Candidate 3 evidence

Word count: 516

Introduction

Travel and tourism play an important role in the United Kingdom. Tourists from overseas are important to the UK economy by spending money in various ways, through accommodation, food and drink services, transport, cultural attractions, and other recreational activities. It is estimated that one in ten jobs in the UK is linked to the tourism industry.

This project will look at the number of overseas visitors to the UK between 1995 and 2019. According to the Visit Britain website "tourism has been the fastest growing sector in the UK". We wish to use the available data to determine if there is a linear relationship between year and visitor numbers (thousands). The raw data set was obtained from the World Tourism Organization (UNWTO) is the United Nations agency responsible for the promotion of responsible, sustainable and universally accessible tourism. Given this is a United Nations agency we may assume the data to be valid and correct.

Analysis and Interpretation

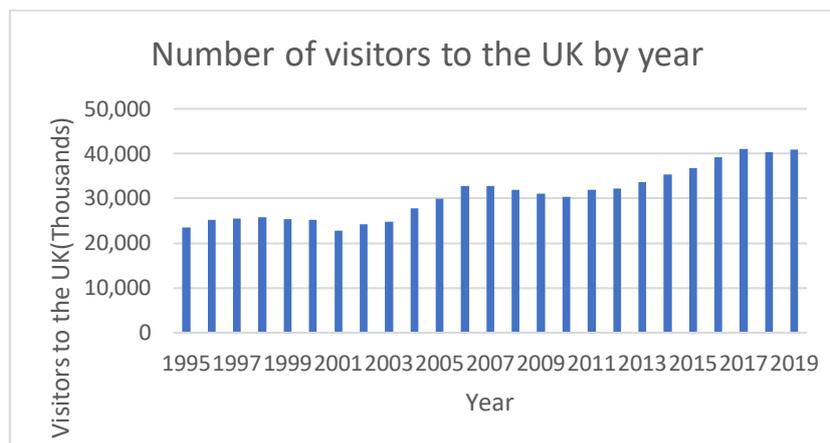Initially a bar chart of the visitors for each year was constructed (figure 1).

Figure 1

Figure 1 shows a variable picture over the 25 years of data and indicates a linear relationship may not exist for the data. A scatter graph was also constructed with the liner regression model shown (figure 2).
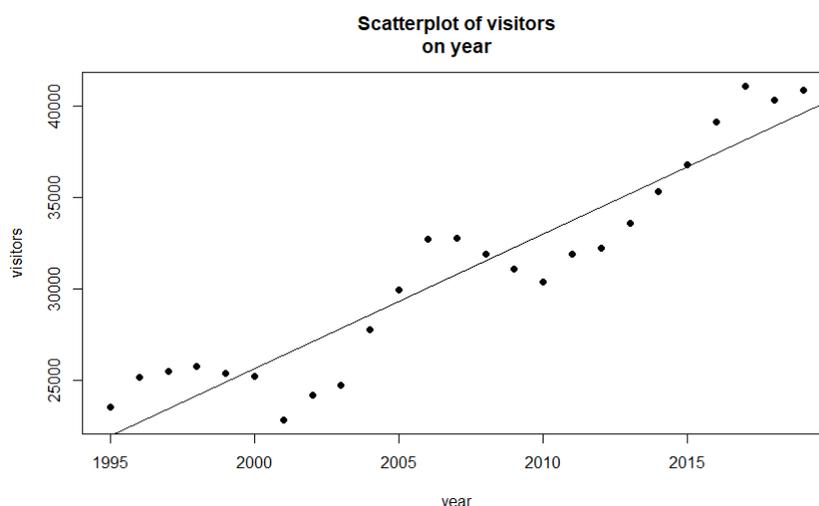
Figure 2

Figure 2 shows an increasing trend over the 25 year period with 2000-2006 and 2010-2019 showing linear relationships. We will carry out the linear regression on the whole data set, but it might be better to consider a smaller sample 2010 – 2019 for example.

The mean and standard deviation was calculated for the visitors to the UK over the 25 year period (Figure 3)

Table 1

Mean (visitors)	30800.76
Standard deviation (visitors)	5756.174

Table 1 tells us that on average during the 25-year period 30 800 760 people visited the UK, with a high expectancy that the number of visitors will be between 25 000 000 and 36 600 000 (rounded to 3 significant figures). The high standard deviation suggests that the number of visitors varies greatly from one year to the next.

<u>Linear regression model and associated statistics</u>

The equation of the linear regression model can be calculated as:

$$\text{visitors} = -1443472 + 734.6 \times \text{year}$$

The R² value was calculated as 0.8821, giving an r value of 0.9392. This is close to one and therefore suggests that the linear model is a good fit for the data.

<u>Conclusion</u>

When we test the hypothesis that there is no relationship between visitor numbers and the year, the p value is extremely small (3.657×10^{-12}). There is evidence to suggest we can reject the hypothesis and therefore conclude that there is a linear relationship between year and visitor numbers. This confirms that the tourism industry is growing in the UK.

Appendix

UNITED KINGDOM Total arrivals	year Thousands	1995	1996	1997	1998	1999	2000	2001	2002	2003
		23,537	25,163	25,515	25,745	25,394	25,209	22,835	24,180	24,715

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
27,755	29,970	32,713	32,778	31,888	31,072	30,398	31,886	32,221	33,567	35,337	36,792

2016	2017	2018	2019
39,129	41,080	40,283	40,857