The Ballpark Bluff

An Examination into the Impact of Independent and Minor League Baseball Stadiums on Local Economies

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Abstract

There recently has been much debate over the millions of public funds used to build professional sports stadiums in America. This paper examines whether or not minor and independent league baseball stadiums warrant these subsidies by bringing about positive economic impact in the cities and towns where they are built. This is done by exploring 2012 per capita income figures in 112 cities and towns across America. While small-business prevalence, educational attainment, safety and life expectancy all are found to have a significant impact on per capita income, the presence of a stadium is not. Win percentage, championships, attendance, stadium life and stadium capacity are all tested as well and found not to be statistically significant. Therefore, this study debunks the ballpark bluff: public subsidy money used to build independent and minor league baseball stadiums will likely not result in a significant positive economic impact in the local town or city where it is built.

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Introduction

There are a couple different paths of life I would someday like to follow. One path is playing for, or operating, some type of professional baseball organization. Another is using my economic knowledge to succeed in a public office. These two areas of interest combine to create a very interesting and practical thesis topic.

There currently is much debate over whether or not small minor league or independent league baseball teams (or professional sports teams in general) bring positive economic impacts to the cities and towns where they reside. One side of the argument is that by bringing in a team by building a stadium, local small businesses surrounding the stadium suffer as a result, due to the fact that consumers substitute out their business (such as going bowling or seeing a movie, etc.) to go watch a ball game instead.

The other side of the argument is that building a stadium and bringing a small professional team to a town or city reenergizes the local economy bringing more consumers to the area looking to spend more money at the small businesses that surround the stadium, along with other intangible benefits. Also, the stadium itself is seen as a job-creating venue, further benefitting the surrounding community.

I aim to explore the debate listed above, and hope to find that the latter is closer to the truth. I will do this by identifying factors that contribute to a high per capita income and then testing to determine if stadium specific variables are significant among them.

Should my research result in my ideal conclusions, I will then have a fact-based argument for someday implementing a professional baseball team in my district should I hold public office. Furthermore, should I have the opportunity to play for or be a part of one of these organizations, I will be able to firmly believe that my efforts go beyond simply the game of baseball, but also contribute to strengthening the local economy, enhancing the community, and making the town or city a better place in which I play.

Literature Review

Throughout the years there have been conflicting conclusions on how exactly professional stadiums impact local economies and communities, if at all. The best way to sift through this preexisting research seems to be by following a rough chronological outline with exceptions based on very similar studies, which can be grouped together for the sake of organization.

In the late 90's and early 2000's the consensus was basically that economic impact was nonexistent. Ian Hudson examined regional growth in 1999 to see if the "big four" professional sports leagues in America – National Football League (NFL), Major League Baseball (MLB), National Hockey League (NHL) and National Basketball Association (NBA) – had a significant impact on local economies. Hudson's model focused on employment as the dependent variable and actually used growth of total personal income as an independent variable, contrary my model. Wage growth, growth in population between the ages of 18-24 in post-secondary education, growth in tax base, growth in municipal electricity price, and number of professional sports teams made up the other independent variables used in the model that was tested on 17 US cities. Hudson's results lead to the conclusion of professional franchises having no significant positive impact on a city's economy. (Hudson, 1999)

Shortly after, Phillip Miller took the angle of studying construction industry employment to see even if construction of these stadiums boosted output of jobs. He did so by looking into St. Louis construction industry employment, paying special attention to the time periods when the Kiel Center and Trans World Dome were built. (The Kiel Center is now officially Scottrade Center and home of the St. Louis Blues of the NHL, and the Trans World Dome is now Edward Jones Dome, home of the St. Louis Rams of the NFL.) His results concluded that construction employment during these periods were neither higher or lower than usual, meaning construction of these stadiums simply was substituted for construction in other areas that would have occurred regardless. (Miller, 2002)

With no documented economic benefits, the question of why public funds were being used to help fund these stadiums perpetuated. Who was in charge of getting these public subsidies, and moving foreword in bringing stadiums to specific towns and cities? George Sage investigated this, and the

dynamics of power responsible for passing these public subsidies through the voting booths in the early 90's. Politicians, future team executives and businessmen with a particular interest in the venue's success were examined and found to be persuasive in their efforts to produce public support of their initiative to bring an MLB franchise to Denver. (Sage, 1993)

In 2007 Charles Santo also looked into the motives behind using public subsidy money to fund stadiums, and took a specific interest in moving beyond the economic catalyst debate. Instead, he used a contingent valuation survey in an attempt to quantify consumption benefits that would presumably come along with bringing a MLB franchise to Portland, Oregon. This study attempted to discern an aggregate willingness to pay for the benefits of bringing in a team, but ended up highlighting the issue of citizens feeling that public funds could be used for more pressing social concerns than professional sports. In other words, although citizens of Portland would enjoy bringing in a MLB team, the opportunity cost is too high for them to justify doing so. To illustrate this point, 85% of survey respondents indicated that they either somewhat or strongly agree that Portland has more pressing social issues that should be addressed before public money is spent on a sports stadium. The study concluded that consumption benefits alone as a result of a large, mainstream, professional stadium only would likely support a capital investment of approximately $74 million, which is much smaller than typical stadium subsidies. As a reference, the project in Portland would have needed an estimated $235 million, which is typical for large stadium construction. Therefore this study further backed the notion that stadium subsidies are dubious investments economically. (Santo, 2007)

Rather than turning to personal, selfish motives of individuals passing this legislation, a turn towards the intangible assets produced by stadiums became the focus of attention later in the 2000's.

