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Factors Affecting the Profitability of Golf Courses in Georgia

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Introduction

Golf is a major recreational activity and a rapidly growing business in the United States today. Between 1980 and 1999, the number of golf players increased by 78.7% from about 15 million to 27 million, while the total number of golf courses increased by 18.3%, i.e., from 12,846 to 15,195. The number of daily fees courses, the most common type of golf courses, increased by 57.7% during the same period (The U.S. Census Bureau).

Despite an increase in the number of golf courses and golfers, the average number of rounds played per person and per year has consistently declined over the past two decades (National Golf Foundation). The decline in the number of rounds played indicates an increasing competition for attracting and retaining golfers to individual sites.

Agricultural economists show an increasing interest in the golf course business for various reasons. First, golf courses constitute a recreational use of land, which seriously competes with agriculture. This competition is evidenced by more frequent reallocation of land away from farming to golf course facilities. In 2001, for example, a total of 377 new golf course construction projects, not including reconstructions, were completed in the United States, and the majority of these facilities were built on farmland. In addition, turfgrass maintenance of golf courses uses traditionally known agricultural inputs such as fertilizers, pesticides and other chemicals, irrigation water, and equipment. In this regard, golf courses and agriculture show many similarities, the main difference being that the golf course output is a recreational service and not a commodity

as in the case of agriculture. In Georgia, the urban sprawl has become a major issue as the residential, commercial, and recreational sites encroach on farming communities once located in remote areas.

Economic motivations of golf businesses are diverse and fall in line with the ownership structure of golf courses (public, semi-private and private). The growing number of golf courses and raising competition to attract players requires balancing the fees and the course appearance directly tied to maintenance expenditures. The golf industry understands that to remain competitive, a course must be well managed and marketed (Crittenden, 1998). All managers, however, must deal with unavoidable issues of feasibility, profitability, and sustainability of operations (Aterburn), which constitute key indicators of the viability of any business, including golf course businesses.

Feasibility implies that the business generates sufficient cash to fund its operations in the short-, medium-, or long-term. A careful cash flow preparation is essential in monitoring the performance against budget. Not only a golfing enterprise needs to continue funding of its operations, but it also has to earn and retain profits on an annual basis to survive in the medium- to long-term. For growth and sustainability, a golf facility must show an acceptable return on the invested capital.

With increased competition noted in the golf industry (Stephenson), it is becoming important for golf course managers to identify factors which attract and retain their golfing clientele. The demand for golf at a particular golf course is a function of the price, location, relevant population, and other characteristics including the level of maintenance of the golf course (Shmanske). The golf course maintenance includes mowing, fertilizing and pest control in turfgrass, caring for trees and shrubbery,

maintaining sand traps, and equipment among others. If maintenance is not undertaken daily, the condition of the course will suffer, risking the loss of a clientele to better maintained courses. Therefore, proper maintenance is expected to result in greater demand for golfing. However, regular maintenance is associated with higher expenditures, but the potential for profit remains if the marginal revenue exceeds the marginal cost.

The primary objective of this study is to conduct a profitability analysis of golf course maintenance. Specifically, this study will quantify the link between the set of factors that significantly enhance golf course revenues and their effect on the measure of profitability, the gross margin. To provide additional insights, we distinguish among three ownership types of golf courses. The importance of this distinction is relevant because various golf course characteristics and factors influencing the management of a facility may differ in their influence depending on the owner. It is plausible that a private corporation operating a golf courses attaches a different importance of profits than a tax-supported entity responsible to a group of elected officials. We test the ownership relevance by estimating the model using sub-samples of data accounting for an ownership type and using the pooled data and the binary variables describing the ownership.

The results from the analysis will be beneficial to superintendents and managers of golf courses. The job performance of these groups are directly evaluated on the basis of the financial performance of each facility, yet their immediate interests are not identical. Superintendents, who are directly responsible for the course maintenance, struggle with the pressure to control maintenance costs, while assuring a high quality playing surface. Managers are accountable for the performance of the whole enterprise.

