteroscedasticity consistent estimator.
3. In the column of Dummy for Period above, "Q" denotes quarter and "S" denotes semester.