IMPACT OF GAMING INDUSTRY ON LOCAL EMPLOYMENT AND PERSONAL INCOME

P. Michael McLain , Hampton University
Sharad K. Maheshwari, Hampton University

ABSTRACT

In the last decade gaming industry has grown steadily in the United State. According to American Gaming Association, its revenue has more than doubled between 1993 and 2003 from $34.7 billion to $72.87. Moreover, the casino gambling industry has spread from its traditional base in Nevada and New Jersey to the Gulf Coast, the Midwestern states and many other locations in the country including building of a large number of Native American casinos. However, community debate still continues whether to treat the gaming industry as any other business or treat it as a negative business necessary only to revitalize a community or to increase the revenue base for a given city and the state. Different state and local authorities provide different arguments in favor or against the industry. But the success of New Jersey approach in the Atlantic City to use casino industry as a revitalization tool for the community remains a very inspiring model.

However, it is important to note that not all gaming solutions result in the intent revenue increase, job growth or other socio-economic benefits for the local community. For example impact of gaming has been less than successful in many Native American experiments. In many Native American casino business has been slow and/or impact on the concerned Native Indian population has been much less than projected or in some cases it has been negative.

The purpose of this research is to study the impact of gaming, mainly casino industry, on the local community and how the economic impact varies with the size of population in the local community. This research will focus only on the communities where casino has made entry during the period of 1990-2000. That is, this study will exclude all old established gaming/casino centers. We will select a sample of thirty casino communities. For each center, we will collect data for 9 years. This will include 4 years of data prior to opening of major casino center, year of opening and 4 years after casino centers has been in existence. The data for

this research will largely come from the Bureau of Labor Statistics and Bureau of Economic Analysis. The American Gaming Association will be the sources for the casino profiles data.

INTRODUCTION

In general the conclusions of previous research studies, regarding economic impact of gambling at the macro level, vary from somewhat positive to very negative. These differences between various research studies can largely be accounted by the methodology of performing the cost and benefit analysis of gambling industry. Many studies show (or assume) very high socio-economic cost of gambling (addiction, family breakup, incarceration, etc.) thus negates all the economic benefit of gambling to a community. Even though the evidence is very inconclusive in last two decades, an increasing number of states passed legislation to allow some form of gambling within their borders. The legislative rationales vary for this action but in general increase state revenue and/or rejuvenation of a depressed region in the state remain the basic motivating factors. In the United States, eleven states have legalized casino gambling. These states are Colorado, Illinois, Indiana, Iowa, Louisiana, Michigan, Mississippi, Missouri, Nevada, New Jersey, and, South Dakota. In addition, 28 states have Indian casinos. Little or economic data is available about Indian casinos. These casinos are not included in this study.

In this research, we considered regions where casino gambling has stated after 1990 therefore, excluding the states of Nevada and New Jersey. The states where annual casino revenues are less than one billion are not included in the studied. It is assumed that the economic impact of small revenue generating casinos may not very significant on the region. This excludes the states of South Dakota and Colorado. Most other new casinos regions are located into southern states of Louisiana and Mississippi or in mid-western states of Illinois, Indiana, Iowa, Missouri and Michigan. The main objective of this study is to assess the economic impacts of casino businesses in the regions directly impacted by the casino businesses.

The gaming industry has expanded in the United States since Nevada first legalized gaming in 1931. The gaming industry now is over a 72 billion dollar industry. Gaming casino areas are now considered destinations with other activities beyond the original gaming activities.

Gaming has expanded beyond Nevada into Mississippi, Illinois, New Jersey, and a variety of other midwestern areas. In addition, the gaming industry has moved into Native American areas to bypass the stigma related to gaming. The argument of inserting gaming into Native American areas is to provide jobs and economic development. Gaming is considered a tool for revitalizing depressed areas. This was the primary reason for allowing Atlantic City to offer gaming.

Politicians have also seen the gaming industry as a means of increasing the flow of funds into the government coffers. Permitting ever increasing spending.

The purpose of this study is to examine the impact of the gaming industry on the local community. The purpose is to examine if the gaming industry provides for increased income to the residents of the local community. This study does not examine the social impact of introducing the gaming industry into an area.

Most previous studies examine the impact of a single casino on an area. The purpose of this study is to examine the impact of the gaming industry across a spectrum of new casinos. This study does not examine the impact of older established casinos or casino towns. It attempts to look at the impact of newer casinos in newer locations.

