Economic Impacts of the Florida Golf Course Industry

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Economic Impacts of the Florida Golf Course Industry

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Executive Summary

Economic impacts of the Florida golf industry were estimated for year 2000 based upon a survey of golf courses, together with other published data and regional economic models. A survey questionnaire was mailed to 1,334 golf courses. Responses were received from 223 firms, representing a 17 percent response rate, and results for survey respondents were extrapolated to estimate values for the entire population. The respondent golf courses were classified as private (50%), semi-private (27%), public (14%), municipal (9%), resort (5%), and military (1%). Residential developments were part of 54 percent of Florida golf courses, with some 756,000 residential units, which had an average value of $366,000 and a total value of $158Bn. Florida golf courses had 27,718 golf holes.

Total annual revenues amounted to $4.44 billion (Bn), including membership and initiation fees (38%), playing fees (27%), food and beverage services (18%), retail sales (6%), lodging (4%), and miscellaneous other activities (9%). The revenues for year 2000 were 49 percent higher than a previous estimate of $3.0Bn in 1991–92, representing an average annual growth rate of 5 percent in nominal dollar terms. Florida counties with golf course revenues in excess of $100 million (Mn) were Palm Beach ($664Mn), Collier ($476Mn), Dade ($288Mn), Broward ($261Mn), Indian River ($211Mn), Lee ($196Mn), Hillsborough ($193M), Pinellas ($145Mn), Orange ($131Mn), Martin ($115Mn), and Duval ($110Mn). Results were also summarized for 8 economic regions of Florida.

Golf industry employment was 73,000 persons, including clubhouse personnel (68%), and golf course maintenance personnel (32%), with 71 percent as full-time and 29 percent as part-time, temporary or seasonal employees. Annual expenses amounted to $3.70Bn, including golf course maintenance (29%), food and beverage service (20%), golf operations (13%), administrative overhead (12%), clubhouse (10%), capital (9%), tennis, fitness and other recreation services (4%), and miscellaneous other expenses (4%). Charitable contributions made by golf courses amounted to $12Mn in cash and $25Mn in-kind. The book value of assets owned by golf courses was $10.8Bn, including land (58%), buildings and installations (26%), vehicles and equipment (10%) and golf course irrigation systems (6%).

Area owned by golf courses was 205,000 acres, with 147,000 acres in maintained turf, and 140,000 acres irrigated. Bermudagrass was the predominant type of turfgrass used on golf courses, representing 93 percent of maintained turf area. Water used for irrigation amounted to 173 billion gallons, of which recycled water was the dominant source (49%), with lesser amounts from surface waters (29%) and wells (21%). Compared to 5 years ago, water use per acre was increased by 9 percent of firms, decreased by 42 percent, and remained the same for 42 percent. Fertilizer use per acre was increased by 29 percent of firms, decreased by 18 percent, and remained the same for 47 percent. The irrigation control system was automated by 94 percent of courses.

Rounds of golf played in Florida totaled 58.6 million in 2000, with 33 percent by out of state visitors, 14 percent by non-local Florida residents, and 54 percent by local residents. There were 26,298 tournament events hosted by Florida golf courses, with attendance of 2.11 million spectators. Travel expenses in Florida by golf playing visitors were estimated at $22.9Bn, of which $5.4Bn may be attributed directly to the golf experience, based upon national average golf travel data. These expenditures had an impact on the Florida
The study evaluated the effect of golf courses on property values in 18 counties. Value measures included assessed value, tax value, land value, sale price, and total value, and types of properties examined included residential, commercial, agricultural, industrial, government, and utility. Overall, the influence of golf courses on property values appeared to be very positive. In 13 of the 18 counties, total values and land values across all land use types were significantly greater within the same square mile section as golf courses. Differentials were as high as $46,537 for residential properties near golf courses in Martin County. Collier County had the highest differential value for the commercial ($184,244) and agricultural ($386,866) land uses. Total county property taxes attributed with golf courses in the selected counties, based on average county millage rates in 1999, were estimated at $214Mn.

**Acknowledgments**

Introduction

Golf is a highly popular recreational activity in the United States. In 2000, there were over 15,000 golf facilities in the country (NGF, 2001). Florida has over 1,300 public and private golf courses, more than any other state. Numerous acclaimed golf courses in Florida are host to prestigious tournaments, including the PGA tour, which is headquartered in the state. Golf courses in the Ft. Myers, Naples, and Ft. Pierce/St. Lucie areas of Florida are among the top five specific golf destinations in the U.S. Florida's warm climate allows golf play throughout the year, and golf is a primary activity for many of the millions of tourists who visit the state each year.

Florida’s golf industry is large and robust. According to a 1991 economic study (Hodges et al., 1994), there were about 1,100 golf facilities in Florida. Sixty percent were privately owned, 17 percent semi-private, 12 percent public, with the remainder either resort, municipal, or military. Nearly 80 percent of the facilities were 18-hole courses on which nearly 40 million rounds of golf were played. This translates into 45,000 rounds of golf played per course in 1991. In terms of economic activity, Florida's golf industry generated $3.01Bn in sales and $2.92Bn in economic value added, employed 13,400 full-time equivalent persons in golf course maintenance, spent $469Mn for labor, equipment, materials and services, had total assets of $1.07Bn, and managed 131,000 acres of land.

The present study updates this information for year 2000 to reflect the growth in the industry and to assess the impact of golf tourism to Florida. Because out-of-state visitors bring new money into the Florida economy, their impact on the golf industry and tourism sector is associated with an economic multiplier effect. This involves three levels of economic activity: direct expenditures by tourists, indirect expenditures by golf facilities on inputs used in operations and maintenance, and induced impacts resulting from personal consumption expenditures by industry employees and allied suppliers.

Water use for landscape irrigation is a critical and growing issue in Florida. Many golf course superintendents are aware of the increasing political pressures to reduce consumption or switch to alternative water sources, such as reclaimed water. Mounting urban populations are placing unprecedented pressures on the natural resource base in many regions of the United States. At the same time, heightened environmental awareness by the public is focusing attention on heavy consumers of water, fertilizers, and pesticides. These pressures are being felt increasingly by agricultural interests and commercial users of these inputs. Golf courses, which are generally located close to or within urban centers, are particularly prone to public scrutiny of resource use practices. With more golf courses than any other state, and with a rapidly expanding urban population, the Florida golf course industry is often in the spotlight with regard to water consumption practices. This is particularly true during periods of drought, which Florida has experienced in recent years, according to a study that examined water and chemical use patterns by Florida golf courses over the past twenty years (Haydu et al., 1997).

There is a need for information to better inform policy makers about the economic value of water use by golf courses and the potential economic impacts of water use restrictions. Some of the key questions in this regard include:

- What is the history and projected future water use by golf courses?
- What sources of water do golf courses use and what share of total use does each represent? (e.g. potable groundwater, treated effluent, de-salinated)
- What are the capital and operating costs for golf course irrigation?
- How many golf courses have upgraded to new higher efficiency irrigation systems?
Increasingly, golf courses are being constructed as part of larger residential community development projects. In fact, interviews with developers in Florida indicated that the majority of new golf courses constructed are located within residential settings. Golf course communities are typically viewed as a highly desirable place to live — for their enhanced aesthetic qualities, recreational sport activities, and the amenities derived from clubhouse and dining facilities. Because of the premiums people typically pay to enjoy these amenities, it is anticipated that golf facilities may significantly influence overall real estate values in the community. An objective of this research is to document these potential impacts.

Methodology

Survey

Information to be collected from Florida golf courses and issues of concern to the golf industry were determined based on comments received in two focus group sessions with golf course owners and managers at Apopka and Naples, Florida in July, 2001. These sessions included a total of 12 industry professionals, representing industry associations, individual golf course owners, managers, and superintendents. Based on their recommendations it was decided to use a mail survey approach rather than a telephone or internet survey, since typically several people in each organization would be required to provide different types of information. Information collected in this survey was for year 2000 and included two major categories:

1. Financial Information
   - Business revenues
   - Financial expenditures
   - Employment
   - Value of assets managed

2. Descriptive, Operational and Cultural Information
   - Type of golf course
   - Number of golf rounds played
   - Geographic origin of golfers
   - Number and value of associated residential developments
   - Golf course area managed
   - Types of turfgrass maintained
   - Volume and source of irrigation water consumption.

Survey questionnaires were mailed to a list of golf courses that was compiled from three different sources: 1) the membership of the Florida Golf Course Superintendents Association, 2) the subscribers to Florida Golf News magazine, and 3) Florida firms listed in the Reference USA database under Standard Industrial Code 7992 (public golf courses) and 7997 (private membership sports clubs). These lists were combined, sorted and checked to eliminate duplicates, resulting in a list of 1,334 firms. Surveys were mailed to the listed firms two times, in October and November 2001, with a followup reminder postcard mailed one week later. Completed survey questionnaires were received from 223 firms, representing a 17 percent response rate. Results for survey respondents were extrapolated to estimate values for the entire population using expansion factors computed as the number of qualified courses divided by the number of respondents for each major type of variable (Table 1). The overall expansion factor was 5.8, which meant, for example, that each acre of golf course land reported by respondents represented an estimated 5.8 acres industry-wide.
Table 1. Florida golf course population, survey respondents, and expansion factor.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golf course population</td>
<td>1,334</td>
</tr>
<tr>
<td>Number undeliverable questionnaires</td>
<td>40</td>
</tr>
<tr>
<td>Number qualified golf courses</td>
<td>1,294</td>
</tr>
<tr>
<td>Number survey respondents</td>
<td>223</td>
</tr>
<tr>
<td>Overall expansion factor</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Revenues

Revenues for golf courses were reported by responding firms in the categories shown in Table 2. From this information, actual sales were estimated for the purpose of computing total industry revenues by using the midpoint value of each revenue range in conjunction with the appropriate expansion factor.

Table 2. Annual revenue categories, estimated sales, and number of respondents, Florida golf course survey, 2000.

<table>
<thead>
<tr>
<th>Revenue Category</th>
<th>Estimated Sales (midpoint of range)</th>
<th>Number Survey Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $500,000</td>
<td>$250,000</td>
<td>15</td>
</tr>
<tr>
<td>$500,000 to $999,999</td>
<td>$750,000</td>
<td>24</td>
</tr>
<tr>
<td>$1,000,000 to $1,999,999</td>
<td>$1,500,000</td>
<td>42</td>
</tr>
<tr>
<td>$2,000,000 to $2,999,999</td>
<td>$2,500,000</td>
<td>46</td>
</tr>
<tr>
<td>$3,000,000 to $3,999,999</td>
<td>$3,500,000</td>
<td>22</td>
</tr>
<tr>
<td>$4,000,000 to $4,999,999</td>
<td>$4,500,000</td>
<td>24</td>
</tr>
<tr>
<td>$5,000,000 to $7,499,999</td>
<td>$6,250,000</td>
<td>16</td>
</tr>
<tr>
<td>$7,500,000 to $9,999,999</td>
<td>$8,750,000</td>
<td>4</td>
</tr>
<tr>
<td>$10,000,000 to $14,999,999</td>
<td>$12,500,000</td>
<td>5</td>
</tr>
<tr>
<td>$15,000,000 to $19,999,999</td>
<td>$17,500,000</td>
<td>4</td>
</tr>
<tr>
<td>$20,000,000 to $24,999,999</td>
<td>$22,500,000</td>
<td>1</td>
</tr>
<tr>
<td>$25,000,000 or greater</td>
<td>$27,500,000</td>
<td>1</td>
</tr>
</tbody>
</table>

Property Values

Data on property values in proximity to golf courses was obtained from a database of county property tax records for 1999 from the Florida Department of Revenue (Tallahassee). The data were analyzed for 18 of the top Florida counties that collectively accounted for 71 percent of all golf courses in the state. These data were then segmented into two basic groups — areas that contained golf course facilities and similar areas that did not contain golf course facilities. The spatial resolution of analysis was a one-square mile area of the Public Land Survey System (section, township, range). Properties in each respective group and land use type were then compared to assess the likelihood of significant differences in property values. Land use categories included residential, commercial, agricultural, industrial, utility and government. Measures of value examined were market values, assessed tax values and land values of each parcel. For example, values of residential properties in Collier County that fell within a defined one-square mile section and that contained a golf course were compared with values of residential properties in sections that did not contain a golf course. Statistical tests were conducted on the difference in values with respect to presence or absence of a golf course (t-test, SAS) to determine the statistical significance.
Economic Impact Analysis

The total economic impacts of the Florida golf industry were evaluated using the Implan input-output analysis and social accounting software package and data for Florida counties (MIG, Inc., Stillwater, MN). A regional economic model was developed for the state of Florida. Economic multipliers from the regional model were used to estimate the secondary economic effects of inter-industry purchases, investment, and consumer expenditures by industry employees. Economic impact measures included output, employment, value added, personal income, and indirect business taxes (Table 3). Impact measures were expressed on the basis of per acre of golf course area and per million gallons water consumed to enable comparisons of economic efficiency with other economic sectors and to other major golf states.

