

# DSE 200X: Mini Project Presentation

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# Dataset(s)

For this research project, the *World Development Indicators* Dataset has been used. Specifically, the indicators of Internet users (per 100 people) and GDP per capita of Afghanistan from 2004 up to 2014.

# Motivation

The internet is undoubtedly impacting how we socialize, work, share and create data/information, and organize ideas around the globe. According to Manyika and Roxburgh (2011), the internet accounted for 21 percent of the GDP growth in mature economies over the past 5 years. [1] Furthermore, It has been established that countries with a higher GDP per capita generally have higher rates of internet users. In contrast, poorer countries tend to have lower rates of technology usage [2].

Hence, the current research project explores the relationship between internet adoption and GDP per capita in the context of low-income or developing countries. The hypothesis is that similar to countries with higher GDP per capita, the GDP and Internet usage or adoption could be positively correlated in developing countries. To prove this hypothesis, this research has used the evidence and data of (GDP per capita and Internet Users) from the lowest-income country of Afghanistan.

The research findings will help governments, policymakers, and businesses in developing countries realize the potential of internet usage by understanding the impact of internet usage on GDP per capita or vice-versa.

# Research Question(s)

Is there a relationship between internet adoption and GDP per capita in Afghanistan?

# Findings

This research project has used statistical correlation (correlation coefficient) as the primary method to show the relationship between the variables of GDP per capita and Internet users of Afghanistan from 2004 to 2014. Consequently, as shown in figure 3, the mentioned variables have been visualized using a scatter plot to determine whether or not these variables correlate. In addition, as shown in figure 1 and 2, each of the variables has been visualized individually using Bar Chart for a better understanding of the indicator's data and content.

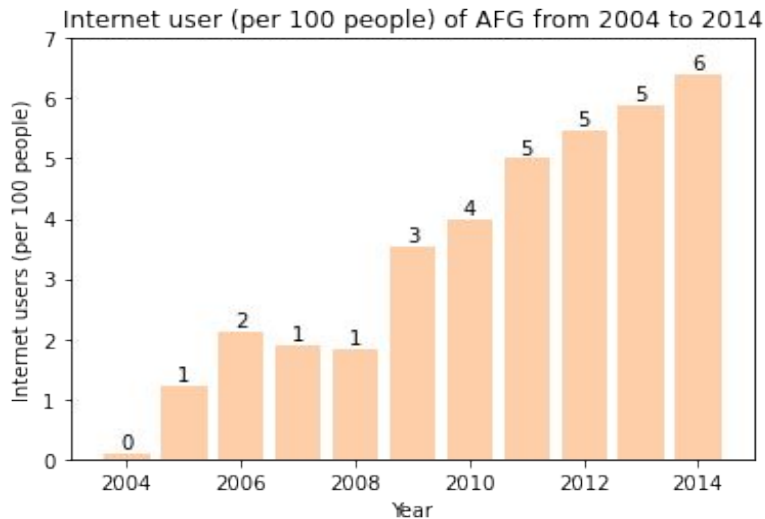


Figure 1. Internet user (per 100 people) indicator of Afghanistan from 2004 to 2014 Bar Chart.

