the Indiana State Fair

2008 ECONOMIC IMPACT AND 2009 PROJECTIONS

BALL STATE UNIVERSITY

The Indiana State Fair has entertained visitors since 1852, the year of the first steam engine in America and the election of Franklin Pierce as 14th president of the United States. Since then, the state fair has hosted five U.S. presidents, the Beatles, the world's largest hogs, and the king of rock and roll.

At the time of the first Indiana State Fair, there were roughly 1,062,000 residents in the Hoosier State. That is a little more than the number who currently visit the fair each year. Since 2000 more than 7.3 million people have visited the state fair. That is 1 million more people than the 2009 Indiana population. On peak attendance days, the Indiana State Fair hosts enough visitors to become the third largest city in Indiana.

The variety of activities that accompany the Indiana State Fair and the number of visitors from within Indiana, and across the nation and globe creates more than just excitement. The Indiana State Fair is also an engine of economic activity. The purchase of goods and services, ranging from food and entertainment to lodging and transportation services, accompanies these visits to the state fair. Understanding this dimension of the state fair is useful in placing this activity in context to other commercial activities in the state.

This report attempts to answer two questions related to the economic impact of the Indiana State Fair. First, we estimate the impact of the 2008 Indiana State Fair on the economy of Indianapolis. We do so by describing briefly the types of expenditures made by visitors and then estimating these impacts on the city's economy using tried and true economic models. Our second task is to predict the number of visitors who will attend the Indiana State Fair this year. In this case we construct an economic model that accounts for the overall level of economic activity in Indiana, the price of gasoline and the extension of the state fair from 12 to 17 days.

2008 Indiana State Fair

In 2008, attendance at the Indiana State Fair included 599,156 visitors and 260,465 Marion County residents. The visitors came from across the country, but primarily from Indiana. In order to estimate the impact of these visitors we use survey data collected by the Indiana State Fair Commission in 2008. We also use survey data from earlier years, including a report prepared by the Department of Business Economics and Public Policy at Indiana University.

This analysis is separated into two parts. The first is the economic impact of Indiana State Fair visitors on Indianapolis. We confined our study to the Indianapolis area for two reasons. First, by choosing a relatively small area from which to estimate the impact we employ smaller economic multipliers than if we were to choose a broader geographic area. Second, it is more problematic to estimate the rate of leakage from a larger study area. So, the choice of a smaller study area is made in the interest of providing a conservative estimate and ensuring higher quality data. In this case, the expenditures by residents of Indianapolis are not included since we assume that they would have spent the money on food and entertainment somewhere else within the city if

Table 1: Visitor Expenditures

Total number of attendees: 859,621 Number of visitors: 599,156
Average expenditure per person per stay: $61.40
Details for visitors only

Visitor Expenditures	Revenues ($)	Percent of Total Expenditures
Food, drinks, rides, games (inside fairground)	12,869,000	35%
Food, drinks (outside fairground)	4,780,000	13%
Souvenirs	6,250,000	17%
Lodging	6,872,000	21% (89% stay in Marion Co.)
Other shopping	1,838,000	5%
Entertainment/attractions	367,000	1%
Rental cars	367,000	1%
Gasoline (only retail cost)	132,000	6% (6% gasoline retail cost)
Other	367,000	1%
Total visitor expenditures	**33,846,000**	**100%**

Visitor expenditures of **$33.8 million** in 2008 created a total impact of **$50.2 million**, impacting **730 jobs**.

Table 2: Economic Impact of Visitor Expenditures

	Direct Output Impact ($)	Output Multiplier	Total Output Impact ($)	Direct Job Impact	Total Job Impact
Food, drinks, rides, games (inside fairground)	12,869,000	1.498	19,283,000	168	224
Food, drinks (outside fairground)	4,780,000	1.464	6,999,000	94	112
Souvenirs	6,250,000	1.474	9,216,000	190	216
Lodging	6,872,000	1.461	10,037,000	94	120
Other shopping	1,838,000	1.535	2,821,000	33	42
Entertainment/attractions	367,000	1.710	628,000	5	7
Rental cars	367,000	1.533	563,000	2	4
Gasoline (retail cost only)	132,000	1.411	186,000	2	2
Other	367,000	1.285	472,000	2	3
Total visitor expenditures	**33,846,000**		**50,210,000**	**590**	**730**

they had not attended the fair. This is also in keeping with our effort to provide conservative estimates of the impact. Only the gate fees paid by Indianapolis visitors are considered in the analysis. The second part of the analysis estimates the economic impact of the Indiana state fair operation on Indianapolis. This part of the analysis takes into account the fair operating expenses, such as payroll, supplies and other services. Combining the economic impact results from both parts give us the total economic impact of the Indiana State Fair on the city of Indianapolis.

