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ABSTRACT

NATIONAL INCOME ACCOUNTS

This article presents a brief overview of the national income accounts. It summarizes the main parts of accounts and situates them within the efforts of economists to quantify economic activity and economic well-being. I argue that these statistics are necessarily provisional and imperfect but nevertheless extremely useful. Some current directions for economic research seeking to extend the accounts are also discussed.

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National Income Accounts

The national income accounts are an intelocking set of statistics on a national economy's consumption, production, and asset accumulation. National income accounts have two roles: the measurement of economic activity and the measurement of economic well-being, or progress. In an important sense, these two roles are one, as economic activity derives its rationale from its social benefit.

According to A.C. Pigou (1938), whose work set forth the basic framework for welfare analysis in economics, the national income is a measure of the part of national welfare that can be "brought directly or indrectly into relation with a money measure." Pigou's definition is limited to those elements of welfare that can be measured by money, but it does not draw a fixed line between what can and cannot be measured. In practice, that boundary has evolved over time.

The limited but highly practical achievement of this measurement task has been one of the great accomplishments of economics and supports the claim that economics is an empirical science. A nation's national income accounts have grown to include analytical detail on consumption, production, income, and foreign trade, as well as statistics on saving and investment and their relation to stocks of physical capital and financial assets and liabilities. These statistics are central to economic and political evaluation and planning throughout the world.

The British economist Richard Stone received the 1984 Nobel Prize in Economics for establishing the framework for the United Nations' System of National Accounts

(SNA), which is the international standard for national income accounting. Virtually all nations subscribe to its principles. Indeed, almost all countries now prepare national income accounts; more than 200 countries have accounts published in the United Nations' national accounts statistics.

Why are national income accounts so important to economies and to governments? First, they provide an excellent approximation of a nation's available economic resources and actual output. This is invaluable for setting government fiscal and monetary policy, and for evaluating the impacts of governmental policies. Second, national income accounts provide a precise understanding of the current state of national economic demand, supply, and inflation. This creates a sound basis for current business and financial decision making. Third, the national income framework has proved a useful basis for long-term forecasting of economic activity, for business and government planning at multi-year horizons. Finally, the statistics are used for international and interregional cost sharing and aid agreements.

National income accounts can fulfill these roles only because they have been widely accepted as good measures of economic activity and well-being. They are not now and are unlikely ever to be ideal measures of either. Economists and national income accountants persistently attempt to widen and sharpen national income measurement, including creating *satellite* accounts (statistics provided by national income accountants but not included in the official accounts) that provide data on additional items not yet of high enough quality or on the same theoretical footing as those already measured.

Measuring welfare with money measures

In accepting the measuring rod of money, we accept limitations on our welfare measure both in concept and in scope. The measure is largely plutocratic, as wealthy households command more consumption than poor ones. As such, it is a measure that is comfortable with the existing structures of economic power. As the American economist and 1971 Nobel laureate Simon Kuznets stressed, changes in income distribution across households should be a crucial component of the evaluation of national income, but as of 2006, income distribution has not been included in national income accounts.

Monetized activity sets the general boundary for national income measurement. Household production – the use of household time and energy in tasks such as studying, cooking, and cleaning – is generally not included in consumption because it is unpriced. One exception is that owner-occupied housing is treated as if the household were renting from itself; otherwise, the shift from tenancy to owner occupation in many countries would appear as a decline in consumption of shelter services. Another exception, important in many countries, is owner-consumption of farm products.

Production has two objects: consumption and accumulation. We turn first to consumption expenditures, which form the core of measured welfare benefits.

Consumption comparisons over time. As prices and money, or *nominal* expenditures, change, is it possible to quantify how much consumers are better off in one period compared to another? Within limits, yes. In two periods, the consumer buys two different baskets of goods and services. Now suppose the items bought in the first period could have been purchased in the second period for less than the items already purchased in the second period. Then we can argue that the consumer must be better off, for the alternative was freely chosen. If the consumer pays 2 percent more than the first period

basket would have cost, *real consumption expenditures* are said to have risen by (at least) 2 percent. While this does not amount to 2 percent more happiness, it does imply that we could have remained as well off using 2 percent less products and 2 percent less work and capital (assuming constant returns to scale), so it is a meaningful quantification.

