



Did 9/11 Change the New York State of Mind? Lessons from New York City's Leisure and Hospitality Labor Market

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ABSTRACT

We show that the terrorist attacks of September 11, 2001 caused a permanent structural break in New York City's leisure and hospitality labor market. This structural break is visible from both an interrupted time-series perspective and a comparison with New York City's overall economic development. Assuming that the labor market dynamics of the leisure and hospitality industry mirror a city's feel in the hedonism-asceticism spectrum, we conclude that the 9/11 terrorist attacks have permanently shifted "New York's state of mind" from hedonism towards asceticism. These results suggest that greater attention must be given to the formulation of effective industry marketing strategies in response to the legacy of urban terrorism.

Keywords: Tourism; Hospitality; New York City; 9/11; Terrorism; Economic Modeling

1. INTRODUCTION

"It was so easy livin' day by day..."
-Billy Joel, New York State of Mind

Major historical events can have lasting impacts on a people's collective lifestyle. The September 11, 2001 terrorist attacks on New York City (NYC) are such an event. Like no other industry, the leisure and hospitality industry reflects a city's lived hedonism. A city that is more attractive to the *savoir-vivre* appreciating citizen and tourist will also have, holding everything else constant, a bigger leisure and hospitality industry. The main intuition of this paper is therefore that from the dynamics of NYC's leisure and hospitality industry before and after September 11, 2001, it is possible to infer the nature of the effects that 9/11 has had on New York City's attractiveness as a destination for the consumption of entertainment services. Did 9/11 have any effect on New York City's hedonism? And if so, was it a temporary or permanent effect? In this paper we argue that if the size of the labor and hospitality industry mirrors a city's position within the hedonism-asceticism spectrum, NYC has permanently become more ascetic. One could also say, NYC is still mourning.

The rest of this paper is divided into five sections. First, we review the current literature on terrorism and tourism with a focus on what has been studied regarding the 9/11 impact to New York City. Second, we discuss our research design including data sources and the autoregressive integrated moving average model to be used. Third, we analyze the data and discuss overall findings showing that there is a sustained negative impact to the leisure and hospitality employment sector that appears to be permanent. Fourth, we provide a microeconomic explanation for the empirical finding, specifically the presence of an emotional

cost constraint that matters. Finally, we conclude with a summary of the results and the implications for crisis management response and planning in situations of urban terror.

2. LITERATURE REVIEW

International tourism, based on the right to travel and the liberal notion of freedom, is being reshaped by the fear and insecurity of terrorism. Tourism is viewed as a form of freedom in light of contemporary neo-liberal capitalism, because the free movement of people along with goods and capital encourages the notions of liberty, cultural exchange, and Western modernization. When acts of terror occur, the movement of people is obstructed in two ways. First, tourists who are risk-averse become less likely to make the choice to travel internationally and domestically. Second, states often respond to security crises by controlling the movement of people across their borders. Airports and other border entry points become targets for intense surveillance in the name of state security. This includes tighter visa restrictions, airport screenings, body scanners, and other measures that are said to enhance public safety but do increase hassles for international and domestic tourists.

When tourists become discouraged from traveling at a significant scale, the economy suffers. The tourism industry contributes \$6 trillion to the global economy, which is 9% of global gross domestic product (GDP), more than the automotive industry at 8.5% and slightly less than the banking sector at 11% (World Travel and Tourism Council, 2012). A downturn in tourism has broad reaching effects across the economy impacting not only the airline industry, but also industries of leisure and hospitality. The hospitality sector alone has a widespread impact with a supply chain generating business for entertainment, retail, recreation, and

restaurant sectors. Downturns in tourism are fortunately not the norm. Data on international tourism for the twenty-first century indicates that international tourist arrivals increased an average of 3.4% per year, with decline occurring only three times throughout the 2000 to 2010 decade. The first time was in 2001, after the 9/11 attacks. The second time was in 2003, due to the Iraq crisis, the outbreak of the severe acute respiratory syndrome (SARS), and a weakening global economy. The third time was in 2009, following the global economic recession of late 2008 (World Travel and Tourism Council, 2012).

What is the relationship between the freedom to travel and global security? Many scholars have found a relationship between tourism and peace, although there is some debate over the causal direction of the relationship. Some view peace and security as necessary preconditions for tourism (Pizam and Mansfield, 1996), while others view tourism as a force for realizing peace (D'Amore, 1988a). Tourism has been referred to as the world's peace industry because of the claim that tourism promotes peace by transcending governmental boundaries and bringing people together to build trust and good will (D'Amore, 1988b). Yet this claim has been challenged, questioning whether tourism generates peace or simply prospers in peaceful environments (Litvin, 1998). A third interpretation views tourism not as an instrument of peace, but as an instrument of state power in its efforts to manage security (Bianchi, 2006). In this view, the state does not take a neutral position with the goal to ensure the security of tourists, but rather the state can achieve geo-political objectives through tourism statements, such as the issuance of travel warnings to certain destinations, knowing that the risk-adverse tourists will avoid going there.

Travel risk perception

However, are tourists truly risk-adverse? The desire to travel the world in search of adventure may be considered to be a risk-seeking activity. After all, it would likely be safer for most tourists to remain at home in a familiar environment. Motivational factors for tourism can be divided into two categories: push factors and pull factors (Sirakaya et al, 1997). Pull factors are more related to the desirability of a particular location and its draw on the individual. Push factors involve the desire to get away from the home environment in order to fulfill a need to escape, socialize, or seek adventure. The adventure tourist is one who is actively seeking fear and thrills, and although such tourists may perceive risk in a planned trip, the real risk may be low (Cater, 2006). In such cases the tourism operator can increase business by reducing the real risk to customers while making the experience feel risky thereby increasing the thrill factor. There is a close relationship between real risk and perceived risk. Real risk is based on statistical analysis of likelihood of failure or injury. Real risk is one element considered in perceived risk, but perceived risk also incorporates culture, media images, and other heuristic relationships. Real risk is not what influences tourists to cancel trips or change destinations, but instead it is perceived risk that influences travel decision-making (Irvine and Anderson, 2006). Seabra et al (2012) categorized international tourists into seven types each with different risk perceptions. Over half the people fell into one type that is very carefree and open to travel to risky destinations. The other types have various risk aversions such as terrorism, health concerns, concern over reduced satisfaction, and general concern for all types of risk. The fears of tourists in these categories are more likely to cause them to alter travel plans.

