

MODELING CHANGE IN THE PROFILE OF THE ATLANTIC CITY VISITOR.

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ABSTRACT

The Atlantic City casino market has faced increasing competition over the past decade, particularly since the introduction of Pennsylvania gaming in 2006. In response to this increased competition, the State of New Jersey, through legislation, created a public private partnership to both redevelop parts of the city and devote significant marketing dollars into shaping the image of the city. The private side of that partnership, the Atlantic City Alliance (ACA), found in their earliest consumer research that Atlantic City's image as a gaming destination was well established, but that the city was less known for the retail, entertainment and restaurants it had to offer. In an effort to help broaden Atlantic City's image and visitor base, the ACA launched the "DO AC" campaign, a campaign that featured very little in terms of gaming but rather focused on the non-gaming aspects of the resort.

This study examines significant differences between recent visitors (2012) to the Atlantic City market and those who visited the year prior to the announcement of the public private partnership (2010). The Levenson Institute of Gaming, Hospitality and Tourism at the Richard Stockton College of New Jersey commissioned two studies that profiled the Atlantic City visitor, a February 2011 study where 125 Atlantic City visitors (2010 visitors) were surveyed and a February 2013 study which produced 683 Atlantic City visitor (2012 visitors) responses. The surveys were conducted in February of both 2011 and 2013, with the data collected by the Hughes Center for Public Policy's Polling Institute at the college and Zogby International. A logistic regression model highlights some important demographic and behavioral differences between the 2010 and 2012 visitors to the Atlantic City casino market. Particular attention is paid to the spending habits between the two groups. Significant differences are discussed.

INTRODUCTORY FOOTNOTE 1

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KEYWORDS

Atlantic City; Gaming; Visitor Profile; Consumer Behavior; Logistic Regression

DISCIPLINES

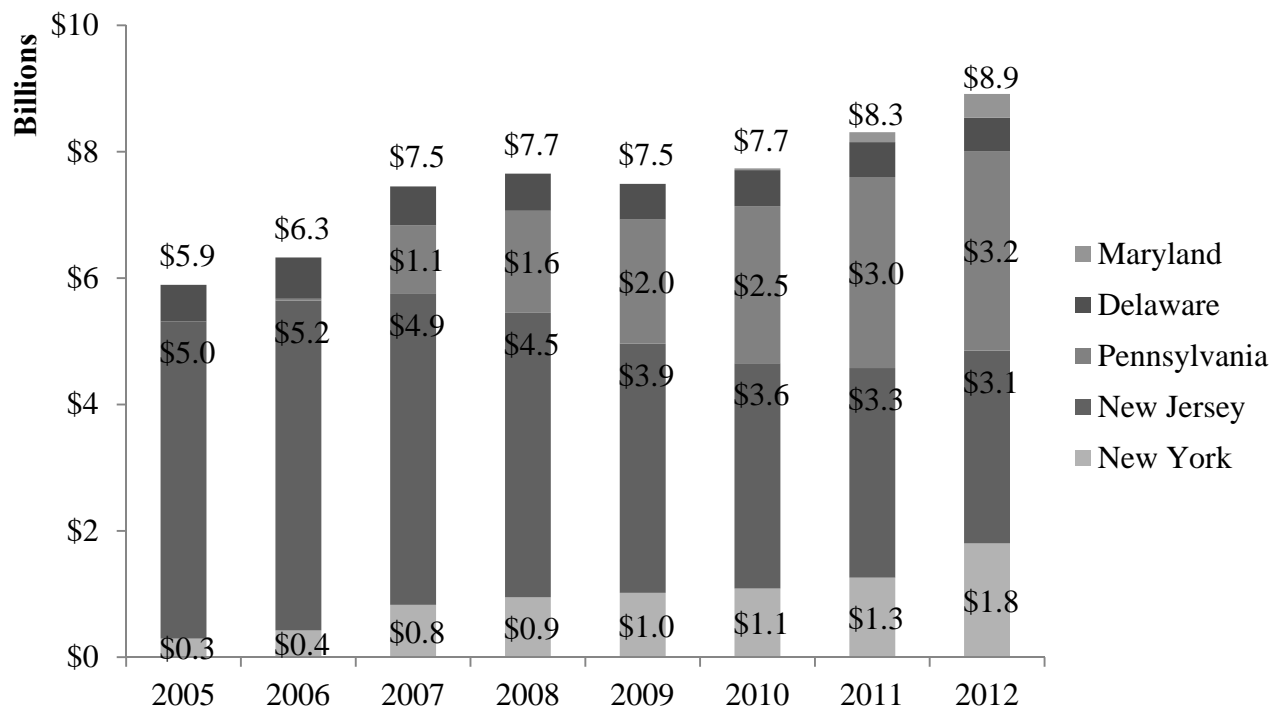
Gaming and Casino Operations Management; Hospitality Administration and Management; Public Affairs, Public Policy and Public Administration; Statistics and Probability; Tourism and Travel