Table 3. *Implan* multipliers for Florida golf tourism sectors (1999).

<table>
<thead>
<tr>
<th>Industry (Implan Sector)</th>
<th>Output Value Added $ per $ output</th>
<th>Labor Income</th>
<th>Indirect Business Taxes</th>
<th>Employment (jobs per $Mn output)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotels and Lodging Places</td>
<td>2.418</td>
<td>1.580</td>
<td>1.008</td>
<td>0.143</td>
</tr>
<tr>
<td>Transportation Services</td>
<td>2.393</td>
<td>1.614</td>
<td>1.222</td>
<td>0.076</td>
</tr>
<tr>
<td>Eating &amp; Drinking</td>
<td>2.306</td>
<td>1.404</td>
<td>0.935</td>
<td>0.137</td>
</tr>
<tr>
<td>Amusement and Recreation Services, N.E.C.</td>
<td>2.377</td>
<td>1.577</td>
<td>1.003</td>
<td>0.124</td>
</tr>
<tr>
<td>Membership Sports and Recreation Clubs</td>
<td>2.501</td>
<td>1.537</td>
<td>1.127</td>
<td>0.115</td>
</tr>
<tr>
<td>Miscellaneous Retail</td>
<td>2.407</td>
<td>1.746</td>
<td>1.102</td>
<td>0.229</td>
</tr>
</tbody>
</table>

Source: MIG, Inc, Stillwater, MN

Results were also reported for eight areas of the state (Table 4 and Figure 1) that represent functional economic regions, defined on the basis of worker commuting patterns by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA).

Table 4. Economic regions for the state of Florida.

<table>
<thead>
<tr>
<th>BEA Region</th>
<th>Region Name, Central Place</th>
<th>Counties Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>Miami-Ft. Lauderdale</td>
<td>Indian River, St. Lucie, Okeechobee, Glades, Hendry, Palm Beach, Broward, Dade, Monroe, Martin</td>
</tr>
<tr>
<td>32</td>
<td>Ft. Myers-Cape Coral (Naples)</td>
<td>Lee, Collier</td>
</tr>
<tr>
<td>33</td>
<td>Sarasota-Bradenton</td>
<td>Sarasota, Manatee, Charlotte, Desoto</td>
</tr>
<tr>
<td>30</td>
<td>Orlando</td>
<td>Flagler, Marion, Citrus, Sumter, Lake, Polk, Hardee, Highlands, Osceola, Orange, Seminole, Brevard, Volusia</td>
</tr>
<tr>
<td>35</td>
<td>Tallahassee</td>
<td>Bay, Jackson, Calhoun, Gulf, Liberty, Franklin, Gadsden, Leon, Wakulla, Jefferson, Madison, Taylor</td>
</tr>
<tr>
<td>81</td>
<td>Pensacola</td>
<td>Escambia, Santa Rosa, Okaloosa, Walton, Holmes*, Washington*</td>
</tr>
</tbody>
</table>

* Counties from adjacent Dothan, Alabama economic region

Source: U.S. Department of Commerce, Bureau of Economic Analysis
Figure 1. Economic regions of Florida
**Results**

**Golf Course Characteristics**

Florida golf courses fall into eight main categories, but are dominated by three major types — private, semi-private and public. From the survey sample, half (50 percent) of the golf courses were privately owned, an additional quarter (27 percent) were semi-private, and 14 percent were public facilities (Table 5). The remainder was comprised of municipal, residential development, resort and miscellaneous other types. These percentages differ moderately from estimates in the 1991 study that showed 60 percent of courses were classified as private, 17 percent semi-private, and 12 percent were classified as resort. The decline in the percent of courses that are private is consistent with the findings of the National Golf Foundation (NGF). Their 2000 study showed that fully 87 percent of all new openings nationwide were public access facilities, and they expect this trend to continue in the coming years.

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Number Survey Respondents</th>
<th>Percent Respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>112</td>
<td>50</td>
</tr>
<tr>
<td>Semi-Private</td>
<td>61</td>
<td>27</td>
</tr>
<tr>
<td>Resort</td>
<td>12</td>
<td>5</td>
</tr>
<tr>
<td>Public</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td>Military</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Residential Development</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>Municipal</td>
<td>20</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

*Note: percent does not sum to 100 because some respondents checked more than one category.*

From a sample of 221 golf courses, 8 percent had 9 golf holes or less, 70 percent had 18 holes, 8 percent had 27 holes, 11 percent had 36 holes, and 3 percent had more than 36 holes (Table 6). The overall average number of golf holes per course in 2000 was 21, which represented an estimated 27,683 holes for all courses statewide. Par for the typical course was 76 strokes, and the par value of all golf course holes was 98,541 strokes.

<table>
<thead>
<tr>
<th>Number of golf holes</th>
<th>Number Survey Respondents</th>
<th>Percent Respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 or less</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>18</td>
<td>155</td>
<td>70</td>
</tr>
<tr>
<td>27</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>36</td>
<td>24</td>
<td>11</td>
</tr>
<tr>
<td>more than 36</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>221</td>
<td>99</td>
</tr>
</tbody>
</table>
Most golf course facilities in Florida are relatively new. The vast majority (83 percent) were built since 1960 and a full one-quarter of existing courses were established in the last 10 years (Table 7). This increase in new golf facilities parallels the state’s rapidly growing population, which mushroomed from 4.9 million in 1960 to nearly 16 million in 2000. The increase is also indicative of the growing popularity of golf as a recreational sport, not only in Florida, but around the country. For instance, the number of new facility openings nationwide in 2000 was 20 percent higher than five years earlier, and Florida led the nation with 41 new openings. This growth in supply has been driven by demand. Since 1986, although the overall golf participation rate has declined, the number of golfers has increased 34 percent, from 19.9 million to 26.7 million (NGF, 2001).

Table 7. Year of establishment of Florida golf courses surveyed.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number Survey Respondents</th>
<th>Percent Respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1910</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1910-19</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1920-29</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>1930-39</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1940-49</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>1950-59</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>1960-69</td>
<td>31</td>
<td>15</td>
</tr>
<tr>
<td>1970-79</td>
<td>44</td>
<td>21</td>
</tr>
<tr>
<td>1980-89</td>
<td>48</td>
<td>23</td>
</tr>
<tr>
<td>1990-99</td>
<td>51</td>
<td>24</td>
</tr>
<tr>
<td>2000 or later</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>All</td>
<td>212</td>
<td>95</td>
</tr>
</tbody>
</table>

Golf Course Area, Turf Varieties and Water Use

Total acreage devoted to Florida golf facilities in year 2000 was 207,582 acres, of which 147,927 acres (95%) were maintained in turfgrass playing areas, and 140,274 acres (70%) were irrigated (Table 8). The maintained turf area (fertilized and mowed) was up from 131,300 acres in 1991, a 13 percent increase for the ten years. The average area per course in year 2000 was 108 acres irrigated and 114 acres maintained turf, down from 125 acres in 1991.

Table 8. Golf course area in Florida, 2000.

<table>
<thead>
<tr>
<th></th>
<th>Number Survey Respondents</th>
<th>Mean Per Course +/- Standard Error (Acres)</th>
<th>Expanded Total (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land owned</td>
<td>214</td>
<td>160 +/- 11</td>
<td>207,582</td>
</tr>
<tr>
<td>Turf area maintained</td>
<td>217</td>
<td>114 +/- 5</td>
<td>147,927</td>
</tr>
<tr>
<td>Area irrigated</td>
<td>217</td>
<td>108 +/- 5</td>
<td>140,274</td>
</tr>
</tbody>
</table>
Although more than half a dozen varieties of turfgrass are used on Florida golf courses, by far the most predominant was bermudagrass (Table 9). Roughly 92 percent of the 147,927 acres of maintained turf area was planted in bermudagrass, or 102 acres per course. This grass is preferred in Florida for its drought resistance, tolerance to heavy traffic, and utility in either the fairways or rough. Far down the list in second place was bahiagrass with 5,251 acres, representing 3.5 percent of the total, or 4 acres per course. Bahiagrass is typically limited to the golf course rough. St. Augustinegrass was the only other turf variety that was of significance, with 2.7 percent of the total acreage planted. Each of the remaining varieties constituted less than 1 percent, and are generally limited to the special tee and greens areas.

<table>
<thead>
<tr>
<th>Turfgrass Variety</th>
<th>Survey Respondents</th>
<th>Mean Per Course +/- Standard Error (Acres)</th>
<th>Share of Total Area (Percent)</th>
<th>Expanded Total Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bermudagrass</td>
<td>214</td>
<td>102 +/- 5</td>
<td>93</td>
<td>136,773</td>
</tr>
<tr>
<td>Bahiagrass</td>
<td>67</td>
<td>4 +/- 2</td>
<td>4</td>
<td>5,251</td>
</tr>
<tr>
<td>St. Augustinegrass</td>
<td>89</td>
<td>3 +/- 1</td>
<td>3</td>
<td>3,996</td>
</tr>
<tr>
<td>Mixed/other grasses</td>
<td>25</td>
<td>1 +/- 1</td>
<td>1</td>
<td>1,351</td>
</tr>
<tr>
<td>Zoysiagrass</td>
<td>25</td>
<td>&lt;1 +/- 0</td>
<td>&lt;1</td>
<td>257</td>
</tr>
<tr>
<td>Centipedegrass</td>
<td>6</td>
<td>&lt;1 +/- 1</td>
<td>&lt;1</td>
<td>299</td>
</tr>
<tr>
<td>Specific other type(s)</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td>100</td>
<td>147,927</td>
</tr>
</tbody>
</table>

This study examined several aspects of management practices used by golf courses: 1) sources of irrigation water, 2) changes in water use per acre, 3) changes in fertilizer use per acre, and 4) whether or not the golf course had installed an automated irrigation control system.

Total water use by Florida golf courses in 2000 was estimated at 172 billion gallons. Average water use per golf course was 133 million gallons per year, plus or minus 30 million gallons (95% confidence interval). Information related to water sources is shown in Table 10 and Figure 2. Nearly 85 billion gallons of water came from recycled water, compared to 49 billion for surface water, 35 billion from wells, and 1.5 billion from municipal sources. Taking total irrigated acres and dividing it into the total amount consumed from all water sources, average consumption by Florida golf courses was 1.23 million gallons per acre, or 3.75 acre feet applied in 2000.

The use of recycled water was the primary source for almost half of all golf facilities and has grown from 8 percent in 1974 to 21 percent in 1994 and to 49 percent in 2000. The second most common source was
surface water such as canals and lakes (29 percent), followed by groundwater (21 percent) from wells. Use of surface water rose from 23 percent of golf courses in 1974 to 37 percent in 1994, but then declined to 29 percent in 2000. Groundwater as a source declined from 61 percent in 1974 to 41 percent in 1994, falling further to 21 percent in 2000. Clearly, much of the shift from surface and groundwater has been replaced by the dramatic growth in the use of recycled water to irrigate Florida’s golf courses.

Table 10. Water used for irrigation of Florida golf courses, by source, 2000.

