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## Statistical Analysis of Per Capita GDP and Infant Mortality Rate – An Indian Perspective

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### **Overview**

#### **Abstract**

This study examines the most basic question: To what degree does economic expansion, as shown by GDP growth, result in a decline in mortality? Over the last few decades, many public health programmes in developing nation like India have placed a strong emphasis on the health outcomes of children. Macroeconomic growth is frequently regarded as a crucial policy tool for enhancing health in India with low per capita GDP. The assumption is that economic growth will raise average incomes for people, especially for the poor, and that this will improve life quality by allowing for better-quality consumption of goods and access to health care services as well as better housing and sanitation. However, does this also result in a decrease in infant mortality?

#### **Objectives**

The objectives of this study are

1. To study the relationship between per capita GDP and infant mortality rate for the Indian economy
2. To understand the relationship between per capita GDP and infant mortality rate from the global point of view
3. To present the data using various statistical tools
4. To get an insight into the advantages and disadvantages of various statistical tools

#### **Introduction**

In order to draw conclusions and draw proper inferences in ambiguous situations, statistics refers to the systematic gathering, analysis, interpretation, presentation, and arranging of huge amounts of data. The term "statistics" was first used in 1749 by Gottfried Achenwall, known as the "godfather of statistics," and it was formed from the German word "statistik," the newly minted Latin word "statisticum" (meaning "of the state"), and the Italian word "statista" (meaning "statesman, politician"). At first, statistics sought to study data to assess a country's political,

economic, and social facets. But as statistical methods improved, they found more and more uses, making the subject of statistics a very multidisciplinary one.

Statistics has numerous drawbacks even if it has over the years shown to be useful. For instance, it doesn't provide a comprehensive review because it just offers quantitative data, which may overlook qualitative factors. Additionally, the size and quality of the data sample play a significant role in determining how accurate the inferential statistics are; if the sample is not sufficiently representative of the full population, dependable and accurate inferences cannot be reached. The majority of these findings are generalised and only apply to particular circumstances. Additionally, the accuracy of statistical analysis might be impacted by scenarios that involve a lot of factors that may not always be viable to account for.

Statistical tools are used to carry out various functions of statistics. Some of these tools include the measures of central tendency and Standard Deviation.

Measures of central tendency include finding the mean or the arithmetic average of a given dataset. It can be measured by the formula  $\bar{x} = \frac{\sum x}{n}$  where  $x$ =each observation and  $n$ =the number of observations. However, this can be majorly influenced by outliers. Calculating the mode (the most frequently occurring value in a data set) or the median, which refers to the middle value when a set of data is arranged in ascending order can also be beneficial in understanding the central tendency of a data set.

Moreover, standard deviation calculates the dispersion of data relative to its mean. It can be calculated by the formula  $\sigma = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}}$  where  $x_i$ =values of the x-variable in a sample and  $n$ =the number of terms in a data.

## Correlation

Correlation is a statistical measure that shows the degree of the link between two variables. It is derived from the French term "corr lation" and was originally developed by the English polymath Sir Francis Galton in 1888. It describes straightforward relationships without stating what caused or resulted from them.

The Pearson correlation coefficient, often denoted by  $r$ , is used to determine the strength and direction of the

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

linear relationship between two variables. It can be found from the formula  $r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$  where;  $x_i$ =values of the x-variables in a sample and  $y_i$ = values of the y-variables in a sample.

The definition of the correlation coefficient is the covariance of  $x$  and  $y$  divided by their respective standard deviation. Thus  $r = \frac{cov(x,y)}{s_y s_x} = \frac{\frac{1}{n-1} \sum (x-\bar{x})(y-\bar{y})}{\sqrt{\frac{\sum (x_i-\bar{x})^2}{n-1}} \sqrt{\frac{\sum (y_i-\bar{y})^2}{n-1}}} = \frac{\sum (x-\bar{x})(y-\bar{y})}{\sqrt{\sum (x_i-\bar{x})^2} \sqrt{\sum (y_i-\bar{y})^2}}$ . This when simplified further, leads to our

formula;  $r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$ . The coefficient belongs to real numbers from -1 to 1. If there is a correlation of -1, there is a perfect negative correlation, at a correlation of 0 there is no linear relationship between the movement of variables and a correlation of 1.0 is a perfect positive correlation

## Regression

In order to understand the characteristics of the relationship between dependent and independent variables, regression models are used. It achieves this by figuring out how the dependent variables have changed in respect to the explanatory factors. Because it may be used to extrapolate and interpolate data in order to forecast future outcomes and draw inferences from statistical data, this statistical approach is widely employed.

The most popular variation of this method is linear regression, where the relationship between the variables can be expressed in the form  $y = mx + c$ . Here,  $m = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2}$  and  $c = \bar{y} - m\bar{x}$ .