INTRODUCTION

The Atlantic City casino market has faced increasing competition over the past decade, particularly since the 2006 introduction of legalized gaming in Pennsylvania. In less than a decade, Pennsylvania gaming has grown from a fledgling market to one that, state wide, generated more gross gaming revenue in 2012 than the Atlantic City market (\$3.1 billion) (American Gaming Association, 2013). Gaming is now found in every Mid-Atlantic state and many of the states neighboring the region as well. As states continue to look for new sources of revenue in the form of gross gaming taxes, the growth in the supply of gaming will likely continue for the foreseeable future.

Figure 1 shows the details on the growth of gaming in the Mid-Atlantic region. In 2006, at the height of the Atlantic City (New Jersey) market, Atlantic City gaming revenue generated the vast majority (\$5.2 billion) of the \$6.3 billion in gross gaming revenue generated in the Mid Atlantic. Today, gaming in the Mid-Atlantic States is an \$8.9 billion market, of which Atlantic City boasts only a bit more than one third (34.8%). Still, it would be wrong to interpret the Mid-Atlantic as a healthy growing gaming market based on Figure 1 showing \$3 billion in growth in the seven year span. As one Atlantic City casino executive described it (Ballance, 2013), the growth in gaming revenue shows a much different pattern when we look at that growth on a sub-state level (not shown here). Growth in the Mid-Atlantic gaming revenue has largely occurred on the periphery of the region. Meanwhile, the core market for gaming that Atlantic City once relied heavily on (particularly the New York, Philadelphia and Wilkes-Barre designated market areas) has largely been saturated, with casinos from Long Island, NY west to Allentown, PA and south to Philadelphia and the suburbs parceling up the once monopoly that Atlantic City enjoyed regionally. With more gaming supply on the way, in Philadelphia and Baltimore in particular, it is even more imperative than ever for Atlantic City to find a manner in which they can effectively develop growth for the resort.

Figure 1: Gross Gaming in Mid-Atlantic States, 2005 to 2012



In response to this increased competition, the State of New Jersey, through legislation, fostered a public private partnership to both redevelop parts of the city and devote significant marketing dollars into shaping the image of the city. Coincidentally, legislation was signed reforming the regulation of gaming in New Jersey, with the intent of making the casinos more competitive. Governor Chris Christie vowed that his administration would “take a more active hand in promoting the resort as clean, safe and economically prosperous” (Fletcher, 2011). The legislation signed in February of 2011 by Governor Christie created the formation of a state run tourism district in Atlantic City to be headed by an existing state agency, the Casino Reinvestment Development Authority (CRDA). A major initiative of the CRDA would be coined the “clean and safe” campaign, part of that being initiated the same day as the Governor also announced \$261 million in future tax credits to the Revel for redeveloping the South Inlet neighborhood in Atlantic City that surrounds the newest casino resort to the Atlantic City market. That action provided a firm footing for the newly created public private partnership to help foster growth in jobs and economic development for the region. It would be followed up with aggressive public relations that would draw media attention to Atlantic City.

