

GDP Concept and the GPI

Mitsuhiko IYODA *

Abstract

GDP is a widely used category, which measures economic growth, and the government for public policy decisions uses that, and so on. A well-known fact is, however, that “GDP is not a measure of economic welfare.” This paper explores weaknesses of the GDP concept: (1) market failures in the measurement of GDP, and (2) the conceptual distortions or limitations viewed from the viewpoint of welfare. Then we deal with one of the recent developments of welfare concern, the Genuine Progress Indicator (GPI), and the question.

Key words: welfare viewpoint, *GDP*, *GNP*, *GPI*.

JEL: E01, I31, P46.

1. Introduction

The Stiglitz-led commission report (Stiglitz, Sen and Fitoussi ed., 2009)¹ was released in 2009, which raised metrics questions. Stiglitz says that national income statistics such as *GDP* and *GNP* were “originally intended as a measure of market economic activity, including the public sector,” which is not a measure of societal wellbeing. The current national accounts are flawed statistics, so Stiglitz proposes reforms that will better measure wellbeing. “What we measure affects what we do. If we have the wrong metrics, we will strive for the wrong things. In the quest to increase *GDP*, we may end up with a society in which most citizens have become worse off.” He also says, “*GDP* will, of course, continue to be used as a measure of market activity, though hopefully the reforms that we propose will make it a better measure of that.”

This paper aims at explaining some weaknesses of the *GDP* concept, and a developed indicator from the welfare viewpoint, the Genuine Progress Indicator (*GPI*). *GDP* is a widely used category, which measures economic growth, and the government for public policy decisions uses that, and so on. A well-known fact is, however, that “*GDP* is not a measure of economic welfare.” Economic growth brought to material and service improvement; however, it also brought to environmental disruption, inflation, congestion problems, and left some household groups in poverty. People gradually recognized the cost of economic growth. To equate the growth of *GDP* with that of economic welfare became seriously questioned. Japan performed an average of 10 percent growth for about

* Professor of Economics, St. Andrew's (Momoyama Gakuin) University. This paper is primarily based on Iyoda (2008, 2010). See also Iyoda (2011, chap. 11).

¹ The Commission on the Measurement of Economic Performance and Social Progress (*CMEPSP*) chaired by Joseph Stiglitz, a Nobel prize-winning professor at Columbia University released a final report in September 2009. The Commission was set up in 2008 at the request of Nicolas Sarkozy, president of France, who was concerned about popular distrust of economic statistics. (See, Financial Times, “Towards a better measure of well-being (by Joseph Stiglitz),” September 4, 2009).

20 years beginning from the early 1950s. Japan was one of the most serious countries involved in those problems.

Some economists considered these phenomena seriously in early stage. Kapp (1950), Galbraith (1958), and Mishan (1969) were such examples in the broad sense. Various questions of *GNP*² were raised: market failures in the measurement of *GNP*, distortions or limitations of the *GNP* concept viewed from the viewpoint of welfare. Having understood correctly the property of *GDP* concept, we could not have extravagant expectations for economic growth expressed in terms of *GDP*.

This paper is organized as follows. The next section deals with some weaknesses of the *GNP* (applied to *GDP*) concept. Section 3 deals with a recent development of welfare concern, *GPI*, and the question.

2. Weaknesses of the *GNP* (applied to *GDP*) Concept

2.1 Market failures in the measurement of GNP

Tsuru (1992, p. 141) explains the concept of *GNP* as that “is predicated on the exchange of goods in the market, and is intended to cover these goods and services that are exchanged in the market.” “As a corollary to this, it may be added that the unit of measurement of *GNP* is money value as registered in the market.”

We examine market failures in the measurement of *GNP* from both theoretical and factual points. Tsuru mentions this matter in brief as follows (ibid., pp. 141-2). The measurement of *GNP* is based on the following three italicized assumptions; however, all are questionable. First, *external effects, either negative or positive, are unimportant*, whereas negative external effects such as pollution are often serious enough. Second, *the condition of consumer sovereignty is obtained*; however, manufacturers often make the market and we often observe demonstration and dependent effects³. Third, *the failure of the reward system, for whatever reason, is of little consequence*, whereas discriminatory bias, particularly inheritance, provides great fortunes to a select group of persons independently of their own efforts.

