 University of Bahrain

 College of Business Administration

 Management & Marketing Department

QM250: INTRODUCTION T0 STATISTICS –

GROUP 3 – SEC 5

The Impact Of Tourism On The Economic Growth

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**Contents:**

1. Introduction ……………………………………3
2. Framework …………………………………… 4
3. Descriptives Statistics ……………...
4. Explaining the Findings……………
5. Frequency Distribution Table ……

D. Regression Model …………………….

1. The data ………………………………………...8
2. Results…………………………………………12

1. Conclusion & References ………………14,15

1- Introduction:

Tourism is an important source of income in all the countries around the world. It’s one of the activities that affect other economic activities such as restaurants, hotels, transportations, malls and other entertainment places, which makes tourism an important thing in influencing national income, directly or indirectly.

The following table describes the dependent and independent variables:

|  |  |
| --- | --- |
| Independent variable  | X= Tourism |
| Dependent variable  | Y= Economic |
| Tourism | Tourism is travel for pleasure in any country around the world. |
| Economic | Economics is a social science concerned with the production, distribution, and consumption of goods and services. It concentrates how people, organizations, governments, and countries settle on decisions about how to allot assets. |

Our topic is the impact of tourism on the economic growth in Turkey. In the next pages, we will cover the framework modelling and we will show you the descriptive statistics and explain it in detail. Also, we will provide the data set which will show you the estimated interpretation. Moreover, we will discuss the practical implication of the result.

(3)

2- Framework:

A- Descriptive statistics:

|  |  |  |
| --- | --- | --- |
|  | Tourism (X) | GDP (Y) |
| Mean | 21302761.9 | 5.025 |
| Range | 32918000 | 17.08 |
| Minimum | 6893000 | -5.96 |
| Maximum | 39811000 | 11.11 |
| Sum | 447358000 | 105.52 |
| Count (N) | 21 | 21 |
| Std. Error | 2630793.48 | 1.02341 |
| Std. Deviation | 12055810.3 | 4.68984 |
| Variance | 145342561 | 21.995 |
| Skewness | 0.274 | -1.283 |
| Kurtosis | -1.591 | 0.881 |

**B- Explaining the findings :**

We used descriptive statistics to determine the impact of tourism of economic growth in Turkey from 1995 to 2015.

The Mean: First of all, we calculated the mean or we can call it average too, it’s the sum of all data values divide by their number. So the average of tourism data is equals to 21302761.9 and the mean of GDP is equals to 5.025.

Range: we subtract the highest value from the lowest value .The range of tourism data is equals to 32918000 and the range of GDP data is equals to 17.08.

 Minimum: we determine the lowest value from the tourism data and its equal to 6893000 and the lowest value in GDP data is equal to -5.96.

Maximum: we determine the highest value from the tourism data and its equal to 39811000 and the highest value in the GDP data is equal to 11.11.

Sum: we sum all the numbers in the data, so the sum of tourism data is equals to 447358000 and GDP data is equals to 105.52.

count: is the total number of observation which is the years from 1995 to 2015. The count represents 21.

Standard error: we calculated the standard error which appears in the descriptive statistics 2630793.48 in the tourism data and in GDP data is equal to 1.02341. Furthermore, the standard error is smaller than the standard deviation.

(4)

Standard deviation: it’s how far the data values are from their mean and also it’s the most widely used measure of dispersion measurements. It’s represent 12055810.3 in tourism data while in GDP data is equal to 4.68984.

The variance: is the square root of the distance of data values that are far from their mean. In our measurement the variance value of tourism is equals to 145342561 and the variance of GDP data is equals to 21.995.

Skewness: it tells us whether the curve that shows the distribution of data is turning right, left or symmetric (normal) and it’s depends on the position of the mean, median and mode. Tourism data has positive skewed which is mean that the mean is bigger than the median and the mode while GDP data has negative skewed and that’s mean that the mean is smaller than the median and the mode.

Kurtosis: we determine the kurtosis which is equal to -1.591 that reflects the shape of tourism data distribution in turkey from 1995 to 2015 s0 it’s curved by -1.591 while the GDP data is equal to 0.881.

(5)

C- Frequency Table:

|  |
| --- |
| **Frequency Distribution Table of tourist** |
| **Range** | **Frequency** |
| 6,000,000.00 | 9,000,000.00 | 4.00 |
| 9,000,001.00 | 12,000,000.00 | 3.00 |
| 12,000,001.00 | 15,000,000.00 | 2.00 |
| 15,000,001.00 | 18,000,000.00 | 1.00 |
| 18,000,001.00 | 21,000,000.00 | 2.00 |
| 21,000,001.00 | 24,000,000.00 | 0.00 |
| 24,000,001.00 | 27,000,000.00 | 1.00 |
| 27,000,001.00 | 30,000,000.00 | 1.00 |
| 30,000,001.00 | 33,000,000.00 | 2.00 |
| 33,000,001.00 | 36,000,000.00 | 2.00 |
| 36,000,001.00 | 39,000,000.00 | 1.00 |
| 39,000,001.00 | 42,000,000.00 | 2.00 |
| **Total** | **21.00** |