If tourists perceive a high risk of terrorism in particular, instead of eliminating travel, they are more likely to change their destination to a less dangerous location (Rittichainuwat and Chakraborty, 2009). Although it is possible to make perceived risk higher than real risk as discussed in the idea of the savvy tourism operator above, there are times when perceived risk is lower than real risk. Fuchs et al (2012) studied the perceived risk of tourists that go to destinations that are frequent targets of terrorist attacks. In particular, they surveyed Israeli tourists that were going to cross the border from Israel into Egypt to visit the Sinai Desert. The Israeli tourists' perceived risk was lower than the real risk in the area. These tourists would rationalize a lower risk by claiming the media had exaggerated the situation. Also, the tourists were inclined to perceive risk based on their political positions regarding the Arab-Israeli conflict. Those with left-leaning political viewpoints would perceive lower risk of terror and security issues. The perception of risk in areas of on-going terrorism is then built based on media reports and personal points of view that have developed over time.

Impact of terrorist events on tourism

How then does a one-time terrorist incident affect the image of an otherwise peaceful destination site? Through statistical analysis of terrorism and tourism in Israel, Pizam and Fleischer (2002) found that the frequency of terrorist attacks has a larger impact on tourism than the level of severity of the attack. If a city experiences one large attack, such as 9/11 in New York City, the tourism industry will decrease in the short run, but as long as there are no subsequent attacks in the region, tourism demand should return to normal levels. They predicted that the crisis in the United States (U.S.) tourism industry in the year following 9/11 would slowly increase and return to normal levels within twelve months. However, when

considering New York City in particular, this was not the first terrorist attack in the city. In 1993, terrorists detonated a bomb in the basement of the World Trade Center killing six people, and injuring over 1000 more. Having two deadly attacks within a decade in the same location might make New York City less likely to fully recover.

Many cities have changed “their feel” in light of major historical events. For example, World War II led to a long-lasting decline of the attractiveness of Atlantic City as a gambling and entertainment destination. The 2005 Hurricane Katrina has taken “a lot of easy” from New Orleans’ “Big Easy” feeling. And the financial and economic crisis of 2008 has permanently affected people’s lives and lifestyle in cities like Detroit. In fact, city rejuvenation has become a major policy area in urban studies that specifically addresses the problem of a city falling prey to permanent adverse sociocultural changes. The terrorist attacks of September 11, 2001 have changed New York’s feel, too. This change in feel becomes particularly tangible around New York’s sporting events. Howard (2011) describes in a commentary entitled “The last normal Sunday in NYC” how “[t]en years later, no U.S. Open final weekend has felt as innocent or as uncomplicated since.” She cites many players’ feelings and memories as well as how higher security standards consisting of bag searches and explosive-sniffing dogs on the scene are a constant remembrance to 9/11.

Terrorism has a larger negative impact on tourism demand than natural disasters do (Sönmez et al, 1999). Therefore, any city that is potentially vulnerable to acts of political violence should integrate crisis management into their overall tourism planning. The crisis management plan should include methods to recover the tourism industry by rebuilding the city’s image of attractiveness and reassure potential tourists of their safety and security while

visiting. The events of 9/11 showed that any city can be vulnerable to terrorist attacks; hence, every city should have a plan for recovery of its tourism industry after a crisis (Litvin and Alderson, 2003). When developing a crisis management or recovery plan for tourism, policy makers are faced with multiple concerns. They must consider the size of the downturn, the expected duration of the downturn, and the choice of policy implementations from the various alternatives. Following the September 11 attacks, the Travel Industry Recovery Coalition created a Six-Point Plan to restore the tourism industry in the U.S., encompassing various policy recommendations. The plan contained provisions for tax credits, business loans, and funding for advertising from both the public and private sectors.

Although estimation of the impact of change in the tourism industry has typically been done with input-output (IO) analysis (Archer, 1995; Archer and Fletcher, 1996; Henry and Dean, 1997), Blake and Sinclair (2003) took a different path. Taking the Travel Industry Recovery Coalition's Six-Point Plan, the authors used a computable general equilibrium (CGE) analysis. Computable general equilibrium allows for more flexibility in pricing and expenditure assumptions taking into account the effect of policies, including items such as subsidies and tax rates. Their computable general equilibrium model was used on the tourism industry in the U.S. to observe the impact of the 9/11 attacks, revealing that the implementation of crisis management policies was effective in decreasing the adverse effects of 9/11. Without policy implementation, the 9/11 attacks would have caused job loss of 383,000 instead of the actual 144,000 that occurred. In the hospitality industry alone, the job loss would have been 174,000, instead of the actual 141,000.

Review of prior empirical studies

The literature review so far has revealed that terrorist strikes can have a significant impact on the entertainment, tourism, and hospitality sectors of the economy and that good crisis management can aid in recovery of the sectors. It remains to be seen whether the impact is short lived and whether recovery efforts can avert permanent negative consequences. A number of studies have been done to sort through the economic data and determine whether the effects of 9/11 would be sustained over time, or would be fully recoverable. These studies have taken place as early as one year following 9/11, and as recently as 2009. The results are varied with most studies predicting no lasting economic effects, but other studies being either non-conclusive or predicting longer-term impacts. We will review here five analytical studies that look at the economic impact of 9/11. These particular studies were chosen based on their diversity in timing and methods thus being representative of different approaches to studying this issue which include examination of existing data, application of various economic models, and purely qualitative approaches.