In 2010 Steve Michael examined the intangible benefits produced by stadium construction – such as promoting economic objectives of the community, enhancing the community's image, and improving recreational infrastructure of the community – by conducting a large-scale analysis and critique of previous studies into stadium construction. Although he also concluded that direct and indirect benefits would likely not match the overall construction costs for a community, he did admit that there were great

potential benefits for a community if financing the stadium was left independent from public funds. However, direct revenues alone from the stadium, he concluded, will likely not equate to the stadium's operating costs, so it will be difficult to attract a willing investor for the large, unpromising financial commitment. (Michael, 2010)

It was not until 2013 that Nola Agha found significant positive effects on local per capita income by measuring pecuniary gains in 238 Metropolitan Statistical Areas with minor league teams between 1985 and 2006. Her results were surprising because they contradicted non-positive results from a decade of studies at the major league level. She found significant positive effects for AAA, AA, A and Rookie minor league teams on the per capita incomes of their metropolitan statistical areas, but non-positive effects for independent league teams. What she concluded is that there must be fundamental differences in the structure of these minor league programs, making them a greater asset to the per capita income growth of their communities. Therefore further analysis into their distinctive qualities (as opposed to major league or independent league teams) could potentially reveal important alterations in major league operations that could greatly improve the economic well-being of cities where these teams reside. (Agha, 2013)

To attempt to gauge some of these differences, and therefore predict some of these alterations, I then looked into a series of studies in 2010 and 2012 that delved into why certain stadiums brought economic success and why others failed. In 2010, Ahlfeldt and Maennig focused on the architectural quality of stadiums themselves, leading to the conclusion that individual stadiums and their quality, directly play into potential impact. Stadiums of high architectural quality that served as "visiting cards" for hometowns were found to be most successful in supporting area rehabilitation. (Ahlfeldt and Maennig, 2010) However, many major league stadiums do just this, so it does not explain the discrepancy in Agha's results as opposed to all previous results based on major league organizations.

In 2012, Buckman and Mack focused on location specific stadium success, finding that urban form greatly impacted the success of stadium projects when aspects of the stadium were directly tailored to fit this urban form. Here, economic impacts were realized where traditional "one-size-fits-all"

approaches had failed to produce similar results. (Buckman and Mack, 2012) However, once again, this really does not set major league and minor league stadiums apart, as both types are consistently found in all different genres of urban form across the country.

No study has been found to explain Agha's results for minor league stadiums having a significant positive impact on local economies when major leagues stadiums have not been found to do so in the past. My study will look at the most recent data available for minor league and independent league stadiums to see if Agha's trend continues. I will narrow my focus from metropolitan statistical areas to individual towns and cities to try and explore a more intimate connection. If the statistically significant positive results carry through, I will then be prompted to find out why exactly they do not apply for major league stadiums. If these positive results do not carry through, I will have a study that backs a decades worth of results at the major league level, and contradicts Agha's most recent results indicating that minor league stadiums do in fact bring about higher per capita income in the cities and towns where they reside.

Theoretical Model

In order to test whether or not stadiums have a significant impact on per capita income, it is first necessary to create a model that adequately covers factors that contribute to per capita income in other settings. In studying less developed countries, literature identifies five major factors that contribute most to growth and development: quality of and access to education, health of citizens, efficiency of government, amount of crime, and extent of business activity. (Perkins, 2013) To relate these factors to individual cities and towns instead of developing countries, available variables will have to be identified and collected that represent these factors.

Once these factors are accounted for, the stadium variable can then be tested in unison with them against per capita income to see if its coefficient is positive and statistically significant. If so, the model would produce a fact-based backing of public subsidies for small professional baseball stadiums by finding them to be positive impacts on per capita income and worth the investment by local communities.

The theoretical model is:

$$Per\ Capita\ Income = \beta_o + \beta_1(Education) + \beta_2(Health) + \beta_3(Government) - \beta_4(Crime) + \beta_5(Small\ Business) + \beta_6(Stadium),$$

for all $\beta > 0$.

The statistic indicating a more educated population is expected to have a positive impact on per capita income because this would lead to a more informed, intelligent, and innovative society, producing more output and therefore income. A healthier population is expected to have a positive relationship with per capita income because a healthier workforce will likely produce more goods and services, i.e., have higher productivity. A more efficient government is expected to have a positive relationship with per capita income because aid and public funds will likely be used in the most beneficial ways to progress the community. A greater extent of small businesses is expected to have a positive relationship with per capita income because these businesses employ the majority of the population (Nazar, 2013) and act as a

backbone of dependable individuals who will reinvest in the economy. A high crime statistic is expected to have a negative relationship with per capita income because individuals involved with committing crimes are not often reinvesting themselves or their earnings into the local economy, but instead detracting from it. Fighting crime takes resources away from positive endeavors. The dummy variable indicating the presence of a stadium is expected to have a positive relationship with per capita income because the stadium is expected to be a job-creating and consumer-attracting venue, spurring more economic activity in the area.

Data

Because the model is focused on cities and towns, and in-depth statistics of these smaller populations are less often recorded and readily available, different years are used for different statistics. Therefore this study is made up of cross-section data from years all within the same general timeframe.

The data collection phase began first with compiling a list of cities. Brian Merzbach, an independent league and minor league baseball stadium enthusiast, spent the better half of the last twenty years researching and developing a comprehensive list of independent and minor league stadiums. By visiting them, grading them and assorting them by year opened, his records kept on BallparkReviews.com proved to be the most helpful source of information on the subject and served as the initial guideline for stadiums to be used in the study. The validity of his records was later checked via a host of different websites.

