AMERICAN
HORSE COUNCIL
FOUNDATION

Economic Impact
OF THE HORSE INDUSTRY
in Pennsylvania

U.S. $50

Contents

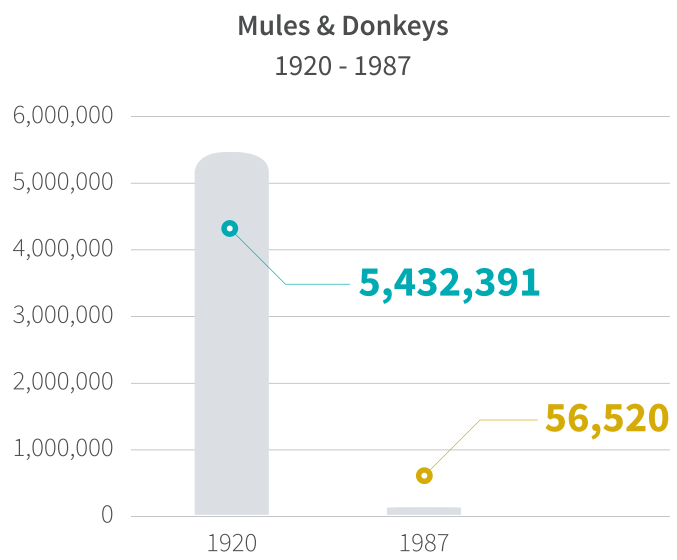
When the streets of American cities teemed with horses and horse-drawn carriages, and horse-drawn plows tilled America's farmland, the equine population stood at 25 million (in 1920). By 1960 that number had dropped to just 3 million.

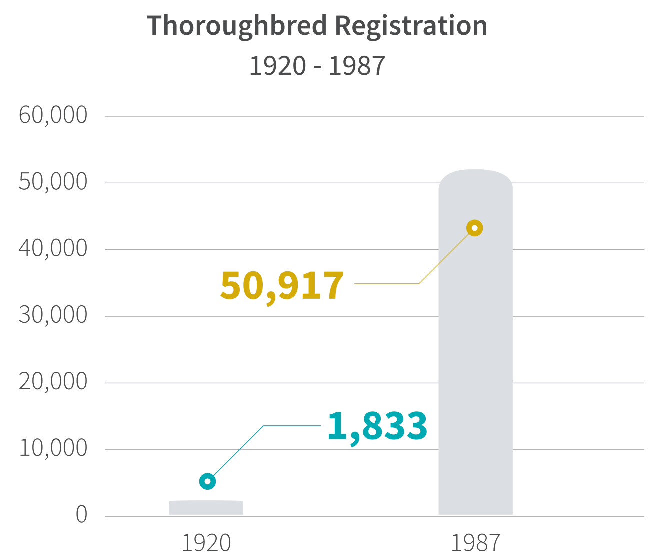
At least two breeds, however, went in the opposite direction. Thoroughbred breeding began a steady increase in the 1920s that lasted for more than half of a century, from just 2,000 foal registrations per year to more than 50,000 by the late 1980s. Likewise, the American Quarter Horse — a favorite for recreational riding as well as a racing horse — rose from a mere 600 in the breed's first stud book, in 1941, to 2.6 million by 2010.

Entertainment, in the form of horse racing and competition, became a primary way that horses contributed to the economy. This development dovetailed with the emergence of the consumer-based economy, as the assembly line and other Industrial Revolution innovations solved the problem of production.

The decline of utilitarian uses and the rise in aesthetic pursuits — entertainment, sport, and recreation — can be seen in the contrast between the donkey and mule population on the one hand and Thoroughbred breeding on the other.

A Tale of Two Equids





As their utilitarian roles declined, horses were put to work entertaining America's growing consumer class instead. With the success of the racing industry and expansion into nearly every state, as well as a growing recreational sector, horse breeding rebounded after 1960, and the population reached an estimated **9 million** by 2004.

The horse industry remains a stable and vital force in the U.S. economy, despite a decline in the horse population precipitated by the Great Recession of 2008-09. The economic activity involved in caring for the nation's estimated **7.2 million horses,** along with the spending by horse enthusiasts in their pursuit of horse events and recreation, directly contributes **over $50 billion** to America's Gross Domestic Product.

In Pennsylvania, the horse industry directly contributes over $1.7 billion to the state's economy, along with 43,114 jobs.

Direct Contribution to GDP: **$1.7 billion**

Direct Employment Impact: **43,114 Jobs**

From those direct effects, the horse industry's contribution ripples out into other sectors of the economy. Adding these ripple effects—termed indirect and induced effects in economic jargon—results in an estimate of the total contribution of the horse industry to the Pennsylvania economy of **$3.3* billion.**

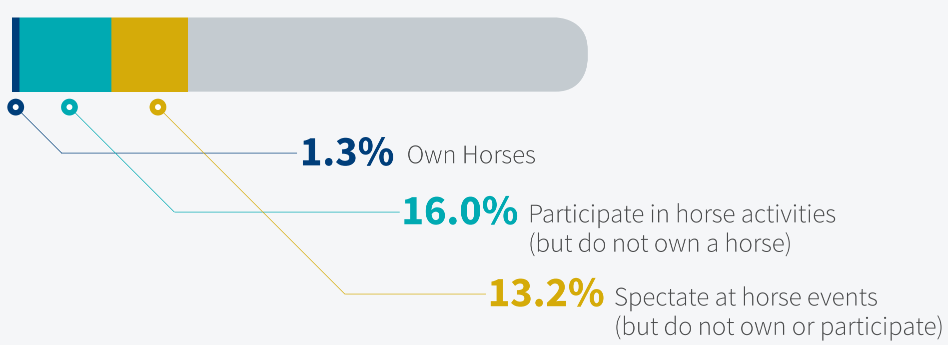
Total Value Added to the Pennsylvania Economy: **$3.3* billion**

Total Employment Impact: **60,133 Jobs**

Horse Enthusiasts

Only a small percentage of Americans own horses. Horse breeding and ownership require diverse resources and commitment to care for such a large animal that can live for 25 years or more. However, for every horse-owning household there are 22 other households that contain horse enthusiasts, as **29% of American households have members who either participate in horse activities or attend horse events as a spectator.**

Percentage of U.S. households that:



In total, 30.5% of households—or 1.6 million in Pennsylvania—contain horse enthusiasts.

And while ownership tends to be skewed toward older age groups, participation in horse events is skewed toward youth. Minors comprise 38% of horse participants, whereas the under-18 age cohort represents only 23% of the U.S. population. This bodes well for the future of the industry.

While horses still perform traditional chores on American ranches and farms, and still transport people in Amish communities, people today use horses mostly for sporting, recreational or therapeutic purposes. No other domesticated livestock has bridged the gap from a production-based to a consumer-based role in the economy. This success, due in no small part to how horses tug at the human heart, has made the horse industry an enduring force in the U.S. economy almost a century after its utilitarian roles became mostly obsolete.

The Methodology Behind the Numbers

Economic impact analyses are commonly used tools to quantify the benefits that result from the opening or closure of a business or industry to an area. The Innovation Group performed the horse industry analysis utilizing IMPLAN data and software.

