

THE VIRGINIA HORSE CENTER'S ECONOMIC IMPACT

JOHN L. KNAPP, PH. D
&
CATHERINE E. BARCHERS

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CENTER FOR PUBLIC SERVICE
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The Weldon Cooper Center for Public Service
University of Virginia

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Foreword

The Cooper Center contracted with the Virginia Horse Center in the fall of year 2000 to make this study, which is the third such study prepared by the Cooper Center under the direction of John L. Knapp, Professor and Research Director of the Business and Economics Section. In this capacity Mr. Knapp designed and directed the study and was responsible for final approval of all content. Research assistant Catherine E. Barchers worked with Mr. Knapp throughout the study, leading survey takers at the Horse Center, handling much of the day-to-day work of the study, creating much of the PowerPoint presentation, and serving as co-author of the final report. Research specialist Stephen C. Kulp, also of the Business and Economics Section, played an important role in the study, both as a survey taker at all of the shows and as a technical consultant for the final report. Research assistants Julie E. Arehart and Michael E. Welsler provided valuable assistance as well. David J. Borszich of the Publications Section aided in graphics work for the report and the PowerPoint presentation.

Without the invaluable expertise and assistance of Robert M. Reel, the Virginia Horse Center Executive Director, and Stephanie S. Ingraham, the Center's Publicity Director, the study could never have been completed. J.F.R. Scott, the Center's business manager, provided the essential detailed expenditure records. Earl Bergender and Hart Security helped collect important license plate data.

Timothy O. Kestner, economist at the Virginia Employment Commission, ran all of the data through the IMPLAN input-output model and worked with the Cooper Center to interpret the results. This was done in the midst of a heavy schedule of other work, and we are grateful that he could accommodate our data needs. He also consulted with the Center on the survey forms, the Horse Center financial records, and the final report. His assistance was crucial to the success of the study.

Additional assistance in interpreting the results of input-output models was provided by R. Keith Schwer and Richard Kane. Professor Schwer, who is Director, Center of Business and Economic Research, University of Nevada, Las Vegas, provided background information on three input-output models—IMPLAN, REMI, and RIMS II. Kane, who works with RIMS II at the U.S. Department of Commerce's Bureau of Economic Analysis, provided insights about RIMS II and other input-output models.

Finally, trained and personable survey-takers ensured the collection of the participant spending data. The following people, in addition to the aforementioned staff members of the Business and Economics Section, also worked as survey takers: Christina L. Barchers, Staunton Binsted, Patricia Kennedy, Emily Nichols, and Jas Jeet Singh. Special thanks must also be extended to all of the owners and trainers who took the time from very busy show days to complete the surveys on the four survey

days. The information they provided was most important to the study.

While we want to give full credit to all of the people who provided assistance, we take full responsibility for the final product.

John L. Knapp
Catherine E. Barchers

Charlottesville
July 2001

Executive Summary

This study assesses the importance of the Virginia Horse Center to the economies of Virginia and the Lexington area. While the bustling activity of the Horse Center on any event day is an obvious indicator of the Center's importance, this observation does not translate into quantitative estimates of economic significance. This study uses survey information and modern economic tools to provide economic measures. Major findings include:

- Direct expenditures in Virginia by horse show participants, participants of other events, and the Virginia Horse Center in the twelve months ending in May 2001 totaled \$30.2 million, of which \$28.3 million were made in the Lexington area. The Lexington area is composed of Lexington City and Rockbridge County.
- After accounting for business margins and economic leakages, the adjusted direct expenditures were \$17.2 million for the State of Virginia and \$16.2 million for the Lexington area alone.
- These expenditures had a total impact on output in Virginia of \$41.4 million, of which \$29.1 million was in the Lexington area. These results come from a well-known input-output model called IMPLAN. The acronym stands for IMPact Analysis for PLANning.
- The Horse Center was responsible for \$25.9 million of value added at the state level and \$17.9 million in the Lexington area. The Horse Center's contribution to labor income, the largest component of value added, was \$15.9 million statewide and \$10.9 million in the Lexington area.
- Total spending accounted for 708 jobs in the state of Virginia, of which 650 were in the Lexington area.
- Horse Center activities accounted for \$3.4 million in state and local tax revenues, of which \$1.9 million went to the state government and \$1.5 million went to local governments. In the Lexington-Rockbridge area local tax revenue associated with the Horse Center was \$1.3 million.
- The spending of out-of-state participants provided an important boost to the Virginia economy. They accounted for 54.3 percent of all participants.
- The spending of in-state equine enthusiasts creates another benefit since without the existence of the Horse Center, their spending on Center events would be diverted to other states, and it is likely that a portion of the Virginia's \$1 billion horse industry would move elsewhere.

- A survey of thirteen major Lexington area lodging establishments indicated that at least 26 percent of the area's lodging business was attributable to the Horse Center.
- In addition to a portion of the aforementioned expenditures, the Horse Center has spent close to \$7 million on capital projects since 1991 and plans to spend another \$5.5 million in the next three years.

The Virginia Horse Center's Economic Impact

Economic Impact of the Virginia Horse Center

Introduction

The purpose of this study is to measure the economic importance of the Virginia Horse Center to the Lexington-Rockbridge area and to the state of Virginia. The physical presence of the Horse Center on Route 39 is obvious, and for visitors on a show day, the bustle of owners, trainers, and spectators is indicative of the importance of the Horse Center. But such impressions do not translate into quantitative estimates of the Center's economic significance. This study uses survey information and modern economic tools to provide economic measures.

Background

In the course of fourteen seasons, the Virginia Horse Center has grown into an internationally respected facility for horse shows and other events. It occupies 600 acres of land in Rockbridge County, Virginia, close to the City of Lexington. The Center offers four barns with stabling for 577 horses, two winterized barns with stabling for 180 horses, three dressage rings, a cross-country course, and several arenas, including the Anderson Coliseum that has seating for about 4,500 people and contains an arena measuring 150 by 300 feet. In addition, the Virginia Horse Center has a gift shop, offices, a banquet area named the Appomattox Mezzanine, two museums, and a recreational vehicle park. The Horse Center has grown substantially since it first

opened in 1988, and the number of events and participants has increased as well. In 2000-2001 the Horse Center hosted 76 events. It is important to note that the Horse Center's main function is as a rental facility. Although the Center actively manages about a dozen events per year, outsiders who contract to use the facilities manage the majority of shows. Since its opening, the Horse Center has hosted over 1,100 events.

Description of the Study

This study covers three main sources of expenditures: (1) show participants (owners, trainers, and their employees and guests); (2) participants at other events like rodeos; and (3) the Horse Center itself. Expenditures are adjusted to eliminate double counting and then combined to determine total economic impact.

Data on direct expenditures by show participants were collected in personal interviews conducted at four shows varying in size from medium to large. The sample information was then expanded to represent expenditures at all events. Separate estimates were made of spending at other events based on information provided by the Horse Center and tourist industry data. The Horse Center furnished administrative data on payroll, payments to contracted workers, utilities, equipment rental, and other expenses.

The economic impact of the Horse Center is greater than the initial dollars spent

by visitors and the Horse Center. To determine total impact we used IMPLAN, a well-known input-output model developed by MIG, Incorporated. “IMPLAN” is an acronym for IMPact Analysis for PLANning.

