ANALYSIS OF EMPLOYMENT AND JOB CREATION SURROUNDING MISSISSIPPI CASINO RESORT DESTINATIONS

By

MARK T. BEVILLE

A THESIS PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS

UNIVERSITY OF FLORIDA

2011

To my family and friends who have supported me throughout my academic endeavors, making this milestone possible.

ACKNOWLEDGMENTS

I thank the chair and my supervisory committee for their insight and assistance. I thank my family for their continued support and encouragement throughout my studies. I also thank the Mississippi Gaming Commission for their gracious assistance in data collection.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Abstract of Thesis Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Master of Arts

ANALYSIS OF EMPLOYMENT AND JOB CREATION SURROUNDING MISSISSIPPI CASINO RESORT DESTINATIONS
By

Mark T. Beville

December 2011

Chair: Steven Slutsky
Major: Economics

This paper attempts to empirically model changes in job creation in the vicinity of multiple Mississippi casino markets. Theoretical complication can arise from ambiguity in employment migrations and from the difficulty of differentiating new employment from cannibalization of existing industries. Parallels are examined from the professional sports industry. An empirical framework is provided to assess the impact of casino establishments on job creation among three major casino markets in the state. Regression analysis shows significant and positive multipliers on employment within the casino host counties. Two of the three markets examined show evidence of cannibalization of existing businesses. Existing empirical studies fail to examine neighboring county data, from which significant employment effects may be captured.

CHAPTER 1
INTRODUCTION AND MOTIVATION

Casino gaming has become an issue with important public policy implications at both the state and local levels. Nevada became the first post-prohibition state to legalize casino gaming in 1931, and the region has since become the focus of countless inquiries regarding the economic and social impact of casino gaming. The 1976 decision to legalize casino gaming in New Jersey put an end to the forty-two year monopoly held by Nevada. The resulting Atlantic City casino market created a nationally scrutinized economic experiment, while also acting as a catalyst for other states to follow suit. More recently, the casino gambling industry has proliferated into a multi-billion dollar enterprise, with commercial casinos residing in 13 states and Indian casinos present in 29 states[1] (American Gaming Association, n.d.). Mississippi legislation legalizing casino gaming was passed in 1990, and by 1992, Mississippi's first casino opened in Biloxi. Seven counties in Mississippi currently house casinos, generating combined gross revenue greater than $2 billion and attracting over 33 million visitors annually. However, the dramatic increase in gambling venues has attracted its fair share of questions and criticisms. Is the introduction of casinos an effective policy measure for promoting economic development? A 1996 National Gambling Impact Study Commission funded by Congress concluded that there is a scarcity of impartial research required to create informed public policies. The $5 million Study Commission further commented that "it became apparent to the commission that very little objective research existed on the current state of gambling in our nation" (1999). The lack of relevant knowledge in the United States casino gaming industry has prompted varying

[1] For a complete listing, visit the American Gaming Association Factsheet.

studies of the economic impact and cost-benefit analysis of casinos, which attempt to determine the net benefits these organizations provide to society. This aim of this paper is to provide an unbiased[2] empirical analysis of employment and wages surrounding Mississippi casino localities. This paper will extend the existing literature by expanding the areas of consideration to account for changes in neighboring counties.

[2] Research concerning the gambling industry has a history of biased viewpoints and preconception. A number of studies representing both pro and anti gambling stances, with earlier research in particular, contain clear bias. Garret (2004) among others provides a more comprehensive analysis of bias in literature.

CHAPTER 2
LABOR THEORY AND CASINO MARKETS

Quantifying the job creation and employment benefits a local market receives from the legalization of casino gaming is surprisingly difficult. The American Gaming Association is quick to boast its employment statistics and wages paid[1] (2010), however from an economic standpoint there are further considerations. It is not sufficient to simply calculate the gross number of employees a casino employs. Job creation can only be counted as a benefit so long as there is a net reduction in unemployment, or the overall welfare of the community is somehow increased. Grinols (2004) boldly claims "Jobs are not a benefit…" and only act as a "proxy for one or more direct effects that benefit residents." Grinols substantiates further by presenting three hypothetical scenarios in which additional jobs in a market do not lead to increased welfare of local residents. While the three examples presented in the study are theoretically feasible, they are in general overly simplified and unrealistic. One such example assumes zero gambling by residents and that the casino's labor force is entirely comprised of workers commuting from surrounding areas. Critical and differing assumptions are made in each example, and the scenarios are likely easily refuted with empirical analysis.

A report by Arthur Anderson & Co. (1997) represents much of what is wrong with employment valuations in gaming research. The report, prepared for the American Gaming Association, presents extremely optimistic findings surrounding three larger regional gaming markets.[2] Delving further into the methodologies of the study, job creation figures are rudimentarily obtained by the division of casino employment by net

[1] The AGA Statistics show $13.1billion was paid to 328,377 employees nationwide in 2009.

[2] The Arthur Anderson Report examines Shreveport/Bossier City in Louisiana, Gulfport/Biloxi in Mississippi and Joliet in Illinois.

change in area jobs. This approach ignores changes in population, shifts in employment, existing wage rates, and fails to employ regional controls for neighboring areas.

A transfer or shift in employment does not necessarily represent a social benefit. A local economy may appear to benefit from additional employment opportunities while surrounding employers suffer from displacement of labor from existing industries. This scenario may be exaggerated as the area considered is reduced. It should be noted that these arguments can be extended to any new employer, regardless of industry. A notable study by Grinols and Mustard (2001) presents an effective theoretical framework which negates the false valuation of employment. By summing over all households the study is able to account for shifts in the labor market. This theoretical approach provides an effective solution in the determination of net job creation; however it makes it impossible to conduct a state or local survey of economic benefits. Additionally, the aggregation of society as a whole is likely intractable, and unlikely to be considered by jurisdictions contemplating casino constructions.

