



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



**ECONOMIC CONTRIBUTION OF HORSE RACING
TO NORTH DAKOTA IN 2016**

Elvis Ndembe, Nancy M. Hodur, Dean A. Bangsund, and Randy Coon



NORTH DAKOTA RACING COMMISSION

NDSU | AGRIBUSINESS AND APPLIED ECONOMICS

NDSU | CENTER FOR SOCIAL RESEARCH



Acknowledgements

The research team would like to extend special thanks to Gunner LaCour, Director, North Dakota Racing Commission for his assistance throughout the study. Gunner's knowledge of the industry, willingness to assist the research team, and his leadership throughout the study were extremely valuable for this project. The research team also wishes to recognize the contributions of the following individuals and groups:

- Nancy Buechler, North Dakota Thoroughbred Association
- Sally Dasinger, North Dakota Quarter Horse Racing Association
- Mike Schmitz and Glen Harris, North Dakota Horse Park, Fargo ND
- Doug Demontigny Chippewa Downs, Belcourt ND
- Chippewa Downs Race Track, Belcourt ND
- Dr. Richard Bowman, Bowman Second Chance Thoroughbred Adoption

Individuals in North Dakota and elsewhere responded to a survey soliciting information on their horse breeding, training, and racing activities. Sincere appreciation is extended to those individuals who participated in the survey.

The North Dakota Racing Commission provided financial support for this project.

The authors assume responsibility for any errors of omission, logic, or otherwise. Any opinions, findings, and conclusions expressed in this publication are those of the authors and do not necessarily reflect the view of the Department of Agribusiness and Applied Economics, North Dakota State University, or the study sponsors.

This publication is available electronically at this web site: <http://agecon.lib.umn.edu/>. Please address your inquiries regarding this publication to: Department of Agribusiness & Applied Economics, P.O. Box 6050, Fargo, ND 58108-6050, Phone: 701-231-7441, Fax: 701-231-7400, Email: ndsua.gribusiness@ndsua.edu.

NDSU does not discriminate in its programs and activities on the basis of age, color, gender expression/identity, genetic information, marital status, national origin, participation in lawful off-campus activity, physical or mental disability, pregnancy, public assistance status, race, religion, sex, sexual orientation, spousal relationship to current employee, or veteran status, as applicable. Direct inquiries to Vice Provost for Title IX/ADA Coordinator, Old Main 201, NDSU Main Campus, 701-231-7708, ndsua.eoaa@ndsua.edu. This publication will be made available in alternative formats for people with disabilities upon request, 701-231-7881.

NDSU is an equal opportunity institution.

Copyright ©2017 by Ndembe, Hodur, Bangsund, and Coon. All rights reserved. Readers may make verbatim copies of the document for non-commercial purposes by any means, provided this copyright notice appears on all such copies.

Table of Contents

List of Tables	iii
List of Figures	iv
Executive Summary	v
Introduction	1
North Dakota Racing Commission	1
Race Tracks.....	2
Horse Owners and Breeders	2
Wagering	5
Other Related Associations	5
Study Objectives	6
Modeling Economic Impacts	6
North Dakota Horse Racing Industry Structure	7
North Dakota Racing Commission	8
Race Tracks.....	10
Horseman Groups.....	11
Horsemen Survey	11
Estimate of Active Horsemen in North Dakota.....	18
Direct Economic Contribution.....	19
Total Economic Contribution	22
Employment	24
Tax Revenue	25
Appropriated Dollars Leverage Factor	26
Summary	26
Conclusions	27

References	29
Appendix A	31
Appendix B	34
Appendix C	35
Appendix D	37

List of Tables

<u>Table</u>	<u>Page</u>
1 Racing Days, North Dakota Horse Park and Chippewa Downs, 2012-2016	2
2 North Dakota Breed Fund, by Type and Breed, 2014-2016.....	3
3 Race Summary, by Number of Horseman, by Residency, North Dakota Horse Park, 2016.	3
4 Purse Disbursements, by Residency, North Dakota Horse Park, 2016.....	5
5 Survey Summary, by Residency, Horseman Survey, 2016.....	12
6 Horsemen Survey Summary, by Type of Operation, Breed of Horses Raised, Race Activities, Location of Race Activities, Horsemen Survey, 2016	13
7 Horse Ownership and Race Activity, Horsemen Survey, 2016	14
8 Employment, by Racing Activity, Horseman Survey, 2016.....	15
9 Average Expenditures, by Racing Activity, Horseman Survey, 2016	16
10 Operations Expenditure Categories, Horseman Survey, 2016	17
11 Average Expenditures, by Operations Categories, Horsemen Survey, 2016.....	18
12 In-State Expenditures, North Dakota Horse Racing Industry, 2016	21
13 Direct, Secondary and Total Economic Contribution, North Dakota Horse Racing Industry, 2016	22
14 Direct, Secondary and Total Economic Contribution, by Industry Component, North Dakota Horse Racing Industry, 2016	23
15 Employment, North Dakota Horse racing Industry, 2016	25
16 Tax Collections from Secondary Business Activity, North Dakota Horse Racing Industry, 2016	25

List of Figures

	<u>Page</u>
1 Distribution of Purse Winnings, by Horseman, North Dakota Horse Park, 2016.....	4
2 Flow Chart, North Dakota Horse Racing Industry, 2017.....	9

Executive Summary

The horse racing industry is comprised of multiple entities that are interconnected and that together constitute the horse racing industry in North Dakota. Racing activities impact local communities through expenditures for race track operations, horse breeding and training operations and other activities that support the industry. The horse racing industry in North Dakota consists of multiple entities and for purpose of this study, the industry was defined as race horse owners, breeders and trainers, the North Dakota Horse Park in Fargo, Chippewa Downs in Belcourt, North Dakota Quarter Horse Racing Association, North Dakota Thoroughbred Association (Horsemen Groups), North Dakota Racing Commission, and a race horse rescue and adoption non-profit organization.

Overall, the entities that constitute the horse racing industry in 2016 had total in-state expenditures of approximately \$9.0 million. The largest portion of those expenditures, \$4.2 million or 47 percent of the total represent payments for wages, salaries, and racing payouts. Retail purchases for goods and services totaled \$2.1 million or 24 percent of total direct expenditures. Of the \$9.0 million in direct economic effects, \$7.6 million was attributable to in-state expenditures of owners, breeders, and trainers of race horses. The North Dakota Horse Park in Fargo had total in-state expenditures or direct impacts of approximately \$707,000 while Chippewa Downs in Belcourt had a direct impact approaching \$500,000. Direct effects related to the activities of the Racing Commission were about \$206,000. A substantial portion of the expenditures of the North Dakota Racing Commission, the North Dakota Quarter Horse Racing Association, and the North Dakota Thoroughbred Association was directed to the state's two race tracks to support track activities. The economic effects of expenditures by the North Dakota Racing Commission and the Horseman Groups that support track activities are captured in the expenditures of the state's race tracks.

Direct expenditures were allocated to the appropriate sectors of the North Dakota Input-Output model. Model coefficients were applied to the direct expenditures to estimate secondary (indirect and induced) economic effects. Secondary effects result from the spending and re-spending of the industry's outlays. Total secondary impacts across all economic sectors were estimated at \$15.2 million. Total economic impacts (sum of direct and secondary impacts) were estimated to be \$24.2 million. Like direct impacts, total impacts were greatest in the *Households* and *Retail Trade* sectors, \$9.1 and \$7.0 million, respectively. Of the \$24.2 million total (direct plus secondary) impacts industry-wide, \$20.2 million was attributable to expenditures associated with activities of race horse owners, breeders and trainers.

Most of the employment associated with the racing industry in North Dakota is seasonal and associated with the state's two horse race tracks and off-track betting. Seasonal positions at the North Dakota Horse Park include ticket sellers, admission workers, veterinarians, race

stewards, and track managers. The North Dakota Horse Park employed 76 people with a total race season payroll of \$104, 196. Chippewa Downs employed 60 people with total race season payroll of \$91,599. Off-track simulcast operations offer year-round employment opportunities; however, employment may be full or part-time. There were 65 licensed simulcast employees in 2016. Activities associated with breeders and owners were estimated to support 76 full-time, 228 part-time and 152 seasonal positions.

State tax collections for sales and use, individual, and corporate income associated with horse racing were estimated to be \$311,000 annually. Approximately 72 percent or \$223,000 of secondary tax collection comes from sales and use taxes. The North Dakota Horse Park Foundation (Horse Race North Dakota) and North Dakota Horse Park paid property taxes of \$197,757 in 2016.

Data collected from the state's race tracks and a survey of the state's race horse owners, breeders and trainers provided insight into the characteristics of horse racing operations in North Dakota. Eighty-seven horsemen entered 348 races in 2016. On average horsemen entered 4 races however, horseman most frequently entered 5 or fewer races. Forty percent of respondents entered either one or two races, while 79 percent entered 5 or fewer races. Nearly \$165,000 in purse money was awarded to 79 horsemen. Average purse disbursements were \$2,341 per horseman.

The horse racing industry through the appropriated dollars that fund the North Dakota Racing Commission successfully leverages state funding to generate additional economic activity. The North Dakota Racing Commission received \$387,821 from the state of North Dakota General Fund in 2016. For every appropriated dollar, the industry spent an additional \$5.20 in the state. The \$387,821 in appropriations were leveraged to generate \$1.0 million in industry expenditures.