Additionally, a curved link between the two variables is established through nonlinear regression. This model is created by the use of several iterations that come from trial and error techniques. The Gauss Newton approach and the Levenberg-Marquardt method are two other techniques that are employed.

Despite the advantages, this system can also be extremely incorrect and unworkable. Additionally, both the independent and dependent variables must have numerical values in order to be used. Furthermore, it could be challenging to forecast which model type would work best for the dataset because the relationships between the variables might not always be linear.

## Graphical presentations

Graphical presentations are a way of analysing and presenting numeric data in a form of a graph or a diagram

### Bar diagrams

A bar graph is a visual representation of often grouped data in the form of vertical or horizontal rectangular bars, with the lengths of the bars reflecting the data's measure. The variable amount is shown on one of the axes, while the variable's measure is indicated on the other. This offers a lot of benefits. For instance, it aids in highlighting important data changes while compressing vast volumes of data for easy visual comprehension. As a result, it also makes it possible to spot trends while also making it very straightforward to compare different sets of data.

### Pie charts

In a pie chart, a circle is divided into sectors, each of which represents a proportion of the total and so indicates the relative magnitude of the data. The data must first be classified before creating a pie chart. The value of the data in each of the categories is then multiplied by 360 degrees and divided by the value of the data as a whole. The outcomes would correspond to each sector's angle. Pie charts may be a very helpful communication tool since they make it easier to compare data and visually depict how something is made up. It can only compare a limited set of data points, though. It only displays a single dataset and cannot effectively compare many datasets because of this.

### Line graph

An individual line segment is used to connect various data points or markers in a line plot or line chart to illustrate the changes in two quantitative variables. The title, legend, data, and two axes are all included. The legend provides a key to decode the graph by describing each dependent variable and assisting in differentiating between distinct data sets. It can analyse the difference between two additional data sets by drawing several line graphs on the same axes, represent trends and changes over time, and detect suspicious changes, among many other things. But it has numerous drawbacks, one of which is that it cannot represent discrete data.

### Frequency polygon

A frequency polygon is a visual representation of the distribution of a given set of data and displays the cumulative frequency distribution. It helps analyse the shape of the distribution and compare different sets of data. It can be constructed by plotting the class mark on the x-axis and its frequency on the y-axis and then, connecting these data points using a line segment. A class mark is the midpoint of class intervals and can be calculated using the formula  $class\ mark = \frac{upper\ limit - lower\ limit}{2}$ . However, it can not be constructed with nominal data as there is no distinction between different categories.

## GDP

A commonly used indicator of a nation's economy is its gross domestic product, which was initially created at the end of the 18th century and developed by American economist Simon Kuznets in 1934. GDP is the monetary worth of all finished products and services produced within the territorial limits of a nation during a certain time period. It may be estimated in a variety of ways, including the expenditure approach, which uses the formula  $GDP = Consumption\ expenditure + investment + government\ spending + (exports\ minus\ imports)$ . This takes into account each and every economic actor that makes a purchase. Additionally, it may be computed using the formula  $GDP = Total\ National\ revenue + Sales\ Taxes + Depreciation + Net\ Foreign\ Factor\ Income$  in order to account for the revenue made while producing the items. Furthermore, one may compute GDP per capita by dividing total GDP by total population, which represents GDP per person. It is a very important indicator of an economy's size and development that aids in comparing many economies and helps the government create economic strategies.

A number of factors, including inflation, can have an impact. Even if the value of output does not grow in absolute terms, the greater the inflation, the higher the monetary value of the final products and services produced and, consequently, the higher the GDP. This emphasises how critical it is to base comparisons on real GDP per capita. The degree of customer confidence and outside variables like wars, pandemics, political turmoil, etc. that affect a country's overall supply are additional determinants. Additionally, the GDP does not account for a number of factors, including unpaid labour, non-monetary compensation, intermediate goods and services required in the

production of other final goods and services, as well as the calibre of the output. Additionally, it ignores other factors that define a decent life, such as access to healthcare and education. As a result, it's crucial to take these into account rather than basing decisions exclusively on GDP per capita.

### **Infant mortality rate**

The mortality rate is the ratio of the number of deaths in the year to the average total population of the year while the infant mortality rate refers to the probability of a child born a specific year or period and resident in a specific geographical location dying before reaching the age of **one**. The IMR per 1000 can be calculated by the formula 
$$IMR = \frac{\text{number of children dying under one year of age}}{\text{number of live births during the year}} \times 1000$$
. Infant mortality is caused by a variety of factors, such as childbirth issues such as birth hypoxia and preterm delivery or low body weights that can cause feeding problems, cerebral palsy, developmental delay, etc. Furthermore, the leading causes of new born fatalities include infections and birth abnormalities. Birth defects are structural alterations that can impact the look and/or functionality of various bodily parts and organs. They are present at birth. These develop during pregnancy as a result of a number of variables, including as heredity, alcohol intake, the environment, etc. Diarrhoea, pneumonia, and malaria, which are common in LDCs with inadequate access to clean, hygienic water, are among the other major causes of infant death. Infections during pregnancy can be avoided by making an effort to limit exposure to mosquitoes and the Zika virus. Additionally, the baby should be kept in a clean environment by avoiding unpasteurized milk and minimising contact with spit and urine. Additionally, vaccination of the new born is advised to boost protection against various infections.

