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College of Agricultural and Environmental Sciences

Economic Impacts of Alabama Quail Hunting

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Economic Impacts of Alabama Quail Hunting

Executive Summary

Quail hunting in Alabama is a popular recreational activity involving the abundant land resources and wildlife habitats available in the state. Quail hunters and entrepreneurs providing services to quail hunters have an interest in maintaining the natural resources necessary for quality hunting experiences. Hunting involves expenses for equipment, hunter provisions and supplies, dogs, and habitat management. Spending in Alabama related to quail hunting has economic impacts in industrial sectors directly related to hunting, as well as in other sectors that have changes in economic activity which are initiated by quail hunting.

A survey of Alabama quail hunters was conducted to determine hunter characteristics and spending in categories related to quail hunting. There were 13,452 Alabama quail hunters in 2007 with 84.8% residing in the state. Quail hunters are mostly in the 45-65 age range. Quail hunters are generally employed and most have household incomes exceeding the Alabama average. Commercial hunting includes quail hunting in which participants travel to a lodge or other hunting facility that provides services for hunters. Personal hunting is characterized by independent hunting with no services provided. Comparing trip totals indicates that 67.9% of quail hunting involves personal hunting, and 32.1% involves commercial hunting. Only a small percentage of quail harvested are wild quail, and pen-raised quail are vital for Alabama quail hunting.

Hunting involves expenses for equipment, hunter provisions and supplies, dogs, and habitat management. Spending in Alabama related to quail hunting has economic impacts in industrial sectors directly related to hunting, as well as in other sectors that have changes in economic activity which are initiated by quail hunting. Total 2007 sales related to quail hunting in Alabama is $30.58 million. This direct output of quail hunting involves 344 part-time and full-time jobs that pay $5.51 million in employee compensation and proprietary income. Indirect economic impacts of quail hunting lead to a total output impact of $40.18 million. Total employee compensation and proprietary income is $8.57 million for 433 jobs. Quail hunting generates $1.10 million in Alabama state treasury tax revenue and an additional $726,202 for local governments. Quail hunters in Alabama generate average sales of $2,273 per hunter as direct output for the total of 13,452 hunters. Total output impact averages $2,987 per hunter. Average state and local taxes generated are $135 per hunter.

Economic Impacts of Alabama Quail Hunting

Quail hunting in Alabama is a popular recreational activity involving the abundant land resources and wildlife habitats available in the state. Quail hunters and entrepreneurs providing services to quail hunters have an interest in maintaining the natural resources necessary for quality hunting experiences. Hunting involves expenses for equipment, hunter provisions and supplies, dogs, and habitat management. Spending in Alabama related to quail hunting has economic impacts in industrial sectors directly related to hunting, as well as in other sectors that have changes in economic activity which are initiated by quail hunting.

The objective of this report is to determine the economic impacts of quail hunting in Alabama. Results will quantify the contribution of quail hunting to the Alabama economy. Economic impacts will indicate how a change in quail hunting participation will impact the total state economy.

Previous research by Auburn University indicates 13,452 Alabama quail hunters in 2007. A target group of 205 quail hunters was selected by information from the Alabama Department of Conservation and Natural Resources. Targeted quail hunters were surveyed to obtain information on quail hunting related expenses and hunter characteristics. There were a total of 106 completed surveys with 92 respondents indicating participation in quail hunting during 2007.

Quail Hunter Characteristics

Table 1 shows that 84.8% of quail hunters in Alabama are residents of the state. Applying this percentage to the total of 13,452 quail hunters leads to 11,405 Alabama residents participating in quail hunting. Commercial hunting includes quail hunting in which participants travel to a lodge or other hunting facility that provides services for hunters. Survey responses indicate that 57.3% of hunters participated in commercial quail hunting. Personal hunting is characterized by independent hunting with no services provided. Survey responses indicate that 68.5% of hunters participated in personal quail hunting. Summation of commercial hunting and personal hunting is greater than the total number of hunters, indicating that some respondents participated in both types of hunting.

Table 1. Characteristics of Alabama Quail Hunters[1]

Characteristic	Percent	Hunters
Alabama Residents	84.8	11,405
Commercial Hunting	57.3	7,708
Personal Hunting	68.5	9,220

[1]13,452 Total Alabama Quail Hunters

Figure 1 shows the percentages of hunters by age category. The categories of 46-55 and 56-65 years of age each have 28.7% of respondents. Adding the greater than 65 age group indicates that 60.9% of quail hunters are 46 years of age or greater. Figure 2 shows that 85.1% of quail hunters are employed and 10.3% are retired. Figure 3 shows that 51.7% of quail hunters have household

incomes of $120,000 or more. Hunters from households between $40,000 and $120,000 compose 44.8% of all quail hunters. The Alabama average household income was $76,659 in 2007 (MIG 2008). Survey results indicate that hunters average 2.9 persons per household.