A sample of thirty casinos will be chosen from a variety of different locations.

LITERATURE REVIEW

This paper discussed the impact of the gaming industry on economic development. When discussing the gaming industry a variety of different forms of gaming can be involved. This paper limits is discussion of gaming to a casino type of format. This paper will not examine the impact of unregulated gaming which may be found around the casino due to the limited data available.

During the past century gaming has increased from a very restricted area of Nevada. The gaming industry has moved from a single state into an industry which is now located in about 48 states. With the introduction of internet gaming the industry now has the ability to reach almost everyone.

Some states view gaming as an industry which will increase job growth and provide additional tax revenues for the politicians to use. Many prior studies have been plagued by bias by the researcher. The gaming industry can create a variety of social ills along with the potential economic advantages. *National Gambling Impact Study Commission Final Report*, provides a listing of the hazards of viewing the gaming industry as a form to eliminate high unemployment rates and to provide for new funds for politicians spending habits.

Gaming casinos can be categorized into two different types of locations. There are destination casino locations, such as Las Vegas, which bring into the area a broad type of clientele. The other casino location is the stand alone casino, which has a more limited clientele and provides a different economic environment.

The *National Gambling Impact Study Commission Final Report* did not receive support from the Indian gaming industry. This issues revolves around the sovereignty of the Indian Tribal Reservations under the United States Constitution.

The *National Gambling Impact Study Commission Final Report* found that Mississippi's unemployment rate declined after the introduction of casinos. But, the decline was similar to that as the economy as a whole. "The rate decline from 8.2 percent in 1992 to 4.8 percent in 1998. The national unemployment rate declined from 7.5 percent to 4.1 percent during the same period." (*National Gambling Impact Study Commission Final Report*).

The NORC found that "increased per capita income in the construction, hotel, and lodging, and recreation and amusement industries. However, no change is seen in the overall per capita income as the increases noted above are offset by reductions in welfare and transfer payments as well as a drop off in income from restaurants and bars." More income was obtained from working and less income was obtained from transfer payments. (*National Gambling Impact Study Commission Final Report*).

Casinos generally have low paying jobs. Most positions pay the minimum wage or sometimes higher. Casinos generally do not offer a lucrative benefits package to the employees.

Only eleven states permit casino operations outside of the Indian casino states. The states are Nevada, New Jersey, Iowa, Illinois, Mississippi, Louisiana, Colorado, South Dakota, Indiana, and Michigan. Louisiana only permits one land based casino to operate in the state at the site of the Convention Center in New Orleans. New Jersey limits its casino operations to Atlantic City, while a number of states permit casinos only along navigable rivers. (Iowa, Illinois, Mississippi, Louisiana, and Missouri).

Arthur Anderson (1997) and Walker and Jackson (1998) discussed the economic gains from placing a casino in a town. But, since the studies were completed additional areas have been opened to casino development.

The decision on the location and placement of the casino industry has been left to communities in need of tax revenue or to spur economic growth in a declining area. Very little consideration is given to the consumer's desires of location of where they would like to have a casino operation (Eadington, 1999). One reason is the negative feelings surrounding the gaming industry.

DATA COLLECTION

The data for this study was collected from three sources. Data on gambling revenues, initiation dates of gambling and locations was obtained from American Gaming Association. The regional economic data was collected from the Regional Economic Account (REIS) maintained by Bureau of Economic Analysis at the US Department of Commerce. The REIS provided data on each MSA (Metropolitan Statistical Area) or CSA (Combined Statistical Area) where casinos are located. These MSAs or CSAs are Chicago, IL; Gary, IN; Des Moines, IA; Detroit, MI; New Orleans, LA; Baton Rouge, LA; Gulfport, MS and Tunica (Memphis Metro Area), MS.

The REIS provided per capita personal income data on each of the selected region. The regional urban inflation data was obtained from the Bureau of Labor Statistics. This data is used to adjust the per capita personal income for each region. The inflation data used in the study assumes 1983 as it base for calculation of annual inflation. No direct unemployment figures were available in the REIS. The unemployment figures were available with the Bureau of Labor Statistics but these figures were not categorized in the same MSA and CSA as in the Bureau of Economic Analysis data. Therefore, employment was calculated as a ratio of population and full or part-time employment. The data on population and number of people employed in each MSA or CSA were obtained from the REIS. A twenty-year time period is covered in this study from 1983-2002.