THE ECONOMIC IMPACT OF AN INDUSTRY CONSISTS OF THREE LAYERS OF IMPACTS:

1 Direct Effects

The direct effect is the economic activity that occurs within the industry itself: for example, the people employed on horse farms and at racetracks and the spending by horse owners on feed and veterinarians and farriers. For the horse industry, direct effects are defined as employees of or direct expenditures by front-line industry entities or customers of front-line entities. Direct expenditures include operating expenses and average annual capital expenditures.

2 Indirect Effects

Indirect impacts are the effects of the direct expenditures on other business sectors: for example, the farmer who grows the alfalfa and grain as well as the mill that processes the grain. Indirect effects reflect the economic spin-off that is made possible by the direct purchases of the facility. Firms providing goods and services to equine operations have incomes partially attributable to the horse industry.

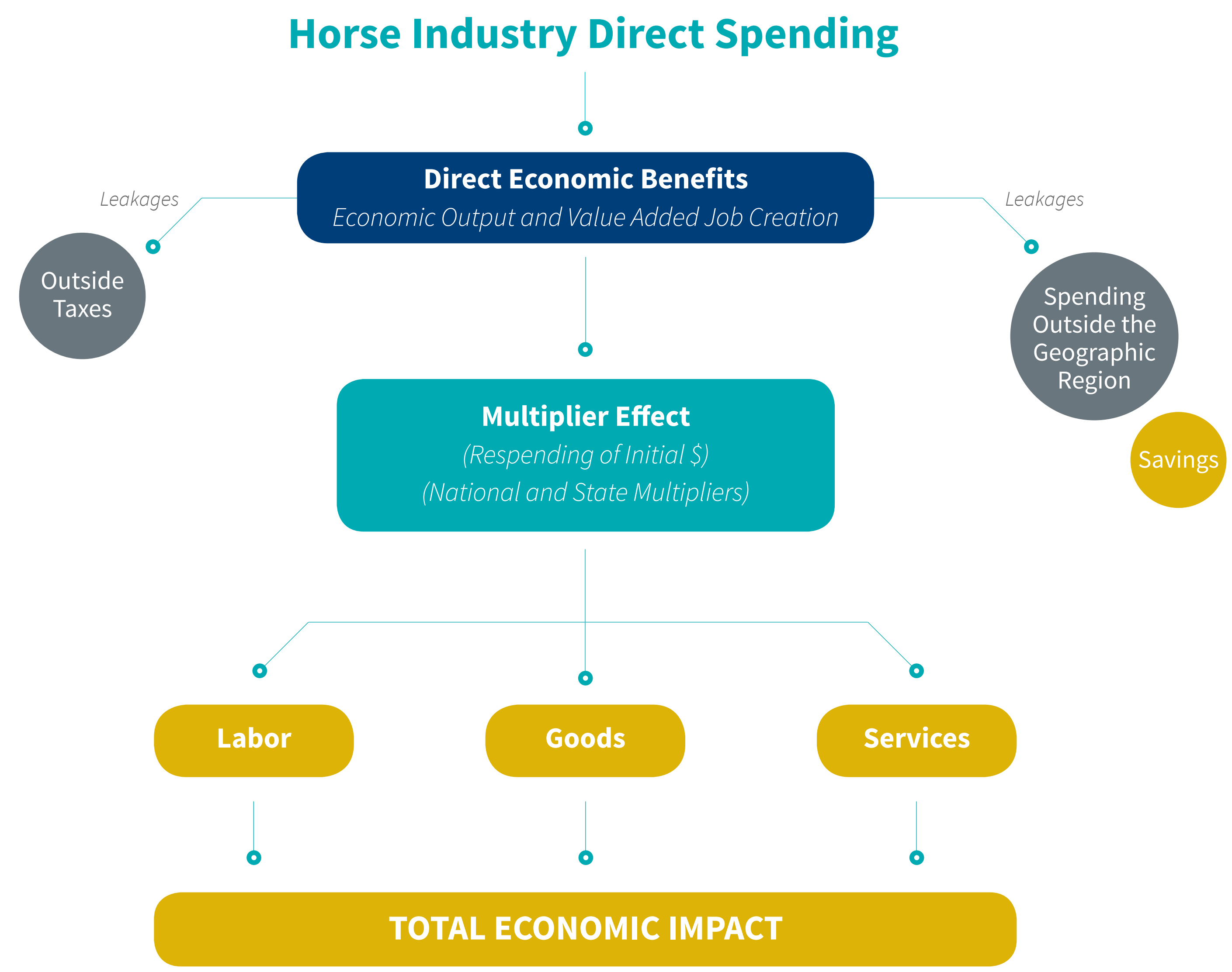
3 Induced Effects

Finally, the induced impacts result from the spending of labor income: for example, racetrack employees or feed mill employees using their income to purchase consumer goods locally. As household incomes are affected by direct employment and spending, this money is recirculated through the household spending patterns causing further local economic activity.

Indirect and induced effects are calculated using multipliers derived from an input-output model[1] of the economy. The IMPLAN input-output model identifies the relationships between various industries—for example, which industries are involved in producing $1,000 worth of feed and by how much is each industry affected? The model is then used to estimate the effects of expenditures by one industry on other industries so that the total impact can be determined. Industry multipliers are developed based on U.S. Census data. IMPLAN accounts closely follow the accounting conventions used in the “Input-Output Study of the U.S. Economy” by the Bureau of Economic Analysis.

[1] IMPLAN software and data were utilized for this study.

The following flow-chart shows how the economic impact model operates.



Determining the direct economic impact is a critical first step in conducting a valid economic impact analysis. The horse industry is unique because of its multiple segments and the dispersed nature of industry participants and activities. The racing industry alone involves a complex web of participants and activity, with scattered registries that do not capture all participants. The following sections describe the survey results and data collected for the analysis.

HOUSEHOLD SURVEYS

The American Horse Council commissioned The Innovation Group to conduct a series of household surveys to estimate:

- The number of horses in the United States
- The owner expenses involved in caring for and training horses
- The owner expenses related to using horses for racing, competition, and recreation
- The spending by non-owners on horse activities, such as riding lessons, trail riding, and going to the races

The first three items formed the core inputs into the direct impacts of horse ownership. The methodology employed a two-pronged approach: first, a "balanced start" survey representative of the demographic composition of the U.S. population was undertaken to derive statistically valid inferences on horse ownership, participation in horse activities, and spending by spectators at horse-related events. Secondly, a survey of horse owners was distributed through equine associations and the American Horse Council asking respondents about expenses related to horse ownership and horse-related activities.

These two surveys—conducted on the Qualtrics platform—are referred to as Balanced Start Survey and AHC Association Survey, respectively, in this report. Given the overlap in horse ownership among family members, and the desire to collect data on youth participation, the horse ownership surveys were conducted at the household level.

The Balanced Start survey generated 3,284 responses yielding 1,000 observations that had at least one spectator, participant, or owner in the household. These three categories combined represent what could be termed "horse enthusiasts." The incidence rate for horse ownership resulting from the Balanced Start survey is 1.3% of households, which equals 65,430 Pennsylvania households based on U.S. Census estimates for 2016.

The AHC Association Survey yielded 19,857 started responses of which 12,854 were completed. For Pennsylvania, 895 responses were started and 608 completed. This survey was intended to characterize the population of association members and horse ownership in greater detail. The sample frame consisted of the membership lists of the participating associations with notification of eligibility largely by email for an internet-based survey. Paper surveys were also disseminated to associations that requested that medium so that they could include respondents who may not be comfortable with an internet-based survey. The membership lists were not sampled, but rather the full membership was invited to respond to the survey.