<table>
<thead>
<tr>
<th>Water Source</th>
<th>Survey Respondents</th>
<th>Mean Per Course +/- Standard Error (Million gallons)</th>
<th>Share of Total (Percent)</th>
<th>Expanded Total Amount (Billion gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycled</td>
<td>71 32</td>
<td>51 +/- 22</td>
<td>49</td>
<td>85</td>
</tr>
<tr>
<td>Surface Water</td>
<td>75 34</td>
<td>30 +/- 8</td>
<td>29</td>
<td>49</td>
</tr>
<tr>
<td>Wells</td>
<td>85 38</td>
<td>21 +/- 5</td>
<td>21</td>
<td>36</td>
</tr>
<tr>
<td>Municipal</td>
<td>8 4</td>
<td>1 +/- 3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Other (desalination, ASR, etc.)</td>
<td>3 1</td>
<td>1 +/- 4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total Water Used</td>
<td>169 76</td>
<td>133 +/- 16</td>
<td>173</td>
<td></td>
</tr>
</tbody>
</table>

Other surveys of water and fertilizer use indicate that Florida golf courses have markedly reduced consumption of fertilizers and pesticides on a per acre basis and were increasingly shifting sources of water from ground to recycled. From a water policy and efficiency standpoint, perhaps even more important than total consumption per acre are changes in water use patterns over time. To address this issue, golf course superintendents were asked whether irrigation water use per acre over the past five years had increased, decreased or remained the same (Table 11). If it increased or decreased, respondents were asked to specify how much it had changed. About 42 percent of respondents indicated that their water consumption had decreased, and the same share (42%) said that per acre use remained the same. For those who indicated a reduction in water use, the amount of decrease averaged 37 percent. Nine percent of respondents indicated per acre water use actually increased over the past five years and that it increased by roughly 8 percent.

Table 11. Changes in Florida golf course consumption of water and fertilizer use, 2000.

<table>
<thead>
<tr>
<th>Change Variable</th>
<th>Survey Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>Irrigation water use per acre over past 5 years</td>
<td></td>
</tr>
<tr>
<td>Increased</td>
<td>20</td>
</tr>
<tr>
<td>Decreased</td>
<td>94</td>
</tr>
<tr>
<td>Remained same</td>
<td>93</td>
</tr>
<tr>
<td>Amount increased</td>
<td>18</td>
</tr>
<tr>
<td>Amount decreased</td>
<td>83</td>
</tr>
<tr>
<td>Fertilizer use per acre over past 5 years</td>
<td></td>
</tr>
<tr>
<td>Increased</td>
<td>64</td>
</tr>
<tr>
<td>Decreased</td>
<td>39</td>
</tr>
<tr>
<td>Remained same</td>
<td>104</td>
</tr>
<tr>
<td>Amount increased</td>
<td>64</td>
</tr>
<tr>
<td>Amount decreased</td>
<td>39</td>
</tr>
</tbody>
</table>
A similar set of questions was asked about fertilizer use patterns over the past five years. Nearly half (46%) of all respondents stated that fertilizer use per acre remained the same. More than a quarter (29%) indicated that it had increased and that the average percentage increase was 28 percent. Almost a fifth (18%) stated fertilizer use had declined, with the magnitude of reduction a similar percentage (18%).

Finally, respondents were asked whether or not the golf course had automated irrigation systems installed, and whether they were original or retrofitted from a manual system. Nearly all (94%) stated that their course had an automated system and more than half (53%) indicated it was installed at the time of original construction.

**Golf Play**

Total golf play on Florida golf courses in 2000 was estimated at nearly 59 million rounds. As a percentage of total rounds played, nearly half (49%) occurred during the January through April period (Table 12). Fall was the second most popular period with 28 percent, or 16 million rounds being played, followed lastly by the May through September period with just under one-quarter, or 14 million rounds.

**Table 12.** Seasonal distribution of golf play in Florida, 2000.

<table>
<thead>
<tr>
<th>Season</th>
<th>Survey Respondents</th>
<th>Mean Per Course +/- Standard Error (Rounds)</th>
<th>Share of Total (Percent)</th>
<th>Expanded Total (Million Rounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January-April</td>
<td>198  89</td>
<td>19,763 +/- 962</td>
<td>49</td>
<td>28.7</td>
</tr>
<tr>
<td>May-September</td>
<td>195  87</td>
<td>9,468 +/- 574</td>
<td>23</td>
<td>13.7</td>
</tr>
<tr>
<td>October-December</td>
<td>199  89</td>
<td>11,150 +/- 591</td>
<td>28</td>
<td>16.2</td>
</tr>
<tr>
<td>Total</td>
<td>205  92</td>
<td>45,259 +/- 1,715</td>
<td>58.6</td>
<td>58.6</td>
</tr>
</tbody>
</table>

Florida is well known for its large influx of winter visitors from many northern states as well as international locations, particularly Europe and South America. The geographic origin of golfers in general tends to be associated with distance to the course. At 54 percent or 31.4 million rounds, local county residents were the group most frequently playing golf (Table 13). The second most common group were U.S. residents from outside Florida, representing 27 percent of total rounds played. Non-local Florida residents were the third-ranked group with 14 percent or 8 million rounds, followed lastly by international visitors who accounted for just over 5 percent or 3.2 million rounds of golf. A total of over 19 million rounds (32%) were played by out-of-state visitors to Florida.

**Table 13.** Geographic origin of golfers playing golf in Florida, 2000.

<table>
<thead>
<tr>
<th>Geographic Origin</th>
<th>Survey Respondents</th>
<th>Mean Per Course +/- Standard Error (Rounds)</th>
<th>Share of Total (Percent)</th>
<th>Expanded Total (Million Rounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local (county) residents</td>
<td>184  83</td>
<td>20,372 +/- 1,315</td>
<td>54</td>
<td>31.5</td>
</tr>
<tr>
<td>International visitors</td>
<td>133  60</td>
<td>2,049 +/- 347</td>
<td>5</td>
<td>3.2</td>
</tr>
<tr>
<td>U.S. residents outside Florida</td>
<td>175  79</td>
<td>10,277 +/- 980</td>
<td>27</td>
<td>15.9</td>
</tr>
<tr>
<td>Non-local Florida residents</td>
<td>146  66</td>
<td>5,209 +/- 663</td>
<td>14</td>
<td>8.1</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td></td>
<td></td>
<td>58.6</td>
</tr>
</tbody>
</table>
Florida Golf Visitors and Expenditure Impacts

One of the objectives of this research was to estimate the total economic impact of golf visitors to the state of Florida. The tourism industry publishes information regarding the impact of tourism to the state, but not estimates of the impact of golf-related recreation. Information was obtained from the National Golf Foundation on golf traveler characteristics in the United States, such as the average number of rounds played per day and per year, the number of days spent annually in golf-related travel, the average number of golf trips per year, and average expenditures per trip. The typical U.S. golf traveler makes 6.6 golf-related trips per year with an average of 3.95 days per trip, or a total of 26 days each year in golf-related travel (Table 14), and spends an average of $1,114 per trip or $282 per day on lodging, local transportation, food, entertainment, golf lessons, gifts, and miscellaneous other expenses (NGF, 1999). This excludes transportation expenses to the destination since these expenditures were not necessarily made in Florida.


<table>
<thead>
<tr>
<th>Description</th>
<th>Average Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rounds played per year played by golf travelers</td>
<td>6.1</td>
</tr>
<tr>
<td>Days spent in golf-related travel</td>
<td>26.1</td>
</tr>
<tr>
<td>Golf-related trips per year</td>
<td>6.6</td>
</tr>
<tr>
<td>Rounds played per trip</td>
<td>0.92</td>
</tr>
<tr>
<td>Days per trip</td>
<td>3.95</td>
</tr>
<tr>
<td>Rounds played per day</td>
<td>0.23</td>
</tr>
</tbody>
</table>


The U.S. travel data were used together with survey data from the present study to estimate the travel characteristics of Florida golf visitors. It is reasonable to assume that the U.S. average golf travel data are representative of golf travelers to Florida since this state is the largest golf travel market in the United States. Based on 19.04 million rounds of golf played in Florida by out-of-state visitors, it is estimated that there were 3.12 million golf-playing visitors to Florida in 2000, who made 20.6 million golf-related trips and spent a total of 81.5 million visitor days in Florida (Table 15).


<table>
<thead>
<tr>
<th>Description</th>
<th>Number (million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golf rounds played by visitors</td>
<td>19.04</td>
</tr>
<tr>
<td>Golf travelers</td>
<td>3.12</td>
</tr>
<tr>
<td>Golf traveler-days</td>
<td>81.48</td>
</tr>
<tr>
<td>Golf trips</td>
<td>20.60</td>
</tr>
</tbody>
</table>

Based on the U.S. average golf-travel expenses per day and the estimated number of golf-visitor days in Florida, total golf-travel expenditures by Florida visitors amounted to nearly $23 billion (Table 16). Of this amount, about 23 percent of the total trip expenditures, or $5.4Bn, may be attributed to golf, based on the number of travel days and number of rounds of golf played.
<table>
<thead>
<tr>
<th>Type of Expenditure</th>
<th>Average Per Trip $</th>
<th>Average Per Day $</th>
<th>Estimated Total Expenses $</th>
<th>Expenses Attributable to Golf $</th>
<th>$Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lodging</td>
<td>403</td>
<td>102</td>
<td>8,303</td>
<td>1,941</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>87</td>
<td>22</td>
<td>1,793</td>
<td>419</td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>203</td>
<td>51</td>
<td>4,183</td>
<td>978</td>
<td></td>
</tr>
<tr>
<td>Entertainment</td>
<td>113</td>
<td>29</td>
<td>2,328</td>
<td>544</td>
<td></td>
</tr>
<tr>
<td>Golf lessons</td>
<td>106</td>
<td>27</td>
<td>2,184</td>
<td>510</td>
<td></td>
</tr>
<tr>
<td>Gifts</td>
<td>87</td>
<td>22</td>
<td>1,793</td>
<td>419</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>115</td>
<td>29</td>
<td>2,369</td>
<td>554</td>
<td></td>
</tr>
<tr>
<td>Total expenses</td>
<td>1,114</td>
<td>282</td>
<td>22,953</td>
<td>5,364</td>
<td></td>
</tr>
</tbody>
</table>

2 Average per trip divided by average number travel days per trip.
3 Average expenditure per day multiplied by estimated number of traveler-days.
4 Share of trip expenses attributable to golf (23%).
5 Excludes transportation expenses to destination of $227 per trip.

As noted earlier, visitors to Florida impact the economy at three levels — directly on expenditures such as food, recreation, lodging and entertainment, indirectly by the receiving industries of those dollars as they in turn spend money to purchase goods and services to operate their businesses, and induced impacts from personal consumption expenditures by the employees of these companies and their allied suppliers. The cross-section of industries influenced by tourism spending for the major sectors of the Florida economy, and the three levels of economic impact, are shown in Table 17. The impacts were estimated for the measures of output, value added, and employment.

Output represents total revenues generated from the three levels of economic activity. The output impact from golf tourism spending totaled $12.86Bn. It was dominated by three sectors — services, which accounted for $5.06Bn, or 39 percent of the total; trade with $3.05Bn, or 24 percent; and finance, insurance and real estate, which comprised $1.36Bn or 10 percent. Combined, these three sectors represented more than four-fifths of the total output impact. Direct impacts represented 41 percent of the total output impacts, indirect effects constituted 11 percent, and induced effects made up 47 percent.

Value-added is a measure of net industry income after cost of goods sold have been subtracted from total sales. Of the $8.46Bn in total value added impact, the services sector accounted for $3.27Bn (39%), trade for $2.14Bn (25%), and finance, insurance and real estate comprised $984Mn (12%). Value added included impacts on labor income of $5.58Bn and on indirect business taxes paid to local, state, and federal governments of $792Mn.

Finally, the total employment impact represents the jobs that are generated from all economic activities due to golf visitor spending, which totaled 215,873 in 2000. The component responsible for the majority of employment was the service sector with 96,000 jobs, followed by trade with 72,000 jobs, and third was the government, which accounted for nearly 17,000 jobs.
Table 17. Total economic impacts of golf visitor expenditures in Florida, by major industry sector, 2000.