So one measure of the price increase, or the *inflation rate*, between two periods can be constructed by pricing out the first period's basket in both periods. This price index, called a *Laspeyres* price index, gives, if anything, an overestimate of the rate of inflation. We can go the other way around. A price index constructed by pricing out the second basket in both years, called a *Paasche* price index, creates an underestimate of inflation.

Before the 1980s, which of the two methods was used did not make a great deal of difference. However, very rapid declines in the price of computers and other electronic equipment caused large gaps between the two methods. The solution was to construct *Fisher ideal indexes*, averaging the two inflation rates over each pair of consecutive quarters (precisely, the two price index ratios are multiplied and the square root is taken).

Subtracting the inflation rate from the nominal growth rate, a process called *deflation,* gives the real growth rate of output. Similarly, we can calculate real output at disaggregated levels: by final product or by industry. Unfortunately, these subindexes do not sum up exactly to their aggregate counterparts because the averaging of growth rates has a nonlinear impact on levels. National accounts often include tables that show the contributions of final product components to the movement of total gross domestic product in a way that does add up.

These price index methods assume that there are no new goods or services (products that cannot be found in the earlier period). As the rate of new product introduction has accelerated,

price statisticians have turned to methods (called *hedonic* methods) that attempt to price product *characteristics*, so that a new product can be evaluated as a new bundle of existing characteristics whose prices can be found in the previous period. Roughly, the notion is that if consumers are willing to pay 10 percent more for a computer that operates 20 percent faster, we can use that fact to estimate what a 20 percent faster computer would have cost last period, even if it wasn't sold then.

When consumption expenditures are made by governments or nonprofit institutions on behalf of consumers, the Fisher ideal method does not apply because there is no market price paid by the consumer. Instead, we can deflate output using the average cost of the inputs (for example, labor costs by wage inflation) or by the prices of similar products sold privately. The SNA recommends using direct measures of quantity wherever possible, but this measure will often omit quality changes.

Cross-border comparisons. When we compare the consumption of two countries, we face the problem that they have different currencies. One solution would be to compare the incomes based on the currencies' exchange rate. However, many countries control the exchange rates of their currencies, so that the exchange rate is not market-based. Where the exchange rate is not controlled, it is often highly volatile, rendering these comparisons unreliable.

To solve this difficulty, national statisticians construct measures of *purchasing power* by pricing similar baskets of goods in different countries. This is inevitably a cruder calculation than intertemporal comparisons because there are two worse problems: the location of consumption may affect its desirability, and many products are available in some countries and not in others.

Measuring overall economic progress: productivity measures

To consumption, we now add investment. To capture overall economic progress, the rate of *net investment* – gross investment less loss of existing capital due to depreciation, called *capital consumption* — provides an idea of how much more production could have been devoted to consumption without running down the capital stock and, at the same time, of how rapidly the economy is likely to grow, since more net investment today implies more capital input for tomorrow's production.

Mainly for historical reasons, gross domestic product (GDP, product without deducting capital consumption) has been the featured measure of real economic activity. Consumption of fixed capital is about 10 percent of net domestic product in countries as different as the US and India. *Net domestic product,* GDP less capital consumption, would be more exact as a measure of progress, but GDP is easier to measure in detail.

One way to measure real investment in terms comparable to real consumption could be to deflate nominal investment growth by the consumption inflation rate, a measure showing the quantity of consumption that is given up to provide investment. The alternative, the method actually employed in national income accounting, is to measure the change in prices of these investment goods themselves, combining them into Fisher ideal indexes. This measure is the appropriate one for measuring the contribution of the new investment to the stock of capital assets.

More recently, it has been recognized that *intangible* assets can also be accumulated and have been rising in importance. The 1993 revision of the United Nations' System of National Accounts called for the recognition of investment in software, mineral exploration (such as drilling and surveys), and the creation of expressions: entertainment, literary, and artistic

originals. Deliberately omitted were firm research and development expenditures, relegated to a satellite account, although the long-term value of these expenditure, about 2 percent of US GDP, has been well documented. This may well change in the next revision; the Advisory Expert Group has so recommended. When long-lived investments are misclassified as expenses, output is underestimated, as are assets. As a consequence, future measured output growth and profitability may be underestimated. Investments in human capital – education and on-the-job experience – are also omitted from national income accounts.