### **Review of Literature**

**Bernadette O'Hare, Innocent Makuta, Levison Chiwaula, and Naor Bar-Zeev, 2013, PMID: PMC3791093; Income and child mortality in developing countries: a systematic review and meta-analysis.** This study finds a significant negative association between income and child death rates. Without taking into account covariance, it was determined that the pooled infant mortality elasticity was -0.95. This emphasises the impact of money on children's health and, therefore, child mortality. Instead of merely concentrating on the downstream intervention strategies to lower infant mortality, health professionals must also take into account the socioeconomic and other upstream determinants of health. The study just offers a relationship estimate. It is crucial to conduct an analysis on multiple regional and national levels while taking into account confounding variables, standardising methods, and thoroughly evaluating causation because numerous non-income factors, such as sickness, may have an influence on the mortality rate in different places. Before assuming anything.

**Sarah Baird, Jed Friedman, and Norbert Schady, 2011, 93(3):847-56; Aggregate Income Shocks and Infant Mortality in the Developing World-** Economic fluctuations in aggregate have an impact on wellbeing. In comparison to industrialised countries, macroeconomic volatility is twice as high in emerging countries. The death of young girls is significantly correlated with a negative economic shock. In the US, child mortality has decreased and child health has improved during economic downturns. Due to their irregular purchasing patterns, developing countries endure nearly twice as much macroeconomic and income volatility as more developed ones. Economic turbulence's impact on IMR may differ among different emerging nations as well because of factors like health care spending protection. Infant mortality rates often increase in response to shocks to aggregate income, but there are also substitution effects. Economic shocks lower the opportunity cost of time, allowing women to spend more time with their children and improve the health of both. Therefore, it is challenging to predict how general economic contractions may affect children's health. For a kid to survive in her first year of life, macroeconomic conditions at birth matter more than those early in utero or in the second half of that year. However, utilising these economic statistics reduces the impartiality of the data since it is hard to determine the relative impact of variables in brief windows of exposure. The findings demonstrate that short-term changes in total income can have an impact on a child's first-year survival, and as a result, efforts to minimise the volatility of the per capita GDP or to protect health from economic shocks in developing countries can lower the infant mortality rate (IMR).

**Engin Erdoğan, Meliha Ener, Feyza Arıca, 2013, ISSN 1877-0428; The Strategic Role of Infant Mortality in the Process of Economic Growth: An Application for High Income OECD Countries:** The study amongst others proves that Income has a direct and positive relationship with health, in particular, it focuses on the relationship between the real per capita GDP and infant mortality rate. Higher-income results in better living standards with improved conditions and sanitation leading to a better health level and lower IMR. In order to establish this relation a generation root tests were carried out on the data gathered from 25 high-income OECD countries on a yearly basis, from 1970 to 2007.

**Ensor, T., Cooper, S., Davidson, L. et al, 2010, The impact of economic recession on maternal and infant mortality: lessons from history:** It shows how, in past times, the Per Capita GDP and IMR were related. The degree of association between the two factors varied among nations as well. According to the research, recessions in emerging and undeveloped nations have a negative impact on IMR. To safeguard the vulnerable people from the shifting GDP per capita, policymakers must work harder due to the variety of effects on various nations. Since the majority of governments in developing nations have little budgets, it is difficult for them to lessen the consequences of fluctuating national income on the people, which makes the necessity of foreign development aid during economic crises critical. Instead than focusing on plans tailored to each condition, they strengthen systems. Health systems in wealthier countries are prepared to offer care when necessary and have risk sharing to prevent financial obstacles to service delivery. Given that the bulk of health interventions rely on a similar system structure, understanding these relationships is increasingly important in development assistance strategies. Competent doctors in maternal health care require a strong infrastructure to provide some services. To aid nations in surviving the recession and achieving the MDGs, foreign assistance should concentrate on two areas. First, help people and families budget for maternity care. Second, help governments strengthen supply-side networks for maternal health care and ensure services are available. International assistance intended to support these countries through an economic crisis should concentrate on assisting households manage the demand and supply of maternity care spending and to increase access to the supply of maternity-related healthcare services. In the end, it all boils down to effectively allocating the available resources to maximise the safety of pregnant women and young children.

