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## A Measure of the Economic Impact of Keeneland Racing and Sales on Lexington-Fayette County

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**A Measure of the Economic Impact of Keeneland Racing and Sales  
on Lexington-Fayette County**

**Prepared by the Center for Business and Economic Research  
Gatton College of Business and Economics  
University of Kentucky**

**April 20, 2015**

**Center for Business and Economic Research  
Gatton College of Business and Economics  
University of Kentucky**

*Dr. Christopher R. Bollinger, Director*

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## Executive Summary

Keeneland is an important Lexington Institution. This report shows that Keeneland draws individuals into Fayette County who spend money not only at Keeneland but in the city itself. We measure the economic impact of this spending on the local economy. For our initial study, we considered spending by patrons at the 2014 Fall Meet, the September Yearling Sale and the November Breeding Stock Sale. Based upon these findings, we were also able to assess the impact of the Spring Race Meeting, January Horses of All Ages Sale and the April Two-Year-Olds in Training Sale.

### Racing

- Over half of the 251,000 attendees at the Fall Meet are in Fayette County for the primary reason of attending the Fall Meet.
- Over two-thirds of the 192,000 attendees at the Fall Meet who live outside of Fayette County are in the County for the primary reason of attending the Fall Meet.
- Those in Lexington for the primary reason of attending the Fall Meet spend over \$12 million on retail purchases in Lexington, over \$15 million on lodging in Lexington, over \$19 million on food and beverages in Lexington, and over \$9 million on gasoline in Lexington.
- Direct spending at the Fall Meet accounts for over \$900 thousand in local taxes through the hotel tax, and over \$3.9 million in state taxes.
- The direct economic impact of Keeneland's Fall Meet is over \$59 million; the full economic impact is over \$99 million.
- Based on our study of the Fall Meet, we project that the Spring Meet represents an additional \$64 million in direct expenditures and \$102 million in total economic impact.
- The racing activities at Keeneland likely generate \$123 million in direct spending and \$200 million in total economic impact.

### Sales

- Commissions derived from sales involving at least one participant outside the metropolitan area are over \$20 million.
- Sales to buyers outside the state from sellers in Fayette County are over \$167 million.
- Participants in the Keeneland September Yearling Sale and the November Breeding Stock Sale spent over \$9 million on food and beverages in Lexington and over \$6 million on Hotel and accommodation.
- Hotel tax revenue to Fayette County and the state from the Keeneland September and November sales are both over \$400,000.
- Total sales taxes on food and beverage during the Keeneland September and November sales are over \$500,000.
- The direct spending at the Keeneland September and November sales results in over \$206 million dollars to Fayette County, the full economic impact is over \$354 million.
- Based on our detailed study of the September and November sales, we project that the two spring sales (January and April) generate over \$22 million in direct spending and \$38 million in total economic impact.
- All four sales combined generate over \$228 million in direct spending and over \$390 million in total economic impact.

### Overview

- Keeneland brings over \$266 million into Fayette County with these three events.
- The total economic impact on Fayette County for these three events is over \$454 million.
- We project that the total economic impact on Lexington for Racing and Sales is over \$590 million.

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## **I. Introduction**

Keeneland is one of Lexington's most notable institutions. Keeneland has been in operation since 1936, when the first meet was held October 15-24<sup>th</sup> attracting 25,377 paid attendees. The Fall Meet in 2014 attracted a total of 251,574 attendees. While we have no information about those first 25,000 in 1936, our data from the 2014 Fall Meet show that people travel to Lexington for the meet from at least 41 states other than Kentucky and at least 2% of visitors are from other countries. For those traveling from outside of Kentucky, 66% visit Lexington for the primary reason of attending the meet. For Kentuckians, 59% of attendance at the Fall Meet is from outside Fayette County, and 82% of those coming into Fayette from outside counties report that they are in the county primarily for the Keeneland Fall Meet.

Keeneland is far more than a horse racing venue. A major component of Keeneland's operations are the regular Thoroughbred sales events they hold. In April of 1938 Keeneland held its first auction of Thoroughbreds selling a total of 31 horses at a total sales volume of \$24,885. By comparison the September 14<sup>th</sup> Yearling Auction had over 4,000 horses registered and a total sales volume of over \$279 million. As with the racing component, the Keeneland Thoroughbred auctions draw individuals from all over the world. Approximately 20% of the groups participating in the September Yearling Sale and November Breeding Stock Sale are from outside the U.S. while another 45% are from outside the state.

While Keeneland provides a number of other important services and events, including off track betting and private parties such as weddings and corporate events, a retail store and hundreds of tours annually, this report focuses on the economic impact of the October Race Meet, the September Yearling Sale and November Breeding Stock Sale. We choose these for three important reasons. First, and primarily, because they represent a large portion of Keeneland's operating revenues.

Second, because these events are highly publicized and well known. Finally, and most importantly, because the economic impact of these events is the largest due to their draw from outside Fayette County and Kentucky.

