

Introduction and GDP-Related Concepts

Topics Covered:

- Economics as a Discipline
- Three Main Streams of Economics
- Types of Economic Structure (Capitalist, State, and Mixed Economy)
- Measuring Economics growth
- National Income at Constant price and current price

Other Important terms

- Gross Value Added (GVA)
- Difference between GDP and GVA
- GDP Deflator
- Methods of Measuring National Income
- GDP calculation in India
- Alternatives to GDP Calculation

ECONOMICS AS A DISCIPLINE

Economics, derived from the Greek words “oikos” meaning household, and “nomos” meaning norm or law, refers to the study of how societies manage their limited resources to create valuable goods and allocate them among different members of the community. Adam Smith, often referred to as the father of economics, viewed it as an exploration into the underlying causes of the wealth of nations.

- Economics is the examination of how societies utilize scarce resources to generate valuable goods and fairly distribute them among various individuals. This definition emphasizes two crucial notions: the scarcity of goods and the necessity for society to optimize its resource utilization. In essence, economics is crucial due to the reality of scarcity and the imperative to use resources efficiently.
- Economics investigates the choices made by individuals, businesses, governments, and other entities within a society, and how these decisions shape the utilization of resources within that society. This perspective underscores how collective choices influence a society’s resource allocation.

In essence, economics can be defined as the exploration of how people and communities decide to allocate limited resources, which could be used for different purposes, to produce a range of commodities that fulfill their desires. This study also encompasses the distribution of these commodities among various individuals and groups within society.

THREE MAIN STREAMS OF ECONOMICS

MACROECONOMICS

Macroeconomics involves the comprehensive examination of an entire economy, encompassing aspects like inflation, unemployment, and economic growth. It delves into the impact of government policies, fiscal and monetary measures, and global factors on the overall economy. The objective is to comprehend and manage the fluctuations and overall performance of national economies.

MICROECONOMICS

Microeconomics focuses on individual economic entities like households, firms, and industries. It analyzes how these entities make decisions about resource allocation, production, consumption, and pricing. The study centers around the interactions between buyers and sellers in specific markets, influencing prices and quantities. It also delves into concepts such as supply and demand, market structures, and instances of market failures. Microeconomics aims to grasp the behavior of individual economic agents and the repercussions of their decisions on the broader economy.

MESOECONOMICS

Nestled between microeconomics and macroeconomics, mesoeconomics occupies an intermediary role. It concentrates on economic systems at a medium level, such as industries, regions, or sectors of the economy. By examining the interplay between these intermediate units and the economy at large, macroeconomics explores aspects like market structures, competition, industry dynamics, and governmental policies. This field provides insights into how these specific sectors or industries function within the broader economic framework, offering valuable insights into their efficiency and functioning.

TYPES OF ECONOMIC STRUCTURE (CAPITALIST, STATE, AND MIXED ECONOMY)

CAPITALIST ECONOMY

The capitalistic form of economy has its origin in the famous work of Adam Smith—**Wealth of Nations (1776)**. He raised his voice against the heavy-handed government regulation of commerce and industry of the time which did not allow the economy to tap its full economic worth and reach the level of well-being. Thus, a capitalist economy is an economic system characterized by **private ownership of the means of production** and the pursuit of profit. In a capitalist economy, individuals and businesses have the freedom to own and control property, make decisions about production and consumption, and engage in voluntary exchanges of goods and services in markets

STATE ECONOMY

Rooted in the ideas of historical change proposed by the German philosopher **Karl Marx** (1818– 1883), more specifically, this kind of economic system first came up in the **erstwhile USSR** after the Bolshevik Revolution (1917) and got its ideal shape in the People’s Republic of China (1949). Thus, a state economy is an economic system in which **the government plays a significant role** in the ownership, control, and regulation of the means of production. The government may own and operate key industries, set prices, and allocate resources to achieve specific social and economic goals.

MIXED ECONOMY

In the famous work, **The General Theory of Employment, Interest, and Money(1936)** by the English economist at Cambridge University, **John Maynard Keynes (1883–1946)**, Keynes questioned the very principles of **‘laissez-faire’** and the nature of the **‘invisible hand’**. A mixed economy is an economic system that combines elements of both a market economy and a planned economy. It allows for private ownership and control of some industries, while also having government intervention to regulate and provide public goods and services.