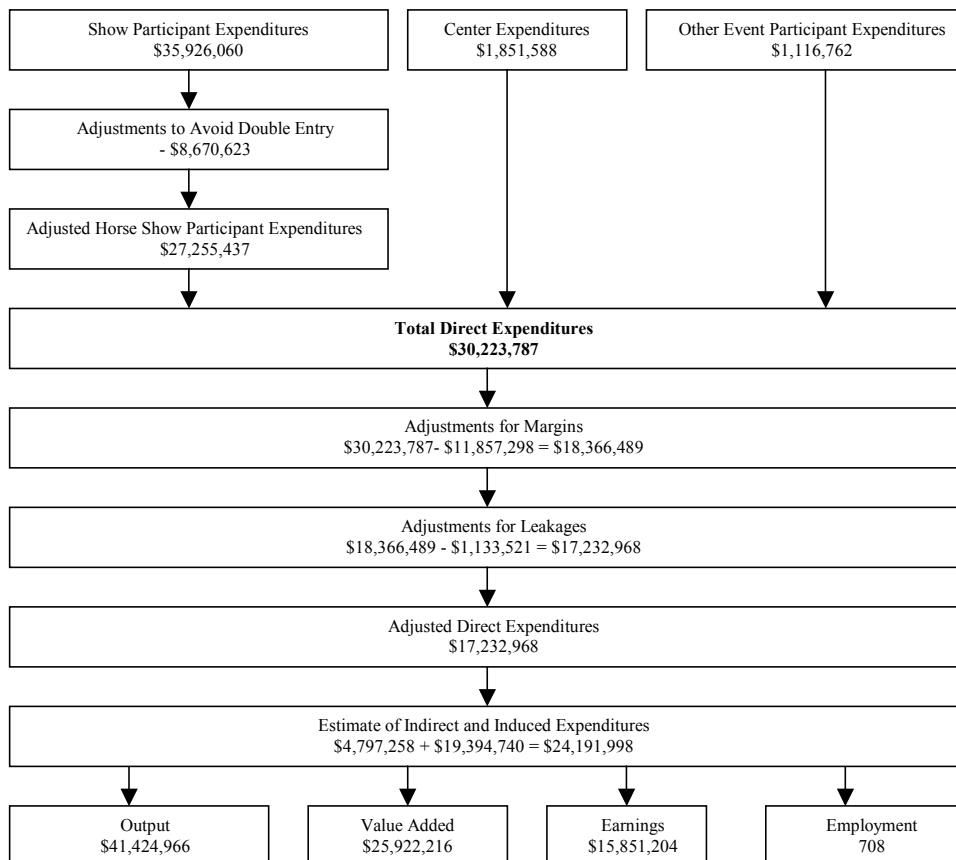
The first section of this study presents data on the direct expenditures of participants at Horse Center shows and special events, as well as by the Horse Center itself. Next, the study provides evidence of the strong out-of-state representation of Horse Center participants. This section is followed by additional information showing the importance of the Horse Center to local lodging and restaurant businesses. This is followed by a discussion of the impact of those expenditures upon total output, earnings, and employment. The third section addresses state and local tax

revenues associated with the Horse Center. The final section covers the likely future economic impact of the Center. A methodology appendix provides important detail about this study including facsimiles of the survey instruments. Also, there is a comparison with the methodology used in the two earlier studies that were completed in 1991 and 1995.

Direct Expenditures

Direct expenditures in Virginia totaled \$30.2 million. Figure 1 shows direct expenditures and the major sources— show participants, the Horse Center, and other event participants. The figure also shows the adjustments made to direct expenditures and an overview of other concepts used in the study.

Figure 1: Horse Center Study Methodology



Of these three sources, by far the largest source of expenditures was the spending of participants at horse shows. They accounted for 90.2 percent of the total. The Horse Center accounted for 6.1 percent and participants at other events were responsible for 3.7 percent. For the Lexington area alone, direct expenditures totaled \$28.3 million. The distribution by source was similar to the outcome at the state level. In the Lexington area, 91.3 percent of expenditures were made by show participants, 4.8 percent by the Virginia Horse Center, and 3.9 percent by participants at other events.

Direct expenditures exceed those used in the IMPLAN model. Before running the data in the model, expenditures were adjusted for relevant margins. Retail trade and some other sectors were adjusted for the cost of goods sold when such goods are purchased outside the study area. This is

referred to as “adjusting for margins.” Marginal adjustments are also made to wages and salaries to exclude federal and state individual income taxes and Social Security taxes. The IMPLAN model then adjusts the direct expenditures for leakages. Leakages refer to dollars initially spent locally that are then respent outside the study area.

Table 1 shows adjusted direct expenditures in Virginia and in the Lexington area by major category. The Lexington area includes the City of Lexington and the County of Rockbridge. The largest expenditure categories include lodging places, restaurants, and service stations. In 2000-2001 the Virginia Horse Center accounted for \$17.2 million of adjusted direct spending within Virginia, including \$16.2 million in the Lexington area.

Table 1: Horse Center Adjusted Direct Expenditures by Category, 2000-2001

Category	Amount (\$)		Percent of Total (%)	
	Virginia	Lexington Area	Virginia	Lexington Area
Lodging places	6,314,317	6,250,374	36.6	38.6
Restaurants	5,551,536	5,349,607	32.2	33.0
Service stations and dealers	1,708,927	1,580,905	9.9	9.8
Other retail and wholesale trade	939,920	872,996	5.5	5.4
Personal, car, and repair services	901,222	704,201	5.2	4.3
Government industry ^a	397,691	460,956	2.3	2.8
Entertainment	374,433	374,472	2.2	2.3
Business services ^b	373,070	331,431	2.2	2.0
All other	671,853	272,498	3.9	1.7
Total	17,232,968	16,197,439	100.0	100.0

^aIncludes government-owned utilities, education programs, the postal service, etc.

^bIncludes all health, legal, educational, and social service businesses

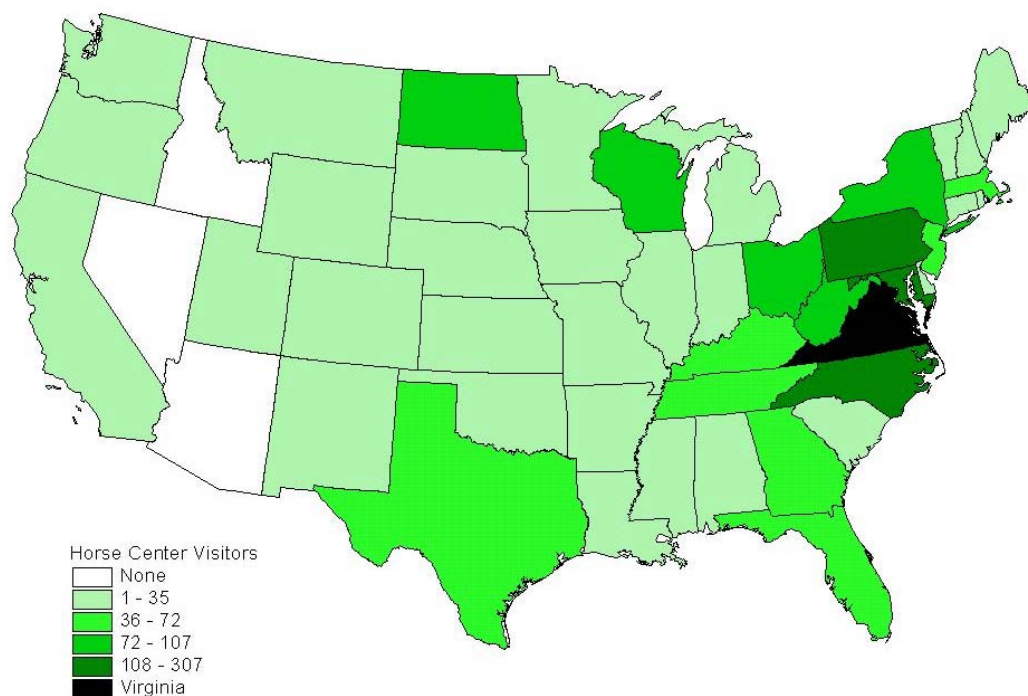
Out-of-State Participants

Out-of-state participants account for a significant share of direct expenditures. To determine their share we used two surveys. The average of the results of these two surveys shows that 54.3 percent of Horse Center participants come from places other than Virginia. These visitors provide a direct benefit to the state resulting from Horse Center activities. Virginia equine enthusiasts also provide a benefit. Without the existence of the Horse Center, their spending on Center events would be diverted to other states, and it is likely that a portion of Virginia's \$1 billion horse industry would move elsewhere.¹

The first survey involved a tally of license plates on vehicles parked in the Horse Center parking lots during fifteen shows between November 2000 and May 2001. Of the 3,675 vehicles surveyed, 50.8 percent were from states other than Virginia. North Carolina, Maryland, and Pennsylvania accounted for the largest number of vehicles. Together, these three nearby states accounted for 18.4 percent of the vehicles. Figure 2 shows the distribution of vehicles in the continental United States. In addition, there were vehicles from Alaska, Hawaii, and four Canadian provinces. Only three states, Arizona, Idaho, and Nevada, were not represented. The map illustrates the wide area of Horse Center patronage and the nationwide draw of the Center.