The Economic impact of any particular institution is a difficult concept and notoriously difficult to quantify. However, Keeneland presents a unique case. First, and foremost, Keeneland has a strong export aspect: revenues are generated from patrons who earn their income outside of Fayette County and the metropolitan area. Unlike many enterprises, Keeneland is quite unique: there are only 63 “major” Thoroughbred race tracks operating in the United State (see [www. Bloodhorse.com/horse-racing/racetracks](http://www.Bloodhorse.com/horse-racing/racetracks)). Of these tracks, only about twelve have the scope and name recognition of Keeneland. One of the largest, Saratoga, recently completed an impact study. Saratoga has a much larger operation (some 945,833 track attendees). Were Keeneland to shut down, it is not clear that another race track would quickly replace it. This is in sharp contrast to venues such as individual retail stores or even many medium or larger manufacturing companies. Additionally, individuals who attend the Fall Meet or Sales events spend additional dollars at area hotels, eating establishments and even retail stores. These important industries are positively impacted by the existence of Keeneland. The primary question we answer in this report is how much additional revenue Keeneland brings into the region.

Section two of this report outlines our methodology and the two surveys, section three examines the economic impact of the Keeneland Fall Meet, while section four considers the economic impact of Keeneland’s September Yearling Sale and November Breeding Stock Sale. Section five presents final conclusions.

## **II. Methodology**

In order to estimate the economic impact of Keeneland, we obtained data on spending both at Keeneland and in Lexington for those individuals who are traveling from outside the region. We discuss the details below.

### **A. Fall Meet Customer Survey**

Our primary data source was a survey fielded during the Fall Meet. This type of survey is called an “intercept survey” as the goal is to intercept individuals as they participate in the event. Intercept surveys must be carefully designed to elicit information that helps sort the origin of the spending. We discuss this in more detail below, but it is important to identify the population who has been induced to spend additional money in Fayette County *because of the Fall Meet*. The survey focused upon location and reasons for being in Fayette County. The survey also asked anticipated spending in two main categories: at the track itself and in Fayette County during the trip. Three categories of spending at Keeneland were elicited: gambling, food and beverage, retail and souvenirs. Four forms of spending in Fayette County were elicited: lodging, gas, food and beverage, retail and souvenirs.

Center staff attended all 17 days of the 2014 Keeneland Fall Meet intercepting respondents on each day. It was important to cover a variety of days, as attendance types does vary across days of the week. Weekends see higher out of town attendance. The surveyors were carefully positioned throughout a variety of areas in the Keeneland facility to ensure coverage of a broad base.

Overall we obtained 2,584 responses to our survey over the 17 day period of the 2014 Fall Meet. Table 1 presents the number of usable surveys for each day and compares it to attendance as recorded by Keeneland. In each day our minimum requirement of 30 surveys was met, providing reasonable statistical accuracy on a daily basis. While the majority of the analysis will be done on the

entire sample, we are confident that this sample has the power to identify important daily differences if needed.

<b>Table 1: Attendance Completed Surveys</b>			
<b>Date</b>	<b>Attendance</b>	<b>Surveys</b>	<b>Average Weight</b>
10/3/2014	13,789	50	276
10/4/2014	25,070	97	258
10/5/2014	12,534	84	149
10/8/2014	9,851	52	189
10/9/2014	9,598	81	118
10/10/2014	14,895	200	74
10/11/2014	21,295	76	280
10/12/2014	13,238	145	91
10/15/2014	7,901	123	64
10/16/2014	8,529	84	102
10/17/2014	18,184	163	112
10/18/2014	24,257	130	187
10/19/2014	16,180	578	28
10/22/2014	8,754	141	62
10/23/2014	9,715	91	107
10/24/2014	17,826	364	49
10/25/2014	19,958	96	208

In order to use the data to reflect totals for Keeneland, we must weight each survey response to represent the individuals who were not surveyed. Weighting approaches of this nature have a solid basis in statistical analysis (see for example, Cochran, W.G. or Little and Rubin, for textbook treatments) and a long history. In constructing the weights, we use known population counts. For example, a very simple weighting approach would be to take the total number of attendees at Keeneland for the Fall Meet (251,754) and divide by our total sample size (2,584): each respondent then represents 97.43 attendees. However, this fails to take into account differences on a daily basis of the type of attendee (Saturdays have a higher concentration of out of town visitors) or differences in daily sampling numbers.



In addition to simple gate counts, we also have information on the amount of betting done by attendees and sample respondents. We found that a simple gate count led to a very high estimate of total betting as compared to actual betting figures. Concern arises that individuals who were “highly engaged” at Keeneland (with high betting), were more likely to respond positively to requests for interviews. This is most likely because filling out a survey resulted in a \$2 bet voucher for the respondent. Indeed, our enumerators provided anecdotal evidence that refusals were often accompanied by statements like, “I’m not really betting.” In order to offset this, we have chosen a weighting approach that matches both daily attendance figures and daily on-track betting figures. The impact of this choice is that the estimates of total economic impact may be too low.

To measure the economic impact of Keeneland, we desire to isolate spending in Fayette County which is induced by the existence of Keeneland’s Fall Meet. Fundamentally, the question is: if Keeneland were to stop operating today, how would spending in Fayette county change? The Keeneland Fall Meet is a single event (or firm) in a broad industry that can be considered “entertainment” or perhaps more narrowly, “sports entertainment.” Economic research has generally found that individuals – depending on interests and preferences – tend to spend a relatively fixed portion of their income on entertainment (either narrowly or broadly defined). In the absence of Keeneland it is reasonable to assume that people would still spend that money, they would simply substitute to other events and products (U.K. Basketball, Lexington Legends). Thus it is a gross overstatement to consider all spending done in association with Keeneland. Our study uses information from the survey to isolate spending that is uniquely brought into Fayette County by Keeneland’s Fall Meet.