The constituent associations were responsible for notifying their members of the survey and promoting response. We expected and observed different response rates due to the heterogeneous dissemination methods of the survey instrument amongst the numerous organizations. For this reason, and because email lists were not available to remove duplicates and identify simultaneous membership among multiple associations, we asked respondents to self-identify their membership in the relevant organizations as part of the survey. We used this data point in tandem with the associations' membership tallies to correct for nonresponse among and between the various associations.

Of the completed surveys, 8,401 nationally and 400 in Pennsylvania confirmed their membership in at least one equine association. While we could use the incomplete and non-member responses to inform our inquiries during analysis, without knowledge of the population that they described from association membership tallies, we could not use them for the purposes of extrapolating to the population of equine association members. Further we would not be able to calculate appropriate nonresponse weights to produce estimates and make inferences with these observations.

The result of the two surveys was an estimate of the horse population for two groups of owners: Association Members and Non-Members. The AHC survey was weighted by the results of the Balanced Start survey, resulting in an estimate of 195,000 horses as shown in the table below.

Horse Population Estimates 2016 (000's): Household Surveys

	Racing	Competition	Recreation	Traditional Working Horse	Other	Total
Association Members	11	19	66	1	21	117
Non-Members	12	8	46	6	6	78
Total	**23**	**27**	**112**	**7**	**27**	**195**

Quarter Horses typically dominate the Competition, Recreation, and Traditional Work (such as farming and ranching) sectors, while Thoroughbreds and Standardbreds dominate the racing sector.

Horse Population Estimate by Breed (000s): Household Surveys

Breed	Total
Quarter Horse	40
Thoroughbred	29
Standardbred	22
All Other Breeds	105
Total	**195**

Source: The Innovation Group

The association survey results showed statistically significant differences in per-horse expenses among the sectors. These different average expenses were applied to the horse counts by sector in the preceding table to form the main core of direct effects. The survey results also showed statistically significant differences in per-horse expenses between association members and non-members, with non-member combined expenses and investments averaging $3,396.

Per-Capita Horse-Related Expenses and Investments 2016: Association Survey

Racing	Competition	Recreation	Traditional Working Horse	Other
$25,171	$29,409	$8,892	$6,197	$10,594

As noted, the Balanced Star survey also included a line of questioning asking non-horse owners if they participated in horse activities or spectate at horse events. The incidence rate for spectators is additive; it excludes people who own horses or participate in horse activities. In total, 30.5% of households have at least one horse enthusiast, which equals nearly 1.6 million Pennsylvania households extrapolated to 2016 Census estimates.

Horse Enthusiast Breakdown by Type

Type	PA Households	Percent
Owner	65,430	1.3%
Participant (Non-Owner)	819,432	16.0%
Spectator Only	672,994	13.2%
Total Horse Enthusiast HH	**1,557,856**	**30.50%**

Source: The Innovation Group

These participants and spectators are estimated to have spent

$1.4 billion

on travel, dining and lodging while participating in and attending events. Sales margins and leakages as calculated by IMPLAN reduce the direct effect in Pennsylvania of this spending to $1.2 billion, which can be seen in the results table later in the report.

INSTITUTIONAL SURVEYS AND DATA COLLECTION

Separate surveys were conducted of institutions involved in the horse industry: rescues and sanctuaries, competition event organizers, equine-assisted therapy operations (EAAT), and equine academic programs. These were also distributed through equine associations and the American Horse Council.

There are an estimated 602 equine rescues and/or sanctuaries currently active in the United States, having handled nearly 24,000 horses in 2016. Pennsylvania has 23 total institutions across the state with 13 being equine rescues, four sanctuaries, and six institutions that act as both. Based on results of the survey, total operating expenses and capital investment for these operations are estimated to have been $2.3 million in 2016.

The survey of competition event organizers did not result in usable data; thus, the economic contribution of this sector was determined through the horse ownership surveys, utilizing the expense line item Entry and Stall fees for horses identified as Competition. Equestrian competitors are estimated to have spent $29.4 million in Entry and Stall fees in 2016.

The EAAT and academic surveys provided limited data and therefore were supplemented by results of a recent survey conducted by the Professional Association of Therapeutic Horsemanship International (PATH) and by follow-up calls to academic institutions. EAAT and academic operations involves therapy, instructional, and research activities directly attributable to the horse industry. Based on results from the PATH survey, the total direct contribution estimated from all 62 EAAT operations in Pennsylvania is $12.1 million in revenues, supporting a workforce of 262 employees. We received valid responses from three of four colleges and universities in Pennsylvania having equine-related programs and degrees, resulting in an estimate of 39 total employees within the Equine Academic Industry.

Operating Data

For many industry segments, direct collection of proprietary operating data or public reporting was more appropriate than a survey instrument. Proprietary financial data and racing statistics were requested from racetrack operators. Publicly available data consisted of state racing commission reports and racing statistics, IRS 990 forms, and sales reports for public horse sale events.

RACING INDUSTRY

Racing industry data was obtained for pari-mutuel operations, state and county fairs, steeplechase events, and state racing commissions.

A census was conducted of all known racetrack and pari-mutuel operations in the U.S. In total, 21 responses were received, including from the four largest operators—Churchill Downs, New York Racing Association, Penn National, and the Stronach Group. The employment and operating data represents 46 of the 113 known racetracks in the U.S. that had at least one day of live racing in 2016. In addition to the racetrack responses, we also received operational data from OTB/ADW companies. A regression analysis based on breed, number of race days and handle was performed on the respondent dataset to determine the revenue, employment and employment compensation for the unknown population. Operating data from four of Pennsylvania's six active racecourses was supplemented by statewide wagering and racing data from the Pennsylvania Racing Commission. Racing data from state and county fairs were obtained from the USTA (Trotting Association).

Additionally, the National Steeplechase Association provided purse and racing statistics, which was supplemented by operational data (revenue and employment) available through public filings of IRS 990 forms. In 2016, there were four locations in Pennsylvania that hosted a total of 20 steeplechase races.

State horse racing commissions like the Pennsylvania Horse Racing Commission[2] are funded through pari-mutuel taxes, which are derived from the wagering revenue recorded in the racetrack sector above. As such, the direct effect input from this segment is limited to employment and labor income related to commission operations. Further, to avoid double-counting, the labor income of racing commission operations is subtracted from the direct input of racetrack revenue prior to the IMPLAN modeling.

EQUINE ASSOCIATIONS

The American Horse Council directory lists 308 equine-related associations active in the U.S., including State Horse Councils, breed registries, non-academic educational organizations, activity-based associations, libraries and museums. These non-profit organizations submit detailed financial information to the IRS on tax form 990, some of which are publicly available documents. In total, we collected employment and salary data from 56 organizations. After removing extreme outliers from the dataset, averages were used to estimate the unknown population. The input from all five equine-related associations in Pennsylvania includes 49 employees earning $2.4 million in compensation.

PUBLIC HORSE SALES

Sales data was collected through archival records of major horse public sales throughout the U.S. from sale company's websites or online databases such as Blood Horse and Harness Racing. In addition to the major companies and sales, such as Fasig-Tipton, Keeneland and Harrisburg, we collected data from smaller state and local sales throughout the country. In total, 1,542 horses sold in Pennsylvania during 2016 resulted in annual sales of $53.4 million. For this segment, only the marginal effect is considered. Consistent with the 2005 national horse study, revenue accruing to horse owners is not included as an economic impact on the basis that industry-wide, horse ownership expenses exceed revenues. However, the sales margin of $9.8 million, as estimated by IMPLAN, reflects the staffing and expenses required to host the sales events and the commissions accruing to the hosting enterprises.