<table>
<thead>
<tr>
<th>Industry Sector</th>
<th>Total Output Impact ($million)</th>
<th>Total Value Added Impact ($million)</th>
<th>Total Employment Impact (jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services</td>
<td>5,060</td>
<td>3,268</td>
<td>95,641</td>
</tr>
<tr>
<td>Trade</td>
<td>3,049</td>
<td>2,144</td>
<td>71,574</td>
</tr>
<tr>
<td>Finance, Insurance, Real Estate</td>
<td>1,355</td>
<td>984</td>
<td>7,092</td>
</tr>
<tr>
<td>Transportation, Communication, Public Utilities</td>
<td>1,031</td>
<td>649</td>
<td>11,229</td>
</tr>
<tr>
<td>Government</td>
<td>971</td>
<td>886</td>
<td>17,109</td>
</tr>
<tr>
<td>Construction</td>
<td>779</td>
<td>282</td>
<td>7,509</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>534</td>
<td>192</td>
<td>3,321</td>
</tr>
<tr>
<td>Agriculture</td>
<td>63</td>
<td>36</td>
<td>1,385</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>11</td>
<td>958</td>
</tr>
<tr>
<td>Mining</td>
<td>6</td>
<td>3</td>
<td>55</td>
</tr>
<tr>
<td>Total</td>
<td>12,860</td>
<td>8,455</td>
<td>215,873</td>
</tr>
</tbody>
</table>

Golf Course Revenues

Total revenues for Florida golf courses in 2000 were estimated at $4.44Bn. Golf courses ranged widely in financial size from a less than $500,000 to greater than $25Mn in annual revenues (Table 18). Golf courses in the $1 to $3Mn size range represented the largest share of respondents (44%). About 86 percent of all respondent firms had annual revenues under $5Mn. Golf courses with revenues in the $2 to $3Mn range represented the largest share of total industry revenues (16%).

Table 18. Distribution of golf course respondents based on revenue, 2000.

<table>
<thead>
<tr>
<th>Annual revenue range</th>
<th>Survey Respondents</th>
<th>Share of Total Revenues</th>
<th>Expanded Total Revenues ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>(Percent)</td>
</tr>
<tr>
<td>Less than $500,000</td>
<td>15</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>$500,000 to $999,999</td>
<td>24</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>$1,000,000 to $1,999,999</td>
<td>42</td>
<td>21</td>
<td>9</td>
</tr>
<tr>
<td>$2,000,000 to $2,999,999</td>
<td>46</td>
<td>23</td>
<td>16</td>
</tr>
<tr>
<td>$3,000,000 to $3,999,999</td>
<td>22</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>$4,000,000 to $4,999,999</td>
<td>24</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>$5,000,000 to $7,499,999</td>
<td>16</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>$7,500,000 to $9,999,999</td>
<td>4</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>$10,000,000 to $14,999,999</td>
<td>5</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>$15,000,000 to $19,999,999</td>
<td>4</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>$20,000,000 to $24,999,999</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>$25,000,000 or greater</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Total/All</td>
<td>204</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Sources of revenue and their relative importance are presented in Table 19 and Figure 3. The primary source of revenue was membership and initiation fees, which accounted for $1.7Bn or 38 percent of total revenues. The second most important revenue generating source was golf course playing fees, accounting for at $1.2Bn or 27 percent of total revenues. Restaurant, food and beverage services accounted for $794Mn or 18 percent, retail sales (proshop and gift shops) accounted for $267Mn or 6 percent, lodging represented $164Mn or 4 percent, and miscellaneous other revenues comprised $366Mn, for the remaining 8 percent.

**Figure 3.** Sources of revenue for Florida golf courses in 2000.

<table>
<thead>
<tr>
<th>Business Activity</th>
<th>Respondents</th>
<th>Mean Revenues Per Course +/- Standard Error ($1000)</th>
<th>Expanded Total Revenues ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golf course membership and initiation fees</td>
<td>173</td>
<td>1,135 +/- 137</td>
<td>1,665</td>
</tr>
<tr>
<td>Golf course playing fees (greens, carts, dues)</td>
<td>198</td>
<td>808 +/- 61</td>
<td>1,186</td>
</tr>
<tr>
<td>Restaurant, food and beverage services</td>
<td>176</td>
<td>542 +/- 66</td>
<td>794</td>
</tr>
<tr>
<td>Other</td>
<td>79</td>
<td>249 +/- 149</td>
<td>366</td>
</tr>
<tr>
<td>Retail sales (pro shop, gift shop)</td>
<td>161</td>
<td>182 +/- 21</td>
<td>267</td>
</tr>
<tr>
<td>Lodging</td>
<td>12</td>
<td>112 +/- 304</td>
<td>164</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3,429 +/- 272</td>
<td>4,437</td>
</tr>
</tbody>
</table>

**Table 19.** Revenues to Florida golf courses, by business activity, 2000.

**Golf Course Expenses**

Expenses to operate Florida golf course facilities averaged $2.86Mn for the sample of responding firms (Table 20). Expanding this to represent the entire population of Florida golf courses, industry-wide expenses totaled $3.7Bn in 2000. Eight expense categories were identified in this study. The most significant expense was golf course maintenance, representing 29 percent of the total (Figure 4). Average maintenance

**Figure 4.** Distribution of expenses for Florida golf facilities in 2000.
expenses were $677,000 per firm or $7,139 per acre of turf area. The second largest category was expenses associated with food and beverage services, which averaged $464,000 per firm or 20 percent of total expenses. Golf operations was the third most significant category at $301,000 per facility or 13 percent of total expenses. This was followed closely by administrative overhead accounting for 12 percent of expenses ($283,000), clubhouse operations at 10 percent or $244,000, capital expenditures (purchases, interest, and depreciation) at 9 percent or $222,000, and lastly by recreational services such as tennis and fitness training, accounting for 4 percent or $82,000 per facility. Florida golf courses purchased a total of $511Mn in goods and services, or 14 percent of total expenses, from vendors outside the state.

Golf courses are frequently asked for charitable contributions for local schools, civic organizations, and other non-profit organization. In 2000 the average golf course provided $9,000 worth of cash contributions and in-kind contributions, including golf rounds valued at $19,000. Total contributions averaged $28,000 per golf facility or $36 million for the industry as a whole.

| Table 20. Expenses for golf course operations and related business activities, 2000. |
|-----------------------------------------------|-----------------------------------------------|
| Expense Category                              | Survey Respondents Number | Mean Expense Per Course +/− Standard Error ($1,000) | Expanded Total Expenses ($ million) |
|                                              |                              |                                               |                                  |
| Golf course maintenance                       | 183                          | 677 +/- 47                                      | 1,056                            |
| Food & beverage service                      | 155                          | 464 +/- 63                                      | 725                              |
| Golf operations                              | 169                          | 301 +/- 28                                      | 470                              |
| Administrative overhead                      | 146                          | 283 +/- 36                                      | 441                              |
| Clubhouse                                    | 152                          | 244 +/- 37                                      | 381                              |
| Capital (purchases, interest, depreciation)  | 118                          | 222 +/- 64                                      | 347                              |
| Other                                        | 47                           | 94 +/- 57                                       | 147                              |
| Tennis/fitness, other recreation services    | 82                           | 82 +/- 27                                       | 129                              |
| Total costs                                  | 187                          | 2,856 +/- 230                                   | 3,696                            |
| Purchases from vendors outside Florida       | 119                          | 395 +/- 78                                      | 511                              |

**Golf Course Employment**

Employment is an important indicator of an industry’s contribution to a local, regional, or national economy. Wages paid to employees stimulate an economy when they are spent locally in the purchase of other goods and services. In 2000, Florida’s golf course industry employed an estimated 72,038 people, including 51,375 full-time workers and 20,663 part-time workers (Table 21). One-third (33%) of these full and part-time employees worked on golf course maintenance activities, while the remaining two-thirds (67%) worked for the golf course clubhouse and/or related food service or recreational concerns.

The average golf course employed 16 full-time and three part-time people for its highly intensive maintenance work, which includes both the care of the course and the equipment used to maintain the turfgrass. On a per acre basis, this translates into roughly one person for every 5 acres of maintained grass. At two-thirds of the total, the clubhouse component of the golf facility utilizes the larger share of total employment, due primarily to the larger number of separate business activities. For example, depending on the size of the facility, services may include hotel operations, restaurant management and service, and recreational services such as golf and tennis instruction. The average golf course employed 27 full-time people and 19 part-time or seasonal labor for clubhouse related activities. On average, total facility employment translates into one employee for every
$150,000 of financial assets in land, vehicles and equipment, irrigation systems, and golf-owned buildings and installations. These figures attest to the substantial employment impact Florida’s golf course industry has on the state’s economy. Put in different perspective, golf course industry employment was close to the 80,000 people that work for all the theme and amusement parks in the state and greatly exceeded the 50,000 wage and salaried employees in production agriculture (Florida Statistical Abstract 2000).


<table>
<thead>
<tr>
<th>Employee Type</th>
<th>Survey Respondents</th>
<th>Mean Per Course +/- Standard Error</th>
<th>Expanded Total Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>(Jobs)</td>
</tr>
<tr>
<td>Course maintenance, full-time</td>
<td>221</td>
<td>99</td>
<td>16 +/- 1</td>
</tr>
<tr>
<td>Course maintenance, part-time/seasonal</td>
<td>156</td>
<td>70</td>
<td>3 +/- 0</td>
</tr>
<tr>
<td>Clubhouse/other, full-time</td>
<td>190</td>
<td>85</td>
<td>27 +/- 3</td>
</tr>
<tr>
<td>Clubhouse/other, part-time/seasonal</td>
<td>167</td>
<td>75</td>
<td>19 +/- 2</td>
</tr>
<tr>
<td>Total Employment</td>
<td>222</td>
<td>100</td>
<td>56 +/- 4</td>
</tr>
</tbody>
</table>

Table 22. Value of total assets owned by Florida golf course facilities as of December 2000.

<table>
<thead>
<tr>
<th>Asset Type</th>
<th>Survey Respondents</th>
<th>Mean Per Course +/- Standard Error (Jobs)</th>
<th>Expanded Total Assets (Jobs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>(Jobs)</td>
</tr>
<tr>
<td>Land</td>
<td>134</td>
<td>60</td>
<td>5,180 +/- 872</td>
</tr>
<tr>
<td>Golf-owned buildings &amp; installations</td>
<td>135</td>
<td>61</td>
<td>2,323 +/- 231</td>
</tr>
<tr>
<td>Vehicles and equipment</td>
<td>142</td>
<td>64</td>
<td>848 +/- 72</td>
</tr>
<tr>
<td>Irrigation systems</td>
<td>134</td>
<td>60</td>
<td>570 +/- 59</td>
</tr>
<tr>
<td>Total</td>
<td>147</td>
<td>66</td>
<td>8,350 +/- 926</td>
</tr>
</tbody>
</table>

Golf Course Assets

In 2000, Florida’s 1,334 golf courses owned assets with an estimated value of $10.8Bn (Table 22). Asset categories include land, vehicles and equipment, irrigation systems and golf-owned buildings and equipment. Land comprised the largest share of total industry assets, at $6.2Bn or 58 percent of the total (Figure 5). Golf-owned buildings and equipment accounted for the second largest share (26%), valued at $2.8Bn, followed by vehicles and equipment valued at $1.1Bn (10%), and irrigation systems valued at $684Mn (6%). At the firm level, the average golf facility owned $8.3Mn of total assets, comprised of land ($5.2Mn), buildings and installations ($2.3Mn), vehicles and equipment ($848,000), and irrigation systems ($570,000). The average golf course owned $29,995 worth of assets on a per acre basis.
Regional and County Economic Characteristics

Economic characteristics and impact estimates for the Florida golf course industry were also developed for counties and regions of the state, to support local policy analysis. Table 23 shows economic characteristics for eight regions defined by the U.S. Department of Commerce’s Bureau of Economic Analysis, including the number of golf courses, revenues, employment, assets, rounds of gold played, and turfgrass area maintained. The share of total statewide economic activity in each region is summarized in Figure 6.

The most prominent region was the Miami-Ft. Lauderdale economic area, which comprised 27 percent of the state’s golf courses (363), generated 41 percent of total industry revenues ($1.6Bn), employed 39 percent of the industry workforce (28,759 workers), comprised nearly 44 percent of capital assets ($3Bn), golf play of 16.5 million rounds, and 48,450 acres of turfgrass maintained.

The Orlando area and the Ft. Myers-Cape Coral (Naples) economic areas vied closely for second and third place, depending on the indicator being examined. The Orlando area had nearly twice as many golf courses as Ft. Meyers (341 vs. 173) but generated 20 percent less revenue ($610Mn vs $738Mn). Orlando also employed more people (14,561 vs 10,144), but owned fewer assets ($1.0Bn vs $1.5Bn). Golfers in the Orlando area played three times as many rounds of golf (15.1Mn vs 5.8Mn) and had about twice the acreage (32,526 acres vs 18,755) of maintained turf. This pattern of substantially fewer courses, fewer rounds of golf played and less turf area, yet greater revenues and capital assets reflects the higher income levels associated with residents in Florida’s southwest region compared to residents in the state’s central region.