The Grinols and Mustard conceptual framework has been debated in subsequent literature. Of particular importance, and missing from Grinols (2004) and Grinols and Mustard (2001) is the idea of revealed preferences of labor. In economic literature, the population is generally assumed to follow a rational course of action, and therefore it stands to reason that a rational worker will change employment only when it increases their overall utility. Utility is simply a measure of overall happiness, and an overall increased level of utility is a real benefit. Walker (2007) challenges that “there are probably significant employment benefits from the expansion of gambling industries.” It

is argued that if employees shift in the labor force, they must gain in doing so. Therefore, while a shift in the labor force does not equate to a net growth in available jobs, there can still be gains to society from those employment shifts. A major hindrance in considering this type of argument is realized in the difficulty of quantifying these employment benefits. Utility is by definition unitless and immeasurable, which results in an exclusion of these benefits from empirical analyses.

There are further considerations necessary when discussing the benefits of a labor shift. In addition to potential utility benefit gains from employment shifting, changes in the existing wage rate can affect the overall welfare of a casino locality. Wage rates are frequently included as a component of utility and increasing the wage rate while holding employment constant can have a number of quantifiable benefits. Laborers realize gains in income, while local and state governments are beneficiaries of increased tax revenues. Grinols (2004) presents a theoretical example where workers realize gains through an increased wage rate. Multiplier effects should also be considered as it is reasonable to posit that a large proportion of income earned by local residents will be spent in the county of employment.

Another notable concern of economic labor theory is human capital, which plays an important role in determining employee skills and potential employee mobility. Advanced education and experience can place laborers in differing labor markets than those without such degrees and experience. The division of skill required to operate a casino venture is widely varying, with positions ranging from low skill service jobs to IT and financial positions. Previous studies have attempted to determine the division of skill in casino employment. The general consensus among economic literature is that

the majority of casino jobs are low skilled service worker opportunities. Adam Rose and Associates (1998) provides a brief review of these studies. Economic intuition and labor mobility theory would then suggest that the majority of casino employment opportunities are attainable to existing residents of any skill set in the local market. The remaining high skilled employment opportunities within a casino are certain to require extensive human capital and therefore may attract employees from a national or even international labor pool. Casinos may then opt to import skilled labor from surrounding areas if suitable candidates are found elsewhere. In these circumstances, the wages paid to transplanted workers have little direct effect on existing local residents. There are, however, likely ancillary benefits to existing residents as a result of increased tax revenues and local consumption.

The size, location and density of the casinos themselves also likely play a significant role in the creation of employment benefits within a market. In a fairly normative analysis, Eadington (1995) and Eadington (1998) assert that destination resort casinos have the most success at creating jobs, while widespread installation of gaming devices provides the least benefit regarding job creation. Falling somewhere in the middle are singular casinos unlikely to create a draw sufficient to export their services. Apart from the explicit benefits of direct casino employment, a market which can effectively become a vacation destination will likely spur the greatest ancillary benefits, through multiplier effects and as differing retail and service industries enter the market. Empirically, a meta-analysis posits that land based casinos yield a higher economic impact than riverboat or Native American casinos (Adam Rose and Associates, 1998). This notion is also accepted by Grinols, although he further argues

that “casinos shrink the economy of neighboring areas” by detracting from neighboring employment (1995).

The longevity and sustainment of economic benefits related to casino gaming has been questioned in literature. There is a notion among some scholars and lawmakers that the casino industry has a propensity to overbuild and over saturate its markets. In a symposium on casino development, Rhode Island Attorney General Jeffrey Pine opines that casino gaming is unsuitable for sustained economic development, and advises lawmakers to consider the long term ramifications of gaming establishments (1995). It is suggested that casino markets will experience an initial boom once gaming is introduced, which is later followed by a bust as the market realizes the true level of casinos it is able to bear. There are a number of reasons why such a decline may occur. Rose (1995) examines the rise and decline of the Atlantic City and Colorado gaming markets, which the author attributes to increased competition and rising tax rates for casinos. It would stand to reason that this competitive pressure applies to many industries in a free market, although casino gambling is somewhat atypical from more traditional industries in the sense that prohibition may create difficulties in judging what the market can bear through feasibility studies. Another possible explanation may simply be that there exists a novelty factor with the newly introduced industry which fades and therefore business declines. Scrupulous empirical analyses should examine data sets sufficiently large to capture any boom/bust effects.

Many parallels concerning employment and wage rates are able to be drawn from professional sports franchises and major sporting events. In a similar fashion to casinos, sports franchises and events are frequently touted as economic drivers by their

proponents. Empirical analyses on the subject are far less conclusive or optimistic. Academic studies conducted by Noll and Zimbalist (1997) and Baade (1996) find that professional sports yield an insignificant effect on employment levels. Similarly, Baade and Dye (1990) find insignificant effects on income levels in the vicinity of new or recently renovated stadiums. Coates and Humphreys (1999) report a negative impact on local income resulting from professional sports franchises. Coates (2007) provides a more encompassing literature review on the impact of stadia and franchises on local economic development. Scholarly literature also suggests that the location of stadia and franchises play a role in local economic development. Santo (2005) finds that stadiums constructed in downtown settings are more effective at creating a positive increase in regional income share. Siegfried and Zimbalist (2000) theorize that stadia may be an effective tool for urban redevelopment.