Residents of Fayette County spend money at Keeneland, but we do not want to include this spending into Keeneland's impact. The presumption is that residents of Fayette County would spend those "entertainment" dollars on other forms of entertainment within the county. Examples might include attending additional UK basketball games, attending additional Legends Baseball games, or attending additional UK football games. The presumption is that Keeneland does not induce additional spending on entertainment among Fayette County residents, it only shifts that spending to this particular good. From an overall economic impact measurement, the spending by Fayette County residents at Keeneland is perfectly offset by a decrease in spending elsewhere.

An argument can be made that some of the entertainment spending by Fayette County residents would be done outside the county, such as attending a Bengals game in Cincinnati. Hence, our methodology may lead to something of an understatement of the economic impact. However, we argue that this is offset by individuals from other counties, particularly the surrounding counties, who attend the Keeneland Fall Meet. Residents of counties such as Scott or Woodford, would likely spend some of their entertainment dollars in Lexington, regardless of the existence of Keeneland. We are including the spending of these residents in our impact study. As with Lexington residents, the spending of those near Lexington, partially represents a simple shift from other entertainment spending that would occur in Fayette County regardless. However, it is difficult to isolate these spillovers from induced spending. By including spending from surrounding counties, while excluding spending from Fayette County, we argue that the two biases induced should be roughly offsetting.

In order to isolate this kind of spending, we also asked individuals who traveled from other locations if they came to Lexington primarily to attend the Fall Meet. Table 2 presents summary statistics of this measure. Overall the most prominent reason for being in Fayette County is to attend Keeneland. As we discuss below, the vast majority of attendees from other locations answer this as

yes, but not all. In our measures we focus on spending from those individuals who claim that they are in Fayette County primarily to attend the Fall Meet. Of the 251,574 attendees, 140,224 (or 56%) are here primarily for Keeneland. The second most common reason, however, was “visiting friends or relatives.” While it is certainly possible that the trip was planned without regard to the Fall Meet, and that this represents a shift of entertainment dollars, we argue that a far more likely scenario is that individuals are invited by friends or family to visit *at this particular time*, for the purpose of attending the Fall Meet. Thus, very similarly to individuals who travel here for a vacation centered on the Fall Meet, the spending done is induced by the Fall Meet, not incidental to the travel. Hence in our work below, we include these individuals’ spending in the measures of induced spending.

In coding responses to the question regarding primary reason for visiting Fayette County, we created a catch-all category “other.” In carefully reviewing the actual responses coded this way, we determined that these individuals were likely visiting primarily for Keeneland. Responses such as “to see the horses” or “because it’s fun” are vague but appear to be cases where individuals are indicating that Keeneland was a significant part of the draw to the region. In our final analysis we include this category. We recognize that some may actually be in the region for other reasons, but it should also be recognized that many we choose to exclude (business travelers for example) may actually represent direct spending (a business traveler who stays an extra day to enjoy the races). In order to present a fair picture however, we also provide estimates using only those who report Keeneland as their primary reason for being in Fayette County, or those who report Keeneland or visiting family and friends.

It should be noted that by excluding visitors who report being here for business or other reasons, we are taking a conservative stance. While the inclusion of those who are visiting family and friends may lead to some overestimation of the spending, it is also likely that business visitors, for example, would not normally spend as much, were it not for Keeneland. A similar argument can be made for

both visits due to U.K. events, visits focused on the beverage industry, and perhaps especially visits that are categorized as “other.” Our methodological approach in general is conservative. While our primary goal is to obtain as accurate an estimate as possibly, our estimates of the economic impact are most likely underestimates.

**Table 2: Purpose for Visiting Fayette County**

<b>Group</b>	<b>Keeneland</b>	<b>UK Event</b>	<b>Business</b>	<b>Visiting Family or Friends</b>	<b>Distillery or beer</b>	<b>Other</b>
<b>All Attendees</b>	140,224	11,049	9,912	31,270	3,948	8,244
<b>Lexington Metro Area</b>	16,481	0	2,145	1,422	331	2,371
<b>Kentucky</b>	70,545	3,570	7,066	10,094	1,345	3,995
<b>Kentucky outside Fayette</b>	70,545	3,570	7,066	10,094	1,345	3,995
<b>Kentucky outside Metro Area</b>	54,065	3,570	4,920	8,671	1,014	1,624
<b>Outside Fayette</b>	140,224	11,049	9,912	31,270	3,948	8,244
<b>Outside Metro Area</b>	123,743	11,049	7,766	29,848	3,617	5,873
<b>Outside Kentucky</b>	69,678	7,479	2,846	21,177	2,603	4,248
<b>Outside U.S.</b>	3,827	0	0	2,341	0	191

Only for those not from Fayette County.

