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Is Cancun Dazed and Confused with the Butler's Life Cycle Model?

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Abstract

In Cancun, the widespread view of the local academia, business and government is that the destination has passed its maturity stage and has begun to show signs of being in its phase of decline. Coincidentally, these conclusions were performed based on Butler's life cycle model of a tourist destination. Therefore, the objective of this paper is to check, with data from the last 15 years, if the available information on number of received tourists and the economic income generated by them, supports these claims.

The intention is to demonstrate Butler's proposal of 1980 regarding the life cycle of a tourist destination shows an association between the variables time, economic flow and number of tourists. Cancun's case shows an association between the time variable, represented by the years 1999-2015, with the economic flow; and in a second example; it shows an association in respect to the number of tourists. The above is necessary, since if it did not exist dependence between different variables with a destination's timeline, it would not be possible to argue the Butlerian postulate of the life cycle. To achieve this, we will establish hypotheses assuming independence among variables. The method to be used will be the formulation of contingency tables as support for critical analysis and probability value based on χ^2 better known as chi or chi square.

The finding is that for the analyzed variables, it can be asserted that the tourist destination of Cancun does not show a significant decline, even though this contradicts the views of other researches and opinions.

Keywords: Tourism area life cycle; Cancun; Academia; Entrepreneurs; Mass tourism

Introduction

In the seventies, when the Cancun project was brewing in the Bank of Mexico, Richard Butler published an article in which he described, explained and exemplified with several case studies, "The Concept of a Tourist Area Cycle of Evolution: Implications for management of Resources" [1]. This pattern of behavior of a tourist area is based, according to Butler, on the concept of the life cycle of a product, where firstly, sales develop slowly, then they show a high growth rate, then they remain stable and finally, they decline. In other words, visitors will come in small amounts at first, limited by poor access, poor facilities and lack of experience of local operators. As facilities are built and improved, and as recognition grows, the number of tourists increases. With marketing work and the construction of new and larger facilities, the popularity of the tourist area grows rapidly. Subsequently, as the carrying capacity of the area is reached, the decline in the number of visitors to the area decreases. This situation manifests itself in terms of environmental factors, such as lack of adequate new land, poor water and air quality. Deterioration in investments such as in transport, building structures, and services, is also recognized. Social factors play a key role, as the site is perceived as saturated, and the tourist has the feeling of being immersed in a crowd. As the attraction of the place declines in relative terms with other tourist areas, due to its overexploitation, the number of visitors begins to descend.

Butler clarified that while this type of evolutionary behavior of a tourist area could be conceptualized, it should be emphasized that not every tourist area necessarily experiences all stages of the life cycle as clearly as others do. For example, the Cancun case, which was conceived as an integral project derived from both, a thorough study and analysis of possible locations that complied with previously established viability parameters , made the first stage practically unnoticed since it moved immediately to the development stage.

For twenty years, Butler continued to refine and implement his

deterministic model of tourist areas. Meanwhile, Cancun covered its stage of development at an astounding rate, commencing to show signs of maturity and decline at the beginning of the present century. The situation did not become critical by the emergence of new nearby areas like Playa del Carmen, which rejuvenated the life cycle of the tourist area of the State of Quintana Roo.

In year 2000, any taxi driver in Cancun, applied Butler's model unknowingly. The only thing that varied was the name given to the stages of maturity and decline, which for most of them was "*Acapulquización*"¹ (maturity and decline) of Cancun. The driver realized that to continue growing at previous rates (of passengers and revenues), he should go work in Playa del Carmen (development - rapid growth). The whole society perceived the change and felt in the flesh.

Meanwhile, two very important events that reflected the feelings and needs of the new century occurred. One event, was the emergence of the first local Masters in "Marketing Tourism" and "Tourism and Hotel Management" in the new Cancun Lasalle University. The other was the assumption of a board with a majority of "owners" instead of "hotel managers" in the directory of the Hotel Association of Quintana Roo (AHQR). These two facts, expressed for the first time, the urgency with which the new realities needed to be addressed from the local perspective. The answers to the problems, would then be generated at home

¹Becoming Acapulco

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Received May 04, 2016; Accepted June 07, 2016; Published June 15, 2016

Citation: Vazquez JBB, Puls SL, Guillen Breton MRL (2015) Is Cancun Dazed and Confused with the Butler's Life Cycle Model? J Tourism Hospit 5: 221. doi:10.4172/2167-0269.1000221

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Interestingly, analysis and conceptual frameworks (Tourism post grades of Lasalle and the AHQR Board), worked on diagnoses and proposals that were indebted to an article published twenty years earlier in the "Canadian Geographer". Practical men, who believe in themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist [2]. In our case, the author was still alive. Butler's article, now appeared further enhanced with the addition of the tourist psychographic profile by Stanley Plog, which complements the life cycle of the tourist area with the characteristics of the psychology of the traveler, which in turn affects the behavior of tourism demand. According to Plog, the concept of psychographics is synthesized in two basic concepts, allocentrism and psychocentrism; from which he describes the evolution of rise and fall of resorts. These concepts describe different characteristics of the psychic structure of travelers, each one representing a fundamental and defining part of his personality [3].

