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An Economic Analysis of the California Thoroughbred Racing Industry

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AN ECONOMIC ANALYSIS OF THE CALIFORNIA THOROUGHBRED RACING INDUSTRY

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Executive Summary

This report has two broad objectives. The first is to examine California's Thoroughbred horse racing industry and determine its economic impact on state and local economies. The second objective involves exploring state regulatory aspects of the racing industry, assessing its profitability, investigating the factors influencing the demand for racing, and addressing related policy issues facing the industry.

This is a particularly pertinent time to study the Thoroughbred industry in California. The legalization of pari-mutuel wagering on horse racing in California in 1933 fostered the growth and development of a large and diverse Thoroughbred racing industry. However, in recent years the racing industry has faced serious challenges, including increased competition from other spectator sports and the introduction of the state lottery. In addition, the authorization of simulcast wagering represents a significant structural change for the industry. Further change is imminent as the racing associations face rising pressure for the development of their real estate assets. The interplay of such forces promises to shape, and perhaps to radically alter, the Thoroughbred racing industry in the decade of the 1990s and beyond.

Demand for Thoroughbred racing originates with the viewing and wagering public. Thoroughbred racing is supplied jointly by the horse owners and the racing associations, under state regulation. Therefore, in conducting this study four principal participants in the Thoroughbred horse racing industry have been identified: the horse sector, the racing associations, the bettors and/or spectators, and the State of California.

All industry participants are linked by the pari-mutuel pool—the total amount of money legally wagered. The majority of the pari-mutuel pool (approximately 81 percent in 1989) is returned to the winning bettors. The remainder, called the "takeout," is retained and divided among the other three participants. The pari-mutuel pool is the primary source of funds for all sectors of the industry (and its supporting firms and industries) and also contributes revenues to the state.

Besides sharing in the takeout, the state controls the terms under which the industry functions. Thus, state policies affect the flow of revenues into the industry and their distribution among industry participants.

Following the introductory chapter, this report presents chapters on the horse sector, the racing associations, the demand for racing, and the total economic impact on state and local economies. Major findings from each chapter are summarized below.

The Horse Sector

Approximately 100 commercial Thoroughbred farms and ranches are dispersed throughout the state of California. Estimates indicate that there could be up to 450 more private farms and ranches, although most of these are relatively small. About 24,000 acres were devoted to the production, care and development of Thoroughbred race horses in California in 1989; the estimated market value of these farms and ranches, including land and other assets, was $386.5 million.

California breeders have ranked second to Kentucky in the production of Thoroughbreds for many years, with approximately 12 percent of the U.S. and Canadian total over the past 10 years. Along with the rest of the nation, California experienced high growth rates in Thoroughbred production during the late 1970s and early 1980s. However, California production peaked in 1985 and has declined gradually each year through 1989.

There were approximately 33,880 Thoroughbred horses in California, on average, with an estimated market value of some $712.7 million in 1989. This includes approximately 770 stallions and 9,300 broodmares held for breeding race horses; 5,580 foals (or weanlings) and 4,880 yearlings held as potential race horses; and 13,350 Thoroughbred horses two years old and older held for racing. Approximately 8,900 of the race horses were in active training for racing, with the remainder being laid up, turned out, or otherwise waiting to begin training.

The horse sector has three primary sources of revenue: purse money, breeder incentive awards, and the sale of horses. The initial amount of money entering the horse sector from the joint pari-mutuel pool of all Thoroughbred racing in the state was estimated to be $131.5 million in 1989. Of this amount, approximately $3.6 million went to horsemen's organizations (the CHBPA and CTBA), $11.2 million was awarded to California horsemen through the incentive award programs, and $116.7 million was distributed as purses.

Average daily purses paid at the major California race meetings have long been among the highest in the nation. Although total purse money has been increasing at a substantial rate in California, average purse money per race, in real dollars, shows only a very slight upward trend in the south and no change in the north.

The horse sector of California's Thoroughbred racing industry made payments of approximately $255 million to households and other industries for goods and services in 1989. In addition, the sector generated at least $14.4

million in state and local government revenues, and employers made additional payments of approximately $6 million for payroll taxes (these are primarily to the federal government).

The Thoroughbred industry also generates large intra-sector cash flows. Approximately $193.7 million were paid for board and training, stallion services, and nomination and entry fees in 1989. Although no estimates are available documenting private horse sales, total Thoroughbred auction sales in California during 1989 came to about $28 million and sales through claiming races were just over $33 million.

The horse sector provides a variety of full and part time employment opportunities for a wide range of skill, income, and status levels. Estimates indicate that the horse sector provided at least 6,480 full time equivalent jobs in 1989. Approximately 3,525 were employed by trainers on race tracks or major training centers and about 1,880 were employed on farms and ranches, on a FTE basis. Another 1,030 were professionals or self-employed (i.e. trainers, jockeys, veterinarians, farriers, and others) and the remaining 45 were employed by horsemen's organizations.

Although millions of dollars are invested and spent, it appears that business is not profitable for many horse people. A comparison of revenue going into the horse sector from the pari-mutuel pool ($131.5 million) and total expenditures leaving the sector ($275.3 million) suggests a substantial negative cash flow for the horse sector in aggregate. The results of the survey of horse people provide additional supporting evidence for this negative profitability assessment. Almost 90 percent of the horse owners and 55 percent of the commercial farms surveyed reported that, on average, over the past five years they had lost money on their Thoroughbred related activities. Furthermore, many trainers reported difficulty in maintaining a viable business, with costs increasing faster than returns.

The Racing Associations

The Thoroughbred racing associations perform an essential role in the Thoroughbred horse racing industry–they bring together the racing patrons with the horse sector and produce the horse racing event. As part of this function, they provide and maintain the race track and spectator and wagering facilities (grandstands, pari-mutuel equipment, etc.). They also provide services for the racing patrons such as parking, racing programs, and food and beverage outlets. For the horse sector, they provide and maintain facilities to stable and train the horses. In addition, the associations collect and distribute all pari-mutuel revenues.

Over 90 percent of the statewide Thoroughbred handle is generated by six racing associations that conduct their meets at the five major Thoroughbred tracks in California: Bay Meadows, Golden Gate Fields, Del Mar, Hollywood Park, and Santa Anita. Thoroughbred racing is also conducted in conjunction with the state fair and county fairs throughout California.

In meeting the demand for Thoroughbred racing, the associations generated total aggregate annual revenues in excess of $210 million in 1989. Association revenues are derived from two major sources: pari-mutuel activities (approximately 60% of the total revenue earned in 1989) and spectator services (which includes such charges as admission and parking fees).

In 1989, the associations spent approximately $197 million conducting the business of horse racing. The largest expense of the associations is wages, salaries, and benefits for the personnel required to effectively conduct the Thoroughbred meets. Surveys of the associations provided a glimpse of the diverse and highly unionized work force that fills approximately 3,680 full-time equivalent jobs within the state.

The profitability of the racing associations is an important issue to all Thoroughbred horse racing participants, including the state. Because of their essential role, the economic viability of the racing associations is critical to the entire industry. This is an especially significant issue today because the four privately owned tracks face pressures for development of their large urban real estate holdings.

After adjustments are made to reflect the distinct corporate structure of racing organizations, it appears that the five major Thoroughbred tracks produce annual average net pretax return of approximately $48.5 million on Thoroughbred horse racing activities. Those tracks have an appraised estimated market value of $810 million. Therefore, the return on these assets is estimated to be approximately 6 percent, and certainly within the range of 4 to 8 percent. This rate is no more than half the average pretax rate of return realized in industries of similar focus, risk and scale.

The rapid appreciation of track real estate assets, coupled with increased competition for spectator and wagering dollars since the state franchise was granted to horse racing, appears to have reduced returns to operating Thoroughbred racing below competitive levels. This is true despite the recent augmentation to total handle provided by off-track wagering. The future of the racing associations and of the broader Thoroughbred industry is clouded both by long term trends in industry demand and by the fact that association returns increasingly derive from holding rather than operating track assets.

The Demand for Racing

Public racing events are the primary marketed output of the California Thoroughbred racing industry. The level of public demand for attending and wagering on horse races determines the size of the pari-mutuel pool, thus affecting the economic health of the industry as a whole. An increase in public demand for racing activities results in larger purses for winning horse owners and larger commissions and attendance-related revenues for the racing associations. These additional revenues in turn stimulate the demand for inputs such as feed and labor. The State of California is also concerned with public demand for racing activities, since most revenues it collects from racing are based on a percentage of the total amount wagered, or handle.

Total attendance at Thoroughbred races has grown quite steadily over most of the 1953-1989 period and increased sharply in 1988, reflecting a surge in attendance at satellite wagering facilities. However, on a per capita basis attendance declined sharply during the 1950s and early 1960s, which would have represented a serious decline in overall demand had not population growth cushioned its impact. From 1967 through 1979, per capita attendance fluctuated about a slight upward trend. Beginning in 1980, a strong upsurge in total (on- and off-track combined) per capita attendance has occurred. On-track attendance has dropped noticeably since the introduction of satellite wagering and the California lottery.

In nominal terms, total handle (including both on-track and off-track activity) has grown more than sevenfold over the 1953-1989 period. On a real basis, growth has been far less dramatic, showing some strength during the 1960s, a slight downturn in the late 1970s, and renewed strength in 1988, while remaining essentially flat in other years. On-track handle dropped by approximately $400 million in real terms between 1985 and 1989, while total handle including satellite wagering rose by less than half that amount. It appears that satellite wagering may be capturing a portion of the handle that otherwise would have been wagered on-track.

One measure of the "price" of pari-mutuel wagering is the effective takeout rate, which is controlled by state legislation. This rate has risen by more than four percentage points since 1953, implying that bettors are paying a significantly higher price to wager than was true in earlier years.

Perhaps the most notable finding from the demand analysis is that total pari-mutuel revenues are very responsive to changes in the effective takeout rate. In economic terms, the demand for wagering is found to be highly elastic with respect to the "price" of a typical wager. This result indicates that pari-mutuel revenues can be enhanced by reducing the current effective takeout rate.

The supply of racing days has increased steadily over time, as the state legislature periodically allows more racing. A one-percent increase in the number of live racing days is estimated to increase total handle by an average of between .36 and .76 percent. However, because the current racing calendar offers little opportunity for further increases in live racing days without overlapping race meets, this policy variable is not likely to provide an important source of new revenues.

The market environment in which Thoroughbred racing competes for customers has recently undergone rapid change. Since the introduction of off-track wagering in 1985, satellite racing days have increased precipitously, from zero to over 5,000 days offered per annum. A one-percent expansion in the number of satellite racing days is found to have little effect on total handle, suggesting that, in general, the current supply of satellite wagering days is adequate. This does not rule out the possibility that expansion into selected new markets may enhance handle and revenues. Increases in satellite racing days reduce on-track attendance; the effect is small but highly statistically significant. Since on-track attendance generates more attendance-related revenues (admission fees, parking fees and concession sales) per patron than does attendance at satellite facilities, an effort should be made to minimize further competition between satellite and on-track facilities.

Another form of legal gambling, the California state lottery, has also become available only since 1985. We find some evidence that sales of California lottery tickets have a negative impact on Thoroughbred wagering activity, but these effects are small in magnitude and not statistically significant. Based on only the first five years of the lottery's existence, it appears that racing and the lottery compete for wagering dollars, but are not viewed as close substitutes by the public.

A variable that indicates whether Pick Six and/or Pick Nine wagering was offered at each track during a given year was included in the analysis of track-specific data. This variable was associated with a decline in wager per attendee of approximately $40. This negative effect may reflect a reduction of the "churn"; dollars wagered on such bets are temporarily unavailable for rewagering on later races. The negative relationship may also reflect other changes in consumer behavior that coincide in time with the introduction of these types of wagers. Although this finding suggests that Pick Six and Pick Nine wagering can reduce total handle, it may be advisable to continue offering these types of wagers to avoid generating dissatisfaction among the wagering public.

Total Economic Impacts on State and Local Economies

The Thoroughbred horse industry is important to the State of California and many of its residents—it is an important source of revenue for the state, it creates a significant number of jobs, and it generates large cash flows and economic activity. Additionally, the industry provides recreation for thousands of racing fans.

Revenue generated for state and local governments by the Thoroughbred horse industry in 1989 amounted to almost $164 million. The majority of this revenue came from the portion of the pari-mutuel handle which the state retains in the form of licence fees ($137.5 million). The state also received about $10.6 million from sales taxes, fines and occupational licence fees. Local governments collected about $15.8 million in the form of property taxes, admission taxes and local licence fees.

The horse sector and racing associations collected revenue from all sources of about $341.5 million in 1989. Of these total receipts, almost $265.8 million came from the pari-mutuel handle ($131.5 million for the horse sector and $134.3 million for racing associations). The remainder of the receipts include track admissions ($28.9 million) and other race track patron services ($46.8 million). The ripple or multiplier effect of these receipts on the state economy is a factor of 1.76 for the associations and 5.20 for the horse sector, resulting in a total income contribution of $1,053.5 million.

The number and diversity of jobs of differing skills required to support a complex Thoroughbred racing industry is impressive. About 6,480 full time equivalent jobs are required in the horse sector alone. Another 3,680 FTE workers are employed by the racing associations for a total industry number of 10,160 FTE jobs.

The total investment in Thoroughbred horses, farms and ranches, and race track facilities approaches $2 billion. This figure includes a market value of California Thoroughbred horses of some $712.7 million in 1989. The estimated market value of Thoroughbred farms and ranches in the state, including land and other assets, was $386.5 million. Race tracks were appraised at $810 million.

AN ECONOMIC ANALYSIS OF THE CALIFORNIA THOROUGHBRED RACING INDUSTRY

Chapter 1. Introduction

The colorful history of Thoroughbred racing in California extends back to the mid-1800s. While horse racing has always attracted an enthusiastic following, the industry suffered for nearly 25 years during a ban on wagering activity that began in 1909. However, the legalization of pari-mutuel wagering on horse racing in California in 1933 fostered the growth of a large and diverse industry centered on producing and supplying Thoroughbred racing in the state.[1] This industry is important to the State of California and many of its residents—it is an important source of revenue for the state, it creates a significant number of jobs, it generates large cash flows and economic activity, and it provides recreation for thousands of racing fans. Despite the size and long history of the California Thoroughbred horse racing industry, relatively little recent information exists as to its organization and economic contribution.

This report has two broad objectives. The first is to examine California's Thoroughbred horse racing industry and determine its economic impact on state and local economies. The second objective involves exploring state regulatory aspects of the racing industry, assessing its profitability, investigating the factors influencing the demand for racing, and addressing related policy issues facing the industry. More specifically, the objectives of the study are as follows:

Objectives

1. To measure the cash flows generated by the Thoroughbred racing industry.

2. To determine the level of investment in the Thoroughbred racing industry.

3. To determine the level and nature of employment generated by the Thoroughbred racing industry.

4. To estimate the direct and indirect effects of the Thoroughbred racing industry on state and local economies.

5. To investigate the profitability of the Thoroughbred racing industry.

6. To estimate the factors having important effects on the demand for racing and the viability of the industry.

Literature Review

Previous studies of the horse industry in the United States range from descriptive census work, to relatively more sophisticated industry impact analyses. While a number of authors have considered the entire equine industry within a state (all breeds of horses, donkeys, and mules), the majority of the work has centered on the racing industry. This report contains separate chapters for each of the major participant groups in the California Thoroughbred racing industry. Because most of the prior research work has concentrated on one sector of the industry, each chapter in this report will include a section reviewing the literature pertaining directly to that sector. In this section, we will briefly summarize the few studies that take a comprehensive look at all sectors of the industry.

In 1965, the Stanford Research Institute (SRI) produced a comprehensive study of the horse racing industry in California. The SRI study includes detailed information on all sectors of the horse racing industry, encompassing Quarterhorse and harness racing as well as the Thoroughbred industry. In addition to the horse sector, the SRI report addresses issues such as association profitability and consumer demand. The study concluded with several concerns, chief among them being the slow rate of growth of the industry, the lack of profitability for the state's horsemen, and the decline of the physical assets of the racing associations. Although the SRI report was published more than 25 years ago, it provides an extremely useful benchmark for future work.

Between 1977 and 1982, studies by the California Department of Finance (1977); Temple, Baker and Sloan (1979); and the Commission of California State Government Organization and Economy (1982) analyzed various state policies that affect the quantity of racing allowed in California, and the distribution of the pari-mutuel pool. The Department of Finance study focused on tax policies that would maximize

[1] Pari-mutuel wagering is a form of gambling wherein all wagering at each track is handled by a central authority, the track, and goes into a central pool; the odds on each horse are then determined according to the support which each receives from the betting public. This is in contrast to gambling among individuals or between individuals and bookmakers.

state revenues from horse racing. Temple, Barker and Sloan (TBS) noted two discouraging industry trends: the state's horsemen and the racing associations were experiencing financial difficulties, and there had been a downward trend in daily attendance. The authors recommended that the takeout rate be reduced and redistributed to reverse these trends. The Commission of California State Government Organization and Economy responded after legislation had been modified upon the recommendation of TBS, concluding that the distribution of pari-mutuel revenues had been too heavily weighted towards the associations.