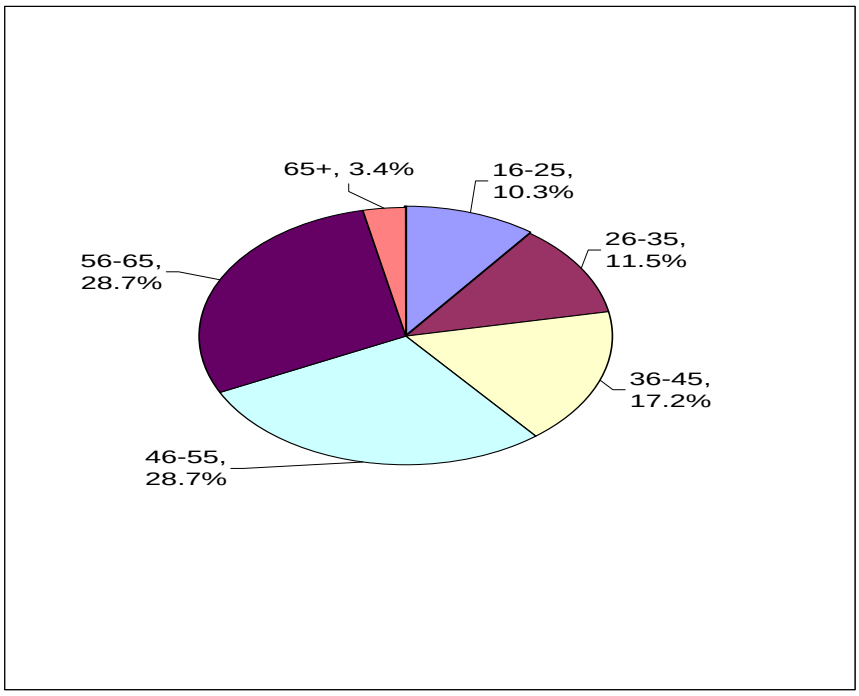

Figure 1. Percentage of Hunters, by Age

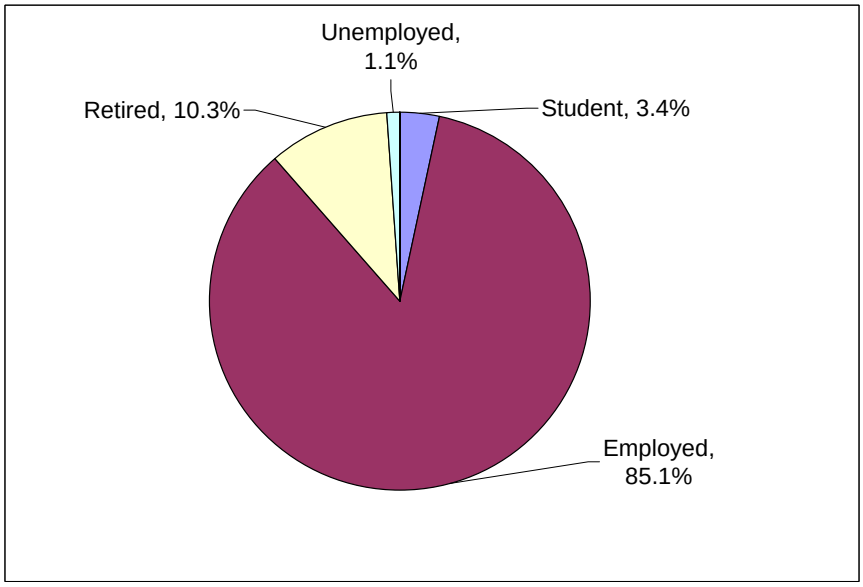

Figure 2. Percentage of Hunters, by Employment Status

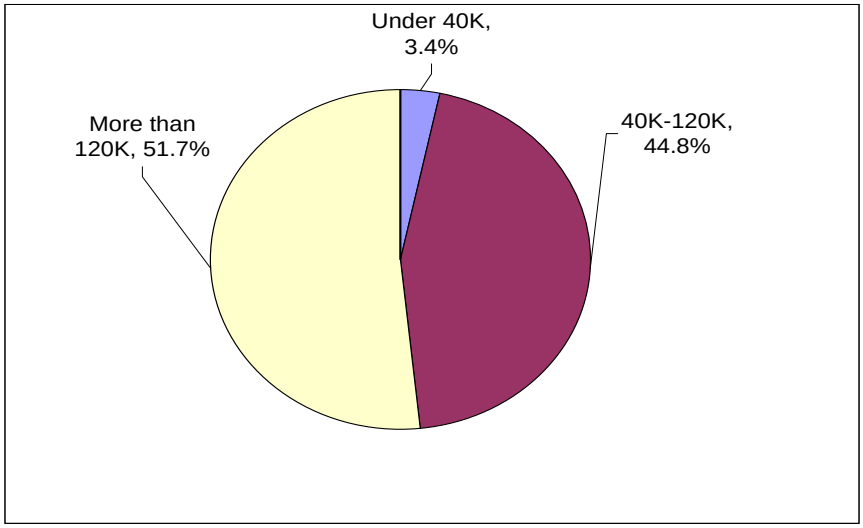

Figure 3. Percentage of Hunters, by Annual Household Income

Characteristics of commercial quail hunters are presented in Table 2. Average hunting trips are 3.4 per year with an annual total of 3.9 days hunting. The average one-way distance traveled to a hunting site is 70.8 miles. Commercial hunters using dogs that they own is 19.6% of all commercial hunters. Respondents hunting for wild quail are 13.7% of all commercial quail hunters with 98.0% hunting for pen-raised quail. There is an average 23.1 quail harvested per commercial trip, and 99.0% of this is pen-raised quail. Commercial hunters have 47.1% of respondents making at least one overnight trip in 2007. There is an average of 3.2 overnight trips for this group of respondents. For overnight commercial hunters, 79.2% lodged on-site for an average of 1.8 days per trip. Off-site lodging respondents are 37.5% of overnight hunters for an average of 1.2 days per trip.

Characteristics of personal quail hunting trips are presented in Table 3. Average hunting trips are 6.0 per year. The average one-way distance traveled to a hunting site is 48.8 miles. Respondents hunting for wild quail are 44.3% of all personal quail hunters with 72.1% hunting for pen-raised quail. There is an average 18.9 quail harvested per personal trip, and 94.8% of these are pen-raised quail. Figure 4 shows the sources of pen-raised quail. Alabama quail farms provide 46.4% of pen-raised quail and 21.4% are from other local quail raisers. Hunting preserves are the source for 14.3%, while 10.7% are raised by hunters. Hunters using dogs that they own are 34.0% of all personal hunters with an average of 3.9 dogs owned. Respondents report that 36.1% use dogs they do not own during personal hunting trips. Guide services are utilized by 4.9% of personal quail hunters. Personal hunters have 19.7% of respondents making at least one overnight trip in 2007. There is an average of 5.0 overnight trips per year for this group of respondents with an annual average of 7.4 days hunting.

