THE MISALIGNMENT OF STANDARD NATIONAL ACCOUNTING AGGREGATES WITH SUSTAINABILITY OBJECTIVES

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Summary

This chapter explores the misalignment between standard national accounts and sustainability objectives. Standard national accounts cannot directly measure sustainability. Standard national accounts are important economic indicators but they were neither designed for, nor intended to be, indicators of sustainability. At best, standard national accounts can be adapted to be more closely aligned with indirectly measuring the achievement of sustainability objectives.

Standard national accounts were developed primarily to assist policy makers predict and smooth market cycles. Standard national accounts aggregate economic activities that are valued in monetary terms. Gross Domestic Product (GDP) is the most cited statistic within these accounts. GDP is the total value of final goods and services at market prices produced in an economy during a specific period. It excludes income earned by domestic residents from overseas investments but includes income earned in the domestic economy by non-residents. Estimation of GDP does not involve any deduction of the value of expenditure on capital goods for replacement purposes. Since their inception, standard national accounts have assumed a greater importance then originally envisaged by their developers. GDP has become a main indicator of not only economic success, and but also social and political success.

Sustainability has been defined in many ways and a universal understanding does not yet exist. However, the most widely accepted objective of sustainability is the ability of the present generation to meet their own needs without compromising the ability of future generations to achieve their needs.
This chapter provides a brief history of the development of the system of national accounts before reviewing various sustainability issues. It then discusses various attempts to align standard national accounts with achieving sustainability objectives.

1. Introduction

This article explores the misalignment between standard national accounts and sustainability objectives. Standard national accounts cannot directly measure sustainability. They are important economic indicators but they were neither designed for, nor intended to be, indicators of sustainability. At best, standard national accounts can be adapted to indirectly measure the achievement of sustainability objectives.

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This chapter is structured as follows: Section 2 provides a brief history of the development of the system of national accounts. Section 3 reviews sustainability issues. Section 4 discusses various attempts to align standard national accounts with achieving sustainability objectives. The conclusions of the chapter are given in Section 5.

2. A History of National Accounts

The development of a system of standard national accounts has been acclaimed as the "achievement of the century" for its role in winning World War II, stabilizing economies and promoting prosperity. For politicians, the growth of national accounting aggregates, popularly represented by GDP, provides a positive message of ever increasing prosperity to share with their constituents.

The concept of calculating a nation's total product predates the development of the current system of standard national accounts. It was first explored in Petty's *Political*

Arithmetik, Smith's *Wealth of Nations* and Marshall's *Principles of Economics*. However, the modern approach became necessary due to the Keynesian macro-management of the economy dating from the Great Depression. In order to manage business cycles, accurate data on economic activities were necessary.

The development of these accounts were given further impetus during World War Two when an understanding of the economic capacity of the Axis powers to continue the war effort was sought by the United Kingdom and the United States. The Australian economist Colin Clark was one of the major architects of these modern accounts, but it was American Simon Kuznets who codified and standardized the framework and methodology.

The international community quickly recognized the benefits of measuring nations' economic activities. Under the auspices of the United Nations, standard methodologies for calculating a country's national accounts were first released in 1953. This common set of rules was modified in 1968 and again in 1993. There is now almost universal adherence to these standards to measure economic activity.

The basic approach to calculating standard national accounts is:

$$Y = C + I + (X - M) \qquad (1)$$

where:

Y is income
C is consumption
I is investment
X is exports
M is imports

Statistics for the components of GDP are collected from primary and secondary sources. Thus, GDP is an aggregate estimate of the total value of economic activity for a given period.

Although the primary purpose of national accounts was to assist public policy makers smooth business cycles, they are now being used increasingly as a measure of social welfare. There are legitimate reasons for GDP and other aggregate standard national account statistics to be used as a measure of social welfare.

These aggregate statistics measure what is produced within the economy and therefore are a measure of economic activity. If social welfare is divided into two parts, economic and non-economic, there is an "unverified probability" that economic welfare also accurately reflects non-economic welfare.