There are notable distinctions between sports franchises and casino ventures which should be discussed. One such differentiation between the two industries is the seasonal aspect of professional sports. Sports franchises do not compete year-round and teams have a limited number of home matches. This aspect of the industry reduces the amount of employment needed to run the organization. Siegfried and Zimbalist (2000) utilize employment data from the National Football League to estimate that in addition to front office employment (which the authors state is generally between 70 and 130 employees), temporary, low-skilled game day employment equates to between 20 and 30 full-time jobs. Furthermore, mega-events such as the World Cup or Olympics occur within an even more limited timeframe, and host venues are often rotated, thus limiting a host city or nation to one hosting. Casinos have no such

seasonal limitations, and are generally open year-round. Another critical difference between the two industries lies in the taxpayer funding and government subsidies frequently used to construct new athletic arenas and stadiums. Keating (1999) provides an overview of taxpayer funding utilized in the construction and renovation of stadiums within the United States. This public funding usage creates a different political debate than those concerning casino gaming.

CHAPTER 3
PREVIOUS EMPIRICAL ANALYSES

Existing studies have attempted to empirically estimate the impact of casino openings on employment using a variety of methodologies. These studies have produced differing results. Regression analysis on eight Illinois riverboat casinos found only one county with a significant decrease in unemployment (Grinols, 1994). As previously discussed, research indicates that is unlikely that riverboat casinos create the destination resort atmosphere which aid ancillary development outside of the casino. Other regression analyses have observed a more positive impact from gaming establishments. For example, a report prepared for the Louisiana Gaming Control Board empirically asserts that Louisiana's casinos are directly and indirectly responsible for the creation of 30,823 jobs and $596 million in employee earnings (Ryan and Speyrer, 1990). The study employs a Bayesian regression model using in order to determine job multipliers in seven gaming markets around the state. All seven markets show a multiplier greater than one.

Garrett (2004) presents an empirical analysis of the employment effects of casino openings in six counties[1]. The study utilizes ARIMA forecasting to project employment trends pre-casino opening and compares these forecasts to actual post-casino employment data. Garrett concludes that casinos have a greater effect on household and payroll employment in rural counties. It must be mentioned that the study fails to include any sort of neighboring control counties to account for regional trends or employment migration.

[1] The counties considered in the study are Warren County, MS, Tunica County, MS, Massac County, IL, St. Clair County, IL, Lee County, IA, and St. Louis County, MO.

CHAPTER 4
DATA

This analysis is concerned with the local employment impact caused by the addition of casino gaming. There is a level of arbitrariness when considering what exactly constitutes a local economy surrounding a casino. Ideally, one would examine a precise, although arbitrarily defined radius surrounding a casino, although this severely limits the feasibility of data collection. A number of studies use county borders as a proxy for a local casino market, and none of the studies examined expand the study to include neighboring counties. This study will expand a bit further. A "local economy" surrounding a casino will be expanded in this study to include the county in which the casino is physically located (casino host counties), as well as the bordering counties surrounding the casino host county (casino border counties)[1]. Of primary interest are the casino host counties. The study also secondarily examines the data of the counties which border the casinos' host county.

As of this writing, there are seven counties in Mississippi with operating casinos (AGA, 2010). The Mississippi casino markets considered in this study are Harrison, Tunica, and Warren Counties, which contain the Gulfport/Biloxi, Tunica and Vicksburg resort towns, respectively. The study of these particular counties benefits from the presence of multiple casino resorts in each jurisdiction. Consequently, these markets are the three highest grossing casino markets in Mississippi. Geographically, these three particular markets are sufficiently distanced so as not to incur any overlay of counties observed. Figure 4-1 through Figure 4-3 present a visual of the counties

[1] Hinds County houses the state capital and largest city, Jackson. Data from Hinds County is atypical in terms of magnitude and thus left out of calculations. Hinds County borders the Warren County casino market.

considered in this analysis. Casino host counties are shaded in dark grey, while casino border counties are shaded in a lighter grey.

Annual data was collected for the timeframe of 1980-2008. This particular timeframe allows for appropriate historical trending antecedent to Mississippi legislature legalizing casino enterprises. This timeframe is also beneficial for observing any potential casino employment trends over time. Annual population and employment statistics were obtained through the U.S. Bureau of Economic Analysis (BEA, 2010). Information on casino openings and closures was obtained through the Mississippi Gaming Commission (2011). The Mississippi Gaming Commission also graciously provided annual employment statistics through correspondence with the author. Table 4-1 through Table 4-3 display the opening and closure dates for all casinos within the three markets considered.

Total employment and casino employment figures are presented graphically for the duration of the data time frame. Figures 4-4, 4-5 and 4-6 appear to present similar employment growth scenarios. A quick view of the casino employment data appears to lend credence to a boom and bust cycle previously theorized, with a sharp increase in casino employment shortly after market entrance followed by a period of stagnation and decline. The patterns found in casino employment appear to be closely mimicked by total county employment.