Table 2. Characteristics of Commercial Trip Hunters

Characteristic	
Annual Hunting Trips	3.4
Total Hunting Days	3.9
One-Way Miles Traveled to Site	70.8
Percent Hunters, Using Owned Dogs	19.6
Percent Hunters, Wild Quail	13.7
Percent Hunters, Pen-Raised Quail	98.0
Total Quail Harvested per Trip	23.1
Percent of Harvested, Wild Quail	1.0
Percent of Harvested, Pen-Raised Quail	99.0
Percent Making an Overnight Trip	47.1
Annual Overnight Trips	3.2
Percent of Overnight Hunters, Lodged On-Site	79.2
Average Days for On-Site, Overnight Trips	1.8
Percent of Overnight Hunters, Lodged Off-Site	37.5
Average Days for Off-Site, Overnight Trips	1.2

Table 3. Characteristics of Personal Trip Hunters

Characteristic	
Annual Hunting Trips	6.0
One-Way Miles Traveled to Site	48.8
Percent Hunters, Wild Quail	44.3
Percent Hunters, Pen-Raised Quail	72.1
Total Quail Harvested per Trip	18.9
Percent of Harvested, Wild	5.2
Percent of Harvested, Pen-Raised	94.8
Percent Owning Dogs	34.0
Number of Dogs Owned	3.9
Percent Using Dogs Not Owned	36.1
Percent Using Guide Services	4.9
Percent Making an Overnight Trip	19.7
Annual Overnight Trips	5.0
Total Hunting Days, Overnight Trips	7.4

Total commercial trips and personal trips can be calculated by applying the number of hunters in Table 1 with commercial trips in Table 2 and personal trips in Table 3. There were 7,708 commercial hunters that made an average of 3.4 trips for a total of 26,207 trips in 2007. Likewise, 9,220 personal hunters averaged 6.0 trips for a total of 55,320 trips. Comparing trip totals indicates 81,527 total hunting trips, with 67.9% of trips involving personal hunting and 32.1% involving commercial hunting.