Table 1 shows that 69.7 percent of the 859,621 fair attendees in 2008 were out-of-town visitors (non Indianapolis residents), and these visitors spent $61.40 per person per stay when they came to Indianapolis for the fair. They spent 35 percent of their expenditures in the fairground, excluding the gate fee, and spent the rest of their expenditures outside the fairground for food, drinks, souvenirs, lodging, shopping, attractions, car rental and gasoline. All of these expenditures outside the fairground are assumed to be spent in Indianapolis, except for hotels and gasoline. Thus, the expenditures for these two categories need some adjustment before further analysis. According to the survey by Indiana University, of those visitors who spent the night while visiting the fair, 89 percent stayed in hotels in Indianapolis while the rest stayed outside the county. The visitor expenditure on hotels is thus reduced by 11 percent to reflect income to Indianapolis only. The income to Indianapolis from gasoline expenditure comes from the retail cost of gasoline only, which is around 6 percent of the total gasoline cost (according to U.S. Department of Energy).

We combine these data on visitor expenditures and estimate total impacts using an input-output model of the region. The results are shown in Table 2. Results from Table 2 show that the visitor expenditures of $33.8 million in 2008 created a total impact of $50.2 million on the Indianapolis economy, impacting 730 jobs.

Table 3: Operating Expenses

Fair Operating Expenses	Unadjusted ($)	Adjusted to Exclude Leakages ($)	Notes
Payroll	6,068,000	2,348,000	54.5% of payroll spent on local commodities; 71% of fair employees live in Indianapolis
Services other than personal	3,107,000	1,553,000	50% spent for services in Indianapolis
Services by contract	6,988,000	3,494,000	50% spent for services in Indianapolis
Materials, parts and supplies	3,003,000	450,000	15% spent for retailers in Indianapolis
Awards	639,000	127,000	20% of winnings spent in Indianapolis
Travel	54,000	3,000	6% gasoline retail cost
Total operating expenses	**19,861,000**	**7,977,000**	

Table 4: Economic Impact of Operating Expenses

	Direct Output Impact ($)	Output Multiplier	Total Output Impact ($)	Direct Job Impact	Total Job Impact
Payroll (Marion County residents only)	2,348,000	1.285	3,017,000	13	19
Services other than personal	1,553,000	1.470	2,284,000	13	20
Services by contract	3,494,000	1.545	5,399,000	63	81
Materials, parts and supplies	450,000	1.535	691,000	8	10
Awards	127,000	1.285	164,000	1	1
Travel	3,000	1.411	4,000	0	0
Total operating expenses	**7,977,000**		**11,562,000**	**99**	**131**

Economic Impact of Indiana State Fair Operations on Indianapolis, 2008

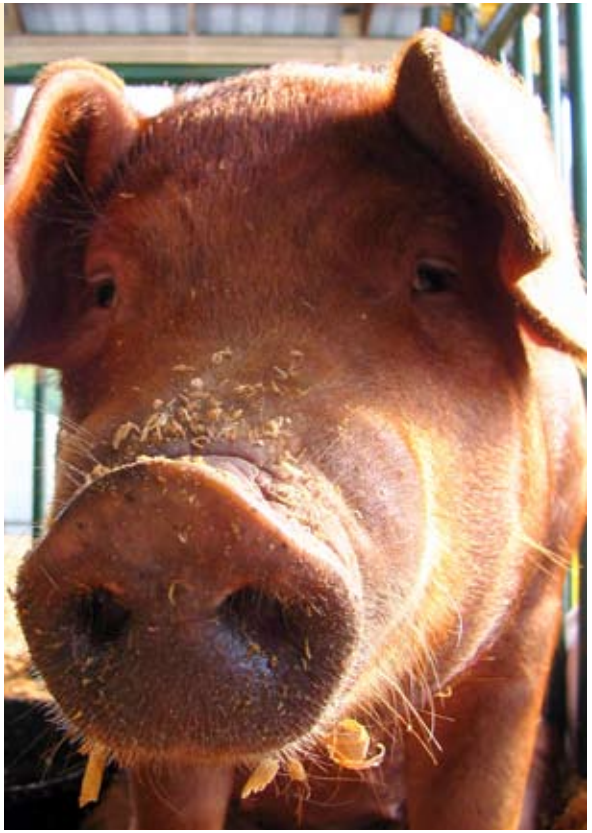
The data used to estimate the economic impact of state fair operations are from the 2008 income statement in the annual report of the Indiana State Fair. Because the revenue side (gate fees, sponsorships, parking fees, concession fees, etc.) must balance with the expense side, the fair operation's expense side is selected for the analysis in this case. Table 3 presents the fair operating expenses in details. However, several adjustments must be made before further analysis in order to exclude the leakages, i.e. expenses not spent in Indianapolis which do not create ripple effects in Indianapolis.