**Goran Miladinov, 2020, Socioeconomic development and life expectancy relationship: evidence from the EU accession candidate countries:** By using the IMR and income per capita as background variables for socioeconomic development, this paper investigate the relationship between socioeconomic development and life expectancy at birth . With the socioeconomic development and the improvement of health the IMR and therefore, the life expectancy at birth tends to rise. A rise in GDP per capita leads to economic growth and development resulting in prolongation of longevity which intern increases the life expectancy. The data of the countries studied all support this conclusion.

**Bewick V, Cheek L, Ball J, 2003, PMID: 14624685; PMCID: PMC374386. Statistics review 7: Correlation and regression:** Simple linear regression and correlation are effective tools used to decipher the relationship between two variables if and only if some criteria and assumptions about the data set is true. Moreover, it is essential to interpret and analyse the data effectively specially when using the equation of regression to extrapolate or establish a casual relationship.

#### **Sarad Chandra Kafle, 2019, Correlation and Regression Analysis Using SPSS**

This study highlights the benefits of using correlation and regression through SPSS while also suggesting that It can merely provide quantitative analysis. Researchers can use it to investigate different interrelated variables, the degree of their relationship and an equation, defining the relationship. As these calculations can be complicated, using software via SPSS can make the analysis of large data sets simpler and quicker. It illustrates that regression and correlation are extremely important quantitative tools used to analyse data as the Logistic Regression Model helps in predicting probability of occurrences of the independent variable when the dependent variable is dichotomous. Moreover, this method may be more flexible due to the minimisations of assumptions made. However, these findings and data isn't guaranteed due to the limitations like the data used being secondary, limited use of statistical tools and literature overview etc.

## **Research Methodology**

### **Types of Research Methodology**

There are two main types of research methodology.

#### **Descriptive**

The key features of a certain dataset are summarised and presented using descriptive statistics. It contains measurements of frequency distribution, measures of variability, and measures of central tendency. As was previously said, a measure of central tendency shows the dataset's mean, median, and more. By calculating the variance and standard deviation, the measure of variability depicts the data set's dispersion, whereas the measure of frequency distribution is used to emphasise the frequency with which a certain data point occurs.

### **Exploratory**

Exploratory statistics uses a variety of methods to visually display the characteristics of a dataset. For instance, creating bar plots, histograms, violin plots, and other visual representations can be used to do univariate analysis (exploration of a single variable). Contrarily, multivariate analysis (the investigation of several variables) can be carried out using contour plots, scatter plots, etc. This facilitates the analysis, interpretation, and identification of key elements.

### **Sampling technique:**

This paper used a questionnaire which consisted of **13 simple, general questions. This questionnaire has the purpose of providing the data required for analysis purpose.**

### **Hypothesis:**

The hypothesis proposed here is as mentioned below:

H0- The increase in GDP and Infant mortality rate are not related to each other.

H1- The increase in GDP and infant mortality rate are related.

### **Data types and sources:**

There are two types of Data.

#### **Primary data**

When a researcher gathers data from the primary source that is when the data is created. Experiments, observations, focus group discussions, interviews (which involve interaction between the interviewer and the interviewee in order to better understand their responses), and surveys which can be carried out online, over the phone, or in person—are just a few of the many methods that can be used to accomplish this. Primary research aids in the collection of more current, trustworthy data that is pertinent to and focused on the research's goal. However, it can be more difficult to execute and more expensive, making it economically unviable. Additionally, there are situations when academics lack the means or aptitude to do such study, for instance, while attempting to assess the demography of an economy.

#### **Secondary data**

Reusing existing data for a specific study's goal is known as secondary data. Some sources of secondary data include government papers, media reports, scholarly journals, and other internet materials. They are rapid and economical. It could, however, be out of date and not be tailored to the study's particular needs. The research techniques used by others could also be fraught with difficulties.

### **Population:**

It is the set of maximum people including males and females having knowledge of GDP and Infant mortality Rate to which the findings are generalised.

### **Sampling frame:**

For performing non-profitability sampling randomly list of different people belonging to different professions was generated from a selected area

### **Sample size:**

Sample size 81 respondents was selected to make the study meaningful.

### **Study area:**

The study was conducted throughout the city of Delhi. Delhi being the capital of India is expected to have an awareness about GDP and infant mortality rate.

### **Limitations:**

1. Unwillingness of the respondents to response truthfully and honestly would have affected the accuracy of the data.
2. People may not have enough knowledge required to answer this questionnaire could have affected the data collected.
3. The sample chosen might restrict the entire coverage of all the socio economic group.

4. Due to time and cost constraints only virtual samples were collected.

## Data Analysis and Presentation

### Data analysis thorough correlation and regression

#### Pearson's coefficient

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

$$r = \frac{-1319249.13}{\sqrt{23247137 \times 106582.899}}$$

$$r = -0.838104926$$

There is a negative correlation. This shows that the variables are inversely related.

$$r^2 = 0.702419867$$

This shows that there is a strong relationship between GDP per Capita and the infant mortality rate in India.