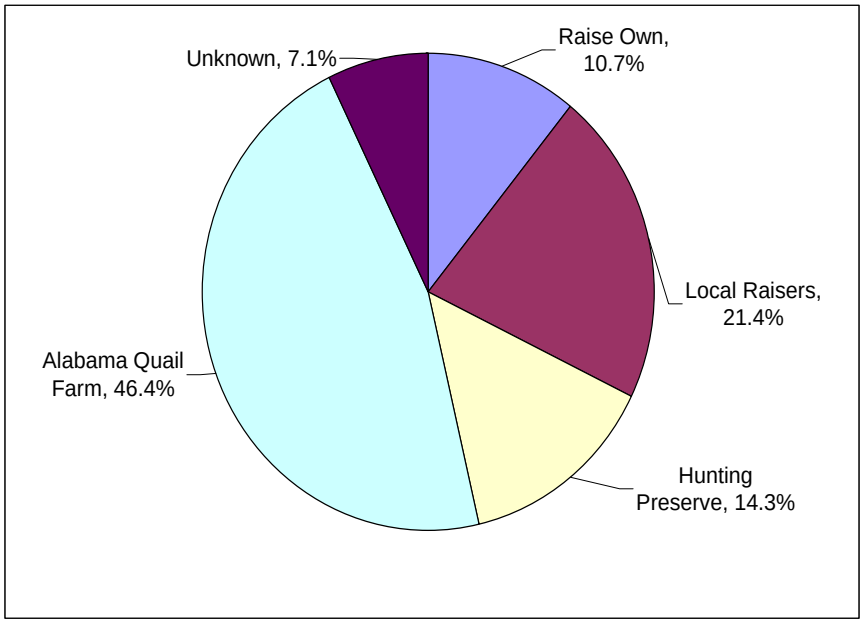

Figure 4. Percent of Pen-Raised Quail, by Source

Table 4 presents land ownership characteristics of personal quail hunters. Some hunters participate in personal hunting on land in more than one ownership category. Land owned represents 54.1% of personal hunting with an average of 7.8 annual days hunting. Leased land represents 14.8% with an average of 4.8 annual days hunting. Hunting on land as a guest consists of 55.7% of personal hunting with 2.8 annual days hunting. Public land represents 14.8% of personal hunting with 4.0 hunting days per year.

Table 4. Land Ownership of Personal Trip Hunters

Type	
Percent Hunting on Land Owned	54.1
Average Hunting Days on Land Owned	7.8
Percent Hunting on Land Leased	14.8
Average Hunting Days on Land Leased	4.8
Percent Hunting on Land as Guest	55.7
Average Hunting Days on Land as Guest	2.8
Percent Hunting on Public Land	14.8
Average Hunting Days on Public Land	4.0

Economic Impact Analysis

Background Information

Methods of input-output analysis are based on an assumption that the production of a given quantity from an industrial sector requires a definite technically determined amount of direct labor combined with certain technically determined amounts of products from other industrial sectors. Derived technical coefficients for an industry output represent the amount of output from a second industry that is absorbed as an input for production in the first industry. The technical relationships describing the inputs absorbed by all industries constitute a system of coefficients that represent the entire economy. A technical coefficient shows by how much an output change in a specific industry would increase or decrease the amount of output in a second industry that supplies inputs for production (Leontief 1951).

A change in one sector of the economy leads to impacts in other sectors that involve a complex series of transactions in which goods and services are exchanged. The effect of a change is transmitted to the rest of the economy through a chain of transactions that links the whole economic system together. Statistically derived technical coefficients provide a quantitatively determined picture of the internal structure of the system. This makes it possible to calculate in detail the consequences that result from the introduction of changes into the system. On the basis of an input-output model it is possible to determine the effect of any increase or decrease in output from any one sector of the economy upon production in all other sectors. Practical application of input-output models includes determining the shift in economic impact resulting from an output change in one sector of the economy and a corresponding output change in another sector (Leontief 1986).

Economic impacts can be estimated with input-output models that separate the economy into various industrial sectors such as agriculture, construction, manufacturing, trade, and services. An input-output model calculates how a change in the industries associated with quail hunting changes output, income, and employment in other industries. These changes, or impacts, are expressed in terms of direct and indirect effects. Impacts are interpreted as the contribution of quail hunting industries to the total economy. Direct effects represent the initial impact of quail hunting related industries. Indirect effects are changes in other industries caused by direct effects and include changes in household spending due to changes in economic activity. Thus, the total economic impact is the sum of direct and indirect effects. Input-output analysis interprets the effects of quail hunting in a number of ways including output (sales), labor income (employee compensation and proprietary income), employment (jobs), value added (output less purchased inputs), and tax revenue. This analysis utilizes IMPLAN (MIG 2004) software for input-output analysis of quail hunting in Alabama.

Hunter expenditures include residents of Alabama, as well as non-residents who are from outside the state. Expenditures by non-residents are regarded as exports because spending represents money coming into the state. Spending by residents is regarded as import substitution. Quail hunting is a unique recreational activity and positive survey responses indicate that respondents have revealed quail hunting as preferred to alternative recreational activities. Characterizing state resident expenditures as import substitutes corresponds to quail hunting availability in Alabama

keeping recreational spending in Alabama rather than residents spending in other states (Shaffer, Deller, and Marcouiller).

Output impacts are a measure of economic activity that results from quail hunting expenditures in a specific industrial sector. Output is equivalent to sales, and the derived output multiplier indicates how initial economic activity in one sector leads to sales in other sectors. Labor income impacts measure purchasing power that is created due to the output impacts. Employee compensation and proprietary income compose labor income, and this impact provides the best measure of how standards of living are affected for residents in the impact area.