According Jiménez, "each destination attracts different types of travelers who select them more based on their time of evolution, than on their geographical location or peculiarities". Plog considers this evolution usually leads to problems, decay and death of the tourist destination. Destinations therefore have a predictable outcome that follows the normal curve of the psychographic system, transiting from allocentrism to psychocentrism, crossing the intermediate stages of the spectrum. In the passage through this spectrum, we may verify a large number of changes that are predictable and to some extent, controllable, according to this author. Most of locations have no planners to influence and manage these changes; therefore, destinations are abandoned to spontaneous evolution, especially as developers and marketers focus on trying to maximize short-term return on investment " [4].

In the document "Social-academic Justification for Master's Degrees in Tourism" from Lasalle University of Cancun in 2000, a chapter refers to the current state of the art of theoretical knowledge about the development of tourism. It highlights the great importance attached to both, Butler and Plog, models. At the same time it is recognized that the original literature used, comes from a source which in turn interprets these theories, the book "Tourism: structure and development" by Alfonso Jimenez Martinez in 1992. In addition, if we look at the content of the subjects on Tourist theory of these masters' degrees, we can see that they fully incorporate the models of Butler and Plog as basic bibliography. Certainly, tourism scholars were strongly influenced by these models and by the literature that referenced them, and found their applicability to the Cancun case.

Moreover, in the business orbit, Butler's life cycle of a tourist area, along with Plog's psychographic model, were used freely by members of the AHQR. As an example, there are documents in which Abelardo Vara² gave a diagnosis on the situation of Cancun, which was fully based on both models, giving them their respective recognition. On the side of Plog, it is perceived that businessmen deepen in the model and identify a fall in average tourist spending in the first stage of stagnation, even before recognizing a decrease in the number of travelers [5].

At the turn of the century, we find a business sector and incipient local scholars that perceive Cancun's reality, finding the application of those models useful for the interpretation and diagnostics of the tourist area. Fundamentally, they identified and recognized the onset of symptoms of stagnation and decline.

Why did a simple model have such an impact? It is unusual for a theoretical model to be popular for this long, especially in social

²Chairman of the AHQR on that date.

sciences; therefore, it is notable that it remained popular and relevant for thirty years. In words of Butler himself, its acceptance is due to its elegance and utility. Delving into the reasons, we find that it is a simple and easy model to use, and that it accepts a variety of data types. Firstly, it is logic, and it provides a conceptual framework for researchers to examine a particular case. Secondly, it emerged at a time when a tourist theory was missing as an interpretation and analysis tool to transcend the simple description of facts. Finally, it has proved capable of being modified and adapted, and even has potential to be applied to concepts such as sustainable tourism and regional development [6].

While businessmen and academics interpreted the reality of Cancun early this century, reaching similar conclusions, we find a similar position in FONATUR,³ the agency that had the mission to create the CIP⁴ Cancun itself. In presentations made by FONATUR's officials in 2003, the need to "revitalize" Cancun was also recognized. Without explicitly mentioning and applying neither the lifecycle of a Tourist Area model, nor Plog's version, they reached similar conclusions [7]. Business chambers leaders referred to these conclusions, academics popularized them in their articles and taxi drivers knew them by their experience.

Objective of Study

Academia, business and government agencies agree that Cancun is beginning a transition from mature to a destination experiencing signs of decline. This observation coincides with that of Butller's life cycle model of a tourist destination and thus, the main objective of this article is to validate this fact using economic data spanning a 15 years cycle, which represents variables such as number of tourists and the economic income generated by them.

Methodology

The main objective of this work is to demonstrate whether Butler's proposal of the life cycle of a tourist destination can be validated with data representing time, economic flow, and numbers of received tourists. The rationale for demonstrating the above is by first establishing an association in the time variable spanning years 1999-2015 and the economic flow and number of tourists. In this case, the major brands located in Quintana Roo, mainly in Cancun, show an association between the time variable, represented by the years 1999-2015, with the economic flow; and in a second example; they show an association in respect to the number of tourists.

