

中文摘要

投入產出模型 (Input-Output Model) 是觀光經濟效應主要分析模式，其估算方式是將遊客花費金額乘以生產乘數 (sales multipliers)，工作乘數 (job multiplier)，及個人收入乘數 (income multiplier) 來計算直接效應及間接效應。投入產出模型基本上假設這些乘數在評估階段並不會變動，遊客花費金額之多少為決定經濟效應規模之主要因子。但是觀光需求對於外在環境轉變相當敏銳，遊客數目變化幅度大且頻繁。在不同需求及供應規模下會導致業界不同產能利用率 (capacity utilization)，進而反映在成本結構，獲利率，及人力支出上。因此，每 1000 名觀光客消費金額所產生的經濟效應在不同產能利用率下截然不同，若使用傳統投入產出模型則無法反應產業界之結構調整，進而在估算過程中產生較大的誤差。

本研究主要目的是探討高雄縣市旅館業在因應 2009 高雄世界運動會時，其不同產能利用率 (capacity utilization) 與觀光乘數 (tourism multipliers) 上之相互變動方向及影響。研究對象為 2009 年高雄世運舉辦期間與高雄市政府簽約合作的旅館業者，需要資料為營業額、住房率、房價、員工人數與員工薪資。因為資料涉及商業機密，因此業者參與意願低落，最後本研究提供參與合作計畫之業者住宿服務品質調查的專業諮詢，以互惠方式取得 10 家業者的參與。業者提供資料涵括時間為 200 年 5 月至 2009 年 12 月，包含世運會前、中、後三個時期。

研究結果發現 (1) 10 家旅館於 2009 年 5-12 月各月住房率變化大，最低點為 9 月及 10 月份的 50%，最高點為 12 月份的 71%，有 21% 的住房率差異；(2) 若從各月走勢表現發現在世運舉辦期間的 7 月住房率有上升的趨勢，但在 7 月過後出現明顯下降的趨勢並持續到 10 月，12 月則再度另一波高點；(3) 每月份的房價變動不大但 7 月份則為平均房價最高的時間點；(4) 每月員工薪資變化不大，在 9 月份有些許下降的趨勢。此趨勢可能導因於 F 旅館在 9 月時因減少零時工 43 名，因此影響整體的平均趨勢。

結論：根據參與計畫調查的旅館資料顯示，2009 年世運會的舉辦有助於 7 月過的住房率、房價、營收之提升，但對於招攬後續遊客至高雄市消費的效應不顯著。此外，世運過後隨之而來的 8 月南部八八水災、9 月達賴喇嘛拜訪及 10 月熱比婭

電影節，這一系列對於國內外旅遊的負面影響因素，導致旅館住房率在世運後的住房率較往年下滑甚多(平均而言減少 15%)。世運會的舉辦對於員工薪資的增加也未有明顯的增加，顯示旅館業者多以現有人力支付額外的住宿需求，並無因為世運會舉辦而額外增聘人手。

第二年計畫內容：本研究將持續分析這 10 間旅館營運資料與投入產出乘數之變動關係。

摘要關鍵詞：乘數效應， 產能利用， 投入產出分析， 2009 高雄世界運動會

Abstract

Input-Output (I-O) analysis has been used extensively for evaluating tourism economic impacts, which estimates changes in economic activity resulting from visitor spending associated with recreation activities within a pre-defined region. Operation of I-O models assumes constant technical coefficients, implying equality of average and marginal values. As perishability, intangibility and simultaneity are the fundamental properties of services, operation of tourism industry faces relatively intense fluctuation in demand, which unavoidably lead to varying level of capacity utilization (CU).

Hosting the 2009 World Game in Kaohsiung will influence the local tourism industry from both the demand and supply perspective. A short-time high volume demand is expected with the forthcoming of athletes and spectators, while facility renovation and the addition of new infrastructure are also thought of for the supply side. The future operational capacity of tourism-related industries, a function of both demand and supply, during and after the World Game in Kaohsiung is currently unknown. This subsequently influences the stability of production function of service sectors under each period and increases the difficulty on its economic impact evaluation.