|  |
| --- |
| **Frequency Distribution Table of GDP Growth** |
| **Range** | **Frequency** |
| (6.000) | (5.000) | 1.00 |
| (4.999) | (4.000) | 1.00 |
| (3.999) | (3.000) | 1.00 |
| (2.999) | (2.000) | 0.00 |
| (1.999) | (1.000) | 0.00 |
| (0.999) | 1.000 | 1.00 |
| 1.001 | 2.000 | 0.00 |
| 2.001 | 3.000 | 1.00 |
| 3.001 | 4.000 | 0.00 |
| 4.001 | 5.000 | 1.00 |
| 5.001 | 6.000 | 3.00 |
| 6.001 | 7.000 | 3.00 |
| 7.001 | 8.000 | 4.00 |
| 8.001 | 9.000 | 2.00 |
| 9.001 | 10.000 | 2.00 |
|  10.001  |  11.000  | 0.00 |
|  11.001  |  12.000  | 1.00 |
| **Total** | **21.00** |

(6)

D- Regression Model:

**Regression Equation Y = a + bx + ϵ**

Where:

Y – Dependent variable (GDP)

X – Independent (Tourism) variable

a – Intercept

b – Slope

ϵ – Residual (error)

GDP (Y) = a + b Tourism a

|  |  |  |
| --- | --- | --- |
|  | Coefficients | Standard Error |
| Intercept | 3.767342639 | 2.146926329 |
| Tourism (X) | 5.91E-08 | 8.82211E-08 |

 b

So, GDP (Y) = 3.767342639 + 5.91E-08

 = 3.77E+00X

(7)

3- The Data:

|  |  |  |
| --- | --- | --- |
| **Tourism** | **GDP growth** | **Year** |
| 7083000 | 7.878266876 | 1995 |
| 7966000 | 7.379664474 | 1996 |
| 9040000 | 7.577663644 | 1997 |
| 8960000 | 2.308213464 | 1998 |
| 6893000 | -3.389304879 | 1990 |
| 9586000 | 6.640061122 | 2000 |
| 10783000 | -5.962310758 | 2001 |
| 12790000 | 6.430278635 | 2002 |
| 13341000 | 5.608255093 | 2003 |
| 16826000 | 9.644322582 | 2004 |
| 20273000 | 9.009853311 | 2005 |
| 18916000 | 7.109703431 | 2006 |
| 26122000 | 5.030457589 | 2007 |
| 29792000 | 0.845251452 | 2008 |
| 30187000 | -4.704465917 | 2009 |
| 31364000 | 8.487372187 | 2010 |
| 34654000 | 11.11349555 | 2011 |
| 35698000 | 4.789940207 | 2012 |
| 37795000 | 8.491309393 | 2013 |
| 39811000 | 5.166690703 | 2014 |
| 39478000 | 6.085886632 | 2015 |

(8)

**The source of the data collected**

 The World Bank Data is provides access to global economic and development indication and gender. The annual world development report is available online. Also, it offers data that is both descriptive and inferential. In

this case it’s more inferential because there are reasons

that we will be testing hypothesis and assessing the relationships among the two variables, tourism and economic growth (GDP) and drawing conclusions.

We have chosen The World Bank Data because it’s a trusted and guaranteed website and it has many different types of data from all over the world. Also, it’s really easy to deal with.

**The chosen graph representing**

**the data**

These are two dotted line graphs that are used to display trends with showing importance to order. The first one is representing tourism rate and the second one is represent the growth (GDP) rate.

**Reflection over the trends in the graph**

The tourism industry graph has marginally expanding while the GDP graph has consistent variances.

The tourism industry in turkey is centered more in authentic destinations and the shoreline resort. The traveler appearances expanded significantly in Turkey somewhere in the range of 2000 and 2005, from 8 million to 25 million, which made Turkey a main 10 objective on the planet for unfamiliar guests. 2005 incomes were expanded which likewise made Turkey one of the best 10 greatest income proprietors on the planet. In 2011, Turkey positioned as the sixth most mainstream traveler objective on the planet. At its tallness in 2014, Turkey pulled in around 42 million unfamiliar vacationers, actually positioning as the sixth most mainstream traveler location on the planet. From 2015, the travel industry to Turkey entered a precarious decrease. In 2016, just around 30 million individuals visited Turkey. In mid 2017, the Turkish government asked Turkish residents living abroad to get away in Turkey, endeavoring to restore the striving the tourism industry area of an economy that went into compression from the finish of 2016. After the April 2017 sacred submission, another sharp drop in traveler appointments from Germany was recorded. In 2018, be that as it may, the German Tourism Industry Association recorded a development in German traveler appointments for Turkey, with a 70% expansion

(10)

**Explain the range and the standard**

**deviation of the chosen data**

|  |
| --- |
| GDP (Y) |
| range | 17.08 |
| Standard deviation | 4.68984 |

|  |
| --- |
| **Tourism (X)** |
| Range | 32918000 |
| Standard deviation | 12055810.3 |

The range is the difference between the largest value and the smallest value in the data.