The above rationale is justified by the fact that the dependence among the different variables is a necessary condition for the existence of the Butlerian postulate of the life cycle. Therefore, in order to prove the Butlerian condition, a hypothesis of independence is proposed. Thus, the proposed methodology formulates contingency tables as support for critical analysis and probability based on χ^2 , better known as chi-squared.

Subsequently, based on the annual average national price indices for US and considering as base year 1999, we apply deflation [8-11] to the economic flow. In this case, the hypothesis also makes assumptions regarding destination Cancun being in the decline stage.

To carry out the evaluation of this section, we assume the following hypotheses and their subsequent assessment by chi-square test [12-14], building contingency tables [15-18], and establishing the following assumptions.

 $^3\!\text{F}\text{ondo}$ Nacional de Fomento al Turismo. Mexico's National Fund for Tourism Development

⁴Centro Integralmente Planeado. Integrally Planned Tourist Destination

H1 The economic benefit is independent of the lifetime of a destination, so there is no reason for the foundation of Butler's proposal

H2 Time is independent of the number of tourists recorded in a destination, so there is no reason for the foundation of Butler's proposal

Considering the places where the variables of unconditional probability that the economic benefit in a given are captured, p_c (captured in Cancun), p_z (captured in Cozumel), p_r (captured in Riviera Maya), (captured in Isla Mujeres), and p_n (captured in Chetumal), the following condition will be achieved.

$$p_{c} + p_{z} + p_{r} + p_{m} + p_{h} = 1$$

According to the above, to establish the relationship in terms of years, the following condition will also be true.

$$p_{1999} + p_{2000} + p_{2001} + p_{2002} + \dots \quad p_{2015}$$

Based on Table 1, the estimated frequency for each intersection between years and destinations is determined. To do so, we multiply the total line r_i where the desired intersection is located, by the total column c_i where the intersection is. The result is divided by the grand total of all items that is equal to the grand total of all the columns, which is exemplified by the hope for the first intersection

$$E(n_{1999C}) = n(p_{1999} \ p_C) = n\left(\frac{r_{total} \ 1999}{total \ muestral}\right) \left(\frac{c_{total} \ Cancin}{total \ muestral}\right) = \frac{r_{total} \ 1999^{C} \ total \ Cancin}{total \ muestral}$$
$$E(n_{1999C}) = \frac{3250.67 * 37406.92}{67635.90}$$
$$E(n_{1999C}) = \frac{3250.67 * 37406.92}{67635.90}$$
$$E(n_{1999C}) = 1,797.83$$

Economic impact in millions of dollars (deflated values') Destinations Years Totals Riviera Isla Cozumel Chetumal Cancun Mujeres Maya 1999 2358 94 320.03 39.25 12 02 3250 67 520.43 2000 1931.03 338.4 749.3 39.11 15.46 3073.3 2001 1860.68 353.66 916.3 37.15 15.38 3183.18 2002 1784.32 374.55 1079.14 34.85 15.14 3,288.00 2003 1713.96 341.01 1063.21 30.66 14.55 3163.39 2004 1820.72 401.18 1358.79 47.02 21.93 3649.64 2005 1684.58 343.03 1159.91 34.43 20.74 3242.69 2006 1502.23 358.06 1378.82 26.23 28.37 3293.71 2007 2468.85 403.09 1435.93 25.07 47.53 4380.48 44.12 2008 2597.89 547.83 1567.54 29.78 4787.16 2009 2063.95 392.55 1383.12 26.9 41.53 3908.04 2010 2124.26 398.44 1623.23 32.25 40.82 4218.99 2011 2163.16 363.94 1684.45 35.38 41 69 4288.63 2012 2717.8 351.34 1780.66 34.84 41 49 4926.12 2013 3109.02 347.5 1873.25 51.04 38.02 5418.83 2014 3331.07 434.76 1950.86 56.23 39.18 5812.1 2015 2174.47 258.2 1259.44 35.75 23.11 3750.98 37406.92 6327.56 22784.39 615.95 501.09 67635.9 Total:

Source: Author's calculations based on official data of the Ministry of Tourism of Quintana Roo (18). 'Based on the average consumer price index of the United States of America, based 1999.

Table 1: Shows time correspondence, represented by lines r_i listed in the years *i*=1999, 2000,..., 2015 the columns C_i for which *i* =Cancún, Cozumel, Riviera Maya, Isla Mujeres y Chetumal.