The major purpose of this proposal is to investigate the stability of the production function of the accommodation sector in Kaohsiung in association with 2009 World Games. Hotels that cooperated with the Kaohsiung city government for reserving rooms for the World Games participants were contacted and asked to participate in the survey. Because the data requested are concerned with financial confidentiality, only 10 hotels decided to participate in this study. They provided monthly financial information on occupancy rate, average room price, hotel revenue, staff number, and employee expenses. The data ranged from May 2009 to December 2009, covering the pre-World Games, World Games and post World Games periods.

The average room rate of 10 hotels peaked at December 2009 (71%), followed by May (69%) and July (64%). The occupancy rate after World Games (July) was not sustained at 64% but kept dropping afterwards and reached the lowest point at 50% at September and November. Different from the changing pattern of occupancy rates, the average room price reached the highest point in July 2009, the month the World Games was hosted. Generally the average room price remained a small scale of fluctuation,

somewhat independent from the occupancy rate. Due to the relatively high room price and occupancy rate, the hotel revenue peaked at May 2009 followed by December and July 2009 operation, respectively . On the contrary, employee benefits remained very stable across these 8 months, implying the business entities do not adjust their employee compensation in direct proportion to their sales.

Keywords: Tourism multipliers, input-output analysis, capacity utilization, 2009 World Games

1. Introduction

Large-scale, high-profile sport events have been increasingly positioned as an important strategy in gaining international recognition for the host destination as well as generating significant social, cultural and economic benefits for the region. In particular, the economic impacts for hosting the event are highly expected, in hoping for positive macroeconomic changes on the economy. Infrastructure development, inward investment, and tourism growth, to name a few, are always treated as a strong argument for municipal government to compete for the right to host the mega sport event. It is hoped that investment and industry growth can generate new businesses, create supply chain opportunities, and support additional employment, personal income, business profits and tax dollars.

The 2009 World Games will be hosted in Kaohsiung, Taiwan from July 16 to 26, 2009. This event represents a rare opportunity for the host city as it is the first international mega sport event ever held in Taiwan. During the 11 days period, the best athletes in the world will be competing in 26 official non-Olympic sports, 6 invitation sports and 5 performance activities (The World Games 2009 Kaohsiung, 2007). The number of participating athletes and coaches are estimated to be 4600 and the inviting guests are 1200. In coping with this special event, the central government and Taiwan Tourism Bureau have lay out a serious of campaigns to promote tourism and to attract foreign visitors to Taiwan (International World Games Association, 2007). These included a US\$30 million campaign aiming to bring over 4 million tourists to Taiwan during the 2009 World Games in Kaohsiung and the Deaflympics in Taipei. In addition, NT\$1 billion will be spent on various promotional campaigns and activities around the world. Although no official projection have been announced regarding the overall number of spectators during the 2009 World Games, this event will definitely bring in a great volume of audiences, including local residents, domestic tourists and international tourists. Subsequently, the economic impacts of tourist consumption during the period will be in great concerns of local residents, political figures, business establishments and regional government.

1.1 Tourism economic impact analysis (TEIA)

To evaluate the economic impacts of hosting 2009 World Games, to answer the questions of how many new jobs will be created, how much additional sales dollar & personal income will be generated, and what is the structure changes of the tourism industry in Kaohsiung, we have to rely on economic models. Tourism economic impact analysis (TEIA) has been extensively adopted in tourism planning and management from both national and regional perspectives. TEIA estimates changes in economic activity resulting from visitor spending associated with specific recreation or tourism activities within a pre-defined region. Input-Output (I-O) analysis has been used extensively for evaluating tourism economic impacts since the 1970's (Archer, 1977, 1978, 1984; Fletcher, 1989). Advantages of I-O analysis are 1) its flexibility to evaluate economic impacts from the general equilibrium perspective based on different temporal and spatial scales, 2) its ability to monitor the economic impacts of individual groups with distinct spending patterns, and 3) the ease of interpretation and convenience of data availability (Blake, 2000; Briassoulis, 1991; Fletcher, 1989).