The Tampa-St. Petersburg-Clearwater economic area was the fourth most prominent region with 151 courses, $400Mn in revenues, 8,400 employees, $558Mn in assets, 8.2Mn rounds of golf played, and nearly 20,000 acres of maintained turf. Sarasota-Bradenton followed closely behind in the number of courses, but generated half the revenues ($201Mn), employed half the people (4,652), owned 20 percent fewer capital assets, played 40 percent fewer golf rounds and maintained roughly 30 percent less turf area. Jacksonville was ranked next with 7 percent of the courses and a comparable share of the other economic indices. The Tallahassee area comprised 3 percent of courses, 2 percent of industry revenues, 3 percent of industry employment (1,838 jobs), and $41Mn in assets. The Pensacola area had more golf courses, golf rounds and maintained turf area than Tallahassee, but less revenues, jobs and capital assets.

<table>
<thead>
<tr>
<th>Region</th>
<th>Courses</th>
<th>Revenues</th>
<th>Employment</th>
<th>Assets</th>
<th>Rounds Played</th>
<th>Turf Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miami, R. Lauderdale</td>
<td>363</td>
<td>$1.6Bn</td>
<td>28,759</td>
<td>$3Bn</td>
<td>16.5Mn rounds</td>
<td>48,450 acres</td>
</tr>
<tr>
<td>R. Myers, Naples, Cape Coral</td>
<td>173</td>
<td>$738Mn</td>
<td>10,144</td>
<td>$1.5Bn</td>
<td>5.8Mn rounds</td>
<td>18,755 acres</td>
</tr>
<tr>
<td>Orlando</td>
<td>341</td>
<td>$610Mn</td>
<td>14,561</td>
<td>$1.0Bn</td>
<td>32,526 acres</td>
<td></td>
</tr>
<tr>
<td>Tampa, St. Pete., Clearwater</td>
<td>151</td>
<td>$400Mn</td>
<td>8,400</td>
<td>$558Mn</td>
<td>8.2Mn rounds</td>
<td></td>
</tr>
<tr>
<td>Jacksonville</td>
<td>94</td>
<td>$201Mn</td>
<td>4,652</td>
<td>$332Mn</td>
<td>2.3Mn rounds</td>
<td></td>
</tr>
<tr>
<td>Sarasota, Bradenton</td>
<td>173</td>
<td>$201Mn</td>
<td>4,652</td>
<td>$332Mn</td>
<td>2.3Mn rounds</td>
<td></td>
</tr>
<tr>
<td>Tallahassee</td>
<td>42</td>
<td>$41Mn</td>
<td>1,838</td>
<td>$41Mn</td>
<td>0.4Mn rounds</td>
<td></td>
</tr>
<tr>
<td>Pensacola</td>
<td>151</td>
<td>$41Mn</td>
<td>1,838</td>
<td>$41Mn</td>
<td>0.4Mn rounds</td>
<td></td>
</tr>
</tbody>
</table>
**Table 23.** Economic characteristics of golf courses in Florida regions, 2000.

<table>
<thead>
<tr>
<th>Region*</th>
<th>Number Survey Respondents</th>
<th>Number Golf Courses</th>
<th>Revenues ($ million)</th>
<th>Employment (jobs)</th>
<th>Assets ($ million)</th>
<th>Golf Rounds Played (1000)</th>
<th>Turf Area Maintained (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miami, Ft. Lauderdale</td>
<td>53</td>
<td>363</td>
<td>1,650</td>
<td>28,759</td>
<td>2,992</td>
<td>16,547</td>
<td>48,450</td>
</tr>
<tr>
<td>Ft. Myers, Cape Coral (Naples)</td>
<td>52</td>
<td>173</td>
<td>737</td>
<td>10,144</td>
<td>1,471</td>
<td>5,851</td>
<td>18,775</td>
</tr>
<tr>
<td>Orlando</td>
<td>47</td>
<td>341</td>
<td>611</td>
<td>14,561</td>
<td>1,011</td>
<td>15,121</td>
<td>32,526</td>
</tr>
<tr>
<td>Tampa, St. Pete., Clearwater</td>
<td>21</td>
<td>151</td>
<td>405</td>
<td>8,420</td>
<td>559</td>
<td>8,262</td>
<td>19,982</td>
</tr>
<tr>
<td>Sarasota, Bradenton</td>
<td>20</td>
<td>116</td>
<td>202</td>
<td>4,652</td>
<td>395</td>
<td>5,635</td>
<td>13,050</td>
</tr>
<tr>
<td>Jacksonville</td>
<td>13</td>
<td>94</td>
<td>272</td>
<td>4,302</td>
<td>361</td>
<td>3,422</td>
<td>9,675</td>
</tr>
<tr>
<td>Tallahassee</td>
<td>6</td>
<td>37</td>
<td>59</td>
<td>1,838</td>
<td>41</td>
<td>937</td>
<td>3,176</td>
</tr>
<tr>
<td>Pensacola</td>
<td>4</td>
<td>59</td>
<td>870</td>
<td>19</td>
<td>1,659</td>
<td>4,019</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region*</th>
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<td>5,851</td>
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</tr>
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<td>395</td>
<td>5,635</td>
<td>13,050</td>
</tr>
<tr>
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<td>94</td>
<td>272</td>
<td>4,302</td>
<td>361</td>
<td>3,422</td>
<td>9,675</td>
</tr>
<tr>
<td>Tallahassee</td>
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<td>37</td>
<td>59</td>
<td>1,838</td>
<td>41</td>
<td>937</td>
<td>3,176</td>
</tr>
<tr>
<td>Pensacola</td>
<td>4</td>
<td>59</td>
<td>870</td>
<td>19</td>
<td>1,659</td>
<td>4,019</td>
<td></td>
</tr>
</tbody>
</table>

*Regions defined by the U.S. Department of Commerce, Bureau of Economic Analysis. See Table 4 for counties included.

Summary information is presented for Florida counties in Table 24 and is graphically depicted for the top ten counties in Figure 7. Palm Beach was the top-ranked county in Florida with $633Mn in revenues, employment of 12,332 people, 18,120 acres of turf area, and golf play of 6.5 million rounds. Collier county had $483Mn in revenues, 5,235 jobs, 9,550 acres of turf, and golf play of 2.7 million rounds. Miami-Dade County had $288Mn in revenues, 2,364 jobs, 8,400 acres of turf, and golf play of 2.8 million rounds. Broward County accounted for $261Mn in revenues, 5,075 employee positions, 11,847 acres of turf, and its members played 4.2 million rounds of golf. Lee County had $196 Mn in revenues, 4,814 employees, 9,118 acres of turf, and golf play of 3.2 million rounds. A second tier of counties were Orange, Hillsborough, Pinellas, Martin and Duval, with revenues ranging from $193Mn for Hillsborough to $110Mn for Duval. Employment varied from 4,651 (Orange) to 1,536 (Duval), turf area ranged from 7,800 acres (Hillsborough) to 3,634 acres (Duval), and rounds played ranged from 2.7 million (Pinellas) to 1.4 million (Duval).
### Table 24. Economic characteristics of Florida golf courses, by county, 2000.

<table>
<thead>
<tr>
<th>County</th>
<th>Number of Survey Respondents</th>
<th>Number of Golf Courses</th>
<th>Revenues ($Mn)</th>
<th>Employment (jobs)</th>
<th>Assets ($Mn)</th>
<th>Golf Rounds Played (1000)</th>
<th>Turf Area Maintained (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palm Beach</td>
<td>23</td>
<td>142</td>
<td>664</td>
<td>12,342</td>
<td>1,019</td>
<td>6,514</td>
<td>18,120</td>
</tr>
<tr>
<td>Collier</td>
<td>31</td>
<td>86</td>
<td>476</td>
<td>5,235</td>
<td>985</td>
<td>2,759</td>
<td>9,550</td>
</tr>
<tr>
<td>Dade</td>
<td>4</td>
<td>48</td>
<td>288</td>
<td>2,364</td>
<td>1,412</td>
<td>2,784</td>
<td>8,400</td>
</tr>
<tr>
<td>Broward</td>
<td>10</td>
<td>66</td>
<td>261</td>
<td>5,075</td>
<td>212</td>
<td>4,244</td>
<td>11,847</td>
</tr>
<tr>
<td>Indian River</td>
<td>6</td>
<td>27</td>
<td>211</td>
<td>3,335</td>
<td>387</td>
<td>749</td>
<td>3,672</td>
</tr>
<tr>
<td>Lee</td>
<td>21</td>
<td>87</td>
<td>196</td>
<td>4,814</td>
<td>360</td>
<td>3,165</td>
<td>9,118</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>6</td>
<td>52</td>
<td>193</td>
<td>3,822</td>
<td>342</td>
<td>2,357</td>
<td>7,800</td>
</tr>
<tr>
<td>Pinellas</td>
<td>7</td>
<td>47</td>
<td>145</td>
<td>1,826</td>
<td>195</td>
<td>2,659</td>
<td>4,794</td>
</tr>
<tr>
<td>Orange</td>
<td>5</td>
<td>57</td>
<td>131</td>
<td>4,651</td>
<td>226</td>
<td>2,565</td>
<td>7,627</td>
</tr>
<tr>
<td>Martin</td>
<td>6</td>
<td>46</td>
<td>115</td>
<td>2,354</td>
<td>220</td>
<td>1,560</td>
<td>3,703</td>
</tr>
<tr>
<td>Duval</td>
<td>7</td>
<td>32</td>
<td>110</td>
<td>1,536</td>
<td>193</td>
<td>1,391</td>
<td>3,634</td>
</tr>
<tr>
<td>Sarasota</td>
<td>10</td>
<td>55</td>
<td>99</td>
<td>2,624</td>
<td>208</td>
<td>3,138</td>
<td>7,524</td>
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<tr>
<td>Volusia</td>
<td>12</td>
<td>37</td>
<td>93</td>
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<td>148</td>
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<td>4,320</td>
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<tr>
<td>Pasco</td>
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<td>34</td>
<td>74</td>
<td>2,183</td>
<td>29</td>
<td>1,863</td>
<td>4,420</td>
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<tr>
<td>Brevard</td>
<td>5</td>
<td>31</td>
<td>73</td>
<td>1,717</td>
<td>112</td>
<td>1,897</td>
<td>3,658</td>
</tr>
<tr>
<td>Lake</td>
<td>4</td>
<td>38</td>
<td>58</td>
<td>599</td>
<td>127</td>
<td>1,321</td>
<td>3,563</td>
</tr>
<tr>
<td>Charlotte</td>
<td>4</td>
<td>27</td>
<td>54</td>
<td>1,040</td>
<td>72</td>
<td>1,181</td>
<td>2,903</td>
</tr>
<tr>
<td>Manatee</td>
<td>5</td>
<td>31</td>
<td>53</td>
<td>1,011</td>
<td>122</td>
<td>1,401</td>
<td>2,492</td>
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<tr>
<td>Seminole</td>
<td>3</td>
<td>17</td>
<td>50</td>
<td>1,417</td>
<td>135</td>
<td>782</td>
<td>1,513</td>
</tr>
<tr>
<td>Polk</td>
<td>5</td>
<td>64</td>
<td>45</td>
<td>858</td>
<td>108</td>
<td>2,035</td>
<td>2,445</td>
</tr>
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<td>St. Johns</td>
<td>3</td>
<td>13</td>
<td>40</td>
<td>706</td>
<td>20</td>
<td>442</td>
<td>1,335</td>
</tr>
<tr>
<td>St. Lucie</td>
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<td>19</td>
<td>34</td>
<td>855</td>
<td>17</td>
<td>589</td>
<td>1,552</td>
</tr>
<tr>
<td>Citrus</td>
<td>6</td>
<td>18</td>
<td>24</td>
<td>447</td>
<td>16</td>
<td>700</td>
<td>1,305</td>
</tr>
<tr>
<td>Alachua</td>
<td>2</td>
<td>9</td>
<td>16</td>
<td>374</td>
<td>14</td>
<td>135</td>
<td>788</td>
</tr>
<tr>
<td>Leon</td>
<td>3</td>
<td>8</td>
<td>13</td>
<td>547</td>
<td>2</td>
<td>125</td>
<td>720</td>
</tr>
<tr>
<td>Hernando</td>
<td>3</td>
<td>18</td>
<td>10</td>
<td>822</td>
<td>29</td>
<td>1,242</td>
<td>3,090</td>
</tr>
<tr>
<td>Marion</td>
<td>4</td>
<td>29</td>
<td>9</td>
<td>631</td>
<td>na</td>
<td>645</td>
<td>2,755</td>
</tr>
</tbody>
</table>

**Impact of Golf Courses on Real Estate Values**

This section examines the influence of golf courses on local real estate values in the 18 Florida counties with the largest number of golf courses, which accounted for 71 percent of the golf courses in the state. The analysis compares assessed property values using information from county property appraisers compiled by the Florida Department of Revenue for 1999. The basic approach compares property values that are near a golf course with similar properties in the same county that are not near a golf course. Properties "near" golf courses were defined as those within the same one square mile section of the Public Land Survey System, and properties "not near" fell outside these sections. The information is broken down by county, value measure, and land use type. Land use categories include residential, commercial, industrial, agricultural, institutional, government, and utility. Value measures include assessed value, tax value, land value, sale price, and total value. Assessed value is the value put on the property by the respective county property appraisers in each county for purposes of property tax assessment. Tax value reflects the assessed value less exemptions, such as the homestead exemption on residential property. Land value is the assessed value on the land alone, exclusive of buildings or other...
improvements. Total value is an estimate of market value of the property, including any improvements. Means were computed for each property type and differences in values between properties near vs. not-near golf courses were subjected to a t-test to determine statistical significance.