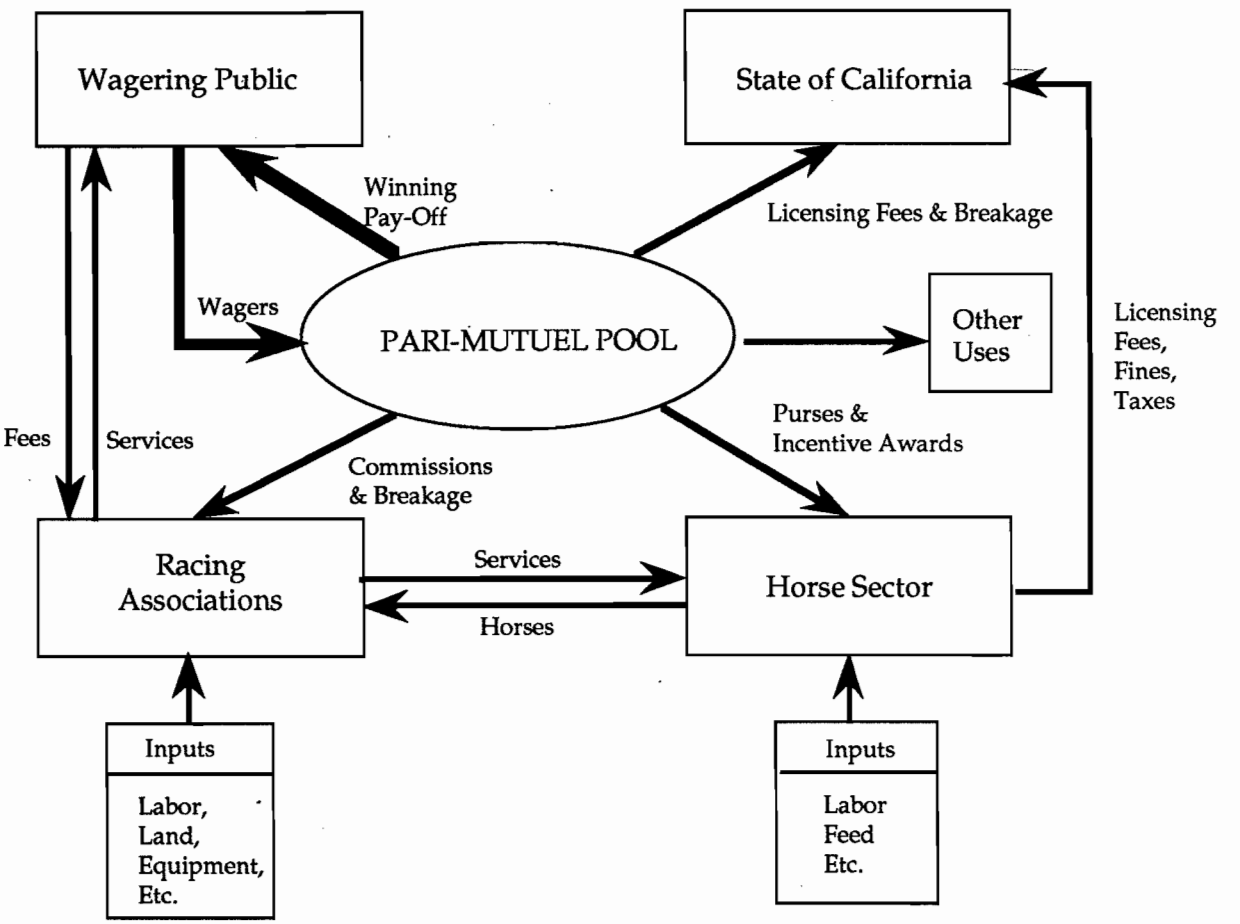
There have also been several comprehensive studies produced by researchers in the other racing states. Lawrence (1972) analyzed the economic activity of the major participant groups in Maryland's horse racing industry. A particularly comprehensive descriptive study on pari-mutuel horse racing and breeding in New York state was published by Cain and his associates in 1982. Killingsworth Associates (1984) studied the racing industry in Washington state, taking a broad view of the racing industry and making several policy recommendations.

The authors of these studies reached common conclusions. They stressed the importance of the economic activity generated by the racing and breeding industries in their respective states. However, they also emphasized that nearly all participants in the racing industry were experiencing varying degrees of financial stress. In addition, the authors pointed to the fact that the market base for the industry is shrinking relative to the general population of the state. All of these issues are of concern to the racing industries in every state, as the participant groups struggle to thrive in an increasingly complex environment.

Overview of Industry

For purposes of this study we have identified four principal participants in the Thoroughbred horse racing industry: the horse sector, the racing associations, the bettors and/or spectators, and the state. The organization and general flow of dollars, goods, and services in the Thoroughbred industry is illustrated in Figure 1-1. Each of the four principal participants is linked by the pari-mutuel pool—the total amount of money legally wagered on Thoroughbred horse rac-

Figure 1-1. The California Thoroughbred Racing Industry Flowchart



ing—which is the primary source of funds for all sectors of the industry and for the supporting firms and industries. The majority (approximately 81 percent in 1989) of the pari-mutuel pool is returned to the winning bettors; but a percentage, called the "takeout," is retained and divided among the other three participants.

Horses for racing are produced and supplied by a diverse group referred to collectively in this report as the horse sector. This group includes all those who own or work with Thoroughbred horses held for breeding or racing. As illustrated in Figure 1-1, the primary economic incentive for the horse sector is a share of the pari-mutuel pool which is received in the form of purses (prize money going to the winners and top finishers in horse races). This sector of the Thoroughbred industry will be analyzed and discussed in Chapter 2 of the report.

While the horse sector provides the horses, California horse race meetings are conducted by corporations called "racing associations," which provide the race track facilities. The racing associations operate the race tracks, administer the pari-mutuel pool, set the terms and conditions of the races, provide services to the bettors/spectators, and provide facilities and services for the horses and horse people. The racing associations also receive a percentage of the pari-mutuel pool in exchange for their role in the production of horse racing. The racing associations will be discussed in Chapter 3 of the report.

Public demand for viewing and wagering at horse races is the primary economic force driving the Thoroughbred racing industry, since it is this demand that produces the pari-mutuel pool. The bettors and spectators compensate the other participants for providing horse racing. They pay the associations for admission to the track and for services such as parking, box seats and racing programs. The bettors also collectively pay the takeout — the amount of the total handle not returned to the winning bettors — which provides revenue to the state, the horse sector, and the racing associations. An analysis of the public demand for horse racing will be presented in Chapter 4 of the report.

The fourth major participant in the California Thoroughbred horse racing industry is the state. The horse racing industry has a unique relationship with the State of California because (1) the state shares directly in the gross revenue of the industry, and (2) it controls many of the market forces within the industry, while closely regulating industry participants. The state shares in the gross revenue of the industry by retaining a percentage of the pari-mutuel pool, roughly equal to the percentages allocated to the racing associations and to the horse sector. The state controls market forces within the racing industry by:[2]

1. Legislating the level of takeout and the percentage of the pari-mutuel pool going to each participant.

2. Legislating the number of racing days and races that may be offered, and specifying where and when race meetings may be held.

3. Licensing the racing associations and other industry participants, thus influencing entry and exit.

Chapter 5 discusses the total economic impact of the industry on state and local economies. The contribution of the horse and racing association sectors is measured collectively through revenue generated, employment and wages, investment in horses and facilities, and taxes and fees paid to all levels of government.

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[2] Details of state legislation and regulation of the Thoroughbred racing industry are set forth in Chapter 4, Division 8, of the *California Business and Professions Code,* known as the Horse Racing Law.

Chapter 2. The Horse Sector

The horse sector—horse owners, breeders, trainers, farm and ranch owners, and many others working for them—is one of four principal participant groups in the Thoroughbred horse racing industry. Recall Figure 1-1, which depicts the interaction of the horse sector and the three other participant groups—the state, the associations, and the bettors/spectators. The horse sector's function is to produce and supply horses for the races.

After a brief review of past research on the horse industry, this chapter will provide some background information on the horse sector in California. The background section includes a description of important trends, the organization, and the overall economic structure of the sector. Next, a detailed economic profile of the horse sector is presented. This section begins with a brief explanation of the data sources and methodology used for research, and then presents and discusses estimates of employment, cash flow, and investment in the horse sector. The chapter concludes with a summary of key results.

Prior Research on the Horse Industry

The objectives of previous studies on the horse industry in the United States have varied widely. Some studies aim solely to estimate the number of horses in each state by breed and main use, while others provide detailed information of the economic activity of the horse industry. The Kentucky Horse Council (1977), and the New York Crop Reporting Service (1978) completed comprehensive statewide equine surveys in the late 1970s. These studies are descriptive in nature and make no attempt to estimate the economic impact of the equine industry in their respective states.

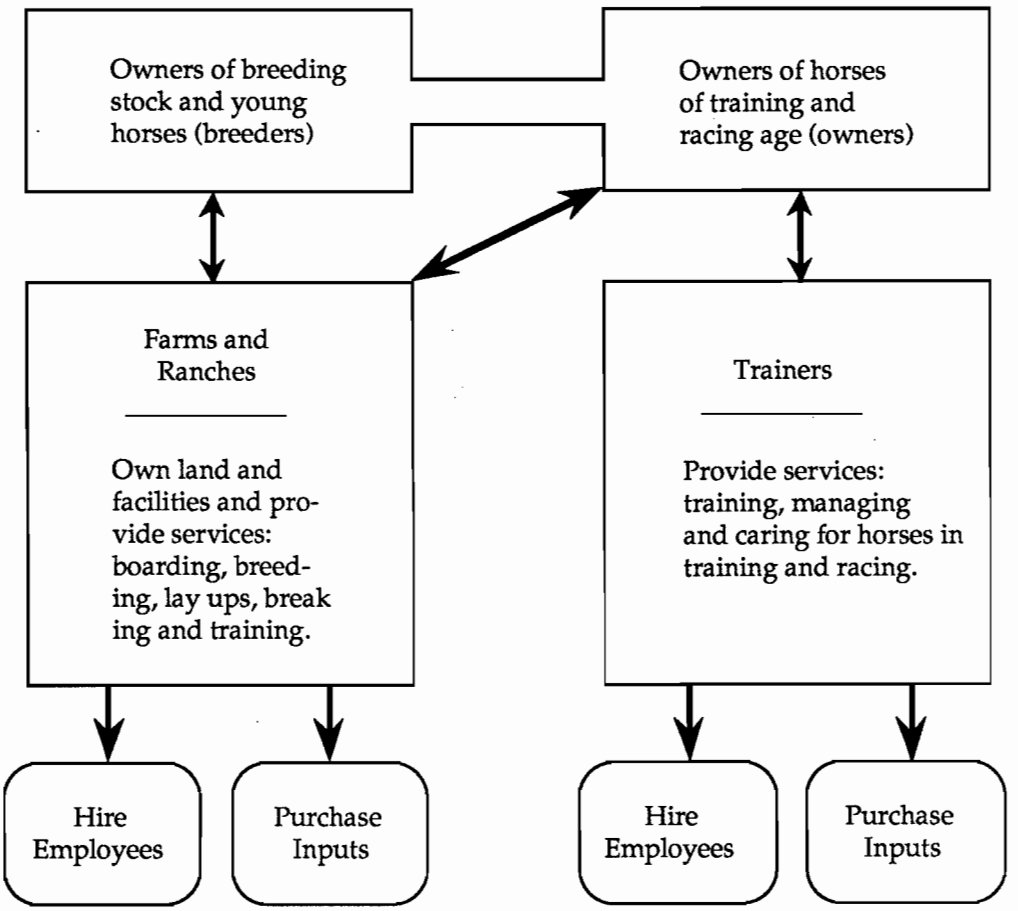
In an effort to fill a serious data gap, the Policy Economics Group of KPMG Peat Marwick took on the arduous task of calculating the economic impact of the horse industry throughout the United States for the American Horse Council (1987). This study, which has been recently updated, reports the results of a survey that the Horse Council conducted of horse owners in every state. The report lists the number of horses in each state by breed and use, as well as estimating total equine-related expenditures by state. More detailed studies at the state level have been published in New Jersey (1987), Michigan (1976) and Oklahoma (1989).

Perhaps more pertinent to this report are economic impact studies focusing specifically on the racing industry that have been published in several of the racing states over the past several years The Stanford Research Institute included a very detailed analysis of the California Thoroughbred industry in their comprehensive study of the state's racing industry (Stanford Research Institute, 1965). In 1964, the Thoroughbred horse sector made an important contribution to California's economy, yet many of the individual participants experienced a net loss on their Thoroughbred operations. Results of this study indicate that while some of the Thoroughbred breeding and racing operations were profitable in 1964, overall the industry was operating at a loss. A very limited number of operations were reported to be making sizable profits, while more than 75 percent of the businesses lost money. The authors of the study suggested that the shortage of high quality stallions in California was leading to a proliferation of inferior foals, which in turn resulted in few wins for California bred horses. These problems appeared to be confounded by a lack of racing opportunities at the highest quality Thoroughbred tracks, and a total purse fund that was insufficient to support the breeding and racing operations needed for a viable industry. As we point out in later sections of this chapter, although many of these issues have been addressed by the industry, many of the participants in the horse sector continue to operate at a net loss.

A report evaluating the economic impact of the Standardbred breeding industry was published in the state of Maryland in 1981 (Lawrence and Downs). This study indicates that while Standardbred breeders made an important contribution to Maryland's economy, their expected net income from horse-related activities was negative. Lawrence also studied the price discovery process in the Thoroughbred yearling market (Lawrence, 1974), and the demand for horse racing in Maryland (Lawrence et al., 1978; Ahern and Lawrence, 1983). The demand studies will be covered in more detail in Chapter 4.

In 1981, a legislative task force in New York state published the results of their evaluation of the parimutuel racing and breeding industries in that state (Cain et al., 1981). Their objective was to determine the effectiveness of the New York state Thoroughbred Breeding and Development Fund, which sought to increase the quality and quantity of New York-bred Thoroughbreds. The authors concluded that although the number of New York-bred Thoroughbreds had increased since the Fund was established, the total level of purses available within the state was insufficient to cover the cost of maintaining the horses.

Figure 2-1. Organization of the Horse Sector



Studies evaluating the direct economic impact of Thoroughbred racing have been completed in Michigan (Dike et al., 1977), Kentucky (Kentucky Thoroughbred Association, 1989), and Minnesota (Allmon, 1987). These studies reported the number of race horses in each state, and estimated direct expenditures on the part of Thoroughbred owners and breeders. Similar studies have been conducted in Oregon (Oregon State University, 1977), Louisiana (Huffman and Guidry, 1979), and Washington (Killingsworth, 1984). The three latter studies concluded that the horsemen were operating at a negative expected return, and the authors cautioned that the viability of the racing industry was threatened. The authors of the Louisiana study were also concerned with decreases in the average daily attendance at the Louisiana race tracks, and the poor financial position of the racing associations. Similar trends have been reported in a number of other racing states, including California. The most recent examination of the Thoroughbred industry in California was by Ahern and Thompson (1984), which focused exclusively on the direct economic impact of the horse sector on the state's economy.

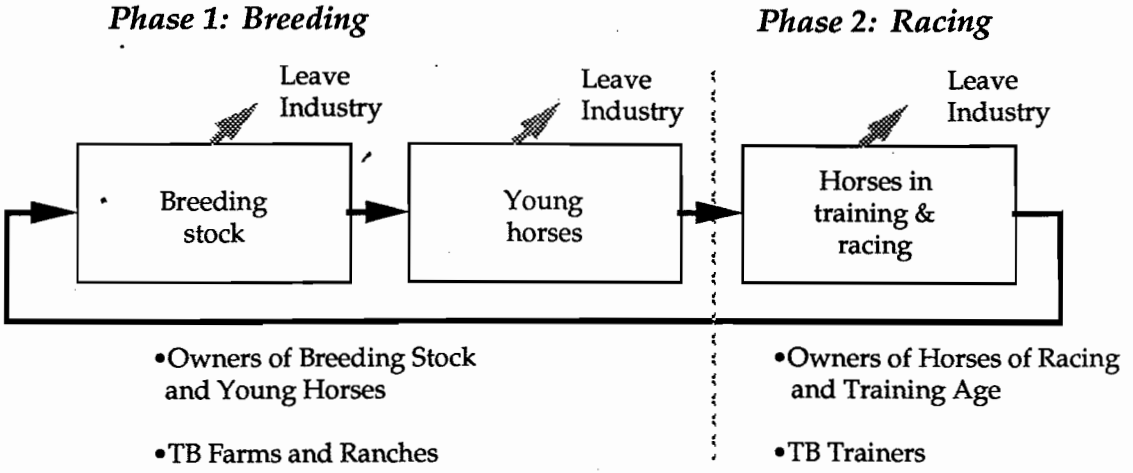
Organization and Economic Structure

Overview of Sector

Producing horses for racing is a process that requires many different inputs at a number of stages. For purposes of this study, those owning and working with Thoroughbred horses (*horse people*) are classified into four groups according to the input supplied or the function performed: (1) owners of breeding stock and young horses (breeders), (2) owners of horses of training or racing age (owners), (3) trainers, and (4) owners of farms and ranches.[1] These groups are interrelated and not mutually exclusive. For example, the same individual or firm often supplies more than one of the

[1] Note that the terms "breeder" and "owner" as used in this report correspond roughly, but not *exactly*, to the way they are used in the industry.

Figure 2-2. The Race Horse Production Process



inputs or performs more than one of the functions. However, this organization, illustrated in Figure 2-1, provides a useful model for analyzing the horse sector.

Owners of breeding stock and young horses supply the basic raw material (potential race horses) to the owners of horses of training and racing age who ultimately supply horses for the races. Many horses change ownership between the yearling stage and the racing stage; others do not. Thus, a breeder and an owner may or may not be the same person.

Thoroughbred *farms and ranches* provide necessary services to the breeders and owners, including breeding, boarding, breaking, training, and otherwise caring for Thoroughbred horses. Once again, breeders and owners may also be owners of farms and ranches (and virtually all farm and ranch owners also own horses). The primary function performed by most farms and ranches is that of boarding and breeding mares and caring for young horses; hence, farms and ranches are most closely associated with breeders. However, some farms and ranches also provide services of training and lay up care and rehabilitation to horses of training and racing age. A few Thoroughbred facilities specialize in training or in lay up care. For this report, farms and ranches include all facilities, other than race tracks, on which Thoroughbred breeding stock, young horses, or racing stock, are kept.