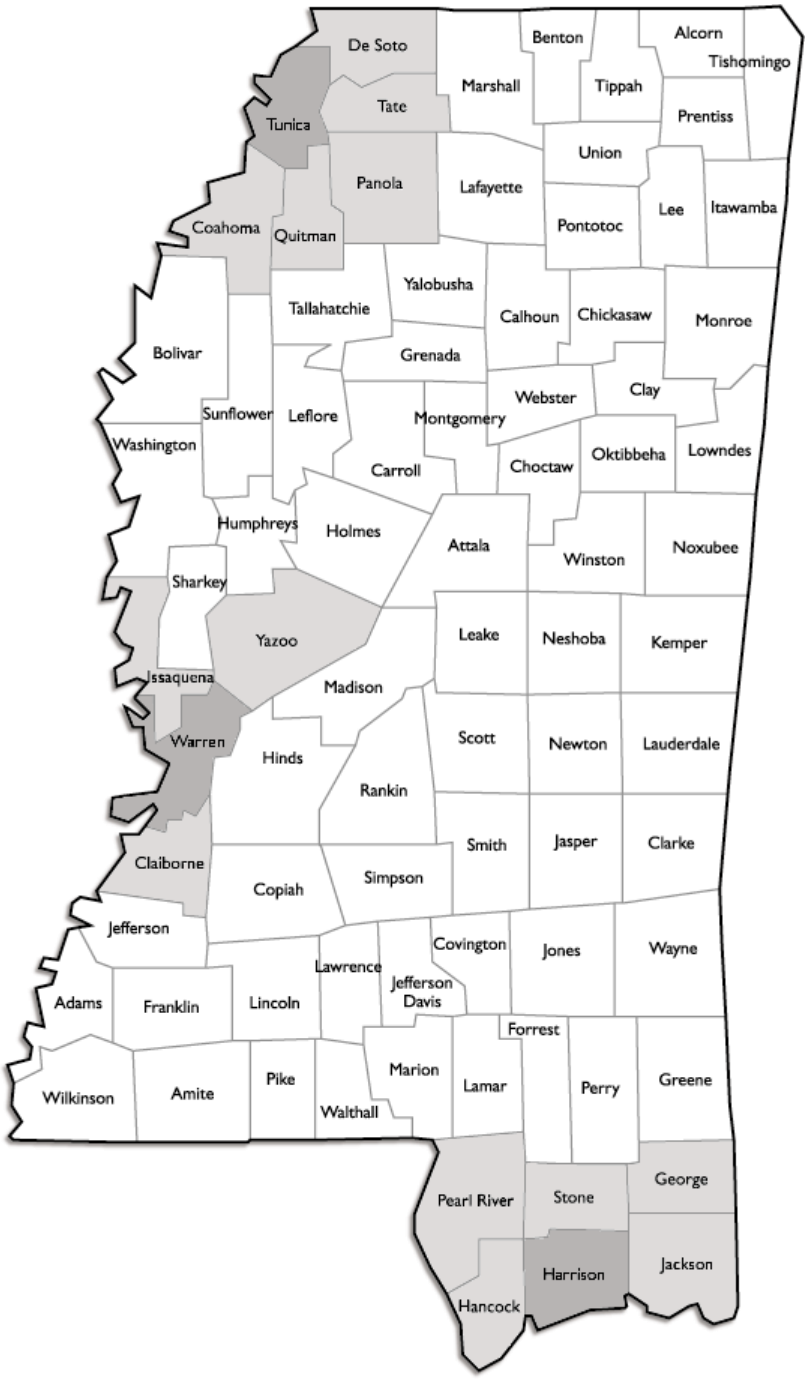

Figure 4-1. Visual presentation of Mississippi counties considered

Figure 4-2. Visual presentation of Arkansas counties considered

Figure 4-3. Visual presentation of Louisiana parishes considered

Table 4-1. Harrison County, MS casino openings and closures

Casino Name	Opening Date	Closing Date
Beau Rivage	3/16/1999	n/a
Biloxi Belle	8/28/1992	1/3/1995
Boomtown Casino	8/8/2000	n/a
Casino Magic Biloxi	6/5/1993	8/29/2005
Gold Shore Casino	6/20/1994	5/14/1995
Grand Casino Biloxi	1/17/1994	n/a
Grand Casino Gulfport	5/14/1993	8/29/2006
Hard Rock Casino	7/4/2007	n/a
Imperial Palace	12/29/1997	n/a
Island View	9/18/2006	n/a
Isle of Capri	8/1/1992	n/a
Lady Luck Biloxi	12/13/1993	6/8/1998
Palace Casino	2/2/1997	n/a
President Casino	8/13/1992	4/15/2005
Treasure Bay Casino	4/28/1994	n/a

Source: Mississippi Gaming Commission

Table 4-2. Tunica County, MS casino openings and closures

Casino Name	Opening Date	Closing Date
Bally's Saloon	12/18/1995	n/a
Fitzgerald's Casino	6/6/1994	n/a
Gold Strike Casino	8/29/1994	n/a
Harrah's Tunica	6/24/1996	n/a
Harrah's Tunica	11/29/1993	5/19/1997
Hollywood Casino	8/8/1994	n/a
Horseshoe Casino	2/13/1994	n/a
Isle of Capri Tunica	7/26/1999	9/4/2002
Resorts Tunica[1]	4/8/1996	n/a
Sam's Town	5/25/1994	n/a
Southern Belle	2/19/1994	8/31/1994
Treasure Bay Tunica	5/9/1994	5/31/1995
Tunica Casino[2]	10/19/1992	5/24/1995
Tunica Roadhouse	8/1/1994	n/a

Source: Mississippi Gaming Commission

[1] Formerly Harrah's Tunica Mardi Gras Casino

[2] Formerly Splash Casino

Table 4-3. Warren County, MS casino openings and closures

Casino Name	Opening Date	Closing Date
Ameristar Casino	2/27/1994	n/a
Diamond Jacks Casino[3]	8/9/1993	n/a
Horizon Casino[4]	11/15/1993	n/a
Rainbow Casino	7/21/1994	n/a
Riverwalk Casino	10/28/2008	n/a