The private side of that partnership, the Atlantic City Alliance (ACA), was prescribed by the legislation to be funded by the casinos in Atlantic City (Previti, 2011) at roughly \$30 million per year for five years. The ACA was charged with the marketing of Atlantic City as a tourist destination. The ACA found in their earliest consumer research that Atlantic City's image as a gaming destination was well established, but that the city was less known for the retail, entertainment and restaurants it had to offer. In an effort to help broaden Atlantic City's image and visitor base, the ACA launched the "DO AC" campaign, a campaign that, initially, featured very little in terms of gaming but rather focused on the non-gaming aspects of the resort. The Atlantic City Alliance has since begun incorporating more gaming into their now second year of a marketing campaign (Wittkowski, 2013).

There are some early signs that the Atlantic City Alliances (ACA) "DO AC" campaign, coupled with the redevelopment efforts of the Casino Reinvestment Development Authority (CRDA) are helping to attract visitors to the resort despite the continued loss in gaming revenue. One recent study (Tyrrell, 2013) details non-gaming revenue in the resort and revealed that the Atlantic City Luxury Tax, a tax on non-gaming amenities in Atlantic City, was up 10.7% in 2011 and 12.6% in 2012 (see Figure 2), including a record high quarter in the third quarter of 2012. Still, gaming revenue continues to decline and the resorts' non-gaming also declined in the wake of Hurricane Sandy in October of 2012, causing cancellations of two major conventions during what otherwise is off season, when business largely cannot be replaced.

Figure 2: Atlantic City Luxury Tax Collections, 2005 through 2012, \$millions



So it is with caution that we began our analysis of the changing characteristics of the Atlantic City visitor over the past two years, a time span that corresponds with the significant change detailed above and much that has not been discussed. We first review recent literature with regards to the characteristics of gaming patrons.

LITERATURE REVIEW

Braunlich (1996), nearly two decades ago, detailed casino visitors to Atlantic City. The study revealed several attributes of the destination that the visitors found enticing. Behavioral characteristics of the visit trip were included in the analysis, how much time was spent gambling, shopping and eating, amongst other attributes.

Segmenting gaming visitors by their expenditures was the subject of one study (Mouffakir et al, 2004) which showed promise in the technique. Interestingly, the study found that the majority of heavy spenders on non-gaming attributes offered at the resorts did not name gaming as the primary reason for the visit, while at the same time reporting that they were more likely to visit more than one casino on a trip when compared with other spending segments. The study concludes that going after the heavy spender on non-gaming amenities is a

viable market segmentation method, meeting all four traits for successful segmentation (measurability, substantiality, actionability, and accessibility) prescribed as necessary by Kotler and Armstrong (1996).

Some attention is paid to the segmentation of gaming visitors by Zhao (2004) in discussion of Macau's primary market segments. It is suggested that Macau, at the time, did not need to focus as much on the non-gaming aspects of the resort given lack of saturation of the gaming market in Asia. Certainly much has changed since this discussion nearly a decade ago. More recently, So (et al, 2012) also looked at the viability of segmenting gaming visitors to Macau based on their activities sought.

Brown (2001) looked at general vacationers to Kentucky and segments them based on their socio-demographic and trip characteristics and desire to engage in gaming while in the state. Trip characteristics are also the subject of a study of visitors to a midwest casino destination (Scott-Halsell, 2010). Spending patterns are also a subject of the study.

There seems ample support to model gaming resort visitation by behavioral characteristics of the visitor, particularly spending patterns. The following section will develop the methodology we will employ in modeling the change in the visitor to Atlantic City over the past two years.

METHODOLOGY

In attempting to fully understand the characteristics of current visitors to Atlantic City, we employed data from two recent surveys conducted by the Levenson Institute of Gaming, Hospitality and Tourism (Tyrrell and Posner 2011, Tyrrell and Posner 2013).

In modeling the changes to the current visitor to Atlantic City within the scope of the logistic regression model, the dependent variable is discrete; 1 if the individual was visiting Atlantic City in 2012, 0 if they had visited the resort in 2010. If one is interested in whether or not any particular explanatory variable would make the individual more or less likely to be a 2012 visitor, a binary logit model can be employed.