## B. Sales Survey and Sales Data

In estimating the economic impact of the Keeneland sales, our focus again is to measure spending as a result of Keeneland’s existence in Fayette County. That is, what would happen were Keeneland to shut down its auction operations? Unlike the Fall Meet, participants in the Keeneland sales are less likely to find other substitutes for this activity within Fayette County. Fasig-Tipton is a

local competitor and one might speculate that they would expand auction operations in Fayette County were Keeneland to close, they are of course an international firm, and it is not clear whether they would then shift to other locations. It is also unclear whether firms such as Ocala Breeder's Sales (Central Florida) and Barrett's Sales (California) would expand were Keeneland to cease its horse auction operation. Hence, we feel confident that it is reasonable to count any spending done in conjunction with the sales operations. This would include spending done by local operations on activities such as dinners, as well as those who travel into the region to participate in the sale. Local horse breeders would likely travel to these other venues where they would spend similar amounts.

In order to measure the spending we use two sources. The first are the sales data themselves. The primary challenge here is to measure income to Fayette County that is derived by the existence of Keeneland. There was, historically, a well-developed horse (and specifically thoroughbred) industry in Central Kentucky prior to the existence of Keeneland. Indeed, Keeneland is largely a response to that industry – at least initially – rather than a cause of the industry. Although it is quite likely that Keeneland has also contributed to the growth of that industry. Economic theory suggests that agents such as Keeneland have an impact on the market they facilitate, leading to both higher sales than would otherwise occur and higher prices. We argue that Keeneland's auctions have provided Lexington horse breeders and owners better access to national and international markets. This improved access is an important part of the economic impact of Keeneland.

The improved access will likely have two major impacts on sellers: higher prices and more sales. The data we have access to is insufficient to answer this question, and indeed, directly measuring this is difficult. However, as with the Fall Meet, we focus here on revenues generated by Keeneland from outside Fayette County. Sales commissions, which likely capture part of the higher price generated by the access Keeneland provides, are likely the most defensible dollar measure. We

focus on commissions where at least one of the parties is located outside the Lexington Metropolitan Area. This is a conservative estimate, as it is possible that the higher prices generated also occur for trades within the region.

We also measure the total sales of horses where the seller of the horse is located in Fayette County, and the purchaser is outside of the Metropolitan Area. We argue that this likely captures the margin where the increased sales are most likely to occur: it is Keeneland's ability to bring in buyers from outside of the Metropolitan Area that induces the higher sales (and hence higher production) of horses. We consider two measures, which are surprisingly similar: sales to parties outside the Lexington Metropolitan Area, and sales to parties outside Kentucky.

The second aspect of our measure of the impact is similar to the survey fielded for the Fall Meet. As we note above, the sales events bring individuals in from around the world (see table 9). These individuals spend money on food, beverages, and lodging in Lexington. This is spending in Lexington that would not occur were Keeneland sales events not occurring. Unlike the Fall Meet, however, we include additional spending by local buyers and sellers. The sales events result in this spending in attempts to meet with potential buyers or sellers. Further, in the absence of Keeneland, these types of business entertainment would likely occur at other locations, or would simply not occur at all.

The survey was small, netting only around 27 responses. However these responses represented a broad spectrum of participants ranging from small agents (with only a few individuals) and large brokerages (bringing over 100 staff). They also broadly represent the geographic diversity found in the sales data including local, regional, national and international responses.

### C. Implan Impact Multipliers.

The Implan model uses detailed input-output relationships at a county level to arrive at an impact multiplier. The concept of an impact multiplier is that an additional dollar spent in a region leads to further spending. Hence, the economic impact of additional revenue is higher than simply the revenue itself. It should be noted that while the concept of an impact multiplier is not in question, economists disagree about how large this multiplier should be. At smaller geographic levels, the multiplier is necessarily smaller than the state or the country because some of the spending of that dollar occurs outside the region (for example, money spent on vacations, money spent on products ordered on-line, etc). Also, different kinds of spending have different impacts. For example, spending on where the primary costs are local (health and personal care, housing and most services) stays within the region, while spending on things such as automobiles and even food often imports goods to the region.

The Implan model takes these factors into account, and uses measures of economic inter-connectivity to arrive at an estimate of the overall economic impact of Keeneland.

### **III. Impact of the Fall Meet**

Keeneland's Fall Thoroughbred racing attracts a quarter of a million attendees. The excitement and enjoyment of horse racing leads to spending that spurs the local economy. In this section we consider survey data which captures spending both at the Keeneland Venue and within Lexington itself. It is important to isolate spending that occurs as a result of the meet, and so we focus heavily on those who travel to Lexington for the purpose of attending the Keeneland Fall Meet.

#### A. Geographic Origins

Our survey provides a unique glimpse into customers who attended the 2014 Keeneland Fall Meet and their motivation for doing so. Table 3 provides estimates of the total number of individuals

who are attended the event broken down by geographic location and by primary purpose for being in Fayette County. We estimate that 76% of attendees are from outside of Fayette County and 69% of attendees are from outside the Lexington Metropolitan area. As can be seen in the table, as the distance traveled increases, the percentage of people who come to Lexington primarily for the purpose of the Fall Meet rises. Of those attendees who are from outside Fayette County, 73% cite Keeneland as their primary reason for being in the county. For those traveling from outside the metropolitan area, 71% give the primary reason as attending Keeneland.