Bram, Orr, and Rapaport (2002) analyzed the short-term economic impact to New York City of the September 11 attack by looking at the labor and capital markets. Their data covered the period from September 11, 2001 through June 2002. They used an autoregressive forecasting model to determine what the city's employment would have been without the attacks. Aside from the financial services industry, they showed that the restaurant and hotel industries were the most impacted as tourism dropped off. Overall wages and salaries dropped, the number of hours worked decreased, and worker productivity lowered. They found

evidence of recovery and concluded that overall, the impact of 9/11 was short-lived and conditions were set for a full recovery.

Similarly, Eisinger (2004) explored the effects to government policy, urban economics, and city life since 9/11 by looking at trends in existing data. In the months following 9/11, New York City lost over 100,000 jobs, but as 9/11 gets further into the past, the author expected that other economic factors would be more influential on big city economics, such as immigration, globalization, and technology innovation. Eisinger concluded that NYC's economy was impacted negatively by the 9/11 events due to a decrease in tourism, but cities were on the road to recovery and would show few lasting effects. "It would appear that the fortunes of American cities are less subject to one-time external shocks such as the terror attacks than to larger, long-term forces in the economy and society" (Eisinger, 2004, p. 115).

Savitch (2003) discussed the economic ramifications of urban terror in an essay on a new paradigm for cities in light of the critical events of 9/11. The 9/11 attack caused New York City to lose an estimated \$83 billion in damages and 125,000 jobs. One year after 9/11 hotel occupancy rate was still down by more than 10%. Savitch determined that it would be difficult to separate the 9/11 economic effect from other trends in the economy, and concluded that it was not known whether the economic impact to New York City and other cities across the U.S. would be sustained.

Park, Gordon, June, Moore, and Richardson (2009) analysed the economic impact of 9/11 at the national level and the regional level around New York City. They indicated that it was nearly impossible to separate the simultaneous effects of the 2001 recession and the 9/11 attacks. They took on this challenging task by applying three different models to data through

2002: (1) a general time series trend analysis of gross domestic product (GDP), (2) a multi-level time series analysis of panel data where industry effects are allowed to vary over time, and (3) a vector autoregressive error correction model (VECM) to test whether industry interrelationships changed. They found that the impact at the national level was small and short-lived. At the regional level, the only long-term effect they found was some relocation of business to the New Jersey area. Although their findings were of short-lived effects, they did not eliminate the possibility of long-term economic impacts.

Treyz and Leung (2009) used their structural forecasting and policy analysis model to simulate the economic impact of the 9/11 attacks on the New York City metropolitan area into the future. Their model integrated input-output, computational general equilibrium, and econometrics methodologies. Projecting total employment loss due to the effect of 9/11 from the year 2006 to the year 2020, they predicted job loss of 90,000 for the entire New York City metropolitan area through 2020. They projected that the hotel industry would be the hardest hit for employment loss. Similar to the study of Park et al, they found that some of the New York City job loss was due to relocation of business to surrounding areas.

In summary, isolating the effects of the 9/11 attacks from other economic trends and events is a challenging task that has been attempted with various modeling techniques. Four of the five studies described only looked at data from one to two years after 9/11. The fifth study by Treyz and Leung took the view into the future, forecasting forward to the year 2020. Some studies conclude that the economic impact of 9/11 is short-lived, others find that there are long term ramifications. The assessment of the economic impacts on the NYC economy is therefore still ongoing and future research necessary. We want to contribute to this discussion by

focusing explicitly on the leisure and hospitality labor market. The leisure and hospitality industry is of particular interest because it largely produces the flair, magic, and aura of a city. This international ambience is an immense regional marketing asset with enormous economic spillovers. The terrorist attacks of 9/11, however, are of such historical dimensions that it may have permanently shifted NYC more towards asceticism.

Hedonism-asceticism spectrum

We claim that the tourism and hospitality industry is positively correlated to a city's hedonistic feel, which, of course, is difficult to prove because there is no data on the lifestyle image of cities. There are obviously city rankings like Manson's (2012) "World's best nightlife cities," but such rankings have barely any content validity. On the other hand, we know that tourism and hospitality providers respond to a city's lifestyle appeal. For example, Chamberlain (2007) quotes a hotel developer who likes to invest "in culture spheres, areas that are redeveloping, that have an eclectic mix of residential, commercial, arts and restaurants, areas where there is a vibe." It can therefore be concluded that the tourism and leisure industry is an important vehicle in conveying and catalyzing a city's feel. Conversely, the tourism and leisure industry will be adversely affected by exogenous changes caused by events like an economic crisis, a natural disaster, or a terrorist attack.

Despite empirical verification problems, we argue that the idea of a hedonism-asceticism spectrum is nevertheless valid and that a more hedonistic flair generates a greater hospitality and labor market. For example, comparing Las Vegas and Detroit with their undoubtedly well-known images of hedonism and industrialism, respectively, Las Vegas' leisure and hospitality labor market accounted for 32.4 percent of total non-farm employment in 2011.

This is more than three times the size of Detroit's leisure and hospitality labor market, which was 10.6 percent (Bureau of Labor Statistics, 2011).

We hypothesize that terrorist activities or a natural disaster may particularly affect a city's feel in the hedonism-asceticism spectrum. According to a New York Times/CBS News Poll (New York Times, 2011), 79% of all New Yorkers believe that New Yorkers will always have to live with terrorism. Applebome and Connelly (2011) conclude from the polls "that we have not fully recovered, and do not want to forget." Commemoration and a hedonistic life style seem therefore largely incompatible with each other.

As the global collective memory now associates the city with the occurrence of an unprecedented act of violence, the industry mostly responsible for the city's public identity may become permanently weakened. Has it? Answering this question is the main objective of this paper. We examine the tourism and hospitality labor market before and after the 9/11 terrorist attacks. Empirical evidence for a structural break after 9/11 can then be used to induce the hypothesis that New York City's feel has permanently changed.