Differences in total value, by land use and county are summarized in Table 25. Positive numbers indicate that values were greater near golf courses, while negative values indicate that values were lower near golf courses. Values denoted by an asterisk indicate that the difference was statistically significant at the 95 percent level of confidence; in other words, a difference this large would occur by chance only 5 times in 100 (p<0.05). In general, the number of positive values greatly exceeded negative values. In 12 of the 18 counties, there was a positive difference in total values that was statistically significant across all land use types, while in 3 counties there was negative difference, and in 3 counties there was no significant difference. To this extent, the influence of golf courses on property values appears to be favorable.

Table 25. Average difference in total values for properties with respect to Florida golf courses, by land use and county, 1999.

<table>
<thead>
<tr>
<th>County</th>
<th>All Land Uses</th>
<th>Residential Dollars per parcel</th>
<th>Commercial Dollars per parcel</th>
<th>Industrial Dollars per parcel</th>
<th>Agricultural Dollars per parcel</th>
<th>Institutional Dollars per parcel</th>
<th>Government Dollars per parcel</th>
<th>Utility Dollars per parcel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broward</td>
<td>-34887*</td>
<td>-22859*</td>
<td>347000*</td>
<td>535956*</td>
<td>213582</td>
<td>208406</td>
<td>-116657*</td>
<td>-91289*</td>
</tr>
<tr>
<td>Collier</td>
<td>47933*</td>
<td>14179*</td>
<td>323081*</td>
<td>781000</td>
<td>1067982*</td>
<td>0</td>
<td>0</td>
<td>5104</td>
</tr>
<tr>
<td>Dade</td>
<td>-3505</td>
<td>6884*</td>
<td>-82972</td>
<td>-173922*</td>
<td>-102558*</td>
<td>-394392*</td>
<td>-202385*</td>
<td>423635</td>
</tr>
<tr>
<td>Duval</td>
<td>49957*</td>
<td>71280*</td>
<td>406477</td>
<td>-166525*</td>
<td>922976</td>
<td>46533</td>
<td>-727335*</td>
<td>-125124*</td>
</tr>
<tr>
<td>Escambia</td>
<td>-10677</td>
<td>-2721*</td>
<td>60884*</td>
<td>144433</td>
<td>31896*</td>
<td>-59576*</td>
<td>67056</td>
<td>9739*</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>9002*</td>
<td>32113*</td>
<td>220082*</td>
<td>-87367</td>
<td>18447</td>
<td>-64422</td>
<td>-264544*</td>
<td>-228099*</td>
</tr>
<tr>
<td>Lake</td>
<td>4703*</td>
<td>9281*</td>
<td>180852*</td>
<td>211204</td>
<td>-18234*</td>
<td>194324</td>
<td>-102124*</td>
<td>-10196*</td>
</tr>
<tr>
<td>Lee</td>
<td>48406*</td>
<td>52021*</td>
<td>199500*</td>
<td>11618</td>
<td>296024*</td>
<td>687000</td>
<td>92300</td>
<td>3237</td>
</tr>
<tr>
<td>Manatee</td>
<td>-6624*</td>
<td>541</td>
<td>88582*</td>
<td>144120</td>
<td>44120</td>
<td>379669*</td>
<td>50060</td>
<td>-177772*</td>
</tr>
<tr>
<td>Martin</td>
<td>71906*</td>
<td>72006*</td>
<td>-144126*</td>
<td>173740</td>
<td>-103515*</td>
<td>130996</td>
<td>37471</td>
<td>-98842</td>
</tr>
<tr>
<td>Okaloosa</td>
<td>60171*</td>
<td>60961*</td>
<td>139581*</td>
<td>283630</td>
<td>8010</td>
<td>377384*</td>
<td>455000</td>
<td>129775</td>
</tr>
<tr>
<td>Orange</td>
<td>702*</td>
<td>46803*</td>
<td>13604</td>
<td>2260000*</td>
<td>236798</td>
<td>672000</td>
<td>-335379*</td>
<td>-29352*</td>
</tr>
<tr>
<td>Palm Beach</td>
<td>37143*</td>
<td>39807*</td>
<td>609979*</td>
<td>593623*</td>
<td>36236</td>
<td>739000*</td>
<td>202000</td>
<td>-7089</td>
</tr>
<tr>
<td>Pasco</td>
<td>1051</td>
<td>7856*</td>
<td>-31662*</td>
<td>-98401*</td>
<td>39275</td>
<td>-41495</td>
<td>-10529</td>
<td>-126100</td>
</tr>
<tr>
<td>Pinellas</td>
<td>13886*</td>
<td>12774*</td>
<td>173383*</td>
<td>557106*</td>
<td>-38504</td>
<td>303853</td>
<td>274000</td>
<td>-45432*</td>
</tr>
<tr>
<td>Polk</td>
<td>5387*</td>
<td>-223</td>
<td>96933*</td>
<td>170697</td>
<td>65358</td>
<td>76714</td>
<td>57143</td>
<td>-151222*</td>
</tr>
<tr>
<td>Sarasota</td>
<td>32509*</td>
<td>38966*</td>
<td>-126957*</td>
<td>-41567</td>
<td>79062</td>
<td>42566</td>
<td>-819087*</td>
<td>7551</td>
</tr>
<tr>
<td>Volusia</td>
<td>-4823*</td>
<td>1363*</td>
<td>14276</td>
<td>-10553</td>
<td>70690*</td>
<td>373634*</td>
<td>-104182*</td>
<td>18695</td>
</tr>
</tbody>
</table>

Asterisks denote a statistically significant difference (p<.05)
Analysis conducted by square mile section (public land survey system section, township, range).
Data source: Florida Department of Revenue, Tallahassee; and University of Florida, Florida Geographic Data Library.

Perhaps a better measure of property values is the difference in value of the land alone, exclusive of the value of improvements, as shown in Table 26. For residential properties, the positive difference in land values was greatest for Martin County, averaging $46,537 per parcel, and there were also large positive differences for Duval County ($20,633), Okaloosa, Orange, and Palm Beach counties. Counties with a significant negative residential land value associated with golf courses included Broward, Miami-Dade, Manatee Volusia and Pinellas counties. Commercial property land values were generally positively related to golf courses, with 13 of the 18 counties having statistically significant positive value. Collier County had the highest differential value
for commercial land uses associated with golf courses at $184,244. However, commercial values were negatively associated in Sarasota and Miami-Dade counties. Collier County also had the largest positive difference for agriculture land ($386,866). Orange County had the highest differential value for industrial properties near golf courses ($722,000), more than twice that of the next closest county, Collier.

Table 26. Average difference in land values for properties with respect to Florida golf courses, by land use and county, 1999.

<table>
<thead>
<tr>
<th>County</th>
<th>All Land Uses</th>
<th>Residential</th>
<th>Commercial</th>
<th>Industrial</th>
<th>Agricultural</th>
<th>Institutional</th>
<th>Government</th>
<th>Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broward</td>
<td>-21920*</td>
<td>-15697*</td>
<td>158747*</td>
<td>164201*</td>
<td>72085</td>
<td>12531</td>
<td>-82893*</td>
<td>-50903*</td>
</tr>
<tr>
<td>Collier</td>
<td>10741*</td>
<td>-152</td>
<td>184244*</td>
<td>311227*</td>
<td>386866*</td>
<td>146882</td>
<td>481955*</td>
<td>2582</td>
</tr>
<tr>
<td>Dade</td>
<td>-9257*</td>
<td>-5634*</td>
<td>-59352*</td>
<td>-83142*</td>
<td>-15850*</td>
<td>-136943</td>
<td>17489</td>
<td>96604</td>
</tr>
<tr>
<td>Duval</td>
<td>14191*</td>
<td>20633*</td>
<td>112389*</td>
<td>-33129</td>
<td>69001</td>
<td>108371</td>
<td>-147265*</td>
<td>-25398*</td>
</tr>
<tr>
<td>Escambia</td>
<td>-7166</td>
<td>18</td>
<td>41980*</td>
<td>-5538</td>
<td>1674</td>
<td>58908*</td>
<td>-111605</td>
<td>6801*</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>-1398</td>
<td>5657*</td>
<td>176598*</td>
<td>303</td>
<td>1672</td>
<td>-26520*</td>
<td>40607*</td>
<td>-100961*</td>
</tr>
<tr>
<td>Lake</td>
<td>-906</td>
<td>894</td>
<td>79818*</td>
<td>18871</td>
<td>-4270*</td>
<td>41371</td>
<td>-62463*</td>
<td>3746</td>
</tr>
<tr>
<td>Lee</td>
<td>6915*</td>
<td>7286*</td>
<td>117720*</td>
<td>21345</td>
<td>-1441</td>
<td>159277*</td>
<td>19236</td>
<td>-13524*</td>
</tr>
<tr>
<td>Manatee</td>
<td>-5620*</td>
<td>-3688*</td>
<td>44518*</td>
<td>15985*</td>
<td>145799</td>
<td>198239</td>
<td>-40046</td>
<td>-39591</td>
</tr>
<tr>
<td>Martin</td>
<td>46470*</td>
<td>46537*</td>
<td>-37602</td>
<td>37059</td>
<td>-51223*</td>
<td>75611</td>
<td>151841</td>
<td>-21978</td>
</tr>
<tr>
<td>Okaloosa</td>
<td>22673*</td>
<td>16399*</td>
<td>137362*</td>
<td>108512</td>
<td>11207</td>
<td>207511*</td>
<td>734000</td>
<td>48248</td>
</tr>
<tr>
<td>Orange</td>
<td>787</td>
<td>13305*</td>
<td>159702*</td>
<td>722000*</td>
<td>98635</td>
<td>232665</td>
<td>-67805</td>
<td>-12874*</td>
</tr>
<tr>
<td>Palm Beach</td>
<td>9990*</td>
<td>11532*</td>
<td>243066*</td>
<td>270690*</td>
<td>-43254*</td>
<td>383342*</td>
<td>38682</td>
<td>-12305</td>
</tr>
<tr>
<td>Pasco</td>
<td>-869*</td>
<td>1567*</td>
<td>-9926</td>
<td>-9099</td>
<td>3318</td>
<td>-14778</td>
<td>-26568*</td>
<td>-13367</td>
</tr>
<tr>
<td>Pinellas</td>
<td>-723</td>
<td>-2934*</td>
<td>78559*</td>
<td>262112*</td>
<td>-12957</td>
<td>9431</td>
<td>365708</td>
<td>-28888*</td>
</tr>
<tr>
<td>Polk</td>
<td>2773*</td>
<td>546*</td>
<td>65589*</td>
<td>30905*</td>
<td>4081</td>
<td>11464</td>
<td>-25821*</td>
<td>-62777*</td>
</tr>
<tr>
<td>Sarasota</td>
<td>5182*</td>
<td>4554*</td>
<td>-36812</td>
<td>-48136*</td>
<td>66630</td>
<td>72639</td>
<td>-379516*</td>
<td>13172</td>
</tr>
<tr>
<td>Volusia</td>
<td>-4989*</td>
<td>-2359*</td>
<td>1791</td>
<td>-15438</td>
<td>7416</td>
<td>118151</td>
<td>-37583*</td>
<td>5277</td>
</tr>
</tbody>
</table>

Asterisks denote a statistically significant difference (p<.05)

Analysis conducted by square mile section (public land survey section, township, range).