¹ The Wessex Group, Ltd., *1995 Virginia Horse Industry Profile* (Virginia Equine Educational Foundation, Inc., January 1996), p. 9.

Figure 2: Horse Center Visitors Based on License Plate Survey, 2000-2001



The second survey of out-of-state visitors was part of our participant surveys that covered four shows. Participants were asked about their state of residence and this information was tabulated and weighted by show size. The weighted average of out-of-state visitors from the participant surveys was 57.8 percent.

Spending Per Horse-Day

Participants have a very important impact on both the Virginia and Lexington area economies. This has already been shown in the data on direct spending. Additional information on direct spending per horse-day is provided in Table 2. The average expenditure per horse-day was \$515. The

largest expenditure categories were show fees, trailer repair/purchase, lodging, restaurants, shopping, and travel. We derived the average expenditure per horse-day by dividing total expenditures by the product of the number of days of an event and the number of horses at the event. Show fees were not counted in the aggregate list of direct expenditures because they are already accounted for by the expenditures of the Virginia Horse Center. Nonetheless, show fees are included here since they signify a major category of show participant expenditures. The listed amounts are the weighted averages of the results of the four surveyed shows.

Table 2: Spending per Horse-Day by Category, 2000-2001

Category	Weighted Average (\$)	Percent of Total (%)
Show fees	124	24.1
Trailer repair/purchase	111	21.5
Lodging	98	19.0
Restaurants	77	14.9
Shopping	51	9.9
Travel (gas, fuel, fares)	34	6.6
Farrier	6	1.2
Entertainment	4	0.8
Veterinary	4	0.8
Car rental	3	0.6
Vehicle repair/maintenance	3	0.6
Total	515	100.0

Importance of the Horse Center for Lodging Establishments and Restaurants

As evidenced by the preceding tables, both lodging and restaurants represent very important expenditure categories.¹

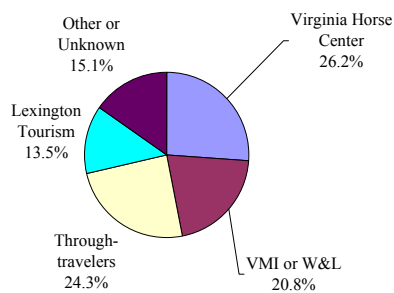
Lodging Establishments—Because of the significance of the lodging industry, we did additional survey work for that sector. A lodging survey form was distributed to the managers of fifteen major Lexington area lodging establishments. The following thirteen lodging establishments completed the survey: Best Western Inn at Hunt Ridge, Comfort Inn Virginia Horse Center, Country Inn and Suites, Days Inn Keydet General, Days Inn Shenandoah Valley, Econo Lodge, Hampton Inn Col Alto, Holiday Inn Express, Howard Johnson Inn, Long’s Campground, Ramada Inn, Super 8 Motel, and Travelodge. We asked managers to estimate

the percentage of their business resulting from each of the following: (1) through-travelers; (2) tourism in Lexington; (3) the Virginia Horse Center; (4) Virginia Military Institute or Washington and Lee University; and (5) unknown. The survey showed that at least 26.2 percent of the Lexington area lodging business is attributable to the Virginia Horse Center. This figure is based on the perceptions of the managers of the lodging places rather than hard figures or records, but the estimate should be considered conservative since it is likely that many Horse Center patrons do not identify themselves as such when they register. Managers were unable to classify a significant percentage of their customers, as shown by the 15.1 percent listed in “unknown,” and it is very likely that a number of Horse Center patrons were classified as “unknown.”²

¹ Tables 1 and 2 are not directly comparable for several reasons: (1) Table 1 includes Horse Center expenditures and expenditures of participants at non-horse show events, while Table 2 does not; (2) Table 1 amounts are adjusted for margins and exclude show fees, while such adjustments are not made in Table 2.

² The 16.6 percent is a weighted average. “Unknown” percentages listed on individual forms ranged from 0 to 35 percent.

Figure 3: Lodging Survey Results, 2000-2001



Obviously, 26.2 percent of the local lodging business is a significant percentage, and the figure offers additional proof of the value of the Horse Center to local lodging establishments.

Restaurants—Restaurants accounted for 32 percent of all direct spending, only four percentage points less than lodging. Although restaurant business also represents a very important category of expenditures, the nature of the business precluded a special survey to determine the percentage of sales attributable to the Virginia Horse Center. Restaurant managers cannot specify characteristics of their clientele since their customers are unlikely to identify themselves as visitors and to provide reasons for their visit to the local area.

Estimates of Total Impact

The economic impact of the Horse Center is greater than the initial dollars spent by visitors and the Horse Center. To determine total impact we used the IMPLAN input-output model. The Virginia Employment Commission, which has a site license for the model, kindly lent its assistance in running the model.

The “direct” column contains estimates of output, income, and employment per million dollars of final demand by the Horse Center and its visitors. The employment estimates are adjusted to a full-time-equivalent employment (FTE) basis. The “indirect” column represents the effects on local industries from interindustry purchases per million dollars of final demand. For example, the food purchased for sale in restaurants serving Horse Center visitors involves refrigeration, transportation, and other costs that will result in additional output, income, and employment. The “induced” column represents the economic activity stemming from the expenditures of new household income generated by the direct and indirect effects per million dollars of final demand. For example, the spending of employees of motels with Horse Center visitors is picked up in the induced column. The “total” column is the sum of the direct, indirect, and induced columns.

Table 3 shows estimates for Virginia and for the Lexington area. At the state level the Horse Center accounted for \$41.4 million of total output. Value added—the value of output minus the cost of materials, supplies, containers, fuel, purchased electricity, and contract work—was \$25.9 million. Labor income, the largest component of value added, was \$15.9 million. Employment, after accounting for direct, indirect, and induced effects, totaled 708. For the Lexington area the comparable figures were \$29.1 million of total output, \$17.9 million of value added, \$10.9 million of labor income, and employment of 650.

The direct impacts are similar for the state and the local area because most of the initial economic activity is in the Lexington area. The indirect and induced impacts are larger for the state as a whole than for the

Lexington area alone. This is because so-called “leakages” (purchases outside the study area) are much greater for a relatively

small area like Lexington in contrast to the state as a whole.

Table 3: Horse Center Impact on Output, Value Added, Labor Income, and Employment

Area	Direct	Indirect	Induced	Total
Virginia				
Output (\$)	17,232,968	4,797,257	19,394,740	41,424,966
Value added (\$)	10,679,649	2,863,407	12,379,160	25,922,216
Labor income (\$)	6,873,540	1,797,985	7,179,679	15,851,204
Employment	379	58	271	708
Lexington area				
Output (\$)	16,197,440	2,567,011	10,326,765	29,091,215
Value added (\$)	9,677,762	1,484,778	6,729,453	17,891,993
Labor income (\$)	6,275,741	883,703	3,787,131	10,946,575
Employment	425	38	188	650

Some perspective on this information is provided by income and employment data for the Lexington area.³ In 1999, the most recent year that income and comprehensive employment data are available, total earnings by place of work in the Lexington area were \$148.3 million. Table 4 shows that direct earnings associated with the

Horse Center were 4.2 percent of this figure. Total earnings associated with the Horse Center were 7.4 percent of the area’s total wage bill.⁴ Direct employment was 3.3 percent of area employment and total impact employment was 5 percent of area employment.⁵

³ The source of this information was the U.S. Department of Commerce’s Bureau of Economic Analysis (BEA). BEA produces local estimates of employment and income as part of its regional economic information system (REIS). For the Lexington area, BEA provides combined estimates for Lexington City, Buena Vista City, and Rockbridge County.