The relative role of various activities in creating costs and generating revenue helps managers to allocate resources within the operated facility. Specifically, this study will quantify the link between the additional maintenance expenditures and a measure of profitability, the gross margin. Furthermore, investors in real estate development will gain knowledge enabling an enhanced calculation of expected returns prior to committing resources to invest in a golfing facility. This is particularly important because many courses are a part of a housing community. Research and extension personnel at land-grant universities will gain insights about the contribution of various factors to the financial performance of the enterprise. The importance of each factor affecting the marginal costs or revenues will guide the research and outreach efforts. Finally, local governments, especially those investing in community golf courses, will be able to better gauge the current and planned costs, while recognizing factors responsible for shaping the profitability. Public bodies considering a renovation, expansion or construction of a golf course will be able to compare the relative importance of different factors for such undertakings.

The ownership type in the golf course sector

Public golf courses dominated in Georgia in the past. The recent decade witnessed a rapid growth in construction of private and semi-private courses. Georgia experienced rapid population growth in the past two decades which, consequently resulted in increased demand for the game. The larger, wealthier population created an attractive pool of potential players stimulating the construction of new facilities. The distinction according to ownership type provides unique insights about varying degrees of relevance and influence of a number of financial, structural and demographic factors in

revenue and profit generation for each ownership type in the golf business. If ownership type does not matter then the analysis will reveal few differences. This outcome, however, is likely if the motive of, for example, an entrepreneur constructing a private course is not different from a city commission committing public funds for building a public golf course.

The role of ownership factor for the economic performance of an enterprise has been well established. Communal ownership has been observed to experience greater incidence of mismanagement leading to *X inefficiency*. Such ownership kept costs high, while the concealed measure of profits hid the extent of waste. In case of the public ownership of golf courses, in some communities there has been pressure to privatize such facilities due to the need or desire to lower government expenditures and the search for new revenue sources (Gustafson; Gustafson and McLean). Many members of the community viewed privatization of public service provision as a way to promote competition and risk-taking constrained by the public sector preoccupation with the strictly defined responsibilities and the emphasis on following the procedures. The “invisible hand” guided numerous course construction projects because the primary motives of the investors were anticipated returns. Land used for the construction of a golf course is typically privately owned, but the course can be constructed and operated by a private or public entity. Farmers across the U.S. have attempted to convert their operations into golf courses in expectations of returns higher than for agricultural production (Anonymous; Mothes). This study primarily contends that differences in the magnitude and direction of marginal effects of the various explanatory variables across

the ownership groups will have important implications on the nature of competition for land use.

Some private facilities limit the players to a narrowly defined group, typical members and their guests. National Golf Foundation (1995) reported that about seven percent of golfers were members of private clubs. Semi-private facilities have been open to the public, but, sometimes, on somewhat different principles than for members. Public golf courses operate in many cities and municipalities without special membership requirements from any golfers. They operate on a fee basis and are accessible to residents and nonresident alike. The membership in semi-private or municipal golf clubs was reported by 11 percent of all golfers (NGF, 1995).

This study focuses on gross margin because there is less agreement and uniformity in the classification and magnitude of some expense categories, e.g., land-related expenditures. Some courses are built on leased rather than purchased land, thus making a comparative cost analysis complicated and difficult. The analysis used the implicit assumption that the cost of land, capital and several other fixed cost categories would not differ among courses due their ownership type.

Golf course revenues are the total golf facility revenues from all areas of operations. The sources of income include membership fees, membership dues, and golf green/guest fees. Additional revenues included in this study are generated by golf car fees, golf instruction fees (for lessons, clinics, and schools), tournament operations, a golf range, and a club rental service. Some golf courses obtain revenues for providing special services such as club repair, handicapping service, caddie service, golf bag storage, and locker fees. Golf merchandise sales generate much needed revenues and methods

enhancing sales are closely studied by the golf industry (Johnson). Property wide food and beverage sales also supplement the facility's income. Factors influencing golf course revenues at a particular site include the number of rounds played, the acreage, the location, and the existence of other facilities such as the pro shop. The rounds played are a major revenue driver (Golf Business Magazine), especially for semi-private and public facilities because they cannot expect large revenues from membership dues and fees. Some amenities, for example food and beverage service are expected by players. Food and beverage sales generate \$3.4 billion annually at golf course facilities (GolfBusiness Magazine.com). This is the third largest revenue-generating service provided by golf course operators. Swimming pools, tennis courts, and gyms are less common because they are supplemental amenities to the primary service which is the game of golf. Private golf clubs are more likely than the public-access facilities to have tennis courts (38 percent vs. 8 percent), swimming pools (50 percent vs. 9 percent), or fitness clubs (11 percent vs. 4 percent) (Stephenson).