ANALYSIS

In this study, the economic impact of casino industry is measured in terms of two outcomes—per capita personal income and employment. The per capita personal income was adjusted for the regional inflation before the analysis. The employed was calculated as a ratio of full and part-time employment to the total population in a given region. The national data on employment and per capita personal income is included in Table 1.

The Tables 2-9 provide the per capita personal income and employment data for each region under consideration. To measure the impact on these two variables, differences between regional and national per capita personal income and employment are calculated. These differences in per capita personal income and employment for each region are also included in the Tables 2-9.

Table 1: National Data on Employment and Personal Income		
Year	Adjusted Per Capita Personal Income (CPI base 1983)	Percentage Employed
1983	$ 12,618.00	49.64%
1984	$ 13,369.59	51.35%
1985	$ 13,715.61	52.33%
1986	$ 14,08942	52.88%
1987	$ 14,29577	53.82%
1988	$ 14,65004	55.01%
1989	$ 14,93548	55.59%
1990	$ 14,90207	55.84%
1991	$ 14,60499	54.79%
1992	$ 14,86386	54.25%
1993	$ 14,77232	54.55%
1994	$ 14,96086	55.19%
1995	$ 15,14173	55.95%
1996	$ 15,40790	56.48%
1997	$ 15,78442	57.07%
1998	$ 16,49264	57.87%
1999	$ 16,77011	58.40%
2000	$ 17,33275	59.10%
2001	$ 17,23715	58.55%
2002	$ 17,17954	58.00%

Table 2: Per Capita Personal Income and Employment Data for Gulfport, MS				
Year (Casino Operations Started in 1992)	Adjusted Per Capita Personal Income	Percentage of Population Employed	Difference Between Regional and National Employment Ratio	Difference Between Regional and National Per Capita PI
1983	$ 9,541.00	47.57%	-2.07%	$ (3,077.00)
1984	$ 10,089.60	48.77%	-2.07%	$ (3,279.99)
1985	$ 10,175.63	48.54%	-3.79%	$ (3,539.98)
1986	$ 10,288.34	48.79%	-4.08%	$ (3,801.08)
1987	$ 10,670.11	48.91%	-4.91%	$ (3,625.67)
1988	$ 10,995.88	50.14%	-4.87%	$ (3,654.17)
1989	$ 10,994.24	51.07%	-4.52%	$ (3,941.25)
1990	$ 10,821.74	50.73%	-5.10%	$ (4,080.33)
1991	$ 10,888.64	50.63%	-4.16%	$ (3,716.35)
1992	$ 11,144.32	50.71%	-3.54%	$ (3,719.54)
1993	$ 11,726.56	55.23%	0.69%	$ (3,045.76)
1994	$ 11,837.32	57.68%	2.49%	$ (3,123.55)
1995	$ 12,015.44	56.27%	0.32%	$ (3,126.30)
1996	$ 12,203.02	57.36%	0.88%	$ (3,204.88)
1997	$ 12,313.07	58.91%	1.84%	$ (3,471.36)
1998	$ 12,866.90	60.37%	2.50%	$ (3,625.74)
1999	$ 13,283.95	62.23%	3.83%	$ (3,486.16)
2000	$ 13,530.98	61.75%	2.65%	$ (3,801.77)
2001	$ 14,061.95	60.93%	2.38%	$ (3,175.20)
2002	$ 14,109.12	60.87%	2.87%	$ (3,070.43)

Table 3: Per Capita Personal Income and Employment Data for Memphis Metro, TN				
Year (Casino Operations Started in 1992)	**Adjusted Per Capita Personal Income**	**Percentage of Population Employed**	**Difference Between Regional and National Employment Ratio**	**Difference Between Regional and National Per Capita PI**
1983	$ 11,289.00	50.01%	0.37%	$ (1,329.00)
1984	$ 12,102.12	52.02%	0.68%	$ (1,267.47)
1985	$ 12,448.18	52.66%	0.33%	$ (1,267.43)
1986	$ 12,839.30	53.91%	1.03%	$ (1,250.11)
1987	$ 13,272.24	55.35%	1.53%	$ (1,023.53)
1988	$ 13,607.39	56.73%	1.72%	$ (1,042.65)
1989	$ 14,041.98	58.21%	2.62%	$ (893.51)
1990	$ 14,004.69	58.51%	2.67%	$ (897.37)
1991	$ 13,881.87	57.30%	2.51%	$ (723.13)
1992	$ 14,363.37	56.83%	2.58%	$ (500.49)
1993	$ 14,579.55	57.70%	3.15%	$ (192.77)
1994	$ 15,042.85	59.86%	4.67%	$ 81.98
1995	$ 15,432.21	60.58%	4.63%	$ 290.48
1996	$ 15,654.30	61.09%	4.61%	$ 246.39
1997	$ 15,942.00	62.14%	5.07%	$ 157.58
1998	$ 16,962.24	63.28%	5.42%	$ 469.60
1999	$ 17,121.60	63.41%	5.01%	$ 351.50
2000	$ 17,057.42	63.70%	4.61%	$ (275.34)
2001	$ 17,439.51	62.47%	3.93%	$ 202.35
2002	$ 17,632.43	61.79%	3.78%	$ 452.89