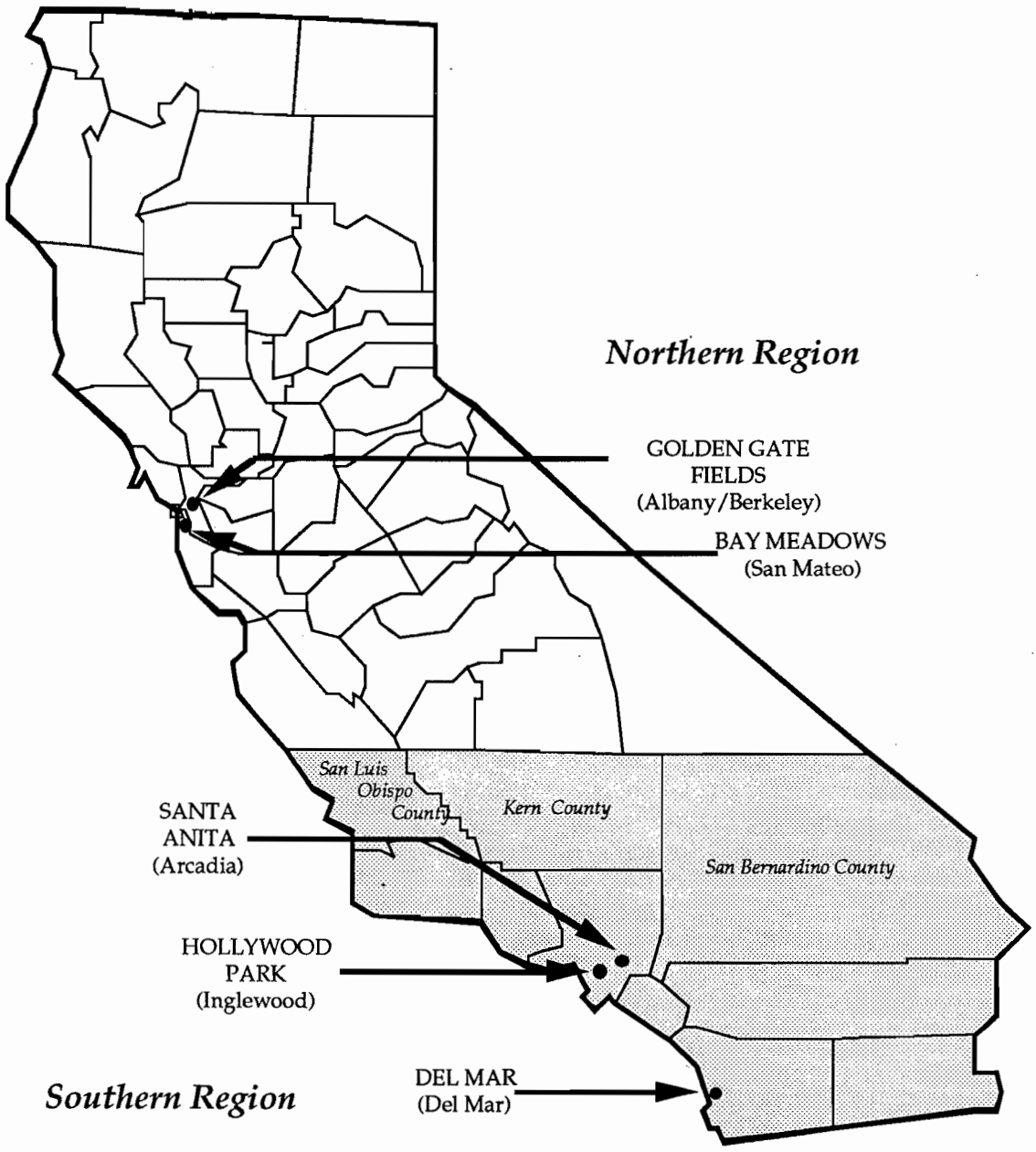
Trainers provide a service to owners of horses of training and racing age. Most trainers are self-employed, independent contractors who contract with one or more owners to control and manage the race preparation (e.g. training, conditioning, workouts, etc.) and racing careers of their horses. Trainers also provide for the horses' day-to-day care, providing feed and other supplies, and usually hiring employees to assist them. Many trainers also own and train their own horses.

It is also useful to view the horse sector as being divided into two subsectors: breeding and racing. This subdivision corresponds with two distinct phases in the race horse production process, illustrated in Figure 2-2. In phase one, horses are bred and the young horses are developed; in phase two, the horses enter training for racing, with some going on to become race horses. Although the actual age when horses begin training for racing differs depending on the circumstances and individuals involved, for this study the break between phases is when the potential race horse turns two years old.[2] Thus, "young horses" include all horses less than two years old (foals, weanlings, and yearlings) and "racing stock" are all horses two years old and up which are expected to race at some time.

Note that the supply of breeding stock (stallions and mares) comes from horses in the racing and training phase. Also illustrated in Figure 2-2 is the fact that some horses leave the industry at each step in the production process (either by death or because they have entered another sector of the equine industry, such as jumping or pleasure).

[2] All race horses, regardless of their individual birth dates, are called "yearlings" for the year beginning January 1 following the year in which they are born; likewise, horses are called "two-year-olds" beginning January 1 the next year; and so on.

Figure 2-3. Designated Geographic Regions for the Thoroughbred Industry in California



The Racing Subsector

For the purposes of this study, we have divided the state into two distinct regions, illustrated in Figure 2-3. The major markets for racing in California are the northern California Bay Area, and the areas around Los Angeles and San Diego in southern California. The major race tracks serving the northern California market are Bay Meadows (located in the city of San Mateo) and Golden Gate Fields (located within the cities of Albany and Berkeley). In southern California the major race tracks are Santa Anita (in Arcadia), Hollywood Park (in Inglewood), and Del Mar (in Del Mar). We followed general industry guidelines in developing the distinction between northern and southern California, although these two regions differ slightly

from the three racing zones identified by the California Horse Racing Board.

In addition to the major race meetings held at the facilities mentioned above, there are several Thoroughbred races run in conjunction with state and county fairs in northern California. Fair race meetings are held by the Humboldt County Fair, the Fresno County Fair, the Alameda County Fair, the California State Fair, the Sonoma County Fair, the San Joaquin County Fair, the Solano County Fair, and the San Mateo County Fair. Each of these fairs has racing facilities, owned by the state or county, with the exception of the San Mateo County Fair which leases the Bay Meadows racing facilities.

In southern California there are two additional race meetings associated with county fairs. The Los Angeles County Fair holds a Thoroughbred race meeting at its facilities (Fairplex Park), located in the city of Pomona, and the Orange County Fair holds a race meeting at the Los Alamitos racing facilities, located in the city of Cypress.

In this report, all racing in California will be organized according to the four categories implied above: the northern California major Thoroughbred race meetings, the southern California major Thoroughbred race meetings, northern California fair race meetings, and southern California fair race meetings. Because they account for approximately 90 percent of the total Thoroughbred handle, this report will emphasize the major Thoroughbred meetings in southern and northern California.

As illustrated in Figure 2-4, the number of racing days—and therefore the racing opportunities for California horse people—has persistently increased over time, as the state legislature periodically allows more racing. Note that since 1981, Thoroughbred racing has been virtually year-round in both northern and southern California if the respective fair race meets are included.

Although time series data on the number of race horses (or horses of racing age) in California do not exist, it is reasonable to assume that the number of race horses and the size of the racing subsector has increased along with these increases in the number of racing opportunities.

For the purposes of this report, training facilities in California were separated into three categories, based on cost to owners and trainers: 1) the race track or off-track, 2) training centers, and 3) farms and ranches. Horses stabled at the race tracks currently conducting a race meeting are in various stages of training, although most are racing regularly. Since demand for stall space at the track exceeds the available stalls, additional stall space is made available to trainers for qualified horses at the off-track—a major race track that is not currently conducting a race meeting.

In this report, "training centers" will refer primarily to auxiliary facilities with official clockers. Note that horses are required to have workouts recorded by authorized timekeepers before they are eligible to race at a track. In the north, all such auxiliary training facilities are at state or county fair grounds which allow training when the fair meet is not running. In the south, the auxiliary training facilities consist of two privately owned training centers, San Luis Rey Downs and Galway Downs, and the Los Angeles County fair racing facilities at Pomona. All auxiliary facilities are located relatively close to the respective racing circuits.

Training on farms and ranches is distinguished from training at race tracks and auxiliary facilities in both location and in the organizational structure of the operation. In contrast to training done by independent trainers, owners may contract with a farm or ranch to care for and train their horses. The farm or ranch provides board, labor, the training facilities, and a supervisor or trainer, who is usually an employee of the farm rather than an independent contractor. This farm trainer, however, is often in a management position and therefore involved in farm decision making. Training on farms and ranches is usually at a beginning level and is generally less expensive than training by independent trainers.

The Breeding Subsector

As in the racing subsector, in this study the breeding subsector has been divided into the two distinct north and south regions defined in Figure 2-3. Approximately 100 commercial Thoroughbred farms and ranches are dispersed throughout the State of California. Estimates indicate that there could be up to 450 more private farms and ranches, although most of these are relatively small with only a few horses. Not surprisingly, many of the Thoroughbred farms are located near the major racing markets. High concentrations of Thoroughbred farms and ranches are found in western Riverside County, Santa Barbara County, and southwestern San Bernardino County. Other areas with significant Thoroughbred farm and ranch activity include Fresno County, San Diego County, and the areas within about a 50-mile radius of Sacramento and San Francisco.

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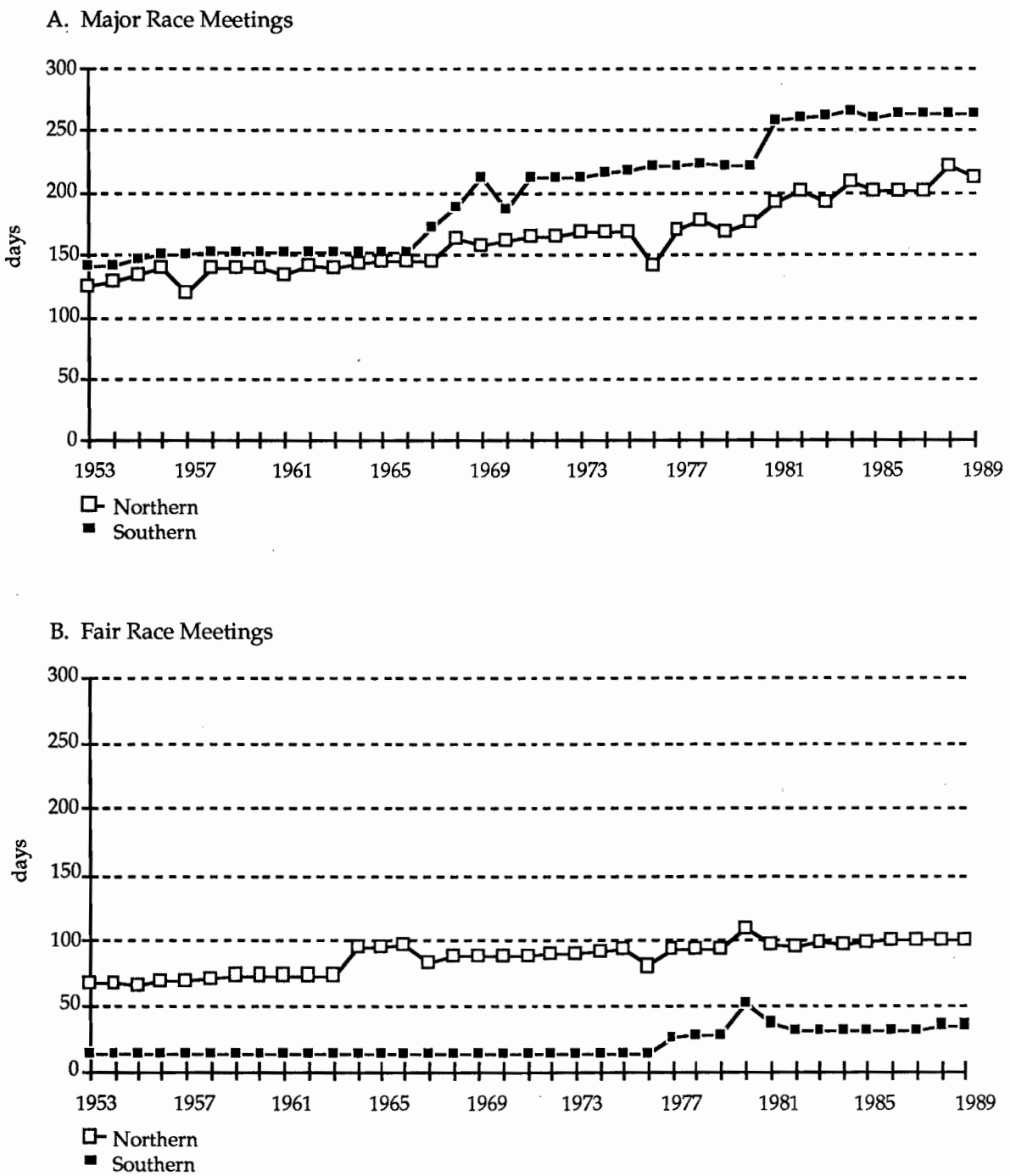
[3] The number of races offered is proportional to the number of racing days, averaging about nine races per racing day.

Figure 2-4. Number of Racing Days for Major Thoroughbred Race Meetings (A) and Fair Race Meetings (B) in Northern and Southern California, 1953-1989*



*Aggregate data for all major Thoroughbred and fair race meetings in northern California and all those in southern California.

Source: California Horse Racing Board, *Statistical Report of Operations,* Annual Issues.

California breeders have ranked second to Kentucky in the production of Thoroughbreds for many years, with approximately 12 percent of the U.S. and Canadian total over the past 10 years. Figure 2-5A shows the number of registered foals in California and in the other two of the top three producing states for the period 1965 through 1988. Along with the rest of the nation, California experienced high growth rates in Thoroughbred production during the late 1970s and early 1980s. However, California production peaked in 1985 and has declined gradually each year through 1988. Although registration for 1989 is not complete, preliminary estimates (to be discussed later in the report) indicate little change since 1988.

Since all Thoroughbred foals in the United States, Puerto Rico, Canada, and Cuba, are required to be registered with the Jockey Club, the number of foals registered each year provides a basis for other trends in the Thoroughbred breeding industry. For example, the number of Thoroughbred broodmares can be roughly approximated by assuming about 1.9 mares for every registered foal.

Figure 2-5B shows the total number of Thoroughbred foals registered with the Jockey Club for 1965 through 1988 (registration for more recent years is not complete). After increasing at a rapid rate through the late 1970s and early 1980s, Thoroughbred production seems to have leveled off at about 50,000 foals per year. Whether production will continue to decline, as in 1988, remains to be seen.

It is important to note that California's horse sector is an integral part of a much larger national and international Thoroughbred horse racing industry and significant numbers of Thoroughbred horses are exported from and imported to the state each year. Therefore, horses bred in California do not necessarily race in California, and many of the horses racing in California were bred in other states. For example, from 1978 through 1988, California-bred horses won 41 percent of all races run at the major California tracks. (Note that race tracks are required by law to restrict one race per day to California-bred horses).

Economic Environment

The horse sector has three primary sources of revenue: purse money, breeder incentive awards, and the sale of horses. These will be discussed in turn.

Purse Money

Purse money paid to the owners of winners and top finishers in horse races is the primary source of funds for the horse sector of the Thoroughbred industry. The purse money filters down from the owners to all other horse people as owners purchase racing stock (or pay the expenses of producing racing stock) and pay for their board and training. Although there are certainly other incentives, race purse money is the main economic incentive driving this sector of the industry. The major source of purse money for California Thoroughbred races is from the horse sector's share of the pari-mutuel pool. However, the horse people also contribute directly to the purses through mandatory nomination and entry fees for stakes races.

It should be noted that purse money, in total and in average per race, has almost always been more than twice as great in southern California as in the north. Consequently, the demand for stall space, the level of competition, and the overall quality of racing is generally greater in the south.

Figure 2-6 shows total purse money paid in nominal and in real dollars—corrected for inflation with the Consumers' Price Index—at all the major Thoroughbred race meetings in northern California and all those in southern California for 1953 through 1988. The solid line in Figure 2-6, which begins in 1966 and follows just under total purse money for the southern race meetings, represents total purse money less the horse people's contribution to total purse money. Total purse money at the southern tracks—both in nominal dollars and in real dollars—shows a significantly increasing trend, more than doubling since the 1950s and early 1960s. The northern tracks also show an overall increase in total purse money, but at a slower rate than the southern tracks. This relatively slow growth in the north has further widened the gap between the two regions.