While it may be possible for standard national accounts to be indicators of social welfare, these aggregate accounts have more recently also been seen as indicators of sustainability.

3. The Issue of Sustainability

If numbers of international conferences, books and journal articles are any indication, sustainability must be one of the key issues not only within contemporary development economics but also economics more generally. Sustainability is a wide-ranging concept that has been defined in various ways. A widely accepted and uncontroversial definition is that sustainability is meeting the needs of the present without compromising the ability of future generations to meet their own needs. Therefore there is a strong link between sustainability and social welfare. Sustainability is non-declining social welfare over time.

The difficulty with such a definition though is that because it is non-specific, it is non-operational. Sustainability has implications for all facets of society and yet it is in real danger of becoming a hollow catch cry. A significant reason for this is the lack of standard and operational sustainability indicators across a broad spectrum of economic, environmental and social realms.

It is within this vacuum that standard national accounts have begun to be used as an indicator of sustainability.

An important consideration is that sustainability is not of the state of the system at any given time, but rather is a property of the path the socio-economic environmental system is on. Sustainability cannot therefore be measured in static terms. If standard national accounts are being used as measures of sustainability, simple measures at points in time cannot measure sustainability; they can however indicate the movements towards or away from sustainability objectives. All the theoretical and empirical approaches to measuring sustainability using standard national accounts as a basis must therefore focus on the path that the economy is on.

3.1. Defining Sustainability

3.1.1. Mainstream View

Whilst sustainability is a relatively recent concept, its beginnings can be traced back to how wealth was conceptualized in the early part of the last century. Wealth was classified into two categories, capital and income. Capital is a "stock of instruments existing at an instant in time", whereas income is "a stream of services flowing from this stock". These categories were later used to imply that a person's maximum consumption could not be greater than the level of income that does not reduce their capital. Such a concept of maximizing income flows without reducing asset stocks is key in many concepts of sustainable development.

Limitations of the capital theoretic approach include imperfect substitutability between factors of production, including non-substitutability of environmental services below some critical level necessary for ecosystem functioning, and imperfect signaling of the values of services by market prices.

The above capital theoretic definition of sustainability based on neo-classical theory is

the dominant concept of sustainability within the mainstream economic literature, especially in neo-classical economics. As many empirical applications of sustainability are based on non neo-classical approaches, a broader concept of sustainability incorporating an integrated economic-ecological-social system is important. This approach to sustainability is surveyed below.

Sustainability can be either "strong" or "weak". Strong sustainability requires levels of natural capital to remain unchanged over time. Weak sustainable allows substitution between natural and non-natural capital. The significance of this difference is the view that natural capital provides numerous functions that contribute both directly and indirectly to social welfare and any loss of natural capital will have potentially irreversible effects on welfare.

3.1.2. Broader Systems-Based Concepts of Sustainability

Recently, the concept of sustainability has been extended to incorporate a systems-based analysis of society. This has involved defining sustainability in terms of ecological and socio-cultural domains.

Ecological sustainability is dependent on the following conditions; 1) the rate of decline of non-renewable resources (depending on the incorporation of issues of capital substitution and reinvestment), 2) the excess rate of harvest of renewable resources, 3) the assimilative capacity of nature to absorb waste, and 4) pollution reducing technology and capital. Ecological sustainability is concerned with maintaining an ecological system that can support viable communities. Bound by the two thermodynamic laws, the environment cannot grow and so it must be able to absorb waste emptied into it. Presently, the capacity of the ecological system to resist the constant stress human existence places on it is threatened. Ecological sustainability requires an understanding of and operation within the carrying capacity of the ecological sub-system. Excess harvesting of renewables, pollution and other environmental pressures can threaten the existence of a functioning ecological sub-system.

Socio-cultural sustainability is less tangible than economic or environmental sustainability. Socio-cultural sustainability is concerned with maintaining social and human relationships in the face of external pressures. Reducing the vulnerability and maintaining the health of social and cultural systems and their ability to withstand shocks, is also important.

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Biographical Sketches

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