The age of the golf facility is potentially influential in determining revenues because long existing courses had adequate time to establish its reputation among its clientele. The issue of whether or not a golf course is a part of the real estate development has emerged with the increasing popularity of gated communities. A nicely designed course surrounded by upscale residences has a great potential to generate revenues. Although the link between the golf course presence and housing prices has been researched (Asabere and Huffman), the question how a development affects a course revenues is largely unanswered.

Gross margin, the difference between revenues and maintenance costs, is the focus of the analysis. Data on maintenance expenditures use in this study were provided by superintendents. The data included labor costs and the total costs of the following items: herbicide, fungicide, insecticides, growth regulators, lime and gypsum, wetting agents, fuel, oil, lubricants, equipment repair, irrigation repair, topsoil and sand top dressings, seed, sod, sprigs, trees, shrubs, bedding plants and ornamentals, water, other non-labor expenses and renovation. Annual depreciation of equipment purchases and renovation was also included in the total expenditures. Measures of gross margins differ from the overall profits of every golf course facility, which are net of such expenses as interest and insurance. In contrast, all variables influencing revenues are also expected to affect the gross margin.

Consider the following model aimed at estimating the gross margin equation:

$$(1) \quad Y = X\beta + \varepsilon$$

where X is a vector of independent variables used in the estimation of Y , β is the vector of coefficients, and ε is the error term such that $E[\varepsilon] = 0$ and $E[\varepsilon \varepsilon'] = \sigma^2$. Assuming that disturbances are uncorrelated across observations,

$$(2) \quad E[\varepsilon_{mt} \varepsilon_{ns}] = \sigma_{mn} \text{ if } t = s; 0 \text{ otherwise.}$$

The incremental maintenance cost, the incremental revenues, and the change in gross revenues are generated within each facility, but the relationships among these three measures are indirect. Both equations can, therefore, be estimated separately, using the Ordinary Least Squares (OLS) approach (Greene, 1993).

The Empirical Model

We specified four separate equations, one for each ownership type and one for all golf course data pooled together. To estimate the equations, we included a number of explanatory variables based on the information shared by the surveyed golf courses. We augment the variable choice by the observation of the golf course management practices to identify additional factors relevant to this study. All variables influencing maintenance expenditures and revenues are expected to affect revenues although the direction of the effect may be different from that on the gross margin or a priori unknown.

The number of rounds played is especially important because it reflects the frequency of turf use and is positively associated with the frequency of turf injury and damage. In addition, the total acreage of the golf facility is important because, as an integral part of a course, it also requires frequent care and maintenance, therefore negatively influencing the gross margin.

The age of a golf course is included primarily because it is a proxy for 'brand recognition.' Long established courses are well known in the area and may have been visited by more than a single generation of players in the same family. Some Georgia facilities constructed in the 19th century continue to operate, thus, suggesting that the longevity has been earned by a consistent provision of satisfaction to golfers over time.

We will also test the effects of the location of the golf course. For this purpose we identified courses located in the metropolitan and non-metropolitan areas. The definition of the metropolitan area was consistent with that used by the U.S. Census Bureau. Metropolitan location implies denser population than in non-metropolitan areas, thus, creating increased demand for the game reflected in higher revenues and gross

margins. Also, golf participation rates in large metropolitan areas exceed those in non-metro areas (Sports Business Research Network). The 'metro' location was expected to positively influence both revenues and the gross margin.

Demand permitting, revenue is higher on a multiple course facility (Shmanske). The survey data permitted the specification of four variables describing course classification according to the number of holes. Golf course facilities with more than 18 holes will have larger total acreage and will also have a larger capacity. We have combined the size and the number of holes into a single variable, area per hole, defined as the area of the turfgrass divided by the number of wholes. Although it is logical to expect an increase in the earning potential as the number of holes on the course increases, the actual direction of the effect on the gross margin by a specific class of a course will be determined empirically.