MEASURING ECONOMICS GROWTH

Economic growth is the change – increase or decrease in the value of goods and services produced by an economy. Four ideas/ways to calculate the income of a nation developed, which are the subject matter of the ‘national income accounting’. These four ways to calculate the ‘income’ of an economy, although different from each other in some ways, are the concepts of **GDP, NDP, GNP, and NNP (factor cost and market cost)**. All are a form of national income but are different from one another.

1. Gross Domestic Product (GDP)

- **Gross Domestic Product (GDP)** is a measure that quantifies the **total value of all goods and services produced within a country’s borders over a specific period, usually a year**. It is used to assess the economic health and growth of a nation. Here **the produce of citizens as well as foreign nationals who reside within that geographical boundary is considered**.
- It is a **‘quantitative’** concept and its volume/size indicates the *‘internal’* strength of the economy. But it does not say anything about the *‘qualitative’* aspects of the goods and services produced.
- Changes in GDP over time reflect economic fluctuations, such as periods of recession or expansion. **Negative** GDP growth indicates a contraction in the economy, while **positive** growth signifies expansion. Policymakers use these changes in GDP to make informed decisions about fiscal and monetary policies. For example, during a recession, policymakers may implement stimulus measures to boost economic activity and increase GDP.

The key changes in GDP calculation in India since 2015 include:

- **Shift from Factor Cost to Basic Prices Methodology:** Under the earlier **factor cost method, GDP was calculated by adding up the net indirect taxes (taxes minus subsidies)** to the factor cost. However, the new method calculates GDP at basic prices, which does not include net indirect taxes. *(Further discussion of GDP at factor cost will be discussed later)*
- **Introduction of GVA:** The concept of Gross Value Added (GVA) was introduced as a key metric to measure economic activity at various stages of production. GVA represents the value of goods and services produced minus the value of intermediate consumption. It offers a more comprehensive view of economic performance by considering the production value before the impact of taxes and subsidies. *[The difference between GDP and GVA will be explained later]*
- **Use of Input-Output Tables:** The new methodology employs Input-Output Tables, which provide a detailed framework to capture the interactions between different sectors of the economy. This allows for a more accurate estimation of value addition and inter-sectoral linkages.
- **Use of Gross Value Added at Basic Prices:** The GDP calculation now focuses on the GVA at basic prices for different sectors, which is then adjusted for taxes and subsidies to arrive at GDP at market prices.
- **Inclusion of Non-Institutional Sector Data:** The new methodology incorporates data from the non-institutional sector, including agriculture, trade, transport, and unorganized sectors, which was previously not included.
- **Change in Base Year:** The base year for **calculating GDP was updated from 2004-05 to 2011-12** to reflect the changing economic structure and consumption patterns.

These changes were aimed at aligning India's GDP calculation methodology with international best practices and improving the accuracy and reliability of economic data. The new methodology provides a more comprehensive and detailed picture of economic activity and allows policymakers, researchers, and analysts to make more informed decisions based on reliable economic indicators.

Thus, GDP is a crucial measure that provides an overview of a country's economic performance and helps policymakers make informed decisions to manage the economy effectively.

2. Net Domestic Product (NDP)

Net Domestic Product (NDP) is the GDP calculated after adjusting the weight of the value of 'depreciation'. This is, basically, a net form of the GDP, i.e., GDP minus the total value of the '**wear and tear**' (**depreciation**) that happened in the assets while the goods and services were being produced. Every asset (except human beings) goes for depreciation in the process of their uses, which means they 'wear and tear'.

$$\text{NDP} = \text{GDP} - \text{Depreciation}$$

3. Gross National Product (GNP)

Gross National Product (GNP) is a measure that quantifies the total value of all goods and services produced **by a country's residents, regardless of their location**, over a specific period, usually a year. It includes both the domestic production within a country's borders and the production of its nationals abroad.

GNP provides a broader view of a country's economic performance compared to GDP. It **reflects not only the domestic production but also the contributions of a country's nationals working abroad**. GNP is particularly useful for countries with significant international trade and investment activities.

While **GDP focuses on the production within a country's borders, GNP focuses on the production by a country's residents, regardless of where it occurs**. This distinction can be important in understanding a country's economic relationship with the rest of the world.

$$\text{GNP} = \text{GDP} + (\text{X} - \text{M})$$

Where **GDP** = Gross Domestic Product

X(export)= inward remittances of a country in respect of the goods produced and services exported by nationals of a country abroad.