We may call these as theoretical and factual failures in the measurement of *GNP*. If these market failures are considered significant, a longer-range association between the size of *GNP* and the magnitude of economic welfare cannot be predicted.

2.2 Distortions or limitations of the GNP concept viewed from the viewpoint of welfare

We now explain various market distortions of the *GNP* concept viewed from the welfare viewpoint. First, the *GNP* unit of measurement is money value determined by the market. Therefore, nonmarket activities are excluded. Excluded examples are the quality of consumer goods (efficiency, durability, etc.), housekeeping work, and voluntary activities. These are very important from the viewpoint of welfare or the quality of life.

² The *GNP* concept had been conventionally used until an introduction of 93*SNA*. We follow this conventional expression in dealing with research and discussion in those days, but the discussion is mostly applied to the current *GDP* concept.

³ The demonstration effect means that individual's behavior is affected by other consumer's behavior. The dependent effect is that the clever and eye-catching marketing strategy affects individual's choice of goods and services and makes consumers purchase what they do not really need.

Business activities are profit-oriented, so that the product durability will not always be their primal aim, for example.

On the other hand, all market activities are included in *GNP*. *GNP* includes negative externalities (pollution), real estate transactions, and military products. These items increase *GNP*, but are negative or irrelevant to welfare. Tsuru (1992, pp.142-5) classifies four types as non-welfare components of *GNP*, meaning that their welfare significance is questionable. (1) “The cost of life” type (heating costs in a cold climate, high commuting cost, expensive burglar alarms, and so on). (2) “The interference of income” type (lawyers in the United States, bankers, real estate dealers, and tutoring schools in Japan). (3) “The institutionalization of waste” type (during the high growth period of postwar Japan, the deliberate obsolescence of consumer durables such as cameras, refrigerators, and television sets). (4) The depletion of social wealth (earth’s mineral deposits, forestry and marine resources, natural beauty and other environmental endowments).

Our second point is that *GNP* is not a stock but a flow category, although imputed rent of dwellings and the depreciation of tangible infrastructures are included. The latter had not been considered until the current 93*SNA*. From the quality of life viewpoint, actual conditions of household asset holdings and living infrastructures are important. Third, *GNP* does not imply the degree of equality of income distribution and social security. We can examine part of income distribution and social security on a macro economy by using national income data, but the data are not sufficient for these closer examinations.

Lastly, we refer to the fundamental question of the *GNP* concept that reflects the money value registered in the market. The market is predicated by the “money votes” of final consumers where the rich and the poor are indifferent in terms of voting dollar rights. As a result, the composition of produced goods and services reflects what rich people consume. However, the marginal utility of income between the rich and the poor is greatly different, so that the market could be distorted. Suppose rich people spend a large amount of money on their pets or some extremely extravagant consumption, then a great amount of goods and services will be used up by these expenditures. This may have a significant negative effect to the satisfaction level for society as a whole.

3. Toward a Welfare Viewpoint (*GPI* and the question)

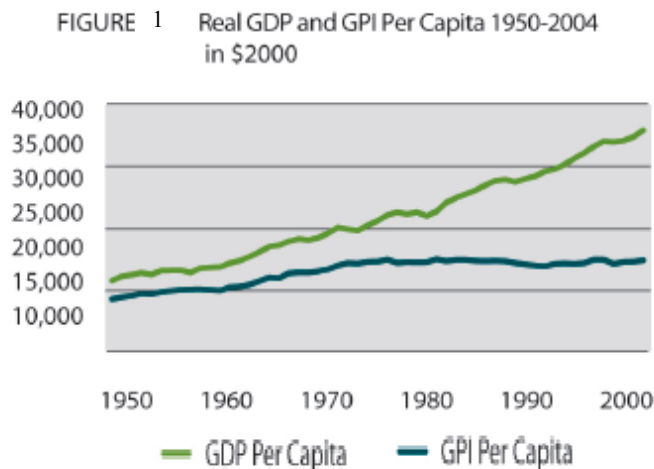
It is now clear that *GNP* itself does not represent the quality of life or the welfare level. To cope with these drawbacks, Nordhaus and Tobin (1971) who constructed a “Measure of Economic Welfare” (*MEW*) conducted the pioneering work. See also NNW Development Committee, Economic Council (1973) for the Net National Welfare (*NNW*) of Japan. Further improvements along this line are *GPI* and the same sort of Index of Sustainable Economic Welfare (*ISEW*). Developments in a broader aspect are social indicators, and the measurement of happiness. Dealing with these matters is important but beyond the aim of this paper. Here, I briefly mention *GPI*.