Table 4: Per Capita Personal Income and Employment Data for Baton Rouge, LA				
Year (Casino Operations Started in 1993)	Adjusted Per Capita Personal Income	Percentage of Population Employed	Difference Between Regional and National Employment Ratio	Difference Between Regional and National Per Capita PI
1983	$ 11,333.00	46.48%	-3.16%	$ (1,285.00)
1984	$ 11,676.30	47.91%	-3.43%	$ (1,693.29
1985	$ 11,784.31	47.72%	-4.62%	$ (1,931.30)
1986	$ 11,437.10	46.70%	-6.17%	$ (2,652.32)
1987	$ 11,318.51	47.51%	-6.31%	$ (2,977.27)
1988	$ 11,779.21	48.96%	-6.05%	$ (2,870.83)
1989	$ 12,282.30	49.95%	-5.63%	$ (2,653.18)
1990	$ 12,663.80	51.75%	-4.08%	$ (2,238.27)
1991	$ 12,798.34	52.32%	-2.47%	$ (1,806.65)
1992	$ 13,287.18	52.99%	-1.27%	$ (1,576.68)
1993	$ 13,114.35	53.29%	-1.26%	$ (1,657.97)
1994	$ 13,530.75	54.03%	-1.17%	$ (1,430.11)
1995	$ 13,597.32	55.23%	-0.72%	$ (1,544.42)
1996	$ 13,670.57	56.01%	-0.47%	$ (1,737.33)
1997	$ 13,712.56	55.97%	-1.10%	$ (2,071..87)
1998	$ 14,391.44	57.50%	-0.36%	$ (2,101.20)
1999	$ 14,401.85	58.41%	0.01%	$ (2,368.26)
2000	$ 14,548.44	59.16%	0.06%	$ (2,784.31)
2001	$ 14,676.80	57.95%	-0.60%	$ (2,560.36)
2002	$ 14,911.14	57.52%	-0.48%	$ (2,268.41)

Table 5: Per Capital Personal Income and Employment Date for New Orleans, LA				
Year (Casino Operations Started in 1993)	Adjusted Per Capita Personal Income	Percentage of Population Employed	Difference Between Regional and National Employment Ratio	Difference Between Regional and National Per Capita PI
1983	$ 12,404.00	50.52%	0.88%	$ (214.00)
1984	$ 12,825.63	51.64%	0.29%	$ (543.96)
1985	$ 12,894.49	50.89%	-1.44%	$ (821.12)
1986	$ 12,792.47	49.53%	-3.34%	$ (1,296.95)
1987	$ 12,697.51	49.60%	-4.22%	$ (1,598.27)
1988	$ 12,989.69	51.31%	-3.70%	$ (1,660.35)
1989	$ 13,320.99	52.16%	-3.42%	$ (1,614.50)
1990	$ 13,658.33	53.59%	-2.25%	$ (1,243.74)
1991	$ 13,674.94	53.55%	-1.24%	$ (930.05)
1992	$ 13,985.35	52.94%	-1.31%	$ (878.52)
1993	$ 14,035.51	53.46%	-1.09%	$ (736.81)
1994	$ 14,267.45	53.89%	-1.30%	$ (693.41)
1995	$ 14,495.97	55.07%	-0.88%	$ (645.75)
1996	$ 14,475.91	55.69%	-0.79%	$ (931.99)
1997	$ 14,885.91	56.68%	-0.39%	$ (898.51)
1998	$ 15,534.30	57.38%	-0.49%	$ (958.34)
1999	$ 15,379.63	57.68%	-0.72%	$ (1,390.48)
2000	$ 15,732.06	58.31%	-0.79%	$ (1,600.70)
2001	$ 16,378.14	58.50%	-0.04%	$ (859.01)
2002	$ 16,731.10	58.15%	0.15%	$ (448.44)