Source: Mississippi Gaming Commission

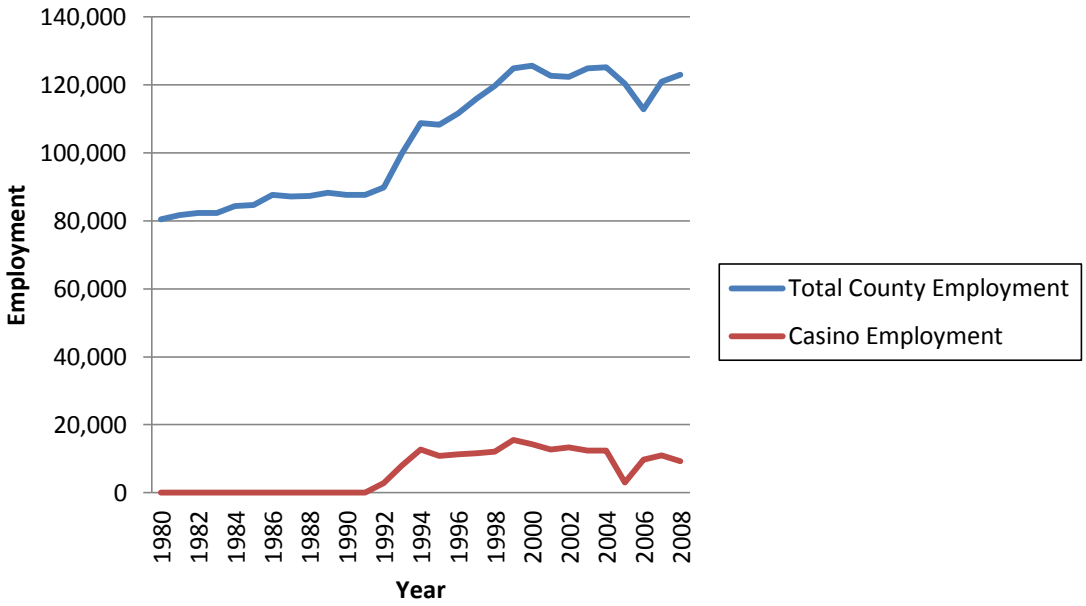

Figure 4-4. Harrison County employment figures

[3] Formerly Isle of Capri - Vicksburg

[4] Formerly Harrah's Vicksburg

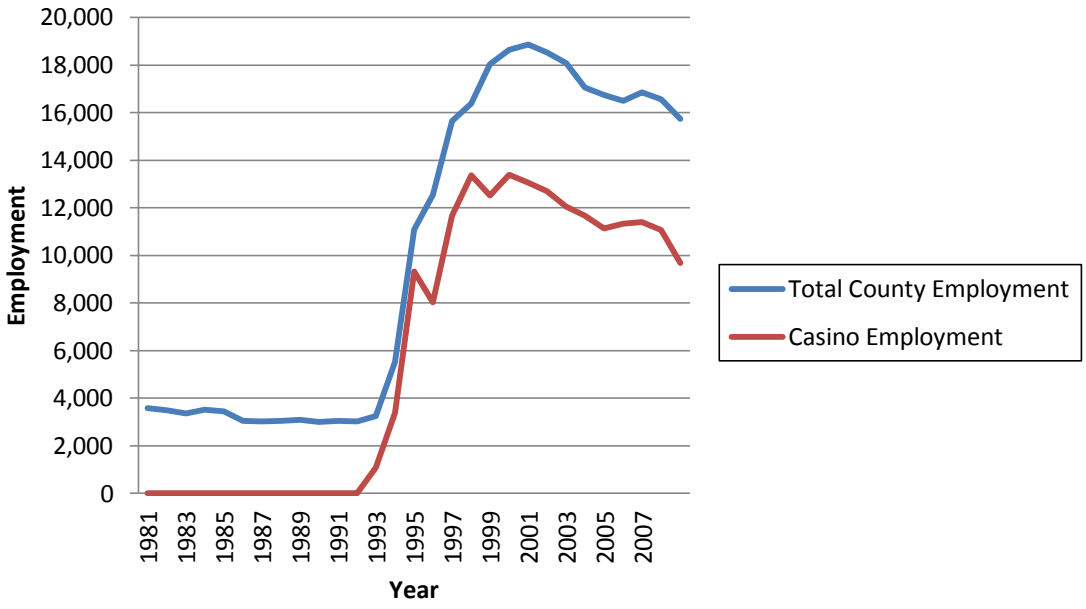

Figure 4-5. Tunica County employment figures

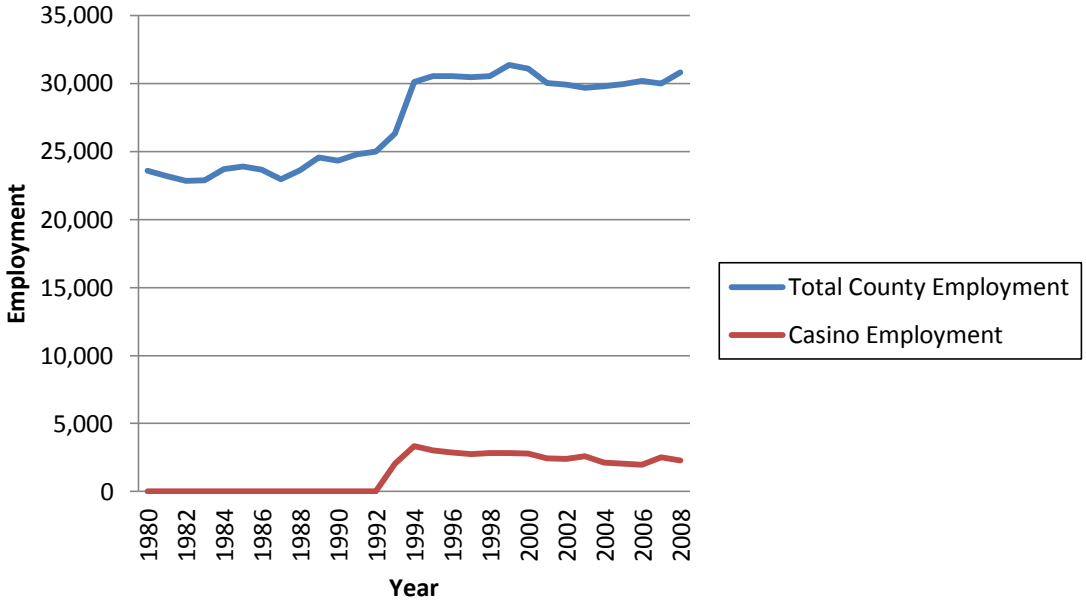

Figure 4-6. Warren County employment figures

CHAPTER 5
EMPIRICAL FRAMEWORK

This empirical analysis is comprised two sections, which examine the impact of casino establishments on job creation. In Equations 5-1 and 5-2, county employment data is regressed on selected independent variables in order to determine regression coefficient values necessary for the observation and construction of employment multipliers. It is a reasonable starting point to assume a large proportion of employment effects are confined to bordering counties, which is the extent of data considered. The regression equation concerning job creation in casino host counties is presented below in Equation 5-1:

$$emp_{it} = \beta_0 + \beta_1 pop_{it} + \beta_2 casemp_{it} + \beta_3 emp_{it-1} + \beta_4 kat_t + \beta_5 trend + e_{it} \tag{5-1}$$

where

emp_{it} = total employment in all industries of the ith county at time t

pop_{it} = population of the ith county at time t

$casemp_{it}$ = direct employment total of the casino industry in targeted gaming market county at time t

emp_{it-1} = lagged total employment in all industries of the ith county at time $t-1$

kat_t = dummy variable assuming the value of 1 during the year 2006 and 0 all other years[1]

$trend$ = a variable assuming the value of 1 during the year 1980 and increasing consecutively to 29 for year 2008.

[1] Hurricane Katrina struck the gulf coast in August 2005. The Bureau of Economic Analysis employment estimates are calculated for the month of April, therefore to account for any effects the variable assumes a value of 1 in 2006, not 2005.

$e_{it} =$ random error term

The dependent variable of Equation 5-1 is the total employment in all industries of the ith casino host county. Due to the time series nature of the data considered, this figure likely experiences heavy serial correlation. A lagged employment variable (emp_{it-1}) is included with the independent variables to account for this autocorrelation. 1979 wage data is added to allow for regression through 2008. High t-values are anticipated for this lagged variable.

The primary coefficient of concern in Equation 5-1 is β_2 which represents the change in total employment resulting from the addition of an employee in the gambling industry. This information will later be used to create employment multipliers to estimate the total employment impact resulting from casino operations.

Hurricane Katrina is a notable event which had a substantial effect on the Mississippi coast economy. The inclusion of a dummy variable (kat_i) marking the occurrence of the disaster should help to explain some of the variance associated with the affected timeframe**.** The coastal region of Harrison and its surrounding counties in particular experienced extensive damage as a result of the storm, and it is likely that the region experienced extensive job displacement. This variable is only utilized in the Harrison casino market regressions, and omitted from Tunica and Warren county regression analysis.

Regression analysis in general is subject to certain pitfalls. Bias can result from the omission of necessary variables and multicollinearity can lead to inaccurate predictor values of independent variables. It is important to utilize control variables to capture the effects of any potentially omitted variables. The inclusion of a time trend

variable ($trend$) is included in both models in order to act as a control for any time trending factors which may be influencing job wages in the area considered. A population coefficient (pop_{it}) in both models also aims to minimize the problems noted above by capturing outside influences unaccounted for by the selected variables.

Equation 5-2 builds off of Equation 5-1, with a variation occurring in three of the variables. For each of the three "local economies" considered in this study, a summation of employment and population data is created for all casino border counties. Casino host county data is omitted from these summations. This summation of variables effectively combines all border counties to create a single entity representing the bordering region of a casino "local economy." Performing individual border county regressions may lead to inconclusive results in a hypothetical scenario where select counties observe positive employment multipliers and others observe negative multipliers. Observing all border counties combined should yield more insightful results. The remainder of the variables ($casemp_t$), (kat_t), ($trend$) and (e_{it}) remain identical to those in Equation 5-1. The regression equation concerning employment changes in casino border counties is presented below in Equation 5-2:

$$\sum_{i=1}^{n} emp_t = \beta_0 + \beta_1 \sum_{i=1}^{n} pop_t + \beta_2 casemp_t + \beta_3 \sum_{i=1}^{n} emp_{t-1} + \beta_4 kat_t + \beta_6 trend + e_{it} \quad (5\text{-}2)$$

where

$\sum_{i=1}^{n} emp_t =$ sum of the total employment in all industries of the n casino border counties at time t

$\sum_{i=1}^{n} pop_t =$ sum of the total population of the n casino border counties at time t

$casemp_t =$ direct employment total of the casino industry in targeted gaming market county at time t

$\sum_{i-1}^{n} emp_{t-1} =$ summation of the total employment in all industries of the n casino border counties, lagged at time $t-1$

$kat_t =$ dummy variable assuming the value of 1 during the year 2006 and 0 all other years

$trend$ = a variable assuming the value of 1 during the year 1980 and increasing consecutively to 29 for year 2008.

CHAPTER 6
RESULTS

Individual regression analysis results for Equation 5-1 depict strongly significant and positive β_2 ($casemp_i$) coefficients in all three casino host counties. As anticipated, Hurricane Katrina exhibited a significant and negative impact on Harrison County employment. The large and highly significant trending value for Harrison County suggests the presence of an additional economic driver unaccounted for by the selected independent variables. The large R^2 values of the analysis indicate that the regression model fits the data well. The regression results for Equation 5-1 are presented in Table 6-1.

Regression results for the casino border market counties are less definitive. Analysis results for Equation 5-2 depict insignificant and positive β_2 ($casemp_i$) coefficients in two of three casino border markets. Only the Warren County surrounding market experienced a significant employment effect, although it fails to reach significance at the 0.05 level. Again, the large R^2 values of the analysis indicate that the regression model fits the data well. These figures give insight into the gaming markets' impact on employment in their surrounding areas. In all instances, the coefficients are positive, which suggests that casino employment in the host county has resulted in an increase in employment in those bordering counties, although the insignificance (or weak significance) of the β_2 coefficients yields results that are inconclusive.