Data source: Florida Department of Revenue, Tallahassee; and University of Florida, Florida Geographic Data Library.

Overall weighted average differences in all property value measures across the 18 counties evaluated, by land use type, are indicated in Table 27. Commercial, agricultural, industrial, institutional, and government land use types all showed an increase in total value associated with golf courses averaging $10,942 per parcel, and ranging from nearly $20,00 for residential properties, $70,000 for commercial properties, $114,000 for industrial, to nearly $121,000 for agricultural land. Government and utility lands had a negative difference in total value. Differences in land values were positive but smaller, averaging $464 across all property types, and $2,871 for residential properties, but again were negative for utility properties. Assessed values showed a positive value averaging $12,461 per parcel associated with golf courses, and tax values (net of exemptions) averaged $17,981 greater. Sale prices had an average difference of about $9,000 per parcel.
Table 27. Weighted average property values with respect to Florida golf courses, 1999.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Land Use</th>
<th>Near Golf Course ($)</th>
<th>Not-Near Golf Course ($)</th>
<th>Difference, Near Minus Not-Near ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Value</td>
<td>All Land Uses</td>
<td>124,101</td>
<td>113,159</td>
<td>10,942</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td>104,559</td>
<td>84,965</td>
<td>19,594</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td>526,518</td>
<td>456,838</td>
<td>69,681</td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
<td>686,775</td>
<td>572,396</td>
<td>114,379</td>
</tr>
<tr>
<td>Agricultural</td>
<td></td>
<td>330,423</td>
<td>209,440</td>
<td>120,984</td>
</tr>
<tr>
<td>Institutional</td>
<td></td>
<td>587,227</td>
<td>504,902</td>
<td>82,325</td>
</tr>
<tr>
<td>Government</td>
<td></td>
<td>522,668</td>
<td>550,617</td>
<td>(27,949)</td>
</tr>
<tr>
<td>Utility</td>
<td></td>
<td>36,816</td>
<td>71,075</td>
<td>(34,259)</td>
</tr>
<tr>
<td>Land Value</td>
<td>All Land Uses</td>
<td>38,398</td>
<td>37,935</td>
<td>464</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td>28,709</td>
<td>25,837</td>
<td>2,871</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td>250,992</td>
<td>200,333</td>
<td>50,660</td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
<td>251,119</td>
<td>208,984</td>
<td>42,135</td>
</tr>
<tr>
<td>Agricultural</td>
<td></td>
<td>56,992</td>
<td>34,626</td>
<td>22,366</td>
</tr>
<tr>
<td>Institutional</td>
<td></td>
<td>177,916</td>
<td>137,378</td>
<td>40,538</td>
</tr>
<tr>
<td>Government</td>
<td></td>
<td>278,535</td>
<td>234,695</td>
<td>43,839</td>
</tr>
<tr>
<td>Utility</td>
<td></td>
<td>20,249</td>
<td>30,757</td>
<td>(10,507)</td>
</tr>
<tr>
<td>Assessed Value</td>
<td>All Land Uses</td>
<td>120,133</td>
<td>107,672</td>
<td>12,461</td>
</tr>
<tr>
<td>Tax Value</td>
<td></td>
<td>101,180</td>
<td>83,200</td>
<td>17,981</td>
</tr>
<tr>
<td>Sale Price</td>
<td>(Most Recent)</td>
<td>144,986</td>
<td>135,590</td>
<td>9,396</td>
</tr>
</tbody>
</table>

Data source: Florida Department of Revenue, Tallahassee, and University of Florida, Florida Geographic Data Library.

A more geographically focused analysis was conducted to compare property values near golf courses with similar properties only in adjacent land sections for eight counties (Collier, Lee, Sarasota, Pinellas, Hillsborough, Lake, Orange, Duval). This was done to account for possible bias by eliminating from the analysis properties in rural areas that may have inherently lower values. The results of this analysis, summarized in Table 28, by county and land use, generally indicate somewhat lower differences in value. However, among the eight counties and 19 different land use/property value measures, there were 43 instances in which values associated with golf courses were significantly higher, while in 31 cases values were significantly lower. There were mixed results across all counties, land use types, and value measures. Counties with overall positive differences in value associated with golf courses included Lee, Duval, Sarasota, Pinellas and Lake, whereas Collier, Hillsborough and Orange counties had generally negative values. The largest positive difference in total value was in Lee County ($31,426), while the largest negative difference was in Orange County (-$49,176). These results confirm that the effect of golf courses on land values is rather localized, extending perhaps only a few miles.
Table 28. Difference in property tax values associated with golf courses, for adjacent land sections, by land use and Florida county, 1999

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Value Measure</th>
<th>Collier</th>
<th>Lee</th>
<th>Duval</th>
<th>Sarasota</th>
<th>Pinellas</th>
<th>Hillsborough</th>
<th>Lake</th>
<th>Orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Assessed Value</td>
<td>-21813*</td>
<td>31913*</td>
<td>16648</td>
<td>21585*</td>
<td>14643*</td>
<td>-6165</td>
<td>3784</td>
<td>-47392*</td>
</tr>
<tr>
<td></td>
<td>Tax Value</td>
<td>-18327*</td>
<td>31893*</td>
<td>16764*</td>
<td>22753*</td>
<td>15840*</td>
<td>3167</td>
<td>4911*</td>
<td>-33254*</td>
</tr>
<tr>
<td></td>
<td>Land Value</td>
<td>-23666*</td>
<td>4790*</td>
<td>8179*</td>
<td>3168*</td>
<td>1283</td>
<td>-7901*</td>
<td>67</td>
<td>-17796*</td>
</tr>
<tr>
<td></td>
<td>Sale Price</td>
<td>-2981</td>
<td>61923*</td>
<td>55031*</td>
<td>11238*</td>
<td>14467*</td>
<td>-19392</td>
<td>5563*</td>
<td>24645*</td>
</tr>
<tr>
<td></td>
<td>Total Value</td>
<td>-30644*</td>
<td>31426*</td>
<td>19266</td>
<td>21293*</td>
<td>14453*</td>
<td>-8866*</td>
<td>3275</td>
<td>-49176*</td>
</tr>
<tr>
<td>Residential</td>
<td>Total Value</td>
<td>-31082*</td>
<td>35274*</td>
<td>45743*</td>
<td>30367*</td>
<td>13000*</td>
<td>1422*</td>
<td>8721*</td>
<td>25255*</td>
</tr>
<tr>
<td></td>
<td>Land Value</td>
<td>-22865*</td>
<td>5711*</td>
<td>14319*</td>
<td>3630*</td>
<td>-980*</td>
<td>-877*</td>
<td>901</td>
<td>7251*</td>
</tr>
<tr>
<td>Commercial</td>
<td>Total Value 269171*</td>
<td>90421</td>
<td>132384</td>
<td>191890*</td>
<td>11415</td>
<td>160692*</td>
<td>171831*</td>
<td>-659082*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land Value</td>
<td>144522*</td>
<td>59206*</td>
<td>27812</td>
<td>-65707*</td>
<td>43538*</td>
<td>166780*</td>
<td>72421*</td>
<td>-141234</td>
</tr>
<tr>
<td>Industrial</td>
<td>Total Value 874000*</td>
<td>3534</td>
<td>-577018*</td>
<td>-20644</td>
<td>387853*</td>
<td>-57556</td>
<td>214774</td>
<td>1050000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land Value</td>
<td>321961*</td>
<td>10005</td>
<td>-16338*</td>
<td>-32430</td>
<td>181091*</td>
<td>9761</td>
<td>18629</td>
<td>318000</td>
</tr>
<tr>
<td>Agricultural</td>
<td>Total Value 535000</td>
<td>178475</td>
<td>589000</td>
<td>27914</td>
<td>45357</td>
<td>-20472</td>
<td>-8822*</td>
<td>82851</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land Value</td>
<td>348311</td>
<td>1343</td>
<td>60796</td>
<td>64451</td>
<td>-15291</td>
<td>303</td>
<td>1512</td>
<td>67502</td>
</tr>
<tr>
<td>Institutional</td>
<td>Total Value 586000</td>
<td>602000*</td>
<td>-264935</td>
<td>-146013</td>
<td>274765</td>
<td>-68908</td>
<td>104547</td>
<td>540000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land Value</td>
<td>86038</td>
<td>121057*</td>
<td>-18953</td>
<td>67448</td>
<td>2371</td>
<td>-38317*</td>
<td>15028</td>
<td>166377</td>
</tr>
<tr>
<td>Government</td>
<td>Total Value 400000</td>
<td>-40201</td>
<td>-186000</td>
<td>-639895*</td>
<td>369819</td>
<td>-371974*</td>
<td>-115376</td>
<td>-329931</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Land Value</td>
<td>-226250</td>
<td>41</td>
<td>-191303</td>
<td>-250717*</td>
<td>413729</td>
<td>-146612*</td>
<td>-3541</td>
<td>-53729</td>
</tr>
<tr>
<td>Utility</td>
<td>Total Value</td>
<td>-14564</td>
<td>-10774</td>
<td>-8715*</td>
<td>-14587</td>
<td>-33210*</td>
<td>-251055</td>
<td>-78904</td>
<td>-43132*</td>
</tr>
<tr>
<td></td>
<td>Land Value</td>
<td>-4734</td>
<td>-22892*</td>
<td>-6022*</td>
<td>-4397</td>
<td>-20519*</td>
<td>-87625*</td>
<td>525</td>
<td>-16347*</td>
</tr>
</tbody>
</table>

Results represent difference in tax values for properties near golf courses minus not-near golf courses. Statistically significant differences noted by asterisk. Parcels "near golf course" are within the same square mile section (public land survey system section, township, range) and parcels "not near" golf course are within sections adjacent to sections with golf courses.

Data source: Florida Department of Revenue, Tallahassee; and University of Florida, Florida Geographic Data Library.

The differences in property values associated with golf courses were used to estimate the share of local property tax revenues that may be attributable to golf courses, as summarized in Table 29. First, the average difference in assessed value per parcel associated with golf courses was multiplied by the number of parcels near golf courses (within the same one square mile section), to determine the difference in total assessed value. This calculation was applied only for those counties in which the differences were determined to be statistically significant. The average ad valorem millage rate for each county was multiplied by the difference in assessed value to estimate the difference in total property taxes, which was then expressed as a share of the total county property tax collections for 1999. Ad valorem millage rates ranged from 11.9 to 20.7 (dollars per $1000 assessed value). This analysis was conducted separately for all 18 of the counties evaluated, and for the 8 selected counties in which the analysis of properties “not near” golf courses was restricted to adjacent land sections.

For all counties and properties, the greatest difference in assessed value ($5.4Bn) occurred in Palm Beach County, followed by Collier ($3.7Bn), Lee ($2.6Bn) and Martin Counties ($2.2Bn). Sarasota and Okaloosa Counties also had a difference in total assessed value exceeding $1Bn, while Broward County had a decrease in assessed value of $3.8Bn associated with golf courses. Applying the county-specific millage rates resulted in a difference in total property taxes of $87Mn in Palm Beach County, $44Mn in Collier, $40Mn in Lee, $33Mn in Martin, and minus $66Mn in Broward. Among all 18 counties, there was a net increase in property taxes of $214Mn. As a share of total county tax collections, this represented 8 percent in Palm Beach County, 15 percent in Collier, 10 percent in Lee, 22 percent in Martin, and 15 percent in Okaloosa County.