Output per person and productivity. For many comparative purposes, it is sensible to measure economic progress relative to growth in population, hours worked, or total input of labor and capital services. Angus Maddison (1995) used *real gross domestic product per capita* (following in Kuznets's footsteps) to assess total world economic growth and inequality between regions. His statistics showed that between 1500 and 1820, world real GDP per capita rose only about 15 percent, while from 1820 to 1992, it rose 700 percent. His statistics also show that the richest regions had roughly three times as much per capita income in 1820 as the poorest, while in 1992, the richest regions had fifteen times as much income per capita, so that this period of industrialization was one of substantial income divergence overall.

The main household time cost of economic activity is employment. For this reason, an alternative measure of economic efficiency is output per hour worked, also called *labor productivity*. Because Europeans work fewer hours per year than Americans, the US economy fares better on GDP per capita measures, while Europe looks better on labor productivity measures.

The American economist and 1987 Nobel laureate Robert Solow (1957), noting that from 1909 to 1949, output per hour in the US expanded 1.5 percent annually, argued that roughly 1/8

of this growth was due to increased capital per worker and the remainder was due to overall advance in the techniques of production, or *total factor productivity*.

Solow used rather crude measures of labor and capital. Labor hours are not equal in economic value due to differentials in talent and training (formal or informal) reflected in differences in compensation rates. The services available from capital also vary; computers and fiber optics are more efficient than mechanical calculators and copper cable. The current state of the art in national income is to carefully adjust capital and labor for these quality differences when constructing measures of total factor productivity.

Dale Jorgenson, J. Steven Landefeld, and William Nordhaus (2005) have argued that gross domestic *income* should be deflated so as to reflect these real input services. That is, labor income would be deflated by the change in compensation for a given quality of labor services, averaged over the various types of labor in the economy. Similarly, capital income would be deflated to reflect the cost of capital services of various qualities. Under their proposal, *nominal* income and expenditure would remain equal, but *real income*, deflated by input prices, and *real expenditure*, by output prices, would grow at different rates, with the difference being the growth of total factor productivity. The growth rate of quality-adjusted labor depends on demographics and on measures of human capital production and accumulation that are not yet in the national accounts.

A brief history of the development of the national income accounts

The first estimates of national income were made in England by the politician and economist Sir William Petty in the 17th century. Petty, whose aim was tax reform, estimated total expenditure as 40 million pounds. He estimated capital income as 15 million pounds, obtaining labor income as a residual 25 million pounds. Toward the end

of that century, Gregory King made more systematic estimates for the income, saving, and expense of England for the year 1688. In the late 17th and early 18th centuries, the French economist Pierre de Boisguillebert, also a tax reformer, developed crude estimates of income and consumption in France, followed by more careful estimates by Sebastien Le Prestre de Vauban in 1707.

These early isolated estimates were based on comprehensive notions of production and output without the benefit of formal economic theorizing. As economic theory emerged, it unfortunately advocated overly limited estimates. The French physiocrats believed that only land produced net output over and above costs, a notion that influenced the chemist Antoine-Laurent Lavoisier's estimates of France's income in the late 18th century, made while a commissioner of the public treasury. The classical economists, beginning with Adam Smith and continuing through Karl Marx, distinguished the potential for labor to produce material wealth and thus emphasized the production of goods as opposed to services. National income estimates in much of the 19th century placed their main reliance on commodity production data, which also dominated the material product accounting of the Soviet-bloc countries in the 20th century.

In 1921, it was possible to count nine countries that had comprehensive national income estimates for the year 1914, almost all prepared by scholars rather than government officials; of these, only four could be judged to be within a probable error of 10 percent. Since that was the year World War I broke out, governments often did not know their economic ability to mobilize for total war.