M(Import) = outward remittances of a country from the goods produced and services rendered by foreign nationals of the country in the domestic area.

X-M= Net factor income from abroad

4. Net National Product (NNP)

The Net National Product (NNP) of an economy is the GNP after deducting the loss due to 'depreciation'. The formula to derive it may be written like:

$$\text{NNP} = \text{GNP} - \text{Depreciation, OR}$$

$$\text{NNP} = \text{GDP} + \text{Income from Abroad} - \text{Depreciation.}$$

Here, the net **national product is calculated with a marked price**. The market price includes indirect taxes and excludes subsidies that are made to produce goods and services. The market price is less than the cost of the amount of subsidies. So, subsidies are deducted to arrive at market price.

Eg: The cost of production of the product is 100rs. If the government gives a subsidy of 20rs, the price of the product will be reduced to 80rs. This is called **NNP at Market Price**

5. NNP at Factor Cost

The NNP at factor cost calculates national income only based on the cost incurred to produce goods and services. This cost is the payment made to the factors of production. **The factors of production are land, labor, capital, and entrepreneurship**. For this, the indirect tax is deducted from NNP at market price. Then the subsidies given to produce goods and services are added.

$$\text{NNP}_{\text{(at Factor Cost)}} = \text{NNP}_{\text{(at Market Price)}} - \text{Indirect Taxes} + \text{Subsidy}$$

For NNP at factor cost, we use the term national income.

Likewise, GDP at factor cost also can be calculated

$$\text{GDP}_{\text{(at Factor Cost)}} = \text{GDP}_{\text{(at Market Price)}} - \text{Indirect Taxes} + \text{Subsidy}$$

NATIONAL INCOME AT CONSTANT PRICE AND CURRENT PRICE

- To calculate and compare the national income of various years, the national income is calculated concerning a particular year. **This is called Base Year. The price in this year is called the price of a base year at a constant price.**
- The national income at constant price means the total quantity of all final goods and services produced in a particular year multiplied by the price of the base year (constant price). The national income calculated by this method is called the **real income**.

$$\text{National income}_{\text{at Constant Price}} = (\text{Total quantity of all the final goods and services produced in a particular year}) \times (\text{Price of the Base Year})_{\text{Constant Price}}$$

$$\text{National income}_{\text{at Current Price}} = (\text{Total quantity of all the final goods and services produced in a particular year}) \times (\text{Price of Goods and Services in that Particular Year})_{\text{Current Price}}$$

Explained through Example

Example:- Take 2004-05 as the Base Year

- National income for 2008-09 at constant price= Total quantity of all final goods and services produced in 2008-09 * price of 2004-05.
- National income for 2008-09 at current price= Total quantity of all final goods and services produced in 2008-09 * price of 2008-09
- The reason behind calculating national income at a constant price is to check whether national income has grown or not.

E.g.: The Base Year 2004-05. The Base Price =100

1. National Income for 2007-08-> Total Quantity = 120, Price= 120

National Income_{Current Price} = $120 \times 110 = 13200$

National Income_{Constant Price} = $120 * 100 = 12000$

2. National income for 2008-09 -> total quantity= 110, Price = 130

So National Income_{Current Price} = $110 \times 130 = 14300$

National Income_{Constant Price} = $110 \times 100 = 11000$

Observations:

- The national income for 2008-09 at the current price is 14300 which is higher than the national income for 2007-08 at the current price of 13200.
- But the national income for 2008-09 at a constant price is 11000 which is less than the national income for 2007-08 at a constant price of 12000.
- This is because the actual quantity produced in 2008-09 is less than that of 2007-08.
- It means no real growth has taken place in 2008-09.
- The high income at the current price is due to the increase in price in the year 2008-09

OTHER IMPORTANT TERMS

GROSS VALUE ADDED (GVA)

GVA is GDP minus indirect taxes. When the basis prices of all goods and services produced are added up, it gives the GVA.

