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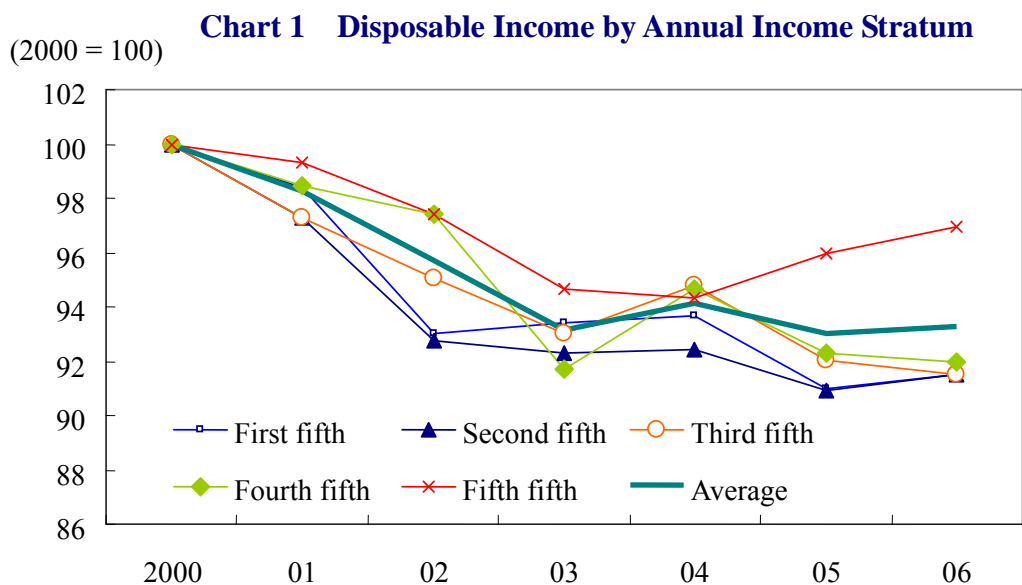
The Measurement of “Affluence” in a Deflationary Economy

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The present economic recovery has lasted longer than the “Izanagi Boom,” which lasted from October 1965 through August 1970. Nevertheless, it is often argued that despite strong corporate performance, the household sector has not felt “affluent” yet. This study defines the “affluence” perceived by households as a change in the welfare of consumers and measures it in monetary value to examine whether or not the welfare of households has improved since 2000.

A Decline in Disposable Income

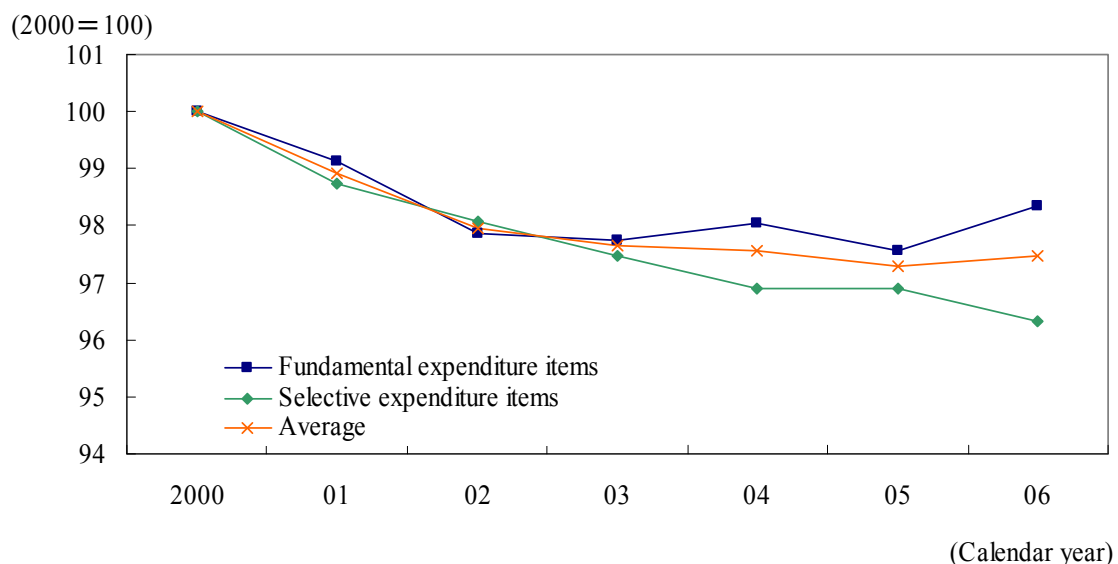
The simplest means of measuring “affluence” is to examine nominal wages and disposable income. An examination of the nominal disposable income of different income strata since 2000 shows that while it has been declining in many strata, that of the highest income stratum has been increasing since 2004 (Chart 1). However, nominal disposable income has not returned to the level of 2000 in any stratum. This is one of the reasons that the present economic recovery is not accompanied by a sense of “affluence” in the side of consumers.



Note: The “fifth fifth” denotes the highest income stratum. (Calendar year)

In order to measure “real” affluence, it is necessary to measure the effect of price changes resulting from deflation as well as the drop in disposable income. The extent of these price changes varies depending on goods and services. When goods are divided into the two major categories of items of selective expenditure, such as household appliances and automobiles, and items of fundamental expenditure, such as food and other necessities, it is found that the prices of the former have declined more sharply than those of the latter. Thus, their relative prices have changed significantly (Chart 2). It is assumed that an increase in real income resulting from overall price decline will contribute to a rise in perceived “affluence.” However, the change in relative prices means that the impact of price decline varies considerably by income stratum.