This analysis suggests in addition to providing entertainment, the industry generates a positive economic contribution relative to the state-funded dollars that are appropriated to support the North Dakota Horse Racing Commission and the horse racing industry. Given the multiple linkages between the components of the industry, in the absence of appropriated dollars and the activities of the North Dakota Racing Commission, the horse racing industry would not likely continue to exist in its present form.

Economic Contribution of Horse Racing to the North Dakota Economy in 2016

Elvis Ndembe, Nancy M. Hodur, Dean A. Bangsund, and Randy Coon¹

Introduction

Horse racing activities in North Dakota are comprised of multiple entities that are interconnected and together constitute the state's horse racing industry. To provide an overview of the industry the following section provides a description of each of the industry's key stakeholders.

North Dakota Horse Racing Commission

The 1987 legislative session created the North Dakota Horse Racing Commission. The Racing Commission is responsible for regulating horse racing in North Dakota. It is composed of five members, a director and support staff. The governor appoints the five-member commission. In addition to its regulatory role, the commission manages the Breeder Fund, the Purse Fund and the Promotion Fund for the benefit of the horse racing industry. The breeders fund promotes breeding of race horses and provides monetary awards to owners and breeders of top performing horses bred in North Dakota. Breeders with horses registered in the Breed Fund receive end-of-year bonus payments based on how many times the registered horse wins, places or shows in races over the course of the year. Payments also are made if offspring of registered horses win, place or show in North Dakota races. The Breeders Fund supplements race purse payments and provides an incentive to horsemen to invest and breed quality horses in North Dakota.

The Purse Fund provides most of the funding for purses at the state's two race tracks. The Promotion Fund provides significant funding for track operations and supports the promotional efforts of various organizations that promote horse racing in North Dakota. For example, the Promotion Fund provides promotional support for both the North Dakota Thoroughbred Association and the North Dakota Quarter Horse Racing Associations stallion auctions and the Associations' annual awards banquet.

All three funds are supported by taxes from pari-mutuel account deposit wagering, offtrack betting and wagering on live racing. Seventy-five percent of each dollar of taxes collected, twenty-five percent each, goes to the Breeders'P promotion, and Purse Funds. The remaining twenty-five percent goes to the state's general fund. The Promotion Fund also receives "breakage" which is the remaining pennies after rounding pari-mutuel payoffs to the

¹ The authors are Research Associate, Department of Agribusiness and Applied Economics, Director, Center for Social Research, Research Scientist and Research Specialist, Department of Agribusiness and Applied Economics respectively, North Dakota State University, Fargo.

nearest nickel or dime. “Breakage” is collected on the first \$20 million in wagers placed through licensed pari-mutuel wagering associations.

Race Tracks

The state has two race tracks; the North Dakota Horse Park, located in Fargo, and Chippewa Downs, located on the Turtle Mountain Indian Reservation in Belcourt. Chippewa Downs held 4 two-day racing weekends in 2012, 2013, 2014 and 2016 (Table 1). The North Dakota Horse Park had 3 two-day racing weekends in 2014 and 2016, 2 two-day racing weekends in 2012 and 1 three-day race weekend in 2013. There were no races in 2015 (Table 1).

Table 1. Racing Days, North Dakota Horse Park and Chippewa Downs, 2012-2016		
Year	Number of Racing Days	
	North Dakota Horse Park	Chippewa Downs
2016	6	8
2015	none	14
2014	6	8
2013	3 ¹	8
2012	4	8

¹One three-day weekend
 Source: North Dakota Racing Commission, 2016.

Horse Owners and Breeders

A key component of the industry is horse owners and breeders. An examination of the breeder’s fund provides some insight into the number of race horses bred in the state and the number of active horsemen in the state. An examination of the number of horsemen that entered races and received payouts also provides some insight into the number and characteristics of North Dakota horsemen.

From 2014 - 2016, 526 horses were registered in the Breed Fund managed by the North Dakota Racing Commission (Table 2). In 2014, 154 horses were registered, in 2015, 196 horses were registered and in 2016, 176 horses were registered (data not shown). A majority of registered horses were Quarter horses (almost 61 percent), followed by Thoroughbred (31 percent), and Standard and Paint horses (about 8 percent).

Table 2. North Dakota Breed Fund, by Type and Breed, North Dakota, 2014 - 2016

Type	Horse Breeds				Totals
	Quarter Horse	Thoroughbred	Standardbred	Paint Horse	
Foal	227	79	12	21	339
Mare	80	76	0	3	159
Stallion	15	10	0	3	28
Totals	322	165	12	27	526

Source: North Dakota Racing Commission, 2016a.

The North Dakota Horse Park had 348 horse races in 2016. Two-thirds of the horsemen that entered horses in those races were from North Dakota (Table 3). Data on race participation and horseman residency was not available for Chippewa Downs. On average, horsemen entered 4 horse races at the North Dakota Horse Park. Horsemen most frequently entered horses in 1 to 5 races. Forty percent of the horsemen entered horses in 1 or 2 races and 39 percent entered horses in 3 to 5 races. Only eight percent of horsemen entered more than 10 races. From purse distribution data some horses were entered in more than one race as the same horse and owner received purse money on different race weekends. However, no data was available to describe how many different horses were entered or how many horses were entered in multiple races over the course of the racing season. The maximum number of races entered by a single horseman was 16 (Table 3).

Table 3. Race Summary, by Number of Horsemen, by Residency, North Dakota Horse Park, 2016

	North Dakota	Other States
	-----number-----	
Horsemen That Entered One or More Races	57	30
Average Number of Races Entered	4	4
Maximum Number of Races Entered	16	15
Total Number of Races	228	120
Number of Races Entered:		
1 – 2	40.2	
3 – 5	39.1	
6 – 9	12.6	
10 or more	8.0	
	(n=87)	

Source: North Dakota Horse Park, 2016

During the 2016 horse racing season, 80 horsemen received monetary awards for placing in races (purse) at the North Dakota Horse Park in Fargo (Table 4). Purse winnings pay down to 5th place. Purse disbursements from Chippewa Downs were not available. Most (69 percent) of the horseman that won purses were from North Dakota. Nearly \$129,000 of the \$167,900 or 78 percent of purse winnings went to North Dakota horsemen. Winnings per horsemen varied from a minimum of \$27 to a maximum of \$23,550 (Table 4). Average winnings per North Dakota horsemen were \$2,341. An examination of winnings per horsemen reveals that most horseman’s winnings were below the average. The overall average is heavily influenced by a few horsemen with substantially large winnings. Horseman most frequently won less than \$3,000, 45 percent won less than \$1,000, 68 percent won less than \$2,000 to combine for a total of 81 percent that won less than \$3,000 (Figure 1).

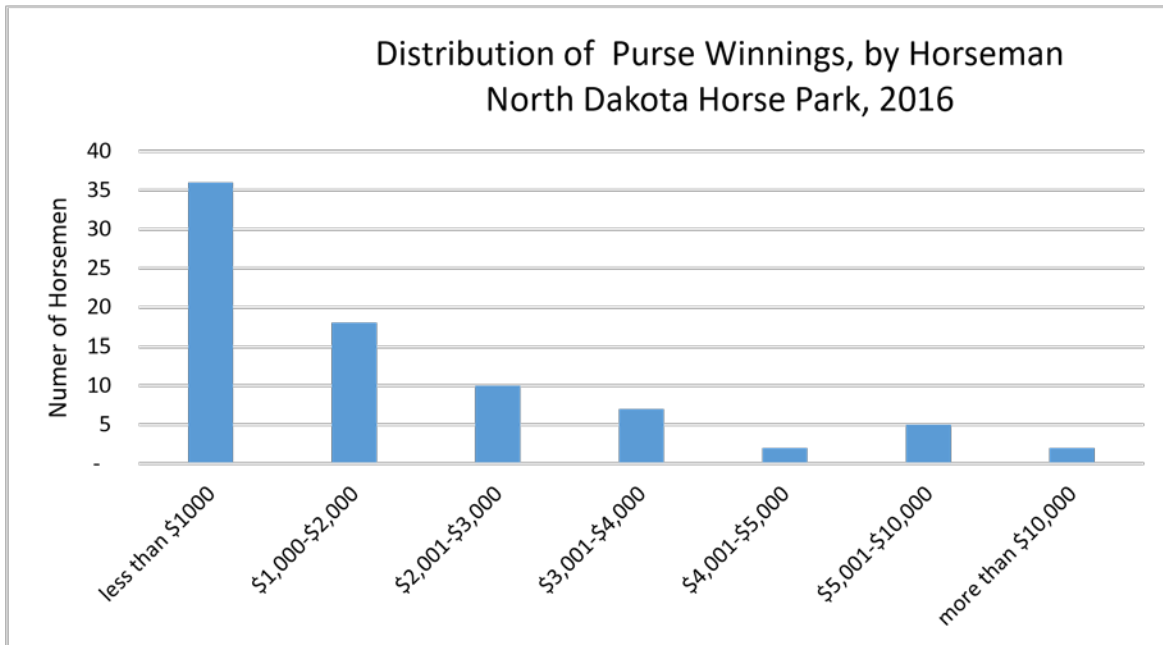


Figure 1. Distribution of Purse Winnings, by Horseman, North Dakota Horse Park, 2016 Source: North Dakota Horse Park, 2016a.