**Table 3: Geographic Origins of Attendees**

Group	Attendance	Total Numbers			Percentage of Attendance		
		Primary Purpose Keeneland or Visit or Other	Primary Purpose Keeneland or Visit	Primary Purpose Keeneland	Primary Purpose Keeneland or Visit or Other	Primary Purpose Keeneland or Visit	Primary purpose Keeneland
<b>All Attendees</b>	251,574	179,738	171,494	140,224	71%	68%	56%
<b>Fayette County</b>	59,572	0	0	0	0%	0%	0%
<b>Lexington Metro Area</b>	78,202	20,274	17,903	16,481	26%	23%	21%
<b>Kentucky</b>	145,935	84,634	80,639	70,545	58%	55%	48%
<b>Kentucky outside Fayette</b>	86,363	84,634	80,639	70,545	98%	93%	82%
<b>Kentucky outside Metro Area</b>	67,734	64,360	62,736	54,065	95%	93%	80%
<b>Outside Fayette</b>	192,002	179,738	171,494	140,224	94%	89%	73%
<b>Outside Metro Area</b>	173,372	159,464	153,591	123,743	92%	89%	71%
<b>Outside Kentucky</b>	105,639	95,103	90,855	69,678	90%	86%	66%
<b>Outside U.S.</b>	6,547	6,359	6,168	3,827	97%	94%	58%



Over 49% of the 251,574 attendees (approximately 123,743 individuals) come into Fayette County from outside the Metropolitan area for the primary purpose of attending Keeneland. Over 140,224 (55% of all attendance) are individuals from outside of Fayette County who travel to Lexington primarily to attend the Fall Meet.

Table 4 lists the most common places people travel from to attend the Fall Meet. Perhaps unsurprisingly, the five most common counties in Kentucky represented are Scott, Kenton, Madison, Woodford, and Jefferson. The five most common states are Ohio, Tennessee, Georgia, Indiana and South Carolina. Roughly 2% of attendees derive from outside the United States.

<b>Table 4: Counties and States with Most Attendees</b>	
<b>County</b>	<b>Number of Attendees</b>
Scott	10,537
Kenton	8,057
Madison	6,920
Woodford	6,130
Jefferson	5,702
<b>State</b>	
Ohio	34,690
Tennessee	8,285
Georgia	5,964
Indiana	5,921
South Carolina	5,349

The survey data reveal two important findings. First, and foremost, people attending the Fall Meet at Keeneland are traveling here from a variety of locations for the primary purpose of attending the Fall Meet. Thus their spending can be counted as an economic impact. Second, and important in considering the overall value of Keeneland, the reach of attendees is quite far. Individuals spend a great deal of time and money to attend the Fall Meet. From an economic standpoint this suggests the

Fall Meet at Keeneland has high consumer surplus. While not the focus of this study, we discuss this in the conclusions.

**B. Spending at Keeneland**

The survey asked individuals how much money they anticipated spending at the Keeneland race track in three major categories: gambling, food and beverage, and souvenirs/retail. These totals are presented in Table 5, broken down by three categories: total by all attendees, totals for attendees outside Fayette County who report their primary reason for being in Lexington as Keeneland, and totals for attendees who report being in Lexington as either for Keeneland or to visit relatives.

<b>Table 5: Expenditures at Keeneland</b>			
	<b>Gambling</b>	<b>Food/Beverage</b>	<b>Retail/Souvenirs</b>
<b>All Attendees</b>	\$ 17,625,834	\$6,952,667	\$7,621,595
<b>Primary Reason is Keeneland</b>	\$13,491,701	\$4,839,074	\$5,238,590
<b>Primary Reason is Keeneland or Visit</b>	\$14,513,682	\$5,467,937	\$6,075,112
<b>Primary Reason is Keeneland or Visit or Other</b>	\$14,646,981	\$5,588,869	\$6,164,865

Wagering is an interesting aspect because of the pari-mutuel payout. Since much of the money is returned to the participants, it is not appropriate to include the full amount in any economic impact calculations. We use 17% of the on-track wagering above as the economic impact. These are revenues which derive solely from the activity and from individuals who would not otherwise spend this money in Fayette County.

Both food and beverage as well as the retail amount are expenditures that occur in Fayette County because of the Fall Meet event. Our most conservative estimate is that spending at Keeneland is \$4,839,074 for food and beverages and \$5,238,590 for retail and souvenirs. If we include those who

claim to be in Fayette County for visiting and those we classified as other, the amount rises to \$5,588,869 for food and \$6,164,865 for souvenirs.

C. Spending in Fayette County

One of the most important aspects of having fielded the survey is that we obtained estimates of how much money attendees are spending in Fayette County on four major categories: lodging, food and beverage, retail and souvenirs, and gasoline. This important impact of Keeneland is the spill over into other industries in the city. While these industries would certainly exist without Keeneland, the additional business generated is clearly important to the scope of these industries.

Table 6 presents each of these totals by our major attendee categories: all attendees, those outside Fayette County attending primarily for the Fall Meet, and those attending either for the Fall Meet or to visit friends and relatives. As one might expect, we find the results indicate quite large spending. Individuals attending Keeneland are likely here as essentially a vacation, and are spending quite accordingly.

