

# Study on Travel and Living International Travel

Riya Michael  
Student

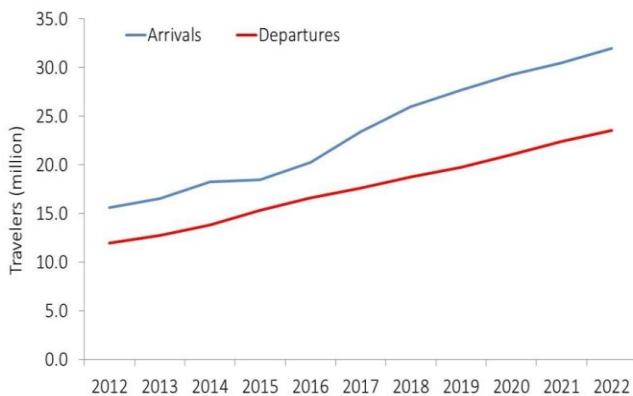
SVKM's NMIMS University, Anil Surendra Modi School of Commerce  
Mumbai, India

**Abstract:-** The international travel sector has grown rapidly with the demands of people to travel abroad for various purposes. This paper presented a survey and analysis of the travel behavior of people's trip frequency, purpose, accommodation choices, local travel, food preferences, places they visit and their shopping preferences. This paper compares the relationship between frequency of travel and the purpose for the same. A thorough study using forecasting techniques helped to predict the frequency of travel in the coming years.

**Keywords:-** Demands; Travel Behavior; Forecasting Techniques.

## I. INCREASE IN INTERNATIONAL TRAVEL

Over the past few years, the international travel sector has been growing steadily. People travel abroad for various purposes such as work, leisure, religious excursions, medical treatment and many more.



Source: Oxford Economics

Fig 1

Source: Oxford Economics

Figure 1 shows how the demand for international travel has increased gradually from around 12 million travelers in 2012 to 20 million travelers in 2019 and it is further expected to rise to 22 million travelers by 2022.

With the growth of the Indian economy, the standard of living of the citizens of India has progressed, thereby opening the door to international travel for many families. People are able to travel abroad frequently, at least once in a year. This being said there are people who are either unwilling to travel abroad more often or have insufficient resources to sponsor the same.

## II. INCREASE IN LEISURE TRAVEL

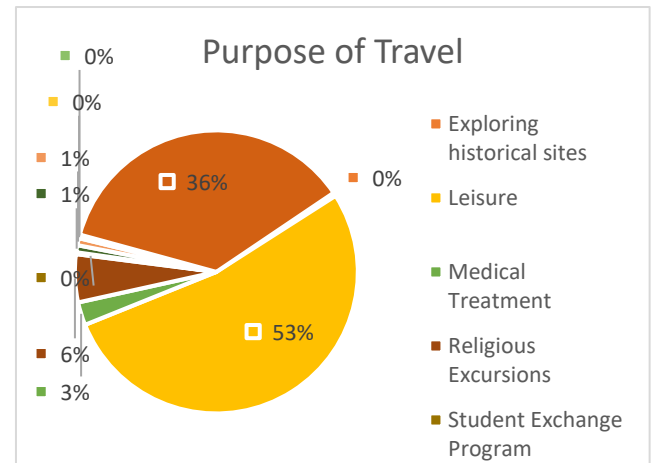


Fig 2

Source: Survey conducted through primary data

Figure 2 shows the percentage of people out of 500 people travelling for a purpose.

It is evident that most people (53%) today, travel for the purpose of leisure through which they try to fulfill their needs of adventure, relaxation, entertainment, etc. 36% of the passengers travel abroad on work like meetings or conferences. 6% travel for the purpose of visiting holy sites like Mecca, Jerusalem, Vatican City to name a few.

### A. Objective

By using statistical techniques, the objective is to find the trend in the frequency of travel and the purpose for the same using the data collected by conducting a survey.

### B. Data Source

Source is primary data.

### C. Data Collection

The data has been collected by using primary method of data collection. A questionnaire was circulated which gathered information on people's international travel preferences. The data collected information on the frequency of travel, purpose, accommodation choices, food preferences, local travel preferences, places to visit while abroad and shopping preferences. The data was condensed to important parameters like frequency of travel and purpose of travel. In order to gain mathematical solutions, the non-numeric data was converted into numeric data by denoting each item with a specific number. For example, work = 1, leisure = 2 and so on.

Frequency of travel	Purpose of travel
Once a month	77
Once a quarter	262
Once a year	420
Others	28
Twice or thrice a month	124
<b>Grand Total</b>	<b>911</b>

Table 1

**D. Data Analysis**

Futher after data condensation is done, the data is analysed using statistical techniques. Since the data collected is a time series data, forecasting techniques are used for predicting the purpose of travel if the frequency of travel is ‘once in 2 years and ‘once in 3 years’. Forecasting

techniques like moving averages and least square method are used to get the trend in the data estimating it further for predictions.