The manager's educational attainment can influence both revenues and the gross margin. Managers, who received more education can be expected to be more efficient and innovative in using available resources in improving the gross margin while exploiting existing opportunities in generating revenues. In some facilities, a manager also carried responsibilities commonly assigned to a superintendent. This combination of two functions prevented the use of the superintendent education and the division of the effect between that associated with the manager and the superintendent education levels. The manager's experience, measured as the number of years in service is also expected to positively influence the gross margin. Experience, a form of informal education, can be a source of improved management through better organization, planning, and innovation.

The acreage of turfgrass maintained is expected to vary negatively with the gross margin. Although it takes longer to mow grass on larger greens, thus raising costs, the main effect of a large green is to spread wear and tear caused by golfers' footsteps and by golf balls landing with great force. A recent study by Shmanske revealed that it was a unanimous view of golf course superintendents that large greens are easier and cheaper to maintain than small greens.

The coefficient associated with the number of rounds played is an estimate of the marginal cost that an additional golfer imposes on the course, but rounds played are also a source of fees generating revenues. Therefore, the number of rounds likely increases the revenues, but its effect on the gross margin is not clear, especially once considered in the context of the course ownership.

The total acreage of the golf facility is also expected to be positively related to revenues because a larger facility tends to offer wider services, more diversified playing field and other amenities which attract the playing public. However, caring for more acres is more expensive than caring for fewer acres and the total acreage may negatively influence the gross margin.

The presence of amenities such as tennis clubs, swimming pools, food and beverage services were also expected to enhance revenues, because such additional facilities attract a broader spectrum of people. For example, some players may choose a course because the presence of amenities permits the whole family to enjoy an outing. However, the effect of the presence of amenities on the gross margin was uncertain and will be determined empirically.

Finally, the existence of real estate development on its revenues and the gross margin was taken into consideration. Such developments are increasing in frequency, but their effect on revenues and gross margin has not been tested. Some developments are limited to a few dozen homes, while some consist of hundreds of residences. Homeowners could potentially increase the number of rounds played, but if homes are part of a gated community, the access to the course may be restricted. We have no a priori expectations regarding the effect of the housing development in the immediate vicinity of the golf course.

Data and Variable Specifications

The data for the empirical analysis were obtained from the survey of superintendents and managers of private, public, and resort golf courses located in Georgia. The golf course's financial performance reflects the risk of the enterprise subject to market forces. Because the competition among golfing facilities was strong, the willingness to provide some type of information was tempered by the perception of its sensitivity.

Georgia is located in a climatic zone, which allows almost year-round golfing. The number of golf courses has been growing and new facilities continue to be constructed. To obtain the needed information we implemented a survey of the members of the Georgia Golf Course Superintendent Association (GGCSA). The survey was conducted using two different survey instruments. One questionnaire was designed to obtain information from the superintendents in order to gain insights on the issues related to maintenance. Another questionnaire was prepared for the managers of these facilities to account for other sources of costs and revenues.

The questionnaires were mailed to each manager and each superintendent separately. Within ten days of the mailing, a post card was sent requesting the completion of the questionnaire. Subsequently, another copy of the questionnaire was mailed to those who did not respond to the first mailing or the reminder. The number of returns differed between the superintendent and the manager surveys. It was likely that the primary reason for different participation rates was the nature of questions and the degree of detailed financial information requested. From the total of 352 mailing addresses, 208 were returned by the superintendents and 149 by the managers. After accounting for duplicate addresses (1), courses that were out of business (2), wrong addresses (2), courses merged with another establishment (1), and misidentified establishments (13) the rates of returns were excellent for a self-administered questionnaire. The response or return rates of 62.5 percent and 44.7 percent among superintendents and managers, respectively, are high for a mail survey. High return rates were attributed to the limited geographical scope (only Georgia courses surveyed by a state institution) and the support from the GGCSA, which encouraged members to respond to the survey.

The next step of data preparation involved identifying the facilities where both the superintendent and the manager provided the responses and merging the collected information into a single data set. We identified 114 courses which provided the most complete information. Tables 1 shows the descriptive statistics of golf course characteristics and respondent characteristics based on the 114 responses.

Results and Discussions

Results from the estimation of the gross margin equation are summarized in Tables 2 and 3. The age of golf courses appears to positively affect the gross margin. As private and semi-private golf courses age, the revenue and gross margin they can expect to earn increase substantially. This result is consistent with expectations that older golf courses have established a reputation through a sustained satisfaction provided over decades to generations of clients.