Source:
<http://www.bea.doc.gov/bea/regional/reis/action.cfm>

⁴ The source for total earnings by place-of-work was BEA’s REIS. See:
<http://www.bea.doc.gov/bea/regional/reis/drill.cfm>

⁵ In 1999 local area full and part-time employment was 14,993. This number was converted to full time equivalent employment (FTE) of 13,044 based on the assumption that FTE was 87 percent of total full and part-time employment. This ratio was derived from the U.S. ratio for retail trade and services (see *Survey of Current Business* (August 2000), page 78).

Table 4: Horse Center Direct and Total Impact, Labor Income, and Employment Relative to Lexington Area Totals, 1999-2000

Measure	Amount/Number	Percent of Area Total (%)
Earnings		
Horse Center direct (\$)	6,275,741	4.2
Horse Center total (\$)	10,946,575	7.4
Local area total (\$)	148,278,393	
Employment		
Horse Center direct	425	3.3
Horse Center total	650	5.0
Local area total	13,044	

Tax Impact

As already illustrated, the Horse Center is an important economic generator. Naturally, it also impacts tax revenues at state and local levels. According to our estimates, the Horse Center accounted for \$3,456,900 of state and local taxes in 2000-2001. Included in the total was \$972,219 from the state sales and use taxes and \$649,899 from the state individual income tax. The state government collected an additional \$311,067 from a variety of other taxes including the corporate

income tax and the motor fuels tax. Another \$1,523,715 was collected by local governments. For the local taxes that can be itemized, the local option sales and use tax, the meals tax, and the lodgings tax each provided more than a quarter of a million dollars in tax revenue. The remaining \$725,822 came from local taxes on property, business licenses, and other sources. The bulk of the state and local tax revenue was collected in the Lexington area. Local taxes collected in the Lexington area totaled \$1,262,282.

Table 5: Impact of the Horse Center on State and Local Taxes, 2000-2001

Tax Source	Virginia (\$)	Lexington Area (\$)
State taxes		
Sales and use tax	972,219	903,812
Individual income tax	649,899	448,810
Other state taxes (corporate income, motor fuels, etc.)	311,067	214,704
Total	1,933,185	1,567,326
Local taxes		
Local options sales and use tax	277,777	258,232
Meals tax	251,641	237,232
Lodgings tax	268,475	265,842
Other local taxes (property, business license, etc.)	725,822	500,976
Total	1,523,715	1,262,282
Total state and local taxes	3,456,900	2,829,608

Capital Outlays

Since the purpose of the study was to estimate the current economic impact of the Horse Center, only current expenditures likely to occur consistently over time were counted as direct expenditures. The large capital outlays on buildings and improvements that have been made since the Horse Center's inception were not included.

Even so, capital outlays create substantial economic activity when they are made. The following table details the capital spending of the Virginia Horse Center in the past and provides projections of capital outlays four years into the future. The table shows that the Horse Center has made substantial investments over its history and that it plans to continue growing well into the future.

Table 6: Horse Center Capital Spending, FY 1984-FY 2004

<u>Fiscal Year</u>	<u>Description of Building or Structure</u>	<u>Amount (\$)</u>
Actual		
1984-1991	Phase 1 construction (4 barns, 1 covered work arena, and 1 outdoor arena with grandstand) plus site preparation	4,465,933
1991	Outdoor gift shop	6,200
1993	Two four-season barns, indoor coliseum	6,694,728
1995	Indoor gift shop	15,897
1996	Henson Museum, upgrade restaurant	24,833
1998	Appomattox Mezzanine	209,397
1999	Work horse museum, upgrade maintenance shop	39,001
Total actual		11,455,989
Projected		
2002	Arena complex, two barns and campground upgrade	4,200,000
2003	Oak Hill course development	250,000
2004	Restore Oak Hill complex	1,000,000
Total Projected		5,450,000

The Future

In terms of potential event days, the Horse Center is completely booked. Until the Center expands to accommodate more horses and multiple events, growth will be limited to booking larger shows and more special events. The Center can book shows exceeding its stabling capacity by renting temporary stalls, but this approach does not provide revenue. Future growth will occur

as the Center increases its permanent capacity and as it books larger shows. Thus, we forecast that the Horse Center will continue to make a substantial contribution to the Lexington area economy and to the economy of the state.

Appendix A: Methodology

Introduction

This study is based on three data sources: (1) survey data collected from participants at shows held at the Virginia Horse Center during 2000-2001; (2) data supplied by the Virginia Horse Center; and (3) data collected from other sources. The principal economic impact of the Virginia Horse Center results from spending by show participants, but such information is not collected by the Virginia Horse Center. Most of the shows held at the facility are not managed by the Horse Center, so the Center does not receive or collect much direct information about the participants. In order to effectively gather participant expenditure information crucial to assessing the overall impact of the Horse Center on the economy, a survey form was developed and used at four representative shows held between the fall of 2000 and the spring of 2001. This appendix discusses in detail the survey methodology.

Survey Design

Participant Survey—Data were collected from a new survey instrument similar to the one used in 1991. The survey was pre-tested and revised before it was administered. Owners and trainers completed the survey in the stable area as well as in the arena. Trained researchers from the Cooper Center administered the survey. They walked through the stables during the chosen shows,

encouraged cooperation, and assisted respondents with any questions.

The survey takers followed a strict procedure to collect data from respondents. Survey takers introduced themselves to potential respondents and explained that they were using the survey to get data for an important economic impact study being conducted for the Virginia Horse Center by the Cooper Center at the University of Virginia. If the potential respondent claimed to be too busy to complete the survey, the survey taker would assure the person that it would take less than five minutes to complete and, if necessary, schedule a more convenient time to return to complete the questionnaire. If the potential respondent still refused to participate, the survey taker was instructed to leave a questionnaire and a business reply mail envelope with the individual so that he or she could complete the survey and return it at a more convenient time. In the four shows surveyed, however, survey takers never needed to leave a business reply mail envelope with the form and there were no absolute refusals. Given the choice of mailing back the form and completing it with a survey taker at a convenient time, all respondents preferred to complete the survey in person. Survey takers then asked the potential respondent if he or she would best be classified as an owner, a trainer, or something else. If the respondent answered with spectator, rider, groom, or anything else, the survey taker would ask the respondent if he or she could direct the survey taker to the

appropriate owner or trainer or suggest a time to come back. Survey takers would then give these individuals a special Horse Center pin to wear so that other survey takers would not attempt to question them again. If the respondent identified himself/herself as an owner, trainer, or both owner and trainer, the survey taker would proceed with the survey. After asking the respondent about the number of people accompanying him or her at the show and the number of days spent at the show, the survey takers asked each respondent to estimate the total expenditures made by everyone in his or her party by category. In order to avoid double counting, each owner was told to include only those expenditures that would not be reported by the trainers, and each trainer was told to include only those expenditures that would not be reported by the owners. To facilitate these estimations, survey takers encouraged respondents to estimate an amount spent per person per day on such categories as food and lodging, and then to multiply that figure by the correct number of people and days. After the respondent completed the questionnaire, the survey takers gave the person a pin to signify that he or she had participated in the survey.

The shows at the Horse Center were classified by number of horse-days and weighted accordingly. The group for shows with less than 1,276 horse-days was assigned a weight of 0.3485, the group for shows having between 1,276 and 3,500 horse-days was given a weight of 0.434, and the group with more than 3,500 shows was provided with a weight of 0.2174. These weights were calculated by finding the percentage of all horse-days in a year represented by shows in a particular grouping. The different weights sum to 1.000. The middle grouping included two of the four shows; consequently, 0.434 was divided in

half so that both shows had a weight of 0.217.

Lodging Survey—The Lexington area lodging business has grown significantly since the inception of the Virginia Horse Center. In order to learn more information about the role of the Horse Center in the local lodging business than what was available from the participant survey, a lodging survey was developed. This survey asks the manager of the lodging establishment to estimate the percentages of overall guests whose stay can be attributed to through-travelers, tourism in Lexington, the Virginia Horse Center, the Virginia Military Institute or Washington and Lee University, and other reasons.