Table 4. Purse Disbursements, by Residency, North Dakota Horse Park, 2016

	Residency		
	North Dakota	Other States	Combined
	-----dollars-----		
Minimum	27	10	27
Average	2,341	165	2,099
Maximum	23,550	6,521	223,55
Total Purse Disbursements	128,767	39,133	167,90
	-----number-----		
Horsemen that Received Purse Awards	55	25	80
	-----percent-----		
Winning per Horseman			
Less than \$1,000	45		
\$1,000 - \$1,999	23		
\$2,000 - \$2,999	13		
\$3,000 – 3,999	9		
\$4,000 - \$4,999	3		
\$5,000 \$9,999	6		
\$10,000 or more	3		
	(n=80)		

Source: North Dakota Horse Park, 2016a.

Wagering

Wagers can be made at the race track during race event. On-track wagering operations are managed by each of the respective tracks. Wagers also can be placed through betting associations that operate off-track simulcasting betting. North Dakota has one betting association with four physical locations (Fargo, Bismarck, Grand Forks and Belcourt) where bets can be places and 13 betting associations that offer on-line wagering. Economic effects of the operations of North Dakota’s sole betting association with a physical presence were not included in this assessment to prevent discloser of confidential financial information.

Other Related Associations

The North Dakota Quarter Horse (NDQHA) and Thoroughbred (NDTA) Associations are non-profit organizations dedicated to the promotion of their respective breeds. The

organizations also support the interests of owners and breeders. The Bowman Second Chance Thoroughbred Adoption is a non-profit organization with the mission of finding good adoptive homes for retired race horses.

Study Objectives

The horse racing industry impacts local communities through race track operations, economic activity associated with breeding, training and raising horses, and through expenditures for activities that support the industry. In this study, the industry was defined as the North Dakota Horse Park in Fargo, Chippewa Downs in Belcourt, North Dakota Quarter Horse Racing Association, North Dakota Thoroughbred Association (Horsemen Groups), Bowman Second Chance Thoroughbred Adoption (BSCTA), North Dakota Racing Commission and owners, breeders and trainers of race horses.

Study objectives were to estimate the economic contribution that horse racing activities make to the North Dakota economy. Specific objectives include:

- 1) Estimating the relative contribution of the various entities comprising the industry.
- 2) Expressing the economic size of the industry in terms of employment, personal income, business volume, and tax revenues.

Modeling Economic Impacts

An economic contribution analysis represents an estimate of all relevant in-state expenditures associated with an industry, activity, or project. Numerous assessments of industries, activities, and projects in North Dakota have used the economic contribution approach to describe economic effects. (Bangsund and Hodur 2013; Bangsund and Leistritz 1995, 2005, 2010; Coon et al. 2012a, 2012b, 2012c; Hodur et al. 2006; Hodur and Leistritz 2007).

Direct expenditures by entities that make up the horse racing industry were estimated from data provided by industry representatives, organizations, associations, and horsemen in North Dakota. Only the acquisition of goods and services provided by in-state sources were included.

Numerous linkages between the individual industry components exist and requires careful evaluation of the flow of dollars among the various industry components. Because revenues for one entity may represent expenditures for another entity, expenditure flows were traced to avoid double counting. For example, funds that flow from the North Dakota Racing Commission to each of the horse parks for purses and promotion funds were included in the direct impacts of the race tracks and not the North Dakota Racing Commission. Spectator spending for travel and off-site activities such as expenditures for lodging, food and beverages

or retail purchases were not included. Spectator expenditures for 'on-site' wagers, food, beverage and merchandise were captured in race track revenues and expenditures.

Economic activity from a project, program, policy, or activity can be described in terms of direct and secondary impacts. Direct impacts are those changes in output, employment, or income that represent the initial or first-round effects of the project, program, policy, or activity. Secondary impacts (further categorized into indirect and induced effects) result from subsequent rounds of spending and re-spending of the original dollars within the economy. This process of spending and re-spending is sometimes termed the multiplier process, and the resultant secondary effects are often termed multiplier effects (Leistritz and Murdock 1981). Input-Output analysis is an economic tool that traces linkages among sectors of an economy and calculates the total business activity resulting from a direct impact in a basic sector (Coon et al. 1985). The North Dakota Input-Output Model has 17 economic sectors, is closed with respect to households (households are included as a producing and consuming sector in the model), and was developed from primary (survey) data from firms and households in North Dakota. The North Dakota Input Output Model consists of interdependence coefficients, or multipliers, that measure the level of business activity generated in each economic sector from an additional dollar of expenditures in a given sector. A sector is a group of similar economic units, (e.g., firms engaged in retail trade make up the *Retail Trade* Sector). For a complete description of the Input-Output model, see Coon et al. (1985). Definitions for each economic sector can be found in Appendix D.

Empirical testing has shown the North Dakota Input-Output Model is sufficiently accurate in estimating gross business volume, personal income, retail activity, and gross receipts in major economic sectors in North Dakota. Over the period 1958-2013, estimates of statewide personal income derived from the model averaged within 10 percent of comparable values reported by the U.S. Department of Commerce (Coon et al. 2015, Bureau of Economic Analysis 2015). Coon et al. (2015) measured the statistical differences between the estimates of personal income from the two sources and found the absolute average difference was 7.0 percent, mean difference was -4.71 percent, and Theil's U_1 coefficient was 0.0395 for the 1958 to 2013 period.

An estimate of the secondary economic impacts was undertaken using the horse racing industry's expenditure data as input to the North Dakota Input-Output Model. The model estimates the changes in total business activity (gross receipts) for all sectors of the state's economy resulting from the direct expenditures associated with the horse racing industry. Secondary employment and tax revenues based on historic relationships were estimated using increases in business volume.

North Dakota Horse Racing Industry Structure

The North Dakota horse racing industry is comprised of multiple linkages between the various segments of horse racing. Understanding the composition of the horse racing industry is

necessary to track the source and disbursement of funds among the industry's various components. An expenditure for one component of the industry may represent revenue to another (Figure 1). Perhaps the best way to follow how funds are moved and used by the industry is to begin with state appropriations to the Racing Commission. From the Racing Commission, funds flow to race tracks, Horsemen Groups and owners and breeders. However, the industry also generates additional revenues from fees, dues, and taxes from the activities of the various individual industry components (Figure 1).

North Dakota Racing Commission

The North Dakota Racing Commission regulates horse racing activities, as well as live, simulcast and on-line wagering on horse racing. The Commission receives appropriated dollars from the state's general fund each biennium. During the 2015-2017 biennium, the North Dakota Racing Commission received a total of \$387,827 in general fund appropriations. In addition, the North Dakota Racing Commission receives a portion of the general revenue funds from the wagering tax. The Racing Commission receives 25 percent of the wagering tax which generated \$308,000 in general revenue funds in 2016. The Racing Commission also generates special revenue funds from registration fees and various fines. In 2016, the Racing Commission generated \$68,670 in special funds.

The Racing Commission uses those funds to pay for day-to-day operations and to support race activities. Expenditures for day-to-day operations by the North Dakota Racing Commission include staff salaries, office supplies, maintenance, and other related expenses. The North Dakota Racing Commission also provides veterinary, investigative, and steward services during race meets to check the health of horses and monitor conduct of racing participants.