#### Line of regression

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2}$$

$$m = \frac{(62 \times 2081682.39) - (37,363 \times 5648.491)}{(62 \times 4,57,63,157) - 37,363^2}$$

$$m = -0.056748907$$

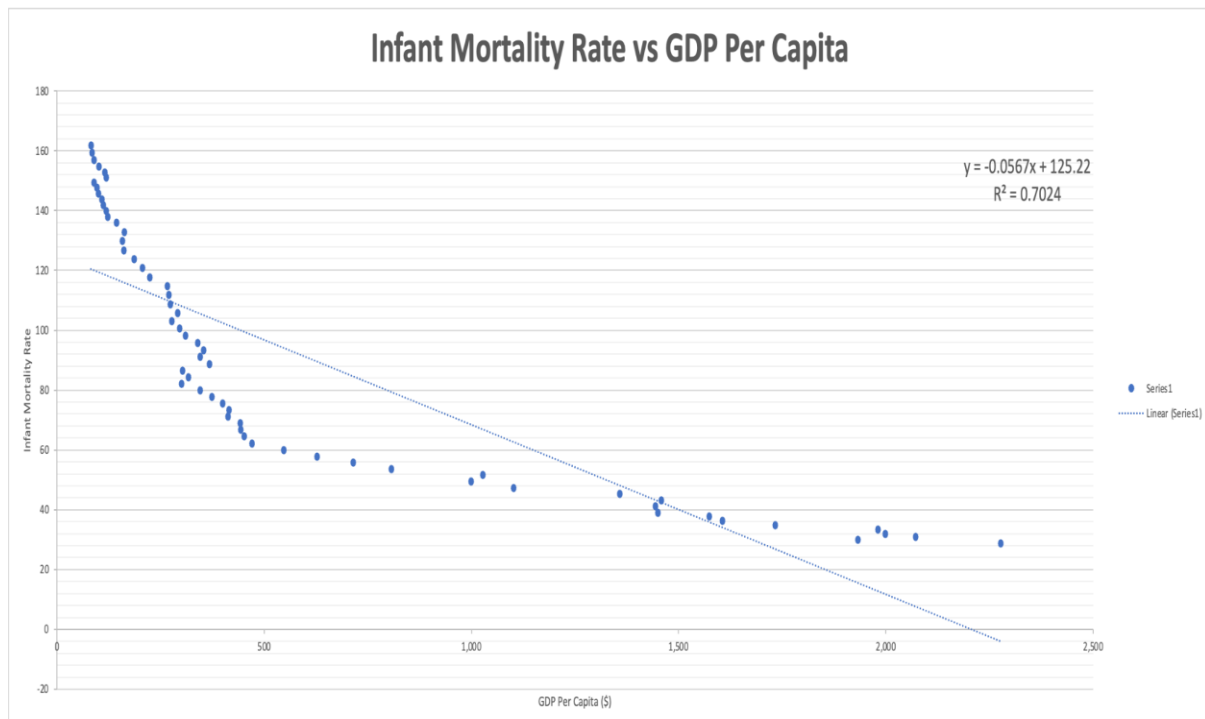
$$c = \bar{y} - m\bar{x}$$

$$c = 91.02404839 - (-0.056748907 \times 603)$$

$$c = 125.2225873$$

$$y = mx + c$$

$$\text{Therefore, } y = -0.056748907x + 125.2225873$$



The above data is prepared using the information from the list below stating infant mortality rate and GDP per capita in India from 1960 to 2021.

Year	Infant Mortality Rate	GDP Per Capita
2021	28.771	\$2,277
2020	29.848	\$1,933
2019	30.924	\$2,072
2018	32	\$1,998
2017	33.416	\$1,981
2016	34.833	\$1,733
2015	36.249	\$1,606
2014	37.666	\$1,574
2013	39.082	\$1,450
2012	41.157	\$1,444
2011	43.232	\$1,458
2010	45.307	\$1,358
2009	47.382	\$1,102
2008	49.457	\$999
2007	51.556	\$1,028
2006	53.655	\$807
2005	55.755	\$715
2004	57.854	\$628
2003	59.953	\$547
2002	62.212	\$471
2001	64.471	\$452
2000	66.729	\$443
1999	68.988	\$442
1998	71.247	\$413
1997	73.419	\$415
1996	75.591	\$400
1995	77.764	\$374
1994	79.936	\$346
1993	82.108	\$301
1992	84.336	\$317
1991	86.564	\$303