First, only 54.5 percent of payroll is counted as non-leakage as data from Indianapolis' Social Accounting Matrix. The matrix shows that 54.5 percent of Indianapolis's household expenditures are on commodities produced in Indianapolis. The number is further reduced by another 29 percent to reflect the 71 percent of fair employees who live and spend most of their income in Indianapolis. This 71 percentage is derived from data of Indianapolis's commuting patterns in 2007. Second, it is assumed that only 50 percent of services requested by the fair operation are provided by firms based in Indianapolis. Third, only the retail cost of materials and supplies for the fair (around 15 percent of the total material cost) is considered income for Indianapolis. The material and supplies themselves are assumed to be produced elsewhere. Fourth, only 20 percent of awards are assumed to be given to Indianapolis residents. Last, the expense on travel is adjusted to the retail cost of gasoline only.

In sum, the fair operating expenses qualified for the economic impact analysis is reduced from $19.86 million to $7.98 million.

By taking the fair operating expenses data from Table 3 and multiplying by the appropriate multipliers, the resulting economic impact of Indiana State Fair operations are calculated and shown in Table 4. Results from Table 4 show that the fair operating expenses of $7.98 million in 2008 create a ripple effect to the Indianapolis economy valued at $11.6 million and impacting 131 jobs.

The 2008 Indiana State Fair had a total impact of **$61.7 million** on the Indianapolis economy, impacting **861 jobs**.



By combining visitor expenditures and fair operating expenses the total economic impact of the Indiana State Fair on Indianapolis is $61,772,000. This also impacts 861 jobs in the region.

2009 State Fair Attendance Forecast

Attendance at the Indiana State Fair has been strong in recent years. Factors such as weather, the overall economy and the price of gasoline affect visitation to the state fair, as they do other tourism and fair related venues. Studies of these types of activities are common, but few specifically address state fairs. A 2008 study constructed several forecast models that demonstrated a marked effect of extremely high temperatures and rain on Indiana State Fair attendance through the last decade. Indeed, these factors alone explain a high degree of variation in attendance observed over the recent years.[1]

These studies are useful in predicting day-to-day attendance, which has logistical and operational importance. However, a weather prediction several weeks in advance does not aid in predicting changes to visitation. For our purposes, economic factors and the history of attendance loom large.

The 2008 Indiana State Fair happened at a time of growing economic hardship and very high gasoline prices. In August 2008, a gallon of unleaded regular gasoline topped $3.75 nationally. As the 2009 Indiana State Fair looms, the unemployment rate has risen by four full percentage points in Indiana and a gallon of regular gasoline sells for under $2.75 throughout the state. Most important in our effort to predict the attendance at the 2009 Indiana State Fair is the addition of five days, including a third weekend to the fair schedule. Our model needs to account for these changes.

Using state fair attendance data from 1988 through 2008 we construct a model that uses trend characteristics, the price of gasoline and the state of the Indiana economy to estimate how these factors affect fair attendance.[2] Data were obtained from the Indiana State Fair Commission, the U.S. Energy Information Administration (gasoline prices) and the U.S. Federal Reserve Bank of St. Louis's index of state economic activity.