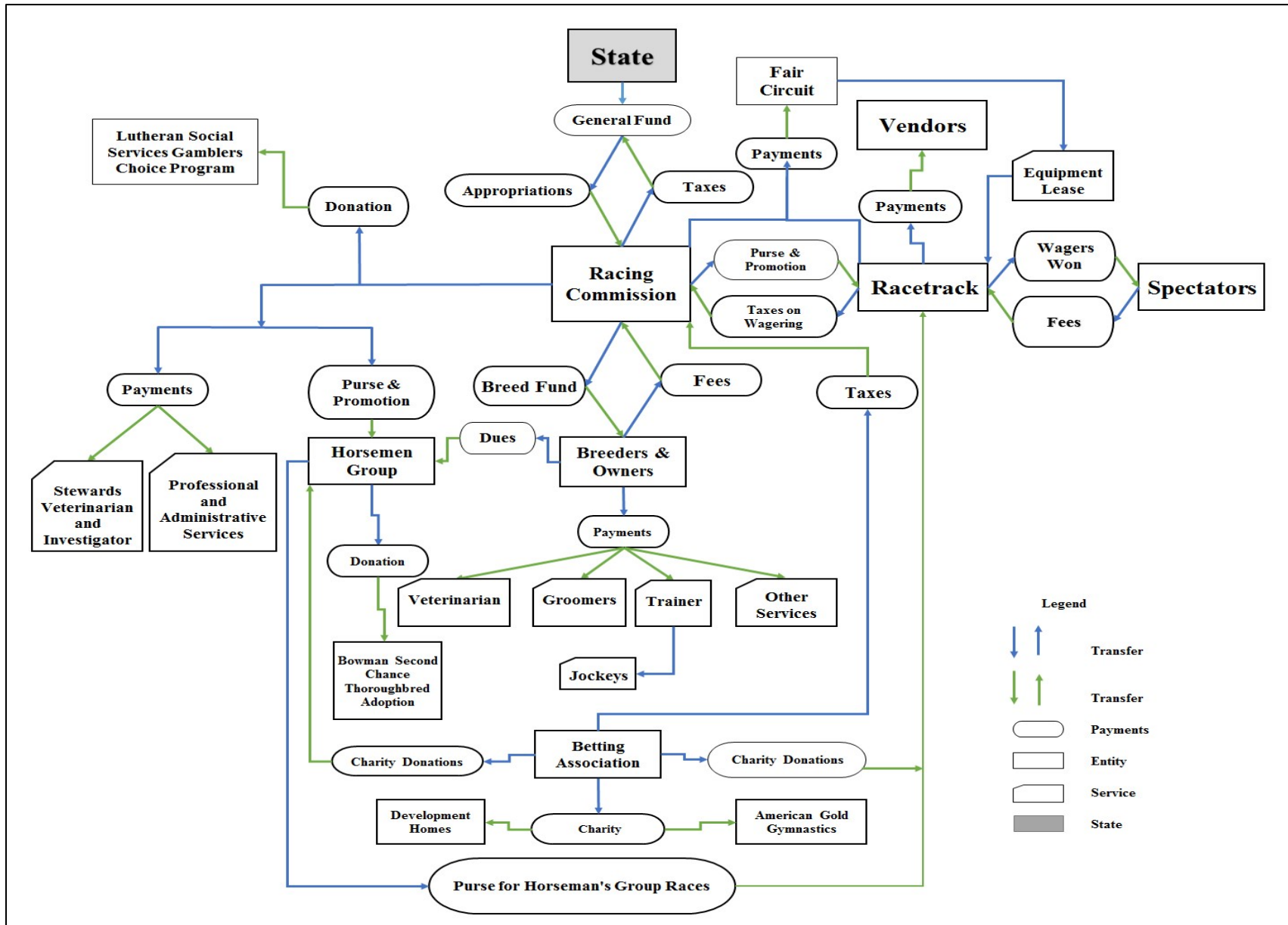


Figure 2. Flow Chart, North Dakota Horse Racing Industry, 2016

The North Dakota Racing Commission manages the Purse, Promotion, and Breed Funds. In 2016, the North Dakota Racing Commission used those funds to provide financial support to North Dakota Horse Park, Chippewa Downs, North Dakota Quarter Horse Racing Association, North Dakota Thoroughbred Association, and Lutheran Social Services Gamblers Choice program. In 2016, the state's race tracks each received \$115,000 from the Purse Fund and \$200,000 from the Promotion Fund. The North Dakota Racing Commission also awarded \$278,000 to horsemen from the Purse Fund in 2016.

The North Dakota Quarter Horse Racing Association and the North Dakota Thoroughbred Association collectively received \$14,000 from the Promotion Fund and each organization received \$20,000 from the Purse Fund. Both groups use promotion funds to organize and promote their annual association activities. For example, the two associations organize annual banquets to raise funds in support of their activities.

The North Dakota Racing Commission also provides monetary support to the Lutheran Social Services Gamblers Choice program. The Gamblers Choice program helps provide treatment to people with gambling addiction through group, individual, and family counseling. The Gamblers Choice Program received \$12,000 annually from 2015 to 2016 from the Racing Commission.

Race Tracks

Race tracks serve as the central venue for public entertainment provided by the horse racing industry. Spectators pay an entrance fee, place wagers, and purchase concessions. Spectators with successful wagers receive winning payouts, net of applicable state and local taxes. A portion of wagers go to the race track and the remainder goes to the betting association. Taxes collected on wagers go to the North Dakota Racing Commission Purse, Promotion and Breed funds. Revenue from other entertainment activities such as food and merchandise at the race track contributes funding to race track purses.

In addition to administering off-site wagering, the state's betting associations make charitable donations. North Dakota mandates licensed betting organizations share part of their earnings through charitable donations. Recipients of charitable donations from the state's betting associations are Horse Race North Dakota, Development Homes in Grand Forks, and American Gold Gymnastics in Fargo. Development Homes and American Gold Gymnastics are non-profit organizations that serve people with disabilities and inspiring kids through gymnastics, respectively. Betting organizations also provide financial support to the North Dakota Quarter Horse Racing and North Dakota Thoroughbred Associations. North Dakota Horse Park and the horsemen associations also have occasionally received other voluntary contributions.

The North Dakota Racing Commission and race tracks make payments to vendors to provide a variety of services associated with race tracks. These services include lease payments

for race related equipment such as photo finish equipment and payments to local vendors for sanitation, maintenance, and other grounds care.

Horsemen Groups

Horsemen groups receive funding from the North Dakota Racing Commission Promotion Fund for breed association promotion efforts. Horseman Groups also receive funds from the North Dakota Racing Commission Purse Fund which flows to horseman as purse payments for Horseman Group races. The North Dakota Thoroughbred Association in turn provides donations to Bowman Second Chance Thoroughbred Adoption, a non-profit organization that rehabilitates retired racehorses for purposes of adoption.

Horseman Survey

A written mail survey was used to solicit information from horse owners, breeders and trainers (Appendix A). A questionnaire was developed to gather expenditure information on day-to-day horse operations such as feed, veterinary services, training, and equipment and expenses relating to racing activities, such as travel, lodging, jockey and stall fees. The survey also solicited descriptive information of the horse enterprise including the type of operation, type of horses raised, and participation at various regional race tracks.

A mailing list was developed from the North Dakota Breed Fund administered by the North Dakota Racing Commission. The list was the best available proxy for active horse breeding and racing operations in the state. Family operations (i.e., those with multiple family members listed with common addresses) were treated as one operation. By considering family operations as one unit, a total of 283 individual operations were identified, most with North Dakota addresses. Approximately 80 percent of the horseman operations had North Dakota addresses.

The survey of the 283 operations produced 44 useable responses. Sixteen questionnaires were returned as either undeliverable, no longer horse racing, or recipients were deceased. The response rate was 16.5 percent after adjusting for undeliverable or unusable questionnaires. Among the usable responses, 36 respondents were from North Dakota and 8 were out-of-state residents (Table 5). The distribution of North Dakota and outof-state respondents was similar to the distribution of addresses in the mailing list; approximately 80 percent of survey recipients were from North Dakota and 20 percent were from other states.

Table 5. Survey Summary, Horseman Survey, 2016

	North Dakota	Other State ¹	
	-----percent-----		(n)
Mailing List	81%	19%	283
Usable Questionnaires	82%	18%	44
Unusable	75%	25%	16

¹ Alaska (1), Colorado (2), Manitoba (2), Oklahoma (1), Ontario (1), Saskatchewan (1), Texas (2), and Wisconsin (2)

Source: Horseman Survey, 2016

Nearly all respondents' owned horses, 92.5 percent, and a majority also breed horses, 77.5 percent (Table 6). Only 32.5 percent of respondents indicated they also train horses and 20 percent indicated they only own race horses. The distribution of horsemen that raised thoroughbred and quarter horses was fairly even. Thirty-six percent of respondents raised both thoroughbred and quarter horses and 36 percent indicated they raised quarter horses only. Twenty-three percent of respondents indicated they raised thoroughbreds only. Most survey respondents participated in race activities in 2016. Eighty-one percent of respondents indicated they raced in 2016. Of those that raced in 2016, 91 percent raced at one or both of North Dakota's tracks, while only 8 percent of respondents indicated they did not race in North Dakota and only raced in other states (Table 6).

Table 6. Horseman Survey Summary, by Type of Operation, Breed of Horses Raised, Race Activities, Location of Race Activities, Horseman Survey, 2017

	-----percent-----
Type of Operation¹:	
Owner	92.5
Breeder	77.5
Trainer	32.5
Breeder Only	20.0
	(n = 40)
Breed of Horses Raised:	
Thoroughbred and Quarter Horses	39.0
Thoroughbred Only	22.0
Quarter Horse Only	39.0
	(n=42)
Race Activities, 2016:	
Raced in 2016	81.0
Did not race in 2016	19.0
	(n=32)
Location of Race Activities:	
Raced in North Dakota	92.0
Raced in Other States	8.0
	(n=25)
¹ Does not sum to 100 percent as respondents were asked to respond to all that apply.	

Survey respondents owned an average 14 horses of various characteristics including breeding stock, race horses and retired race horses (Table 7). However, two-thirds of survey respondents had fewer than 10 horses.

Survey respondents entered an average of 10 horses that raced in an average of 20 races. The average was influenced by a few respondents that entered more horses in more races than most respondents. Thirty-five percent of respondents entered one to three horses and 64 percent entered 10 or fewer horses. Only 11 percent of respondents raced more than 20 horses. Survey respondent's response to the number of races entered was consistent with response to the number of horses entered in races. About a third of respondents entered horses in 10 or fewer races and 69 percent entered horses in 20 or fewer. Only 9 percent of respondents entered horses in 40 or more races. Survey findings were consistent with data obtained from the North Dakota Horse Park that tracked how many races individual horsemen

entered over the course of the race season. Most horsemen enter relatively few races with a few horsemen that entered substantially more races.

Table 7. Horse Ownership and Race Activity, Horsemen Survey, 2016	
Number of Horses Owned	-----percent-----
1-3	27.7
4-10	27.7
10-20	16.6
More than 20	27.7
	(n=36)
	-----number-----
Average	14
Minimum	1
Maximum	
	62
	(n=36)
Number of Horses Raced	-----percent-----
1-3	34.6
4-10	30.7
11-20	23.0
More than 20	11.5
	(n=36)
	-----number-----
Average	10
Minimum	2
Maximum	52
	(n=26)
Number of Races Entered	-----percent-----
1-10	34.8
11-20	34.8
21-40	21.7
More than 40	8.7
	(n=36)
	-----number-----
Average	20
Minimum	2
Maximum	90
	(n=23)

Survey participants were asked about the number of people (full, part-time or seasonal workers) employed by their horse operations (Table 8). Survey respondents on average employed 1 full-time employee, 2.3 part-time employees and 1.7 seasonal employees. Caution should be exercised when interpreting employment data from the horseman survey. Average employment estimates were based on a small number of observations.