Year	Infant Mortality Rate	GDP Per Capita
1990	88.791	\$368
1989	91.019	\$346
1988	93.247	\$354
1987	95.73	\$340
1986	98.213	\$310
1985	100.695	\$296
1984	103.178	\$277
1983	105.661	\$291
1982	108.688	\$274
1981	111.716	\$270
1980	114.743	\$267
1979	117.771	\$224
1978	120.798	\$206
1977	123.807	\$186
1976	126.815	\$161
1975	129.824	\$158
1974	132.832	\$163
1973	135.841	\$144
1972	137.835	\$123
1971	139.828	\$119
1970	141.822	\$112
1969	143.815	\$108
1968	145.809	\$100
1967	147.57	\$96
1966	149.33	\$90
1965	151.091	\$119
1964	152.851	\$116
1963	154.612	\$101
1962	156.989	\$90
1961	159.366	\$85
1960	161.742	\$82

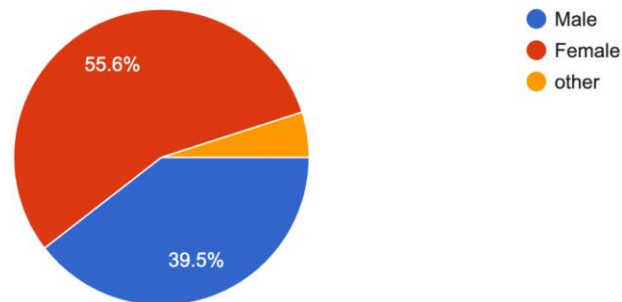


## Data analysis thorough graphs

WE TOOK THE SURVEY: QUESTIONNAIRE METHOD AND RESULTS WERE AS FOLLOWS: WE GOT 81 RESPONSES TO THE COMPULSORY QUESTIONS ASKED BELOW:

What is your gender?

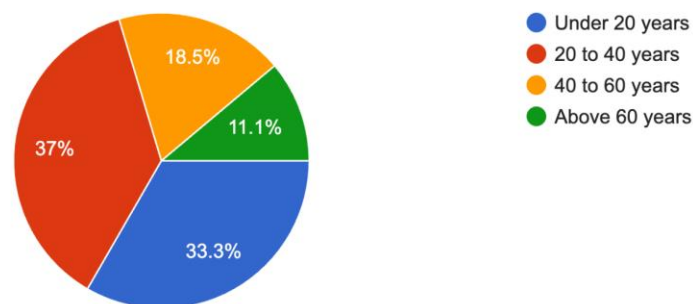
81 responses



Even though the majority respondents are women, the distribution between both male and female respondents are relatively equal. The form even has some non-binary respondents

What is your age?

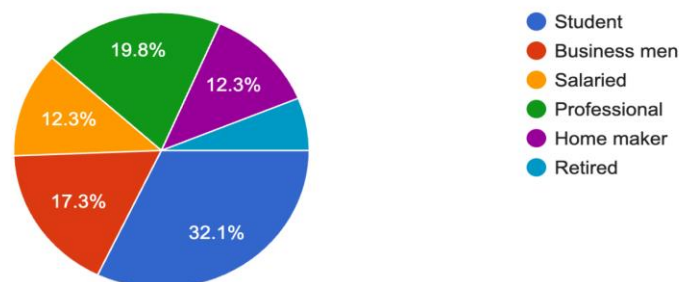
81 responses



More than 70% of the respondents were below 40 years of age and only 11.1% of the respondents are over 60 years. The number of respondents under 20 years and between 20 to 40 years are relatively similar.

What is your profession?

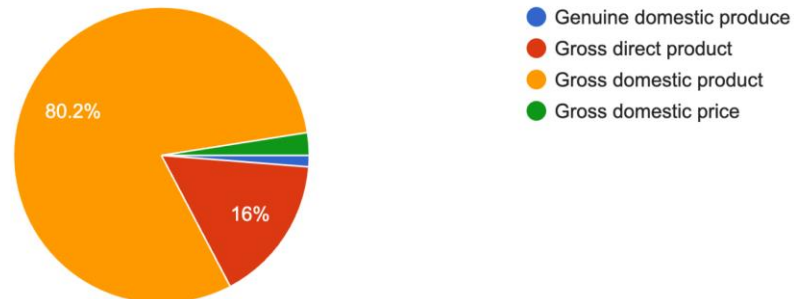
81 responses



This shows that respondents belong to a varied range of professions.

### What is the full form of GDP?

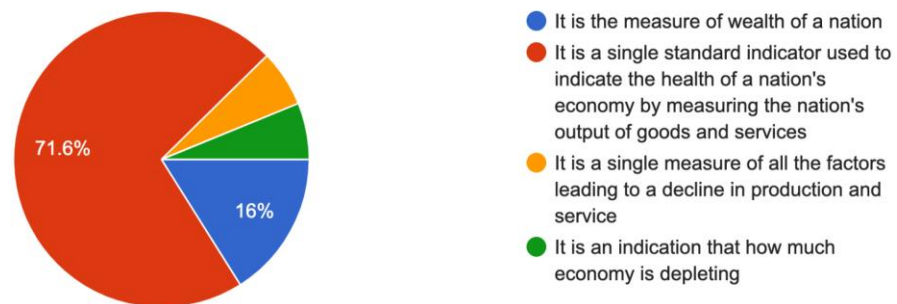
81 responses



From the above we can infer that up to 80.2% of the respondents were aware of the term GDP.