The sharp increase in total purse money at the southern meets in 1984 is due to the initiation of the Breeder's Cup races held in southern California in 1984, 1986, and 1987. As Figure 2-6 shows, these races significantly increased total purses, but the increases came from within the horse sector (in the form of nomination and entry fees) and therefore did not directly increase "net" money going to the sector. The increase in purse money coming from outside the

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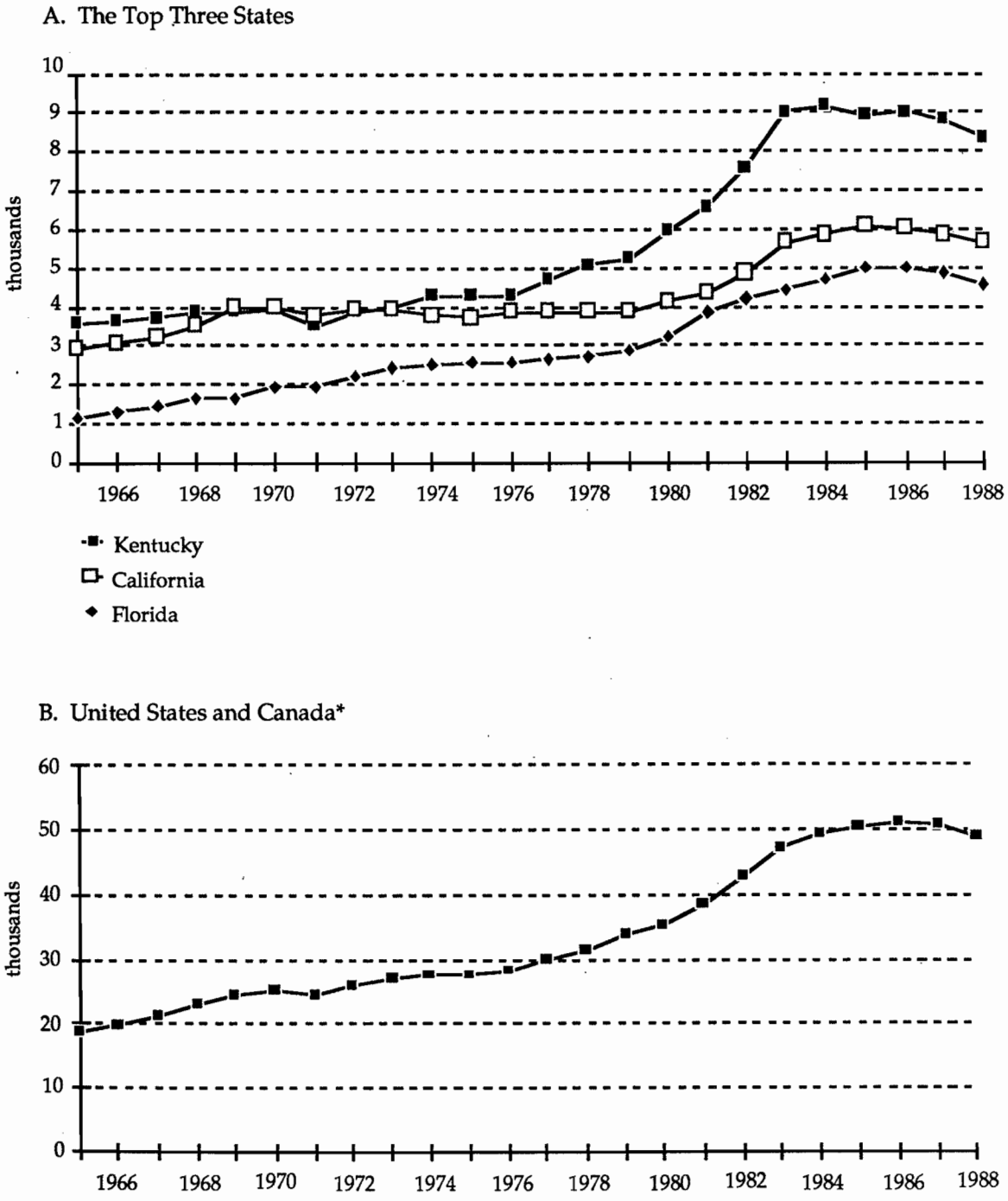
[4] Estimate based on actual 1987 foals/mares-bred ratio published by the Jockey Club. See "California Live Foal Percentages," *The Thoroughbred of California*, January, 1990.

[5] In this case the term "California-bred" refers to horses registered "California-bred" by the California Thoroughbred Breeders Association (CTBA). Eligible horses are defined by the CTBA as follows: "A California-bred Thoroughbred is a horse dropped in California after being conceived in California, or any Thoroughbred horse dropped by a mare in California if the mare remains in California to subsequently be bred to a Thoroughbred stallion standing in California..." Registered California-breds do not necessarily include all horses bred in California; however, the great majority of eligible horses are so registered.

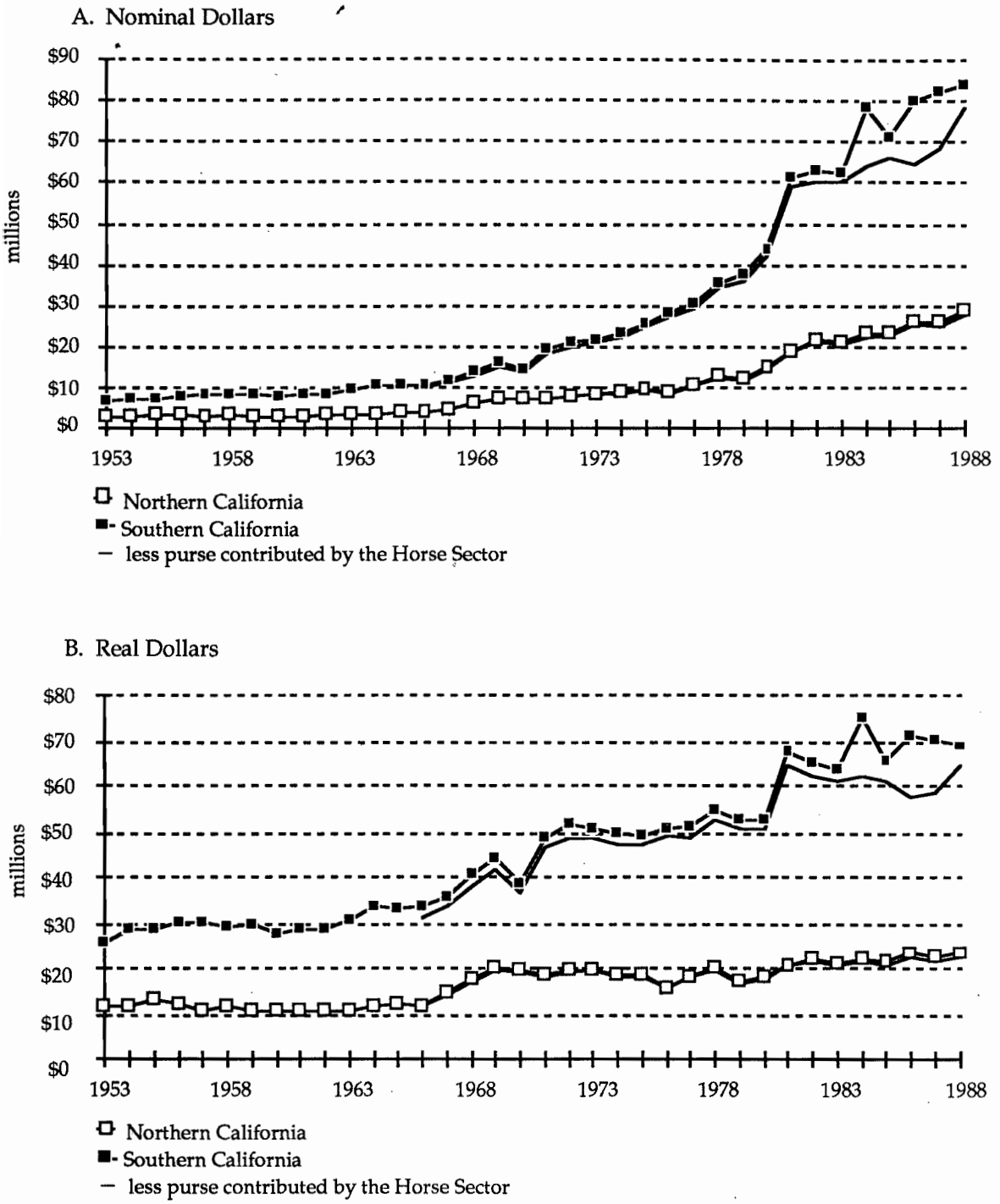
Figure 2-5. Number of Foals Registered with the Jockey Club in the Top Three States (A) and in the United States and Canada (B), 1965-1988



*Includes a few foals from Puerto Rico and Cuba.

Source: *The Blood-Horse,* Mar. 21, 1977, Sept. 13, 1980, Dec. 9, 1989, and communication with the Jockey Club.

Figure 2-6. Total Purse Money Paid for Major Race Meetings in Northern and Southern California in Nominal Dollars (A) and Real* Dollars (B), 1953-1988**



*Real dollars are deflated by the California CPI (1982-1984=100).

**Aggregate data for three major race meetings in northern California and five in southern California. Off-track handle for 1985-88 in the north and for 1988 in the south is included in these data.

Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

sector in 1988 is attributed to the introduction of satellite wagering in southern California which increased total handle and therefore the amount of money available for the horse sector.

Trends in average purse per race, in nominal and in real dollars, for all the major Thoroughbred race meetings in northern California and all those in southern California are shown in Figure 2-7. Although total purse money has been increasing at a substantial rate in California, average purse money per race, in real dollars, shows only a very slight upward trend in the south and no change in the north.

Purses paid at California race meetings have always been among the highest in the nation. Table 2-1 shows the top 25 tracks in the United States by average purse per racing day in 1988. Asterisks indicate California tracks. The three major southern California tracks are in the top five and the two major northern California tracks are in the top 25. Also in the top 25 are Fairplex Park and Los Alamitos, the two southern California fair meets.

Incentive Programs

California incentive programs provide another source of revenue for owners of racing and breeding stock in California. The incentive programs consist of monetary awards paid to California horse owners and breeders whose horses meet certain requirements and achieve certain accomplishments. These programs were initiated to encourage the breeding of high quality Thoroughbred horses in California. A strong breeding industry is advantageous to the state because of the economic activity it generates. The program is administered by the California Thoroughbred Breeders Association and is funded from a legislated percentage of the pari-mutuel pool and a percentage of the purse money from exotic wagering takeout.

There are currently three types of incentive programs: breeder awards, owner awards, and stallion owner awards. Breeder awards, which make up 55 percent of the total award money, are paid to the breeders of registered California-bred horses which finish first, second, or third in any race run in California. Breeder awards are also paid to the breeders of California-bred horses which place in graded stakes races run outside of California but within the U.S. Owner awards are bonuses, above purse money, paid to the owners of registered California-bred horses which win qualifying races in California. Stallion owner awards are bonuses paid to the owners of California-based stallions whose California bred or conceived progeny win qualifying races, place in stakes races run in California, or place in graded stakes races run outside of California but within the U.S.

The total incentive award money paid to California horse owners was over $11 million in 1989. Figure 2-8 shows the total incentive award money paid from 1970 through 1989, in nominal and real dollars. There has been a substantial upward trend in incentive award money paid, due mostly to periodic changes in the horse racing law which allow for more generous incentive awards.

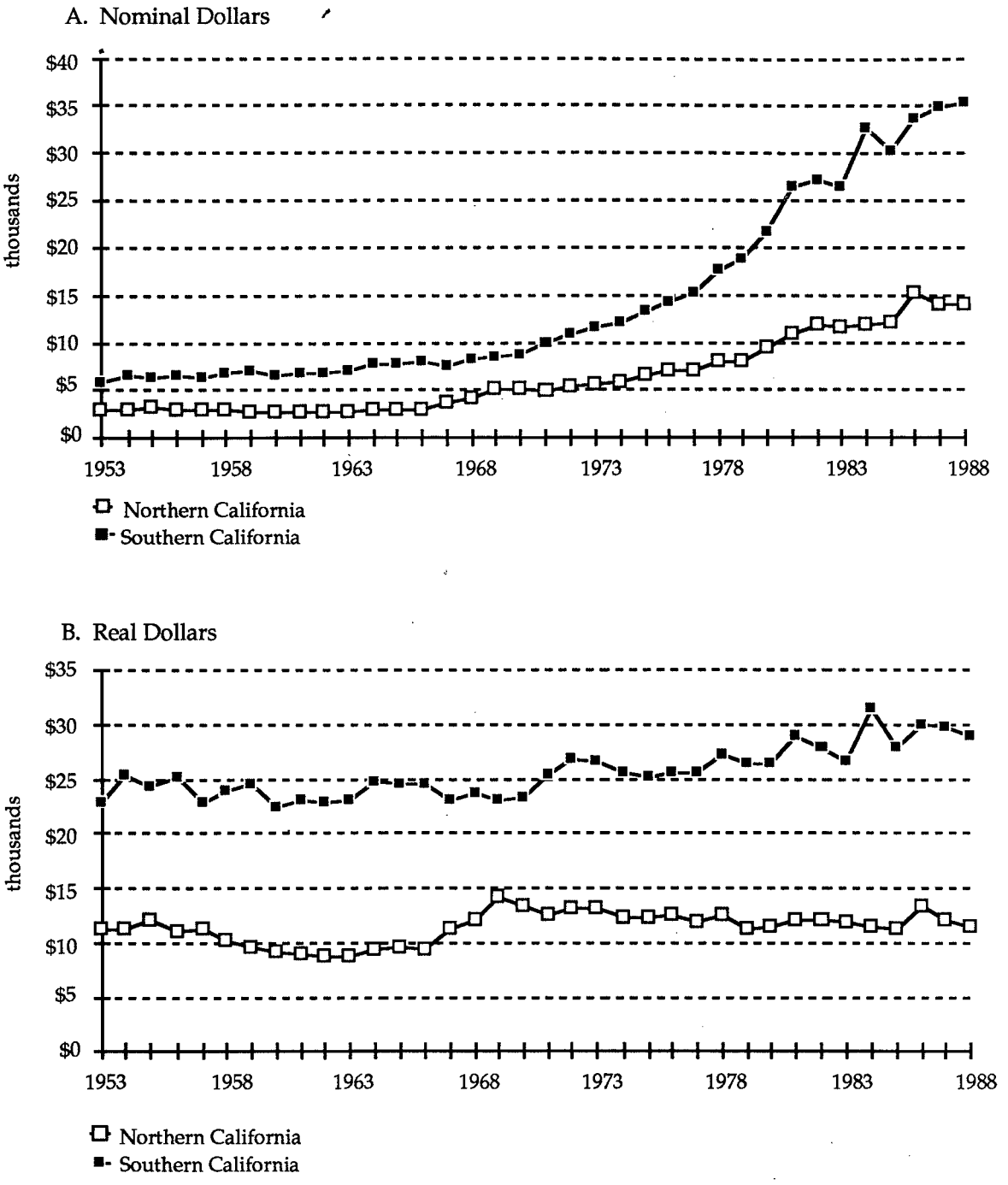
Table 2-1. Average Daily Purse Leaders, North American Thoroughbred Tracks, 1988

Track	Average Purses	Track	Average Purses
Saratoga	$401,730	Laurel Race Course	$158,556
Belmont Park	342,835	Pimlico	149,107
Santa Anita*	325,856	Oaklawn Park	142,100
Del Mar*	289,169	Louisiana Downs	130,119
Hollywood Park*	288,221	Golden Gate Fields*	129,058
Aqueduct	265,221	Hawthorne	126,898
Keeneland	248,136	Los Alamitos*	125,377
Gulfstream Park	210,019	Greenwood	122,551
Fairplex Park*	207,192	Calder Race Cours	122,293
Churchill Downs	188,633	Bay Meadows*	121,762
Woodbine	177,669	Sportsman's Park	121,747
Meadowlands	173,596	Garden State Park	99,103
Monmouth Park	166,914		

*California tracks

Source: *The Blood-Horse*, Mar. 11, 1989, from the Jockey Club Information Systems. Excludes Hialeah and Breeders' Cup Day purses at Churchill Downs in 1988.

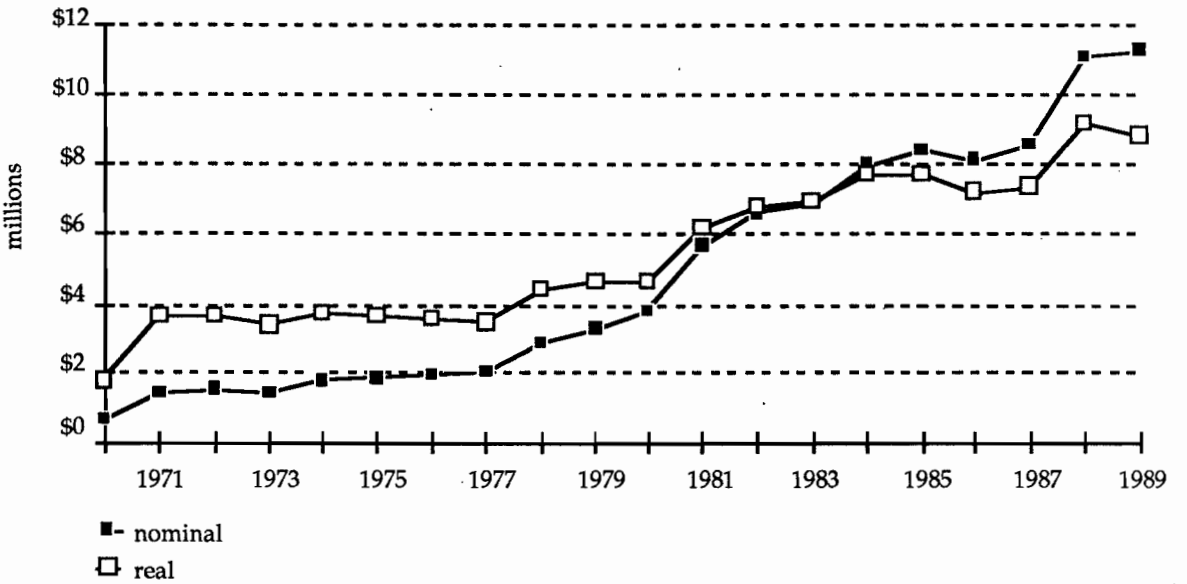
Figure 2-7. Average Purse Per Race for Major Race Meetings in Northern and Southern California in Nominal Dollars (A) and Real* Dollars (B), 1953-1988**



*Real dollars are deflated by the California CPI (1982-1984=100).
**Aggregate data for three major race meetings in northern California and five in southern California.

Source: California Horse Racing Board, *Statistical Report of Operations,* Annual Issues.