Every minor league and independent league stadium built in the years between 2001 and 2009 was compiled into one document, and their home cities were verified. Once established, the 2012 populations of each of these cities were obtained and recorded via City-Data.com, a site that collects and analyzes data from numerous sources to create detailed, informative profiles of every city in the United States. This site was probably the most useful source of information throughout all of data collection.

After collecting the populations of these stadium cities, the control cities were chosen. To do so, each stadium city was examined individually, and the town with the closest population to that stadium city in the same state was chosen and recorded.

There were 56 independent and minor league stadiums built between 2001 and 2009. Therefore these 56 stadium cities were used, with another 56 control cities added on, creating a sample size of 112 cities.

The independent variable, 2012 per capita income, was then collected for each city via City-Data.com. The statistics listed on the cite were then thoroughly examined, and variables to represent education, small business and local government were decided upon, as follows.

The percentage of the population with less than a high school diploma in 2009 was chosen to represent access to and quality of education. This variable is expected to reverse in its relationship with per capita income, as less educated citizens would assumingly bring about a less innovative and productive society. The ability of the variable to capture both quality and access to education makes it the best choice.

The number of self-employed individuals in their own incorporated business in 2009 was chosen to represent the amount and extent of small businesses within a city or town. Since small business prevalence is given by City-Data.com as a number of individuals within that city, it is taken as a percentage of the population of that city to create a comparable statistic. A larger number of small businesses is expected to correspond with a higher per capita income because of the additional jobs these businesses create and the willingness of these individuals to reinvest in their local economy.

The number of local government employees is used to represent size and efficiency of local government. Although efficiency is not measured, it is the closest statistic available to attempt to cover the general idea. Once again, because City-Data.com listed the statistic as number of individuals, it is taken as a percentage of that city's population. A larger local government is assumed to have a greater reach and access to resources necessary to be efficient and positively impact per capita income. This could effect local expenditure multipliers as well. However, a number that is too large for a small area could bring up issues of inefficiency.

The crime variable was found through NeighborhoodScout.com, a website covered by *US News & World Report, The New York Times, The Huffington Post, CNN, Bloomburg Business Week, The Wall Street Journal, CNN Money, Time* and *CBS Market Watch.* ("Enterprise-grade data for every neighborhood and city in the U.S.," 2015) NeighborhoodScout.com lists a crime index for each city, based on the seven Uniform Crime Reporting (UCR) crimes tracked by the Federal Bureau of Investigation (homicide, forcible rape, armed robbery, aggravated assault, burglary, larceny, and motor vehicle theft) per 1,000 people. The scale ranges from 0-100, where 100 is the safest and a 40% would mean the selected city is safer than 40% of the cities in America. Since this is more of a safety rating, as a

higher number indicates a safer community, a positive relationship is expected with per capita income, contrary to the theoretical model crime statistic.

The statistic to represent health of citizens was probably the most difficult to find and decide on. Life expectancy of males at birth was chosen because life expectancy of just the population in general was not available at the local level. The statistic used is actually only available via county through the U.S. Health Map offered by HealthData.org, the Institute for Health Metrics and Evaluation. Therefore to compile this statistic, the county of each city or town had to be identified and the corresponding age was recorded. A higher life expectancy would presumably infer a higher standard of health of citizens, and therefore more production and a higher per capita income.

To examine if the presence of an independent or minor league stadium itself impacted local per capita income, a dummy variable was used. Two additional contingent variables were used to delve deeper into the differences between different stadiums themselves as well. Stadium life was accounted for as a variable denoting the number of years the stadium has been in existence up until 2012. This variable was aimed at giving an annual estimated value of that stadium in terms of contribution to per capita income. Stadium capacity was also added in as a variable to determine if maybe size of the stadium helps determine its efficiency in achieving economic impact.

Four additional variables were included to account for the quality of the team playing in each stadium, to try and see if this impacts the success of a stadium in bringing about economic impact. The level of the team playing in the stadium ranging from 0 to 4, with 0 being no professional team, 1 being independent league (not affiliated with Major League Baseball), 2 being "A" ball (lowest ranking level of affiliated Minor League Baseball), 3 being "AA" ball, and 4 being "AAA" ball (one notch below the big leagues) was included. The assumption was that this variable would have a positive coefficient, meaning as the team got closer to the big leagues, it would generate a greater fan base and bring about more economic impact.

Win Percentage for each team in the year 2012 was collected through Baseball-Reference.com, along with all of the team related statistics. This variable was used to see if the quality of team made a

significant difference in impacting how well the stadium spurs economic activity. If the team is winning consistently, fans may be more likely to go to games and spend money in the local economy.

A dummy variable indicating whether or not the team won a league or division championship in 2012 was also included for a similar reason as win percentage. Maybe the team did not win a ton of games during the regular season, but a late post-season run could excite fans and foster economic activity within the community.

The final variable included captured the total attendance of fans at home games throughout the 2012 season. This variable was expected to have a positive coefficient because a higher attendance would mean more economic activity, leading to a higher per capita income.

Therefore the actual model to be estimated is listed below.

$$\textit{Per Capita Income} = \beta_o + \beta_1(\textit{Local Government Size}) + \beta_2(\textit{Small-business prevalence}) - \beta_3(\textit{Less than HS Education}) + \beta_4(\textit{Safety Rating}) + \beta_5(\textit{Life Expectancy}) + \beta_6(\textit{Stadium}) + \beta_7(\textit{Stadium Life}) + \beta_8(\textit{Stadium Capacity}) + \beta_9(\textit{Level of Team}) + \beta_{10}(\textit{Win Percentage of Team}) + \beta_{11}(\textit{Championship}) + \beta_{12}(\textit{Attendance of Fans}) + \varepsilon,$$

for $\beta > 0$, and ε assumed random normal.