The model accounts for the incremental contribution of gasoline prices (in inflation adjusted values) and overall economic activity on each year's attendance. We find, not surprisingly, that higher gasoline prices reduce attendance at the Indiana State Fair. Our analysis suggests that a 10 percent increase in real gasoline prices would reduce fair attendance by 1.4 percent. This is a symmetric effect so that a decrease in gasoline prices – as we have seen since August of 2008 – would boost attendance. This finding also enjoyed strong statistical significance. We also found the state of the economy influences fair attendance. However, as with many other studies of state and local tourism we find that lower levels of economic activity boost fair attendance, though this finding did not experience high levels of statistical significance. Both findings bode well for 2009 Indiana State Fair attendance.

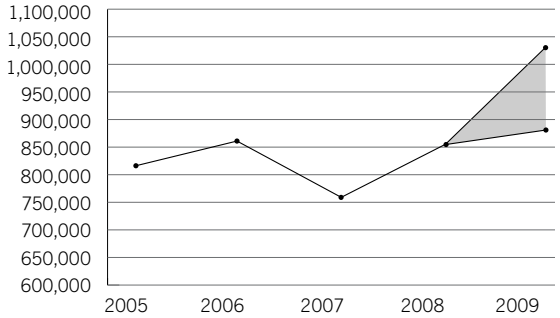
1. See Price, Jackson, "Forecasting Daily Fair Attendance with Multivariate Regressions: Accounting for Weather and Economic Factors" working paper, 2009.

2. The model is formally:

$$A_t = \alpha + \theta_1 Gas_t + \theta_2 EconIndex_t + T + \gamma(A_t - A_{t-1}) + e_t$$

where attendance A, is a function of gasoline prices, the economic index, a linear trend, first order moving term, a white noise error term estimated with White's [1980] heteroscedasticity invariant, variance covariance matrix. The functional form is log-log (excluding the index, trend and MA(1) term. The dependent variable is non-stationary in levels and so was estimated in first differences. The F statistic is highly significant and the Durbin-Watson within acceptable range. The goodness of it was a 0.56, and the Gas coefficient was significant to the 10 percent level. The Econindex coefficient did not enjoy typical statistical significance under this specification, but did so in other models which we employed for forecasting.

Figure 1: The 2009 Indiana State Fair Forecast



Data Sources: Indiana State Fair Commission; Indiana University Department of Business Economics and Public Policy; Indianapolis Social Accounting Matrix; U.S. Energy Information Administration; U.S. Federal Reserve Bank of St. Louis

In order to forecast 2009 attendance, we must also introduce the increased number of operational days of the state fair. We did this by replacing the intercept with a constant value representing the number of days the state fair operated during our sample period of 1988 through 2008. We then increased this value for 2009. We also held constant both gasoline prices and inflation for June 2009, the most recent data available.

This resulted in two separate forecasts. One predicts the level of attendance we would anticipate at the 2009 Indiana State Fair if it ran for 12 days. The second forecasts the attendance we expect this year with an extended schedule. Figure 1 illustrates this forecast.

We predict that total attendance will increase by 203,000 in 2009 over the 2008 total of 859,000. Thus, we predict total attendance for 2009 will top 1.06 million visitors. Average daily attendance in 2008 was roughly 71,600. We expect this to decline modestly to 62,500 per day on average during the 2009 fair. During the additional days the fair will operate, we expect daily attendance to average 40,600. This model does not include weather fluctuations, which can generate variability in fair visitation. However, our forecast is consistent with the expectation that the extra days at the fair will both attract additional attendees and shift some attendance from the traditional first 12 days.

Summary

This study provides an estimate of the total economic impact of the Indiana State Fair in 2008, along with a prediction of the level of attendance in 2009 given changes to the economy, gasoline prices and the duration of the fair.

We estimate that the 2008 Indiana State Fair generated $61.7 million in total economic activity within the city of Indianapolis and impacted 861 jobs. For 2009 we expect attendance at the state fair to swell from the roughly 859,000 who visited in 2008 to 1.06 million attendees in 2009.

This year, the Indiana State Fair (already the largest spectator activity in the Midwest) expects its biggest year in fair history. Interestingly, our model predicts attendance at the 2009 Indiana State Fair to be almost exactly the size of the population of the entire State of Indiana in 1852, the first year of the fair.

This year (2009), the Indiana State Fair expects its biggest year in fair history.

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