Applications of tourism I-O analysis range from the evaluation of national tourism economic impact (Archer & Fletcher, 1996) to regional tourism development (Eriksen & Ahmt, 1999); and from year-round recreation activity (Stynes & Sun, 2003) to short-term events or festivals (Upneja, Shafer, Seo, & Yoon, 2001). Most economic impact studies for Olympic Games during 1972-2008 were also conducted using the Input-Output method (Preuss, 2004). Although in recent years, Computable General Equilibrium (CGE), the more complex and powerful economic model, has been strongly promoted and adopted at the national level (Dwyer & Forsyth, 2006; Dwyer, Forsyth, Madden, & Spurr, 2000; Dwyer, Forsyth, & Spurr, 2004), regional analysis of tourism economic impact is primarily constructed based upon an I-O framework.

With the I-O model approach, tourism economic impact is estimated based on the following three factors: average spending, total visitation, and regional multipliers (Stynes, Propst, Chang, & Sun, 2000). The first two factors determine the magnitude of the final demand changes, depicting how much is spent locally due to tourism consumption. The third factor, multipliers, describes the local economic structure, the supply and demand of different products and services by industries. Accuracy of TEIA

relies on these three factors simultaneously. The reliability of visitor surveys in obtaining the average spending patterns, the comprehensiveness of visitor counting system, and the stability of business cost structures during the evaluation period are all influential to the final economic impact result. The purpose of this research proposal therefore is to investigate the third factor- the stability of the economic structure during and after 2009 World Games through the perspective of capacity utilization. By obtaining this information will we then be able to conduct a reliable TEIA.

1.2 Study purposes

Event tourism has unique characteristics with in its nature. Event is generally taken place within a short-period of time, lasting from hours to weeks (few are for months). During the event period, thousands of participants and spectators will flush to the host region and consume all aspects of products and services locally. Most tourism related services including lodging, food & beverage service, entertainment, and transportation will be used up to its full capacity. This will lead to short-term changes on the business cost structures, including purchasing of input materials, shifting of staff and workload, and possible pay raise for employees. The long term impacts on the business may include before-event investment and capacity expansion, technological changes on the production, and long-term sale volume expansion few months after the event due to increasing publicity. It is expected that the production function and the set of industry relationships during the event will be different from the general operation during the regular seasons. The main reason for the service sector to vary its production function is due to capacity utilization as high volume demand is expected with a fixed supply capacity. This subsequently leads to difficulty in evaluating tourism economic impacts.

The major purpose of this proposal is to investigate the stability of the production function of tourism industry in Kaohsiung during 2009 and 2010 in association with World Games. The accommodation sector in Kaohsiung is selected as the study subject to examine the relationship of capacity utilization and economic structures due to following reasons. First, the 2009 World Games will influence both the supply (the expansion of tourist hotels on its capacity and staff) and demand (large number of participants and

spectators) of the accommodation sector in Kaohsiung. Hotel occupancy rates as well as the cost function are expected to vary, depending upon the realization of the proposed policy. Second, hotel rooms are a good example of time perishable products. The accommodation sector is sensitive to demand and supply changes, in terms of price, labor use, and resulting profitability. Third, the concept of capacity utilization is well defined and measurable in the accommodation sector. With data on total available and occupied rooms, capacity utilization of the accommodation sector can be precisely measured in terms of occupancy rates (Borooah, 1999). Last, the accommodation sector in Kaohsiung incorporates a wide range of hotel scales, ranging from 585 rooms, 549 employees, “The Splendor Hotel, Kaohsiung” to small establishments with a handful of rooms (Taiwan Tourism Bureau, 2008a). This pattern allows us to establish relationships between hotel scales and structure changes.

Objectives of this study are to

1. examine the timely effects of 2009 World Games on the accommodation sector in Kaohsiung in terms of sales volume, occupancy rate, average room price, and average salary;
2. establish the econometric dynamics between cost structures and capacity utilization by the hotel scale. Following relationships will be established between
 - income to sales ratio and capacity utilization (occupancy rate)
 - value added to sales ratio and capacity utilization (occupancy rate)
 - jobs to sales ratio and capacity utilization (occupancy rate)

2. Research Method

2.1 Analytical framework

The analytical framework is presented in Figure 2. The first step is to examine the time series changes of the accommodation sector in Kaohsiung in terms of their sales volume, number of establishments and staff, average salary and profit level during and after the World Games. The observation will be based on monthly basis to detail the business responses. The second step is to establish the econometric relationships between occupancy rates and 1) ratio of intermediate input by utilities, products and services, 2)

value added to sales ratio, 3) income to sales ratio, and 4) jobs to sales ratio. These functions indicate the direction and magnitude of changes. Proportional changes of the four components during and after World Games in Step II can be derived. The derived percentage change will then be applied to adjust coefficients proportionally in the 2004 Kaohsiung regional I-O table to construct “the varying ratio I-O model”. Type I and Type II sales, income and VA multipliers of the accommodation sector will be simulated based on different occupancy rates in Step III.