Chart 2 Changes in Price Levels



Price Decline Increases Welfare

The following is an examination of the impact of price changes on households from the perspective of the theory of consumption demand. Specifically, a simple consumer equilibrium model is assumed based on data on worker households from Family Income and Expenditure Survey to estimate demand function and expenditure function derived from a certain utility function. Then, the concept of equivalent variation¹ is applied to the

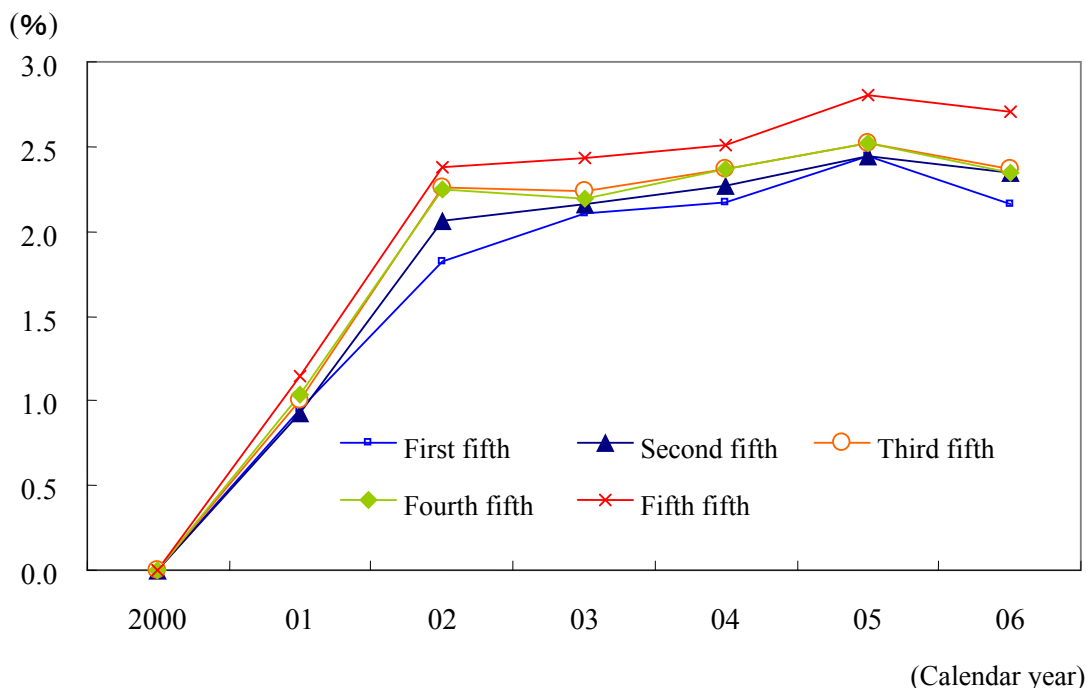
¹ Stone-Gary type utility function is used, in which utility is assumed to be obtained from “quantity subtracting the absolutely necessary quantity a_i from the purchased quantity X_i of each good”. Specifically, when β_i is the propensity to spend, $U = \sum \beta_i \log (X_i - a_i)$ (provided $\sum \beta_i = 1$). Equivalent variation is a concept, which measures how much income should be given (or taken away) to achieve the actual utility in each fiscal year if the original price structure (in this case, the price structure of 2000) has remained unchanged. This is obtained by subtracting the actual amount of expenditure in each fiscal year from the minimum amount of expenditure (in 2000 prices) necessary to achieve the utility of each fiscal year. Conversely, compensation variation ascertains how much income should be taken away (or given) under the new price structure to achieve the original level of utility. The difference in the outcomes is not significant regardless of which variation is applied.

figures obtained from this process to arrive at the amount of income equivalent to the effect by deflationary price decline.

Chart 3 shows changes in equivalent variation by annual income stratum. The decline in price levels resulting from the deepening deflation increased welfare for all strata. In 2006, there were gains of 2-3 percent of disposable income as compared with the 2000 levels.

However, the welfare of high-income earners was consistently higher than that of low-income earners. This is because the benefit was greater for high-income earners, for whom the ratio of selective expenditure is higher than for low-income earners, because the prices of items of selective expenditure declined more sharply than those of items of fundamental expenditure.

**Chart 3 Welfare from Price Changes by Annual Income Stratum
(As compared with 2000 disposable income)**



Sources: *Annual Report of Family Income and Expenditure, The Consumer Price Index*,
The Ministry of Internal Affairs and Communications

Perceived “Affluence” Varies Depending on Income Stratum

When viewed together with the changes in disposable income shown in Chart 1, the effect of this positive welfare resulting from price decline was to act as an invisible bonus, which partially mitigated the negative impact of the decline in nominal disposable income of all income strata.

In total welfare, high-income earners are already beginning to feel “affluent” again, as their benefit from the price decline was larger than in other income strata and as their disposable income had already begun to increase again.

On the other hand, since recovery in disposable income is stagnant for low-income earners and their benefit from the price decline has been relatively small, it is possible that they are lagging behind high-income earners in feeling “affluent” again.

This gap in the welfare effect of price decline on different income strata may be one of the reasons why debate on so-called “income inequality” continues unabated.

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