<b>Table 6: Expenditures in Lexington</b>				
	<b>Lodging</b>	<b>Food</b>	<b>Retail</b>	<b>Gas</b>
<b>Total Attendees</b>	\$20,682,305	\$18,731,647	\$8,584,098	\$12,217,433
<b>Primary Reason is Keeneland</b>	\$13,132,335	\$10,172,997	\$4,209,618	\$7,729,076
<b>Primary Reason is Keeneland or Visit</b>	\$14,643,985	\$13,905,543	\$5,950,561	\$8,881,927
<b>Primary Reason is Keeneland or Visit or Other</b>	\$15,558,690	\$14,404,365	\$6,321,816	\$9,298,004

For total attendees, we find that lodging expenditures are over \$20 million dollars. Our most conservative estimate shows that attendees whose expressed the purpose of visiting is Keeneland spent \$13,132,335 on lodging. The second category is food. Overall Keeneland attendees spend over \$18

million on food around the meet. We find that those in Fayette County primarily for the purpose of attending the meet spend \$10,172,997 on food during their visit. We note that when we add those visiting family or friends and the other category, this rises to over \$14 million.

Retail shopping and Souvenirs is the smallest expenditure category, but is much higher on the track (in contrast to food expenditures, see table 5). Overall, individuals who attend Keeneland spend around \$4,209,618 in Lexington stores during their visit. If we include those who are visiting family and other, this rises to \$6,321,816. Gasoline is another important expenditure and we find that Keeneland visitors spend approximately \$7 million on gas while they are here. This represents an average of about \$55 per person. During October, the average gas price was \$3.17 per gallon. This represents about a 17 gallon purchase which is consistent with filling up the tank once while in Lexington.

The sum of these four categories is quite impressive. Visitors to Keeneland are responsible for spending over \$35 million (or even \$45 million if we include all three visit categories). This represents a substantial expenditure in the region. This clearly has important economic impacts on employment and earnings, especially in the restaurant and hotel industries.

#### D. Direct Tax Revenues and Indirect Economic Impacts

The spending induced by the Fall Meet leads to taxes collected by state and local entities. We focus upon the state sales tax, the state gas tax and the state and local hotel taxes. Table 7 presents the total expenditures and our revenue calculations. Overall, Keeneland generates approximately \$4,969,326 in taxes for the state and local government. The largest share of this is derived from the hotel taxes which are split between Fayette County, receiving \$995,756 and the State which receives \$1,089,108.

The remaining three categories do not generate any local (Fayette County) taxes directly, but do generate taxes for the state. Gasoline taxes account for \$935,667 and sales tax of retail and food account for \$749,201.

<b>Table 7: Estimated Taxes From Spending</b>				
	<b>Retail Expenditures</b>	<b>Gasoline Expenditures</b>	<b>Lodging Expenditures</b>	<b>Food/Beverage Expenditures</b>
<b>Total Expenditure by Category</b>	\$12,486,681	\$9,298,004	\$15,558,690	\$19,993,234
<b>State Tax Rate</b>	6%	31.9 ¢ per gallon	7%	6%
<b>Local Tax Rate</b>	0%	0%	6.4%	0%
<b>Taxes Paid to the State</b>	\$749,201	\$935,667	\$1,089,108	\$1,199,594
<b>Taxes Paid to the Locality</b>	\$0	\$0	\$995,756	\$0
<b>Total Taxes Paid</b>	\$749,201	\$935,667	\$2,084,864	\$1,199,594
We have assumed the average price per gallon of gas in October, 2014 was \$3.17 indicating that 2,933,124 gallons were purchased in conjunction with Keeneland.				

The expenditures derived from the activity at Keeneland flow through the entire County. The Implan model uses input-output modeling at the county level to measure how these dollars then generate additional economic activity. Table 8 presents a summary of the direct income from the Fall Meet and the total impact on economic activity. We caution use of these, as it is well known that if every industry were treated this way, the total would be larger than the economy. However, in our case, we have been careful to identify only income derived from outside the county. Hence we argue that our Total Impact is more accurate.

**Table 8: Direct Expenditures and Economic Multiplier Impact.**

<b>Expenditure Category</b>	<b>Direct Expenditure</b>	<b>Total Impact</b>
<b>Gambling</b>	\$2,489,987	\$ 4,402,698
<b>Food and Beverage</b>	\$19,993,234	\$ 31,944,969
<b>Retail and Souvenir</b>	\$12,486,681	\$21,282,098
<b>Lodging</b>	\$15,558,690	\$26,068,803
<b>Gasoline</b>	\$9,298,004	\$15,626,694
<b>Total</b>	<b>\$59,826,596</b>	<b>\$99,325,626</b>

As can be seen in table 8, the \$59.8 million of spending associated with Keeneland, results in a total impact of \$99.3 million.

**IV. Impact of September Yearling Sale and November Breeding Stock Sale**

Keeneland hosts two Horse Auction events in the fall. The study has collected data on these events. These events draw both buyers and sellers to the region. As we discuss in detail below, it is likely that sales between entities located in the Metropolitan area would occur without Keeneland. As we have discussed above, the economic impact of Keeneland are those activities which likely would not occur were Keeneland to cease operations. Three aspects of the sales are important. First, they bring individuals into Lexington. In the absence of Keeneland buyers and sellers – even local – would likely travel elsewhere to participate in other sales events. Hence the spending food, beverage and lodging by participants is a real economic impact. Second, the commissions collected by Keeneland, in particular on those sales not involving both Metropolitan Area buyers and sellers, would likely be collected elsewhere, or not at all. Third, the presence of Keeneland in Lexington has likely resulted in higher prices (or lower costs) to Lexington area breeders and also has likely increased the number of

horses produced. The price margin is likely captured on all sales involving an agent from outside the region, while the extensive (additional transactions) margin is most likely captured by sales of horses from Lexington based breeders to buyers outside the metropolitan area.