3. DATA AND METHODOLOGY

Having identified the hospitality and entertainment industry as a barometer of a city's location in the hedonism-asceticism spectrum, we use employment data from the Bureau of Labor Statistics to test the effect that 9/11 has had on the leisure and hospitality industry. Specifically, we use monthly employment data for NYC metropolitan statistical area's leisure and hospitality industry from the Bureau of Labor Statistics' current employment statistics for states and metro areas. We limit our observations to January 1992 to December 2011, which covers roughly ten

years prior and ten years after the 9/11/2001 terrorist attacks. We will employ a time-series interruption model for the monthly data in order to determine whether there has been a structural break.

We go through the following four steps in our analysis. First, we find the autoregressive integrated moving average (ARIMA) estimation of the leisure and hospitality (L&H) employment for the 1992:01-2001:08 period. In the second step, using the results of the first step, we forecast the leisure and hospitality employment for the 2001:9-2011:12 period. In the third step, equipped with the real and forecasted post-9/11 time series, we run a regression testing whether a dummy for the post 9/11 period is statistically significant in explaining the difference in post 9/11 real and forecasted L&H employment. Finally, provided that we find a statistically significant post 9/11 effect, we want to compare the development in New York's L&H labor market with the post 9/11 development of New York's personal income. If the dynamics of personal income are similar to L&H's labor market development, then we can attribute the change in the L&H industry to the general symmetric economic effects of 9/11. If the dynamics are different, we can support the hypothesis that 9/11 had asymmetric effects on the L&H industry.

Empirical analysis

Figure 1 shows employment in the NYC's labor and hospitality industry, including a trend line for the pre and post 9/11 observations. A visual inspection of the two trend lines suggests that L&H employment after 9/11 has indeed shifted to a lower level. When limiting the dataset to the 1992:01-2001:8 observations and after examining the autocorrelation and partial autocorrelation functions, we identify an autoregressive integrated moving average (ARIMA)

(2,1,0;0,1,1) model as the most efficient. The first three values stand for the number of regular autoregressive terms, differencing, and moving average parameters, respectively. The values after the semicolon are the specification of the seasonal component. Figure 2 provides the correlograms of the series. Table 1 shows the estimation results of the autoregressive integrated moving average (ARIMA) (2,1,0;0,1,1) model. The forecasts against the real values are shown in Figure 3.

Figure 1

Employment in the Leisure and Hospitality Industry of the New York-Northern New Jersey-Long Island Metropolitan Statistical Area (NYMSA), 1992:01-2011:12 (seasonally non-adjusted with pre- and post 9/11/2001 trend lines)

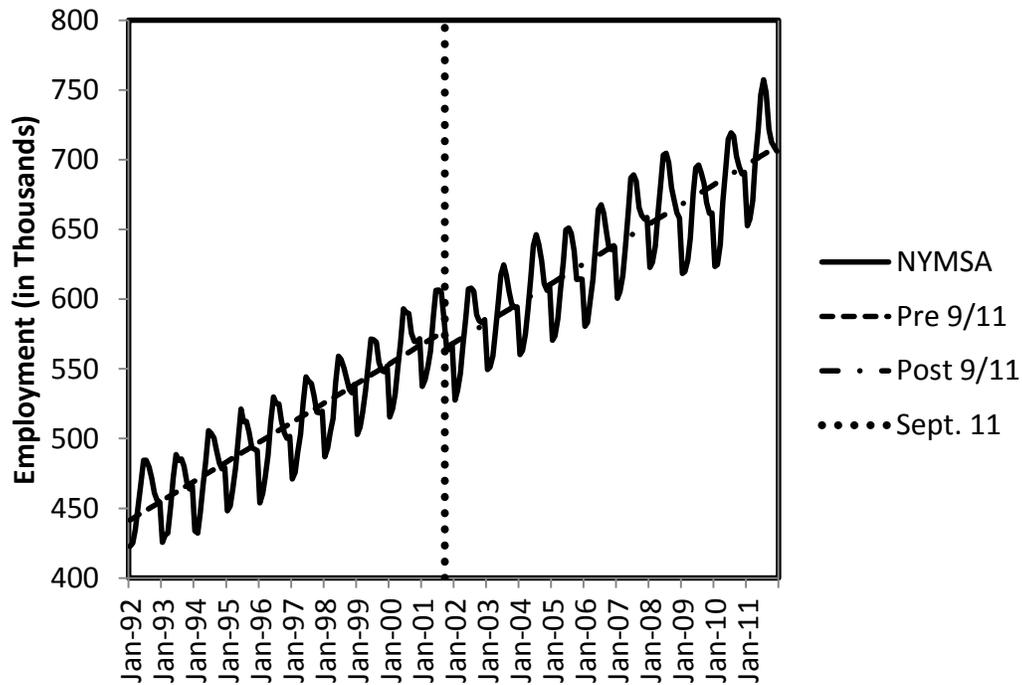


Figure 2

Auto Correlation Function (ACF) and Partial Auto Correlation Function (PACF) of the New York Metropolitan Statistical Area (NYMSA) Leisure and Hospitality Employment