[2] Pennsylvania racing was formerly regulated by separate harness and Thoroughbred commissions.

Total Horse Population Estimate

Rescues and sanctuaries, EAAT operations, and academic programs own horses that were not captured in the household surveys. Moreover, horses owned by Amish households are not considered to have been captured in the household surveys, and an estimate for ownership was derived by third-party studies and Amish population estimates. The total horse population in Pennsylvania during 2016 is estimated to be 223,628.[3]

Total Horse Population Estimate, Including Institution and Amish Owned

Horse Ownership Household Surveys	195,352
Institutionally Owned and Amish Owned Horses	28,275
Total Utilized for Economic Impacts	**223,628**

Source: The Innovation Group

[3] It should be noted this is not a census, but rather a population estimate for the purpose of estimating the economic impact of the industry.

Economic Impact Modeling

The IMPLAN tools utilized to model the direct effects varied according to the type of data collected for each input segment. There are five types of economic activity changes that IMPLAN is designed to model for: industry, commodity, labor income, household income, and institution (government) spending. The most commonly used activity is an industry change, as the business generating a change in revenue, labor, or employment is often known and attributable to a specific industry sector.

The commodity change function was most appropriate for modeling the horse ownership expense data and tourism spending by horse participants and spectators. Goods and services can be produced by more than one industry, and the survey instruments did not specify where or from whom the good was purchased. A commodity change distributes the total demand or sales for the good or service across all producing industries or institutions based on their regional market share distribution of that commodity. For example, 97% of the entire U.S. supply of grain is produced by the Grain Farming Sector while the other 3% is produced by the Federal Government.

All horse ownership expenses other than employment compensation were entered into the IMPLAN commodity sector that corresponds to the most appropriate NAICS code[4] for each individual expense line item. Employment compensation was modeled as an industry change through IMPLAN sector 19 (Support activities for agriculture and forestry).

For other data, the Industry Change function under IMPLAN is the more appropriate tool. For racetrack operations, for example, estimates of racetrack revenue are entered into IMPLAN under sector 490 (Racing and Track Operation), and IMPLAN calculates the spin-off effects resulting from that direct revenue.

For some of our data segments, only employment or employment compensation data was available. In these cases, the IMPLAN software estimated other aspects of an operation based on how many people are employed in a given business sector using its employment multiplier.

The following table shows the sectors and inputs utilized for Industry Change activities:

Industry Change Direct Inputs by Segment

Horse Industry Segment	IMPLAN Sector	Revenues (MMs)	Employment	Salaries (MMs)
Competition Events	491 Promoters of performing arts and sports and agents for public figures	$29.4	-	-
Racetrack Operators	490 Racing and Track Operation	$217.4	1,008	$34.5
ADW/OTBs	490 Racing and Track Operation	$25.5	18	-
Fair Races	490 Racing and Track Operation	$0.1	-	-
Steeplechase	515 Business and professional associations	$1.8	3	-
Racing Commissions	531 Employment and payroll of state govt, non-education	-	40	$6.7
EAAT	477 Offices of other health practitioners	$12.1	262	-
Academics	473 Junior colleges, colleges, universities, and professional schools	-	39	-
Associations	514 Grantmaking, giving, and social advocacy organizations	-	49	$2.4
Public Horse Sales	395 Wholesale trade	$53.4	-	-
Tourism Travel	402 Retail - Gasoline stores & 408 Air transportation	$369.2	-	-
Tourism Dining	501 Full-service restaurants	$616.9	-	-
Tourism Lodging	499 Hotels and motels, including casino hotels	$431.6	-	-

[4] The IMPLAN sectoring scheme is based on the North American Industry Classification System (NAICS), developed under the auspices of the Office of Management and Budget (OMB), which classifies business establishments based on the activities they are primarily engaged in or the commodities they create.

Economic Impact Results

▶ *Total Horse Industry*

The direct effects from the previous section were used as inputs in the IMPLAN modeling software to generate the indirect, induced and total effects of the horse industry on the U.S. economy in 2016. The results of each component detail the impact on employment, labor income, value-added and output.

Employment is measured in IMPLAN and by the U.S. Census as headcount, in other words the number of full and part-time workers supported by an economic activity.

Labor Income is compensation to all workers both employees and owners in terms of wages and salaries as well as benefits and payroll taxes. Profits from self-employed businesses can also be included in this category as compensation to the owner. These are known as employment compensation and proprietor income in IMPLAN.

Value-Added measures the industry or event's contribution to Gross Domestic Product (GDP). It consists of labor income (as described on the left), taxes on production, and other property income (such as corporate profits, rent payments, and royalties). It is the difference between a business or industry's total sales and the cost of all input materials or intermediate expenditures.

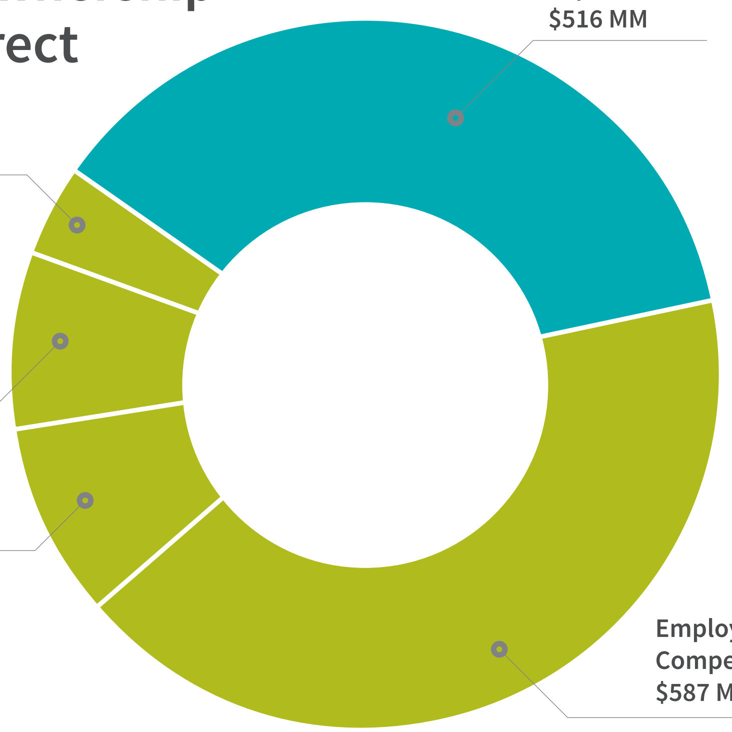
Output is the total value of industry production; it consists of value-added plus intermediate expenditures. Output is frequently the total price paid by consumers for a good or service.

The following chart shows the distribution of direct effects for the Horse Ownership results; output represents the entire pie.

$516 MM Intermediate Expenditures

$884 MM Value Added

Horse Ownership Total Direct Results



Value-Added is the most appropriate measure of economic impact because it excludes intermediate inputs, which are the goods and services (including energy, raw materials, semi-finished goods, and services purchased from all sources) used in the production process to produce *other* goods or services rather than for *final* consumption. For example, the paper stock used in a magazine publication is an intermediate input whereas paper stock sold in an office-supply store is the final product sold to the consumer. The value of producing the magazine's paper stock is accounted for in measures of GDP within the Paper Manufacturing sector, not in the Publishing sector.