### Define GDP.

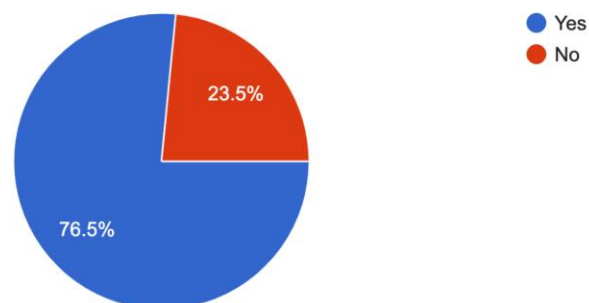
81 responses



As high as 71.6% of the respondents were aware of the terminology precisely.

### Are you aware that there exists different types of GDP?

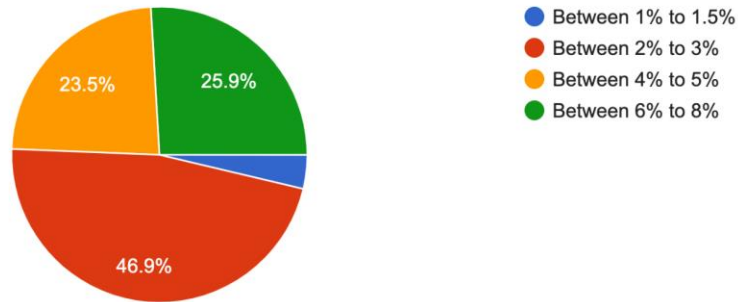
81 responses



The graph depicts that 76.5% of the respondents knew that there are different types of GDP

### What is a good GDP for a country?

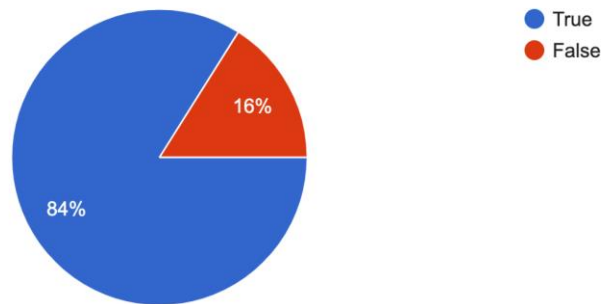
81 responses



Respondents have a mixed opinion and do not show much clarity on what should be a good GDP rate for the country.

### Different countries employ different methods to calculate GDP

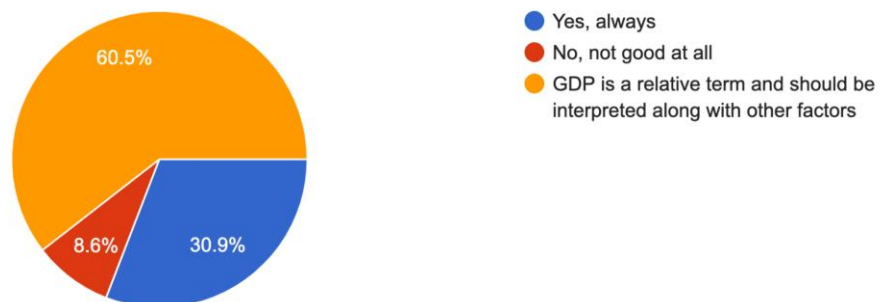
81 responses



More than 80% of respondents knew that different countries employ different methods to calculate GDP.

### Higher GDP is always good for a nation, do you agree?

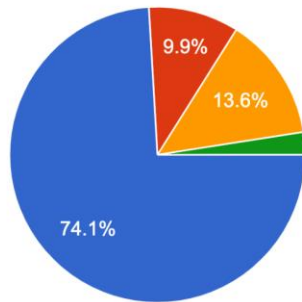
81 responses



The above graph shows that not many believe in the myth that higher GDP is always good for the nation.

### What is per capita GDP?

81 responses

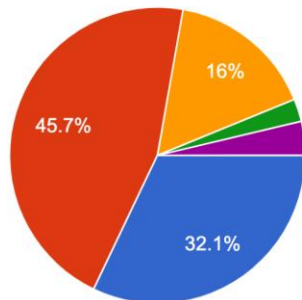


- A financial metric that breaks down a countries economic output per person by dividing the GDP of a nation by the...
- It is a measure which is calculated by dividing NDP by the young population
- It is a metric which is calculated by dividing the GDP by the retired population
- It is a measure which is calculated by dividing the NDP by the female popula...