GVA helps us determine the GDP tax link. If the GDP growth is not the same as the GVA, the discrepancy is caused by tax buoyancy.

$$\text{GDP} = \text{GVA} + (\text{Net Taxes Earned by the Government}) - (\text{Net Subsidies Provided by the Government})$$

DIFFERENCE BETWEEN GDP AND GVA

GDP	GVA
The entire number of goods produced in a nation is its GDP	GVA stands for the value added to the product to improve its many features.
GDP provides information from a consumer or demand standpoint	GVA provides a snapshot of the state of economic activity from the supply-side or producer perspective
GDP Comprises Four Components: Government Investment, Government Spending, Net Foreign Trade, and Personal Consumption (the difference between exports and imports)	GVA = Gross Investment + Government Investment + Private Consumption + Government Spending + (Exports-Imports)

GDP DEFLATOR

- This is **the ratio between GDP at Current Prices and GDP at Constant Prices**. If the GDP at Current Prices is equal to the GDP at Constant Prices, the GDP deflator will be 1, implying no change in the price level. If the GDP deflator is found to be 2, it implies a rise in price level by a factor of 2, and if the GDP deflator is found to be 4 it implies a rise in price level by a factor of 4.
- The GDP deflator is a measure that reflects the overall price level of goods and services produced within an economy. It is used to **adjust the nominal GDP (the total value of all goods and services produced) into real GDP (the value adjusted for changes in prices)**.
- The GDP deflator is calculated by dividing the nominal GDP by the real GDP and then multiplying it by 100. The resulting number represents the inflation or deflation rate between the two periods being compared.

$$\text{GDP Deflator} = \frac{\text{GDP}_{\text{Current Prices}}}{\text{GDP}_{\text{Constant Prices}}}$$

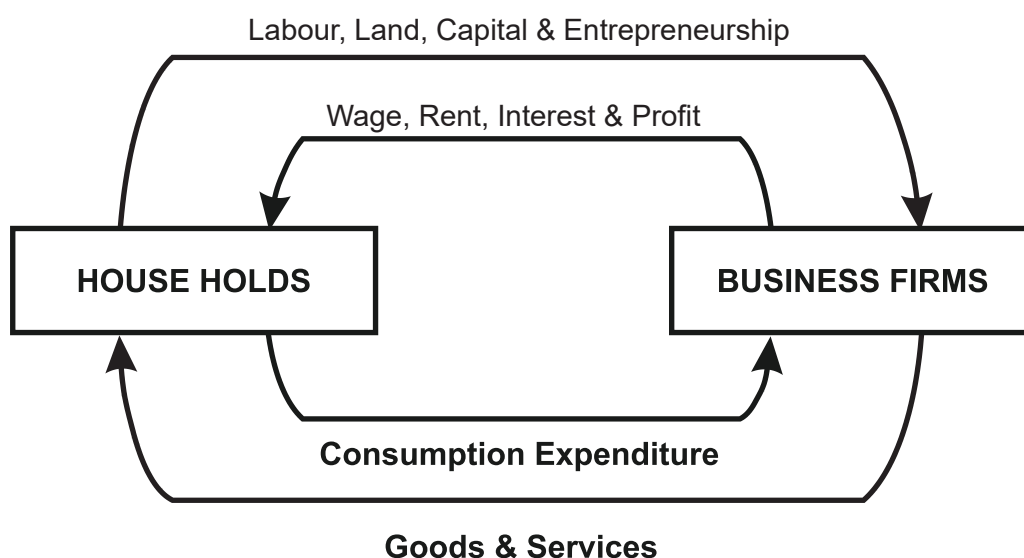
- For example, if the nominal GDP for a particular year is \$10 trillion and the real GDP is \$8 trillion, the GDP deflator would be calculated as $(10/8) * 100 = 125$. This means that the overall price level has increased by 25% compared to the base year.
- The GDP deflator **takes into account the prices of all final goods and services produced within an economy, including consumer goods, investment goods, government purchases, and net exports**. It provides a comprehensive measure of inflation or deflation, capturing changes in prices across different sectors of the economy.

METHODS OF MEASURING NATIONAL INCOME

1. Product or output method or Production method of value-added method
2. Income Method
3. Expenditure or consumption method

Before learning the methods, there is a need to understand the flow of income between the different players who take part and contribute to the national income.

Let us understand with the help of a diagram



There are four players namely, individuals or households, business firms or investors, government, and foreign nationals. For the sake of simplicity, we consider only the first and second

The diagram above shows the circular flow of income between households and business firms. The upper part shows the supply side of the economy and the lower part shows the demand side of the economy.