As detailed in the adjacent table, the horse industry supports nearly 43,114 direct jobs and adds $1.7 billion in direct value to the Pennsylvania economy. These direct impacts drive a further $1.5 billion in added value to the economy and more than 17,000 jobs from indirect and induced effects.

Total Economic Impact Summary ($MMs)

	Direct	Indirect and Induced	Total
Employment	***43,114***	***17,018***	***60,133***
Labor Income	$1,338	$907	$2,245
Value Added	$1,740	$1,532	$3,272
Output	$2,970	$2,590	$5,560

The following tables detail results by segment and IMPLAN component:

Employment Impacts

	Direct	Indirect and Induced	Total
Horse Ownership	23,500	8,784	32,285
Institutions and Profit-Making Operations	1,713	1,582	3,295
Tourism Spending by Participants and Spectators	17,901	6,651	24,552
Total	**43,114**	**17,018**	**60,133**

Labor Income (MMs)

	Direct	Indirect and Induced	Total
Horse Ownership	$757	$463	$1,220
Institutions and Profit-Making Operations	$111	$73	$184
Tourism Spending by Participants and Spectators	$470	$371	$841
Total	**$1,338**	**$907**	**$2,245**

Value Added (GDP) Impacts (MMs)

	Direct	Indirect and Induced	Total
Horse Ownership	$926	$782	$1,709
Institutions and Profit-Making Operations	$184	$120	$304
Tourism Spending by Participants and Spectators	$630	$630	$1,260
Total	**$1,740**	**$1,532**	**$3,272**

Total Output (MMs)

	Direct	Indirect and Induced	Total
Horse Ownership	$1,478	$1,331	$2,810
Institutions and Profit-Making Operations	$316	$200	$516
Tourism Spending by Participants and Spectators	$1,176	$1,059	$2,234
Total	**$2,970**	**$2,590**	**$5,560**

The direct and total effects generated for each industry component were further segmented by use and breed. Note that the total results do not include the tourism impacts from spectators and non-horse owning participants.

Employment Direct Effect

	Competition	Racing	Recreation	Traditional Working Horse	Other	Non-assignable	Total
Quarter Horse	2,493	0	2,028	78	258	0	**4,856**
Thoroughbred	1,205	1,147	818	26	97	0	**3,293**
Standardbred	0	2,446	365	9	600	40	**3,460**
All Others	3,943	115	5,227	263	2,321	0	**11,870**
Non-assignable	0	70	12	1,292	0	360	**1,735**
Total	**7,640**	**3,778**	**8,450**	**1,668**	**3,277**	**400**	**25,213**

Note: Does not include Tourism Impacts from non-horse owning participants and spectators

Value Added Direct Effect (MMs)

	Competition	Racing	Recreation	Traditional Working Horse	Other	Non-assignable	Total
Quarter Horse	$91.00	$0.00	$78.00	$2.76	$8.72	$0.00	**$180.48**
Thoroughbred	$43.64	$95.33	$29.55	$0.95	$3.31	$0.00	**$172.78**
Standardbred	$0.00	$198.84	$12.99	$0.39	$20.54	$6.55	**$239.30**
All Others	$144.09	$5.26	$206.51	$8.83	$79.30	$0.00	**$443.98**
Non-assignable	$0.00	$14.40	$1.57	$42.03	$0.00	$15.18	**$73.18**
Total	**$278.73**	**$313.82**	**$328.61**	**$54.97**	**$111.86**	**$21.74**	**$1,109.73**

Note: Does not include Tourism Impacts from non-horse owning participants and spectators

Output Direct Effect (MMs)

	Competition	Racing	Recreation	Traditional Working Horse	Other	Non-assignable	Total
Quarter Horse	$147.31	$0.00	$126.57	$4.34	$13.55	$0.00	**$291.76**
Thoroughbred	$70.21	$149.88	$46.42	$1.52	$5.18	$0.00	**$273.21**
Standardbred	$0.00	$312.76	$20.23	$0.69	$32.32	$9.77	**$375.76**
All Others	$233.41	$7.27	$339.45	$13.35	$124.57	$0.00	**$718.05**
Non-assignable	$0.00	$34.36	$2.07	$78.10	$0.00	$21.55	**$136.08**
Total	**$450.93**	**$504.27**	**$534.74**	**$97.99**	**$175.63**	**$31.31**	**$1,794.86**

Note: Does not include Tourism Impacts from non-horse owning participants and spectators

Employment Total Effect

	Competition	Racing	Recreation	Traditional Working Horse	Other	Non-assignable	Total
Quarter Horse	3,411	0	2,774	105	343	0	**6,633**
Thoroughbred	1,644	1,920	1,103	36	130	0	**4,833**
Standardbred	0	4,074	491	13	801	91	**5,470**
All Others	5,397	163	7,196	350	3,097	0	**16,203**
Non-assignable	0	184	22	1,750	0	485	**2,441**
Total	**10,453**	**6,341**	**11,586**	**2,254**	**4,371**	**576**	**35,580**

Note: Does not include Tourism Impacts from non-horse owning participants and spectators

Value Added Total Effect (MMs)

	Competition	Racing	Recreation	Traditional Working Horse	Other	Non-assignable	Total
Quarter Horse	$171.57	$0.00	$144.61	$5.16	$16.20	$0.00	**$337.53**
Thoroughbred	$82.20	$158.98	$54.85	$1.78	$6.16	$0.00	**$303.97**
Standardbred	$0.00	$335.46	$24.12	$0.73	$38.14	$11.36	**$409.81**
All Others	$271.68	$9.45	$382.65	$16.46	$147.26	$0.00	**$827.51**
Non-assignable	$0.00	$22.86	$2.36	$81.87	$0.00	$26.37	**$133.46**
Total	**$525.45**	**$526.75**	**$608.59**	**$106.01**	**$207.75**	**$37.73**	**$2,012.28**

Note: Does not include Tourism Impacts from non-horse owning participants and spectators

Output Total Effect (MMs)

	Competition	Racing	Recreation	Traditional Working Horse	Other	Non-assignable	Total
Quarter Horse	$284.30	$0.00	$240.41	$8.42	$26.31	$0.00	**$559.44**
Thoroughbred	$135.78	$256.06	$89.57	$2.92	$10.03	$0.00	**$494.37**
Standardbred	$0.00	$541.46	$39.20	$1.27	$62.38	$17.61	**$661.92**
All Others	$450.38	$14.29	$640.77	$26.32	$240.63	$0.00	**$1,372.38**
Non-assignable	$0.00	$48.36	$3.45	$145.75	$0.00	$40.16	**$237.73**
Total	**$870.45**	**$860.18**	**$1,013.41**	**$184.68**	**$339.35**	**$57.77**	**$3,325.84**

Note: Does not include Tourism Impacts from non-horse owning participants and spectators

The following tables summarize the results by breed.