Economies have differing capacities to provide consuming industries with inputs from within the local economy. Deficiencies in capability to provide inputs for further production in a sector are compensated by purchasing inputs outside of the local economy. Such circumstances are termed leakages to the economy. Data in IMPLAN includes estimates for the percentage of consumption in a sector that is obtained from local sources. These percentages are Regional Purchase Coefficients (RPC). Sectors without the RPC selected apply input-output analysis under the assumption that all output consumed in the economy is from local sources.

A feature of IMPLAN data accounts for retail purchases that are sold in a local economy but manufactured outside the local economy. IMPLAN signifies the percentage of retail sales that have economic impacts within the local economy as household margins. Selecting the household margin option designates the portion of output corresponding to production and distribution as a leakage to the local economy and only includes the retail margin as having economic impacts.

Quail hunting involve a specified number of employees that is determined by the available technology. Employment multipliers indicate the effect on total state employment resulting from quail hunting industries initiating economic activity. IMPLAN employment includes both full-time and part-time jobs without any distinction. Jobs calculated within an IMPLAN industrial sector are not limited to whole numbers and fractional amounts represent additional hours worked without an additional employee. With no measure of hours involved in employment impacts, IMPLAN summations for industrial sectors which include fractional employment represent both jobs and job equivalents. Since employment may result from some employees working additional hours in existing jobs, instead of terming indirect employment impacts as “creating” jobs, a more accurate term is “involving” jobs or job equivalents. The same reasoning applies to situations in which jobs are lost due to contraction of an industry.

Quail Hunting Expenses

Total annual expenditures in industries related to quail hunting are calculated from the hunter survey. Survey participant responses indicate average expenses per hunter/trip. These averages per hunter/trip are expanded by the survey average number of trips and the total number of hunters in categories of commercial hunting trips and personal hunting trips. Some expenses such as insurance, guns, ammunition, and clothes are expanded by the entire hunter sample, without categorization into commercial hunting and personal hunting.

Table 5 presents annual expenditures and IMPLAN sectors for commercial quail hunting trips that total $3.36 million. Spending at commercial hunting facilities is designated in the lower portion of Table 5. Expenditures not designated as at facilities are during travel to or returning from commercial hunting facilities. Spending at facilities totals $2.41 million, or 71.7% of all spending on commercial hunting trips.

Table 5. Annual Hunter Expenses and IMPLAN Sector for Commercial Hunting Trips

Activity	IMPLAN Sector	$
Hotels	411	178,969
Campgrounds	412	31,306
Restaurant	413	201,092
Groceries	324	107,486
Supplies	328	99,845
Supply Rental	363	36,524
Fuel	115	237,929
Heat, Cook Gas	330	11,479
Souvenirs	329	22,088
Other	330	23,480
Facility Use	18	1,544,453
Supplies: Facility	328	33,481
Quail Purchased: Facility	14	629,956
Souvenirs: Facility	329	92,093
Other: Facility	330	17,219
Other Recreation Purchases: Facility	410	92,309
Total		**3,359,710**

Personal hunting expenditures of $2.30 million are presented in Table 6. Fuel is the largest expense with $601,026 in annual spending. Expenses of $568,576 for supplies are the second greatest category. Combined spending for restaurants and groceries are $706,342.

Land expenses associated with personal hunting total $13.59 million in Table 7. Machine purchases have the greatest sales with $3.83 million. Quail purchases of $1.96 million are the second greatest category. Other spending categories are for inputs to improve habitat for attracting quail.

Table 8 shows expenses associated with quail hunting dogs that total $4.16 million. Dog purchases are $1.03 million. Other expenses, led by dog feed at $1.19 million, are for dog health and other maintenance.

General hunting expenses incurred by both commercial and personal hunting total $7.17 million in Table 9. Purchase of recreational vehicles at $3.40 million is the greatest category of spending.

Table 6. Annual Hunter Expenses and IMPLAN Sector for Personal Hunting Trips

Activity	IMPLAN Sector	$
Hotels	411	87,374
Campgrounds	412	0
Restaurant	413	377,980
Groceries	324	328,362
Supplies	328	568,576
Supply Rental	363	32,123
Fuel	115	601,026
Heat, Cook Gas	330	0
Souvenirs	329	0
Other	330	265,803
Other Recreation Purchases	410	38,326
Total		**2,299,571**

Table 7. Annual Hunter Land Expenses and IMPLAN Sector for Personal Hunting Trips

Activity	IMPLAN Sector	$
Seeds/Plants	6	1,363,014
Fertilizers	130	685,555
Chemicals	131	252,576
Wildlife Feed	42	1,152,003
Quail	14	1,963,549
Equipment Rental	365	1,354,917
Machine Purchase	203	3,832,632
Fuel	115	1,726,304
Custom Work	19	850,197
Hired Labor	19	404,856
Total		**13,585,602**

Spending of $1.83 million for guns and ammunition are the second greatest category. Expenses for insurance are $636,026. Quail hunters spend $470,059 for clothes and shoes, as well as $319,642 for maintenance of equipment.