A Cooper Center representative visited fifteen lodging establishments in the local area, including one campground, to distribute the survey. Thirteen establishments returned the survey form in its attached business reply mail envelope. Accordingly, the response rate was 87 percent.

The overall percentage increase in taxable sales from 1987 to 2000 at lodging establishments in Lexington and Rockbridge was 103.8 percent in current dollars and 34.5 percent in constant dollars. After showing little change for a number of years, sales showed strong growth after 1996. Developments in the national economy had a major influence on the local lodging industry. The 1990-1991 recession and the boom years of the late 1990's are reflected in the data. The impact of the Horse Center cannot be separated from other factors such as economic conditions and the growth of tourism, business travel, and personal through-travel associated with Interstate 64 and Interstate 81. Nevertheless, it is reasonable to assume that the Horse Center has been an important factor in the growth of the lodging industry.

Table A.1: Growth in Taxable Sales of Lodging Establishments, 1987-2000

Year	Current Dollars		Constant Dollars	
	Amount (\$)	% Change	Amount (\$)	% Change
1987	8,402,261	...	12,736,526	...
1988	9,026,245	7.4	13,138,794	3.2
1989	9,796,829	8.5	13,604,951	3.6
1990	10,291,434	5.1	13,559,181	-0.3
1991	10,066,036	-2.2	12,726,662	-6.1
1992	9,416,152	-6.5	11,557,102	-9.2
1993	9,297,767	-1.3	11,080,107	-4.1
1994	10,708,250	15.2	12,442,380	12.3
1995	10,854,083	1.4	12,264,259	- 1.4
1996	9,980,911	-8.0	10,954,193	-10.7
1997	10,472,854	4.9	11,236,296	2.6
1998	15,084,546	44.0	15,935,944	41.8
1999	15,834,583	5.0	16,366,838	2.7
2000	17,127,144	8.2	17,127,144	4.7

^aComputed using the Consumer Price Index (CPI-U) adjusted to a base year of 2000

Source: Bureau of Labor Statistics www.bls.gov/cpihome.htm. Virginia Department of Taxation Office of Fiscal Research, *Taxable Sales Reports*, 1987-2000.

Vehicle Survey—A vehicle tally sheet was created and given to Horse Center staff to facilitate the collection of data on license plates. The sheet consisted of a list of all states, as well as additional space for Canadian provinces and other places. A Horse Center representative drove a golf cart around all of the parking lots at the facility and tallied each license plate seen. The representative would also note the name of the show and the date and the time of the information collection. At the beginning of each month, the vehicle tally sheets were mailed to the Cooper Center for data input and analysis. The vehicle tally sheets covered fifteen events at the Horse Center from the beginning of November 2000 through May 2001.

Direct Expenditures

Direct expenditures occurred under three categories: (1) show participants; (2) the Virginia Horse Center; and (3) participants in other Horse Center events. Participants' expenditures were estimated from the surveys while Horse Center expenditures were provided by the Center's business manager.

Show Participants—The Horse Center only managed eleven of the 75 shows held last year, and it has no records concerning the number of people that attended the different shows. The Center does keep records of the number of horses registered for each show as well as the duration of every show at the facility. Consequently, the results of the surveys of show participants had to be expanded in a manner consistent with the available data on horses and days. Informa-

tion on the actual number of owners and trainers attending the shows was available for all of the shows that we surveyed except for the Virginia Horse Trials on November 4, 2000, and the Horse Center was able to estimate the figures for that show. All events that occurred at the Horse Center with the exception of the three events addressed in the section of this report for participants of other events are treated as equine participants because they are assumed to show the same spending patterns. As a result, the data were aggregated in the following manner.

All of the data for each show were entered in separate spreadsheets with different columns representing the various expense categories. The total expenditures for owners and trainers were calculated separately for each show. Thus, all of the expenses recorded on each survey for each category were summed separately for owners and trainers, and then the category totals were all summed together to create one figure representing total expenditures reported by owners and another figure representing total expenditures reported by trainers. These two figures were then divided by the total number of owners and trainers surveyed, respectively, to determine a number for both the average total expenditure per owner and per trainer. Next, these averages were multiplied by the actual number of owners and trainers attending each show in order to arrive at figures denoting the total expenditures of owners and trainers for each show. The total expenditures of owners and trainers at each show were summed together in order to create one figure representing the total expenditures by people attending the horse show. This number was then divided by the total number of horse-days of the show in order to find an average expenditure per horse-day, and this figure was multiplied by the total number of horse-days in a year at the Horse Center to determine the total

expenditures of horse show participants between June 2000 and May 2001. The number of horse-days for a given show can be found by multiplying the total number of horses registered for a show by the total number of days of the show. The procedure was repeated for each major category (food, lodging, entertainment, shopping, travel, car rental, vehicle repair and maintenance, trailer repair or purchase, farrier, veterinary, and show fees) in order to determine the total expenditure of show participants for each category.

Once an average expenditure per horse-day was calculated for each show's total expenditures as well as separately for each expenditure category, these totals were weighted by the size of the surveyed show in horse-days within the universe of all shows between June 2000 and May 2001. The Virginia Horse Trials, surveyed on November 3, fell into the first weighted category consisting of shows with fewer than 1,276 horse-days, and the average was multiplied by 0.3485. The American Saddle Horse Association and Lexington Spring Premier shows, surveyed on September 27 and April 28 respectively, fell into the second category of shows having between 1,276 and 3,500 horse-days, and each of the shows' averages was multiplied by 0.217. The Virginia Quarter Horse Association Region I East Coast Championship show fell into the final category characterized by shows having at least 3,501 horse-days, and the expenditure average from this show was multiplied by 0.2174.

The Horse Center hosted several events involving animals other than horses that were treated the same way as the horse shows in order to calculate total direct spending. The Horse Center believes the expenditure patterns of the horse events and related events involving other animals are

similar. These other events included the Llama Show on March 10, 2001, the Dog Agility Show on March 19, 2001, and the Virginia Beef Expo on April 12, 2001. For each of these events, the number of animals involved was multiplied by the number of days of the event to derive a number of animal-days, and this number was used in the same manner as horse-days.

For several reasons discussed below, the direct expenditure estimate reported in our study should be considered conservative. Since the survey only counted estimates given by either owners or trainers and not other spectators, the study avoided double counting but could not account for the spending of spectators not associated with an owner or trainer. In addition, only payments made directly to the Horse Center are accounted for by all of the outside sponsors who run shows at the Center. There was no way to account for the sponsors' outlays for items such as lodging, meals, and rental equipment. Also, the estimated total number of owners and trainers for the Virginia Horse Trials should be considered conservative since the figure was based on the number of horses registered for the shows. In reality, the number of owners and trainers combined to attend a horse show often exceeds the number of horses registered for the show.

Participants at Other Events—There were several other activities at the Horse Center that contributed to the economy, and these events were accounted for by multiplying the total number of visitors involved in each event by the number of days of the event, and multiplying this figure by \$66, the mean amount spent per person per day in Virginia, as reported by the Virginia Tourism Commission's 1997-1998 Virginia Visitor

Study.¹ The participants in these other activities held at the Virginia Horse Center came from a variety of places, and only the people from other states were believed to spend, on average, the full amount reported by the Virginia Tourism Commission. Visitors from the Lexington area were not included because they do not follow these expenditure patterns and because they probably would have spent money in the local area even if the Horse Center did not hold the events. Visitors from Virginia localities other than the Lexington-Rockbridge area were assumed to spend the full amount reported in the Virginia Visitor Study minus lodging, ($\$66.00 - \$14.52 = \$51.48$). The lodging amount was derived by multiplying the total by the share for lodging according to a 1988 Virginia tourism study.