Subsequently the statistical $\chi^2\!\!\!\!\!\!$, chi-square value is determined as follows

$$\chi^{2} = \sum_{j=1}^{5} \sum_{i=1}^{16} \frac{\left[n_{ij} - E(n_{ij})\right]^{2}}{E(n_{ij})}$$

Using the values contained in Tables 1 and 2, it results in

$$\chi^{2} = \frac{\left(2358.94 - 1797.83\right)^{2}}{1797.83} + \ldots + \frac{\left(23.11 - 34.16\right)^{2}}{34.16}$$
$$\chi^{2} = 1,215.96$$

To determine the degrees of freedom in case of contingency tables, solve as follows

$$gl = (r-1)(c-1)$$

 $gl = (17-1)(5-1)$
 $gl = 64$

Locating the intersection of the degrees of freedom with the column representing the critical level α =0.05 with, H_1 the value 90.50 identified as being lower than the estimate for the test χ^2 . This results in the rejection arguing that the economic impact of the destinations worth is not independent of their lifetime, as the P value obtained was 0,000, which it is below the critical value α =0.05

To assess H_2 , Table 3 presents the observed frequencies with the number of tourists and Table 4 with the estimated frequencies

Using the values contained in Tables 3 and 4, it results in

Expected frequencies for Economic Impact (millions of dollars)								
	Destinations							
Years	Cancun Cozumel		Riviera Maya	lsla Mujeres	Chetuma			
1999	1797.83	304.11	1095.05	29.6	24.08			
2000	1699.73	287.52	1035.3	27.99	22.77			
2001	1760.5	297.8	1072.31	28.99	23.58			
2002	1818.47	307.6	1107.62	29.94	24.36			
2003	1749.55	295.95	1065.65	28.81	23.44			
2004	2018.48	341.44	1229.45	33.24	27.04			
2005	1793.41	303.36	1092.36	29.53	24.02			
2006	1821.63	308.14	1109.55	30	24.4			
2007	2422.68	409.81	1475.64	39.89	32.45			
2008	2647.6	447.85	1612.64	43.6	35.47			
2009	2161.39	365.61	1316.49	35.59	28.95			
2010	2333.37	394.7	1421.24	38.42	31.26			
2011	2371.88	401.21	1444.7	39.06	31.77			
2012	2724.45	460.85	1659.45	44.86	36.5			
2013	2996.96	506.95	1825.43	49.35	40.15			
2014	3214.46	543.74	1957.91	52.93	43.06			
2015	2074.53	350.92	1263.59	34.16	27.79			

 Table 2: In exemplified form, the expected frequencies for each intersection are determined.

Source: Made by authors.

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	Number of Tourists							
Years		Destinations						
	Cancun	Cozumel	Riviera Maya	Isla Mujeres	Chetumal	Iotais		
1999	2818326.00	398737.00	767541.00	140534.00	157821.00	4282959.00		
2000	3044682.00	421541.00	1184249.00	144793.00	207582.00	5002847.00		
2001	2987841.00	455620.00	1504052.00	141785.00	205216.00	5294514.00		
2002	2827406.00	383676.00	1793864.00	141548.00	204371.00	5350865.00		
2003	2814022.00	332829.00	1837152.00	127401.00	201034.00	5312438.00		
2004	3376253.00	418598.00	2418623.00	200542.00	312924.00	6726940.00		
2005	3074432.00	396734.00	2194765.00	141166.00	305573.00	6112670.00		
2006	2431748.00	446961.00	2648673.00	119334.00	288600.00	5935316.00		
2007	3004802.00	553327.00	2836934.00	117316.00	493008.00	7005387.00		
2008	3265591.00	924451.00	3215862.00	144689.00	475152.00	8025745.00		
2009	2878811.00	572153.00	2828529.00	130207.00	445685.00	6855385.00		
2010	3015690.00	526151.00	3372687.00	158700.00	445230.00	7518458.00		
2011	3115177.00	475837.00	3610367.00	179629.00	469151.00	7850161.00		
2012	3642449.00	445974.00	3895548.00	180522.00	476465.00	8640958.00		
2013	4093942.00	447747.00	4158135.00	268360.00	443079.00	9411263.00		
2014	4387798.00	585086.00	4400222.00	300362.00	464041.00	10,137,509.00		
2015	2847485.00	338552.00	2843241.00	191161.00	273934.00	6494373.00		
Total	53,626,455.00	8123974.00	45,510,444.00	2828049.00	5868866.00	115957788.00		

Source: Authors

Table 3: The observed frequencies with the number of tourists.