Assuming that there is an underlying response variable y_i^* , 2012 visitor to Atlantic City is defined by the following regression relationship.

$$y_i^* = \beta'x_i + \mu_i \quad (1)$$

In practice, y_i^* is not observable. What we observe is a dichotomous variable y defined by:

$$y = 1 \text{ if } y_i^* > 0 \quad (2)$$

$$y = 0 \text{ otherwise}$$

In this formulation, $\beta'x_i$ is not $E(y_i/x_i)$ as in the linear probability model. It is $E(y_i/x_i)$ where y represents the dependent variable (yes/no) in defining a 2012 visitor (as opposed to a 2010 visitor). From the above equations, the following equation can be derived.

$$\text{Prob}(y_i=1) = \text{Prob}(\mu_i > -\beta'x_i) = 1 - F(-\beta'x_i) \quad (3)$$

$$1 - F(-\beta'x_i) = \frac{\exp(\beta'x_i)}{1 + \exp(\beta'x_i)} \quad (4)$$

Here F is the cumulative distribution function for μ , x_i are the independent variables presented in Table 1 and β are the coefficients to be estimated (Maddala, 1983). These coefficients are then transformed with the log odds ratio to determine their partial effects on the response variable, always with respect to a reference category for the independent variable being described. Values of $\exp(\beta'x_i)$ (odds ratio) that are below 1.0 are associated with a negative coefficient and are then divided into 1.0 to determine the extent to which they are negatively associated with the response variable. Significant variables suggest that the null hypothesis that any coefficient is zero can be rejected.

Data Considerations

Our initial attempt at modeling was with the goal of differentiating the first time visitors to Atlantic City in 2012 compared with visitors who were returning to the resort that year. While this model was both significant and had much to offer, it became evident when interpreting the significant variables that this first time visitor was heavily influenced by the nature of the destination, more specifically that it was a casino destination. As such, the probability that one is a first time visitor is likely always higher for the younger age group in as much, or more, a function of laws that prohibit gambling for those under the age of 21. Not

surprisingly then, younger, current students with smaller budgets and spending habits largely characterized the first time visitor. The model to be run with the goal of determining the effectiveness of current marketing efforts might better be run examining current first time visitors with some prior year's first time visitors.

Unfortunately, data collected in 2011 (2010 visitors) did not ascertain who was a first time visitor. However, most other demographic and behavioral traits of interest were ascertained in both studies (marital status being a notable exception). The decision was therefore made to compare the 2012 Atlantic City visitor (n=683) to the 2010 Atlantic City visitor (n=125). The final model compared changes to the profile of the Atlantic City visitor over the past two years as a function of demographic (origin, age, gender and race), socioeconomic (household income and education) and behavioral characteristics (travel party composition, travel spend, length of stay and primary trip purpose). The decision on the time frame was to examine visitors to the resort prior to the increased public attention brought to Atlantic City following the formation of the public private partnership in February of 2011.

There was some concern over how to treat the missing values for the household income question. Given that roughly 17% refused to answer this question in both surveys, we did not want to simply disregard these respondents other answers in the model. Thus, the decision was made to include the responses of those refusing to answer the household income. The decision did not change the signs or significance of any of the other variables in the model, but did provide for a better overall fit and slightly higher R square. All other missing or refused responses to other variables were treated as missing and excluded from the analysis. That number totaled only 13, mostly to the question of age, and did little to affect the model, including no impact on significance or signs of the coefficients.

Figure 3 provides descriptive statistics and frequencies for the variables entering into the final model. As categorical variables being utilized in a logistic regression require a reference category, Figure 3 denotes that category with an asterisk. All the variables in the model are categorical (with the exception of the number of days the visitor was in Atlantic City) owing largely to variations in the manner in which a respondents answers were coded between the two years; sometimes one as a continuous variable, other times variations in the ranges with which responses were categorized. Despite the differences, after common groupings of the response

Figure 3: Descriptive Statistics and Frequencies for 2010 and 2012 Atlantic City Visitors