Figure 2-8. Total Incentive Awards Paid to California Horse People, in Nominal and Real* Dollars, 1970-1989



* Real dollars are deflated by the California CPI (1982-1984=100)

Source: California Thoroughbred Breeders Association

Sale of Horses

The Thoroughbred industry generates large cash flows from the sale of horses at public auctions, in claiming races,[6] and through private transactions. Unfortunately, no data exist on the volume of privately transacted horse sales. However, we do have information on horses sold through claiming races and through public auctions, which together probably account for the majority of Thoroughbred horse transactions in California. In 1989, total Thoroughbred auction sales came to about $28 million and sales through claiming races were just over $33 million. Figure 2-9 shows Thoroughbred horse sales from claiming races and public auctions in California for 1983 through 1989. The figures given for auction sales include Thoroughbred horses of all ages and classes (e.g. yearlings, broodmares, etc.). California auction sales typically account for less than five percent, in dollar terms, of total North American public Thoroughbred auction sales. Shares in stallion syndications and stallion seasons (stud fees) are also bought and sold in California. Most of these transactions are private and little data is available. Estimates of stud fees paid in 1989 will be presented later in this report.

Sales of horses within California's Thoroughbred racing industry (e.g., when breeders sell young horses to owners) constitute transfers of money within the horse sector, rather than representing new revenue to the sector. However, when horses are sold out of state or out of the Thoroughbred racing or breeding industry (for example, to become pleasure or show horses), new revenue comes into the sector. The amount of this new revenue is unknown but is assumed to be relatively insignificant.

Economic Profile of the Horse Sector, 1989

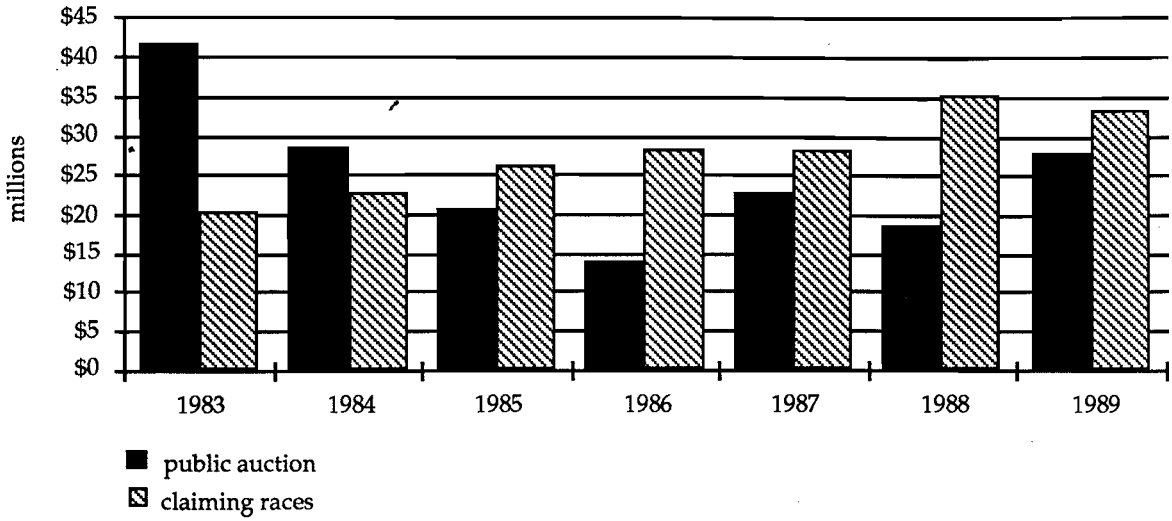
The previous sections of this chapter have presented an overview, and introduced a schematic model of the horse sector. The remainder of this chapter will use this model to describe and quantify the economic activity that can be attributed to breeding and racing Thoroughbred horses.

Data Sources and Methodology

Some general information on the horse sector, including that discussed in the previous section, is readily available from published sources. The more detailed data presented in the following subsections were obtained from surveys and interviews. Survey techniques and methods of analysis for the horse sector are briefly discussed below.

[6] A claiming race is a race in which each horse entered is eligible to be purchased, by qualified persons, at a set price.

Figure 2-9. Value of Horses Sold Through Public Auctions and Claiming Races in California, 1983-1989



Source: California Horse Racing Board, *Annual Reports*

Survey of Thoroughbred Owners, Breeders, and Farms and Ranches

The general population of horse owners was separated into two groups: (1) major breeders, or people who have been identified as owners or managers of large breeding farms and (2) owners, or people identified as owning at least one Thoroughbred licensed to race in California. A questionnaire eliciting employment, cash flow and investment information was developed for each group.

Industry representatives assisted with the identification of major breeding farms, and surveys were sent to every operation listed, for a total of 101 surveys. A list of every owner licensed to race Thoroughbreds in California was obtained from the California Horse Racing Board. A random sample of 20 percent of the owners was surveyed for a total of 2,245 surveys.

The survey effort consisted of two complete mail-outs, as well as follow-up postcards. The response rate for the survey of major breeders was 33 percent, resulting in 32 usable surveys; the response rate from licensed Thoroughbred owners was 24 percent, resulting in 404 usable surveys.

To supplement the mail survey information, a telephone survey was conducted of major breeding farms, lay up facilities, and training centers in California. Additional detail on horse numbers, investment, and cash flow was obtained from 60 percent of the facilities identified. Preliminary estimates were validated through in-person interviews with a small sample of farm owners and managers.

Survey of Thoroughbred Trainers

The general population of Thoroughbred trainers in California was stratified into three groups: (1) trainers who stable the majority of their horses at major southern California tracks, (2) trainers who stable mostly at the major northern California tracks, and (3) all other trainers licensed in California. Survey questionnaires to obtain employment and cash flow information were developed for trainers, after preliminary in-person interviews with several trainers from each of the first two groups.

A random sample of 40 trainers from each of the first two groups was selected. Survey forms were personally delivered to each of the selected trainers by a representative of the northern or southern California Horsemen's Benevolent and Protective Association (CHBPA) with an explanation of the study's purpose and a request for them to participate in the study. Follow up was done by the CHBPA representatives. Fifteen completed surveys were received from trainers in the north and south. In addition to these surveys, in-person interviews were conducted with five trainers from the major northern tracks and eight from the southern tracks. Also, an in-person interview was conducted with a bookkeeper who represented several southern California trainers.

The trainer questionnaire, with slight modifications, was mailed to a sample of 400 trainers in the third group. The response rate from this survey was three percent, and resulted in 10 usable surveys. Thus, the completed surveys analyzed represent trainers

from northern and southern California tracks and auxiliary training facilities.

Other Data Sources

In addition to the surveys, data were obtained from telephone and in-person interviews with the Jockey Club, the California Horse Racing Board, race track officials and employees, training center personnel, and other industry representatives.

After gathering all the data from published sources, surveys, and interviews, estimates were obtained on horse numbers, employment, cash flow, and investment in the horse sector. Most of the estimates of employment, cash flow, and investment were first obtained on a per horse basis. These results were then extrapolated to industry totals using estimates of the total Thoroughbred population. Results are presented and discussed below.

Thoroughbred Horses in California

Average numbers of Thoroughbred horses in California during 1989 by type and location were estimated using survey information, published data, and personal communication with tracks, training centers, and the Jockey Club. Numbers of racing stock, which includes all Thoroughbred horses two years old and older held for racing purposes, will be presented first; numbers of breeding stock and young horses under the age of two will follow.

Racing Stock

The estimated average number of Thoroughbred horses in training for racing in California during 1989 was 8,900 (Table 2-2). Estimates are presented by location and type of racing or training facility. Horses in training at the track holding a race meeting and horses at the corresponding off track were added together in the category "tracks and off-tracks." Horses in training at major training centers, primarily auxiliary training facilities with authorization to do official works, constitute a second category. The last category, "other training facilities," includes horses in training on farms and at private training centers, which train horses under a single trainer or manager.

The population of race horses is dynamic—horses are continually entering and leaving training, dying or otherwise leaving the industry, or retiring to become breeding stock. Therefore, the reported numbers of horses in training are estimated averages for the year and the actual number of horses in training at any time during the year fluctuates around the reported average. The number of horses in training at tracks and off-tracks is fairly constant throughout the year, but the number in training at training centers and other training facilities has random and seasonal variation. Peak time for training centers and other training facilities is in the early spring when most of the two-year-olds are just beginning their careers.

Another important category of Thoroughbred race horses in California are two-year-olds and older which are not in training, but which are expected to go into training at some time in the future. This group includes horses laid up or turned out, horses being rehabilitated, horses deemed too physically immature to begin training, and horses which are otherwise waiting to begin training. Like horses in training, this group of horses is also subject to random and seasonal variation. Nevertheless, our estimates indicate that, on average throughout the year, for every two horses in active training in California there is at least one horse of training age waiting to begin training.

Table 2-2. Estimated Year-Round Average Number of Horses in Training, California, 1989

	Northern California	Southern California	Total
Tracks and Off-Tracks[a]	1,910	3,200	5,110
Major Training Centers[b]	950	930	1,880
Other Training Facilities[c]	580	1,330	1,910
Total	3,440	5,460	8,900

[a] Santa Anita, Hollywood Park, & Del Mar in the south; Bay Meadows and Golden Gate Fields in the north.

[b] Includes Pomona Fair Grounds, San Luis Rey Downs, & Galway Downs in the south; Pleasanton, Sacramento, Santa Rosa, Vallejo, & Stockton fair grounds in the north.

[c] Includes private training centers, training facilities and training on farms

Source: Estimated from survey data and personal communication with industry personnel.

Table 2-3. Estimated Average Number of Thoroughbred Breeding Stock and Young Horses in California, 1989

	Northern California	Southern California	Total
Stallions	210	560	770
Broodmares	2,530	6,770	9,300
Foals	1,520	4,060	5,580
Yearlings	1,330	3,550	4,880
Total	5,590	14,940	20,530

Source: Estimated from survey data and personal communication with industry personnel.

Combining all racing stock (those in training and those waiting) gives an estimated average of at least 13,350 Thoroughbred horses two years old and older held in California in 1989 for the purpose of racing.

Breeding Stock and Young Horses

Table 2-3 shows the estimated number of broodmares, stallions, foals, and yearlings in California in 1989 by region. As with race horses, the population of breeding stock and young horses is also very dynamic; therefore, these estimates again represent averages over the year. The reported number of foals is an average over the second half of the year, since most foals are born in the spring and early summer.

Estimates indicate that there were approximately 10,070 Thoroughbred mares and stallions held for breeding race horses in California during 1989. In addition, there were approximately 10,460 Thoroughbred foals (or weanlings) and yearlings held as potential race horses. Note that the Thoroughbred breeding industry is nearly three times larger in southern than in northern California. This difference can probably be attributed to the fact that the market for racing is far more lucrative in southern California.

Employment and Compensation in the Horse Sector

The horse sector of the Thoroughbred industry provides a wide variety of full-time and part-time employment opportunities for a wide range of skill, income, and status levels. Thoroughbred farms and ranches employ managers, general farm laborers, maintenance workers, trainers, riders, and administrative personnel. Trainers employ assistant trainers, barn foremen, grooms, riders, hot walkers, and sometimes night watchmen, van drivers, and office workers. Both farms and ranches and trainers typically arrange for the professional services of veterinarians and farriers for the horses under their supervision. Other jobs in this sector include jockeys and jockey agents, and employees of horsemen's organizations.

All estimates of the number of persons employed in this report will be measured in full-time equivalent (FTE) units. FTE means the number of jobs which would be available if everyone employed in the industry worked full time all year. For example, if one person works half time for the whole year in the Thoroughbred horse sector, then that would be counted as .5 FTE job. If another person works full time for only three months during the year in the Thoroughbred horse sector (and nine months doing something else) then that would be counted as .25 FTE job.

Racing and Training

The estimated number of employees hired by trainers, and their average monthly base pay rates, at the major California tracks and training centers is presented in Table 2-4. The numbers are an average for year-round, full-time employees. Included in the estimates are contract laborers who exercise or care for horses on a daily, by-the-head fee. Free lance exercise riders are the most significant part of contract labor; they make up about 12 percent of the reported exercise riders in the south and 25 percent in the north. Other kinds of contract labor, such as contract hot walkers, make up a very small percentage of the total.

None of the trainers reported offering any employee benefits such as health insurance or pension plans. However, the California Thoroughbred Horsemen's Foundation (CTHF) provides medical, dental, optometric, and social welfare benefits for all horsemen licensed to work on California's race tracks and major training centers. The California Horsemen's Benevolent and Protective Association (CHBPA) also provides a limited pension program. These benefit programs are funded by private contributions, by a legislated portion of the monies available from the pari-mutuel pool, and by the proceeds from one-half of the uncashed pari-mutuel tickets.

Table 2-4. Estimated Number of Hired Employees and Average Monthly Base Pay at California Tracks and Major Training Centers, 1989

	Northern California	Southern California	Total
Assistant Trainers			
Number	70	65	135
Average Pay/Month	$2,100	$1,900	
Barn Foremen			
Number	80	175	255
Average Pay/Month	$1,700	$1,650	
Exercise Riders			
Number	300	440	740
Average Pay/Month	$1,460	$1,540	
Grooms			
Number	680	1,120	1,800
Average Pay/Month	$1,150	$1,200	
Hot Walkers			
Number	75	450	525
Average Pay/Month	$950	$750	
Other Stable Help[a]			
Number	25	45	70
Average Pay/Month	$950	$950	
Total Employed, FTE			3,525

[a] Includes night watchmen, relief workers, and pony riders.

Source: Estimated from survey data.

In addition to the CHBPA and CTHF benefits, at all of the tracks and at most training centers approximately 70 percent of the stable employees live in free rooms provided by the track. Furthermore, the practice of staking stable employees is common at both the northern and southern tracks.[7] These bonuses can be significant for those employees who care for horses that win purse money.

The estimated number of self-employed professionals working with or caring for horses in training at the major California tracks and training centers is shown in Table 2-5. The estimates refer to the number of individuals whose primary occupation is the indicated profession at the indicated location, and are on a FTE basis. There may be many more who work only part time in a given profession/location category. Incomes for these jobs are quite variable, depending mostly on an individual's ability and reputation; averages were not estimated. However, estimates of the total amount paid to trainers, jockeys, veterinarians, and farriers by California owners in 1989 will be given in the next subsection.

All persons working on race tracks and auxiliary training facilities in California are required to be licensed with the California Horse Racing Board. Table 2-6 gives the number of active licenses held by California Thoroughbred horse people as of April 1989. In most cases, the estimated number of people employed was substantially less than the number of license holders. This discrepancy is due to the fact that the esti-

[7] Staking refers to the practice of owners giving stable employees such as the groom or exercise rider a small percentage of a horse's winnings. Stakes are usually one percent for a groom and sometimes up to one percent for an exercise rider, assistant trainer, or stable foreman.

Table 2-5. Estimated Number of Professionals or Self-Employed at California Tracks and Major Training Centers, 1989

	Northern California	Southern California	Total
Trainers	230	350	580
Jockeys	35	25	60
Veterinarians	20	30	50
Farriers	20	30	50
Other[a]	60	65	125
Total, FTE			865

[a] Includes stable agents, equine dentists, jockey agents, and jockey valets.

Source: Estimated from survey and industry data.

mates in Table 2-5 refer to the average number of full-time, year-round, and on-track individuals employed, while the number of licensed individuals includes many part-time or seasonal persons and probably many others who maintain active licenses without working on the track. Nevertheless, the number of active licenses may be used as an upper estimate of the number of persons employed on California race tracks.

Farms and Ranches

Thoroughbred farms and ranches are another important source of employment for individuals involved in the horse sector. Total employment on Thoroughbred farms and ranches in California, along with salary ranges and averages, is listed by category in Table 2-7. The estimates indicate that at least 1,880 persons had full-time, year-round employment on Thoroughbred farms and ranches in California in 1989. These estimates may not include all owner-operators of farms and ranches since at least some of the survey respondents did not report themselves as full-time employees, even though operating the farm was their primary occupation and source of income.

Salary levels for Thoroughbred farm and ranch employees were generally low. However, approximately 80 percent of those in management positions and 60 percent of all other full-time employees received free housing in addition to their salary. Some, usually trainers or managers, received other benefits such as a vehicle to drive or reduced rates for their own horses. Less than 10 percent of Thoroughbred farms and ranches reported offering medical or retirement benefits. The aggregate value of these fringe benefits could not be estimated from our survey data.

The "General Labor" category includes those jobs associated with the daily care of Thoroughbreds on the farm, such as feeding, stall cleaning, and general farm

Table 2-6. Number of Thoroughbred Active Licenses by Occupational Group in California, 1989

Owners	10,627	Jockey	296
Trainers	1,159	Apprentice Jockey	80
Assistant Trainer	259	Jockey Agent	103
Stable Foremen	192	Jockey Valet	26
Exercise Riders	1,055	Veterinarian	95
Groom/Stable Employee	3,478	Farrier	119
Pony Rider	156	Authorized Agent	1,328

Source: California Horse Racing Board.

Table 2-7. Estimated Number of Persons Employed and Average Monthly Salaries for Thoroughbred Farms and Ranches in California, 1989

	Salary Range (monthly)			Total Employed (FTE)
	Low	High	Average	
Management	$1,000	$4,000	$2,150	180
Administrative/Office Staff	500	1,800	1,470	170
General Labor	600	1,200	1,020	1,070
Trainers	1,500	2,000	1,850	50
Riders	950	1,650	1,320	280
Other Full Time	700	1,600	1,000	50
Other Part Time	$4.25/hr.	$7.00/hr.	$4.50/hr.	80
Total				1,880

Source: Estimated from survey data.

work. Some farms reported all non-management employees in this category; consequently, many riders and possibly others are counted in this category. The "Other Full Time" category includes jobs such as maintenance or mechanic workers and night watchmen.