Although formal records do not exist on the origin of attendees at other events, the Horse Center estimates that 80 percent of visitors are from Virginia and 20 percent are from other states. In order to determine what percentage of the 80 percent from Virginia are from the local Lexington-Rockbridge area, population totals from the 2000 Census were used to estimate the ratio of people in Lexington, Buena Vista, and Rockbridge County to the population of nearby areas where the Horse Center advertises. Since the greater proximity of people in the Lexington-Rockbridge area to the Virginia Horse Center makes them much more likely to attend special events than people from more distant areas, the percentage of the population in the local area was weighted by a factor of four. Thus, a total of 16 percent of all attendees were assumed to come from

¹ According to the American Automobile Association's annual vacation survey, a family of two adults and two children could expect to pay \$223 per day for *food and lodging*. The per person amount (\$56) seems fairly consistent with the result of the Virginia Visitor Study.

the Lexington area instead of a mere 4 percent. The remaining 64 percent of attendees were assumed to be from places in Virginia other than the local area, so they were

counted as spending the total mean figure reported in the Virginia Visitor Study, minus the amount attributable to lodging.

Table A.2: Population of Localities Assumed to be in the Horse Center's Market Area for Other Events, 2000

<u>Location</u>	<u>Population</u>	<u>Location</u>	<u>Population</u>
Alleghany County	13,176	Highland County	2,635
Amherst County	28,578	Lexington	6,959
Augusta County	54,677	Lynchburg	66,049
Bath County	4,799	Roanoke	96,397
Bedford	6,073	Roanoke County	79,332
Bedford County	45,656	Rockbridge County	18,350
Botetourt County	24,992	Rockingham County	57,482
Buena Vista	6,406	Salem	23,756
Clifton Forge	4,679	Staunton	24,461
Covington	6,991	Waynesboro	18,549
Harrisonburg	30,707		
Highland County	2,635		
Total	620,704		
Lexington, Buena Vista, Rockbridge	31,715		
Local Share	5%		

Source: Bureau of the Census, *Census of Population, 2000*.

The Virginia Horse Center—The Center provided fiscal year information on local and state expenditures by category as well as information on capital outlays. The expenditure data appear in the main body of the study. We excluded expenditures made by the Horse Center on items sold in the gift shop and on horse bedding because we already accounted for the money spent on these items under participant spending as retail. By leaving these expenditures out of the study, we avoided double counting. The information on capital outlays required no adjustments.

Adjustments to Direct Expenditures

The amounts listed in Table 1 of this study are adjusted direct expenditures. The changes made to the original numbers remove specified percentage amounts of certain categories of expenditures because only a certain percentage actually impacts the relevant area. IMPLAN developed these margins to prevent the overstatement of economic effects by the inclusion of expenditures that do not stay in the local economy. Table A.3: Adjustments to Direct Expenditures for Margins provides data on direct

expenditures by category before and after these margin adjustments were made. The footnotes detail the exact percentage used to

determine the direct expenditures after margin adjustments.

Table A.3: Adjustments to Direct Expenditures for Margins

Category	Virginia		Lexington Area	
	All Direct Spending(\$)	Direct Spending After Margins (\$)	All Direct Spending (\$)	Direct Spending After Margins (\$)
Wages of the Horse Center	741,000	615,030 ^a	741,000	615,030 ^a
Wages of contracted persons	250,000	207,500 ^a	150,000	124,500 ^a
Total insurance	123,000	123,000	38,000	38,000
Leasing	7,000	7,000	7,000	7,000
Maintenance and repair	41,000	41,000	39,000	39,000
Lumber and construction	50,000	10,000 ^b	30,000	6,000 ^b
Electricity and utilities ^c	188,000	188,000	77,000	77,000
Professional services	158,000	158,000	108,000	108,000
Entertainment	399,160	399,160	398,160	398,160
Photocopying and publications	73,750	73,750	50,200	50,200
Computers and office supplies	25,000	5,850 ^d	12,000	2,808 ^d
Postage	6,000	6,000	6,000	6,000
Car travel	2,809,787	472,044 ^e	2,038,143	342,408 ^e
Automobile renting and leasing	217,121	217,121	-	-
Meals	5,780,933	5,780,933	5,571,812	5,571,812
Lodging	6,923,563	6,923,563	6,853,856	6,853,856
General equipment rental	111,000	111,000	44,000	44,000
Shopping	3,675,805	860,138 ^d	3,536,391	827,515 ^d
Vehicle repair and maintenance	209,121	209,121	209,121	209,121
Trailer repair and purchase	7,737,477	1,261,209 ^f	7,737,477	1,261,209 ^f
Farrier and veterinary	697,070	697,070	697,070	697,070
Total	30,223,787	18,366,489	28,344,230	17,278,689

^a Net salaries and wages after applying 17 percent federal and state tax rate

^b Reduced to an average 20 percent margin, in accordance with IMPLAN

^c Includes refuse and garbage collection

^d Reduced to a 23.4 percent margin in accordance with IMPLAN

^e Reduced to a 16.8 percent margin in accordance with IMPLAN

^f Reduced to a 16.3 percent margin in accordance with IMPLAN

The amounts listed in the above table under “Adjustments to Direct Expenditures for Margins” are the actual dollar figures used in the IMPLAN model. The modeling program then adjusts these numbers to ac-

count for leakages and distributes these figures through the proper industries. Table A.4 shows the new categories from IMPLAN and the corresponding direct expenditures adjusted for margins and leakages.

Table A.4: Adjustments to Direct Expenditures for Margins and Leakages

Category	Amount Spent in Virginia (\$)	Amount Spent in Lexington Area (\$)
Lodging places	6,314,317	6,250,374
Eating and drinking	5,551,536	5,349,607
Automotive dealers & service stations	1,708,927	1,580,905
Other retail trade and wholesale trade	939,920	872,996
Personnel, car, and repair services	901,222	667,936
Government industry ^a	397,691	460,956
Entertainment	374,433	374,472
Business services ^b	373,070	331,431
All other	671,853	308,764
Total	17,232,968	16,197,439

^aIncludes government-owned utilities, education programs, the postal service, etc.

^bIncludes all health, legal, educational, and social service businesses

Table A.5 shows the new categories from IMPLAN for both Virginia and the Lexing-

ton area, as well as the indirect, induced, and total impacts.

Table A.5: Horse Center Impact on Output, 2000-2001

Category	Direct	Indirect	Induced	Total
Output in Virginia				
Lodging places	6,314,317	61,577	232,861	6,608,754
Eating and drinking	5,551,536	90,017	952,290	6,593,843
Automotive dealers & service stations	1,708,927	4,891	544,194	2,258,012
Other retail trade and wholesale trade	939,920	299,330	2,671,628	3,910,878
Personnel, car, and repair services	901,222	486,296	713,180	2,100,698
Government industry ^a	397,691	127,932	491,353	1,016,976
Entertainment	374,433	174,889	321,890	871,212
Business services ^b	373,070	64,880	3,426,323	3,864,273
All other	671,853	3,487,445	10,041,022	14,200,320
Total	17,232,968	4,797,258	19,394,740	41,424,966
Output in Lexington Area				
Lodging places	6,250,374	55,742	168,190	6,474,306
Eating and drinking	5,349,607	86,454	774,275	6,210,336
Automotive dealers & service stations	1,580,905	4,237	457,442	2,042,584
Other retail trade and wholesale trade	872,996	129,729	1,596,378	2,599,104
Personnel, car, and repair services	667,936	74,618	131,210	873,764
Government industry ^a	460,956	113,724	320,423	895,102
Entertainment	374,472	257,093	287,087	918,652
Business services ^b	331,431	29,777	1,923,673	2,284,881
All other	308,764	1,815,637	4,668,086	6,792,487
Total	16,197,439	2,567,011	10,326,765	29,091,215

^a Includes government-owned utilities, education programs, the postal service, etc.

^b Includes all health, legal, educational, and social service businesses

Contribution by Out-of-State Sources

Two indicators were available to estimate the percentage of participant spending that was out-of-state: participants' survey responses and license plate counts in the participant areas of the parking lot. Actual registration data on participants are the property of each show's organizers, not the Horse Center, and this information is private like all trade secrets. Thus, the secondary sources

of information on participant origin serve as our best estimate.

Table A.6 shows the actual number and corresponding percentage of vehicles counted from each state as well as Canada in the license plate survey. The table was the source for the map figure shown in the study (Figure 2, page 7).