<i>Dependent Variable</i>			<i>Respondents</i>		
2010 Atlantic City Visitors			125		
2012 Atlantic City Visitors*			683		
<i>Independent Variables</i>	% Distribution		<i>Independent Variables (Continued)</i>	% Distribution	
	<u>2010</u>	<u>2012</u>		<u>2010</u>	<u>2012</u>
<i>Designated Market Area (Origin)</i>			<i>Gambling Budget</i>		
Philadelphia	29.6	25.9	\$0*	15.2	33.0
New York	52.0	41.2	\$1-\$100	28.0	25.3
Washington DC	4.0	4.7	\$101-\$250	26.4	15.7
Baltimore	4.8	3.7	\$251-\$500	16.0	15.5
Other Northeast DMA's*	9.6	24.4	\$501-\$750	3.2	1.7
			\$751-\$1,000	4.0	3.6
<i>Household Income (\$Thousands)</i>			More than \$1,000	7.2	5.2
Refused	17.6	16.7			
less than \$50	8.0	19.1	<i>Food & Beverage Spend</i>		
\$50 to less than \$100	25.6	31.0	\$0*	9.6	16.8
\$100 to less than \$150	21.6	19.8	\$1-\$100	63.2	44.3
\$150 or more	27.2	13.4	\$101-\$200	16.8	20.4
			\$201-\$300	7.2	9.2
<i>Gender</i>			\$301-\$400	0.8	3.3
Male*	72.0	39.8	\$401-\$500	1.6	2.7
Female	28.0	60.2	More than \$500	0.8	3.3
<i>Race</i>			<i>Entertainment Spend</i>		
White*	82.4	72.3	\$0-\$50*	41.6	79.9
Hispanic	4.0	5.3	\$51-\$100	14.4	8.2
African American	4.0	13.1	\$101-\$150	9.6	2.4
Asian	2.4	4.6	\$151-\$200	6.4	5.0
Other	7.2	4.7	\$201-\$250	9.6	0.6
			More than \$250	18.4	3.9
<i>College Degrees</i>					
Four Year College Degree*	68.8	49.7	<i>Shopping Spend</i>		
No Four Year College Degree	31.2	50.3	\$0*	33.6	49.1
			\$1-\$50	24.0	16.7
<i>Minor (under 21) in Travel Party</i>			\$51-\$100	12.0	10.2
Yes*	8.8	18.4	\$101-\$150	11.2	2.2
No	91.2	81.6	\$151-\$200	6.4	7.5
			\$201-\$250	4.8	1.1
<i>Age</i>			More than \$250	8.0	13.2
18 to 29	1.6	8.9			
30 to 49	16.8	31.0	<i>Primary Trip Purpose</i>		
50 to 64	60.8	34.4	Vacation/Pleasure*	29.6	38.6
65 or Older*	20.8	25.7	Gambling	32.8	27.0
			Business/Convention	14.4	7.8
<i>Days in Atlantic City** (Mean)</i>	(3.0)	(2.8)	Visiting Friends/Relatives	4.0	9.5
1	32.0	36.2	Special Event	11.2	10.8
2	28.0	29.0	Other	8.0	6.3
3 or More	40.0	34.8			

Note: *This category was a reference when the variable was used as a dummy. **This variable was measured as a continuous variable and thus no reference category is necessary.

categories, the only peculiarity is with regard to education; we could only distinguish between those who had achieved a four year college degree and those who had not.

RESULTS

Figure 4 shows the results of logistic regression model of 2012 compared to 2010 Atlantic City visitors. The model produced a Nagelkerke R Square of 0.523, classifying 89.7% of the Atlantic City visitor respondents into the correct year of visit. The model fit is very good overall and provides 22 significant variables which help to provide some insight into the changing characteristics of the Atlantic City visitor profile.

Demographic Characteristics

With respect to the visitors' home origin (classified by Designated Market Area or DMA), we found that, relative to our reference category, New York, visitors to Atlantic City were nearly 8 times more likely to have originated from a DMA in the northeast other than Philadelphia, DC or Baltimore. Respondents were chosen from DMA's as far north as Boston, west to Pittsburgh and south to Roanoke. The majority of the respondents included in "other" however are from a much closer radius to include primarily New York and Pennsylvania (outside of New York and Philadelphia DMA's). It is encouraging that we are seeing growth from these more peripheral (to the core Atlantic City market), particularly in that they are more likely to produce overnight stays given their relatively further distance.