Table 8. Employment, by Racing Activity Horseman Survey, 2016			
Employee Type	All Respondents	Did not Race	Raced,
Full-Time	1.0	0	.9
Part-Time	2.3	0	2.4
Seasonal	1.7	0	1.7
	(n = 14)		

The primary focus of the questionnaire was to solicit information on expenditures for day-to-day farm and ranch activities and expenditures for racing activities. While survey recipients were asked to estimate average expenditures for day-to-day operations and expenditures for racing activities separately, many respondents reported combined expenditures. As there was no way to disaggregate expenditures into day-to-day or racing activities, all responses were aggregated. Average expenditures were calculated for each expenditure category stratified by racing activity in 2016.

The survey data was characterized by a few large and small operations. To control the effects of a few large and small observations the top and bottom 10 percent of observations were trimmed. Observations were trimmed based on total expenditures, not individual expenditure categories

Average expenditures were greatest for horse purchases, feed, wages, and trainer fees. Expenditures in those four categories ranged from \$12,100 - \$13,800 in 2016 (Table 9). Expenditures for veterinary care, various fees, equipment purchase and repair, and transportation of horses ranged from \$3,300 to \$4,700 per year. Expenditures for sales prep fees and commissions, insurance, jockey fees, stud fees, farrier care, lodging and pasture rental and grazing fees ranged from \$1,300 to \$2,700. Expenditures in the remaining categories averaged less than \$1,000 per year. Average expenditures were much lower across nearly every expenditure category for respondents that did not race in 2016 (Table 9). Average total expenditures for operations that raced in 2016 were \$93,000 compared to \$41,000 for those operations that did not race in 2016.

Table 9. Average Expenditures, by Race Activity, Horseman Survey, 2016

Expenditure	Average Expenditures	
	Raced	Did not Race
	-----dollars-----	
Horse purchases, mares, stallions, working horses	13,800	680
All feed; purchased hay, specialty feed blends, grain, minerals, supplements, bedding	13,700	4,000
Wages for full and/or part-time employees	12,780	4,100
Trainer fees	12,100	18,200
Veterinary care, routine and general care, pregnancy and insemination costs, foal examinations and care, race related veterinary care	4,700	3,000
Stall fees, starting fees, entry fees, stakes payments, other track fees	4,600	400
Purchases of equipment, tac, fencing, corrals, haying equipment	4,200	1,000
Transportation costs such as transportation of horses for breeding or training, semen transportation	4,100	1,260
Repairs of equipment, machinery, tac, fencing, buildings	3,300	560
Transportation expense, gas, professional horse transportation services, personal travel to and from race track	2,700	40
Sales prep fees, commissions	2,400	0
Insurance	2,300	1,000
Jockey fees	2,000	1,100
Stud fees	1,900	60
Farrier care	1,900	2,200
Lodging expenses, hotels, motels, camp fees, RV slot rental	1,600	400
Pasture rental, grazing fees	1,300	180
Food and beverage expense at bars and restaurants	960	340
Breed registration fees (North Dakota only)	920	460
Retail purchases, groceries, clothing, supplies, personal items	700	300
Semen costs, including semen collection, containers	440	1,400
Benefits for full and/or part-time employees	260	0

Horse leasing for either racing or breeding	30	0
Other (please specify)	0	0
Total	92,690	40,680

Expenditure categories were further aggregated into seven operations categories to enable individuals familiar with horse racing operations to provide feedback on the calculated averages. Because of the small sample size, survey averages were presented to knowledgeable individuals to provide feedback on representative capacity of the data. Industry feedback on the survey results confirmed that the data was representative of horse operations in the state.

Aggregating into operations categories also provides insight into the cost of operations of horse racing enterprises in North Dakota (Table 10). The expenditure categories were *feed, equipment, wages/benefits/insurance, fees, race travel services and horse/breeding*.

Table 10. Operations Expenditure Categories, Horseman Survey, 2016

Operations Categories:	Individual Expenditure				
Feed	All Feed	Pasture rental			
Equipment	Equipment purchase	Equipment repair			
Wages/Benefits/Insurance	Wages	Benefits	Insurance		
Fees	Stall fees/entry fees/other track fees/stakes payments	Breed registration	Sales preparation fees		
Race Travel	Transportation	Lodging	Food and beverage	Retail	
Services	Veterinary care	Farrier	Trainer	Jockey	
Horse/Breeding	Horse purchase	Horse leasing	Stud Fees	Semen	Horse transportation

Expenditures for various expense categories varied substantially depending if the operation raced or did not race in 2016. For operations that raced, average expenditures were highest for *Services* and *Horse/Breeding*, \$20,700 and \$20,270, respectively. For those operations that raced in 2016, expenditures for *Wages/Benefits/Insurance* averaged \$15,000 each. Expenditures for *Race Travel, Equipment, and Fees* ranged from \$5,900 to \$7,900. Total average expenditures for operations that raced in 2016 were nearly \$93,000 per year. Expenditures of operations that did not race were considerably smaller for every category except *Services*. Operations that did not race spent slightly on more *Services* than those that raced in 2016 (Table 11). Average expenditures for all the remaining categories were \$5,000 or less.

Survey results demonstrated considerable difference in average expenditures for those operations that race. Therefore for purposes of estimating average annual in-state expenditures, the population of active North Dakota horsemen operations should be stratified by race status.

Table 11. Average Expenditures, by Operations Categories, Horsemen Survey, 2016		
Operations Expenditures	Raced in 2016	Did Not Race in 2016
	-----dollars-----	
Services	20,700	24,500
Horse/Breeding	20,270	3,400
Wages/Benefits/Insurance	15,340	5,100
Feed	15,000	4,180
Fees	7,920	860
Equipment	7,500	1,560
Race Travel	5,960	1,080
Total Reported Expenditures	92,690	40,680
Number of Respondents	(n = 20)	(n=11)

Estimate of Active Horseman in North Dakota

To estimate total expenditures for all North Dakota horsemen, average expenditures obtained from the survey data were multiplied by the total number of active horseman in the state. The number of active horsemen in the state was estimated using several data sets as no single registration or dataset could identify all racehorse owners, breeders or trainers in North Dakota.

The North Dakota Racing Commission provided a list of horsemen that had registered a horse in the state's Breed Fund in the last three years. Recent registrations (previous three years) were assumed to represent active horse racing operations. Including all names on the Breed Fund would greatly inflate the number of active horse racing enterprises in the state because non-active operations would be counted as active operations. North Dakota Horse Park and Chippewa Downs each provided a list of horsemen that entered races in 2016.

The three lists were merged, and duplicate entries were deleted. Because expenditures for most costs related to horse racing operations would likely occur in their home state, entries with out-of-state addresses were excluded from the estimate of the number of active North Dakota horsemen. Finally, many records with the same last name and address appeared to be family operations and would be best represented as a single operation for the purposes of this study. While that may not be the case in all circumstances, that assumption was not expected to have much influence on the study results. Operations with the same last name and address were assumed to be a single operation. In-state entrants that raced at either Chippewa Downs or The North Dakota Horse Park but were not on the breeder's fund list were added to the list. After eliminating duplicates, removing out-of-state operations, and adding 2016 race entrants not contained in the Breed Fund list, 116 unique North Dakota operations were identified that fit one of the following definitions:

- ✦ Raced at either the North Dakota Horse Park or Chippewa Downs
- ✦ Registered a horse in the North Dakota Breeders fund in the last three years (2014-2016)

To determine what percentage of the 116 operations raced in 2016, those that had raced at either North Dakota Horse Park or Chippewa Downs were identified. Those operations that had registered a horse in the Breed Fund but did not enter a race at either race track were considered active operations that did not race in 2016. Seventy-six operations (65 percent of the active horse racing operations) raced in 2016. Forty operations (35 percent) registered a horse or horses in the Breed Fund in the last three years but did not race in 2016.

Direct Economic Contribution

The North Dakota Racing Commission, North Dakota Quarter Horse Racing Association, and North Dakota Thoroughbred Association and Bowman Second Chance Thoroughbred Adoption provided data on in-state expenditures. Average expenditures from the horsemen survey were multiplied by the number of horse racing operations, stratified by race activity in 2016. Expenditures for operations that raced and did not race were summed to estimate total direct expenditures for horsemen. Direct operating expenditures for each of the industry segments were allocated to appropriate economic sectors of the North Dakota Input-Output Model. Definitions for each expenditure category (economic sector) can be found in Appendix D.

Direct impacts were the greatest in the *Households* sector for all five components of the horse racing industry. The *Households* sector represents personal income from wages and salaries. Direct economic effects in the *Households* sector for horsemen were \$3.4 million. Direct impacts in the *Households* sector were \$285,000 and \$351,000 for North Dakota Horse Park and Chippewa Downs, respectively. Purse payments from the state's race tracks are included in the *Households* sector. Payments to *Households* sector were \$77,000 for the North Dakota Racing Commission

The second largest expenditure category was *Retail Trade* for owners, breeders and trainers and *Business and Personal Services* for the other industry components. Expenditures in the *Retail Trade* sector for owners, breeders and trainers totaled \$2.0 million and expenditures in *Business and Personal Services* were \$1.6 million. Expenditures in *Business and Personal Services* sector ranged from \$20,000 to \$100,000 for the other four industry components (Table 12).