Quarter Horse Impact Summary ($MMs)

	Employment	Labor Income	Value Added	Output
Direct	4,856	$149	$180	$292
Indirect and Induced	1,777	$93	$157	$268
Total	**6,633**	**$242**	**$338**	**$559**

Note: Does not include Tourism Impacts from non-horse owning participants and spectators

Thoroughbred Impact Summary ($MMs)

	Employment	Labor Income	Value Added	Output
Direct	3,293	$129	$173	$273
Indirect and Induced	1,540	$78	$131	$221
Total	**4,833**	**$207**	**$304**	**$494**

Note: Does not include Tourism Impacts from non-horse owning participants and spectators

Standardbred Impact Summary ($MMs)

	Employment	Labor Income	Value Added	Output
Direct	3,460	$168	$239	$376
Indirect and Induced	2,010	$102	$171	$286
Total	**5,470**	**$270**	**$410**	**$662**

Note: Does not include Tourism Impacts from non-horse owning participants and spectators

The following table shows the top 10 industry sectors supported by the horse industry, sorted by value added. Commercial sports in this context excludes racetrack operations but rather consists of the trainers and jockeys and all other agents involved in racing events.

Total Impact: Top Ten Industry Sectors Supported

Sector	Employment	Labor Income	Value Added
Support activities for agriculture and forestry	12,414	$349	$346
Full-service restaurants	14,072	$309	$345
Hotels and motels, including casino hotels	4,631	$161	$276
Real estate	1,052	$23	$172
Racing and Track Operation	1,280	$88	$146
Owner-occupied dwellings	0	$0	$121
Wholesale trade	730	$64	$120
Commercial Sports (except track operations)	576	$53	$74
Construction of new commercial structures, including farm structures	920	$56	$71
Construction of other new nonresidential structures	838	$51	$67

In number of horses and participants, recreation is the largest sector of the horse industry. With more than 3.1 million horses being used nationally, the economic impact of the recreational equine industry has several components.

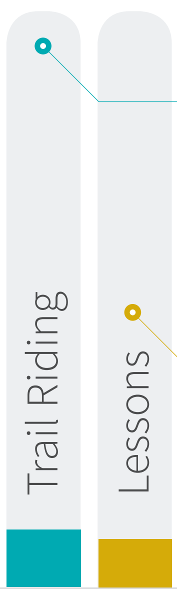
As with competition and racing, recreational riding provides income for stables, farriers, veterinarians, trainers and other industry providers. Economic activity from recreational riding can be recognized through participant spending on riding lessons, trail guides, travel expenditures, riding equipment, and more. Lesson and instruction providers and their horses comprise a significant part of the recreation sector, as horseback riding remains a highly popular sport.

Organizations such as the American Riding Instructors Association (ARIA) have provided paths for certification in different equestrian disciplines, including Recreational Riding Instruction.

Trail riding is a main equine recreational activity that allows people to experience public lands and parks on horseback. There are associations across the country dedicated to preserving trails and public lands and often providing environmental conservation work through their members.

- Back Country Horsemen of America members volunteered over 340,000 hours maintaining trails on public lands.
- American Paint Horse Association (APHA) hosts a series of trail rides across the country and teaches members how to plan, map, and register their own horseback trail rides.
- American Endurance Ride Conference (AERC) promotes the safe use of endurance horses and advocates for the protection and development of equestrian trails.

Percentage of U.S. households in 2016 that participated in:



more than 10%
or nearly **512,000** Pennsylvania households

The vast majority of trail riders—87%—utilize public lands.

8.4%
or **430,000** Pennsylvania households

Moreover, **25%** of AHC survey respondents who trail ride in Pennsylvania are from out of state.

ECONOMIC IMPACT

The Recreation Sector

supports **8,450** direct jobs

adds **$329 million** in direct value to the state economy

These direct impacts...

drive a further **$280 million** in added value to the economy

create more than **3,136** jobs from indirect and induced effects

Recreation Sector Economic Impact Summary ($MMs)

	Direct	Indirect and Induced	Total
Employment	*8,450*	*3,136*	*11,586*
Labor Income	$265	$166	$430
Value Added	$329	$280	$609
Output	$535	$479	$1,013

BACKGROUND

Equine competition involves extensive economic activity. The wide variety of disciplines and tiers—from local competitions that take place each weekend throughout the country to high-level national and international competitions—allows for participation by owners and riders at all levels, from beginner to professional. Further, the tiered structure of sanctioned competitions creates incentives for owners and riders to expand their participation and work toward qualifying for higher level competitions.

Higher-level competitions require increasing expenditures. Competition horses require the services of experienced trainers, grooms, veterinarians, and farriers, as well as specialized feed, supplements, care, and conditioning. Moreover, specialized equipment is needed to maintain, train, transport, and travel with equine athletes and competitions require fees for entries, housing, and other services. Riders also require teaching and coaching, specialized equipment and clothing, and support from drivers, grooms and others while competing. Professional competitors also incur advertising costs from promoting their horse in a breed magazine or show program to highlight previous accomplishments for prospective judges.

MAJOR SANCTIONING BODIES

The following four organizations alone sanction nearly 6,000 events annually, generating substantial economic impact and opportunities for show organizers, vendors, host facilities and stables, and surrounding businesses like hotels, restaurants and convenience stores.

- **U.S. Equestrian Federation (USEF):** 11 breeds[5] and 18 broad competitive disciplines, including the three equestrian disciplines held at the Olympic Games.
- **The American Quarter Horse Association (AQHA):** 22 additional disciplines such as barrel racing, cutting, and a variety of roping events.
- **National Reining Horse Association (NRHA)** involve the execution of precise movements related to cattle ranching, such as 360-degree spins done in place and hallmark sliding stops.
- **United Professional Horsemen's Association (UPHA)** also hosts competitions focusing predominantly on American Saddlebred, the Morgan Horse, the Hackney Pony and the National Show Horse.

National Competitions Licensed by Major Organizations

USEF	AQHA	NRHA	UPHA
2,394	2,031	1,674	214*

*Non-USEF events only; UPHA is also involved with 66 USEF shows. AQHA hosted 71 events in Pennsylvania.

Other breed registries and equestrian associations have additional types of competitions unique to their breeds or interests, for example, rodeo and associated timed events, trail obstacle courses, mounted shooting competitions, team penning, equine driving, and team roping. There are also several state and regional associations that sponsor competitions, and an untold number of non-sanctioned events throughout the country.

[5] Andalusian/Lusitano, Arabian, Connemara, Friesian, Hackney, Morgan, National Show Horse, Paso Fino, American Saddlebred, Shetland, and Welsh Pony/Cob.

ECONOMIC IMPACT

The Competition Sector

supports **7,640** direct jobs

adds **$279 million** in direct value to the state economy

These direct impacts...

drive a further **$247 million** in added value to the economy

create **2,812** jobs from indirect and induced effects

Competition Sector Economic Impact Summary ($MMs)

	Direct	Indirect and Induced	Total
Employment	*7,640*	*2,812*	*10,453*
Labor Income	$233	$146	$380
Value Added	$279	$247	$525
Output	$451	$420	$870

BACKGROUND

Racehorses require substantial expenditures on breeding, maintenance and training. Training fees for racehorses are substantial and usually comprise a day-rate plus a percentage of prize money won. Additional fees while a horse is in training include the costs of insurance, veterinarians, farriers and jockey fees. Jockeys are independent contractors who earn a fixed mount fee plus a percentage of the prize money won. There are transportation fees between racetracks and farms and boarding fees when the horse is not in training. Horses competing at the top level in stakes races also have additional entry fees. Racehorses also require specialized feed and supplies.

