Assessing impact of Natural Disasters on Tourist Arrivals: The Case of Xitou Nature Education Area (XNEA), Taiwan

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ABSTRACT: Tourist arrivals represent popularity of a recreation site. However it could be changed due to accessibility, weather, and natural disaster. These factors are complex and their effects on tourist arrival are mixed. This study applies switching regression approach to assess impact of natural disasters on tourist arrivals in the popular forest recreation and education site, Xitou Nature Education Area (XNEA), Taiwan. Natural disaster in a tourist destination cause environmental changes which impact short- and long-term changes on tourist arrivals. Precisely estimating the impacts on tourist arrivals could therefore provide an insight to management. The results show that (1) Typhoon Herb reduced tourist arrivals by an estimated 530 thousand over three years; (2) the Chichi earthquake caused a 2.59 million loss in tourist arrivals over seven years; (3) Typhoons Toraji and Nari resulted in a 360 thousand reduction in tourist arrivals over three years; and (4) Typhoon Mindulle reduced tourist arrivals by 80 thousand over a one-year period.

Keywords: Natural disaster; Typhoon; Switching regression; Tourist arrivals

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Introduction

Tourist arrivals indicate the popularity of a recreation area and reflect the effectiveness of recreation area management. The number also shows the environmental impact of human activities, particularly on rural or mountain forest recreation areas. It is therefore important to understand changes in tourist arrivals, and their implications for managers of recreation areas.

Numerous studies have shown that many factors can affect tourist arrivals, including transportation accessibility, weather, economic environments, and travel duration (Albalate and Bel, 2010; Cho, 2003; Taylor and Ortiz, 2009; van der Merwe and Saayman, 2008). The research methods used in such studies can be divided into two basic types: trend analysis and multivariate analysis. Trend analysis uses time series approach to evaluate changes in tourist arrivals, while multivariate analysis is applied to understand the different aims and backgrounds of groups and their interrelations (Amberger and Haider, 2007; Chan, 1993; Chu, 2009; Gil-Alana, 2005; Goh and Law, 2002; Lim and McAleer, 2002; Song and Li, 2008). Typically tourist arrivals’ analysis studies both long-term trends and short-term changes. The long-term trend refers to ongoing changes in tourist arrivals, while short-term changes consider unexpected events that impact tourist arrivals, such as natural disasters (i.e. earthquakes, typhoons, or mud slides) and major epidemics. Compared to periods of a decade or more, short-term changes may last several days, weeks, months, or longer. Unexpected natural disasters frequently have severe environmental consequences, representing short-term environmental changes that may influence tourist arrivals immediately and perhaps last from months to years in a tourist destination. Estimating influences of natural disasters in a tourist destination is critical because tourism practitioners may need the information to make recovering plans and budget.

Literature Reviews

Tourist arrivals usually serves as an ultimate (dependent) variable in tourism demand study and factors influencing tourist arrivals are often considered as explanatory variables. Typically, the root of this type research could be found in both economic and socio-psychological theories (Goh, 2012). Economic framework represents a main stream in studying tourism demand.