A. Geographic Origins

One approach to examining where participants originate is to use the data on buyers and sellers. This is likely to overstate those coming from outside the metropolitan area, since those who casually “drop by” the sale and may not purchase anything are most likely to be from within the Lexington Metropolitan Area. Table 9 provides this summary of participants.

<b>Table 9: Geographic Origin of Fall Sales Participants</b>			
	<b>September Sale</b>	<b>November Sale</b>	<b>Total</b>
<b>Total</b>	1,358	1,256	2,614
<b>Lexington</b>	116	204	320
<b>Metro Area (including Lexington)</b>	258	436	694
<b>Kentucky (including Metro Area)</b>	294	471	765
<b>US (including Kentucky)</b>	1,051	975	2,026

The Keeneland Fall Sales draws buyers and sellers from all over the world. It is not simply Metro Area horse owners buying and selling to each other. This is important as it highlights the fact that this firm has a unique economic impact. As noted above, while there are other companies which may compete with Keeneland in the horse auction market, there are very few. Keeneland’s location is not trivial in its importance.

## B. Spending at Keeneland

We consider two categories (and sources) of spending at Keeneland during the sales. The first, and primary, are the expenditures on horses themselves. This involves two components: sales commissions and the sale of the horse itself. In considering the economic impact of sales commissions we focus upon commissions that likely measure the increase in prices caused by the aid of Keeneland, and sales that would likely occur elsewhere. These are best captured by those sales where at least one of the parties does not reside in the Metropolitan area.

Table 10 presents the commissions by this geographic division. Overall, the two fall sales events produced over \$25 million in commissions. The largest revenues stem from sales to buyers who come into Fayette County from outside the region. While the second largest commission revenues derive from sales that occur between Lexington Metro area residents. We argue that it is exactly the ability of Keeneland to bring outsiders to the area, that is part of its value, and hence it's economic impact. We focus upon the commissions generated by sales where one or the other parties are from outside the Metropolitan area.

	<b>Lexington Metro Area Seller</b>	<b>Outside Lexington Area Seller</b>	<b>Total</b>
<b>Lexington Metro Area Buyer</b>	\$4,596,750	\$133,100	\$4,636,000
<b>Outside Lexington Metro Buyer</b>	\$19,534,200	\$938,050	\$20,566,100
<b>Total</b>	\$24,180,950	\$1,021,150	\$25,202,100

Overall, the economic impact through commissions for the September Yearling Sale and the November Breeding Stock Sale is \$20,699,200. These commissions represent income into Fayette County, which we argue would not occur without the existence of Keeneland.



The second category of revenue associated with the fall sales are the sales prices of the horses themselves. Clearly any sale where the seller is located outside of Fayette County does not generate income for Fayette County. As we also note above, sales by individuals within Fayette County to Buyers within the area were likely to happen even in the absence of Keeneland. It is also likely that Keeneland has the impact of increasing horses produced in Fayette County because breeders and owners have Keeneland to help sell the product. The data we have do not let us directly estimate this. However, we argue the extensive margin (additional sales) is most likely to be captured by sales of horses from Fayette County to individuals from outside the Metropolitan area. At the very least, this measure is one which is clearly revenue into the area associated with Keeneland.

Table 11 presents the total sales broken down by buyer and seller location. Out of a total of \$485,860,000 in sales, \$167,772,000 (or 34%) were sales from Fayette County to purchasers outside of Kentucky. Similarly, \$170,040,400 (or 35%) of the total were from Fayette County residents to purchasers outside of the Metropolitan area. These sales likely represent the margin on which Keeneland makes the most difference.

	<b>Metro Area Buyer</b>	<b>Outside Metro Area Buyer</b>	<b>Outside Kentucky Buyer</b>	<b>All Buyers</b>
<b>Lexington Seller</b>	\$37,161,900	\$170,040,400	\$167,772,000	\$207,202,300
<b>Metro Area Seller (including Lexington)</b>	\$88,883,800	\$376,346,100	\$371,076,100	\$465,229,900
<b>All Sellers</b>	\$91,504,800	\$394,355,200	\$388,752,800	\$485,860,000

The third component is spending by individuals participating in the sale event. A simple survey to a convenience sample of participants was conducted via the internet. Using the survey data, and

weighting to match totals by geographic region from table 9, we estimate spending on food and lodging spending during the sales. Unlike much of the other analysis, we include those who are based in and around the metro area. The spending reflected in the survey is associated with the sale. Were Keeneland to not host these sales, it is expected that this spending would be unlikely to occur, or more clearly occur at another venue which hosts similar large sales. This spending reflects the spending in as a result of the sale being located here.

Table 12 provides these estimates. As can be seen substantial spending occurs during the sale period. Over two sales, a total of \$15,800,160 is spent on food, beverage and lodging. Approximately, \$9.1 of that total is associated with the larger September Yearling Sale, while \$6.7 Million is associated with the November Breeding Stock Sale.