The horseracing sector also involves large indirect expenditures to specialized service providers. Totalizator companies provide wagering technology, machines and infrastructure. Broadcasting and television companies provide satellite services, broadcasting infrastructure, photo finish and timing equipment. Other vendors provide food and beverage concessions, track maintenance (turf and rail), and security technologies.

The major racing breeds are Thoroughbred, Quarter Horse and Standardbred (harness racing). Arabians and Appaloosas also participate in a small number of races typically at Thoroughbred or Quarter Horse tracks. Standardbred or harness racing is predominantly limited to the Northeast, Midwest, and Mid-Atlantic states, while Quarter Horse racing is predominantly a Great Plains and Western sport.

The prospect of purse earnings underlies the value of racehorses and allows for the specialized care, training and breeding they receive. Traditionally, the size of purses was determined by the level of wagering on races. Today, purses benefit from casino-style gaming in many states, including Pennsylvania.

Pennsylvania is a major horse racing state, with six active tracks that also host casinos with slot machines and table games. There are three Thoroughbred tracks—Parx Casino and Racing, Hollywood Casino at Penn National Race Course, and Presque Isle Downs and Casino—and three harness tracks—Harrah's Philadelphia Racetrack, The Downs at Mohegan Sun Pocono and The Meadows Race Track and Casino.

The Pennsylvania racing numbers for 2016:

Number of racetracks: 6 tracks, 3 Thoroughbred and 3 harness tracks

Number of races and race days: 11,120 pari-mutuel races and 914 live race days

Purses: of $198 million

Handle: $721 million

ECONOMIC IMPACT

The Racing Sector

supports **3,778** direct jobs

adds **$314 million** in direct value to the state economy

These direct impacts...

drive a further **$213 million** in added value to the economy

create more than **2,563** jobs from indirect and induced effects

Racing Sector Economic Impact Summary ($MMs)

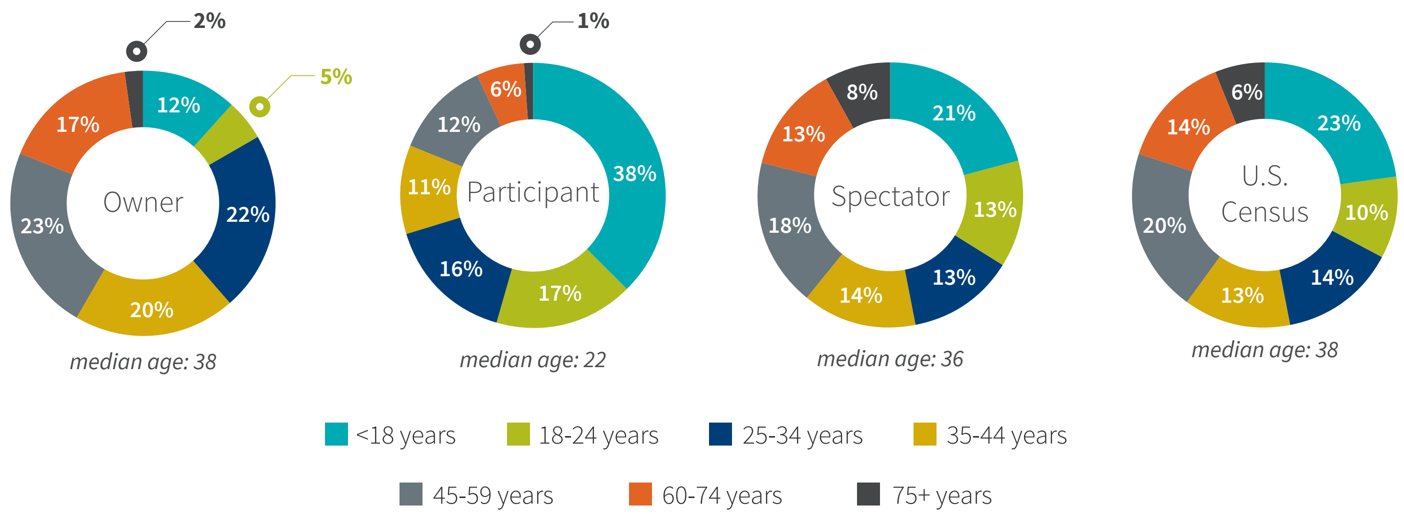
	Direct	Indirect and Induced	Total
Employment	***3,778***	***2,563***	***6,341***
Labor Income	$212	$128	$339
Value Added	**$314**	**$213**	**$527**
Output	$504	$356	$860

Other Horse Industry Highlights

▶ *Profile of Horse Owners and Enthusiasts*

While horse ownership is concentrated in the age groups from 25 to 74, participation in horse-related activities skew toward younger age cohorts, including minors. In fact, minors comprise more than one-third of participants. The mean age of horse activity participants is lower than that of the general U.S. population, and that difference is statistically significant. Additionally, the density of participants in all lower age groups is higher. The difference in age distributions is statistically significant as well.

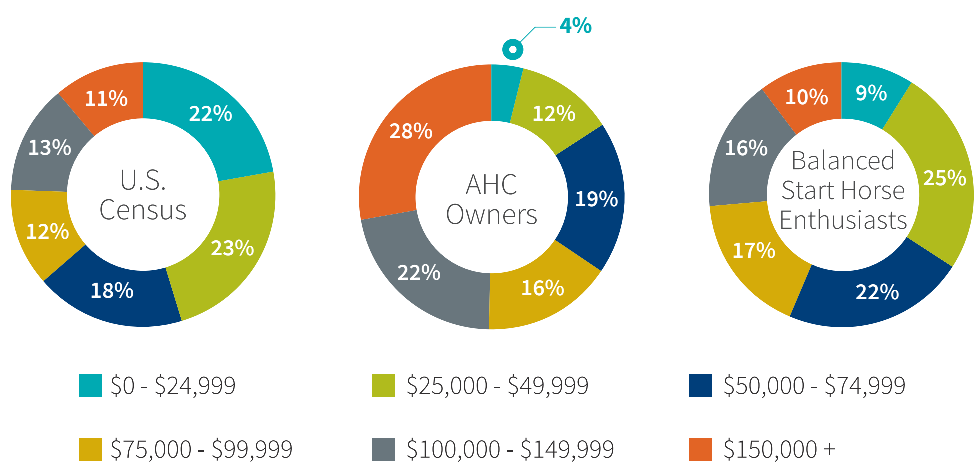
National Horse Enthusiast Age Distribution by Type: Balanced Start



*ACS=American Community Survey 2016

Similarly, while horse ownership tends to be concentrated in higher income groups, participation or interest in horse activities is more evenly distributed among income groups, with the largest percentages of horse enthusiasts falling within the $25,000 to $149,999 income brackets.