The β_2 coefficients presented in the third column of Table 6-1 can be interpreted as short-run multiplier figures for each host county. A similar multiplier figure could be derived from the β_2 coefficients presented in Table 6-2, although their insignificance

(and weak significance) would lead to inconclusive results. Table 6-3 presents the short-run employment multipliers for significant host counties at the 0.05 level. The formulation of long-run multipliers requires a different approach. The inclusion of a lagged employment variable (β_3) necessitates further calculation as employment in year t is affected not only by employment in year $t-1$, but also the interactions in years $t-2$, $t-3$, and so on for the duration of data observed. Equation 6-1 presents the methodology for calculating long-run employment multipliers. This methodology effectively captures these yearly lagged employment interactions. As with the short-run multipliers, a similar figure could be derived with Table 6-2 data using the same methodology. Table 6-4 presents the long-run multipliers derived from Equation 6-1.

Long-run employment multiplier = $\beta_2 /(1-\beta_3)$ (6-1)

The multiplier figures in Table 6-3 and Table 6-4 provide an effective means of calculating the initial short-run and long run ancillary employment benefits of the casino host counties. Interpretation of these multipliers is relatively straight-forward. A positive multiplier figure represents a net increase in total employment in the market. It should be noted that if a positive multiplier figure has a value of less than one, the net employment increase is less than casino employment and therefore employment is lost in other sectors. A multiplier with a value less than zero will result in a net total employment loss. A multiplier with a value equal to one represents no ancillary employment effects in the market. Calculating the product of the multiplier and the total direct employment of the casino industry will yield the total estimated employment creation impact of the casino industry. Any difference between direct casino employment and the total reached by the multiplier calculation represents ancillary

benefits or losses in the host county resultant from casino operations. Table 6-5 displays the total short-run employment calculations using 2008 employment data.

The results of Table 6-5 provide a clear conclusion that the three Mississippi casino markets studied account for a substantial increase in employment in the region, although in the Harrison and Tunica markets, the impact of casino introduction did not achieve positive ancillary employment benefits. This study finds that the introduction of gaming to the Warren County casino market has achieved significant and positive ancillary employment effects in the host county. In the remaining two host counties observed, the total net employment increase came at the expense of existing businesses. The cumulative application of the multiplier figures show that although over 21,000 workers were directly employed by casinos in the host counties considered in 2008, over 3,000 existing ancillary employment opportunities were lost as a result of casino introduction. Despite this ancillary employment loss, over 18,000 additional jobs in the three markets considered can be attributed to the introduction of casino gaming to the area. Additionally, the long-run multiplier figures produced by this study suggest that future ancillary employment in the host counties will continue to rise. The total welfare benefits associated with these results are numerous, although as previously discussed, difficulty lies in quantifying the total welfare benefits. This employment increase provides a large taxable income base for casino host counties. There is no evidence found in the results of this study which suggest that casino establishments create a negative growth in employment in casino host counties or their surrounding areas, although there exists evidence of the initial cannibalization of existing businesses.

Table 6-1. Equation 5-1 regression results

Host County	pop_{it}	$casemp_i$	emp_{it-1}	kat_t	$trend$	R^2
Harrison, MS	0.046	0.858	0.492	-8384.806	475.438	0.993
	(-0.489)	(8.461)**	(5.381)**	(-3.735)**	(4.361)**	
Tunica, MS	0.176	0.741	0.382	-	-12.002	0.997
	(1.189)	(16.125)**	(8.553)**	-	(-0.648)	
Warren, MS	-0.061	1.221	0.395	-	55.057	0.982
	(-0.518)	(7.418)**	(4.146)**	-	(1.698)*	

(t-statistics in parentheses)
* indicates statistical significance at the 0.10 level
** indicates statistical significance at the 0.05 level

Table 6-2. Equation 5-2 regression results

Border Market	$\sum_{i=1}^{n} pop_t$	$casemp_i$	$\sum_{i=1}^{n} emp_{t-1}$	kat_t	$trend$	R^2
Harrison, MS	-0.063	0.298	0.552	-2583.520	819.484	0.969
	(-0.471)	(1.537)	(2.697)**	(-0.800)	(2.800)**	
Tunica, MS	0.036	0.042	0.697	-	612.348	0.992
	(0.613)	(0.334)	(4.854)**	-	(3.181)**	
Warren, MS	0.314	0.193	0.358	-	-35.249	0.933
	(2.537)**	(1.689)*	(2.077)**	-	(-1.557)	

(t-statistics in parentheses)
* indicates statistical significance at the 0.10 level
** indicates statistical significance at the 0.05 level

Table 6-3. Equation 5-1 single county short-run employment multipliers

Casino Host County	Multiplier
Harrison	0.858
Tunica	0.741
Warren	1.221

Table 6-4. Equation 5-1 single county long-run employment multipliers

Casino Host County	Multiplier
Harrison	1.690
Tunica	1.199
Warren	2.018

Table 6-5. Total short-run employment impact results

Host County	Direct Employment	Ancillary Jobs Created	Total Jobs Created
Harrison	9241	-(1312)	7929
Tunica	9669	-(2504)	7615
Warren	2272	502	2774
Total:	21182	-(3314)	18318

CHAPTER 7
CONCLUSIONS

A complete analysis of the effects of casino introduction into a region is extremely cumbersome. This study provides important results on employment dynamics for jurisdictions considering legislature introducing casino establishments into a region. The results of this study find positive strong and significant employment multipliers in Mississippi casino host counties, suggesting numerous positive employment benefits to the region. In two of three markets considered, existing industries suffer from initial employment cannibalization, although this loss in existing employment is minimal when compared to the overall gain in employment in the area. Additionally, the long-run multiplier results in all three host counties suggest a long-run positive contribution to non-casino employment. Casino border counties produce positive and inconclusive employment results. Application of the results produces conclusive evidence that each of the Mississippi gaming markets studied create a significant and positive effect on the employment level of the host county. There is no evidence found in the results of this study which suggest that casino establishments create a negative growth in employment. In areas where casino introduction legislature is proposed, neighboring areas would be advised to take note of the initial cannibalization of existing employment results produced by this study, as well as the stagnating or downward trending casino employment over time.