African Americans were also more likely to have visited in the most recent survey, almost four times more likely when compared 2010 visitors and relative to Caucasian visitors. We also find that females were four times more likely to have visited in 2012 compared with 2010. Finally, the Atlantic City visitor does appear to be getting a bit younger, with those from 18 to 29 years old being eight times more likely to have visited in 2012 than 2010, relative to those in the oldest age categories. Conversely, those aged 50 to 64 (relative to those aged 65 or older) were less likely to have visited in 2012 compared with 2010 by 48% ($0.520 \times 100 - 100$).

Socioeconomic Characteristics

The 2012 visitors were less educated, with visitors without a four year college degree were twice as likely to have visited the resort in 2012 compared with 2010. An examination of household income reveals that those households earning between \$50 and less \$100 thousand were 4.8% more likely to have visited in 2012 relative to those in the highest income bracket.

Behavioral Characteristics

Given the precipitous drop in gaming revenue the resort city has experienced in the past six years, it is not surprising that we would find negative coefficients for the gambling budget variable. In the period under examination, gaming revenue in Atlantic City declined from \$3.6 billion in 2010 to \$3.1 billion in 2012 (see Figure 1). Indeed, relative to those that didn't budget anything for gambling, five of the six gambling budget categories were significantly negative, suggesting that, at almost any level of gambling budget, the 2012 visitor was less likely to have visited compared to the 2010 visitor. Perhaps most interesting to the casino industry is that those who budget more than \$1,000 were 80.6% less likely to have visited in 2012 compared with 2010, relative to those that did not budget anything for gambling. This trend in less gross gaming revenue for the resort is going on its sixth year, and perhaps the reintroduction of gaming into the "DO AC" advertisements will help to stem some of this loss, if not turn it around.

Conversely, food and beverage spending was up in 2012, with 2012 visitors 4.6 times more likely to have visited compared to 2010 visitors and relative to those that reported having spent nothing on food and beverage. Importantly, those visitors that spent more than \$500 on food and beverage were a full 15.6 times more likely to have visited in 2012 compared to 2010 (and relative to our reference category of no spending on food and beverage). The opening of the Revel and its high end restaurants likely contributed to these results, despite the struggles of the resort in terms of gaming.

However, similar to gambling budget, entertainment spending in the model produced significant negative coefficients for all but one spending category, and that exception (not significant), was for the lowest spending category on entertainment outside of our reference category (no spending). Once again, those in the highest spending category (\$250 or more) were less likely to have visited in 2012 compared to 2010 by 94.7%.

Figure 4: Results of Logistic Regression Model of 2012 Compared to 2010 Atlantic City Visitors

Nagelkerke R Square (N)R² = 0.523; -2 Log Likelihood = 405.745; χ^2 = 290.397****; N = 808; Classification = 89.7%