Standard deviation is the standard way that we understand the report and it’s impossible to be negative. Standard deviation is a reliable method for determining how variable the data for sample and population.

**Explain what is the first and third quartiles shows**

In the first quarter we can see a slow increasing in Tourism rate, as for GDP rate it was stainable rate in the first three years but it decreased sharp and deep in last two years, in third quarter we can see a high increasing in Tourism rate but the GDP rate still dropped deep after its increased in second quarter.

|  |
| --- |
| GDP (Y) |

(11)

**Explain the coefficient of skewness and indicate what it shows:**

|  |
| --- |
| Skewness |
| Tourism | GDP |
| 0.274 | -1.283 |

The skewness depends on position of mean, median, mode. As you can see the skewness in tourism is positive while it’s negative in GDP. So the curve of tourism data is skewed to the right while the curve of GDP data is skewed to the left. Since the skewness is negative we know that the mode is bigger than mean and median and while the skewness is positive it will be the opposite.

**The hypothesis for tourism**

**-** NULL HYPOTHESIS = AVERAGE = 21302761.9

- ALTRENATE HYPOTHESIS = AVERAGE ≠ 21302761.9

- LEVEL OF SIGNIFICANCE 95%

- CRITICAL VALUES =+/- 2.086

- T TEST STATISTICS = 8.0974

- DECISION RULE = if the computed value of T is not between -2.086 and 2.086 then reject null hypothesis. If T value falls between -1.96 and 1.96 then accept null hypothesis.

-INTERPRETATION= null hypothesis is rejected because the population mean is equal to 21302761.9.

(12)

4- The Result:

**Regression Statistics:**

|  |  |
| --- | --- |
| **Regression Statistics** |  |
| Multiple R | 0.151834082 |
| R Square | 0.023053589 |
| Adjusted R Square | -0.028364644 |
| Standard Error | 4.756457863 |
| Observations | 21 |

The regression analysis shows that the variables tourism and economic growth of turkey does correlate with each other because the r sequare is 0.023 which represents that 0.23% variation has been explained by the independent variable (Tourism) in the total variation of dependent variable GDP .

**ANOVA Table:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ANOVA** |  |  |  |  |  |
|  | df | SS | MS | F | Significance F |
| Regression | 1 | 10.14352035 | 10.14352035 | 0.44835436 | 0.511173419 |
| Residual | 19 | 429.8539367 | 22.62389141 |  |  |
| Total | 20 | 439.9974571 |  |  |  |

As the ANOVA test also states that there dosn’t exist any relationship among our two variables tourism and economic growth because the significance values of ANOVA are 0.511% value of significance.

(13)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Coefficients** | **Standard Error** | **t Stat** | **P-value** | **Lower 95%** | **Upper 95%** | **Lower 95.0%** | **Upper 95.0%** |
| **Intercept** | 3.767342639 | 2.146926329 | 1.754761022 | 0.095413342 | -0.72622581 | 8.260911089 | -0.72622581 | 8.26091109 |
| **Tourism** | 5.91E-08 | 8.82211E-08 | 0.669592682 | 0.511173419 | -1.25577E-07 | 2.43721E-07 | -1.25577E-07 | 2.4372E-07 |

**Coefficients Table:**

The coefficient table help us to build the following equations:

Tourism = 3.76(5.91)

İt means that with this change in tourism of Turkey and it will has change in their GDP.

H0= There is no significant relationship between tourism and economic growth of Turkey.

H1= There is a significant relationship between tourism and economic growth of Turkey.

**Correlation Table:**

|  |  |  |
| --- | --- | --- |
|  | **Tourism** | **GDP growth** |
| **Tourism** | 1 |  |
| **GDP growth** | 0.151834082 | 1 |

Ccorrelation coefficient (r) is 0.15 which indicates that there is a weak positive relationship between Tourism and GDP per capita growth. And the value of R^2is 0.023 which represents that 0.23% variation has been explained by the independent variable (Tourism) in the total variation of dependent variable GDP per capita (%).

(14)

This suggests that this is not such a good fit model since the value of the decision coefficient is up to 1

5- Conclusion

At the end the impact of tourism on the economic growth was really clear from the data analysis and it’s become recognized over the time. The tourism rate is increase in comparison to the GDP. The impact of tourism is occurred either by direct way such us restaurants, malls, cinemas and hotels or indirect way through more investments on government or private sector created by tourism, So we learned from all of the topic that how we applied a multiplied statistics issues and tests to our data’s and the relationships between numbers and the problems such like ANOVA tests and other test and how it effect and work with our data that we selected , and as we found the correlation coefficient as we called it (r) is 0.15 so that we knew it’s a weak relationship between tourism and GDP and the other value r^2 it’s 0.023 the variation has been explained by the independent variable GDP per capital, and we learned the hypothests for both variables H0 and H1 the null and alternative hypothests such the null equalled to the average and alternative not equalled to the tourism average and when the test acceptable and rejectable, the project helped us to understand the effects of the tourism in turkey clearly by Statistics and some of economic in general and details.

references:

Data: data.worldbank.org

https://en.wikipedia.org/wiki/Economy\_of\_Turkey

(15)