Official estimates. National income estimates, it became clear, were useful in anticipating the potential for income taxation and for estimating the potential for national defence production in time of war. The interwar depression offered new reasons for national income estimation: gauging the course of the economic crisis and measuring the relative "pump-priming" impact of government expenditure.

Beginning in 1925 in Canada and Russia, national governments began to support ongoing production of official estimates of national income. Simon Kuznets, whose article on "National Income" in the 1933 edition of the *Encyclopedia of Social Sciences* set forth a highly influential conceptual framework and justification for national income accounting, inaugurated the US official annual estimates in 1934 with the publication of *National Income, 1929-32*. This publication included not only careful definitions of the concepts used but also line-by-line derivations of the text tables, with sources and methods.

The publication of *The General Theory of Employment, Interest and Money* (1936) by the British economist John Maynard Keynes, which emphasized the relationships among consumption, investment, and employment, added further impetus to the development of national income statistics, particularly given Keynes's active role in government. In England, Colin Clark's *National Income and Outlay* (1937) laid the statistical foundations for the modern manifold accounting framework by bringing together estimates of income, output, consumption, government revenue and expenditure, capital formation, saving, foreign trade, and the balance of payments. By 1939, official estimates were prepared in nine countries. Richard Stone in the 1940s put together the integrated system of accounts much as we have them today.

The circular flow of economic activity and the logic of the SNA

We now explore the underlying logic that Stone brought to bear in constructing the SNA, beginning from the long-recognized fact that monetized economic activity is essentially both circular and two-sided, as illustrated in the highly simplified economy depicted in Figure 1.

The circular flow. Once monetized, economic activity is necessarily circular. Households, in their role as employees, supply labor to firms that demand it and receive wages. Firms use labor to supply consumption goods and services, which households buy using their wages.

Two-sided. The fact that each transaction has two equal sides – a purchase and a sale – is a fundamental source of the interlocking character of the national accounts. Wages appear as an *expense* of firms and as an *income* of households. Consumption expenditures are an income of *firms* and an expense of *households*.

Were there no other economic actors or activities, we would have the simple accounts in Table 1. Because entries appear twice in the table, each set of accounts appears as a check on the other. Each of these tables matches *resources* (also called income or supply) and *uses* (also called expenses).

Now let us add capital to the firm's accounting framework, arriving at Tables 2a and 2b, still highly simplified. The production of investment goods takes its place alongside consumption goods in firm resources. The portion of investment goods used up in production, that is, capital consumption, appears as a use. The expenditure on investment is instead an immediate contribution to capital and appears in the capital

account. Given these definitions, the firm's resources and uses table is balanced by *operating surplus*.

The capital account *resources* are firm income (called *operating surplus* or, in the corporate account, retained earnings after deducting payouts to shareholders) and capital consumption, and the *use* is capital investment. Capital investment may not equal internal funds, and the item *balancing* the account is net lending or borrowing.

The capital account links to the capital stock account because gross investment less capital consumption equals the increase in capital stock. Net borrowing or lending similarly equals the change in net financial assets. (Both these statements hold in principle rather than fully in practice, due to revaluations of assets.)

The national income accounts track all of these transactions, not only for domestic firms and households but also for *governments, nonprofit institutions*, and the *rest of the world* (foreigners as they interact with nationals through trade, investment, or transfers, such as foreign aid). Taxes and transfers, transportation costs, interest and dividend payments, and a host of the messy details of actual economies must be carefully inserted and measured. Each of these five groups of transactors has a current income and expense account (labeled *resources* and *uses* in the SNA), capital accounts, capital stocks, and financial assets and liabilities. We will not give all these details here, but their flavor can be discerned from the following account of gross domestic product.

The formal construction of gross domestic product

The SNA begins from the broader concepts of *total supply* and *uses* of goods and services in the economy. *Total supply* can be produced domestically (*domestic output)* or purchased from abroad (*imports*.) Domestic output, in turn, includes both *final products* and *intermediate*

products that are consumed in production, such as flour baked into bread. *Uses* include *intermediate consumption* (equal to intermediate production)*, final consumption*, *gross capital investment*, and *exports*. The two sides of the accounts form an equation: supply (total output plus imports) equals uses (intermediate consumption plus final consumption plus gross capital investment plus exports). Included in final consumption are expenditures of governments and nonprofits on behalf of households.