Table 6: Per Capita Personal Income and Employment Data for DesMoines, IA				
Year (Casino Operations Started in 1991)	Adjusted Per Capita Personal Income	Percentage of Population Employed	Difference Between Regional and National Employment Ratio	Difference Between Regional and National Per Capita PI
1983	$ 13,490.00	58.94%	9.30%	$ 872.00
1984	$ 14,145.75	60.78%	9.43%	$ 776.17
1985	$ 14,359.55	61.68%	9.35%	$ 643.94
1986	$ 14,813.89	62.23%	9.35%	$ 724.47
1987	$ 15,078.64	63.65%	9.83%	$ 782.87
1988	$ 15,342.81	65.32%	10.31%	$ 692.77
1989	$ 15,662.55	66.57%	10.99%	$ 727.07
1990	$ 15,936.42	68.01%	12.17%	$ 1,034.35
1991	$ 15,585.35	68.09%	13.30%	$ 980.35
1992	$ 15,919.18	68.00%	13.75%	$ 1,055.31
1993	$ 15,750.71	68.03%	13.49%	$ 978.40
1994	$ 16,226.39	68.99%	13.80%	$ 1,265.53
1995	$ 16,406.33	70.97%	15.02%	$ 1,264.60
1996	$ 16,668.63	71.68%	15.21%	$ 1,260.72
1997	$ 17,063.82	72.02%	14.95%	$ 1,279.39
1998	$ 17,869.43	73.09%	15.22%	$ 1,376.79
1999	$ 18,148.74	73.45%	15.05%	$ 1,378.63
2000	$ 18,325.01	73.60%	14.50%	$ 992.26
2001	$ 18,239.58	72.58%	14.04%	$ 1,002.43
2002	$ 18,491.14	71.62%	13.62%	$ 1,311.59

Table 7: Per Capita Personal Income and Employment Data for Gary, IN				
Year (Casino Operations Started in 1995)	Adjusted Per Capita Personal Income	Percentage of Population Employed	Difference Between Regional and National Employment Ratio	Difference Between Regional and National Per Capita PI
1983	$ 11,599.00	40.86%	-8.79%	$ (1,019.00)
1984	$ 11,913.29	41.17%	-10.18%	$ (1,456.29)
1985	$ 12,077.07	41.73%	-10.61%	$ (1,638.55)
1986	$ 12,149.09	41.71%	-11.17%	$ (1,940.33)
1987	$ 12,520.52	43.72%	-10.10%	$ (1,775.25)
1988	$ 12,951.26	45.67%	-9.34%	$ (1,698.78)
1989	$ 13,356.00	46.63%	-8.96%	$ (1,579.48)
1990	$ 13,251.33	47.51%	-8.33%	$ (1,650.74)
1991	$ 12,972.99	47.25%	-7.54%	$ (1,632.000)
1992	$ 13,276.40	46.67%	-7.58%	$ (1,587.46)
1993	$ 13,414.03	46.94%	-7.61%	$ (1,358.29)
1994	$ 13,845.90	47.57%	-7.62%	$ (1,114.97)
1995	$ 13,974.56	47.82%	-8.13%	$ (1,157.17)
1996	$ 14,388.18	48.58%	-7.90%	$ (1,019.72)
1997	$ 14,622.14	49.42%	-7.65%	$ (1,152.28)
1998	$ 15,116.97	49.92%	-7.95%	$ (1,375.67)
1999	$ 15,328.98	50.27%	-8.13%	$ (1,441.13)
2000	$ 15,635.79	49.82%	-9.28%	$ (1,696.96)
2001	$ 15,384.74	49.14%	-9.41%	$ (1,852.41)
2002	$ 15,177.15	48.17%	-9.83%	$ (2,002.39)