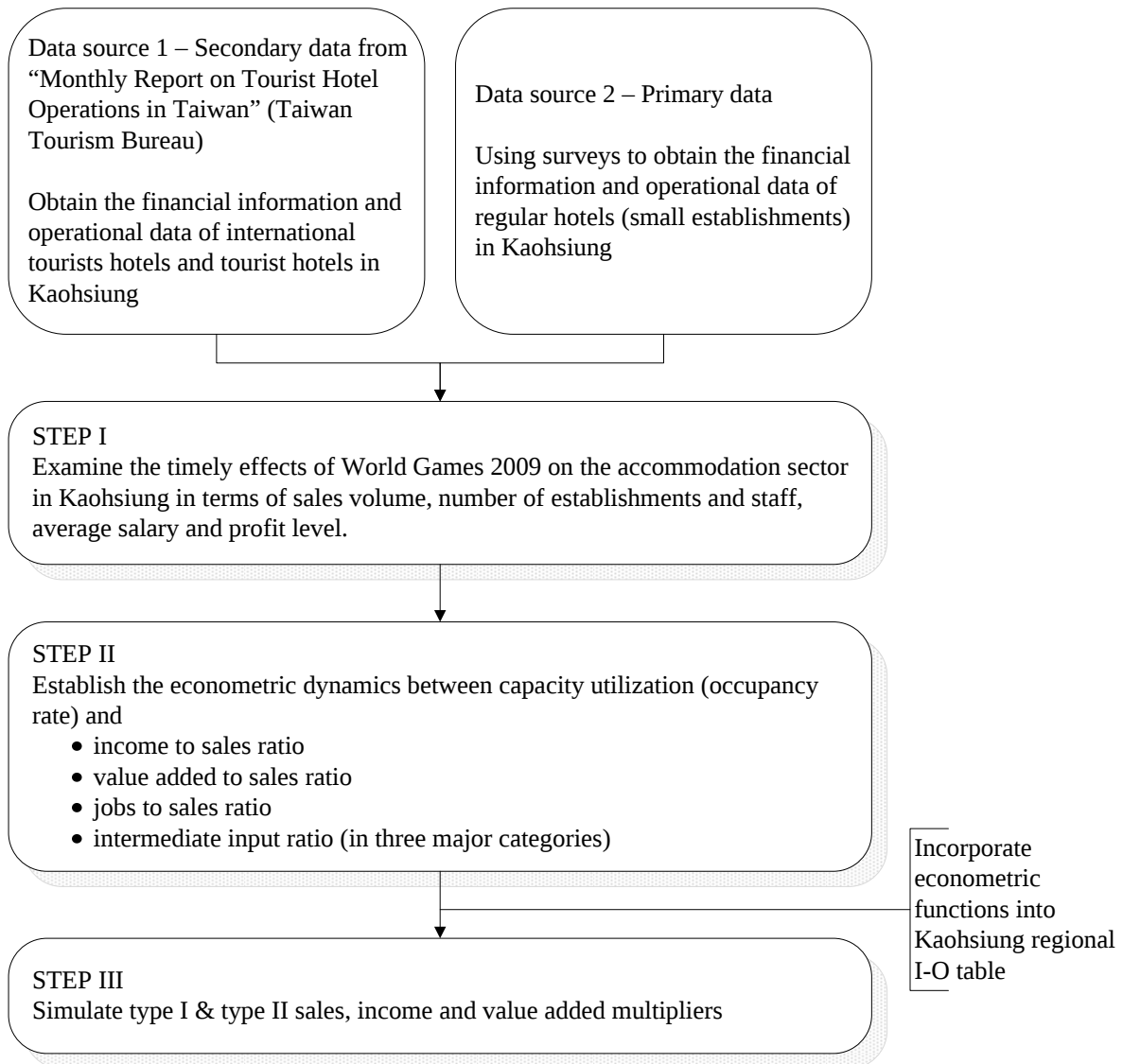


Figure 1. Analytical framework

2.2 Data

There are four hotel categories in Taiwan: the international tourist hotel, standard tourist hotel, general hotel and Bed and Breakfast (B&B), based on standards issued by Taiwan Tourism Bureau (2003). The first two categories are referred to “tourist hotels”, which are subject to governmental regulations on its facilities, management and service procedures, serving mainly international visitors. In the Kaohsiung area, by November 2008, there are 8 international tourist hotels, including Grand Hi-Lai Hotel, Han-Hsien International Hotel, Hotel Holiday Garden Kaohsiung, Hotel Kingdom, Howard Plaza Hotel Kaohsiung, The Ambassador Hotel Kaohsiung, The Lees Hotel, and The Splendor, Kaohsiung (Taiwan Tourism Bureau, 2008b). In sum, the capacity is 2,990 rooms with 2,681 employees. Besides high-end accommodations, there are 227 legal general hotels and 18 illegal general hotels in Kaohsiung area, providing a total of 11,919 rooms and supporting 3,592 employees (Taiwan Tourism Bureau, 2008a). No tourist hotels or Bed and Breakfast are registered in Kaohsiung.

International tourist hotels. Financial and operational data of the eight international tourist hotels in Kaohsiung will be obtained from Taiwan Tourism Bureau “Monthly Report on Tourist Hotel Operations in Taiwan” and “The Operating Report of International Tourist Hotels in Taiwan”. The first data set comprises the monthly firm level operational data for tourist hotels. The reported variables include the average room price, occupancy rate, total available rooms, total employees, and total revenue per month (Taiwan Tourism Bureau, 2008b). Total employees are broken down by employees working at the room division, food and beverage division, administration level, and others. Total revenue includes the sales of rooms, affiliated restaurants, and others. The second data set is yearly firm level international tourist hotel financial data. Income statement, balance sheets, and other related operating data are included. Cost information is itemized by labor, material (food or laundry expenditure), utilities (water, electricity and fuel) and others (marketing, rent or business services).