This empirical framework is able to be extended to casino markets nationwide. Future research should look to incorporate casino markets from differing geographical regions in order to minimize regional trending, as well as to benefit from an increased sample size. Further research may also benefit from a difference-in-difference

regression model employing non-neighboring counties as controls. Difficulty in procuring in depth casino employment data creates a hindrance in measuring employment migrations and the cannibalization of existing establishments. Future research might also aim to study which specific industries incur the greatest cannibalization of employment, as well as which are beneficiaries of any ancillary employment benefits.

LIST OF REFERENCES

Adam Rose and Associates. 1998. The Regional Economic Impacts of Casino Gambling: Assessment of the Literature and Establishment of a Research Agenda, Report prepared for the National Gambling Impact Study Commission.

The American Gaming Association. 2010. State of the States: The AGA Survey of Casino Entertainment http://www.americangaming.org/assets/filfi/State_of_the_States_2010_FINAL.pdf [accessed December 10, 2010].

The American Gaming Association. Fact Sheets: General Info http://www.americangaming.org/Industry/factsheets/general_info_detail.cfv?id=15 [accessed November 25, 2010].

Arthur Andersen & Co. 1997. Economic Impacts of Casino Gaming in the United States-Volume 2: Micro Study, Report to the American Gaming Association.

Baade RA. 1996. Professional Sports as Catalysts for Metropolitan Economic Development. Journal of Urban Affairs 18(1): 1-17.

Baade RA, Dye RF. 1990. The Impact of Stadiums and Professional Sports on Metropolitan Area Development. Growth and Change 21: 1-14

Coates D. 2007. Stadiums and Arenas: Economic Development or Economic Redistribution? Contemporary Economic Policy 25(4): 565-577.

Coates D, Humphreys BR. 1999. The Growth Effects of Sport Franchises, Stadia, and Arenas. Journal of Policy Analysis and Management 18(4): 601-624.

Eadington WR. 1995. Economic Development and the Introduction of Casinos: Myths and Realities. Economic Development Review 13(4): 51-54.

Eadington WR. 1998. Contributions of Casino-Style Gambling to Local Economies. Annals of the American Academy of Political and Social Science 556: 53-65.

Garrett TA. 2004. Casino Gambling and Local Employment Trends. Federal Reserve Bank of St. Louis Review 86(1): 9-22.

Grinols EL. 1994. Bluff or Winning Hand? Riverboat Gambling and Regional Employment and Unemployment. Illinois Business Review 51(1): 8-11.

Grinols EL. 1995. Gambling as Economic Policy: Enumerating Why Losses Exceed Gains. Illinois Business Review 51(1): 6-12.

Grinols EL. 2004. Cutting the Cards and Craps: Right Thinking About Gambling Economics. Gambling in America, Costs and Benefits. Cambridge University Press: Cambridge, MA.

Grinols EL, Mustard DB. 2001. Business Profitability versus Social Profitability: Evaluating Industries with Externalities, the Case of Casinos. Managerial and Decision Economics 22: 143-162.

Keating RJ. 1999. "Sports Pork: The Costly Relationship between Major League Sports and Government. Cato Policy Analysis 339.

Mississippi Gaming Commission. 2011. History of Licensure for Operating Casinos http://www.mgc.state.ms.us/pdf/historyofhistoryofmgc.pdf [accessed March 1, 2011].

National Gambling Impact Study Commission. 1999. National Gambling Impact Study Commission Final Report http://govinfo.library.unt.edu/ngisc/reportr/fullrpt.html [accessed August 1, 2010].

Noll R, Zimbalist A. 1997. The Economic Impact of Sports Teams and Facilities. Sports, Jobs and Taxes. Brookings Institution Press: Washington, D.C.

Pine JB. 1995. "Perspective of the Attorney General of Rhode Island." In Casino Development: How would Casinos Affect New England's Economy." Special Report No. 2. Federal Reserve Bank of Boston: Boston, MA.

Rose N. 1995. Gambling and the Law: Endless Fields of Dreams. Journal of Gambling Studies 11(1): 15-33.

Ryan TP, Speyrer JF. 1990. The Impact of Casino Gambling in New Orleans, Division of Business and Economic Research, University of New Orleans: New Orleans, LA.

Santo C. 2005. The Economic Impact of Sports Stadiums: Recasting the Analysis in Context. Journal of Urban Affairs 27(2): 177-191.

Siegfried J, Zimbalist A. 2000. The Economics of Sports Facilities and Their Communities. The Journal of Economic Perspectives 14(3): 95-114.

Siegfried J, Zimbalist A. 2006. The Economic Impact of Sports Facilities, Teams and Mega-Events. The Australian Economic Review 39(4): 420-427.

U.S. Bureau of Economic Analysis, 2010. Local Area Personal Income http://www.bea.gov/regional/reis/ [accessed December 9, 2010].

U.S. Bureau of Economic Analysis, 2010. Gross Domestic Product by State http://www.bea.gov/regional/gsp/ [accessed December 14, 2010].

Walker DM. 2007. Benefit-Cost Analysis: Problems in Quantifying the Social Costs and Benefits of Gambling. American Journal of Economics and Sociology 66: 609-645.

BIOGRAPHICAL SKETCH

Mark Thomas Beville was born on November 10, 1986 in Orlando, Florida. He attended Apopka High School in Apopka, Florida. Prior to attending The University of Florida, he graduated Summa Cum Laude with a degree in economics from Georgia Southern University in Statesboro, Georgia. While attending Georgia Southern University, Mark competed in NCAA collegiate athletics with the men's soccer team. In his free time Mark enjoys soccer, golf, travelling, and poker.