Table A.6: Horse Center Visitors Based on License Plate Survey, 2000-2001

<u>Locality</u>	<u>Total Count</u>	<u>%</u>	<u>Locality</u>	<u>Total Count</u>	<u>%</u>
Virginia	1,807	49.2	Hawaii	14	0.4
North Carolina	306	8.3	Louisiana	14	0.4
Maryland	187	5.1	California	10	0.3
Pennsylvania	182	5.0	Vermont	9	0.2
Wisconsin	107	2.9	Alaska	8	0.2
New York	106	2.9	Missouri	8	0.2
West Virginia	91	2.5	Alabama	7	0.2
North Dakota	79	2.2	Colorado	7	0.2
Ohio	77	2.1	Delaware	7	0.2
Tennessee	66	1.8	Iowa	5	0.1
New Jersey	64	1.7	Utah	5	0.1
Florida	61	1.7	Montana	4	0.1
Texas	59	1.6	Nebraska	4	0.1
Massachusetts	43	1.2	Washington	4	0.1
Georgia	36	1.0	Arkansas	3	0.1
Kentucky	36	1.0	Kansas	3	0.1
South Dakota	32	0.9	Mississippi	3	0.1
Connecticut	31	0.8	New Mexico	3	0.1
Michigan	30	0.8	Oklahoma	3	0.1
South Carolina	25	0.7	Oregon	2	0.1
Illinois	19	0.5	Maine	1	0.0
Rhode Island	19	0.5	Wyoming	1	0.0
Indiana	18	0.5	Arizona	0	0.0
New Hampshire	17	0.5	Idaho	0	0.0
Minnesota	16	0.4	Nevada	0	0.0
District of Columbia	15	0.4	Canada	21	0.6

The license plate count was only done once for each show, so the results depend on the date and time of the survey. In addition, the license plate survey counted each vehicle individually because it could not take into account how many vehicles were traveling together. Consequently, the

license plate data would not necessarily match up with the number of participants from different states. Another drawback could have been unrepresentative shows, but since fifteen shows were surveyed, this is unlikely. Table A.7 shows detailed results of the license plate survey.

Table A.7: Out-of-State Vehicles by Show Based on License Plate Survey, 2000-2001

Name of Show	Date	Total Number	Out-of-State	
		of Vehicles	Vehicles	% Out-of-State
Stonewall Country	1/20/01	46	13	28.3
Stonewall Country	2/2/01	66	9	13.6
Eastern Mid-Winter Sale	1/27/01	356	203	57.0
Trail Horse Sale	2/10/01	193	96	49.7
SWVHJA	11/13/00	442	182	41.2
Virginia Intermont Classic	3/3/01	283	92	32.5
VA Team Penning	2/24/01	143	82	57.3
Clean Run Camp	3/22/01	196	167	85.2
Spring Arabian Classic	3/25/01	215	94	43.7
Region 2 East Coast Championships	4/4/01	384	289	75.3
Region 10+ Sale (Turnbull)	4/21/01	362	116	32.0
Lexington Spring Premier	4/26/01	283	131	46.3
Bonnie Blue National	5/12/01	321	160	49.8
AHJF Legacy Cup	5/1/01	111	64	57.7
VA CCI Horse Trials	5/19/01	274	170	62.0
Total		3,675	1,868	50.8^a

^aDerived from dividing the total number of vehicles (3,075) by the total number of out of state vehicles (1,868).

The greatest limitation of the participant survey results from the small number of shows sampled. Participant surveys were only done at four of the larger shows, so it is unlikely that these four shows were adequately representative of the remaining shows. In addition, the participant survey was generally only given during one day of

the show although every surveyed show lasted longer than one day. Furthermore, the surveys were only administered to owners and trainers rather than all attendees. Table A.8 shows a breakdown of the percentage of surveyed participants from other states by show.

Table A.8: Out-of-State Participants by Show Based on Participant Survey

Name of Show	Date	Sample Size	% Out-of-State
		(# of Participants)	
American Saddle Horse Association of VA	9/28/00	89	46.1
Virginia Horse Trials	11/4/00	100	52.0
Virginia Quarter Horse Association Region I	4/2/01	102	89.2
Lexington Spring Premiere Hunter/Jumper	4/28/01	99	47.5
Total			57.8^a

^a57.8 is a weighted average of the out-of-state percentages of every show. The number was calculated by multiplying each out-of-state percentage by the corresponding weight and then summing these results together. The weights used in this table are the same as those used in calculating participant expenditures.

Despite these limitations, both surveys were helpful in determining what percentage of Horse Center patrons come from other states. We gave the two surveys equal

weight in arriving at our estimate of out-of-state participants ($0.5 \times (50.8 \text{ percent} + 57.8 \text{ percent}) = 54.3 \text{ percent}$).

IMPLAN

IMPLAN is a versatile program that can be used to develop several types of multipliers. To generate our IMPLAN results we used Type III multipliers which are similar to those used in the 1995 study. The program now offers Type II multipliers as its default technique. Type II multipliers generally yield results that are lower than Type III multipliers². Both types generate the same direct and indirect multipliers. They differ in how they generate induced multipliers. Type III induced multipliers are based on the assumption that increased household spending will translate into an increased population that will spend total income in the same way as the current population. Type II induced multipliers assume that increased household spending will translate into more labor income. The additional labor income will be used for new personal consumption expenditures estimated using IMPLAN's SAM (social accounts matrices) accounts.

Taxes

State Taxes—The state government sales and use tax estimates were based on taxable items in total direct expenditures plus taxable items in indirect and induced expenditures. Because the expenditure amounts included the 4.5 percent state sales tax, the totals were adjusted to exclude them by multiplying by 0.9569 [=1.00/1.045]. The state sales tax was then derived by multiplying adjusted total taxable sales by 3.5 percent.

We based estimates of state income tax collections on IMPLAN estimates of la-

bor income. Labor income was multiplied by 4.1 percent, the ratio of tax year 1999 tax liability to adjusted gross income.

In the absence of detailed information on tax bases for other state taxes such as those on corporate income and motor fuels, we estimated them as follows. We subtracted individual income tax collections and state sales tax collections from total tax collections in fiscal years 1999 and 2000. These numbers were averaged to represent collections in calendar year 1999. The calendar year 1999 total of other taxes was divided by 1999 GSP (gross state product). GSP is equivalent to value added at the state level. The ratio of other taxes to value added was applied to value added from the Horse Center at state and local area levels in order to derive estimates of other state taxes.

Local Taxes—The local option 1 percent sales tax was derived by multiplying adjusted total taxable sales by 1 percent.

We based the local meals tax estimate on restaurant expenditures shown in direct, indirect, and induced expenditures. The total was adjusted to account for inclusion of state and local sales taxes and the meals tax in the reported amounts. The adjustment was achieved by multiplying the total by 0.922 (= 1.00/1.085). Adjusted total expenditures were multiplied by 4 percent, the rate used by Lexington and Rockbridge and the median rate for all cities and counties, including those counties that do not levy the tax.

The local lodgings tax estimate was based on lodgings expenditures shown in direct, indirect, and induced expenditures. The total was adjusted to account for inclusion of state and local sales taxes and the lodgings tax in the reported amounts. The adjustment was achieved by multiplying the

² If we had used Type II multipliers, the total output of the Horse Center for Virginia would have been \$27.4 million rather than the \$41.4 million computed using Type III multipliers. Total employment would have been 512 based on Type II multipliers rather than the 708 computed using Type III multipliers.

total by 0.939 (= 1.00/1.065). The Lexington area estimate was based on a 4 percent rate since both Lexington and Rockbridge now employ that rate. To derive the state figure, we used the Lexington area estimate plus tax collections on lodging sales in the balance of the state. These sales were multiplied by 2 percent, the median rate for all cities and counties, including those cities and counties that do not employ a transient occupancy tax.

Other local government taxes (property, business license, etc.) were estimated in the same way as for other state government taxes. We derived other local government taxes by subtracting collections from the local option state sales tax, the meals tax,

and the lodgings tax collections from total local government tax collections in fiscal years 1999 and 2000. These numbers were averaged to represent collections in calendar year 1999. The calendar year 1999 total of other local government taxes was divided by 1999 GSP at the state level. The ratio of other state taxes to GSP was applied to value added from the Horse Center at state and local area levels in order to derive estimates of other local government taxes. It was not possible to derive a special ratio of other local government taxes to value added for the Lexington area so the statewide average ratio of 0.028 per dollar of value added was used to derive the estimate of \$500,976.

