

**Hedonic Regression Model for Quality Adjustment  
in the Corporate Goods Price Index and the Services Producer Price Index  
- Tablet Computers -**

To account for price changes with the quality being constant, quality adjustments between old and new sample prices need to be done. The Bank of Japan employs various quality adjustment methods and hedonic regression method is one of them<sup>1</sup>.

The Bank has updated the hedonic regression model for tablet computers. See the appendix for the result. This hedonic regression model is used for "Notebook computers" (Producer Price Index, Export Price Index, and Import Price Index) and "Computer rental" (Services Producer Price Index).

The details of samples for the estimation are as follows.

- I. The price data for tablet computers are taken from "BCN Ranking," the BCN Inc. database. The price data are retail prices at the large-size electrical appliance retailers.
- II. Specifications for tablet computers are taken from the "BCN Ranking" and the brochures.
- III. The number of the observations for tablet computers is 102. The data from 2015/Q1 to 2015/Q4 are used to estimate the hedonic regression model, which is adopted from March 2016 for the quality adjustment.

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<sup>1</sup> For more details, see the [Outline of the Corporate Goods Price Index \(CGPI, 2010 base\)](#) and the [Outline of the Services Producer Price Index \(SPPI, 2010 base\)](#) on the Bank's website.

Estimation Result for Tablet Computers

	2015/Q1-2015/Q4	(Ref.) 2014/Q3-2015/Q2
Estimated Model	Double Box-Cox Model	Double Box-Cox Model
Box-Cox Parameter of Dependent Variable	0.474	0.421
Intercept	-316.936 ***	-84.304 ***
Clock Speed (MHz)	--	1.303 ***
Box-Cox Parameter		0.498
Main Memory (MB)	54.791 ***	1.282 ***
Box-Cox Parameter	2.393E-03	0.366
Display Size (inches)	0.207 ***	5.591 ***
Box-Cox Parameter	2.698	1.196
Display Resolution (pixels)	1.740E-07 ***	1.181E-09 *
Box-Cox Parameter	1.314	1.567
Solid State Drive (GB)	16.081 ***	5.716 ***
Box-Cox Parameter	0.229	0.334
Battery Life (hours)	10.748 ***	7.002 ***
Box-Cox Parameter	0.602	0.293
Dummy Variables		
CPU/OS		
Core i3	--	29.139 *
Core M	37.885 **	32.227 ***
iOS	--	37.060 ***
Windows 8.1 Pro 64bit version or Windows 8.1 Pro Update 64bit version	--	32.941 ***
Windows 8.1 Pro 64bit version or Windows 8.1 Pro Update 64bit version or Windows 10 Pro 64bit version	61.756 ***	--
Pre-installed Application		
Microsoft Office Home and Business 2013	--	7.948 **
Standard Accessory		
Keyboard	33.154 ***	21.637 ***
Producer		
Producer A	--	85.679 ***
Producer B	51.654 *	38.448 ***
Producer C	80.180 ***	25.888 ***
Producer D	--	-16.020 ***
Producer E	118.181 ***	39.669 **
Producer F	--	-23.300 ***
Producer G	--	29.910 ***
Period		
2014/Q4	--	0.960
2015/Q1	--	-4.610
2015/Q2	-2.406	0.645
2015/Q3	12.585	--
2015/Q4	10.660	--
R <sup>2</sup>	0.960	0.958
Adjusted R <sup>2</sup>	0.954	0.949
Standard Error of Regression	29.175	12.662
Mean of Dependent Variable	346.618	210.292
Number of Observations	102	118

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