Econometric Results and Interpretation

The full regression failed to produce statistically significant results for any stadium-related or team-related variable. The model overall was found to be significant at the 5% level with an F-value of 20.93 and a P-value of <.0001. The R-Square value was impressive at .7173, meaning the independent variables explain about 71% of the variability in per capita income. Of the twelve variables, four were statistically significant at either the 10%, 5% or 1% level: small business prevalence, life expectancy, educational attainment and safety. Local government size was the only non-stadium related variable to be found insignificant, which was not unexpected. The number of workers in local government does not adequately cover efficiency, only size. Covering efficiency was seemingly impossible with the data available. (Table 1 in Appendix goes about here.)

Because none of the stadium variables were significant, I tested the model with only general independent variables to see how different the results were. This regression produced very similar results, with all the stadium and team specific variables only accounting for a .0028 difference in R^2. (Table 2 goes about here.)

Given the cross-section nature of my data, I then tested for heteroskedasticity using the Breusch-Pagan Test. In doing so I found heteroskedasticity to be present in my model, with the F-value of this regression being 3.03, significant at the 1% level. (Table 3 goes about here.)

I therefore corrected for heteroskedasticity using feasible generalized least squares (FGLS) and Wooldridge's Suggestion to obtain robust estimators. This brought about a model with a 438.9 F-value, significant at the 1% level. My new R-squared was impressive at .9815 and small-business prevalence, educational attainment, safety, and life expectancy were all found to be significant at the 1% level. The beta of small-business prevalence was large and positive as expected, meaning that more individuals in their own incorporated business significantly positively impacts local per capita income. The beta of educational attainment, specifically the percentage of the population with less than a high school diploma, was negative as expected, meaning less educated workers brings about less innovation and efficiency, along with lower paying jobs. The beta of the safety index variable was positive as expected, meaning

cities with less crime generally consist of more productive and economically active citizens, while wasting fewer resources fighting crime. The final significant beta, for life expectancy, was also positive as expected, meaning that healthier citizens are likely more productive and efficient at work thus bringing about greater economic activity. (Table 4 goes about here.)

Conclusion and Suggestion for Further Study

This paper has proved that there is no statistical evidence backing the claim that independent and minor league stadiums spur local economic activity and contribute to a higher per capita income in individual cities and towns for stadiums built between the years 2001 and 2009. Although these are not the desired results, they are the facts and therefore have implications of their own.

If the goal of a city is spur economic activity and increase per capita income, using public subsidy money to build a stadium and bring in an independent or minor league baseball team is a misguided decision. By use of this model, this subsidy money would be much better utilized by funding schools, small businesses, hospitals or police forces. However, if spurring economic activity is only a secondary goal of the city, with the primary goal being a face-lift in the community's image, or an influx of role models for youth of the community, or an effort to create unity and cohesion within the community, building a professional ballpark is not a misguided decision, especially if there is an influx of private money to do so. Although this study did not prove that there are statistically significant economic benefits of building a stadium, it did show that there are not statistically significant losses either. If citizens are willing to allow their taxes to be used for stadium subsidies, and the town is implementing a stadium for reasons other than strictly economic, the practice is still encouraged. Yet, through this model, if the town's goal is spurring economic activity, this subsidy money should be used to supplement small business development, educational attainment of citizens, safety of citizens, or health of citizens, because these are the areas where per capita income is truly impacted.

In terms of further exploring this topic, it still has yet to be uncovered what factors exactly play into the economic success of a small professional baseball stadium, such as those from Agha's study. My next objective would be really delving into the success stories of such stadiums on an individualized basis and finding out what differentiates them from the rest, allowing them to become such radiant factors contributing to the economic wellbeing of their surrounding communities.

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Appendix

Table 1

SAS Results 1

Dependent Variable: **PerCapInc**

Number of Observations Read	112
Number of Observations Used	112

F Value	20.93
Pr > F	<.0001
R-Square	0.7173
Adj R-Sq	0.683

Variable	**Parameter Est.**	**t Value**	**Pr > |t|**
Intercept	-51450	-2.86	0.0052
LocalGov	-196.24247	-0.4	0.6933
SmallBus	6001.28808	8.35	<.0001
Edu	-342.79851	-5.34	<.0001
Safety	55.11744	1.94	0.0551
LifeExpect	979.12172	4.13	<.0001
StadPres	1209.25986	0.39	0.6991
StadLife	-43.62779	-0.14	0.8905
StadCapacity	-0.02903	-0.37	0.7137
Level	246.05372	0.21	0.8331
Attendance	-0.00003712	0	0.9961
Win	-3435.77671	-0.78	0.4359
Champ	1168.75822	0.6	0.5491

Table 2

SAS Results 2

Dependent Variable: **PerCapInc**

Number of Observations Read	112		
Number of Observations Used	112		
F Value	53.05		
Pr > F	<.0001		
R-Square	0.7145		
Adj R-Sq	0.701		
Variable	**Parameter Est.**	**t Value**	**Pr > |t|**
Intercept	-50885	-2.96	0.0038
LocalGov	-254.08817	-0.54	0.5895
SmallBus	5952.80619	8.73	<.0001
Edu	-345.74067	-5.77	<.0001
Safety	57.31789	2.14	0.0345
LifeExpect	973.42689	4.31	<.0001