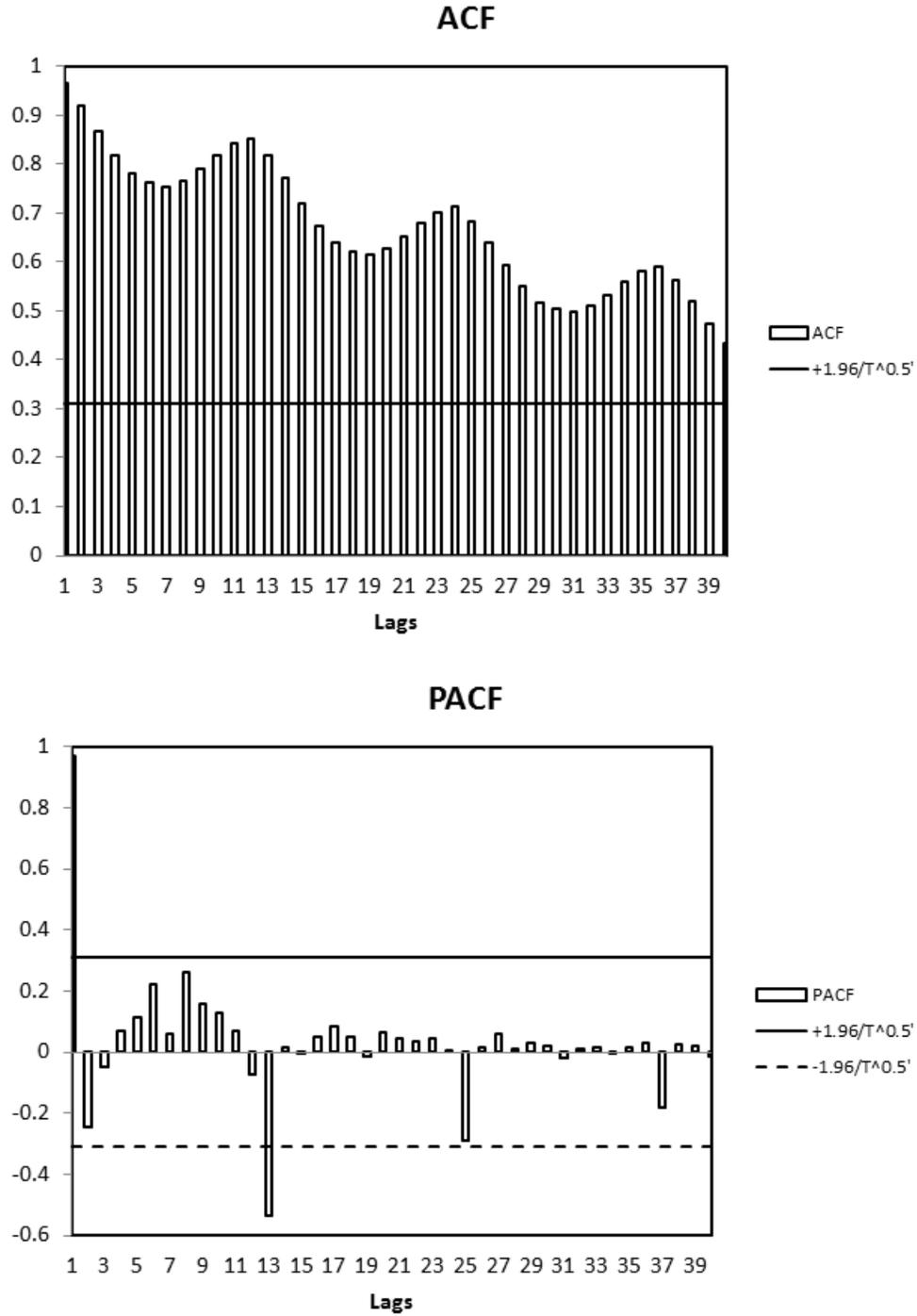


Table 1

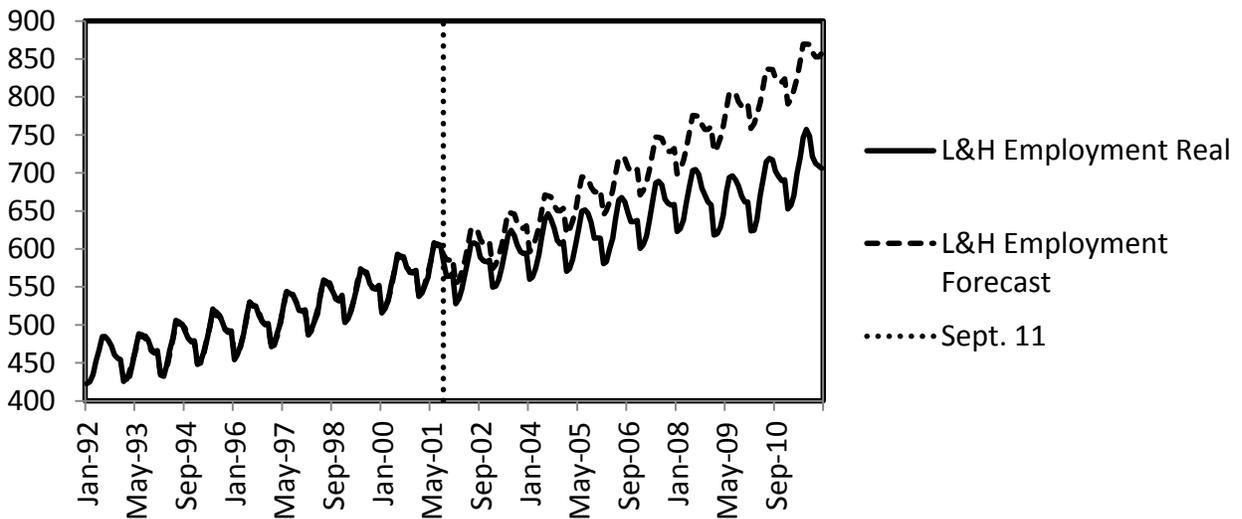
Autoregressive Integrated Moving Average (ARIMA) (2,1,0;0,1,1) Estimation Results for Time: 1992:01-2001:08

	Coefficient	Standard Error	z	p-value	
const	0.121593	0.0667866	1.8206	0.06867	*
phi_1	-0.532343	0.0926026	-5.7487	<0.00001	***
phi_2	-0.339362	0.0920341	-3.6874	0.00023	***
Theta_1	-0.637074	0.101999	-6.2459	<0.00001	***