Total direct impacts for all industry components were \$9.0 million. Total direct expenditures for wages and salaries and payouts represented approximately 46 percent of total direct impacts, \$4.2 million of \$9.0 million (Table 12). Payments in the *Retail Trade* and *Business and Personal Services* sector represented 44 percent of total direct total impacts, \$3.9 million.

Table 12. In-State Expenditures, North Dakota Horse racing Industry, 2016

	Horsemen (Owners, Breeders and Trainers)	North Dakota Horse Park	Chippewa Downs	North Dakota Racing Commission	Horsemen Groups/ Bowman Second Chance	Total
Economic Sector	-----\$000-----					
Households	3,443	285	351	77	17	4,173
Retail Trade	2,085	24	33	15	12	2,169
Business and Personal Services	1,618	100	23	34	20	1,795
Finance, Insurance and Real Estate	231	55	26	39	5	356
AgricultureCrops	107	0	0	0	21	128
Government	89	229	4	6	3	331
Communication and Public Utilities	0	7	7	2	1	17
Professional and Social Services	0	7	7	33.	11	58
Construction	0	0	43	0	0	43
Total	7,573	707	494	206	90	9,070

Total Economic Contribution

The North Dakota Input-Output Model (Coon et al. 2012) was used to estimate the secondary economic effects stemming from spending and re-spending of in-state expenditures associated with the industry. The model estimates the level of business activities (i.e., indirect and induced effects) as initial direct expenditures flow through the state’s economy. The levels of business activity in different economic sectors (e.g., retail trade) are used to estimate secondary employment and tax revenues. Definitions for each expenditure category (economic sector) can be found in Appendix D.

The total (direct plus secondary) economic contribution of the horse racing industry was \$24.2 million. Total impacts were greatest in the *Households* and *Retail Trade* sectors, \$9.1 million and \$7.0 million, respectively. Total (direct plus secondary) impacts also were substantial in the *Business and Personal Services* sector and the *Finance, Insurance and Real Estate* sector with impacts of \$2.2 million and \$1.4 million, respectively (Table 13).

Table 13: Direct, Secondary and Total Economic Contribution, North Dakota Horse Racing Industry, 2016.

	Direct	Secondary	Total
	----- 000s \$ -----		
Households	4,173	5,013	9,186
Retail Trade	2,169	4,834	7,003
Business and Personal Services	1,795	419	2,214
Finance, Insurance, and Real Estate	356	1,088	1,444
Government	331	660	991
Agriculture-Crops	128	118	246
Professional and Social Services	58	597	655
Construction	43	585	628
Communication and Public Utilities	17	813	830
Agriculture-Livestock		571	571
Other¹		476	476
Total	9,060	15,174	24,244

¹Other: Non-metal mining, transportation, agriculture processing and miscellaneous manufacturing

Most of the industry’s direct expenditures were attributable to horsemen operations. Direct expenditures of owners, breeders and trainers totaled \$7.5 million. Direct impacts for Chippewa Downs and The North Dakota Horse Park were \$494,000 and \$707,000, respectively. Total direct impacts for the North Dakota Racing Commission were \$206,000 (Table 14).

Like direct effects, secondary impacts stemming from owner and breeder operations were the greatest of all the industry components at \$12.7 million. Secondary effects for the two race tracks were similar, \$901,000 for The North Dakota Horse Park and \$966,000 for Chippewa Downs. Total secondary effects across all industry components was \$15.1 million. Secondary impacts were greatest in the *Households* and *Retail Trade* sectors, \$5.0 and \$4.8 million, respectively (Table 14).

Consistent with direct and secondary impacts, total (direct plus secondary) impacts associated with horse owners, breeders and trainers was the largest of all industry components with total (direct plus secondary) economic contribution of \$20.2 million. The total contributions of the state’s two race tracks were similar, \$1.6 million for the North Dakota Horse Park and \$1.5 million for Chippewa Downs. The total economic contribution of the North Dakota Racing Commission was \$628,000 (Table 14).

Table 14. Direct, Secondary and Total Economic Contribution, by Industry Component, North Dakota Horse Racing Industry, 2016			
Industry Components	Direct Effects	Secondary Effects	Total (Direct plus Secondary) Effects
	-----\$000-----		
Owners, Breeders and Trainers	7,573	12,706	20,279
North Dakota Horse Park	707	901	1,608
Chippewa Downs	494	966	1,460
Racing Commission	206	422	628
Horsemen Associations and Bowman Second Chance Thoroughbred Adoption	90	179	269
Total	9,070	15,174	24,244

Employment

People working in the horse racing industry earn wages that are used to pay for goods and services such as housing, healthcare, and food in other sectors of the economy. This study estimates full-time, part-time, and seasonal employment in the key segments of the horse racing industry. Employment associated with the state's two race tracks was obtained from each of the race tracks. Employment related to off-track simulcast operations were based on non-published data of the number of employees of simulcast operations that required licenses from the North Dakota Racing Commission.

Most employment in the industry is seasonal and associated with operations of the state's two race tracks. Seasonal positions at the North Dakota Horse Park include ticket sellers, admission workers, veterinarians, race stewards, and track managers. The North Dakota Horse Park employed 76 people with a total race season payroll of \$104,196. Chippewa Downs employed 60 people with total race season payroll of \$91,599. Data was not available to estimate full-time equivalents of seasonal employees at the race tracks. Off-track simulcast betting association employed 65 licensed employees in 2016. While off-track simulcast operations offer year-round employment, operators are not required to report whether the positions are full-time or part-time. Like seasonal employment at the race tracks, data was not available to convert licensed betting association employment into full-time equivalents. The North Dakota Racing Commission has two full time positions, the Director and a support staff, and four seasonal positions.

As part of the horsemen survey, horsemen were asked if they had any full-time, parttime or seasonal employees. Using survey data and the estimate of active horseman in North Dakota in 2016, employment associated with the activities of owner, breeders and trainers was estimated.

Thirteen North Dakota horse operations that reported employment information indicated that they employed on average one full-time, 2.4 part-time and 1.7 seasonal workers in 2016 (Table 15). Total employment for owners and breeders was estimated by multiplying the number of active horsemen in 2016 (76) by the average number of workers as reported by survey respondents. Activities of breeders and owners were estimated to support 76 full-time, 228 part-time and 152 seasonal positions. Estimates of employment for horse operations should be interpreted with caution as the estimates were based on only 13 observations from the horseman survey (Table 15).

Table 15. Employment, North Dakota Horse Racing Industry, 2016

	Full-Time	Part-Time	Seasonal
Racing Commission	2	-	4
Breeders and Owners*	76	228	152
Horse Association	1		
Fargo Race Track	-	-	76
Chippewa Race Track	-	-	60
Simulcast Operations (Yearround off-track betting)	-	-	65
Total	78	228	357

*Estimated using horseman survey data and estimates of active horsemen that raced in 2016 (76).

Tax Revenue

The North Dakota Horse Park in Fargo pays property taxes and special assessment taxes to Cass County. Chippewa Downs does not pay local property taxes as the track is located on the Turtle Mountain Band of Chippewa Indian Reservation. The North Dakota Horse Park Foundation (Horse Race North Dakota) and North Dakota Horse Park paid property taxes of \$197,757 in 2016. Horse Race North Dakota, a non-profit organization, owns the grand stands and parking lot parcel of the North Dakota Horse Park in Fargo.

Taxes on secondary business activity were estimated using the North Dakota InputOutput model. State collections for sales and use, individual, and corporate income taxes associated with horse racing were estimated to be \$311,000 in 2016 (Table 16). Approximately 72 percent or \$223,000 the tax revenue from secondary business activity was generated from sales and use taxes.

Table 16: Tax Collection from Secondary Business Activity, North Dakota Horse Racing Industry, 2016

	-----dollars-----
Sales and Use	223,800
Individual Income	75,200
Corporate Income	12,300
Total	311,300

Appropriated Dollars Leverage Factor

The North Dakota Racing Commission received \$387,821 from the state of North Dakota General Fund in 2016. To estimate how those appropriated dollars are leveraged into additional economic activity a leverage factor was calculated. To calculate the leverage factor, the amount of appropriated dollars less the direct impacts of the horseman groups, horse rescue non-profit and owners, breeders and trainers was subtracted from the industry direct economic contribution. The remaining direct economic contribution was divided by the direct economic contribution of all industry components to estimate the leverage factor. The direct expenditures of the horseman groups and the horse rescue were excluded from the industry direct economic contribution to avoid over estimating the leverage factor. In the absence of the North Dakota Racing Commission, race horse breeding and training activities and the activities of the horseman groups would likely be diminished substantially, although some horse breeding and training activities would likely continue in the state. While it is possible that even in the absence of appropriated dollars that fund the North Dakota Racing Commission, some horsemen would likely continue to breed and train horses for racing and race them elsewhere, no data exists to suggest to what degree those operations would continue in North Dakota. Because no data was available to suggest to what degree those operations would be ongoing, the most conservative approach would be to exclude the expenditures of horsemen and horsemen groups from the leverage calculation. A conservative approach was used to avoid over-estimating the leverage factor of appropriated dollars. The leverage factor of appropriated dollars received by the North Dakota Racing Commission was calculated to be a factor of 5.2. For every dollar of appropriated funds, the industry generated \$5.20 in direct spending (direct impacts) industry-wide. The \$387,821 in appropriated dollars were leveraged into \$1.0 million in economic activity. The leverage factor only considers direct spending. Secondary impacts were not included in the calculation of the leverage factor.