Table 8. Annual Hunter Dog Expenses and IMPLAN Sector for Personal Hunting Trips

Activity	IMPLAN Sector	$
Dog Purchases	14	1,027,253
Vet Fees	379	624,827
Medicines	133	350,605
Dog Feed	41	1,189,735
Dog Training	422	599,186
Supplies	323	219,972
Miscellaneous	330	147,098
Total		**4,158,676**

Table 9. Annual Hunter General Expenses and IMPLAN Sector for Commercial and Personal Hunting Trips

Activity	IMPLAN Sector	$
Insurance	358	636,026
Recreational Vehicles	320	3,404,250
Taxidermy	405	69,112
Camera, Video Equipment	322	229,550
Maintenance of Equipment	417	319,642
Guns/Ammunition	328	1,829,735
Clothes, Shoes	327	470,059
Other	329	214,067
Total		**7,172,442**

Economic Impact Results

Economic impacts of commercial hunting are reported in Table 10. Direct output impact is $3.36 million. Total sales include $437,943 of final demand with no indirect impacts in the state economy. Adding indirect outputs impacts of $1.21 million leads to a total output impact of $4.57 million. Direct labor income for employees and proprietors is $553,310 for employment in 56 jobs. Average earnings of $9,880 indicate that commercial hunting involves significant seasonal and part-time employment. Total labor income is $939,425 for 68 jobs. Value added for the state economy due to commercial hunting is $2.44 million. Total tax revenue generated is $295,933, with $180,894 distributed to the state treasury and $115,039 distributed to local governments in Alabama. Appendix 1 shows the distribution of output, labor income, and employment among major industrial sectors in the state economy.

Economic impacts of personal hunting are reported in Table 11. Direct output impact is $2.30 million. Total sales include $1.15 million of final demand with no indirect impacts in the state

Table 10. Economic Impact of Commercial Hunting, AL 2007

	Direct Impact	Indirect Impact	Total Impact
Output ($)	3,359,710	1,214,408	4,574,118
Labor Income ($)	553,310	386,115	939,425
Employment	56	12	68
Value Added ($)	1,811,011	626,493	2,437,504
State Taxes ($)			180,894
Local Taxes ($)			115,039
Sum of Taxes ($)			295,933

economy. An indirect output impact of $663,945 leads to a total output impact of $2.96 million. Direct labor income for employees and proprietors is $391,064 for employment in 21 jobs. Average earnings are $18,622. Total labor income is $591,553 for 25 jobs. Value added for the state economy due to personal hunting is $943,057. Total tax revenue generated is $179,875 with $102,580 distributed to the state treasury and $77,295 distributed to local governments in Alabama. Appendix 2 shows the distribution of output, labor income, and employment among major industrial sectors in the state economy.

Table 11. Economic Impact of Personal Hunting, AL 2007

	Direct Impact	Indirect Impact	Total Impact
Output ($)	2,299,571	663,945	2,963,516
Labor Income ($)	391,064	200,489	591,553
Employment	21	4	25
Value Added ($)	586,234	356,823	943,057
State Taxes ($)			102,580
Local Taxes ($)			77,295
Sum of Taxes ($)			179,875

Land management expenses related to personal hunting have economic impacts that are presented in Table 12. Direct output impact is $13.59 million. Total sales include $5.58 million of final demand with no indirect impacts in the state economy. Adding indirect output impacts of $4.78 million leads to a total output impact of $18.37 million. Direct labor income for employees and proprietors is $2.85 million for employment in 164 jobs. Average earnings are $17,387. Total labor income is $4.38 million for 209 jobs. Value added for the state economy due to land management related to personal hunting is $6.43 million. Total tax revenue generated is $519,717 with $328,775 distributed to the state treasury and $190,942 distributed to local governments in Alabama. Appendix 3 shows the distribution of output, labor income, and employment among major industrial sectors in the state economy.

Economic impacts of hunting dog expenses related to personal hunting are presented in Table 13. Direct output impact is $4.16 million. Total sales include $1.67 million of final demand with no

Table 12. Economic Impact of Personal Hunting Land, AL 2007

	Direct Impact	Indirect Impact	Total Impact
Output ($)	13,585,602	4,781,540	18,367,142
Labor Income ($)	2,851,460	1,527,832	4,379,292
Employment	164	45	209
Value Added ($)	3,914,540	2,517,101	6,431,641
State Taxes ($)			328,775
Local Taxes ($)			190,942
Sum of Taxes ($)			519,717

indirect impacts in the state economy. Adding indirect output impacts of $1.32 million leads to a total output impact of $5.48 million. Direct labor income for employees and proprietors is $501,683 for employment in 62 jobs. Average earnings of $8,092 indicate that many jobs in raising dogs and dog training are part-time. Total labor income is $918,366 for 75 jobs. Value added for the state economy due to hunting dogs related to personal hunting is $1.88 million. Total tax revenue generated is $182,039 with $114,116 distributed to the state treasury and $67,923 distributed to local governments in Alabama. Appendix 4 shows the distribution of output, labor income, and employment among major industrial sectors in the state economy.