Table 3

SAS Results 3

Dependent Variable: **PerCapInc**

Number of Observations Read	112
Number of Observations Used	112
F Value	3.03
Pr > F	0.0012

Table 4

SAS Results 4

Dependent Variable: **PerCapInc**

Number of Observations Read	112		
Number of Observations Used	112		
F Value	438.9	**R-Square**	0.9815
Pr > F	<.0001	**Adj R-Sq**	0.9793
Variable	**Parameter Est.**	**t Value**	**Pr > |t|**
Intercept	0.00014405	0.36	0.719
fLocalGov	-181.89621	-0.43	0.6647
fSmallBus	5769.62561	7.29	<.0001
fEdu	-262.28012	-4.76	<.0001
fSafety	90.06038	3.32	0.0012
fLifeExpect	264.73772	8.59	<.0001
StadPres	0.00078742	0.65	0.5187
StadLife	-0.00005422	-0.43	0.668
StadCapacity	1.02E-07	1.58	0.1175
Level	0.00035719	0.77	0.4428
Attendance	-2.72E-09	-0.88	0.3804
Win	-0.00196	-1.14	0.2558
Champ	0.00011005	0.14	0.8861

Full SAS Results

SAS Results 1

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: PerCapInc

Number of Observations Read	112
Number of Observations Used	112

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	12	5117992292	426499358	20.93	<.0001
Error	99	2017293791	20376705		
Corrected Total	111	7135286083			

Root MSE	4514.05638	R-Square	0.7173
Dependent Mean	24636	Adj R-Sq	0.683
Coeff Var	18.32306		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-51450	17986	-2.86	0.0052
LocalGov	1	-196.24247	496.14858	-0.4	0.6933
SmallBus	1	6001.28808	718.3453	8.35	<.0001
Edu	1	-342.79851	64.19808	-5.34	<.0001
Safety	1	55.11744	28.39273	1.94	0.0551
LifeExpect	1	979.12172	236.9741	4.13	<.0001
StadPres	1	1209.25986	3118.91019	0.39	0.6991
StadLife	1	-43.62779	316.06699	-0.14	0.8905
StadCapacity	1	-0.02903	0.07889	-0.37	0.7137
Level	1	246.05372	1164.45233	0.21	0.8331
Attendance	1	-0.00003712	0.00766	0	0.9961
Win	1	-3435.77671	4392.27083	-0.78	0.4359
Champ	1	1168.75822	1944.27212	0.6	0.5491

SAS Results 2

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: PerCapInc

Number of Observations Read	112
Number of Observations Used	112

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	5098105522	1019621104	53.05	<.0001
Error	106	2037180562	19218685		
Corrected Total	111	7135286083			

Root MSE	4383.91201	R-Square	0.7145
Dependent Mean	24636	Adj R-Sq	0.701
Coeff Var	17.79479		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	-50885	17188	-2.96	0.0038
LocalGov	1	-254.08817	469.43605	-0.54	0.5895
SmallBus	1	5952.80619	681.51921	8.73	<.0001
Edu	1	-345.74067	59.87281	-5.77	<.0001
Safety	1	57.31789	26.7634	2.14	0.0345
LifeExpect	1	973.42689	225.86275	4.31	<.0001

SAS Results 3

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: r1sqr

Number of Observations Read	112
Number of Observations Used	112

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	12	3.69E+16	3.08E+15	3.03	0.0012
Error	99	1.01E+17	1.02E+15		
Corrected Total	111	1.38E+17			

SAS Results 4

The SAS System

The REG Procedure
Model: MODEL1
Dependent Variable: fPerCapInc

Number of Observations Read	112
Number of Observations Used	112

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	12	0.01665	0.00139	438.9	<.0001
Error	99	0.00031306	0.00000316		
Corrected Total	111	0.01697			

Root MSE	0.00178	R-Square	0.9815
Dependent Mean	0.01032	Adj R-Sq	0.9793
Coeff Var	17.22314		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	1	0.00014405	0.00039921	0.36	0.719
fLocalGov	1	-181.89621	418.35838	-0.43	0.6647
fSmallBus	1	5769.62561	791.54979	7.29	<.0001
fEdu	1	-262.28012	55.09086	-4.76	<.0001
fSafety	1	90.06038	27.1034	3.32	0.0012
fLifeExpect	1	264.73772	30.83465	8.59	<.0001
StadPres	1	0.00078742	0.00122	0.65	0.5187
StadLife	1	-0.00005422	0.00012604	-0.43	0.668
StadCapacity	1	1.02E-07	6.45E-08	1.58	0.1175
Level	1	0.00035719	0.00046353	0.77	0.4428
Attendance	1	-2.72E-09	3.09E-09	-0.88	0.3804
Win	1	-0.00196	0.00172	-1.14	0.2558
Champ	1	0.00011005	0.00076647	0.14	0.8861