Regular hotels. To obtain the operational data of regular hotels, we have to rely on surveys as individual business entity of this category does not file their financial information to Tourism Bureau. Hotels to be included in the census were those designated as the official accommodation service for athletes and coaches. A total of 28

hotels (regular hotels and international tourist hotels) were qualified. Visit to the hotel business was arranged for each hotel two months after the World Games, and to inquire their cooperation in this study. Incentives were offered in exchange for the cooperation from the business owners, including complimentary web design, brochure design or marketing proposals for their company.

3. Results

Because the data requested are concerned with financial confidentiality, only 10 hotels decided to participate in this study. They provided monthly financial information on occupancy rate, average room price, hotel revenue, staff number, and employee expenses. The data ranged from May 2009 to December 2009, covering the pre-World Games, World Games and post World Games periods.

The average room rate of the 10 hotels from May to December 2009 was 60%, with an average room price of NT\$1,617. The monthly hotel revenue was NT\$8.8 million while the employee benefits (including salary, insurance, bonus and retirement fund) was \$3.2 million per business entity (Table 1).

Table 1. Descriptive statistics

	Minimum	Maximum	Mean	S.D
Occupancy Rate	71%	50%	60%	8%
Average Room Rate	\$1,837	\$1,515	\$1,617	\$103
Total Revenue	\$10,350,932	\$7,212,205	\$8,808,464	\$1,155,460
Employee Benefits	\$2,993,982	\$3,241,521	\$3,156,529	\$91,314

The average room rate of 10 hotels peaked at December 2009 (71%), followed by May (69%) and July (64%) (Figure 2). The occupancy rate after World Games (July) was not sustained at 64% but kept dropping afterwards and reached the lowest point at 50% at September and November. Different from the changing pattern of occupancy rates, the average room price reached the highest point in July 2009, the month the World Games was hosted. Generally the average room price remained a small scale of fluctuation, somewhat independent from the occupancy rate.

Due to the relatively high room price and occupancy rate, the hotel revenue peaked at

May 2009 followed by December and July 2009 operation, respectively (Figure 3). On the contrary, employee benefits remained very stable across these 8 months, implying the business entities do not adjust their employee compensation in direct proportion to their sales.