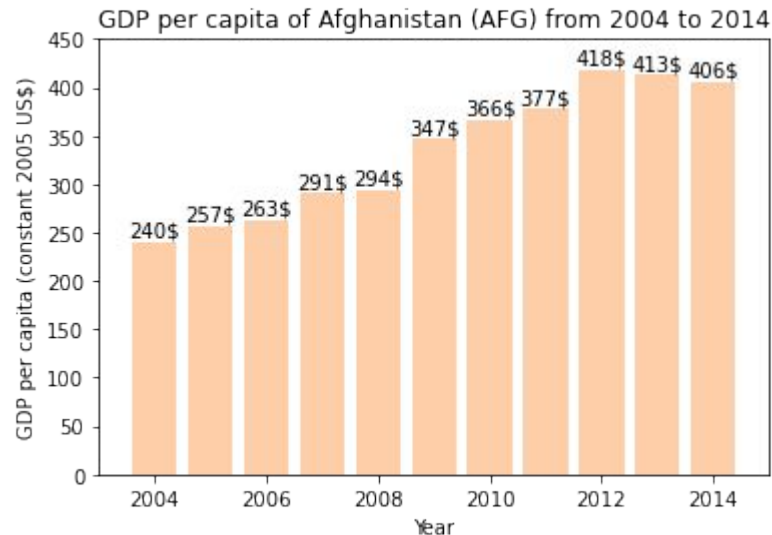


Figure 2. GDP per capita (constant 2005 US\$) indicator of Afghanistan from 2004 to 2014 Bar Chart.

# Findings

As discussed, to present the analysis and findings of this project with clarity, the correlation coefficient was performed using Python programming language's NumPy library as the primary statistical method between the variables of interest.

The correlation coefficient is a statistical measure of the strength of a linear relationship between two variables. Its values can range from -1 to 1. A correlation coefficient of -1 describes a perfect negative correlation, with values in one series rising as those in the other decline and vice versa. A coefficient of 1 shows a perfect positive correlation or a direct relationship. A correlation coefficient of 0 means there is no linear relationship. [3]

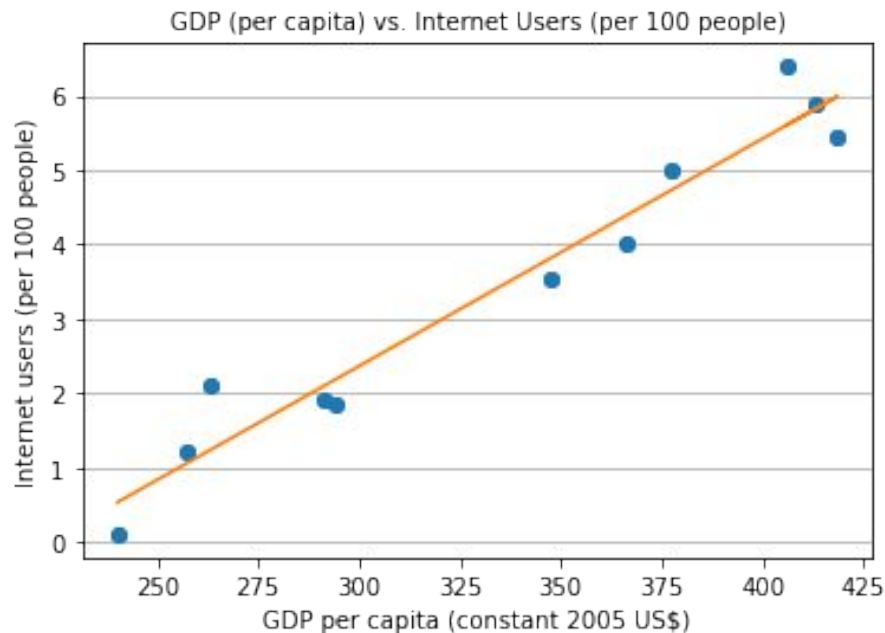


Figure 3. GDP per capita (constant 2005 US\$) vs Internet user (per 100 people) indicator of Afghanistan from 2004 to 2014 scatter plot.

# Findings

The correlation coefficient analysis of variables of GDP per capita and Internet users of Afghanistan from 2004 to 2014 shows a 0.97 ( $p= 0.97345894$ ) positive correlation. As discussed, a coefficient of 1 indicates a perfect positive correlation or a direct relationship. Hence, the correlation coefficient of 0.97 shows a very strong and almost perfect positive or direct relationship between the variables of interest.

In simple terms, the increase in internet users or adoption will positively impact or increase the GDP per capita of Afghanistan and vice-versa. Therefore, coming back to our initial hypothesis and research question, we can conclude that there is a positive relationship between internet adoption and GDP per capita in Afghanistan. And the results also prove the research hypothesis that, similar to countries with higher GDP per capita, the GDP and Internet usage or adoption could be positively correlated in developing countries or low-income countries.

# References

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