This depicts that upto 74.1% of the respondents had a good understanding of what Per Capita GDP is

### Is high per capita GDP good for a nation?

81 responses

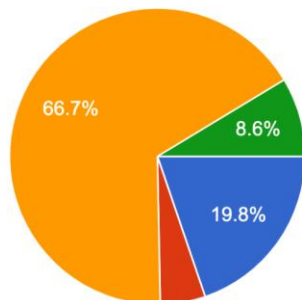


- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

From the above, we can infer that 77.8% of the respondents agreed, or strongly agreed with the statement while 16% were neutral about it. Only a small percent disagreed.

### What is child mortality?

81 responses

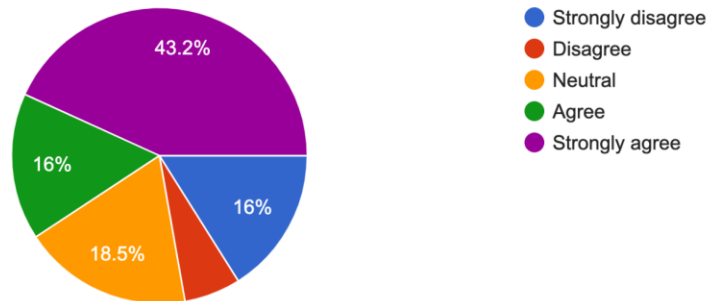


- It is the number of children born dead
- It is the number of children born handicap
- It is the number of children born alive and die before their fifth birthday
- It is the number of children born alive and die after twenty one years

Majority of the respondents were aware about what infant mortality rate is.

Increase in GDP per capita increases the life expectancy at birth through economic growth and development. Do you agree?

81 responses



It's very clear from the above that majority agreed with the fact that increase in per capita GDP increases the life expectancy.

## CONCLUSION

Infant mortality rates are higher in India than in countries with an equal distribution of income. Most infant deaths occur among the underprivileged. Child survival is significantly influenced by national income. One of the best indicators of a nation's health status is child mortality. Child mortality and income have a substantial and negative association. It has been noted that India's socioeconomic development has improved through time, resulted in a decline of infant mortality, and as a result, the life expectancy at birth appears to have grown. By fostering more economic growth and development in a nation, GDP per capita raises the life expectancy at birth and, in turn, promotes longevity.

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### Key words:

Standard Deviation, central tendency, cumulative frequency distribution, GDP (Gross Domestic Product), National Income, IMR (Infant mortality rate), Cerebral palsy, Developmental delay, neonatal deaths, saliva, immunity, vaccination, consumer confidence, economic recession, maternal, economic crisis, life expectancy

### Appendix:

#### Questionnaire

1. What is your gender?\*
- Male
- Female
- Other
2. What is your age?\*
- Under 20 years
- 20 to 40 years
- 40 to 60 years
- Above 60 years
3. What is your profession?\*
- Student
- Business men
- Salaried
- Professional
- Home maker
- Retired
4. What is the full form of GDP?\*
- Genuine domestic produce
- Gross direct product
- Gross domestic product
- Gross domestic price
5. Define GDP.\*
- It is the measure of wealth of a nation
- It is a single standard indicator used to indicate the health of a nation's economy by measuring the nation's output of goods and services
- It is a single measure of all the factors leading to a decline in production and service
- It is an indication that how much economy is depleting
6. Are you aware that there exists different types of GDP?\*
- Yes
- No
7. What is a good GDP for a country?\*
- Between 1% to 1.5%
- Between 2% to 3%
- Between 4% to 5%

- Between 6% to 8%
8. Different countries employ different methods to calculate GDP\*
- True
  - False
9. Higher GDP is always good for a nation, do you agree?\*
- Yes, always
  - No, not good at all
  - GDP is a relative term and should be interpreted along with other factors
10. What is per capita GDP?\*
- A financial metric that breaks down a countries economic output per person by dividing the GDP of a nation by the population
  - It is a measure which is calculated by dividing NDP by the young population
  - It is a metric which is calculated by dividing the GDP by the retired population
  - It is a measure which is calculated by dividing the NDP by the female population
11. Is high per capita GDP good for a nation?\*
- Strongly agree
  - Agree
  - Neutral
  - Disagree
  - Strongly Disagree
12. What is child mortality?\*
- It is the number of children born dead
  - It is the number of children born handicap
  - It is the number of children born alive and die before their fifth birthday
  - It is the number of children born alive and die after twenty one years
13. Increase in GDP per capita increases the life expectancy at birth through economic growth and development. Do you agree?\*
- Strongly disagree
  - Disagree
  - Neutral
  - Agree
  - Strongly agree