For the restricted analysis of properties in adjacent land sections, again, differences in total property tax collections were dramatically smaller, due to lower differences in average value per parcel. The difference in total property taxes was $26Mn in Lee County, followed by $17Mn in Pinellas, and $11Mn in Sarasota, which
represented 3 to 7 percent of total county property tax collections. In Collier and Orange Counties there was a
decrease in property taxes of $18 and $22 Mn, respectively.

Table 29. Difference in assessed value associated with golf courses and total property tax
implications in selected Florida counties, 1999

<table>
<thead>
<tr>
<th>County</th>
<th>Difference in Average Assessed Value Per Parcel ($)</th>
<th>Number of Parcels near Golf Courses</th>
<th>Difference in Total Assessed Value (SMn)</th>
<th>Ad Valorem Millage Rate*</th>
<th>Difference in Total Property Taxes (SMn)</th>
<th>Total County Tax Collections (Mn)</th>
<th>Share of Total County Tax Collections (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis includes all parcels outside sections with golf courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palm Beach</td>
<td>38,442*</td>
<td>140,000</td>
<td>5,382</td>
<td>16.1742</td>
<td>87.0</td>
<td>1,091</td>
<td>8.0%</td>
</tr>
<tr>
<td>Collier</td>
<td>52,042*</td>
<td>70,753</td>
<td>3,682</td>
<td>11.8633</td>
<td>43.7</td>
<td>290</td>
<td>15.1%</td>
</tr>
<tr>
<td>Lee</td>
<td>48,778*</td>
<td>52,595</td>
<td>2,566</td>
<td>15.5825</td>
<td>40.0</td>
<td>383</td>
<td>10.4%</td>
</tr>
<tr>
<td>Martin</td>
<td>73,621*</td>
<td>28,672</td>
<td>2,111</td>
<td>15.7687</td>
<td>33.3</td>
<td>154</td>
<td>21.6%</td>
</tr>
<tr>
<td>Duval</td>
<td>46,276*</td>
<td>17,134</td>
<td>793</td>
<td>20.6781</td>
<td>16.4</td>
<td>560</td>
<td>2.9%</td>
</tr>
<tr>
<td>Sarasota</td>
<td>33,187*</td>
<td>34,935</td>
<td>1,159</td>
<td>14.1164</td>
<td>16.4</td>
<td>309</td>
<td>5.3%</td>
</tr>
<tr>
<td>Pinellas</td>
<td>14,302*</td>
<td>67,517</td>
<td>966</td>
<td>16.8242</td>
<td>16.2</td>
<td>612</td>
<td>2.7%</td>
</tr>
<tr>
<td>Okaloosa</td>
<td>61,588*</td>
<td>17,095</td>
<td>1,053</td>
<td>12.4824</td>
<td>13.1</td>
<td>87</td>
<td>15.1%</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>12,730*</td>
<td>33,063</td>
<td>421</td>
<td>18.0022</td>
<td>7.6</td>
<td>629</td>
<td>1.2%</td>
</tr>
<tr>
<td>Polk</td>
<td>7,649*</td>
<td>36,168</td>
<td>277</td>
<td>17.4710</td>
<td>4.8</td>
<td>247</td>
<td>2.0%</td>
</tr>
<tr>
<td>Pasco</td>
<td>4,786*</td>
<td>26,159</td>
<td>125</td>
<td>18.7010</td>
<td>2.3</td>
<td>170</td>
<td>1.4%</td>
</tr>
<tr>
<td>Lake</td>
<td>5,897*</td>
<td>21,346</td>
<td>126</td>
<td>14.4595</td>
<td>1.8</td>
<td>97</td>
<td>1.9%</td>
</tr>
<tr>
<td>Volusia</td>
<td>(3,111)*</td>
<td>56,478</td>
<td>(176)</td>
<td>16.8160</td>
<td>(3.0)</td>
<td>253</td>
<td>-1.2%</td>
</tr>
<tr>
<td>Broward</td>
<td>(32,699)*</td>
<td>116,000</td>
<td>(3,791)</td>
<td>17.3663</td>
<td>(65.9)</td>
<td>1,229</td>
<td>-5.4%</td>
</tr>
<tr>
<td>Orange</td>
<td>2,718</td>
<td>32,426</td>
<td>na</td>
<td>14.3204</td>
<td>0.0</td>
<td>649</td>
<td>0.0%</td>
</tr>
<tr>
<td>Escambia</td>
<td>(8,556)</td>
<td>67,508</td>
<td>na</td>
<td>17.8170</td>
<td>0.0</td>
<td>130</td>
<td>0.0%</td>
</tr>
<tr>
<td>Dade</td>
<td>(1,004)</td>
<td>36,895</td>
<td>na</td>
<td>17.0100</td>
<td>0.0</td>
<td>1,561</td>
<td>0.0%</td>
</tr>
<tr>
<td>Manatee</td>
<td>(1,098)</td>
<td>31,447</td>
<td>na</td>
<td>17.1601</td>
<td>0.0</td>
<td>201</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>886,191</td>
<td>14,691</td>
<td>214</td>
<td>8,652</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analysis includes only parcels in sections adjacent to sections with golf courses

| Lee         | 31,913*                                             | 52,595                             | 1,679                                  | 15.583                   | 26.2                                   | 383                             | 6.8%                                     |
| Pinellas    | 14,643*                                             | 67,517                             | 989                                    | 16.824                   | 16.6                                   | 612                             | 2.7%                                     |
| Sarasota    | 21,585*                                             | 34,935                             | 754                                    | 14.116                   | 10.6                                   | 309                             | 3.4%                                     |
| Collier     | (21,813)*                                           | 70,753                             | (1,543)                                | 11.863                   | (18.3)                                 | 290                             | -6.3%                                    |
| Orange      | (47,392)*                                           | 32,426                             | (1,537)                                | 14.320                   | (22.0)                                 | 649                             | -3.4%                                    |
| Duval       | 16,648                                              | 17,134                             | na                                     | 20.678                   | 0.0                                    | 560                             | 0.0%                                     |
| Hillsborough| (6,165)                                             | 33,063                             | na                                     | 18.002                   | 0.0                                    | 629                             | 0.0%                                     |
| Lake        | 3,784                                               | 21,346                             | na                                     | 14.460                   | 0.0                                    | 97                              | 0.0%                                     |
| Total       | 329,769                                             | 341                                | 13.1                                   | 3,528                    |                                        |                                 |                                          |

Statistically significant differences (p<.05) denoted by asterisks.

Analysis compares values parcels within the same square mile section (public land survey system section,
township, range) as golf course, vs. not in same section.

* Data source: Florida Department of Revenue, Tallahassee
(http://sun6.dms.state.fl.us/dor/property/99FLpropdata.pdf)


Appendix A: Florida Golf Course Survey
Questionnaire

Sponsored by a consortium of industry organizations, including the Florida Turfgrass Association, Florida Golf Alliance, Florida Golf Course Superintendents Association, Everglades Golf Course Superintendents Association, WCI Communities, Taylor Woodrow, and Bonita Bay Group.

Dear Florida Golf Course Superintendent, Owner, or Manager,

This survey is being conducted by the University of Florida's Institute of Food & Agricultural Sciences, as part of a research project to document the economic impact of the Florida golf industry. The survey is being sent to all golf courses in the state of Florida. It is important that you provide information for your golf course, so that your type of facility is represented in this study.

All information obtained in this survey about your particular business will be kept strictly confidential; only averages or totals for all survey respondents will be disclosed. You do not have to answer any questions that you do not wish to. There is no compensation for participating in this survey, however, you may receive a copy of the final project report if you wish. All questions in this survey pertain to the most recent fiscal year (2000). If you have more than one golf course under your management, please request an additional survey booklet or copy this form and fill-out a separate survey for each golf course.

Please return the completed questionnaire to the investigators in the postage-paid, return addressed envelope provided. If you have any questions about this survey, you may contact the investigators (see below). For questions about human subjects research approvals for this project contact the University of Florida Institutional Review Board (PO Box 112250, Gainesville FL 32611-2250). Thank you for your cooperation!

Sincerely, Alan W. Hodges and John J. Haydu, University of Florida,
PO Box 110240, Gainesville, Fl 32611, tel 352-392-1881 x312, AWHodges@ufl.edu, Survey revised October 4, 2001
Golf Course Type

Type of golf course (check any that apply):

- Private
- Semi-Private
- Resort
- Public
- Military
- Residential development
- Municipal
- Other (specify) ____________________

Total number of golf holes at this course (9, 18, 27, 36, etc): ______

Par for the course (number strokes): __________

Year that this golf course was established: __________

If this course is part of a residential development, how many units are in the development, and what is the average value per unit?

Number of units: ______

Average value per unit ($1,000): __________

Golf Play and Events

Total number of golf rounds played on this course last year (may round number to nearest 1,000): ________

Geographic origin of golfers playing last year (percent of total play):

- % International visitors
- % U.S. residents from outside Florida
- % Non-local Florida residents
- % Local (county) Florida residents

Seasonal distribution of golf play last year (percent of total golf play):

- % January-April:
- % May-September:
- % October-December:

Number of golf tournaments hosted last year: ________

Total number of spectators attending tournament event(s) last year: __________

Golf Course Grounds Management

Area used by the golf course last year

- Total area of golf course: _________ acres
- Turfgrass area maintained: _________ acres
- Area irrigated: _________ acres

Turfgrass varieties used (percent of total turfgrass area maintained):

- % St. Augustine
- % Bahia
- % Centipede
- % Bermudagrass
- % Zoysiagrass
- % Mixed/other grasses

Specifying other type(s) used ____________________

Amount of water used for golf course irrigation last year:

________ million gallons

Percent of total water used for irrigation, by source:

- % Municipal
- % Recycled
- % Wells
- % Surface Water
- % Other Sources (desal, ASR, etc.)

Compared to five years ago, has your irrigation water use per acre increased, decreased or remained the same? (check appropriate response):

Increased Decreased Remained same
If increased or decreased, by what percent?: ______%

Compared to five years ago, has your fertilizer use per acre increased, decreased, or remained the same? (check appropriate response):

Increased Decreased Remained same
If increased or decreased, by what percent? ______%

Does this golf course have an automated irrigation control system?

- Yes
- No

If yes, was the automated system installed originally or as a retrofit?

New construction Retrofit
Employment

Number of full-time and part-time or seasonal employees last year, including management and administrative staff, for the golf course, and for the clubhouse and other facilities:

<table>
<thead>
<tr>
<th></th>
<th>Full-time</th>
<th>Part-time/seasonal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golf course maintenance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clubhouse/other facilities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The remainder of the survey should be filled-out by the comptroller or financial officer.

Revenues

Total revenues last year, including golf play, membership fees, dues, and all other business activities (check appropriate range or give actual amount):

- $Less than $500,000
- $500,000 to $999,999
- $1.00 to $1.99 million
- $2.00 to $2.99 million
- $3.00 to $3.99 million
- $4.00 to $4.99 million
- $5.00 to $7.49 million
- $7.50 to $9.99 million
- $10.00 to $14.99 million
- $15.00 to $19.99 million
- $20.00 to $24.99 million
- $25.00 million or greater

Actual amount: $____________

Percent of total revenues obtained from each of the following business activities last year

- Golf course playing fees (greens, carts, dues)
- Golf course membership and initiation fees
- Retail sales (pro shop, gift shop)
- Restaurant, food and beverage services
- Lodging
- Other (specify activities included)

Expenditures and Contributions

Total costs of operation last year for all golf course and related business activities:

$____________

Percentage of total expenses, by category

- Golf course maintenance
- Clubhouse
- Golf operations
- Food & beverage service
- Tennis/fitness and other recreation services
- Capital (purchases, interest, depreciation)
- Administrative overhead
- Other (specify activities included)

Percentage of total expenses for goods purchased from vendors outside of Florida last year (percent of total): _______%

Value of charitable contributions last year

- Cash contributions
- In-kind contributions, including golf rounds

Assets/Investment

Current value of total assets owned at the end of last year (Dec. 2000)

<table>
<thead>
<tr>
<th>Category</th>
<th>Value ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td></td>
</tr>
<tr>
<td>Vehicles and equipment</td>
<td></td>
</tr>
<tr>
<td>Irrigation systems</td>
<td></td>
</tr>
<tr>
<td>Golf-owned buildings and installations</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>