<b>Table 12: Participant Spending on Food, Beverage and Lodging During the Sales</b>			
	<b>September Sale</b>	<b>November Sale</b>	<b>Total</b>
<b>Food and Beverage</b>	\$5,127,571	\$4,310,001	\$9,437,572
<b>Lodging</b>	\$3,973,448	\$2,389,140	\$6,362,588
<b>Food and Beverage at Keeneland</b>	\$319,572	\$182,901	\$502,473
<b>Total</b>	\$9,420,591	\$6,882,042	\$16,302,633

### C. Economic Multiplier Impacts and Tax Revenues

We focus upon tax revenues from the indirect expenditures in this section. While taxes (sales) are collected on horse transactions in Kentucky, we do not calculate those here. As with the fall meet, both state and local taxes are collected on lodging and state sales tax is collected on food and beverage expenditures in restaurants and bars (the subject of the survey). Table 13 presents these figures.

Overall, the indirect expenditures from the fall meet generate \$1,418,841 in tax revenues. The state receives \$1,011,635 while the city of Lexington receives \$445,381.

<b>Table 13: Tax Revenues from Induced Spending</b>		
	<b>Lodging Expenditures</b>	<b>Food/Beverage Expenditures</b>
<b>Total Expenditure by Category</b>	\$6,362,588	\$9,437,572
<b>State Tax Rate</b>	7%	6%
<b>Local Tax Rate</b>	6.4%	0%
<b>Taxes Paid to the State</b>	\$445,381	\$566,254
<b>Taxes Paid to the Locality</b>	\$407,206	\$0
<b>Total Taxes Paid</b>	\$852,587	\$566,254

Using the Implan economic impact model we calculated the economic spillover from the September Yearling Sale and November Breeding Stock Sale. We include the commissions, sales as well as food and beverage and lodging discussed above. Again, we suggest caution in using the impact number, but note that we have been careful here to identify money which has moved to Fayette County, due to the activity. Overall, the \$206 million of expenditures into Fayette County lead to a \$354 million economic impact.

**Table 14: Economic Impact of Fall Sales**

	<b>Direct Expenditures</b>	<b>Economic Impact</b>
<b>Commission</b>	\$20,699,200	\$36,611,938
<b>Sales</b>	\$170,040,400	\$292,699,200
<b>Food and Beverage</b>	\$9,940,045	\$15,882,093
<b>Lodging</b>	\$6,362,588	\$10,599,910
<b>Total</b>	<b>\$206,539,760</b>	<b>\$355,793,141</b>

**V. Conclusions**

Over the course of the Fall Meet and the September Yearling Sale and November Breeding Stock Sale, Keeneland brings over \$260 million into Fayette County. These events generate over \$6 million in tax revenues for the Commonwealth and Fayette County. When the Implan economic models are used, we find that this generates a grand total of \$454 million in economic impact for the County. Keeneland’s spring meet typically draws a larger attendance than the fall meet, even though it is 1 to 2 days shorter. For example, in spring 2014, the 15 day spring meet drew 270,093 visitors, as compared to the 17 day fall meet (studied here) which drew 215,574 visitors (approximately 7% higher attendance). In the last five years the spring attendance has exceeded the fall attendance by 3-4% except for 2014, where it was 7.3% higher, and 2011 where it was 3.4% lower. It is reasonable to expect spring meets to have a 3-4% higher impact than the fall meet. We project that spring meets would typically generate \$62 million in direct expenditures and \$102 million in total economic impact.

In addition to the September and November Sales events, Keeneland hosts sales events in January and April. These are typically much smaller than either of the two fall events. For example, the January sale has approximately 20% of the sales and commissions as the combined fall sales events,

and the April event has approximately 2% of the fall total. These sales still generate impact in Fayette County. Based on our comprehensive analysis of the two fall sales events we project that the January and April sales generate over \$22 million in direct economic benefit to Lexington and as much as \$38 million in total economic impact.

Combining these figures, we project that Keeneland generates approximately \$123 million in direct activity through its two racing meets, and \$228 million in direct activity through the four sales events. This represents a total impact of \$200 million for the two racing events and \$390 million for the sales events. In total, race and sales generate approximately \$351 million in direct economic activity and over \$590 million in total economic impact.

Throughout this exercise, we have taken precautions to be conservative in our estimates. We caution too, the use of economic multipliers in general. In this situation we have taken great care to identify revenues that derive from outside the county, and would likely not occur in the absence of Keeneland. Hence the economic multiplier, in this case, is justifiable in determining the overall impact of Keeneland.

It is important though not to confuse the economic value to society with the type of economic impact measures produced here. In a true economic value we would want to capture two important components: the consumer surplus and the producer surplus. The value of Keeneland to the residents of Lexington, part of the consumer surplus, is likely far greater than the value calculated here. In our approach above, we removed all spending at Keeneland by Fayette County residents. Yet the fact that Fayette County residents choose to spend their money on *this* venue, suggests that the value (consumer surplus) to them for this type of entertainment is higher than for any other type available to them during that month. While the survey we fielded captured the spending of consumers, it does not at all capture (nor was it designed to), the consumer surplus (this is very difficult concept to measure). Measuring

the consumer surplus, and the value to residents of Lexington, would be an important study to undertake.