<i>Independent (Reference)</i>	<i>Value</i>	<i>Coefficient</i>	<i>S.E.</i>	<i>Odds Ratio</i>
<i>Designated Market Area (Origin)</i> (New York*)	Other Northeast DMA's	2.056	.508	7.811****
	Philadelphia	-.139	.309	.871
	Washington DC	1.135	.767	3.112
	Baltimore	-.663	.646	.515
<i>Household Income (\$Thousands)</i> (\$150 or more*)	Refused	-.319	.457	.727
	less than \$50	.710	.575	2.034
	\$50 to less than \$100	.047	.432	1.048***
	\$100 to less than \$150	.298	.431	1.348
<i>Gender</i> (Male*)	Female	1.454	.312	4.281****
<i>Race</i> (White*)	Hispanic	.230	.734	1.258
	African American	1.370	.612	3.936***
	Asian	1.106	.827	3.024
	Other	.092	.650	1.097
<i>Education</i> (College Degree*)	No College Degree	.708	.306	2.030***
<i>Minor(Under 21) in Travel Party</i> (Yes*)	No Minor in Travel Party	-.095	.492	.909
<i>Age</i> (65 or Older*)	18 to 29	2.082	.985	8.020****
	30 to 49	.591	.423	1.806
	50 to 64	-.654	.346	.520**
<i>Days in Atlantic City</i>		-.224	.093	.799***
<i>Gambling Budget</i> (\$0*)	\$1 to \$100	-1.610	.433	.200****
	\$101 to \$250	-1.696	.458	.183****
	\$251 to \$500	-1.373	.513	.253****
	\$501to \$750	-1.661	.897	.190**
	\$750 to \$1,000	-1.108	.822	.330
	More than \$1,000	-1.641	.635	.194****
<i>Food & Beverage Spending</i> (\$0*)	\$1 to \$100	-.595	.445	.552
	\$101 to \$200	.873	.546	2.395
	\$201 to \$300	1.527	.693	4.603***
	\$301 to \$400	1.907	1.197	6.733
	\$401 to \$500	.204	.967	1.227
	More than \$500	2.749	1.280	15.629***
<i>Entertainment Spending</i> (\$0 to \$50*)	\$51 to \$100	-.493	.445	.053
	\$101 to \$150	-2.939	.595	.239****
	\$151 to 200	-1.433	.606	.030***
	\$201 to \$250	-3.516	.764	.046****
	More than \$250	-3.072	.516	.053****
<i>Shopping Spending</i> (\$0*)	\$1 to \$50	-.610	.355	.543**
	\$51 to \$100	-.662	.446	.516
	\$101 to \$150	-1.606	.636	.201***
	\$151 to \$200	-.014	.603	.986
	\$201 to \$250	-1.544	1.127	.214
	More than \$250	.141	.555	1.151
<i>Primary Trip Purpose</i> (Vacation/Pleasure*)	Gambling	-.519	.366	.595
	Business/Convention	-1.155	.479	.315***
	Visiting Friends/Relatives	.248	.663	1.282
	Special Event	.065	.510	1.068
	Other	-.589	.598	.555
<i>Constant</i>		2.807	.854	16.566****

Notes: *This category was a reference when the variable was used as a dummy; **Significant at the 0.10 level; ***Significant at the 0.05 level; ****Significant at the 0.01 level

Shopping spend also appeared down in 2012, with those spending \$1 to \$50 on shopping 45.7% less likely to have visited in 2012 than 2010 (relative to those spending nothing). Visitors spending \$101 to \$150 on shopping were also less likely to have visited in 2012 compared with 2010 relative to those spending nothing, this time by 79.9%.

The average length of stay was also shorter in 2012 compared with 2010, with 2012 visitors 20.1% less likely to have stayed an extra day compared to those in 2010. We were surprised that the primary trip purpose of gambling was not significantly different, though it could be that the gambling budgets presence in the model captures much of the difference between the 2010 and 2012 visitor with regards to gambling. However those visiting the resort primarily for business or a convention was down, with 2012 visitors 68.5% less likely to have visited compared to 2010 and relative to our reference category (those primarily coming for vacation or pleasure).

CONCLUSION

While this model does not attempt, at this early stage of the formation of the public private partnership, to attribute changes in the profile of the Atlantic City visitor of the past two years, we believe it can inform the Atlantic City Alliances marketing efforts and the product development being undertaken by the Casino Reinvestment Development Authority. Clearly there are some macro forces at play that will continue to effect the resorts' job and economic growth, most notably continued increase for the gaming customer in the Mid-Atlantic region. There were several positive aspects found to the changing profile of the Atlantic City visitor, particularly relative to their food and beverage spend. As the resort continues to expand the rather plentiful culinary options it has to offer the visitor (for example Margaritaville opens in May of 2013 at Resorts), positive changes to the spending on food and beverage is something that most certainly be parlayed into economic growth and job growth. It is also encouraging that the ACA has announced plans that they will begin spending some of their significant marketing dollars on trying to lure back some of the gaming patrons lost in the past five years, something our model suggests needs to be done across a wide range of gambling budgets. We would recommend that the change in the visitor profile be closely monitored as the redevelopment of Atlantic City progresses.

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