Total supply is a consistent, measurable aggregate of economic activity, but it is not as good a measure of domestic economic activity because it includes imports (produced by foreigners) and because it counts activities that are early in the supply chain more than once. Subtracting imports and intermediate consumption from both sides, we arrive at gross domestic product as defined from the product side.

Nominal gross domestic product (Table 3) is defined as the market value of all *final* goods and services produced within a country in a given period of time (typically a year or a quarter year) measured in units of currency. From the expenditure side, as we have just shown, this includes *consumption*, *investment*, *net exports* (exports less imports), and *government expenditures*. Real gross domestic product is this quantity made comparable over time by adjusting for inflation.

Three approaches to constructing gross domestic product

Gross domestic product can be measured from three aspects: by expenditure on final product, by industrial origin, and by income. Under good statistical practice, the three sides are measured in large part independently, and the closeness of the independent estimates forms a measure of the size of statistical errors and omissions.

Final expenditures. To obtain estimates of final products, government statisticians survey firms that sell final products: retailers, service providers such as hotels, equipment manufacturers, and construction companies. Government expenditures are obtained from governmental budget statistics and net exports from customs data.

Industrial origin. The contribution of an industry to gross domestic product is its gross value added, that is, the industry's output less purchases of products and services from other industries (Table 3, column 3). These data are typically obtained from establishments, defined as units that produce output at a given location (a farm, a factory, a store) rather than firms, the legal entities that control establishments, which supply income data.

Input-output tables that show which industry supplies inputs to each industry enable analysts to calculate the ultimate resources: raw materials, labor, and capital, required in each industry's final products. Such tables, developed by Nobel laureate Wassily Leontief, permit the forecasting of the impacts of large fiscal projects on the nation's and the world's resources.

The revenues of establishments do not include taxes applied to the product. A consumer might spend 10 euros, but if sales tax is 5 percent, the store's revenues are only 9.50 euros. Thus when output is measured as *industry gross value-added at basic price*s, the government's share, *taxes less subsidies on products*, must be also added in.

For a complex, industrial society, measuring industry value-added is harder than measuring expenditures on final products, because it requires data on intermediate inputs as well as revenue, and on all establishments, not just those selling final products. On the other hand, this estimate is not dependent on the accuracy of foreign trade statistics. And in developing countries where agriculture remains a large part of the economy, farm surveys are a means of measuring

output with reasonable accuracy. In such countries, wholesale prices (called *basic* prices) may be used to evaluate this output.

Income. When we turn to measuring income, we can no longer ignore the possibility that foreigners may own part or all of firms located domestically or may have lent money to nationals. Domestic product measures output from activities located within the borders of a nation, regardless of whether the income accrues to nationals or foreigners. Gross *national* income measures the income of nationals and must be adjusted for income earned abroad on foreign investment, less income foreigners earn domestically (Table 3, column 4). Converting to this basis permits us to calculate domestic income and saving.

In principle, the national accounts make a sharp distinction between capital income and employment income, but in practice, returns to business units like sole proprietorships and partnerships mix employment and capital income and are called *mixed income.* The precise treatment of this boundary necessarily varies from country to country.

Although households, nonprofits, and governments are clearly domestic, there are many income transfers among them and with foreign entities. These include social welfare, education, medicine, and foreign aid. Determining exactly where to place such payments is to a certain extent arbitrary. The SNA includes a secondary income account to accommodate most of these transfers. Included in the income account, for example, are government expenditures on behalf of consumers, which become final consumption of households in the secondary account.

The data obtained from tax filings on individuals and businesses are natural sources for estimates of income. These data are available with some lag, so they are supplemented by employment surveys, corporate reports, and sales data. Moreover, taxed income may be

underreported. For example, in the United States, the bulk of proprietor and partnership income is estimated to go unreported in tax records.

Reconciliation. There are inevitably discrepancies between the three measures of gross domestic product arising from their separate sources of data. Some countries, such as the United Kingdom, produce a final measure by averaging the three. Others, such as the United States, anoint one side of the accounts as being likely the most accurate (final product) and show a statistical discrepancy in the others.