In addition to these several employment categories, owners of Thoroughbred horses on farms and ranches use the services of veterinarians and farriers. Most veterinarians and farriers are self-employed individuals who "contract" with the farm or ranch management to provide services and charge the horse owner on a procedure basis. Many of the larger breeding farms retain "resident" veterinarians who agree to work exclusively, or on a priority basis, on the farm. Similar arrangements are sometimes made with farriers. Most veterinarians and farriers, however, work for other clients, including serving breeds other than Thoroughbreds. Our estimates show that approximately 65 veterinarians and 100 farriers were employed, on a FTE basis, on California Thoroughbred farms and ranches in 1989. It should be emphasized that our estimates understate the *total* number of veterinarians and farriers, for there are many professionals who make only part of their income on Thoroughbred farms and ranches.

Horsemen's Organizations

The California Thoroughbred Breeder's Association (CTBA) and the California Horsemen's Benevolent and Protective Association (CHBPA), two major horsemen's organizations, provide one last source of direct employment in the horse sector. Together these two organizations provided approximately 45 FTE jobs in 1989. Most of these jobs were administrative in nature.

Summary

Table 2-8 summarizes the estimates of the number of persons employed in the horse sector, on a FTE basis. As shown in the table, estimates indicate thatthe Thoroughbred horse sector provided at least 6,480 FTE jobs in 1989.

Cash Flow in the Horse Sector

The receipts and expenditures made by an industry for goods and services are an important element of that industry's economic impact. California's Thoroughbred industry generates millions of dollars in cash flows. The general nature and direction of cash flows in the horse sector are illustrated in Figure 2-10.

Note that some cash flow is entirely intra-sector while other enters or leaves the sector. For example, the payments made by owners of breeding and racing stock to farms and ranches for board and other services are an intra-sector cash flow. On the other hand, payments made by farms and ranches for feed and labor leave the horse sector. It is important to make this distinction since intra-sector cash flows have little economic impact outside the horse sector.

The organizational model of the horse sector used for this analysis implies that each of the four groups of horse people are mutually exclusive economic agents. However, in actuality many individuals and firms fall

Table 2-8. Summary of Estimated Total Employment in the California Thoroughbred Horse Sector, 1989

	Total Employed (Full Time Equivalent)
Racing and Training	
Employed by Trainers (Table 2-4)	3,535
Trainers (Table 2-5)	580
Jockeys (Table 2-5)	60
Veterinarians (Table 2-5)	50
Farriers (Table 2-5)	50
Other Self-Employed (Table 2-5)	125
Subtotal	4,390
Farms and Ranches	
Employed on Farms & Ranches (Table 2-7)	1,880
Veterinarians	65
Farriers	100
Subtotal	2,045
Horsemen's Organizations	45
Total	6,480

Source: See referenced tables

into more than one of the four groups. Therefore, it is important to note that the estimates presented in the following subsections of expenditures and receipts made between the various groups of horse people are estimates of the amounts that actually changed hands; in other words, we do not count individuals and firms as paying themselves for services performed on their own horses, although all expenses are taken into account.

The initial amount of money entering the horse sector from the joint pari-mutuel pool of all Thoroughbred racing in the state is estimated to be $131.5 million in 1989. Of this amount, approximately $3.6 million went to horsemen's organizations (the CHBPA and CTBA),[8] $11.2 million was awarded to California horsemen through the incentive award programs,[9] and $116.7 million was distributed as purses. As previously discussed, this is the primary source of funds for the horse sector. After it enters, primarily through purses paid to owners, it is dispersed through the sector as the various participants make (and receive) payments to (and from) each other. As will be seen, most of this money eventually leaves the horse sector—thus impacting the outside economy.

Cash flows from horse purchases and sales are not included in the following analysis because reasonable estimates were not available from the survey results. Although these cash flows are believed to be substantial, it is not so serious an omission as it might first appear since most horse sales are an intra-sector transfer between horse owners. However, some money does enter and leave the sector when sales and purchases of horses or stallion services are made outside of California's Thoroughbred horse sector. This occurs through out-of-state transactions and when horses or stallion services are sold for purposes other than rac-

[8] About 70 percent of the money going to the horsemen's organizations is used for salaries and other administrative expenses. The remainder is used to help fund the CHBPA pension program. In addition to this money, the CTHF receives the proceeds from one-half on the uncashed pari-mutuel tickets to fund horsemen's medical benefits programs.

[9] In 1989, the incentive award money was distributed as follows: $7.8 million in breeder's awards, $3.1 million in owner's awards, and $0.3 million in stallion awards.

Figure 2-10. Cash Flow in Horse Sector

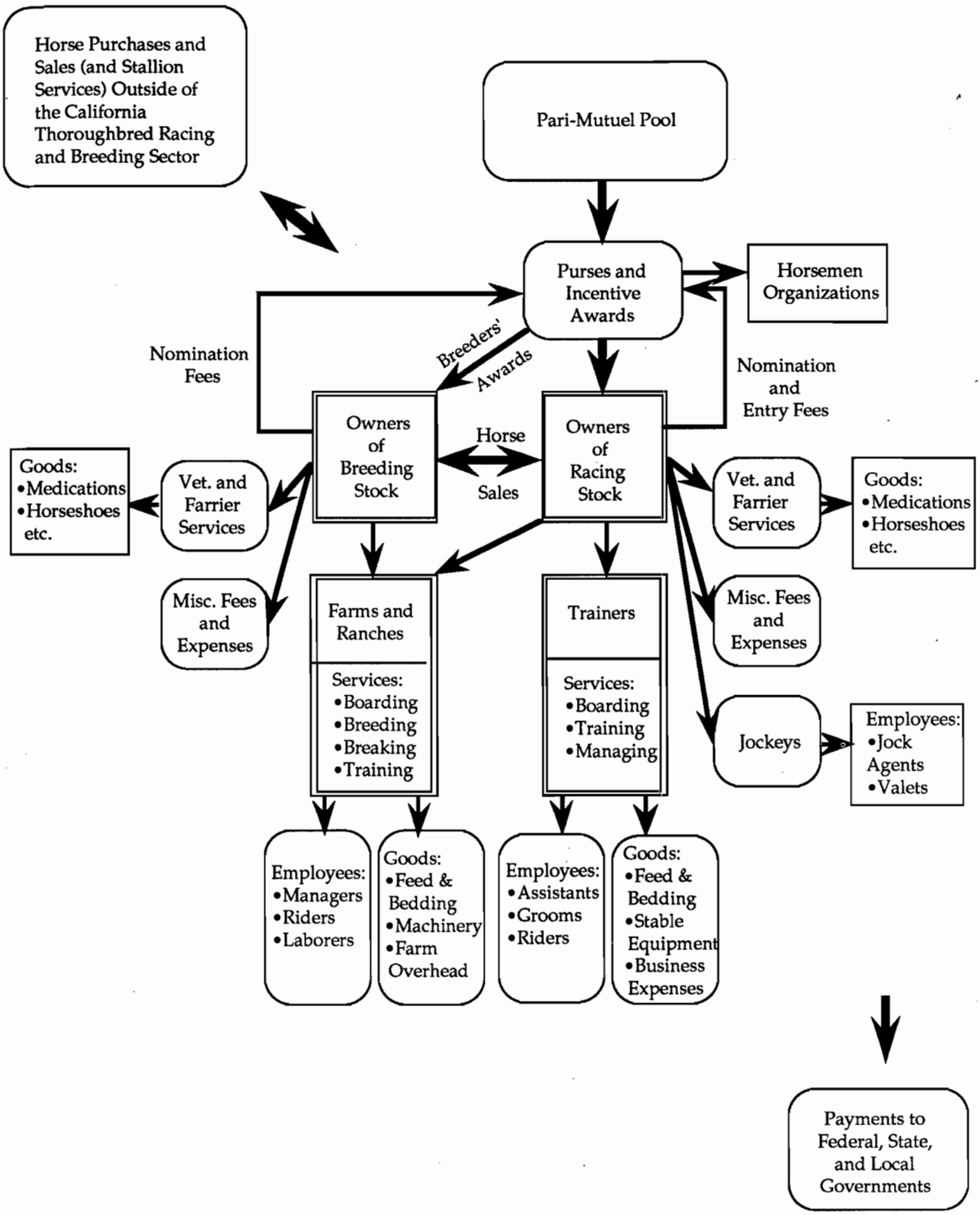


Table 2-9. Estimated Average Daily Training Rates and Average Daily Lay Up/Turn Out Rates in California, 1989

	Northern California	Southern California
Tracks and Off-Tracks[a]	$40.00	$52.00
Major Training Centers[b]	33.00	42.00
Other Training Facilities[c]	22.00	35.00
Lay Up or Turn Out	$9.50-$13.50	$14.50-$18.00

[a] Santa Anita, Hollywood Park, & Del Mar in the South; Bay Meadows and Golden Gate Fields in the north.

[b] Includes Pomona Fair Grounds, San Luis Rey Downs, & Galway Downs in the south; Pleasanton, Sacramento, Santa Rosa, Vallejo, & Stockton in the North.

[c] Includes private training centers, training facilities on farms, and so on.

Source: Estimated from survey data.

ing or race horse breeding. Unfortunately, estimates of horses and stallion services purchased and sold outside of California's Thoroughbred sector were also not available from the survey results.

Estimates of the expenditures made in 1989, by each of the four groups of horse people will be presented in the following subsections.

Owners of Racing Stock

This subsection presents estimates of the aggregate expenditures made by the owners of Thoroughbred race horses two years old and older (racing stock) for the training, racing, and care of those horses in California during 1989. Per-horse expenses for those owners differ depending on the location and stage of training. Expenses also differ for those horses temporarily laid up or turned out. Therefore, in estimating expenditures, racing stock was divided into four major categories according to significant cost differences: horses in training at tracks and off tracks, horses in training at major training centers, horses in training on farms and private training facilities, and horses laid up or turned out (including two-year-olds which have not begun training). Each of these categories was also divided into northern and southern California.

Table 2-10. Estimated Owner Aggregate Expenditures for Thoroughbred Horses in Training at California Race Tracks and Major Training Centers, 1989

	Northern California	Southern California	Total
	($1,000s)		
Training Fees Paid	$35,290	$67,780	$103,070
Trainer Commissions Paid	2,700	7,650	10,350
Jockey	2,600	7,300	9,900
Veterinarian	3,400	5,400	8,800
Farrier	1,900	3,750	5,650
Nomination & Entry Fees	1,000	2,000	3,000
State License Fees	220	430	650
Property Taxes, Horses	120	190	310
Other Expenses[a]	960	1,580	2,540
Total	$48,190	$96,080	$144,270

[a] Other expenses include horse transportation, bonus payments to stable employees, pony to post, racing silks, etc

Source: Estimated from survey and industry data.

Table 2-11. Estimated Aggregate Payments Made by Owners of Thoroughbred Racing Stock to Farms and Ranches in California, 1989

	Northern California	Southern California	Total
	($1,000s)		
Training Fees Paid	$3,210	$11,280	$14,490
Boarding Fees Paid	3,620	8,440	12,060
Total	$6,830	$19,720	$26,550

Source: Estimated from survey data

The largest expenditures for each category of racing stock was the daily fee charged for training or board. The estimated average daily training rates and average daily lay up/turn out rates for the California horse sector in 1989 are shown in Table 2-9.

Table 2-10 gives the estimated total expenditures by owners for horses in training and racing at California tracks and major training centers in 1989. In addition to the daily training fees paid to trainers, which account for 71 percent of all owner expenditures, owners of race horses make routine and non-routine payments for veterinarian and farrier services. Approximately five percent of the estimated veterinarian expenditures are for equine dental work which may be done by a veterinarian or by an equine dentist who is not necessarily a licensed veterinarian. Race horse owners have added expenses associated with racing, and those who run in the money pay commissions to jockeys and trainers, and sometimes to stable employees.

Some owners of racing stock make payments to farms and ranches (or to private training facilities) for

Table 2-12. Estimated Aggregate Expenditures (Other Than Training and Board) by Owners of Thoroughbred Racing Stock Kept on Farms and Ranches in California, 1989

	Northern California	Southern California	Total
	($1,000s)		
Horses in Training			
Veterinary	$560	$1,500	$2,060
Farrier	320	720	1,040
Property Taxes, Horses	20	40	60
Other Expenses	130	210	340
Horses Laid Up or Turned Out			
Veterinary	1,100	1,750	2,850
Farrier	430	690	1,120
Property Taxes, Horses	30	80	110
Other Expenses	170	220	390
Total	$2,760	$5,210	$7,970

Source: Estimated from survey data

training services. Farms and ranches also provide board and rehabilitation services for horses laid up or turned out. The estimated aggregate expenditures made by owners of Thoroughbred racing stock in 1989 to California farm and ranch owners are given in Table 2-11.

Owners of racing stock in training or laid up on farms and ranches also make payments to veterinarians and farriers. In addition, there are other expenses associated with racing stock on farms and ranches, such as those for horse transportation. Estimates of veterinary, farrier, and other expenditures made by all owners of racing stock on farms and ranches are given in Table 2-12.

Approximately 90 percent of the race horse owners responding to our surveys reported expenditures in excess of receipts. In support of this finding is the fact that estimated expenditures to race, train, and maintain racing stock (not including the investment costs in these race horses) are well in excess of total purse and incentive award money paid in 1989.

Trainers

Trainers provide a service to Thoroughbred owners in exchange for a daily training fee, plus commission (normally 10 percent of race winnings). Routine daily expenses such as feed, bedding, and labor are paid by the trainer. As shown in the previous subsection, the cost of professional services provided by veterinarians and farriers are passed on to the owner. Additional racing and training expenses such as jockey fees, horse transportation costs, and race entry fees are also paid by the owner.

The estimated aggregate expenditures made by Thoroughbred race horse trainers in California during 1989 are given in Table 2-13. Labor is the dominant expense for trainers, accounting for over 60 percent of all trainer expenses when mandatory worker's compensation insurance and employer-paid payroll taxes are included. Approximately 48 percent of the total wage bill is earned by the grooms, and 25 percent is paid to exercise riders. The remaining 27 percent is divided among barn foremen, hot walkers, assistant trainers, and other stable employees, in that order.

Table 2-13. Estimated Aggregate Thoroughbred Trainer Expenditures in California, 1989

	Northern California	Southern California	Total
	($1,000s)		
Labor	$17,790	$32,080	$49,870
Worker's compensation	3,500	7,900	11,400
Employer Insurance Payroll Taxes	1,410	2,540	3,950
Feed and Bedding	8,600	15,430	24,030
Feed Supplements	890	1,290	2,180
Tack, Stable Equipment and Stable Supplies	1,760	3,540	5,300
Misc. Stable Overhead[a]	800	560	1,360
Business Expenses[b]	2,290	4,600	6,890
Stall Rent	1,020	550	1,570
State Sales Taxes[c]	720	1,290	2,010
State License Fees	30	40	70
Total	$38,810	$69,820	$108,630

[a] About 70 percent of miscellaneous stable overhead is for equipment rental.

[b] This category includes, in order of significance, the following business-related expenses: hired bookkeeping, travel, telephone, entertainment, race-going expenses, interest, insurance, office expenses, and other miscellaneous expenses.

[c] Sales taxes come from the following categories: feed and bedding, $1,540; feed supplements, $110; tack and stable supplies, $240; and business expenses, $120.

Source: Estimated from survey data.

Feed and bedding make up 24 percent of trainer expenses (with sales tax included), of which approximately 38 percent is hay (primarily alfalfa, oat, and timothy), 29 percent grain, and 33 percent bedding (primarily straw and wood shavings). Most California trainers also supplement their feed with vitamins and minerals, and sometimes other additives.

Table 2-14. Net Cash Flow to California Trainers, 1989

	($1,000s)
Revenues (Table 2-10)	
Training Fees	$103,070
Commissions from Races	10,350
Total Expenses (Table 2-13)	108,630
Net Cash Flow to Trainers	$4,790

Source: See referenced tables.

Tack, stable equipment, and stable supplies are a significant expense for trainers. This category includes maintenance, repair, and occasional replacement of items such as saddles, bridles, halters, and pitch forks. It also includes routinely used supplies such as bandages and liniments. Miscellaneous stable overhead includes equipment rental (for example, hot walking and ice machines), and expenses associated with barn offices.

Business expenses include several relatively minor expenses that are not directly involved in caring for the horses but occur in the course of running the business. These expenses vary widely among trainers, but, on average, the most significant of these costs are for bookkeeping, business-related travel, and telephone.

Table 2-14 shows calculation of the estimated aggregate net cash flow going to California trainers in 1989. Total payments made by race horse owners to trainers (training fees plus race commissions, from Table 2-10) were approximately $113.42 million. Total expenditures made by trainers (from Table 2-13) are $108.63 million. Thus, the estimated aggregate net cash flow to trainers was $4.79 million in 1989.

Our surveys and interviews indicated that while a few trainers are earning very high incomes, many struggle to maintain a viable business. This is supported by the low average yearly income implied in the above estimates: dividing trainer aggregate net cash flow by the number of trainers (580 FTE) results in an average yearly income of $8,259 per FTE trainer. However, many trainers are also the owners (often in partnership) of some of the horses they train; the above calculation of trainer net income deducts the direct training expenses (which are included in Table 2-13) but does not include the revenues (e.g. purse money) from these owner-trained horses. Furthermore, some trainers earn other income in the course of conducting

Table 2-15. Average Per Day Board[a], Breaking, and Training Rates for Thoroughbred Farms and Ranches in California, 1989

	Northern California	Southern California	State Average
Board			
Mare	$8.50	$11.00	$9.75
Mare & Foal[b]	10.00	13.00	11.30
Weanling	7.30	11.00	9.00
Yearling	8.30	11.30	10.00
Yearling Breaking[c]	21.50	25.50	24.40
Turn Out or Lay Up[d]	9.50/13.50	14.50/18.00	12.50/16.50
Training on Farm[e]	20.00/25.00	24.00/32.00	22.00/30.00

[a] Unless otherwise noted, board rates are standard rates for horses in a pasture with other horses; board rates for stalls or individual paddocks are higher.

[b] Most farms charge a foaling fee of about $175 . Many farms also charge $50, on average, for halter breaking foals.