3.1 The *GPI*

GPI (or the same sort of *ISEW*) is constructed by incorporating various aspects of economic wellbeing that are either ignored or treated incorrectly in *GDP*. Largely omitted are contributions of family and community, and the natural environment. “Both *GPI* and *ISEW* use the same personal consumption data as *GDP* but make deductions to

account for income inequality and costs of crime, environmental degradation, and loss of leisure and additions to account for the services from consumer durables and public infrastructure as well as the benefits of volunteering and housework” (Talberth et al., 2007, p.1). The *GPI* “attempt[s] to undertake: (1) welfare equivalent income; (2) sustainable income, and (3) net social profit” (ibid., p.3). The social cost of inequality, the diminishing returns to income received by the wealthy, and the depletion of nature’s endowments are now taken into consideration. Net social profit is a measure of policy effectiveness, indicating whether or not the proposed policy is welfare enhancing.

Figure 1 shows the per capita *GPI* (lower line) and the per capita *GDP* (upper line) in the United States (1950-2004). The per capita *GDP* was steadily increasing; however, the per capita *GPI* was growing until the mid-1970s, and then stagnating. The gaps between these indicators have been wider and wider since the mid-1970s. A similar example is observed in the United Kingdom (1950-96) (see Jackson, et al., 1997). For Australia (1950-2000), the per capita *GPI* is growing but very slowly (Hamilton, 2004, Fig. 10 quoted from Hamilton and Dennis, 2000). The gaps between these indicators have become ever wider. The figure may suggest what is more important in the society. We will not have a truly satisfied society unless we consider values other than growth of income.



Source: Talberth, et al. (2007), Fig. 3.

3.1 Some questions about *GPI* for consideration

To cope with distortions in the *GDP* concept viewed from the welfare viewpoint, *GPI* was constructed by revising *GDP*. The idea is to subtract the non-welfare items (pollution, military expenditure, commuting time, and so on) from *GDP* consumption, adding welfare-related items by monetary assessment (leisure time, housekeeping work, voluntary activities, and so on) to this. Services of most of the living infrastructures and durable consumer goods are added. This index derived from 26 time-series data signifies the welfare level better than that of *GDP*.

There are, however, some questions about *GPI*. First is value judgment. How can the welfare significance of any particular goods or services be determined? The values of some items are easy as they are determined by people. There exist other difficult items to

ascertain their values. Second, how do we assess the value of non-market activities? The opportunity cost, in general, may apply to housekeeping work, leisure time, voluntary activities, and so on; however, the opportunity cost varies from item to item, which needs deliberate consideration.

Third, there is not an effective demand for most of the assessed non-market activities because they are not based on money related real transactions. The last point has a serious flaw if we want to use this *GPI* concept for macroeconomic policies. For example, a stay-at-home spouse's work is equivalent to 253,000 yen⁴ per month, but she cannot buy anything by this assigned value.

The *GPI* is a step forward in the measurement of welfare, but it is a weak tool for determining policy. While *GPI* is useful for assessing economic results (performance) in terms of welfare, can it become a substitute for the current *GDP*? How can we reform the *GDP* that expresses economic activities and will be used for a macroeconomic policy? The question remains. (See further discussion on this matter for Iyoda, 2010, Section 9.4).

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⁴ According to fiscal year 1996 data by Department of National Accounts, ERI of EPA (1998, table 1), a full-time housewife's work, which was measured by the method of opportunity cost, was equivalent to an annual income of 3.04 million yen. By adding this total, the *GDP* increased 23.2 percent.

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