Data Set

City/Town	State	Stadium Name	Year S	Stad	Life	Capacity	Team Name	Level	Level	Attendance	Win %	Champ	Per Cap	Population	Local Gover	Small Busir	Educational	Crime	Health
Camden	New Jersey	Campbell's Field	2001	1	11	6425	Camden Riversh	Ind	1	231987	0.45	0	13002	77250	2.64	0.24	30.6	3	75
Edinburg	Texas	Edinburg Stadium	2001	1	11	4000	Edinburg Roadr	Ind	1	86947	0.63	1	18424	81029	2.38	0.68	20	5	78
Lakewood	New Jersey	FirstEnergy Park	2001	1	11	8000	Lakewood Blue	A	2	410113	0.38	0	11421	53805	1.15	0.76	17.4	69	77
Lincoln	Nebraska	Haymarket Park	2001	1	11	8500	Lincoln Saltdogs	Ind	1	160986	0.41	0	26024	265404	3.04	1.09	7.1	14	77
Brooklyn	New York	MCU Park	2001	1	11	7501	Brooklyn Cyclon	A	2	249009	0.59	0	24190	2538705	4.79	0.93	31.2	37	79
Staten Island	New York	Richmond County Bank	2001	1	11	7171	Staten Island Ya	A	2	141163	0.40	0	29939	481026	6.77	1.46	17.4	63	79
Lexington	Kentucky	Whitaker Bank Ballpark	2001	1	11	6994	Lexington Leger	A	2	295937	0.50	0	28502	305489	2.37	1.42	10.8	10	76
Troy	New York	Bruno Stadium	2002	1	10	4500	Tri-City ValleyC	A	2	159966	0.67	1	21764	49946	3.20	0.40	15.4	7	76
Brockton	Massachusetts	Campanelli Stadium	2002	1	10	4750			0	0	0.00	0	21231	94094	2.99	0.42	19.5	10	77
Fresno	California	Chukchansi Park	2002	1	10	12500	Fresno Grizzlies	AAA	4	471686	0.51	0	18360	505882	3.36	0.65	25.2	8	76
Washington	Pennsylvania	Consol Energy Park	2002	1	10	3200	Washington Wil	Ind	1	76829	0.46	0	20941	13555	3.02	0.30	13.7	9	75
Peoria	Illinois	Dozer Park	2002	1	10	7500	Peoria Chiefs	A	2	190244	0.46	0	25379	115687	2.92	0.85	11	11	75
Toledo	Ohio	Fifth Third Field	2002	1	10	10300	Toledo Mud Hen	AAA	4	550900	0.42	0	18185	284012	3.54	0.70	14.4	3	74
Slippery Rock	Pennsylvania	Jack Critchfield Park	2002	1	10	1500			0	0	0.00	0	18084	3670	2.43	0.60	7.6	35	77
Fort Worth	Texas	LaGrave Field	2002	1	10	4100	Fort Worth Cats	Ind	1	57596	0.54	0	23449	777992	1.87	0.63	21	8	78
Aberdeen	Maryland	Ripken Stadium	2002	1	10	6300	Aberdeen IronB	A	2	244974	0.37	0	25863	15018	2.19	0.88	13.3	15	77
Midland	Texas	Security Bank Ballpark	2002	1	10	6669	Midland RockHo	AA	3	301110	0.46	0	32096	119385	3.18	1.50	17.2	25	75
Joliet	Illinois	Silver Cross Field	2002	1	10	6016	Joliet Slammers	Ind	1	104019	0.39	0	25049	148268	2.36	0.64	14.3	29	77
Columbia	Missouri	Taylor Stadium	2002	1	10	20000			0	0	0.00	0	25845	113225	2.17	0.98	5.2	11	77
Cedar Rapids	Iowa	Veterans Memorial Stad	2002	1	10	62512	Cedar Rapids Ke	A	2	160064	0.38	0	27410	128119	2.66	0.98	7.3	14	78
Jacksonville	Florida	Baseball Grounds of Jack	2003	1	9	11000	Jacksonville Sun	AA	3	293013	0.50	0	23282	836507	2.48	1.30	12.8	10	74
Eastlake	Ohio	Classic Park	2003	1	9	7273	Lake County Cap	A	2	248114	0.51	0	24775	18459	4.21	0.96	12.6	33	76
Kansas City	Kansas	Community America Bal	2003	1	9	6537	Kansas City T-Bo	Ind	0	260620	0.00	0	17554	147268	3.34	0.49	22.3	6	72
Frisco	Texas	Dr. Pepper Ballpark	2003	1	9	10316	Frisco RoughRid	AA	3	488224	0.57	1	42752	128176	0.82	0.43	3.8	45	80
Robstown	Texas	Fairgrounds Field	2003	1	9	4200			0	0	0.00	0	14961	11618	3.62	0.73	45.2	14	75
Albuquerque	New Mexico	Isotopes Park	2003	1	9	13279	Albuquerque Isc	AAA	4	568417	0.56	1	25786	555417	2.47	1.20	10.7	4	76
Aiken	South Carolina	Roberto Hernandez Stac	2003	1	9	1000			0	0	0.00	0	32444	29884	2.45	1.04	7.8	7	75
Rome	Georgia	State Mutual Stadium	2003	1	9	5105	Rome Braves	A	2	184983	0.46	0	17863	36159	2.72	1.14	27.1	3	73
Gary	Indiana	U.S. Steel Yard	2003	1	9	6139	Gary SouthShor	Ind	1	159837	0.50	0	15295	79170	4.33	0.71	18	2	73
Clearwater	Florida	Bright House Field	2004	1	8	8500	Clearwater Thre	A	2	177297	0.55	0	28052	108732	3.14	2.52	10.3	11	75
Davenport	Iowa	Modern Woodmen Park	2004	1	8	4024	Quad Cities Rive	A	2	240008	0.49	0	24482	101363	2.41	1.01	7.1	9	76
Greeneville	Tennessee	Pioneer Park	2004	1	8	2400	Greeneville Astr	A	2	42303	0.54	0	20683	15024	3.75	1.46	20.3	7	72
Montgomery	Alabama	Riverwalk Stadium	2004	1	8	7000	Montgomery Bis	AA	3	244976	0.54	0	23358	205293	3.05	1.21	13.2	5	73
Florence	Kentucky	UC Health Stadium	2004	1	8	4500	Florence Freedo	Ind	1	97382	0.59	0	24271	31088	1.64	1.01	9.9	7	76
Bangor	Maine	Winkin Complex	2004	1	8	3000			0	0	0.00	0	22888	32817	3.29	1.06	7.5	4	76
Charleston	West Virginia	Appalachian Power Park	2005	1	7	4500	West Virginia Pd	A	2	157875	0.44	0	36579	51018	3.07	1.88	9.2	3	71
Stockton	California	Banner Island Ballpark	2005	1	7	5200	Stockton Ports	A	2	198602	0.40	0	18477	297984	3.41	0.43	24.3	3	76
Lancaster	Pennsylvania	Clipper Magazine Stadiu	2005	1	7	7500	Lancaster Barns	Ind	1	307431	0.63	1	16504	59360	1.94	0.27	23.8	6	78
Worcester	Massachusetts	Fitton Field	2005	1	7	3000			0	0	0.00	0	22913	182669	3.20	0.62	16.1	11	77
McKinney	Texas	Gabe Nesbitt Field	2005	1	7	1000			0	0	0.00	0	32098	143223	1.13	0.50	9.2	38	80