The facility's location appears to have significant and positive effect on the gross margin of private golf courses. However, in case of semi-private and public courses, this factor does not seem to matter.

Rounds played at a golf course negatively influenced the gross margins of private courses. It is true that private facilities operate for profit and would be interested in selling the largest possible number of games. However, each played round also increases maintenance costs, and private courses may not always break-even. In the case of semi-private courses, the coefficient was positive, meaning that courses in this ownership category did better than breaking-even. We observed the same result when all courses are pooled together.

The facility's location appears to have significant effect on the gross margin of private golf courses. The location variable indicated that a private golf course located within the metropolitan statistical area, can expect higher revenues than a similar course located in the non-metro area. Gross margins of private golf courses can be expected to increase by \$1.28 million if it is located within a metropolitan area as compared to a non-metro location. Some Georgia metropolitan counties have experienced a rapid growth and the public amenities may have not been developed at a similar pace. Private courses

constructed and operated for profit may be able to further convert the increased revenues into higher gross margins. This variable did not matter in the case of semi-private and public courses.

The area per hole negatively and significantly affected gross margin of private courses. This result makes sense because the larger size of turfgrass per hole, the larger the maintenance costs, making it difficult for private courses to break-even.

The size of turfgrass showed a positive and significant association with gross margin for private courses, confirming the results by Shmanske that large greens are easier and cheaper to maintain than small greens. The total acreage of the golf facility showed a negative and significant relationship with gross margin except for semi-private courses. This result is contrary to our expectation that larger facilities may get more revenue and greater gross margin because they tend to offer wider services, more diversified playing field and other amenities which attract the playing public. However, the result seems to indicate that caring for more acres is more expensive than caring for fewer acres and the total acreage may negatively influence the gross margin.

The manager's level of education showed a positive and significant relationship with the gross margin. This result is consistent with expectations that managers with more education would be more efficient and innovative in using available resources in improving the gross margin while exploiting existing opportunities in generating revenues.

Among several variables accounting for various amenities of golf courses, none had any significant influence on the total revenues or the gross margin. The primary role of a golf course was the game, not the use of a swimming pool or a tennis court. In some

instances, perhaps, other household members or players themselves make use of the available services, but such use was likely affected by seasonal weather and their secondary importance to the game of golf.

Implications

The steady increase in the number of golf courses in Georgia has not been matched by the extent of applied research focusing on golf course operation and financial management. This study examined factors influencing the financial performance of golf courses measured by their gross margin.

The size of the golf courses (in terms of the number of holes) tends to increase over time in Georgia. But this study supports that private courses with larger turf area per hole could expect to generate lower flow gross margins. The substantial population growth in Georgia generates increased demand for the game, but at the same time, local and state governments are under pressure to invest in basic infrastructure requirements of the local communities including roads and schools. Even among alternative recreational facilities, golf falls behind more popular forms of recreation.

A metropolitan location for a private golf course appears to be preferred to a non-metro site. Because a golf course requires a large number of players to generate revenues, densely populated urban and suburban neighborhoods are more likely to support a facility by generating an intense flow of traffic. Remote golf courses must offer special incentives to attract players. Among semi-private courses, some are associated with resorts and are intended for a weekend or a longer stay. Golfers visit such sites to enjoy the game, but also to rest in the different environment than that offered by courses near their permanent residence.

The trade-off exists between the size of the whole facility and the size of the turf constituting the playing field. The gross margin improves in response to an increase of turf area, but worsens if the area dedicated to the game does not expand. Because the whole area requires some kind of maintenance, limiting the acreage that is not a playing turf, will enhance the gross margin. The design of some facilities may underscore the appearance of the whole facility as a way of attracting customers. However, from the purely financial standpoint this may be less desirable.

Only about 15 percent of golf courses nationwide are profitable (Harack). In the absence of applied studies that can verify the relevance of specific aspects of the golf enterprise, managers and superintendents cannot be offered guidelines regarding factors responsible for the industry total revenues or gross margins. Such studies would provide the necessary benchmark for the comparison with a specific operation. Instead, managers and superintendents must depend on their experience and their own analysis in the evaluation of enterprise performance.