Table 13. Economic Impact of Personal Hunting Dogs, AL 2007

	Direct Impact	Indirect Impact	Total Impact
Output ($)	4,158,676	1,318,379	5,477,055
Labor Income ($)	501,683	416,683	918,366
Employment	62	13	75
Value Added ($)	1,167,345	711,142	1,878,487
State Taxes ($)			114,116
Local Taxes ($)			67,923
Sum of Taxes ($)			182,039

Economic impacts of general hunting expenses associated with commercial hunting and personal hunting are reported in Table 14. Direct output impact is $7.17 million. Total sales include $4.43 million of final demand with no indirect impacts in the state economy. An indirect output impact of $1.63 million leads to a total output impact of $8.80 million. Direct labor income for employees and proprietors is $1.21 million for employment in 41 jobs. Average earnings are $29,628. Total labor income is $1.74 million for 56 jobs. Value added for the state economy due to general hunting expenses is $2.65 million. Total tax revenue generated is $644,988 with $369,985 distributed to the state treasury and $275,003 distributed to local governments in Alabama. Appendix 5 shows the distribution of output, labor income, and employment among major industrial sectors in the state economy.

Table 14. Economic Impact of General Hunting Expenses, AL 2007

	Direct Impact	Indirect Impact	Total Impact
Output ($)	7,172,442	1,629,807	8,802,249
Labor Income ($)	1,214,762	530,060	1,744,822
Employment	41	14	56
Value Added ($)	1,731,533	914,470	2,646,003
State Taxes ($)			369,985
Local Taxes ($)			275,003
Sum of Taxes ($)			644,988

Table 15 shows the summation of economic impacts reported in Table 10 – Table 14. Total direct output impact is $30.58 million and is equal to total Alabama sales related to quail hunting. Total sales include $13.27 million of sales with no indirect impacts in the state economy. Adding indirect outputs impacts of $9.61 million leads to a total output impact of $40.18 million. Direct labor income for employees and proprietors is $5.51 million for employment in 344 jobs. Total labor income is $8.57 million for 433 jobs. Total labor income averages $19,823 per job for full-time and part-time employment. Value added for the state economy due to quail hunting is $14.37 million. Total tax revenue generated is $1.82 million, with $1.10 million distributed to the state treasury and $726,202 distributed to local governments in Alabama.

Table 15. Total Economic Impacts of all Activities Related to Quail Hunting, AL 2007

	Direct Impact	Indirect Impact	Total Impact
Output ($)	30,576,001	9,608,079	40,184,080
Labor Income ($)	5,512,279	3,061,179	8,573,458
Employment	344	89	433
Value Added ($)	10,125,133	4,211,559	14,336,692
State Taxes ($)			1,096,350
Local Taxes ($)			726,202
Sum of Taxes ($)			1,822,552

Results in Table 15 indicate that quail hunters in Alabama generate average sales of $2,273 per hunter as direct output for the total of 13,452 hunters. Total output impact averages $2,987 per hunter. Average state and local taxes generated are $135 per hunter.

Multipliers derived from Table 15 indicate how a change in quail hunting would impact the state economy. Dividing the total output impact by the direct impact leads to 1.31 as the output multiplier. This is interpreted as a 10% increase in direct quail hunting expenses leads to an additional 3.1% increase in indirect output for a total 13.1% increase in state output (sales). Similar interpretations can be constructed for labor income, employment, and value added. Tax

revenues received by state and local governments due to quail hunting can be determined from Table 15. State tax revenues of $1.10 million are 3.6% of direct output. Thus, any increase in direct output generates new state revenue that is 3.6% of the output increase. For example, a 5% increase in quail hunting activity represents a $1.53 million increase in direct sales. Increased output leads to an increase in state tax revenues of $55,037. State funded initiatives that increase quail hunting by 5% would have positive returns to the state treasury up to $55,037 of public expenditures.

Summary

A survey of Alabama quail hunters was conducted to determine hunter characteristics and spending in categories related to quail hunting. There were 13,452 Alabama quail hunters in 2007 with 84.8% residing in the state. Quail hunters are mostly in the 45-65 age range. Quail hunters are generally employed and most have household incomes exceeding the Alabama average. Commercial hunting includes quail hunting in which participants travel to a lodge or other hunting facility that provides services for hunters. Personal hunting is characterized by independent hunting with no services provided. Comparing trip totals indicates that 67.9% of quail hunting involves personal hunting, and 32.1% involves commercial hunting. Only a small percentage of quail harvested are wild quail, and pen-raised quail are vital for Alabama quail hunting.