Springfield	Missouri	Hammons Field	2005	1	7	1486	Springfield Card	AA	3	352674	0.56	1	19352	162191	2.11	1.09	13	1	77
Greensboro	North Carolina	NewBridge Bank Park	2005	1	7	7499	Greensboro Gra	A	2	367077	0.58	1	23912	277080	2.28	1.30	12.2	9	76
Manchester	New Hampshir	Northeast Delta Dental S	2005	1	7	7722	New Hampshire	AA	3	377317	0.43	0	26378	110209	3.13	0.85	12.1	11	78
Pearl	Mississippi	Trustmark Park	2005	1	7	7446	Mississippi Brav	AA	3	191639	0.45	0	19944	26154	1.59	0.93	13.2	16	75
Corpus Christi	Texas	Whataburger Field	2005	1	7	5400	Corpus Christi H	AA	3	388927	0.58	0	23776	312195	3.02	1.04	21	7	75
Loves Park	Illinois	Aviators Stadium	2006	1	6	3279			0	0	0.00	0	25581	23805	1.67	0.81	8.1	27	75
Greenville	South Carolina	Fluor Field	2006	1	6	5700	Greenville Drive	A	2	347042	0.47	0	30394	60709	2.26	1.68	14.2	4	75
State College	Pennsylvania	Medlar Field at Lubrano	2006	1	6	5570	State College Spi	A	2	129588	0.46	0	14747	41983	1.05	0.52	3.8	23	79
Traverse City	Michigan	Wuerfel Park	2006	1	6	4200	Traverse City Be	Ind	1	175284	0.67	1	29169	14911	4.18	2.34	4.4	17	77
North Little Rock	Arkansas	Dickey-Stephens Park	2007	1	5	5800	Arkansas Travel	AA	3	308109	0.44	0	22302	64633	2.92	1.50	10.5	3	73
Midland	Michigan	Dow Diamond	2007	1	5	5500	Great Lakes Loo	A	2	259160	0.48	0	30162	42020	3.64	0.78	4.1	23	78
Marion	Illinois	Rent One Park	2007	1	5	7000	Southern Illinois	Ind	1	129936	0.59	1	25371	17315	3.15	0.94	11.2	69	74
York	Pennsylvania	Santander Stadium	2007	1	5	5200	York Revolution	Ind	1	273648	0.50	0	13969	43550	2.62	0.41	27.1	13	77
Allentown	Pennsylvania	Coca-Cola Park	2008	1	4	10100	Lehigh Valley Ir	AAA	4	622421	0.52	0	17735	118974	2.07	0.57	21.6	12	77
Grand Prairie	Texas	QuikTrip Park	2008	1	4	5445	Grand Prairie Al	Ind	1	108236	0.53	0	21463	181824	2.00	0.62	21.3	21	76
Waldorf	Maryland	Regency Furniture Stadi	2008	1	4	4200	Southern Maryla	Ind	1	229094	0.49	1	34970	67752	1.56	0.36	7.7	24	76
Trenton	New Jersey			0	0	0			0	0	0	0	15056	84477	3.08	0.41	26	12	77
Longview	Texas			0	0	0			0	0	0	0	21122	81092	2.08	1.33	19.3	9	73
Union	New Jersey			0	0	0			0	0	0	0	30147	54050	4.01	1.52	12.9	47	78
Omaha	Nebraska			0	0	0			0	0	0	0	25046	421570	2.45	1.29	13.3	8	76
Queens	New York			0	0	0			0	0	0	0	25352	2277251	4.53	1.35	25.6	53	79
Buffalo	New York			0	0	0			0	0	0	0	19973	259384	5.07	0.56	18	4	76
Allen	Texas			0	0	0			0	0	0	0	40359	89640	1.49	0.58	4.1	61	80
Orangetown	New York			0	0	0			0	0	0	0	39087	48792	6.04	2.60	9.8	49	80
New Bedford	Massachusetts			0	0	0			0	0	0	0	20450	94929	3.36	0.62	29.6	9	76
Sacramento	California			0	0	0			0	0	0	0	24882	475516	3.04	0.56	16.6	9	77
St. Marys	Pennsylvania			0	0	0			0	0	0	0	25089	12913	2.15	1.23	8.2	52	76
Elgin	Illinois			0	0	0			0	0	0	0	22676	109927	2.42	0.92	19.5	40	79
Cincinnati	Ohio			0	0	0			0	0	0	0	22858	296550	3.73	1.02	15.9	3	75
Bryn Mawr	Pennsylvania			0	0	0			0	0	0	0	25457	3779	1.77	0.77	6.7	53	75
Austin	Texas			0	0	0			0	0	0	0	31130	842592	2.35	0.92	13.3	7	78
Cloverly	Maryland			0	0	0			0	0	0	0	45922	15126	1.96	1.61	6.9	37	82
Abilene	Texas			0	0	0			0	0	0	0	20170	118887	2.87	0.98	17.7	11	73
Naperville	Illinois			0	0	0			0	0	0	0	43911	143684	2.69	2.11	4.5	61	77
Independence	Missouri			0	0	0			0	0	0	0	22244	117270	2.49	0.92	12.3	3	74
Des Moines	Iowa			0	0	0			0	0	0	0	23045	206688	2.56	0.88	11.7	7	76
Miami	Florida			0	0	0			0	0	0	0	20671	413892	2.20	1.54	27.1	4	75
Sylvania	Ohio			0	0	0			0	0	0	0	32412	18892	4.74	2.04	5.2	42	74
Olathe	Kansas			0	0	0			0	0	0	0	30649	130045	2.77	1.18	6	46	76
Waco	Texas			0	0	0			0	0	0	0	17287	127018	2.13	0.68	20.1	9	75
Webb	Texas			0	0	0			0	0	0	0	22954	11542	3.17	0.52	25.4	24	76
Las Cruces	New Mexico			0	0	0			0	0	0	0	19923	101047	2.60	0.73	14.5	10	76
Anderson	South Carolina			0	0	0			0	0	0	0	19104	26708	1.96	1.24	21.1	1	73
East Dougherty	Georgia			0	0	0			0	0	0	0	17863	36163	2.85	0.61	31.4	2	73
Bloomington	Indiana			0	0	0			0	0	0	0	18932	81963	2.27	0.55	7.3	12	77
North Westside	Florida			0	0	0			0	0	0	0	17523	110020	1.80	2.09	28.8	10	77
Sioux City	Iowa			0	0	0			0	0	0	0	19470	82719	3.05	1.09	17.1	9	76
Sevierville	Tennessee			0	0	0			0	0	0	0	20192	15613	2.34	1.18	19.6	4	73
Mobile	Alabama			0	0	0			0	0	0	0	20656	194822	3.15	1.38	13.9	5	72
Richmond	Kentucky			0	0	0			0	0	0	0	15691	32112	2.48	0.56	20.6	4	75
Lewiston	Maine			0	0	0			0	0	0	0	22130	36460	2.96	1.12	13.5	16	76
Huntington	West Virginia			0	0	0			0	0	0	0	20049	49160	2.57	1.13	14.7	1	71
Riverside	California			0	0	0			0	0	0	0	21417	313673	4.05	0.62	22.5	15	78
Levittown	Pennsylvania			0	0	0			0	0	0	0	25534	52983	2.21	0.79	7.5	23	78
Springfield	Massachusetts			0	0	0			0	0	0	0	17146	153552	3.94	0.49	22.8	5	76
McAllen	Texas			0	0	0			0	0	0	0	21881	134719	2.55	1.25	24.9	13	78
Lee's Summit	Missouri			0	0	0			0	0	0	0	32538	92468	2.35	1.52	4.8	38	76
Durham	North Carolina			0	0	0			0	0	0	0	28686	239358	1.94	0.80	13.5	13	75