Mean Dependent Var	0.119417	S.D. Dependent Var	3.822022
Mean of innovations	0.102176	S.D. of Innovations	2.691952
Log-likelihood	-251.4775	Akaike Criterion	512.9551
Schwarz Criterion	526.1287	Hannan-Quinn	518.2908

Figure 3

L&H Labor Market Model Forecasts Using Structural Break Assumption in 2001:8



Although the model's forecast against the real employment numbers strongly suggests that the post 9/11 employment is far below the predicted values, we want to find out more about its significance from a statistical perspective by running the regression:

$$Employment\ Forecast_t = \beta_0 + \beta_1 Actual\ Employment_t + Post9/11Dummy_t + u_t \quad (1)$$

The regression results are presented in Table 2. The results show that the post 9/11 dummy is highly significant, thus indicating that NYC's L&H labor market has been permanently shifted to a lower growth trajectory. Of course, only because employment in August 2012 of 605.6 thousands was again greater than the August 2011 level of 604.9 thousands does not mean that NYC's Leisure and Hospitality Industry would have recovered again within one year. A true recovery would imply that post 9/11 employment blends again into the pre 9/11 trajectory. This, however, has not happened, which is why one can conclude that NYC's Leisure and Hospitality industry has been permanently structurally affected by 9/11. The average monthly job shortfall until the end of 2006, which was the year before the beginning of the 2007 economic and financial crisis, can be calculated at around 38,000.

Table 2

Regression Results of Testing Post 9/11 Effect

DV= Employment Forecast	Model I	Model II
Constant	-252.79 (13.00)***	-188.50 (17.99)***
L&H Employment	1.50 (0.02)***	1.37 (0.03)***
Post 9/11 Dummy		26.11 (5.30)***
Adjusted R-Squared	0.95	0.96

*** p < .01

Park et al (2009) argue that it is difficult to isolate post 9/11 economic impacts from the 2001 recession, and indeed it is. However, when taking annual personal income as a proxy for NYC’s overall economic performance, there seems to be slight evidence that between 2001 and 2008, personal income has first deviated and then re-blended into the pre 2001 trajectory. Because of the high degree of linearity of annual personal income data, the personal income forecast is performed on the basis of a simple quadratic time trend of the nine observations between 1992 and 2000. The regression results are presented in Table 3.

Table 3

Personal Income 1992-1998

	Coefficient	Standard Error	t-ratio	p-value	
const	4.18495e+08	1.03638e+07	40.3804	<0.00001	***
time	3.22807e+07	1.8417e+06	17.5277	<0.00001	***
Mean DV	5.80e+08	S.D. DV		89405695	
Sum Squared Resid	1.42e+15	S.E. of Regression		14265728	
R-squared	0.977723	Adjusted R-squared		0.974540	
F(1, 7)	307.2190	P-value(F)		4.84e-07	
Log-likelihood	-159.8999	Akaike criterion		323.7997	
Schwarz criterion	324.1942	Hannan-Quinn		322.9485	
rho	0.323323	Durbin-Watson		0.888677	

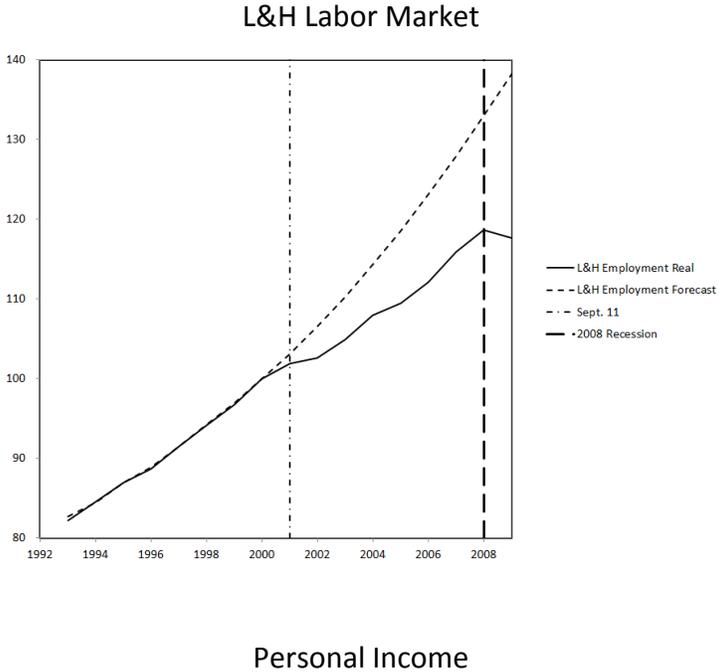
*** significant at p < .01

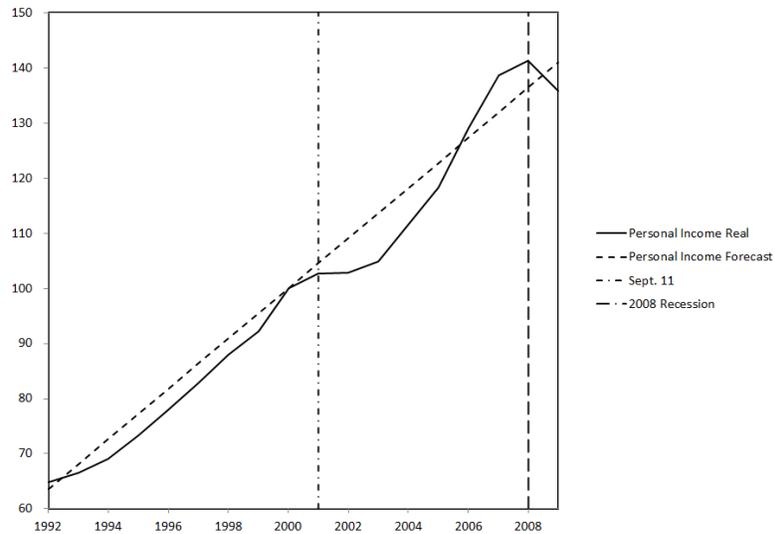
The graphs in figure 4 compare the annualized employment levels and their forecasts of the L&H labor market and annual personal income (2000=100). The comparison of the income

dynamics strongly indicates that personal income after 2001 moved again towards the pre 9/11 income trajectory, and even crossed it, probably as a result of the final years of the housing bubble.