National income accountants often produce tables that provide the details of how they transform the underlying data (say, corporate reports) in preparing their national income counterparts. These sectoral reconciliation tables help analysts understand the precise meaning of the national income statistics, and they also can help in forecasting tax reports or corporate earnings reports.

Accuracy, timeliness, and revisions. National income account statistics are revised as new data become available and as new theory and empirical analysis improve our understanding of how to measure economic activity.

Initial official estimates of a given quarter's economic activity in advanced economies are made available within a few weeks of the quarter's end, when economic reports for the quarter are incomplete. National accountants generally prepare one or two revisions in the months immediately following, then annual revisions as tax statistics become available, and *benchmark*, multiyear revisions when economic census or other occasional data become available. It is usually during benchmark revisions that new concepts and different methods are incorporated.

Because economic decisions are taken in the light of available statistics, some economic theories need to be tested in the light of national income statistics as they appeared when the

decisions were taken. In the wake of work by Dean Croushore and Tom Stark, the collection of *real-time* data – the preservation of economic statistics as they appeared at different dates in time, referred to as *vintages* of data – has become a responsibility accepted by some national income accountants.

Capital and financial accounts

We shall not discuss the many complexities of capital and financial accounts, beyond a few important limitations to their measures.

In principle, net investment in domestic assets should equal the increase in domestic wealth. However, these book values of assets may differ widely from their market values. National income accountants have agreed not to include capital gains on assets – for example, increases in market value of corporations that are not reflected in retained earnings – as part of income. Doing so would make income highly volatile and would largely separate movements in income from movements in economic activity. Excluding capital gains creates difficulties in measuring the output of financial institutions. Capital gains or "holding gains" are shown as revaluations in the "other changes in assets account" but are not otherwise linked to the accounts.

Capital assets in the national accounts are divided into produced and nonproduced assets. In particular, land and mineral rights are considered nonproduced assets that do not change over time in real terms. Statistically, real additions to residential land have been small; in the US they have been estimated to be less than 1 percent of GDP annually. Mineral depletion is not deducted from net domestic product.

Critiques and satellite accounts

The large gap between ideal national income accounts and actual income accounts has been partially filled by scholarly studies that fashion alternative measures and by satellite

accounts prepared by national accountants but considered too inaccurate, too controversial, or insufficiently important to be included in the standard accounts. The literature here is too vast to be cited, but the pioneering work of Nobel laureate Gary Becker must be acknowledged.

Household production accounts. A long-standing concern in national income accounting is the productive activity that occurs within the household. To fill this void, nations are increasingly engaging in surveys of household time use, in which individuals keep a diary of one day in five- to fifteen minute intervals. If the diarists add how they feel during these activities, work-like activity might be differentiated from leisure activity.

Work-like activities can be priced either by opportunity cost (the wage the individual is forgoing) or by replacement cost (the cost to hire someone else to do the activity or to buy the output). Diaries also supply a measure of study time (to measure the creation of human capital).

Human capital accounts. What are our investments in labor quality? In the national accounts, the costs of private and public education are considered household and government consumption expenditures, respectively. An unrecorded input is the time cost of the student or the worker. Reclassifying education as investment would involve both a reclassification of consumption items as investment and an addition to output due to inclusion of student work time and on-the-job training.

Health accounts. Health is produced through a combination of household production, environmental impacts, and medical production. One such quantification is quality-of-life years, where the average effect on quality-of-life of a given disease is measured either based on capability or subjective reports.

Relative to labor, health can be linked to human capital, evaluating the cost of disease as a diminution of human capital. Or, more directly, health may be evaluated when law courts value loss of life or pain and suffering in civil trials.

Environmental accounts. Economists have long been aware that economic activity can have externalities, byproducts – either desirable or undesirable – that affect other economic agents. Economic impacts may be quantifiable, for example, as costs incurred, when one firm's pollution raises the cost of another firm's activity or reduces the value of another firm's land. Or a price may be placed on the type of pollution either directly via a tax (an SO_2 tax) or through a market in which polluters must buy the right to pollute a certain amount (SO_2 rights.) More broadly, environmental satellite accounts can include the land, mineral rights, biota, and so forth.