City/Town	State	Stadium Name	Year S	Stad	Life	Capacity	Team Name	Level	Level	Attendance	Win %	Champ	Per Cap	Population	Local Gove	Small Busir	Educational	Crime	Health
Nashua	New Hampshire			0	0	0			0	0	0	0	32411	86933	2.96	1.00	8.9	27	78
Clinton	Mississippi			0	0	0			0	0	0	0	26098	25752	2.31	1.56	6.6	32	72
Plano	Texas			0	0	0			0	0	0	0	41385	272068	1.86	1.77	8.2	35	80
Rolling Meadows	Illinois			0	0	0			0	0	0	0	30001	24241	3.06	1.96	13.6	67	76
Dutch Fork	South Carolina			0	0	0			0	0	0	0	25849	66450	2.18	1.36	10.7	20	75
Altoona	Pennsylvania			0	0	0			0	0	0	0	18391	46148	2.84	0.66	10.2	29	75
Berkley	Michigan			0	0	0			0	0	0	0	34572	15123	3.29	1.78	4	73	78
Conway	Arkansas			0	0	0			0	0	0	0	24213	62939	1.63	1.03	7	8	74
Bloomfield Town	Michigan			0	0	0			0	0	0	0	69484	43211	2.60	6.12	2.4	77	78
Shorewood	Illinois			0	0	0			0	0	0	0	30942	16211	2.04	0.52	7.9	72	77
Wilkes-Barre	Pennsylvania			0	0	0			0	0	0	0	17312	41243	3.00	0.57	15	15	74
Erie	Pennsylvania			0	0	0			0	0	0	0	18765	101047	2.33	0.53	12.7	16	76
Brownsville	Texas			0	0	0			0	0	0	0	14313	180097	2.60	0.68	36.8	10	77
Glen Burnie	Maryland			0	0	0			0	0	0	0	29404	67639	1.58	0.48	13.1	8	77