In the upper part, the households supply factor of production viz labor, land, capital, and entrepreneur to business firms to produce goods and services. In return, the business firms give wage, rent, interest, and profit to labor, land, capital, and entrepreneur respectively.

The wage, rent, interest, and profit are expenditures to businesses but income to households. So, one's income is another's expenditure. Hence it is evident that the expenditure of one player and the income of another player are equal. So national income can be calculated by compiling of income of all or expenditure of all. The calculation of national income by compiling the income of households is called the **income method**.

The bottom of the figures shows the flow of goods and services that are produced by business firms and demanded by the people. For the flow of goods and services produced and supplied by the business firm, households pay money. Here, the value of goods and services produced (price* quantity) is equal to the expenditure incurred by households on the purchase of those goods and services. Both are equal. So the national income can be calculated by calculating the total value of all goods and services or by compiling the total expenditure incurred by the people. The **former is called the Product method Output method or production method. The latter is called the Consumption method or Expenditure method**

1. Product Method Output Method or Production method

In this method, the national income is compiled by calculating the gross value of final goods and services produced in a country in one year generally. GDP is a concept of value added. It is the sum of the gross value added of all the resident's producer units (institutional sectors or industries) plus that part (possibly the total) of taxes, less subsidies on product which is not included in the valuation of output. Gross value added is the difference between output and intermediate consumption.

$$\text{Gross Value Added} = \text{Output of Final Goods and Services} - \text{Intermediate Consumption}$$

$$\text{GDP} = \text{Gross Value Added} + \text{Indirect Taxes} - \text{Subsidy}$$

2. Income method

The income method measures GDP by summing up all the incomes earned by individuals and businesses within a country during a specific period. It includes the following components:

- **Wages and salaries:** This includes the income earned by employees through their employment.
- **Rent:** This includes the income earned by property owners from renting out their properties.
- **Interest:** This includes the income earned from lending money or owning financial assets.
- **Profits:** This includes the income earned by businesses after deducting all expenses, such as wages, rent, and interest.

By adding up all these components, we can calculate the total income generated within an economy, which is equal to the GDP.

$$\text{National Income} = \text{Total Wage} + \text{Total Rent} + \text{Total Interest} + \text{Total Profit}$$

The approach above mentioned is a macroeconomic theoretical approach. In the Indian context, it is slightly different as per the 1993 system of national accounts framework. It is a total of the following

$$\text{GDP} = \text{Compensation of Employees} + \text{Consumption of Fixed Capital} + (\text{Other Taxes on Production} - \text{Subsidies on Production}) + \text{Gross Operating Surplus}$$

- **Compensation of employees** means the salaries paid in cash and kind and other benefits provided to employees engaged in the production of goods and services. To put it simply it is **Wage**.
- **Consumption of Fixed Capital** means wear and tear of machinery. These are replaced with new parts or machinery. It adds to the income of machinery and spare parts producers. So it is added here
- **Net Tax on Production** includes **Other Taxes on Production** minus the subsidies.
- There is a difference between tax on products and tax on production.
- **Tax on Products** includes taxes like sales tax etc. It is the tax imposed as it was produced and sold.

- **Tax on Production** means the tax imposed irrespective of production like license fee.
- **Gross Operating Surplus** is the balance of value added after deducting the above three components. It pays to pay the rent of land and interest of capital.

3. Consumption method or Expenditure Method

In this, the consumption expenditure of consumers(C), the Consumption expenditure of investors or entrepreneurs which is called investment(I), and the consumption of government (G) are added.

$$\text{GDP} = C + I + G$$

This formula can be extended as follows, as per the 1993 SNA framework

GDP= Household Final Consumption Expenditure + Consumption Expenditures Incurred By General Government + Savings + Gross Capital Formation

Where

- C Household final consumption expenditure
- I= Saving+ Gross capital formation
- G= Consumption expenditures incurred by the general government

Suitability of methods

No method is universally applicable. The product method is suitable for calculating income from primary (agriculture, forestry, etc.) and secondary (industry, mining, etc.) sectors. In these sectors, tangible products are produced. So it is easy to count and multiply them with the price. In the tertiary sector, no tangible products are produced. For eg: it is not possible to calculate the output from teaching professionals. So product method is difficult. Here the income of all those engaged in teaching professional can be summed up. Hence it is better to use product method in primary and secondary sectors and income methods methods in tertiary sectors.