Summary

This study examined the economic contribution of the horse racing industry to the North Dakota economy in 2016. The horse racing industry in North Dakota was defined as race horse owners, breeders and trainers, the North Dakota Racing Commission, the North Dakota Horse Park in Fargo, Chippewa Downs in Belcourt, the North Dakota Quarter Horse Racing Association, the North Dakota Thoroughbred Association, the North Dakota Racing Commission and Bowman Second Chance Thoroughbred Adoption.

Financial data obtained from each of the entities and survey data collected from horse owners, breeders and trainers were used to estimate total in-state expenditures for goods and services. The North Dakota Input-Output Model was used to estimate the secondary economic effects stemming from spending and re-spending of in-state expenditures associated with the horse racing industry. Direct expenditures were allocated to the appropriate economic sectors of the North Dakota Input-Output Model to estimate total (direct plus secondary) economic impacts associated with linkages among economic sectors.

Total in-state expenditures were approximately \$9.0 million in 2016. Expenditures were greatest in the *Households* sector, which represents payment for wages and salaries and payouts for betting. The next largest expenditure category was *Retail Trade* with direct expenditures of \$2.2 million followed by *Business and Personal Services* with direct expenditures of \$1.8 million.

The direct economic contribution of race horse owners, breeders, and trainers was estimated to be \$7.6 million. Direct effects associated with activities of the North Dakota Horse Park in Fargo was \$707,000 and \$494,000 for Chippewa Downs in Belcourt. Direct effects related to the Racing Commission were \$206,000 and \$90,000 for the states two Horsemen Associations and Bowman Second Chance Thoroughbred Adoption.

Total (direct plus secondary) impacts were \$24.2 million. Like direct effects, total impacts were greatest in the *Households* and *Retail Trade* sectors, \$9.1 and \$7.0 million, respectively. Of total (direct plus secondary) impacts industry-wide, \$20.2 million was attributable to expenditures associated with activities of race horse owners, breeders and trainers.

Conclusions

Results from this analysis show that apart from providing entertainment, horse racing and associated activities have a positive impact on North Dakota's economy. Impacts stem from direct expenditures (direct effects) made by entities that make up the industry and secondary effects from spending and re-spending of original dollars (direct expenditure) within the economy.

In addition to the direct and secondary effects, the horse racing industry generates employment. Most employment is part-time or seasonal related to race track operations. Total payroll for the state's race tracks was \$195,795 in 2016. In addition to economic activity associated with the industry, donations by the North Dakota Racing Commission and Betting Association support local non-profits, specifically Lutheran Social Services Gamblers Choice Program, Development Homes, and American Gold Gymnastics.

The horse racing Industry through the appropriated dollars that fund the North Dakota Racing Commission successfully leverages state funding to generate additional economic activity. The leverage factor of appropriated dollars received by the North Dakota Racing Commission was calculated to be a factor of 5.2. For every dollar of appropriated funds, the industry generated \$5.20 in economic activity. The \$387,821 in appropriated dollars were leveraged into \$1.0 million in additional industry spending.

This analysis suggests in addition to providing entertainment, the industry generates a positive economic contribution relative to the state-funded dollars that are appropriated to support the North Dakota Horse Racing Commission and the horse racing industry. Given the

multiple linkages between the components of the industry, in the absence of appropriated dollars and the activities of the North Dakota Racing Commission, the horse racing industry would not likely continue to exist in its present form.

References

- Bangsund, Dean A., and Nancy M. Hodur. 2013. *Petroleum Industry's Economic Contribution to North Dakota in 2011*. Agribusiness and Applied Economics Report No. 710. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Bangsund, Dean A., Frayne Olson, and F. Larry Leistritz. 2011. *Economic Contribution of the Soybean Industry to the North Dakota Economy*. Agribusiness and Applied Economics Report No. 678. Department of Agribusiness and Applied Economics, North Dakota State University, Fargo.
- Bangsund, Dean A., and F. Larry Leistritz. 2010. *Economic Contribution of the Petroleum Industry to North Dakota*. Agribusiness and Applied Economics Report No. 676. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Bangsund, Dean A. and F. Larry Leistritz. 2005. *Economic Contribution of the Wheat Industry to North Dakota*. Agribusiness and Applied Economics Report No. 554. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Bangsund, Dean A. and F. Larry Leistritz. 1995. *Economic Contribution of the United States Sunflower Industry*. Agricultural Economics Report No. 327. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Bureau of Economic Analysis. 2015. *Personal Income by Major Sources and Earning by Industry*. Table A05. Internet Website. Interactions Tables. www.bea.gov, Washington, D.C.: U.S. Department of Commerce.
- Coon, Randal C., Dean A. Bangsund, and Nancy M. Hodur. 2015. *North Dakota Input-Output Model Data Base*: Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Coon, Randal C., Dean A. Bangsund, and Nancy M. Hodur. 2012a. *North Dakota Lignite Energy Industry's Contribution to the State Economy for 2011 and Projected for 2012*. Agribusiness and Applied Economics Staff Paper 12003. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Coon, Randal C., Dean A. Bangsund, and Nancy M. Hodur. 2012b. *Economic Impact of the North Dakota University System in 2011*. Agribusiness and Applied Economics Report No. 702.

- Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Coon, Randal C., Dean A. Bangsund, and Nancy M. Hodur. 2012c. *Renewable Energy Industries' Contribution to the North Dakota Economy*. Agribusiness and Applied Economics Report No. 702. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Coon, Randal C., F. Larry Leistritz, Thor A. Hertsgaard, and Arlen G. Leholm. 1985. *The North Dakota Input-Output Model: A Tool for Analyzing Economic Linkages*. Agricultural Economics Report No. 187. Fargo: North Dakota State University, Department of Agricultural Economics.
- Hodur, Nancy M. and F. Larry Leistritz. 2007. *The Contribution of North Dakota's Community Pharmacies to the State's Economy*. Agribusiness and Applied Economics Report 597. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Hodur, Nancy M., F. Larry Leistritz, and Tarrand Hertsgaard. 2006. *Contribution of the North Dakota Agricultural Products Utilization Commission Programs to the State Economy*. Agribusiness and Applied Economics Staff Paper 06006. Fargo: North Dakota State University, Department of Agribusiness and Applied Economics.
- Leistritz, F. Larry and Steve H. Murdock. 1981. *Socioeconomic Impact of Resource Development: Methods for Assessment*. Westview Press, Boulder Colorado.
- North Dakota Horse Park. 2016. Unpublished data, race entry summary, Fargo, ND.
- North Dakota Horse Park. 2016a. Unpublished data, purse disbursements, Fargo, ND.
- North Dakota Racing Commission. 2016. Unpublished data racing days North Dakota Horse Park and Chippewa Downs, Bismarck, ND.
- North Dakota Racing Commission. 2016a. Unpublished data, North Dakota Breed Fund, Bismarck, ND.
- North Dakota Racing Commission. 2016b. Unpublished data, ND Breed Fund purse disbursements, Bismarck, ND.

Appendix A: Horseman Questionnaire
Enterprise Description

1. Which of the following best describes your horse racing operation? Please check all that apply.

_____ Owner _____ Breeder _____ Trainer

2. How many each of the following do you own, lease or have part ownership? _____

_____ Broodmares _____ Stallions _____ Foals

_____ other (please specify) _____

3. What type of horses do you raise, race or own?

_____ Thoroughbred _____ Quarter Horse _____ Both

4. Did you race any of the horses you own or lease during the 2016 racing season?

Yes			No
If yes, at which tracks did your race? Please check all that apply.	If yes, how many horses did you race?	If yes, how many races did you enter?	If no, please go to Question 5
_____ North Dakota Horse Park, Fargo, ND			
_____ Chippewa Downs, Belcourt, ND			
_____ Stanley County Fairgrounds, Ft. Pierre, SD			
_____ Northeast Area Horse racing, Aberdeen, SD			
_____ Assiniboia Downs, Winnipeg, Manitoba			
_____ Canterbury Park, Shakopee, MN			
_____ Other (please specify)			

5. Do you have any full, part time or seasonal employees?

YES NO

If no, please go to Question 6.

If yes, how many full-time employees? _____

If yes, how many part-time employees? _____

If yes, how many seasonal employees? _____

6. How much revenue from your horse breeding or racing operation were used for person spending? For example, expenditures for TV, furniture, vacations, other personal items.

\$ _____

Farm and Ranch Operations Expenditures and Racing Expenses

- 1) Please estimate how much you spent on operations in 2016 for each of the follow categories. The exact amount is not necessary; your best estimate will be adequate.
- 2) Operations expenditures are costs for day to day farm and ranch operations related to your race horse enterprise. Racing expenditures are expenses related race activities during the racing season.
- 3) Please include only expenditures to in-state entities. For example, semen purchased from out of state breeders should not be included.