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Table 1. Descriptive Statistics of Variables

Variable	Unit	Mean	St. dev.	Min.	Max.
Golf course age	Years	34.8	26.0	3.00	110.
Metropolitan area	Yes=1; no=0	.447	.499	0.00	1.00
9 Holes	Yes=1; no=0	.123	.330	0.00	1.00
18 Holes	Yes=1; no=0	.789	.409	0.00	1.00
27 Holes	Yes=1; no=0	.052	.224	0.00	1.00
36 Holes	Yes=1; no=0	.026	.160	0.00	1.00
45 Holes	Yes=1; no=0	.008	.093	0.00	1.00
Area of turfgrass maintained	Acres	117.2	60.5	1.50	500.00
Area of the entire golf course facility	Acres	222.640	234.190	57.00	1,750.00
Area per hole	Acres	7.069	4.402	0.833	27.777
Manager's experience	Years	6.588	6.652	0.170	33.00
Manager education level	Years in school	15.47	1.81	11.00	21.00
Number of rounds played at the course	Actual number	28,1436.010	14,047.5498	4,000	82,000
Dining room	Yes=1; no=0	.482	.501	0.00	1.00
Swimming pool	Yes=1; no=0	.464	.500	0.00	1.00
Tennis club	Yes=1; no=0	.421	.495	0.00	1.00
Facility is part of a development plan	Yes=1; no=0	.373	.541	0.00	1.00
Gross margin	Dollars	2,382,841	1,423,514	339,925	25,955,000

Table 2. Estimation Results of the Golf Course Gross Margin Measure by Ownership Category

Variables	Coefficient estimates		
	Private courses	Semi-private courses	Public courses
Constant	-918210.483 (-1.352)	-2285047.348 (-1.596)	994392.415 (.389)
Golf course age	24489.786*** (3.629)	65241.780** (3.091)	-22666.877 (-.892)
Metropolitan	1283703.179** (2.945)	-863876.979 (-1.226)	1077888.759 (.943)
Rounds	-34.454* (-2.311)	54.900* (2.025)	46.659 (1.602)
Area per hole	-26844.368*** (-5.037)	150.109 (.024)	-2719.609 (-.131)
Turf-grass size	32166.879*** (5.392)	-904.101 (-.183)	9161.257 .482
Facility size	-6856.473*** (-3.650)	2065.157 (1.022)	-5826.748*** (-3.701)
Manager's experience	2065.240** (2.677)	1618.673 (.849)	-21160.613 (-.271)
Manager education	743090.002* (1.811)	1952951.878* (2.537)	-516445.103 (-.387)
Dining room	-768662.4280 (-1.296)	669166.715 (.628)	1067850.807 (.797)
Swimming pool	-204213.919 (-.201)	-2226637.419* (-1.817)	-1053006.397 (-.502)
Tennis club	406888.410 (.366)	585641.865 (.494)	-554543.893 (-.241)
Development plan	-528.707 (-.578)	-187760.649 (-.249)	22418.935 (.2841)
R ²	.563	.621	.421
Number of observations	48	27	39

*, **, and *** indicate significance at 10%, 5%, and 1%, respectively. Numbers in parentheses are t-statistics.

Table 3. Estimation Results of the Gross Margin Measure Using Pooled Data

Variable	Units	Coefficient estimate
Constant	-	-499214.035 (.527)
Golf course age	Years	18632.570* (1.934)
Metropolitan area	Yes = 1, No = 0	510608.940 (1.005)
Rounds	Number of rounds played	28.868* (1.872)
Area per hole	Acres per hole #	-5301.478 (-.993)
Turf grass size	Number of acres	10261* (2.092)
Facility size	Number of acres	-4394.845*** (-4.201)
Manager experience	Number of years	176.376 (.884)
Manager's level of education	Years in school	232364.859 (.489)
Dinning room	Yes = 1, No = 0	1148413.038* (1.792)
Swimming pool	Yes = 1, No = 0	-381966.060 (-.400)
Tennis club	Yes = 1, No = 0	-92241.013 (.093)
Development plan	Yes = 1, No = 0	630.907 (.443)
Semi-private course	Yes = 1, No = 0	-220188.771 (-.425)
Private course	Yes = 1, No = 0	-752793.006 (-1.158)
R ²		.259

*, **, and *** indicate significance at 10%, 5%, and 1%, respectively.

Numbers in parentheses are t-statistics.