**E. Measurement of Trend**

In a long term series, if we want to determine and present the direction of the data whether growing or declining, we use a graphical method called moving average or semi-averages method. This method helps in finding out trend characteristics in and of themselves, ascertain the growth factor. This growth factor also helps us in estimating the future behaviour of the time series. Hence, the moving average method is applied to our data to get the trend with a wider frequency of travel. Different frequencies are taken on the X-axis and the purpose of travel on the Y-axis to get the trend in the data. The resultant trend seen is as follows:

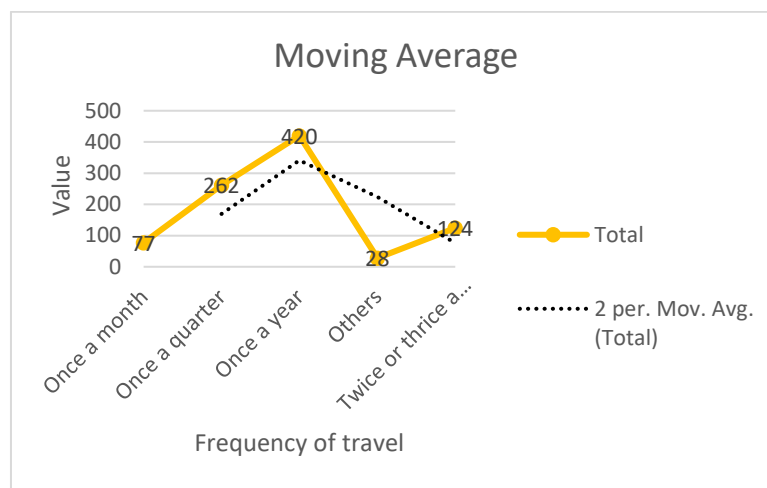


Fig 3

**F. Least Square Method**

Once the trend is visualized, we move on to the next step using another statistical method i.e Least Square Method, which also means regression equation. It’s regarding fitting a trend to various models, linear as well as non-linear. However, only linear trend will be taken into consideration i.e  $Y = a + bX$  for our data analysis, where a is the Y- intercept of the line and b is the slope of the time series data and the estimated values are minimum. This is done by solving two normal equations.

$$\sum Y = na + b\sum X \tag{1}$$

$$\sum XY = a\sum X + b\sum X^2 \tag{2}$$

Where n represents number of frequencies, X being the time series and Y being the parameter to be estimated. Further, the time variable X is measured as a deviation from its mean which gives us  $\sum X = 0$ . Substituting it in the above equations, we get

$$a = \frac{\sum Y}{n} \tag{3}$$

$$b = \frac{\sum XY}{\sum X^2} \tag{4}$$

Calculating the values of a and b will give us a trend equation, by which we can estimate the desired trend line and can predict any future value for any frequency as per the need of the data. Using Least Square Method for our data of frequency and purpose of travel, we take time variable X as different frequencies and Y variable as purpose of travel for the corresponding frequencies. The result for our data is as follows:

Frequency of travel	Purpose of travel	X	XX	XY	TREND LINE= A + BX
Once a month	316	-2	4	-632	969.8
Once a quarter	1304	-1	1	-1304	892.3
Once a year	1806	0	0	0	814.8
Others	135	1	1	135	737.3
Twice or thrice a month	513	2	4	1026	659.8
<b>Grand Total</b>	<b>4074</b>		<b>10</b>	<b>-775</b>	
A	814.8				
B	-77.5				
Once in 2 years		3			582.3
Once in 3 years		4			504.8

Table 2

The Regression Equation is  $Y = 814.8 - 77.5X$

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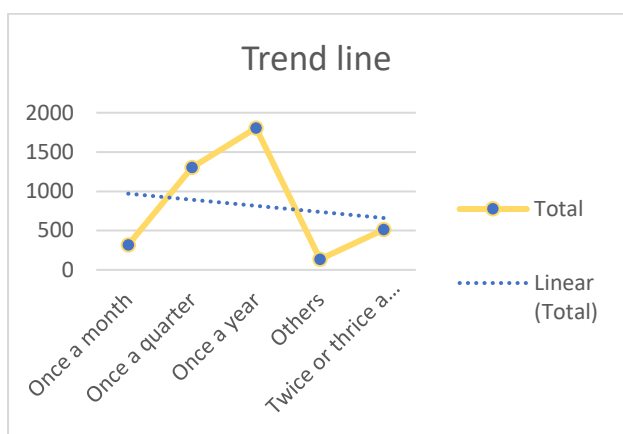


Fig 4

**G. Interpretation of the Analysis**

- From moving average method, we can see the decreasing trend from once a month to once in three years.
- The method of least squares gives us the two values of a and b which helps us in forming a linear equation  $Y = a + bX$ . Due to which we can estimate the trend line which is called as regression equation with X as the independent variable and Y as the dependent variable.

**III. CONCLUSION**

From the above statistical analysis, there has been a relation observed between frequency and purpose of travel. As the frequency of travel gets broader, fewer people are willing to travel abroad. Secondly, by the use of forecasting techniques, a future value for the frequencies ‘once in 2 years’ and ‘once in 3years’ predicts that there are fewer chances of people travelling abroad for any purpose. This study has been done taking only two parameters, frequency and purpose of travel into consideration. However, if more travel parameters are included, then there will be a new trend discovered.