Farm and Ranch and Racing Expenditures in North Dakota, 2016		
	In-state Expenditures	
	Day to Day Operations	Racing Expenses
Example (repairs)	\$2000	\$150
All feed; purchased hay, specialty feed blends, grain, minerals, supplements, bedding		
Pasture rental, grazing fees		NA
Veterinary care, routine and general care, pregnancy and insemination costs, foal examinations and care, race related veterinary care		
Farrier care		
Trainer fees		
Stud fees		NA
Semen costs, including semen collection, containers		
Transportation costs such as transportation of horses for breeding or training, semen transportation		
Horse purchases, mares, stallions, working horses		
Horse leasing for either racing or breeding		
Breed registration fees (North Dakota only)		
Purchases of equipment, tac, fencing, corrals, haying equipment		
Repairs of equipment, machinery, tac, fencing, buildings		
Insurance		
Wages for full and/or part-time employees		
Benefits for full and/or part-time employees		
Sales prep fees, commissions		

Jockey fees		
Stall fees, starting fees, entry fees, stakes payments, other track fees	NA	
Transportation expense, gas, professional horse transportation services, personal travel to and from race track	NA	
Lodging expenses, hotels, motels, camp fees, RV slot rental	NA	
Food and beverage expense at bars and restaurants	NA	
Retail purchases, groceries, clothing, supplies, personal items	NA	
Other (please specify) _____		

Please feel free to offer any additional comments. _____

***Thank you very much for completing this questionnaire. Your participation is greatly appreciated.
Please return your completed questionnaire in the enclosed envelope.
No postage is required.***

If you would like a copy of this report, please provide either your name and address or an email and a copy of the report will be forwarded to you. The report will also be available through the ND Horse Racing Commission and at <http://ageconsearch.umn.edu/>

Name _____

Address _____

City, State, Zip _____

Email _____

Appendix B: Horseman Questionnaire Cover Letter

December 19, 2016

Recipient Name
Address
City, State Zip Code

Dear: Recipient First Name

North Dakota State University is working with the North Dakota Racing Commission to assess the economic impact of horse racing in North Dakota and we need your help. The enclosed questionnaire was developed to gather information on the contribution of horsemen, owners, breeders, and trainers to the horse racing industry in North Dakota. Will you please take a few minutes to complete this brief questionnaire?

While participation in this study is voluntary, your input is critical. Your responses and identity will be held in strict confidence. No information collected from this survey will be attributed to any individual horseman and all results will be summarized anonymously to maintain confidentiality. Financial data will be aggregated to calculate the economic contribution of the horse racing industry to the state of North Dakota. This research effort would not be possible without your help.

We would like to personally thank you for taking the time to fill out the questionnaire and would be happy to answer any questions you may have. Our contact information is listed below. Thank you in advance for your participation.

Nancy Hodur, PhD

Gunner Lacour



Asst. Research Professor
North Dakota State University
701-231-7357

Director
North Dakota Racing Commission.
701-328-4290

Appendix C: Horseman Survey Comments

Survey Comments
The cost of raising a race horse from birth to racing is at least \$6,500 without including stallion mare for a year or more if stallion is high for training to get to track at \$10,000 to first race. It is not profitable. North Dakota purses are not large enough and seasons is too short
I would like to see more racing in the state and higher purses
My wife and I acquired 19 broodmares and one well-bred stallion about 10 years ago. We anticipated a surge in the racing industry with the building of a new race track in Fargo. Our plan was to have an annual sale. The demand for North Dakota Thoroughbred did not materialize. The rate for racing a colt even with our own breeding stock was probably about \$1000 per horse per year. Our average income from all these mares was probably about the same or \$1000 per horse. These figures do not include labor, machine, housing and real estate. Needless to say we have been discouraged and have sold nearly all of our horses
We mainly race out of state because our trainer will not go back to Belcourt due to indecent facilities and unprofessional operations.
We liked the race at horse park very much except the sitting area is very hot and should have some kind of cover over the top.
Would like to stay and race in North Dakota but season is not long enough and purse not large enough.
I did not race in North Dakota or South Dakota because the trainers did not go there, but will do in 2017 with a different trainer.
We use to race in North Dakota but their racing conflicts with other racing dates in other areas, and it is not run with out of state people in mind. I am a North Dakota born and raised but cannot bend to their ways.
We do not own any horses on the track. We have occasionally bought one for use on the ranch. We do enjoy attending the races at Belcourt. Thank you for considering us
I enjoy going to races. I am 78
It is a lot more expensive to race Thoroughbreds compared to quarter horses. The thoroughbred cannot race every week their legs do not hold up. Please consider this when competing your study.
North Dakota racing is a great deal. I hope it continues for a long time. It is good for the economy and a good time.
Purchased a new truck \$52,000.
Horse racing is my pastime. 2016 was tough because my colt got hurt and we struggled in 2016 but hope with the two horses I have this year things will be okay.

<p>Would like to see additional race days by extending races at Belcourt and or adding more weekends to Fargo. The race season is too short. By the time the horses are in shape the season is done and they have had limited number of starts.</p>
<p>Had foals born in North Dakota but moved all horses out of state when Fargo became unpredictable.</p>
<p>Jockey and pony person should be searched and dry tested before entering starting data.</p>
<p>Did not race in 2016.</p>
<p>We belong to the America Quarter Horse Association (AQHA) other than to register our horses. The AQHA is greedy by setting into credit cards, shipped semen, cloning. The Thoroughbred people have it figured out.</p>
<p>Need to get higher purses in North Dakota so we can race more here.</p>
<p>Cost is too high to only race in North Dakota. Need to go somewhere purses are higher to breakeven or make money. It is an untapped part of agriculture in North Dakota. Could be much larger.</p>
<p>I have sold what I had left, a mare and three year old. I do think horse racing in North Dakota should be maintained. Know it will be good if purses could be larger to keep racing alive.</p>
<p>I no longer race. Too many drug operations going on. I have had two trainers in North Dakota in three years. All I see is drugs. My wife and I are government employees. Cannot be around this anymore. Please when trainers and jockeys have a full set of teeth in their mouth, I might start racing again. Sorry for sounding pissed off, but I have invested way too much money into horse-racing for the cheating and drug pushing that goes on.</p>
<p>Much needed economic impact information</p>

Appendix D: Definitions for Expenditure Categories

The following definitions relate to the North Dakota Input-Output sectors, and are derived from the Standard Industrial Classification Manual (SIC codes). Values used as inputs (i.e., direct impacts) into the ND I-O model represent purchases of goods or services from North Dakota suppliers (e.g., \$1,000 in the Retail Trade Sector would mean a business/individual purchased retail items totaling \$1,000 from stores/outlets in North Dakota). Direct impacts (purchases of a good or service are often expressed as an expense to an industry, firm, or other economic entity).

The combination of direct and secondary economic impacts, which also are listed by economic sector, represent the total purchase of goods and services in that economic sector by all economic entities. Sometimes the combination of direct and secondary economic values is called gross business volume, and can be further described as the sum (total) of all receipts (purchases) of goods and services in the economic sector by all other affected economic sectors.

Agriculture-Crops: Includes the expenses for the purchases of agricultural crops.

Agricultural-Livestock: Includes the expenses for the purchases of livestock.

Construction: Includes expenses for construction projects, such as construction (including new work, additions, alterations, remodeling, and repairs) of residential, industrial, public, office, warehouse, and other buildings and structures. (Major Groups 15, 16, and 17)

Transportation: Includes expenses for railroad, motor freight, water transportation, air transportation, pipeline transportation of petroleum, and other transportation to include packing and crating services, and rental of transportation equipment. (Major Groups 40, 41, 42, 43, 44, 45, 46, and 47)

Communications: Includes expenditures for telephone, telegraph, radio, television, satellite services, Internet transactions, and other communication services. (Major Group 48)

Public Utilities: Includes expenses for natural gas, electricity, water supply, and sanitary (sewer & garbage) services. (Major Group 49)

Manufacturing: Includes expenses for on-site fabrication of processing components, contract manufacturing for items used in processing operations, and the rebuilding of machinery and equipment at the plant. (Major Groups 20 through 39, with emphasis on groups 35-39).

Wholesale Trade: Expenses paid to establishments primarily engaged in selling merchandise to retailers; to industrial, commercial, institutional, or professional users; or to other wholesalers, or acting as agents in buying merchandise for or selling merchandise to such persons or companies. (Major Groups 50 and 51)

Retail Trade: Includes expenses for building materials, hardware, food, general merchandise, office supplies, automobile fuel, computers, eating and drinking establishments, work uniforms, and most other business and office-related supplies. (Major Groups 52, 53, 54, 55, 56, 57, 58, and 59)

Finance, Insurance, and Real Estate: Includes expenses for loan service, interest on loans, investment counseling, insurance, real estate transactions, brokerage fees, and any other financial service expenditures. (Major Groups 60, 61, 62, 63, 64, 65, 66, and 67)

Business and Personal Services: Examples of business and personal services include expenses for advertising, collection services, photocopying/duplication/printing services, equipment rental, computer services, computer software, security services, tax preparation, automotive/equipment/miscellaneous repairs, entertainment, janitorial services, and overnight lodging. (Major Groups 70, 72, 73, 75, 76, 78, 79, and 87)

Professional and Social Services: Includes expenses for health/pharmaceutical, medical, legal, educational, research and development, child care, vocational training, and other professional services. (Major Groups 80, 81, 82, 83, 84, 86, 88, and 89)

Non-metal Mining: Represents the purchases of nonmetallic minerals and materials, such as sand, gravel, clay, phosphorus, crushed limestone, etc. (SIC group 14).

Households: Payments for wages, salaries and other payments such as, land leases, rent. Royalties, interest income that constitute personal income, e.

Government: Represents direct receipts (payments) to governments for tax collections, fines, fees, licenses, and permits.