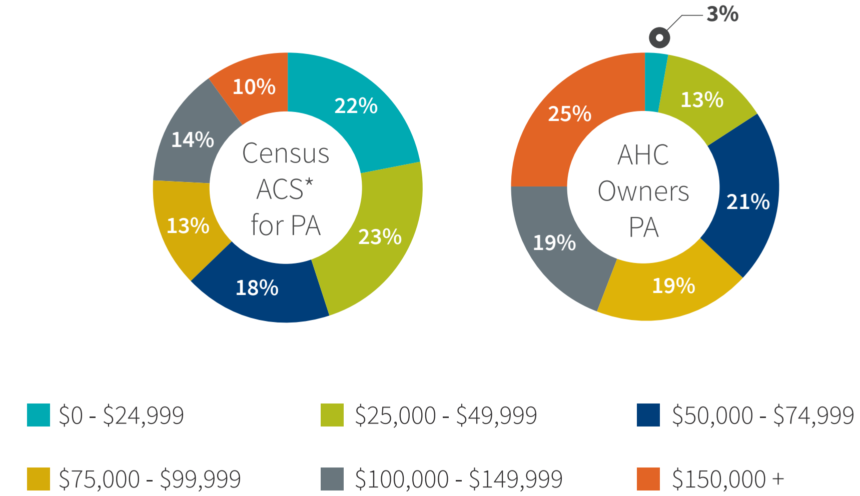
National Horse Ownership (AHC) and Enthusiasts (Balanced Start) Distribution by Income Bracket



*ACS=American Community Survey 2016

Horse ownership in Pennsylvania is also concentrated in the higher income groups; household income in Pennsylvania is on par than the national average.

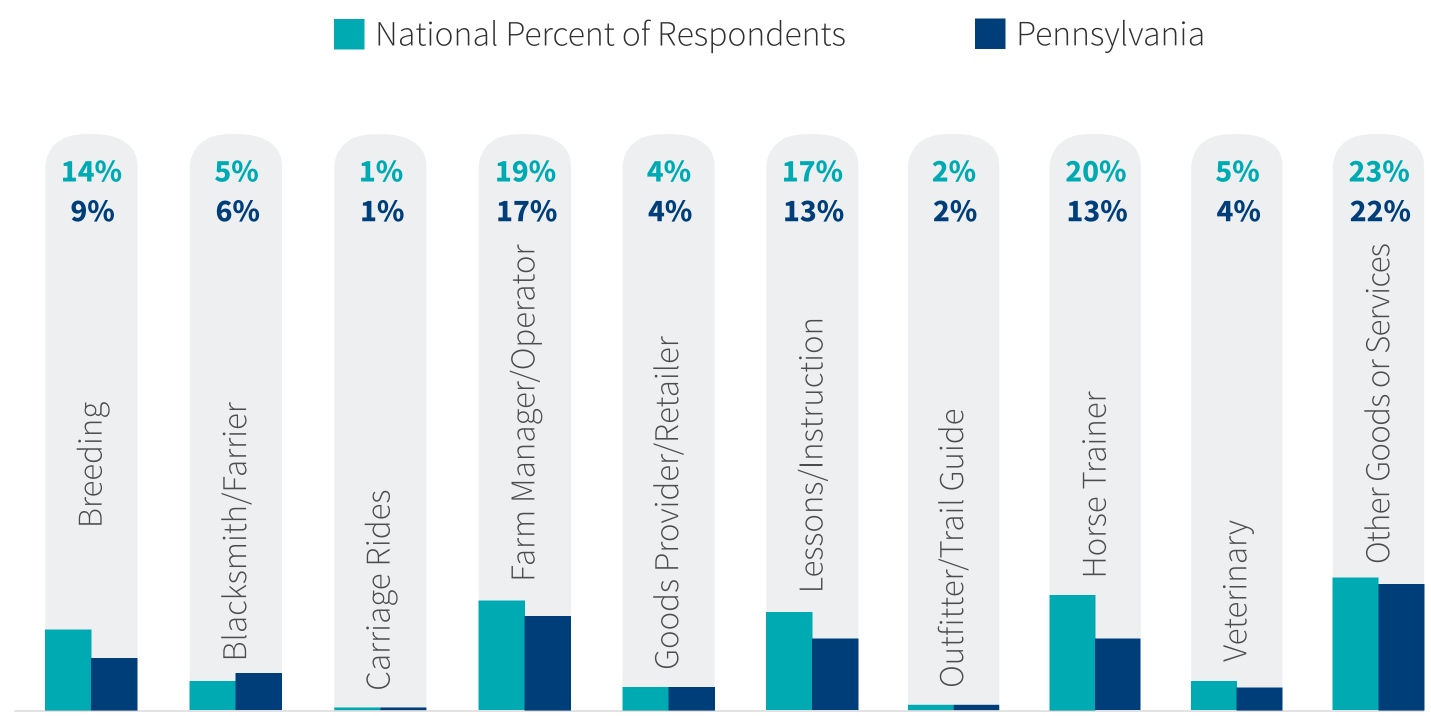
Pennsylvania Horse Ownership (AHC) Distribution by Income Bracket



*ACS=American Community Survey 2016

Horse owners provide many goods and services to their fellow horse owners. In the AHC survey, approximately 60% of national respondents and 55% of Pennsylvania respondents reported providing some type of horse-related goods or services. The most common services reported were horse training, farm management, and rider instruction. The most commonly cited other goods and services included equine assisted therapy and boarding.

Participation in Horse-Related Activities by Owners



Land Preservation

The Horse industry plays a significant role in preserving agricultural land. Of the Pennsylvania AHC horse-owning respondents, approximately 67% reported owning or leasing a farm, barn, or stable. We estimate that the reported acreage in the AHC survey represents approximately 793,000 acres of land in Pennsylvania used for horse-related purposes.

Acreage of Horse-Related Land (000s)

	Acres
Owned	716
Lease	77
Total	**793**

Volunteerism

Horse owning respondents to the AHC survey reported a high incidence of volunteerism.

Association households in Pennsylvania reported using **volunteers** as part of their horse care, management, or activities.

There may be as many as **36,000** Pennsylvania residents volunteering their time for horse-related activities.

Therapy Operations

Equine-assisted therapy operations (EAAT) are certified by the Professional Association of Therapeutic Horsemanship International (PATH) and involve 4,800 instructors in 877 certified facilities. There are 62 facilities in Pennsylvania generating $12.1 million in revenues, supporting a workforce of 262 employees and adding $8.5 million of value to the state's GDP. These direct impacts drive a further $6.5 million in added value to the economy and 72 jobs from indirect and induced effects.

Rescues and Sanctuaries

There are an estimated 602 equine rescues and/or sanctuaries currently active in the United States, with 23 in Pennsylvania. Total operating expenses and capital investment for these Pennsylvania operations are estimated to have been $2.3 million in 2016, which results in direct impacts of $1.1 million in value added and 35 employees. These direct impacts drive a further $900,000 in added value to the economy and 10 jobs from indirect and induced effects.

Equine Associations

There are 308 equine-related associations active in the U.S., including State Horse Councils, breed registries, non-academic educational organizations, activity-based associations, libraries and museums. In Pennsylvania, there are five associations, including United States Harness Writers Association, American Equestrian Trade Association and the Pennsylvania Horse Council. These associations employ 49 people and contribute $2.4 million in employee compensation. The employment impacts are estimated to add $6.3 million in direct value added to the state's economy, with an additional $3.2 million in value added and 38 jobs from indirect and induced effects.

Equine Academic Institutions

In Pennsylvania, there are four colleges and universities having equine-related programs and degrees, resulting in an estimate of 39 total employees within the Equine Academic Industry earning $2.3 million in employee compensation. The employment impacts are estimated to add $2.5 million in direct value added to the state's economy, with an additional $2.2 million in value added and 24 jobs from indirect and induced effects.

Thank you and Acknowledgment

Organized in 1969, the American Horse Council works daily to advocate for the social, economic and legislative interests of the United States equine industry.

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Pennsylvania Equine Council

AMERICAN
HORSE COUNCIL
FOUNDATION

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