Table 8: Per Capita Personal Income and Employment Data for Detroit, MI				
Year (Casino Operations Started in 1999)	Adjusted Per Capita Personal Income	Percentage of Population Employed	Difference Between Regional and National Employment Ratio	Difference Between Regional and National Per Capita PI
1983	$ 13,510.00	43.16%	-6.48%	$ 892.00
1984	$ 14,601.74	45.60%	-5.75%	$ 1,232.16
1985	$ 15,452.25	48.25%	-4.08%	$ 1,736.63
1986	$ 16,126.50	49.29%	-3.58%	$ 2,037.08
1987	$ 16,028.65	50.30%	-3.52%	$ 1,732.87
1988	$ 16,497.85	51.58%	-3.43%	$ 1,847.80
1989	$ 16,784.96	52.95%	-2.64%	$ 1,849.47
1990	$ 16,592.53	53.22%	-2.62%	$ 1,690.47
1991	$ 16,184.07	51.29%	-3.50%	$ 1,579.08
1992	$ 16,656.36	50.88%	-3.37%	$ 1,792.50
1993	$ 16,861.75	51.20%	-3.35%	$ 2,089.43
1994	$ 17,515.28	52.57%	-2.63%	$ 2,554.41
1995	$ 17,631.90	53.53%	-2.42%	$ 2,490.17
1996	$ 17,815.08	54.34%	-2.14%	$ 2,407.18
1997	$ 18,163.79	54.99%	-2.09%	$ 2,379.36
1998	$ 19,152.69	55.82%	-2.05%	$ 2,660.05
1999	$ 19,519.83	56.86%	-1.54%	$ 2,749.72
2000	$ 20,051.83	58.04%	-1.06%	$ 2,719.07
2001	$ 19,445.53	56.69%	-1.86%	$ 2,208.37
2002	$ 19,077.14	55.82%	-2.18%	$ 1,897.59

Table 9: Per Capita Personal Income and Employment Data for Chicago, IL				
Year (Casino Operations Started in 1991)	Adjusted Per Capita Personal Income	Percentage of Population Employed	Difference Between Regional and National Employment Ratio	Difference Between Regional and National Per Capita PI
1983	$ 14,306.00	49.63%	-0.01%	$ 1,688.00
1984	$ 15,115.61	51.48%	0.13%	$ 1,746.02
1985	$ 15,358.40	52.21%	-0.12%	$ 1,642.79
1986	$ 15,834.55	53.31%	0.43%	$ 1,745.13
1987	$ 16,166.81	54.86%	1.04%	$ 1,871.04
1988	$ 16,838.66	56.39%	1.38%	$ 1,188.61
1989	$ 16,895.20	57.22%	1.63%	$ 1,959.72
1990	$ 16,983.30	57.78%	1.94%	$ 2,081.23
1991	$ 16,621.17	56.74%	1.95%	$ 2,016.18
1992	$ 17,062.37	55.73%	1.48%	$ 2,198.50
1993	$ 16,896.84	55.99%	1.45%	$ 2,124.52
1994	$ 17,226.78	56.74%	1.55%	$ 2,265.92
1995	$ 17,612.52	57.69%	1.74%	$ 2,470.79
1996	$ 17,976.49	58.05%	1.57%	$ 2,568.59
1997	$ 18,332.71	58.48%	1.41%	$ 2,548.29
1998	$ 19,070.91	59.37%	1.50%	$ 2,578.27
1999	$ 19,288.60	59.67%	1.27%	$ 2,518.49
2000	$ 19,955.70	60.25%	1.15%	$ 2,622.94
2001	$ 19,736.40	59.47%	0.92%	$ 2,499.25
2002	$ 19,508.83	58.49%	0.49%	$ 2,329.29

To test the impact of the income and employment, we develop two main null hypotheses. The first set of null hypotheses is that the difference of regional and national per capita personal income for each region after casino is more than difference of regional and national per capita personal income before casino for each region. The second set of null hypotheses deals with employment. The set of null hypotheses is that the difference of regional and national employment ratio after casino is more than difference of regional and national per capita personal income before casino for each region. To test the hypotheses, two-sample t-tests were performed assuming that data before casinos as sample 1 and after casinos as sample 2. All the hypotheses were tested at an error level of 1%. The results of these tests are summarized in the Tables 10-11.

Table 10: t-test Difference of Regional and National Per Capita PI

	Pre Casino Average	Post Casino Average	Significance of One-tail t-Test (Alpha .01)
Des Moines	$ 781.70	$ 1,178.83	Yes
Detroit	$ 1,935.67	$ 2,2393.69	No (sig. at .05)
Chicago	$ 1,865.32	$ 2,395.09	Yes
Gary	$(1,537.59)	$ (1,464.72)	No
Gulfport	$ (3,715.09)	$(3,350.06	No (sig. at .05)
Tunica--Memphis	$ (1,077.13)	$ 116.74	Yes
Baton Rouge	$ (2,168.48)	$ (2,052.42)	No
New Orleans	$ (1,080.14)	$ (916.34)	No

DISCUSSION

In all MSAs and CSAs included, in this study, show that employment as well per capita personal income scenario has improved after casino gambling has started. That is, regional per capita personal income and employment have improved compared to national per capita personal income and employment after casino industry has arrived in the region. However the impact of the casino industry is not even specially when measuring per capita personal income of different regions.