Distribution. The distribution of consumption and income is part of the economic welfare of a nation. Some of this difference may be due to economic choices, reflecting differing preferences and talents. Yet most observers believe that for a given level of average per capita income, a more even distribution of incomes is preferable to a less even one.

In principle, it is possible to estimate how much consumers are willing to pay to avoid declines in wealth and therefore provide a direct measure of consumer valuation of income distributions. This is an active and controversial area of research. As Kuznets suggested, it would be desirable at a minimum for national income accounts to include estimates of income distribution to aid in evaluating economic welfare.

For additional reading on the nomenclature and system of the accounts, the reader is referred to Stone's Nobel lecture, "The Accounts of Society," and the United Nations' "National Accounts: A Practical Introduction," and for a deeper understanding of future directions, the volume by

Jorgenson and others, "A New Architecture for the U.S. National Accounts." The websites of the UN, the UK Statistical Office, and the US Bureau of Economic Analysis are also highly recommended.

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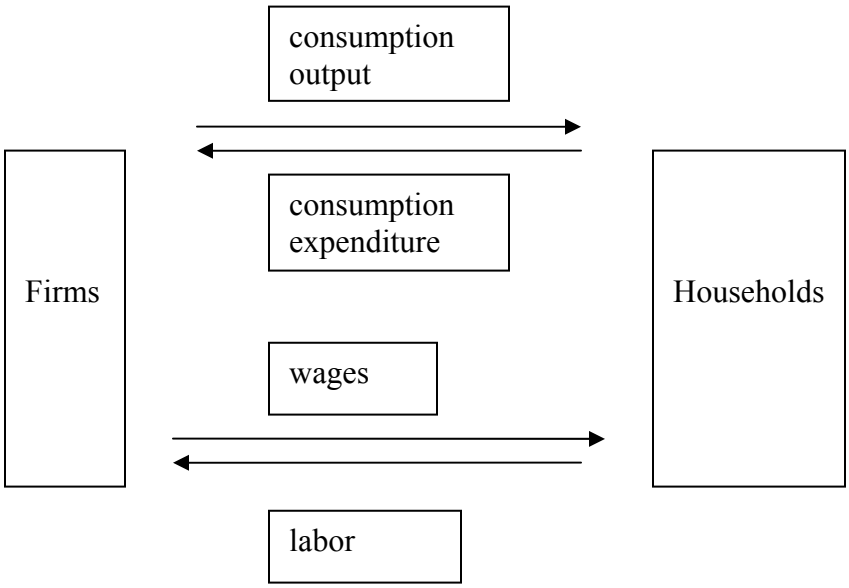

Figure 1. The circular flow of economic activity

Table 1a. Firm Income and Expense		
Firm	Uses	Resources
	Employee compensation	Consumption expenditure

Table 1b. Household Income and Expense		
Household	Uses	Resources
	Consumption expenditure	Employee compensation

Table 2a. Firm Income and Expenses	Uses	Resources
	Employee compensation	Revenues
	Capital consumption	
	Taxes on production and imp	
Balancing item	Operating surplus	

Table 2b. Capital Account	Uses	Resources
	Gross Capital Investment	Operating Surplus
		Capital Consumption
Balancing item	Net Lending (or *less* Net Borrowing)	

Table 3. Three measures of gross domestic product			
1. Output	*defined as* Output of all units gross of intermediate production		
less 2. Intermediates	*defined as* Materials and services consumed during production		
equals 3. Gross Domestic Product	*defined as* 4. Expenditure on final product	*also equal to:* 5. Output by industrial origin	*and equal to*: 6. Gross domestic income
	equals sum of:	equals sum of:	equals sum of:
	4a. Private Consumption	5a.Gross value added by industry	6a. Compensation of employees
	plus 4b. Government expenditure	plus 5b. Net taxes on product	6b. taxes, less subsidies, on production and imports
	plus 4c. Gross Investment		plus 6d. Operating surplus and mixed income, gross
	plus 4d. Net exports		