[c] Standard yearling breaking rates are for horses in stalls and include board; breaking from paddocks may be less.

[d] Rates vary depending on outside/stall.

[e] Training rates range depending on quality of training facilities, size of track, etc.

Source: Estimated from survey data.

Table 2-16. Estimated Aggregate Payments Made by Owners of Thoroughbred Breeding Stock and Young Horses to Farms and Ranches in California, 1989

	Northern California	Southern California	Total
	($1,000s)		
Boarding Fees Paid[a]	$7,980	$26,650	$34,630
Breaking/Preliminary Training Fees Paid[b]	870	2,720	3,590
Total	$8,850	$29,370	$38,220

[a] Boarding fees are for mares, mares and foals, weanlings, and yearlings

[b] Fees include board.

Source: Estimated from survey data.

their training business, such as receiving a commission on horses bought and sold, which has not been accounted for. Thus, while it appears that many trainers do make relatively low incomes, average trainer personal income could be understated by the above calculations.

Owners of Breeding Stock and Young Horses

The greatest expense for owners of breeding stock is board (feed and keep) for the horses. This is true whether the owners keep their horses on their own farm or ranch or pay a daily board fee to other farm and ranch owners. Many of those breeders who own their own farms send at least some of their horses to other farms and ranches to be bred, or to have other services performed, and thus incur board charges. Board fees vary by region and type of horse (e.g., mare, yearling). Estimated average board, breaking, and training fees for California farms and ranches are given in Table 2-15.

The estimated aggregate payments made by the owners of breeding stock and young horses to California farms and ranches in 1989 for boarding and breaking or preliminary training are presented in Table 2-16. Note that these estimates exclude the board-related costs incurred by those who keep their horses on their own property. The estimates for expenditures on board are for mares, mares and foals, weanlings, and yearlings. The estimated expenditures for breaking and preliminary training are for yearling breaking and the early yearling training. The training expenditures include board fees.

Table 2-17 presents the estimated aggregate expenditures made by owners of breeding stock and young horses for all expenses other than board. These costs are generally incurred by all breeders, regardless of whether they own a farm. Breeders have significant veterinary expenditures associated with breeding and raising young horses. On the other hand, farrier expenses for breeders are minimal since breeding stock and young horses do not generally require so much attention to their feet as do horses in training. Other relatively minor expenditures for breeders include horse transportation costs, foal registration fees, and property taxes.

Stud fees are payments made by mare owners to stallion owners for stallion services. Note that in this report both mare and stallion owners are considered under the same category—owners of breeding stock and young horses—and, therefore, stud fee expenditures are an intra-sector cash flow made within this group of horse people. Note also that nomination fees are an intra-sector cash flow since they are returned to the horse sector through purses.

Thoroughbred Farms and Ranches

The major expenditures made by Thoroughbred farm and ranch owners are for feed, management, labor, and other items associated with maintaining the facilities. Estimates of the aggregate expenditures made by California Thoroughbred farm and ranch owners in 1989 are given in Table 2-18. The aggregate total is estimated at approximately $97.5 million, with feed and bedding constituting the largest category (about 10 percent of this category was spent on bedding). Estimated salary and wage expenditures include direct payments to all employees of the farms and ranches. Maintenance and repair of the farm or ranch facilities and equipment are other important expenses for farms

Table 2-17. Estimated Aggregate Expenditures (Other than Board) Made by Owners of Thoroughbred Breeding Stock and Young Horses in California, 1989

	Northern California	Southern California	Total
	($1,000s)		
Veterinarian	$3,110	$8,390	$11,500
Farrier	630	1,690	2,320
Vanning	240	620	860
Registration Fees & Expenses	330	950	1,280
Nomination Fees	1,000	2,000	3,000
Stud Fees	2,600	6,900	9,500
Property Taxes, Horses	160	450	610
Other Expenses	1,070	2,900	3,970
Total	$9,140	$23,900	$33,040

Source: Estimated from survey data.

and ranches. Utility expenses include the costs associated with irrigation of permanent pastures.

Thoroughbred farms and ranches received an estimated $64.8 million in board and training fees in 1989 (Tables 2-11 and 2-16) and incurred expenses totaling $97.5 million (Table 2-18). This results in an apparent cash loss of approximately $32.7 million for all Thoroughbred farms and ranches in California in 1989. However, nearly all of these operations own, breed, and train many of their own horses and the income generated by these horses has not yet been taken into account.

Table 2-18. Estimated Aggregate Expenditures Made by California Thoroughbred Farms and Ranches, 1989

	Northern California	Southern California	Total
	($1,000s)		
Feed and Bedding	$8,920	$22,660	$31,580
Salaries and Wages	8,010	17,780	25,790
Worker's Compensation	1,400	3,100	4,500
Employer Paid Payroll Taxes	630	1,410	2,040
Repair and Maintenance	2,800	6,220	9,020
Utilities, Irrigation	1,710	3,800	5,510
Property Taxes, Real & Personal	1,180	2,600	3,780
Sales Taxes[a]	750	1,590	2,340
Other Expenses[b]	4,020	8,900	12,920
Total	$29,420	$68,060	$97,480

[a] Sales taxes come from the following categories: feed and bedding, $1,570; repair and maintenance, $450; miscellaneus, $320.

[b] Other expenses include veterinary supplies, interest, insurance, advertising, legal fees, etc.

Source: Estimated from survey data.

Table 2-19A. Summary of Estimated Cash Flows in the California Thoroughbred Horse Sector, 1989

Payments for Goods & Services (Excluding Government and Intra-Sector)	($1,000s)	
PAYMENTS TO LABOR		
Trainers (Table 2-13)	$49,870	
Farms & Ranches (Table 2-18)	25,790	
Total Payments to Labor		$75,660
PAYMENTS TO PROFESSIONALS & SELF-EMPLOYED[a]		
Net Cash Flow to Trainers (Table 2-14)	$4,790	
Payments to Jockeys (Table 2-10)	9,900	
Payments to Veterinarians & Farriers		
Owners (Tables 2-10 & 2-12)	21,520	
Breeders (Table 2-17)	13,820	
Total Payments to Professionals & Self-Employed		$50,030
PAYMENTS FOR FEED & BEDDING		
Trainers (Table 2-13)	$24,030	
Farms & Ranches (Table 2-18)	31,580	
Total Payments for Feed & Bedding		$55,610
PAYMENTS FOR OTHER GOODS & SERVICES[b]		
Owners (Tables 2-10 & 2-12)	$3,270	
Trainers (Table 2-13)	28,700	
Breeders (Table 2-17)	6,110	
Farms & Ranches (Table 2-18)	31,950	
Horsemen's Organizations	3,600	
Total Payments for Other Goods & Services		$73,630
Total Payments for Goods & Services		**$254,930**

[a] Payments to labor and professionals and self-employed do not include payments to the employees of horsemen's organizations nor to the 125 "other" self-employed (see Table 2-8). These payments could not be identified separately and so are included in Payments for Other Goods & Services.

[b] This category includes all other payments made by the horse sector (excluding intra-sector and government payments) such as those for worker's compensation insurance, farm repair & maintenance, trainer stable supplies, administrative expenses, utilities, and other expenses.

Source: See referenced tables.

Note that the preceding estimates of expenditures made by the owners of racing stock on farms (Table 2-11) or breeding stock (Table 2-16) did not account for the costs incurred for boarding or training horses owned by the farm owner. These costs, however, are now counted. For example, the estimate for feed and bedding in Table 2-18 is an estimate of the total expenditure on feed and bedding for all Thoroughbred horses in California except those in training at tracks and major training centers.

Payments to Governments

The preceding analysis of cash flow in the horse sector identified and estimated four types of payments to governments made by the horse sector: (1) state sales taxes on goods purchased directly by the horse sector, (2) state license fees paid by owners and trainers, (3) employer payroll taxes paid by trainers and farm and ranch owners, and (4) local government property taxes paid on horses, real, and personal property. However, this does not account for all government payments made by the horse sector. In addition to those payments already identified, there are three others which will now be discussed.[10]

[10] These are government revenues attributed to the horse sector. Other state and local government revenues generated by the Thoroughbred racing industry, as a whole, will be discussed in Chapter 5.

Table 2-19B. Summary of Estimated Cash Flows in the California Thoroughbred Horse Sector, 1989

Payments to Governments

	($1,000s)	
California Sales Taxes		
Goods		
Trainers (Table 2-13)	$2,010	
Farms & Ranches (Table 2-18)	2,340	
Horses[a]	4,000	
Total Sales Taxes		$8,350
State License Fees & Fines		1,150
Property Taxes (Local Governments)		
Real & Personal (Table 2-18)	$3,780	
Horses (Tables 2-10, 2-12, & 2-17))	1,090	
Total Property Taxes		4,870
Employer Payroll Taxes[b]		
Trainers (Table 2-13)	$3,950	
Farms & Ranches (Table 2-18)	2,040	
Total Payroll Taxes		5,990
Total Payments to Governments		**$20,360**

[a] Sales taxes on horses are an estimated lower bound.

[b] Approximately 17 percent are state unemployment taxes; the remainder are federal unemployment and social security taxes.

Source: See referenced tables.

Along with owners and trainers, all persons working on California tracks and major training centers are required to purchase occupational license fees. Some members of this group also pay fines for violation of horse racing rules. The total amount of state license fees and fines paid by all persons in the horse sector in 1989 (including that presented in Tables 2-10 and 2-13) is estimated to have been $1.15 million.

Other government payments include the state and federal personal income, social security, and other income-related taxes paid by all persons in the horse sector, on income from owning or working with horses. However, we have not attempted to estimate this amount.

The most important government payments made by the horse sector, which have not been accounted for, are

Table 2-19C. Summary of Estimated Cash Flows in the California Thoroughbred Horse Sector, 1989

Estimated Intra-Sector Cash Flows	($1,000s)
Owners to Trainers (Table 2-10)	$113,420
Owners to Farm & Ranch Owners (Table 2-11)	26,550
Breeders to Farm & Ranch Owners (Table 2-16)	38,220
Stud Fees (Table 2-17)	9,500
Nomination & Entry Fees (Tables 2-10 & 2-17)	6,000
Total Estimated Intra-Sector Cash Flows	**$193,690**

Source: See referenced tables.

Table 2-20. Estimated Average Market Value of Thoroughbred Horses in California by Region and Their Estimated Total Value, 1989

	Average Value		Total Value
	Northern California	Southern California	($1,000s)
Stallions	$80,000	$160,000	$106,400
Broodmares	8,000	15,000	121,790
Young Stock[a]	8,500	14,000	130,760
Racing Stock	13,000	35,000	353,730
Total			$712,680

[a] Foals, weanlings, and yearlings.

Source: Estimated from survey data.

state sales and use taxes paid by buyers of horses. State law requires that persons selling more than two horses per year within the State of California collect state sales tax from the buyer. Moreover, under certain conditions the buyers of horses purchased out of state and subsequently imported into California are required to pay a state "use" tax, which is similar to the state sales tax. Syndicated fractional interests (shares) in stallions are also subject to state sales and use taxes. As mentioned previously, we do not have estimates of private Thoroughbred horse transactions within the state, nor do we have estimates of horse transactions subject to state use taxes. However, based on reports of horses sold through public auctions and claiming races, we have estimated that at least $4 million of state sales tax revenue was paid by the horse sector from Thoroughbred horse sales in California during 1989. It should be emphasized that this estimate is a lower bound and, therefore, total state sales and use taxes generated by Thoroughbred transactions may be substantially greater.

Summary

Estimates of cash flow in California's Thoroughbred horse sector in 1989 are summarized in Tables 2-19A, 2-19B, and 2-19C. Tables and categories are organized according to the direction of the cash flow. Table 2-19A gives all direct payments made by the horse sector to households and other industries for goods and services, excluding government and intra-sector payments. Table 2-19B summarizes the estimates that we have of payments made by the horse sector to local, state, and federal governments. Recall that these estimates are not complete since estimates of all government revenues generated by the horse sector are not available. Intra-sector cash flows are summarized in Table 2-19C. These estimates are also not complete since we do not include horse purchases and sales.

Investment in the Horse Sector

Estimates of cash flow for the horse sector of the Thoroughbred industry present only part of the economic picture. Large investments in capital assets are made to supply horses for racing. These are of two basic types: (1) horses, and (2) land, facilities, and equipment needed to produce race horses. Breeders invest in breeding stock, an essential factor of production. At the next level, owners invest in the breeder's finished product—horses ready to begin training for racing. Thoroughbred farm and ranch owners invest

Table 2-21. Estimated Average Market Value of Thoroughbred Horses Stabled at California Race Tracks by Region and Their Estimated Total Value, 1989

	Average Value		Total Value
	Northern California	Southern California	($1,000s)
Horses at Tracks	$38,400	$73,400	$308,224

Source: Estimated from survey data.

Table 2-22. Land in Thoroughbred Farms and Ranches in California, 1989

	Northern California	Southern California	Total
Acres	9,900	14,100	24,000

Source: Estimated from survey data.

in other capital assets—land, facilities, and equipment—which are also necessary to produce and develop the horses. Trainers invest in saddle horses, tack, and stable equipment. However, investment made by the trainers has been estimated to be less than five percent of total investment in the horse sector, and therefore will not be considered further.

Investment in Horses

Several difficulties arise in trying to estimate investment in Thoroughbred horses. Horse values are sensitive to a number of variables, many of which are not controllable. These values can, and often do, change instantly. Typical measures of value such as the estimated market value of a Thoroughbred horse, its replacement cost, or expected discounted net present value may yield vastly different estimates. Moreover, estimates of market value, even by experts, are very subjective.

For this report, owners of horses in California were asked to estimate the current market value of their racing and breeding stock. The resulting estimates of average and total market values of Thoroughbred horses in California are given in Table 2-20.

Trainers were asked to estimate the market value of horses under their care as of December 31, 1989. The estimated average and total market values of horses stabled at California tracks and off tracks, based on the trainer survey, are presented in Table 2-21.

The substantial difference in the estimated average market value of horses at the tracks (based on data supplied by trainers), and the estimated average market value of all racing stock (based on data supplied by California owners), may be due to the fact that the trainer sample is restricted to horses in active training at a race track. These horses have a higher average value since they have generally progressed further in their training and are usually racing regularly. Furthermore, horses in training at the tracks have gone through a selection process to qualify them for the level of competition at California tracks—first a voluntary sorting by their owners and then a mandatory sorting imposed by the track due to scarcity of stall space.

Investment in Farms, Ranches, and Other Horse Facilities

Estimates indicate that approximately 9,900 acres in northern California and 14,100 acres in southern California were used primarily for Thoroughbred horse production, training, or care in 1989 (Table 2-22). Assuming that the average value of the land is $3,000 per acre in the north and $4,000 per acre in the south, the value of horse farm and ranch land in 1989 amounted to $86 million.

Table 2-23. Estimated Market Value of Thoroughbred Farm and Ranch Assets in California, 1989

	Northern California	Southern California	Total
	($1,000s)		
Land	$29,700	$56,400	$86,100
Permanent Facilities	92,200	183,200	275,400
Equipment	8,800	16,200	25,000
Total	$130,700	$255,800	$386,500

Source: Estimated from survey data.

Table 2-24. Summary of Key Results from Chapter 2

EMPLOYMENT [Table 2-8]	NUMBER FTE EMPLOYED
Employed by Trainers	3,525
Employed on Farms & Ranches	1,880
Trainers	580
Jockeys	60
Veterinarians & Farriers	265
Other Self-Employed	125
Horsemen's Organizations	45
Total	6,480

PAYMENTS FOR GOODS AND SERVICES OUTSIDE THE HORSE SECTOR* [Table 2-19(A)]	($1,000s)
Labor	$75,660
Professionals & Self-Employed	50,030
Feed & Bedding	55,610
Other Goods & Services	73,630
Total	$254,930

GOVERNMENT PAYMENTS [Table 2-19(B)]	($1,000s)
California Sales Taxes	$8,350
State License Fees & Fines	1,150
Property Taxes	4,870
Employer Payroll Taxes	5,990
Total	$20,360

HORSES [Tables 2-3 & 2-20]	NUMBER	ESTIMATED MARKET VALUE ($1,000s)
Breeding Stock	10,070	$228,190
Young Horses	10,460	130,760
Racing Stock	13,350	353,730
Total	33,880	$712,680

THOROUGHBRED FARM AND RANCH ASSETS (Tables 2-22 & 2-23)	ACRES	ESTIMATED MARKET VALUE ($1,000s)
	24,000	$386,500

* Payments to labor and professionals and self-employed do not include payments to the employees of horsemen's organizations nor to the 125 "other" self-employed. These payments could not be identified separately and so are included with Payments for Other Goods & Services.

Source: See referenced tables.

Table 2-23 summarizes the estimated 1989 market value of California Thoroughbred farm and ranch assets. These figures were based on estimates of asset market value obtained from surveys of Thoroughbred farm and ranch owners. Besides land, Thoroughbred farms and ranches invest in permanent or semi-permanent facilities needed for race horse production, including fencing, barns, other buildings, stalls, pens, training tracks, feed storage facilities, water and irrigation systems, and housing for employees. These facilities make up approximately 71 percent of the total investment in Thoroughbred farms and ranches. The category "permanent facilities" probably overstates the value for race horse production since it includes the homes located on the farms and ranches. However, the value of these houses could not be separated in the survey information.

The final category is investment in equipment needed to run the Thoroughbred farms and ranches. This includes general farm/ranch equipment such as tractors, trucks, water trucks, and horse trailers. Also included is specialized equipment such as aqua-tred mills, starting gates, hot walker machines, and veterinary equipment. Equipment accounts for approximately six percent of total farm and ranch investment.

Thoroughbred farms and ranches also invest in tack and stable equipment, but since this is relatively less important, it has not been treated separately.

Summary and Conclusions

California's Thoroughbred horse sector, which includes both the breeding and racing subsectors, generates a substantial amount of economic activity. Key indicators of this economic activity are summarized in Table 2-24.