Table A.9: Horse Center Tax Impact Methodology, 2000-2001

Item	Virginia (\$)	Lexington Area (\$)
State taxes		
Sales and use tax		
Taxable direct expenditures	24,633,557	24,160,515
Taxable indirect and induced expenditures	4,395,265	2,825,793
Total taxable expenditures	29,028,822	26,986,308
Adjusted taxable expenditures @ 0.9569	27,777,680	25,823,198
Tax @ 3.5%	972,219	903,812
Individual income tax		
Labor income-direct, indirect, and induced	15,851,204	10,946,575
Tax at 4.1%	649,899	448,810
Other state taxes (corporate income, motor fuel, etc.)		
Value added	25,922,216	17,891,993
Other state taxes per dollar of value added	0.012	0.012
Estimated other state taxes	311,067	214,704
Total state taxes	1,933,185	1,567,326
Local taxes		
Local options sales and use tax		
Adjusted taxable expenditures @ 0.9569	27,777,680	25,823,198
Tax @ 1%	277,777	258,232
Meals tax		
Direct expenditures on meals	5,780,933	5,571,812
Indirect and induced expenditures on meals	1,042,307	860,729
Total expenditures on meals	6,823,240	6,432,541
Adjusted total expenditures on meals @ 0.922	6,291,027	5,930,803
Total meals tax	251,641	237,232
Lodgings tax		
Direct expenditures on lodgings	6,923,563	6,853,856
Indirect and induced expenditures on lodgings	294,438	223,932
Total expenditures on lodgings	7,218,001	7,077,788
Adjusted total expenditures on lodgings @ 0.939	6,777,703	6,646,043
Lexington area tax @ 4%	265,842	265,842
Balance of state @ 2%	2,633	
Total lodgings tax	268,475	265,842
Other local taxes (property, business licenses, etc.)		
Value added	25,922,216	17,891,993
Other local taxes per dollar of value added	0.028	0.028
Estimated other state taxes	725,822	500,976
Total local taxes	1,523,715	1,262,282
Total state and local taxes	3,456,900	2,829,608

Comparison with Previous Studies

This is the third study of the economic impact of the Virginia Horse Center. All of the studies were prepared under contract by the University of Virginia's Weldon Cooper Center for Public Service. At the time of the first study in 1991 the organization was known by the shorter name, the Center for Public Service.

The three studies are not directly comparable for numerous reasons. The many differences are noted in Table A.10. The most important changes involved: the method of expanding the sample participant survey results to represent all participants and the adjustment of data prior to running the input-output model. Our new method of expanding the sample uses the concept of expenditure per horse-day, a better method than the previously used procedure of using two separate surveys to determine the participants per horse and the spending per participant, and then multiplying these numbers

by the average number of horses per show and the total number of shows.

We now adjust direct expenditures to avoid double counting that apparently existed in the earlier studies. We also make adjustments for margins and leakages not previously accounted for.

The lower estimates for several of the measures in the latest study should not be interpreted as indicative of a declining trend in the importance of the Horse Center. To the contrary, if comparable studies were available, there is no doubt that they would show vigorous growth. The increase in number and size of structures at the Horse Center, the growing number of large events, the full utilization of capacity for many shows, the popularity of the Center for other events, the expansion of the hotel-motel industry in part because of the Horse Center, and the emergence of specialized businesses such as L.B's Trailers of Virginia are all growth indicators.

Table A.10: Comparison of Horse Center Economic Impact Studies

Item	1991 Study	1995 Study	2001 Study
Authors	John L. Knapp & Tyler J. Fox	Samuel R. Kaplan & John L. Knapp	John L. Knapp & Catherine E. Barchers
Time period	1990-1991	1994-1995	2000-2001
Area covered	Lexington-Rockbridge & state as a whole	Lexington-Rockbridge & state as a whole	Lexington- Rockbridge & state as a whole
Input/output model	RIMS II	IMPLAN	IMPLAN
Survey based?	Yes	No	Yes
Virginia direct impact	\$11,007,528	\$22,827,610	\$30,223,787 (unadjusted) \$17,232,968 (adjusted)
Virginia total impact	\$22,242,001	\$56,566,616	\$41,424,966
Virginia employment, total impact	434	1,024	708
Retail trade adjusted for margins?	No	No	Yes
Wages and salaries adjusted to take-home-pay?	No	No	Yes
Show fees counted?	Yes	Yes	No
Method of expanding survey results	Three different show-type averages for each expenditure category	Three different show-type averages for each expenditure category	One weighted average for each expenditure category
Virginia st.-loc. tax impact	\$521,576	\$1,418,019	\$1,933,185
Local area st.-loc. tax impact	\$312,258	\$655,279	\$1,523,715
Tax impact includes other state taxes (corp. inc., motor fuels, etc.) and other local taxes (property, bus. lic., etc.)	No	No	Yes
Out-of-state visitor surveys:			
Parking lot survey	No	Yes	Yes
Part of participant survey	Yes	(No survey)	Yes
Registration survey	No	Yes	No
Visitor Center registrations	No	Yes	No
Lodging survey	No	No	Yes



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VIRGINIA HORSE CENTER IMPACT STUDY

This survey is being conducted as part of a study to measure the Virginia Horse Center's impact on the economy of Virginia. Your cooperation in this effort will be extremely valuable to the Horse Center's future. **All information that you provide will be kept strictly confidential.** Thank you for your participation.

This questionnaire asks for your expenditures associated with attending this event at the Virginia Horse Center. If you are not sure about a response, please give your best estimate rather than leaving it blank.

If you own one or more horses in partnership with members of your household (people living with you) please answer all questions as if you alone fully own the horse.

If you own a share of a horse with one or more partners outside your household, please report only the expenditures that you made.

1) What is your primary activity (please check only one)?

- A horse owner
- A horse trainer
- Other interests, (groom, rider, spectator, business affiliate.)

2) Where do you reside?

- Within the Lexington area (15 miles of Lexington)
- Another location within Virginia (specify) _____
- Outside of Virginia

_____ State _____ Country

3) How many family members or friends are with you for this show? (Please exclude joint owners outside your household, trainers, and other staff.) _____

4) How many days will you attend this show? _____

5) What are your total expected out-of-pocket expenses while attending this show for the following categories? If you are an owner, do not include any expenses that you believe your trainer will report. If you are a trainer, do not include any expenses that you believe your owner will report.

Category	Expected to Spend in the Lexington Area	Expected to Spend in Virginia on the Way to the Lexington Area
Food.....	\$ _____	\$ _____
Lodging.....	\$ _____	\$ _____
Entertainment.....	\$ _____	\$ _____
Shopping (antiques, gifts, etc.).....	\$ _____	\$ _____
Travel (gas, fuel, fares).....	\$ _____	\$ _____
Car rental.....	\$ _____	\$ _____
Vehicle repair/maintenance.....	\$ _____	\$ _____
Trailer repair/purchase.....	\$ _____	\$ _____
Show fees.....	\$ _____	
Farrier.....	\$ _____	
Veterinary.....	\$ _____	
Other, please describe _____	\$ _____	\$ _____



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LODGING SURVEY

This survey is being conducted as part of a study to measure the Virginia Horse Center's impact on the economy of Virginia. Your cooperation in this effort will be extremely valuable to the Horse Center's future.

All information that you provide will be kept strictly confidential. Thank you for your participation.

Name of respondent: _____

Name of establishment: _____

Total number of rooms: _____

In the course of a twelve-month period, what percentage of room rentals come from each of the following categories? Please estimate to the best of your ability.

<u>Reason for Visit</u>	<u>Approximate Percentage of Annual Room Rentals</u>
Through-travelers.....	_____ %
Tourism in Lexington.....	_____ %
Virginia Horse Center.....	_____ %
VMI or W&L.....	_____ %
Other or unknown	_____ %
	100%

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