GDP CALCULATION IN INDIA

- The government **switched to a new base year of 2011-12** for national accounts in January 2015, replacing the previous base year of 2004-05.
- The then **Central Statistics Office (CSO) (now National Statistical Office)** discontinued GDP at factor cost and embraced the worldwide practice of **GDP at market price and the Gross Value Addition (GVA) measure.**
- The new database is also much more comprehensive, covering financial institutions as well as regulatory bodies like SEBI, PFRDA, and IRDA.
- The newer system uses data from **MCA 21 (MCA 21 is a Ministry of Corporate Affairs e-governance initiative** that was launched in 2006 and allows firms/ companies to electronically file their financial results)
- **The headline growth rate** will now be measured by GDP at constant market prices, which will henceforth be referred to as 'GDP' (as is the practice internationally). Earlier, growth was measured in terms of growth rate in GDP

at factor cost and constant prices. Sector-wise estimates of Gross Value Added (GVA) will now be given at basic prices instead of factor cost. The relationship between GVA at factor cost, GVA at basic prices, and GDP (at market prices) is given below:

- **GVA at Basic Prices = CE + OS/MI + CFC + Production Taxes Less Production Subsidies.**
- **GVA at Factor Cost = GVA at basic prices – Production Taxes Less Production Subsidies.**
- **GDP = GVA at Basic Prices + Product Taxes – Product Subsidies**

[Where,

- **CE: Compensation of Employees;**
- **OS: Operating Surplus;**
- **MI: Mixed-Income;**
- **CFC: Consumption of Fixed Capital (i.e., Depreciation).**

- **Production taxes or production subsidies** are paid or received about production and are independent of the volume of actual production. Some examples of production taxes are land revenues, stamps and registration fees, and taxes on professions.
- **Some production subsidies** are subsidies to Railways, input subsidies to farmers, subsidies to villages and small industries, administrative subsidies to corporations or cooperatives, etc.
- **Product taxes or subsidies** are paid or received per unit of the product. Some examples of product taxes are excise tax, sales tax, service tax, and import and export duties. Product subsidies include food, petroleum, and fertilizer subsidies, interest subsidies given to farmers, households, etc., through banks, and subsidies for providing insurance to households at lower rates.
- Comprehensive coverage of the financial sector by the inclusion of information from the accounts of stock brokers, stock exchanges, asset management companies, mutual funds, and pension funds, and the regulatory bodies including the **Securities and Exchange Board of India (SEBI)**, **Pension Fund Regulatory and Development Authority (PFRDA)** and **Insurance Regulatory and Development Authority (IRDA)**

Shortcomings/Limitations of GDP

- **Ignoring income distribution:** GDP does not take into account the distribution of income within a country. GDP can increase while the majority of the population experiences stagnant or declining incomes. This means that GDP may not accurately reflect the well-being of the entire population.
- **Neglecting environmental costs:** GDP does not account for the environmental costs associated with economic production. For example, it does not consider the depletion of natural resources or the negative impacts of pollution. This can lead to an overestimation of economic well-being if environmental degradation is not taken into account.
- **Inadequate measurement of quality of life:** GDP focuses on the quantity of goods and services produced, but it does not capture the quality of life or well-

being experienced by individuals. Factors such as education, healthcare, and leisure time are not directly accounted for in GDP calculations.

- **Exclusion of non-market activities:** GDP only measures the value of goods and services produced in the market economy, excluding non-market activities such as unpaid household work and volunteer work. This can lead to an underestimation of the true level of economic activity and well-being.
- **Volatility and short-term focus:** GDP is often used as a measure of economic growth and is subject to significant fluctuations in the short term. This can lead to a focus on short-term economic performance at the expense of long-term sustainability and well-being.
- **Exclusion of informal economy:** GDP does not capture economic activity in the informal sector, which includes unregistered businesses and informal employment. This can lead to an underestimation of economic activity and well-being, particularly in developing countries where the informal sector is significant.

ALTERNATIVES TO GDP CALCULATION

Green GDP

It is also known as Environmentally adjusted domestic Product is **with regards to the environmental damage in the calculation of GDP**. It is calculated by accounting for net natural capital consumption (including environmental degradation; depletion of resources and protection initiatives) in the national income. It helps find a sustainable GDP.

Human Capital Index:

The Human Capital Index tries to be a tool that helps people understand how complicated education, jobs, and the workforce are so that they can make better choices