

**The 2005 Base Corporate Goods Price Index
Hedonic Regression Model for Quality Adjustment¹
– Servers –**

The Bank of Japan (BOJ) compiles the Corporate Goods Price Index (CGPI) which focuses on the prices of goods traded among corporations. BOJ surveys the prices of the representative products in each commodity category and when they lose their representativeness in the market, they are replaced accordingly. To account for price changes with the quality being constant, quality adjustments between old and new products need to be done. BOJ employs various quality adjustment methods and hedonic regression method is one of them. BOJ updated the regression model for “servers.” See the appendix 1 for the results.

The details of samples for the estimation are as follows.

- I. The price data for servers are taken from “Japan Server Market Study,” the IDC Japan database.
- II. Specifications for each product are taken from the IDC database.
- III. The number of the observations for servers is 122 . The data from 2010/Q4 to 2011/Q3 are used to estimate the hedonic regression model, which is adopted from February 2012 for the quality adjustment. When the observations include the data of the same products as shipped in several quarters, the first data are used for the estimation².

¹ For more details, see the [Outline of “Corporate Goods Price Index \(CGPI, 2005 base\)”](#) on BOJ website.

² Sample prices of CGPI are usually replaced by the prices of corresponding new products soon after the release. Therefore, the use of the first observation to estimate may be the best corresponding to quality adjustment of sample prices

Estimation Result for Servers

Estimated Model	2010/Q4~2011/Q3	(Ref.) 2009/Q4~2010/Q3
	Log-Linear Model	Box-Cox Model
Box-Cox Parameter of Dependent Variable	--	-0.107
Intercept	9.846 ***	6.545 ***
Processors/Standard Supported Quantity	0.388 **	0.368 **
Box-Cox Parameter	--	-3.075
Cores/Processor	0.586 ***	0.635 ***
Box-Cox Parameter	--	-1.678
Standard HDD (GB)	0.164 *	0.002 *
Box-Cox Parameter	--	0.426
Dummy Variables		
Socket Capability not less than 4	--	0.183 ***
Processor Type		
Xeon5000 sequence	0.198 *	0.083 **
Xeon7000 sequence	0.820 ***	0.180 ***
XeonE7 sequence	0.870 ***	--
Redundancy		
FAN and PSU	0.436 ***	0.066 *
Memory	0.435 ***	--
Producer		
Producer A	0.509 ***	0.065 **
Producer B	0.496 ***	0.109 ***
Producer C	--	-0.080 *
Producer D	0.915 ***	--
Producer E	0.826 ***	--
Producer F	0.420 ***	--
Period		
2010/Q1	--	-0.102 **
2010/Q2	--	-0.135 ***
2010/Q3	--	-0.145 ***
2011/Q1	-0.126	--
2011/Q2	-0.056	--
2011/Q3	0.160	--
R ²	0.888	0.825
Adjusted R ²	0.870	0.801
Standard Error of Regression	0.345	0.098
Mean of Dependent Variable	13.119	7.067
Number of Observations	122	110

Note:

1. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.