Expected frequencies for the Number of Tourists								
Years	Destinations							
	Cancun	Cozumel	Riviera Maya	Isla Mujeres	Chetumal			
1999	1980719.98	300063.05	1680951.05	104455.41	216769.51			
2000	2313643.22	350498.23	1963488.54	122012.47	253204.54			
2001	2448529.09	370932.34	2077960.33	129125.82	267966.42			
2002	2474589.47	374880.28	2100076.64	130500.15	270818.46			
2003	2456818.32	372188.09	2084995.03	129562.97	268873.59			
2004	3110976.43	471287.76	2640150.62	164060.70	340464.49			
2005	2826897.86	428252.15	2399065.47	149079.51	309375.00			
2006	2744877.79	415826.77	2329458.60	144754.09	300398.75			
2007	3239748.51	490795.68	2749433.90	170851.64	354557.28			
2008	3711628.69	562281.71	3149898.12	195736.75	406199.73			
2009	3170377.79	480286.58	2690561.98	167193.30	346965.36			
2010	3477026.05	526741.31	2950801.04	183364.72	380524.87			
2011	3630427.18	549980.34	3080985.92	191454.50	397313.05			
2012	3996143.37	605383.38	3391353.37	210740.93	437336.94			
2013	4352382.71	659350.76	3693678.24	229527.60	476323.69			
2014	4688246.30	710231.38	3978711.08	247239.73	513080.52			
2015	3003422.26	454994.17	2548874.07	158388.72	328693.79			

Source: Authors

Table 4: The estimated frequencies with the number of tourists.

$$\chi^{2} = \frac{\left(2818326 - 1980719.98\right)^{2}}{1980719.98} + \ldots + \frac{\left(273934 - 328693.79\right)^{2}}{328693.79}$$

$$\chi^2 = 3,512,056.66$$

As shown, both the estimated value obtained for χ^2 , and P value of 0.000, make it clear that the hypothesis H_2 should be rejected, being able to affirm that the number of tourists is statistically related to the variable of time.

To demonstrate the results on hypothesis testing, Figure 1 shows, an example where the minimum difference presented on the economic

impact of Table 2 is 12, and in an exemplary way, it follows up to 200. It is from the latter number that the density probability is practically zero, explaining the minimum P value obtained and the emphatic time dependence in economic dynamics (Figure 1). The density or probability mass for a test χ^2

is determined as follows

$$f(x) = \frac{x^{(\nu-2)/2}e^{-x/2}}{2^{\frac{\nu}{2}}\gamma(\frac{\nu}{2})}, x > 0, \nu > 0$$

Being that

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ν: degrees of freedom; γ: gamma distribution; e: natural logarithm base; mean: v; variance: 2v

Being both H_1 , H_2 rejected, as demonstrated in tests of independence, the statistical forcefulness in the relationship of variables that show dynamism in tourism over time is corroborated. For this reason, the following trend analysis subtitle is presented.

As shown in Figure 2, the trend that best fits the economic income deflated by the breadth of the data series was a polynomial type of sixth order. Two situations emerge from this. The first one is that mild cycles occur over 16 years. However, it is important to point out a specific trend of economic decline, at least for the analyzed variables, asserting that tourist destinations of Mexico, especially Cancun, do not show a significant decline, even though this contradicts the views of other researches.

Conclusions and Recommendations

While Cancun's destination had a vertiginous growth in its early years, beating the early stages relatively hastily, no depletion of the maturity phase was detected, as most of the received views of the destination express. While quantitative data analysis did not support the most common views about the decay of Cancun, it is recommended, to complement this work with qualitative research to detect how and why the illusion of exhaustion of the Butler cycle for the Cancun case was generated. Twenty years ago, reaching Cancun's International Airport, the tourist was greeted with a spectacular saying: "When you visit Xcaret, do not forget to visit Cancun." This playful ad was somehow an anticipation of what would happen. Many tourists, increasingly on the rise, reached the destination with "all inclusive" packages that kept them isolated in large hotel chains. For the sole reason that they left the premises, was to take tours organized by large companies such as Xcaret Group, which manages five theme parks and a tourist product focused on the ruins of Chichen Itza. To do this, the tourist just hired what is offered in the lobbies of their hotels, having no access to any other attractions than the ones scheduled by these large companies.

While the average expenditure per tourist did not change, what is offered to them did. While before the economic flow permeated on a network of small and large companies, in recent years the supply is focused on large oligopolies that handle hospitality, transportation and tours. Therefore, Butler's cycle is not in decline, but the ordinary inhabitant, the academics and the small and medium entrepreneurs, perceived that the destination no longer economically returned what it used to.

It is recommended to these characters, the soothsayers of Cancun, not only to perform an analysis using the life cycle of a tourist area such as Butler explained, but also to consider the offer, the oligopolies and their impact, since these are the subjects that demand to be addressed to in future research.





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