Figure 4

A Comparison of the Post 9/11 Dynamics in the Leisure and Hospitality Labor Market to Personal Income





The leisure and employment market, however, shows a very different dynamic where the post 9/11 employment does not converge again towards the pre 9/11 trajectory. It therefore seems that while the “Roaring Nineties” (Stiglitz, 2003) quickly continued again after 2002 until the beginning of the 2007/2008 economic and financial crisis, New York’s leisure and hospitality industry was no longer part of the economic extravaganza.

Some further economic perspectives

In a 1991 article, Eadington and Redman not only forecasted correctly a growing relevance of advanced statistical methods in tourism research, but also an increased importance of economic analysis at the micro level (p. 53). Having already used advanced statistical analysis to show that New York’s tourism industry suffered a lasting structural break after the September 11, 2001 attacks, we also want to discuss avenues for developing new economic perspectives to provide answers for this event. Specifically, a model is needed that can explain why tourism demand has not recovered at the same pace as the rest of the economy. We argue that such a

natural theoretical reference model can be found in simple economic utility maximization. The tourist as an economic agent, however, is subject to idiosyncratic assumptions.

We will guide our logic using a representative stylized tourist. Assume a tourist (she may be a U.S. citizen, too, of course) who wants to travel the United States of America. We postulate that a visit to New York (NY) is a partial substitute to other destinations (OD) like other cities or sites of natural beauty. Colloquially speaking, we credit New York City from a tourist's perspective a status that can be summarized as follows: "If you have not been to New York City, you have not been to the United States." Most tourism survey research shows that New York City regularly ranks as the most popular tourist destination in the US (Weiner, 2012). Of course, many other major cities can be credited similarly.

If one accepts this prominent position of New York, a tourist's utility function can be written as:

$$U = F(NY, OD) \tag{1}$$

For simplicity, we assume that equation (1) is a standard Cobb-Douglas utility function. Yet more important than the nature of the tourist's utility are our propositions on the budget constraint. In particular, we argue that a tourist is subject to two constraints: a standard monetary budget constraint (MBC) and an emotional cost constraint (ECC). The emotional cost constraint assumes that a tourist wants to "minimize tears." Emotional discomfort may result from at least four factors. The most obvious factor is simply physical travel discomfort stemming from adjusting to a jet lag, a different climate, and changes in dietary habits. Other straightforward concerns are diseases (Jonas et al, 2011). In order to relax the constraints from such adverse factors, many tourists allocate funds into medical preparation (shots, medication,

and tourist pharmacies) and health insurance. A second, socio-psychological, factor is the possible exposure to poverty, crime, political oppression, and social inequality (Dimanche and Leptic, 1999). Many tourists, especially from developed areas, may find that the interaction with locals living their lives in misery and hardship taints the vacation experience. Many touristic sites in developing areas make therefore the utmost effort to insulate local citizens from any interaction with tourists. Especially former and still socialist countries have advanced this separation to perfection.

A third factor affecting emotional cost comes from risks generated by Mother Nature. In fact, many of the most popular tourist destinations are located in zones vulnerable to tropical storms, tsunamis, or landslides. Globalization, reduced air travel costs, and a growing number of developing countries discovering tourism as a development vehicle have led to a growing number of people vacationing at the frontier of so far unknown risk. But as natural disaster prevention and management deficits have become revealed in many developing areas, however, tourists are becoming now more sensitized to the risks of natural disasters. Once a tourist destination has become stigmatized by a major natural disaster, it may take many years for the affected region to recover again (Kozak et al, 2007). Because competition among tourist destinations is typically fierce and continuously growing, the stigma of being a natural disaster prone tourist destination can become a long-lasting burden that is very difficult to eliminate from tourists' minds. Finally, and fourth, the political risk of terrorist attacks has effects similar to those of a natural disaster. It seems literally unthinkable that tourists will visit New York City and not be remembered by the attacks of September 11. The question, however, is whether the anticipation of this remembrance translates into emotional distress that affects touristic

planning. The data from our empirical analysis suggests that this is credible enough to devote to the idea of emotional discomfort further theoretical deliberations.

If tourists are subject to emotional discomfort costs (EDC), it can be written as:

$$EDC = T_{NY}NY + T_{OD}OD \quad (2)$$

where T (“Tears”) is the “emotional price to pay” for visiting a tourist destination. The monetary budget constraint, on the other hand, takes the standard form:

$$MBC = P_{NY}NY + P_{OD}OD \quad (3)$$

where P is the price for a “tourist package” in New York or the partial substitute. A tourist wants to maximize the utility given this constraint. We model the interaction of the monetary budget constraint with emotional discomfort in two steps. In step 1, the tourist finds the optimum allocation of “New York City” and “Other Destinations” as a function of a fixed budget. This could be, for example, finding the optimum days allocated to visiting each destination. In a second step, the maximum utility associated with the monetary budget constraint is taken as a given and made subject to emotional cost minimization. Then, for the emotional discomfort cost constraint to bite, the following condition must hold:

$$\frac{T_{NY}}{T_{OD}} > \frac{P_{NY}}{P_{OD}} \quad (4)$$

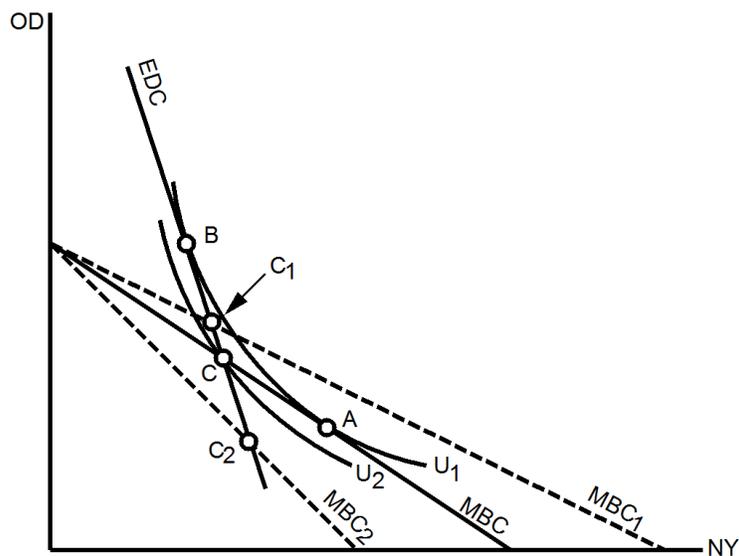
If the emotional budget constraint bites, the individual will be unable to realize the utility that she would get if only the monetary budget constraint mattered. This is illustrated in Figure 5. Figure 5 shows that in the absence of an emotional cost minimization constraint, the individual tourist would realize the optimum tourist plan A and enjoy the utility U_1 . But because New York City is now associated with a higher emotional cost, emotional cost

minimization would cause the tourist to ideally realize the tourist plan B. Tourist plan B, however, is now no longer compatible with the monetary budget constraint. The tourist is therefore forced to realize the tourist plan at the intersection between the emotional cost and the monetary budget constraint, point C and U_2 , which is closest to the old indifference curve U_1 .

From Figure 5 we can now derive important marketing policy implications for post-shock situations similar to the attacks of 9/11. Assuming that the emotional cost constraint and the monetary budget constraint are independent, which means that pricing policies do not affect the emotional costs, then, the intuitively seemingly right response to revive tourism through lowering prices turns out to be actually counterproductive. This can be seen from the intersection

Figure 5

Touristic Utility Maximization under a Monetary Budget and Emotional Discomfort Constraint



OD = Other Destination
 NY = New York
 EDC = Emotional Discomfort Constraint

MBC = Monetary Budget Constraint

of the monetary budget constraint MBC_1 and the unchanged emotional discomfort constraint, EDC, Point C_1 . Technically, what happens by lowering prices for hotels, restaurants, and other touristic amenities while leaving constant the emotional discomfort constraint, is that the individual tourist has now more money available to spend in other destinations. Therefore, as counter-intuitive as it may sound, New York City would be better advised to actually raise prices for its amenities. What happens then is shown by the intersection of the monetary budget constraint MBC_2 and the emotional discomfort constraint EDC, Point C_2 . Higher prices for New York City tourism services now reduce the real budget for the tourist, which, because in equation (1) New York City is assumed to be essential and cannot be completely bypassed because New York City is a partial substitute to all other destinations, force the tourist to spend relatively less on “other destinations.”

Such microeconomic deliberations can be extremely important to the formulation of effective crisis response policies. They require close cooperation among theorists, marketing researchers, and public policy makers. For example, as our previous analysis indicates, successful city marketing can become an important tool in recovering from the economic consequences of a terrorist attack. Any misreading of a city’s lifestyle image in the general perception of tourists can induce counterproductive marketing policies. Marketing research on tourists’ perception about terrorism risk and coping strategies during vacations are therefore extremely important in formulating effective policies. Future research is necessary to answer such questions as: Do tourists visiting a post terrorist attack city have different touristic preferences than pre-terrorist tourists? What do tourists appreciate more – A more open public

relations policy about terrorist risks or a more covert one? Because a city's lifestyle image is essentially a public good that needs to be built (or rebuilt), a multi-stakeholder forum should be established to effectively coordinate such research and develop new policies in response to findings.

3. CONCLUSIONS

In this paper we analyze the extent to which the September 11, 2001 terrorist attacks have changed the tourism industry of New York City. Our main intuition for this paper was that certain events may cast a lasting shadow over a tourist destination's appeal. In the case of New York City after the 9/11 attacks, there is already widespread anecdotal evidence that the city no longer feels the same. The question therefore is: Is there also evidence for a permanent shift in the city's feel? We argue that in order to answer this question, it is straightforward to look at the labor market of New York City's leisure and hospitality industry before and after the 9/11 attacks and study it for any structural breaks. Our results indicate that there is indeed such a structural break. After 9/11, employment in New York City's leisure and hospitality industry fell to a permanent lower trajectory than what would have been predicted had 9/11 not occurred. We also show evidence that the labor market dynamics in the leisure and hospitality industry have been detached from the overall development of personal income. In other words, while overall personal income in New York City recovered again, employment in the leisure and hospitality industry did not.

We take this evidence that New York City's feel for tourists has permanently changed and explore next plausible explanations for it as avenues for future research. Using a simple

rational choice model representing a typical tourist, we argue that a tourist's utility maximization calculus depends not only on his monetary budget, but also an emotional cost constraint. While terrorist attacks or likewise natural disasters can increase such costs dramatically, their impacts on consumer choice are poorly understood. By incorporating an emotional cost constraint into a rational choice model we are able to derive several insights that are not immediately obvious, but of high relevance to tourism marketing, in particular pricing policies. Our first conclusion is that the emergence of an emotional discomfort constraint as a result of a "tragedy shadow" over a city can indeed explain a permanent difference in a city's "feel." We also argue that when holding the emotional discomfort cost constraint constant, tourism revival strategies using the marketing instrument of price policy need to be very carefully studied. In particular, we have shown that the intuitively appealing natural reaction to lower prices for tourism services is actually inferior to raising them. Future research regarding the interaction between emotional discomfort and traditional budget constraints are important to understand and necessary.

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