The Table 10 shows that a statistically significant (error level 1%) improvement has been made in the per capita personal income of Chicago, Des Moines, Tunica (Memphis) after casino business started there. In Detroit and Gulfport area improvement was significant at 5% level, whereas there was no statistical difference in the per capita personal income of Baton Rouge, New Orleans and Gary regions. The post casino data of Detroit area is relatively small (four data points) as casino started in this area in 1999. Every other area showing no significant improvement has one common characteristic, i.e., each of these areas had substantially lower per capita personal income compared with national level before casino industry came in the region with an exception of Tunica (Memphis.) The Tunica area's per capita personal income include large section of MSA which is in the state (Tennessee) where there is no casino gambling.

Table 11: t-test Difference of Regional and National Employment Ratio

	Pre Casino Average	Post Casino Average	Significance of One-tail t-Test (Alpha 1%)
Des Moines	10.09%	14.33%	Yes
Detroit	-3.35%	-1.66%	Yes
Chicago	0.80%	1.37%	Yes
Gary	-8.99%	-8.53%	No
Gulfport	-4.01%	1.54%	Yes
Tunica--Memphis	1.50%	4.31%	Yes
Baton Rouge	-4.32%	-0.61%	Yes
New Orleans	-1.98%	-0.64%	Yes

From above interpretation, one can conclude that if a region is significantly behind the national per capita personal income before that casino industry is authorized in the region then the improvement in the personal income is not going to be significant by bringing gambling industry. However, if a region is better in the personal income than the national level then the casino industry is likely to have a significant positive impact on the personal income of the area.

The Table 11 shows that employment ratio in every region has shown a statistically significantly improvement after gaming is authorized in the region with an exception of Gary, IN. Even in Gary, the employment ratio has improved somewhat but not enough to show a statistically significant improvement. There could be other factors in the Gary, IN for insignificant change in the employment ratio. This is one of the two regions, other being the New Orleans, where population the 1983-2002 has increased by less than 5%. Total increase in population of Gary in twenty year is 2%. Most of the MSA/CSAs studied here have shown increases in the population between 8%-20%. This extremely slow growth in the population may indicate that more working age group of population is moving out the Gary, IN and leaving behind large section of retired or retrenched workers and their dependents from older auto ancillary industry. This area probably has some other major factors impacting its employment scenario.

CONCLUSIONS

Both employment and per capita personal income show an increase after casino industry is introduced in a given region. In general, regional employment ratio compared with the national employment improves after casino industry is introduced. The regional per capita personal income compared with national per capita personal income gets significantly better after casino industry is introduced if the region was doing better than the national average before the casino industry came into the region.

The regional per capita personal income compared with national per capita personal income does not improve significantly after casino industry is introduced if region was doing worse than the national average before the casino industry came into the region.

The casino industry improves employment but not income in the areas, which were significantly behind the national per capita personal income. This means, that in these economically deficient regions, casino industry brings lower paying jobs. This shows better employment but poor personal income. Same conclusion could not be made for the regions, which have significantly better per capita income levels before casinos were introduced in the area.

REFERENCES

Arthur Anderson & Co. (1997), *Economic impacts of casino gaming in the United States, Volume 2: micro study*. Washington DC American Gaming Association.

Eadington, W. R.(1998) Contributions of casino style gambling to local economies. *Annals of the American Academy of Political and Social Sciences*, March, 556, pp. 53-65.

Eadington, W. R. (1999), The economics of Casino Gambling, *The Journal of Economic Perspectives*, Vol 13, No. 3, pp. 173-192.

Margolis, J. (1997), *Casinos and crime: An analysis of the evidence.* Washington, DC, American Gaming Association.

National Gambling Impact Study Commission Final Report, retrieved from http://govinfo.library.unt.edu/ngisc/reports/fullrpt.html

Walker, D. M. & Jackson, J. D. (1998) New goods and economic growth: Evidence from legalized gambling. *Review of Regional Studies*, 28:2, pp 47-69.