Hunting involves expenses for equipment, hunter provisions and supplies, dogs, and habitat management. Spending in Alabama related to quail hunting has economic impacts in industrial sectors directly related to hunting, as well as in other sectors that have changes in economic activity which are initiated by quail hunting. Total 2007 sales related to quail hunting in Alabama is $30.58 million. This direct output of quail hunting involves 344 part-time and full-time jobs that pay $5.51 million in employee compensation and proprietary income. Indirect economic impacts of quail hunting lead to a total output impact of $40.18 million. Total employee compensation and proprietary income is $8.57 million for 433 jobs. Quail hunting generates $1.10 million in Alabama state treasury tax revenue and an additional $726,202 for local governments. Quail hunters in Alabama generate average sales of $2,273 per hunter as direct output for the total of 13,452 hunters. Total output impact averages $2,987 per hunter. Average state and local taxes generated are $135 per hunter.

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Appendix 1. Economic Impact of Commercial Hunting to Major Sectors, AL 2007

Sector	Output ($)	Labor Income ($)	Employment
Agriculture	2,255,384	323,061	45
Mining & Construction	39,169	13,090	0
Utilities	44,472	8,307	0
Manufacturing	191,359	20,377	0
Transportation, Warehousing	50,035	17,726	0
Trade	256,012	111,727	5
Finance, Insurance, & Real Estate	266,997	61,067	2
Services	1,008,855	374,970	16
Government and non-NAICS	23,892	9,100	0
Final Demand with no Impacts	437,943	0	0
Total	**4,574,118**	**939,425**	**68**

Appendix 2. Economic Impact of Personal Hunting to Major Sectors, AL 2007

Sector	Output ($)	Labor Income ($)	Employment
Agriculture	10,828	2,197	0
Mining & Construction	45,540	13,604	0
Utilities	31,783	5,928	0
Manufacturing	255,585	20,184	0
Transportation, Warehousing	29,250	10,944	0
Trade	505,607	229,167	12
Finance, Insurance, & Real Estate	187,361	43,471	1
Services	724,299	255,353	12
Government and non-NAICS	21,702	10,705	0
Final Demand with no Impacts	1,151,561	0	0
Total	**2,963,516**	**591,553**	**25**

Appendix 3. Economic Impact of Personal Hunting Land to Major Sectors, AL 2007

Sector	Output ($)	Labor Income ($)	Employment
Agriculture	4,703,503	2,361,672	162
Mining & Construction	193,142	60,129	1
Utilities	185,736	31,655	0
Manufacturing	3,019,056	492,334	8
Transportation, Warehousing	203,626	72,278	2
Trade	655,311	265,884	7
Finance, Insurance, & Real Estate	2,307,833	451,603	9
Services	1,438,523	615,392	19
Government and non-NAICS	81,649	28,345	0
Final Demand with no Impact	5,578,763	0	0
Total	**18,367,142**	**4,379,292**	**209**

Appendix 4. Economic Impact of Personal Hunting Dogs to Major Sectors, AL 2007

Sector	Output ($)	Labor Income ($)	Employment
Agriculture	1,148,367	159,910	49
Mining & Construction	28,132	10,281	0
Utilities	43,521	8,101	0
Manufacturing	247,601	29,348	0
Transportation, Warehousing	55,134	21,015	0
Trade	271,121	115,427	4
Finance, Insurance, & Real Estate	292,650	58,195	2
Services	1,695,036	506,563	19
Government and non-NAICS	24,903	9,526	0
Final Demand with no Impact	1,670,590	0	0
Total	**5,477,055**	**918,366**	**75**

Appendix 5. Economic Impact of General Hunting Expenses to Major Sectors, AL 2007

Sector	Output ($)	Labor Income ($)	Employment
Agriculture	12,064	3,620	0
Mining & Construction	30,446	10,832	0
Utilities	58,095	11,038	0
Manufacturing	133,174	21,459	0
Transportation, Warehousing	69,785	30,142	1
Trade	1,877,001	834,046	35
Finance, Insurance, & Real Estate	1,135,798	390,512	7
Services	999,139	411,040	13
Government and non-NAICS	58,670	32,133	0
Final Demand with No Impact	4,428,077	0	0
Total	**8,802,249**	**1,744,822**	**56**

The Center for Agribusiness & Economic Development

The Center for Agribusiness and Economic Development is a unit of the College of Agricultural and Environmental Sciences of the University of Georgia, combining the missions of research and extension. The Center has among its objectives:

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>
> To provide agricultural, natural resource, and demographic data for private and public decision makers.

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J. Scott Angle, Dean and Director