Measurement of Process and Product Innovations in the LCD TVs in Japan

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Economic structure, or may it be an input-output system, can be better modeled by considering both quantitative and qualitative transitions. This study attempts to measure how much quality bettered while price lessened from the consumers' point of view, in a single but differentiated market, with the intention of decomposing innovations to the analysis in productivity. Particularly, we estimate the welfare gain from innovations in the LCD TVs that prevailed during the period 2005--2007 in Japan, via consumer surplus that we measure with the aid of discrete choice methods, using market data obtained from an internet price comparison service (Kakaku.com). Further, by the measured implicit values of attributes, we evaluate in monetary terms, the qualitative transition embedded in the attributes through the iso-consumer-surplus planes. We thereby disaggregate the welfare gain into the qualitative and the budgetary components, which we call the quality gain, and the budget gain, respectively. The estimates show, along with the evolved process of innovation, that the quality gain was in the order of 381 KJPY, while the budget gain was 94 KJPY negative, which gives about 287 KJPY of overall welfare gain per consumer, during the period.