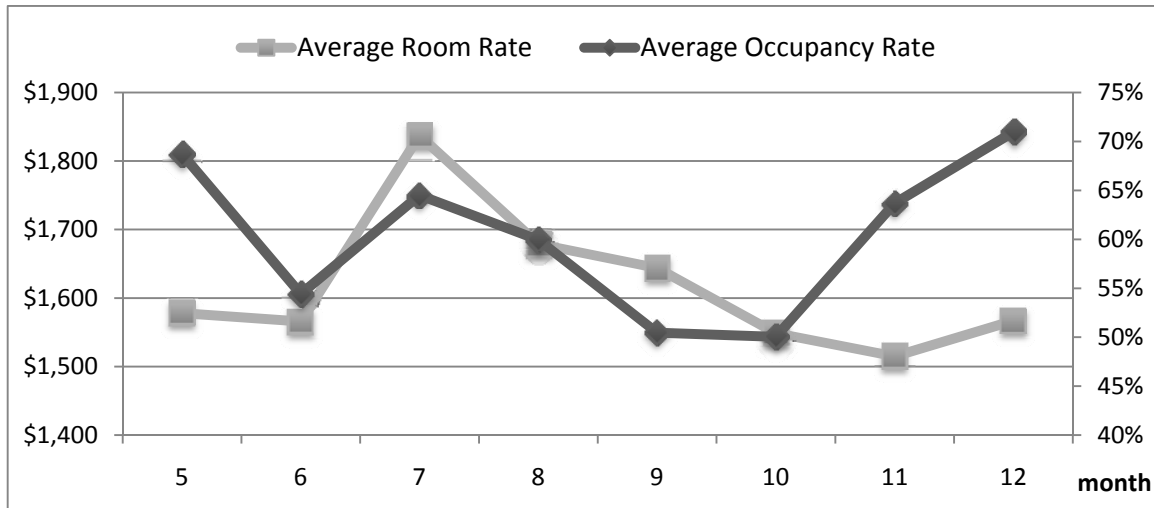


Figure 2 Average occupancy rate and average room rate (2009.5-2009.12)

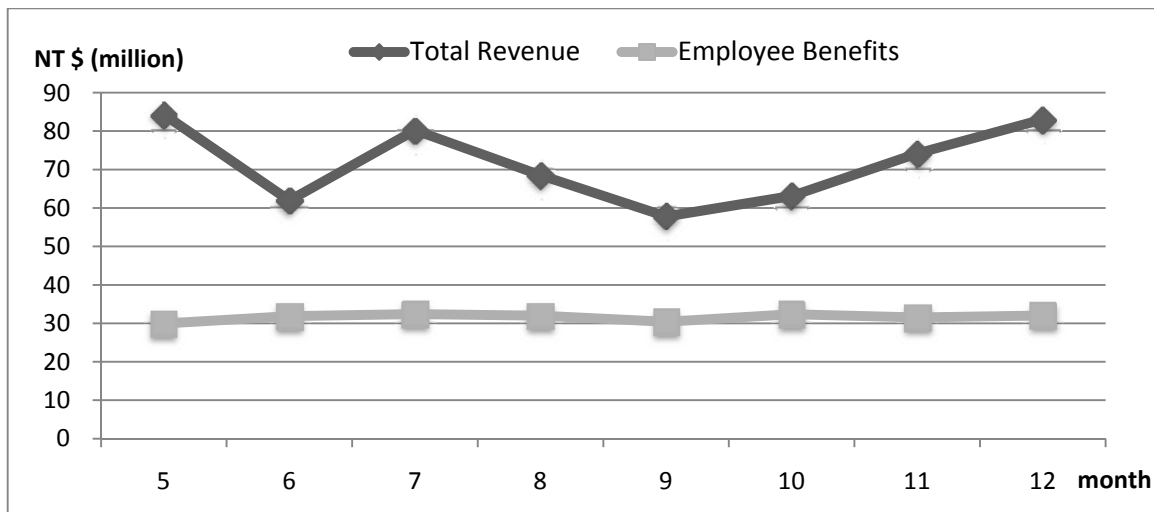


Figure 3 Total revenue and employee benefits (2009.5-2009.12)

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