Our estimates indicate that the horse sector provided at least 6,480 FTE jobs and made payments of approximately $255 million to households and other industries for goods and services. In addition, the sector generated at least $14.4 million in direct state and local government revenues, and made additional payments of approximately $6 million for employer payroll taxes (these were primarily to the federal government).

In 1989, there were approximately 33,880 Thoroughbred horses in California, on average, with an estimated market value of some $713 million. About 24,000 acres were devoted to the production, care, and development of Thoroughbred race horses in California; the estimated market value of these farms and ranches, including land and other assets, was $386.5 million.

Although millions of dollars are invested and spent, it appears that the racing and breeding business is not profitable for many horse people. Comparing revenue going into the horse sector from the pari-mutuel pool ($131.5 million) with total expenditures going out of the sector ($275.3 million)[11] suggests substantial negative cash flow for the horse sector.[12] However, this conclusion does not account for horse and stallion service sales and purchases. Intra-sector transactions cancel each other out and therefore do not count as a net cash outflow or inflow. On the other hand, horses and stallion services purchased and sold outside of the sector result in cash outflows and inflows, respectively. The net effect of such transactions may be positive or negative to the horse sector. Although insufficient data exist to provide a definitive estimate of the actual amounts, it appears highly unlikely that the *net* effect of out-of-sector horse transactions results in a large positive cash inflow. Therefore, it appears that the horse sector, as a whole, had a net cash loss in 1989.

The results of the survey of horse people provide additional supporting evidence for this profitability assessment. Almost 90 percent of the horse owners and 55 percent of the breeders surveyed reported that, on average, over the past five years they had lost money on their Thoroughbred-related activities. Furthermore, many trainers reported difficulty in maintaining a viable business, with costs increasing faster than returns.

Other studies indicate that the negative cash flow problem faced by Thoroughbred horse people in this state is not unique to California. Reports (mentioned in the literature review) from New York, Maryland, Minnesota, Louisiana, Washington and Oregon all indicate that horse people throughout the country are experiencing similar difficulties. It appears that there are strong non-profit motives for being in the Thoroughbred business. Possibly, horse owners, and others, enjoy participation in the sport despite the negative returns. It is also possible that some consider the business a gamble and, like the racing patrons, hope to beat the odds.

In Chapter 5 we bring together this analysis of the horse sector with other sectors of the Thoroughbred racing industry for an estimate of its total impact on the economy.

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[11] This is the sum of payments for goods and services, from Table 2-19A, and payments to government, from Table 2-19B.

[12] It is recognized that for individuals or corporations, tax losses sustained in the horse sector may be used to offset profits realized in other occupational endeavors. No attempt was made to measure this effect.

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Chapter 3. The Racing Associations

The racing associations are another key participant in the Thoroughbred horse racing industry (Recall Figure 1-1). Their role is to bring the product supplied by the horse sector—race horses—to the ultimate customers—race spectators and wagerers. In economic terms, spectator and wagering patrons demonstrate demand for Thoroughbred racing which, through the horse racing associations, is translated into a derived demand for Thoroughbred race horses. Horse people respond to this demand by producing horses, creating the demand noted in Chapter 2 for such inputs as feed, supplies, hired labor and professional services.

Over 90 percent of the statewide Thoroughbred handle is generated by six racing associations that conduct their meets at the five major Thoroughbred tracks: Bay Meadows, Golden Gate Fields, Hollywood Park, and Santa Anita, and Del Mar. Consequently, this chapter will focus on the economic activity of these six associations. After reviewing the organization and structure of the racing association sector, this chapter will examine their economic contribution to the State of California. Realizing that the continued financial viability of the racing associations is essential to the overall health of the entire industry, the last section of this chapter will assess the aggregate profitability of the six major racing associations.

Prior Research on Racing Associations

Many of the more general studies cited elsewhere in this report are of interest to the associations because of the critical link among the industry participants. Issues of direct concern to the associations include parimutuel taxation and distribution, trends in attendance and wagering on Thoroughbred racing and, of course, the specific issue of association profitability.

The 1965 study by the Stanford Research Institute (cited in Chapter 1) analyzed historical trends on attendance and wagering at California tracks, as well as racing association profitability. Although both attendance and wagering had been growing in absolute terms prior to 1965, the SRI report pointed out that the rate of growth relative to overall increases in population and income in California was quite slow. This problem was particularly acute in northern California.

In addition, the SRI study concluded that association profitability, based on the then current market value of the racing assets, was low when compared to similar businesses. The lack of profitability appeared to be leading to a corresponding lack of investment on the part of the associations. A decrease in investment activity was reported to have serious implications for the entire racing industry, as the horse sector relies on the associations to provide them with safe racing conditions, and the fans expect a comfortable environment from which to view and wager on horse races. Several suggestions were offered in the SRI study to combat slow growth and low profitability including changing the size and/or distribution of the takeout, adding more racing days to the calendar, and consolidating racing activities in northern California.

A collection of papers specifically addressing the northern California horse racing industry was published by the School of Business at San Francisco State University in 1981 (Ingraham). Topics for the various papers include off-track wagering, the organizational structure of Bay Meadows Racing Association, factors influencing the track surface at Golden Gate Fields, and analysis of the market potential for new patrons at the northern California tracks.

In addition, several of the economic impact studies mentioned in Chapter 2 included limited information on the racing associations in their respective states, along with historical trends on attendance and wagering. The 1982 study assessing horse racing and breeding in New York State (Cain et al.) contained a section on the economic impact of the racing associations in New York State. This section included statistics on attendance and handle, followed by estimates of association revenue and employment. Most notably, the report contained a five-year trend analysis of New York tracks, which indicated that every New York association would experience future financial losses unless the economic environment improved.

Similar conclusions were reported in Louisiana by Huffman and Guidry (1979). In addition to reporting on the level of economic activity in the horse sector, the authors provided estimates of the income and employment effects of the racing associations in Louisiana. The study reported that the earnings of the Louisiana associations were at competitive levels in 1979. However, the authors asserted that if the current inflationary pressures continued, the associations might face financial difficulties in the future.

A study on the the horse racing and breeding industries in Alberta, Canada (Deloitte Haskins & Sells Associates, 1986), concluded that horse racing had a positive effect on local income and employment, but that the industry in Alberta was plagued with prob-

lems common to the racing industry throughout North America. These problems included: 1) increased competition from other sports activities, 2) the age structure of the race-going public, 3) the need for the associations to market their product (horse races) more effectively, and 4) a lack of adequate return on investment to Alberta's horse owners.

Chapter 4 contains an extensive review of the literature pertaining specifically to pari-mutuel taxation and the public demand for Thoroughbred racing.

Organization and Economic Structure

Overview of Sector

In their role as market intermediaries, the Thoroughbred racing associations provide vital services to the other participants in the horse racing industry. For example, they provide and maintain stable and training facilities for the horse people. For the racing patrons, the associations maintain the grandstand area and related facilities, provide food and parking services, and generally attempt to present the horse racing event in an appealing manner. In addition, the associations collect and distribute all pari-mutuel revenues for the State of California.

The State of California grants the associations licenses to offer pari-mutuel wagering on Thoroughbred racing. The state is divided into distinct racing regions, and racing days are allocated to each association such that there is only one major Thoroughbred race meeting operating at one one time in each region. As a result, each association operates with monopoly power in the production of Thoroughbred races. The only entities aside from the major Thoroughbred associations that are allowed to conduct Thoroughbred races are the state fair and certain county fairs (known as the 'racing fairs'). The racing fairs, however, do not limit their meets to Thoroughbred races.

The racing associations are heavily regulated. The "Horse Racing Law," found in Chapter 4 of the *Business and Professions Code*, conveys regulatory authority over horse racing to the California Horse Racing Board (CHRB). The CHRB currently consists of seven members, each appointed by the Governor of California. CHRB regulation, as it relates specifically to the associations, takes the form of licensing individual racing associations and allocating racing days among associations. In addition, the CHRB influences numerous facets of the association's business ranging from record keeping to vendor concessions.

The development of satellite wagering in 1985, and its subsequent expansion throughout California, brought another participant into the association sector of the racing industry. Satellite wagering constitutes an important structural change for California racing because it expands the market area for Thoroughbred racing. Satellite wagering also presents the associations with additional challenges – how to make horse wagering more accessible, without reducing on-track wagering activity or saturating the market.

Satellite wagering adds a degree of complexity to the industry because it puts yet another middleman between the spectator/wagerer and the live racing event. This problem has been acknowledged by the management of some of the Thoroughbred associations, who have voiced the concern that satellite wagering puts their product in the hands of vendors, leaving the associations with little control over the manner in which the product is presented. More detail on the location and function of the satellite wagering facilities in California will be given in a subsequent section of this chapter.

The California Thoroughbred Racing Associations

All of the major Thoroughbred tracks, with the exception of Del Mar, are owned by "for profit" business entities. Del Mar is owned by the State of California, and operated by a non-profit corporation. Golden Gate Fields is owned by Santa Fe Pacific, Inc., and leased to a British corporation. The remaining three tracks are owned by publicly traded American corporations and are leased to the associations that conduct horse racing meets. The ownership status of each of the major tracks in California is summarized in Table 3-1.

In recent years, the three publicly traded Thoroughbred racing organizations that own Bay Meadows, Hollywood Park, and Santa Anita race tracks have reorganized and divided their operations into separate units, an "operating company" and a "realty company" (See Figure 3-1). The racing associations that are licensed by the state to conduct Thoroughbred race meets are subsidiaries of the operating companies. The realty companies own the respective race track facilities and rent them to the operating companies. The rent paid by the operating companies to the realty companies is, in part, based on negotiated percentages of the total pari-mutuel handle generated by on-track and satellite wagering and is subject, in some cases, to guaranteed minimum levels of rent. Additionally, the operating company is generally responsible for the payment of all track-related insurance and property taxes, as well as maintenance and repair of the facilities.

The stocks of the operating and realty companies trade as paired shares, so the track facilities and the companies that operate the tracks are owned by the

Table 3-1. Summary Information on Major California Thoroughbred Tracks, 1989

Track	Location	Track Owner	Founded
Golden Gate Fields	Albany	Santa Fe Pacific	1940
Bay Meadows	San Mateo	California Jockey Club	1934
Hollywood Park	Inglewood	Hollywood Park Realty	1938
Santa Anita	Arcadia	Santa Anita Realty	1934
Del Mar	Del Mar	State of California	1937

Source: Annual reports of the respective associations and Mary Fleming, *A History of the Thoroughbred in California*, California Thoroughbred Breeders Association, 1983.

same shareholders. This structure was chosen because realty companies operating as real estate investment trusts (REITs) are free from income taxes at the trust level, whereas dividends paid by other corporations, including the operating companies, are taxed at the corporate and shareholder levels. To qualify as a REIT, companies must pay out at least 95 percent of their earnings as dividends to shareholders. Accordingly, the realty/operating company structure provides an opportunity to reduce the corporate income tax liability of the entire horse racing entity, while compensating owners of the paired stock through rent paid by the operating company to the REIT and reimbursed as dividends to REIT shareholders. The operating companies have historically paid no dividends.

Pacific Racing Association/Bay Area Sport Enterprises

Golden Gates Fields is located on the San Francisco Bay waterfront, on the border of the neighboring cities of Albany and Berkeley. Bay Area Sports Enterprises (BASE), a real estate investment trust, held the lease on Golden Gate Fields from the late 1940s until 1988. During that time, BASE subleased the track to Pacific Racing Association (PRA) for the purpose of conducting Thoroughbred racing. Prior to 1986, two associations held horse racing meets at Golden Gate Fields: PRA and Tanforan Racing Association. However, after a legislated expansion of racing days in California, PRA and Bay Meadows Racing Association purchased all of Tanforan's racing days.

In December of 1988, the shareholders of BASE and PRA approved a plan for Ladbroke Group, PLC of the United Kingdom to purchase 100 percent of the outstanding stock of PRA for $41 million. The final closing occurred on January 3, 1989; since that time PRA has been owned and operated by Ladbroke Group.

The lease with Santa Fe on the property underlying the track expires in 2002. Consequently, there is some question as to the long-term future of Thoroughbred racing at Golden Gates Fields. Potential uses of the site subsequent to the expiration of the lease range from continuing "business as usual" to full-scale urban development.

Bay Meadows Operating Company/California Jockey Club

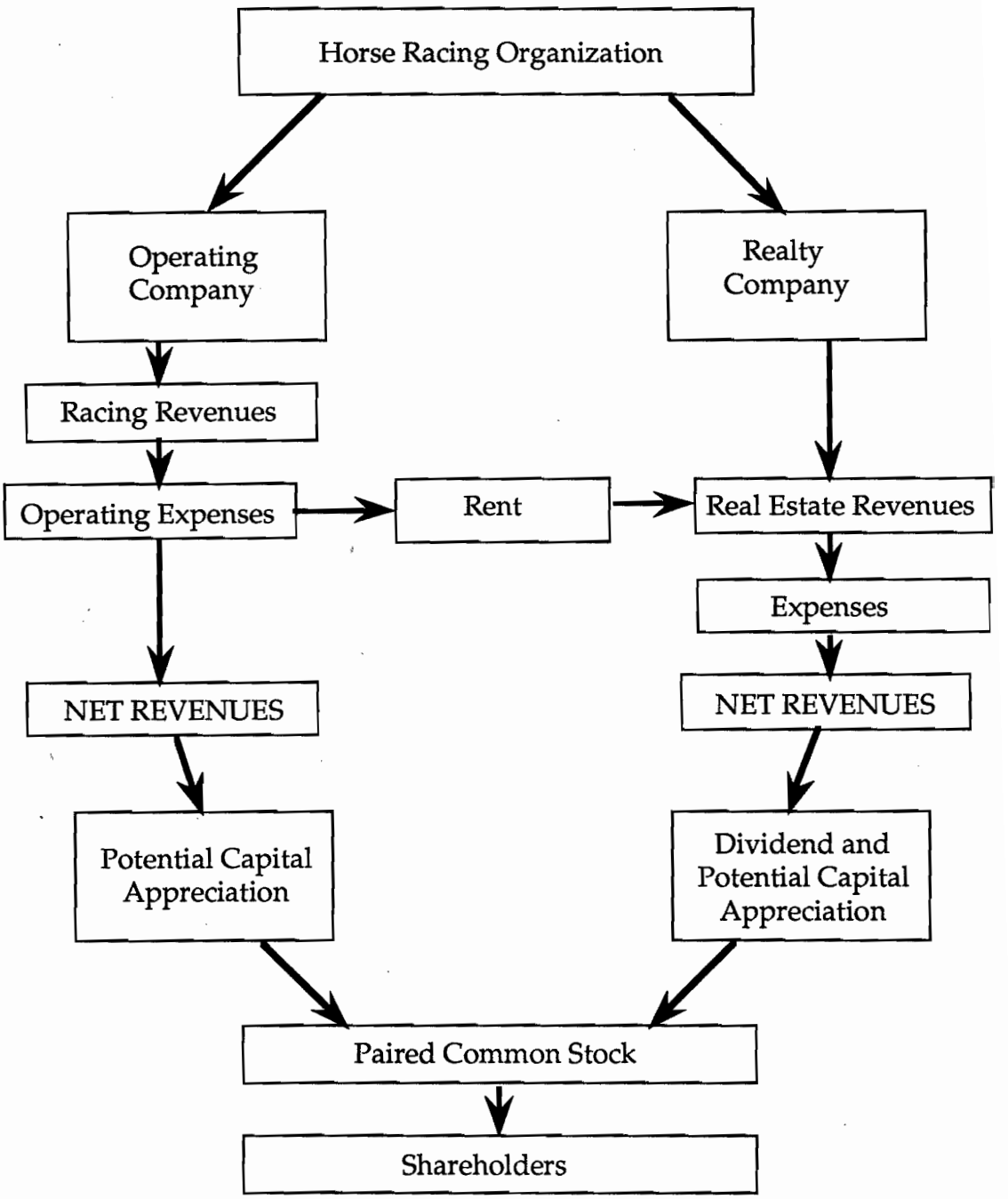
Bay Meadows race track is located in the city of San Mateo, approximately 19 miles south of San Francisco. The race track is owned by the California Jockey Club, which operates as a real estate investment trust. Bay Meadows Racing Association (BMRA) has been licensed to conduct race meetings at the Bay Meadows track since 1934. BMRA is a wholly-owned subsidiary of Bay Meadows Operating Company, which leases the track from the California Jockey Club.

The realty company's income is almost entirely dependent on rent from Bay Meadows Operating Company pursuant to a master lease tying annual rents to the amount of pari-mutuel handle derived from wagers at Bay Meadows race track. Because of the value of its real estate assets in relationship to the earnings received from the lease, the real estate company has actively pursued mixed-use development of a 40-acre parcel currently used as a training track. Such development is dependent upon completion of an environmental impact report and adoption of a specific plan by the city of San Mateo for a 325-acre area which includes the training track site.

Hollywood Park Operating Company/Hollywood Park Realty Enterprises

The Hollywood Park (HP) race track is located in the city of Inglewood, In the west side of Los Angeles, only three miles from the Los Angeles International Airport. The track is owned by Hollywood Park Realty Enterprises, Inc., one of the three horse racing real estate investment trusts. Hollywood Park Operating Company leases the track from the Realty Company

Figure 3-1. Structure of Three Major Thoroughbred Racing Organizations



for the purpose of conducting an annual Thoroughbred race meet from late April through late July. In February of 1987, Hollywood Park Fall Operating Company, a wholly-owned subsidiary of Hollywood Park Operating Company, was formed to conduct an annual Thoroughbred race meet in November and December.

Santa Anita Operating Company/Santa Anita Enterprises

The Santa Anita race track is located in the central portion of Arcadia, approximately 13 miles northeast of downtown Los Angeles. Santa Anita Enterprises, Inc., operating in conjunction with the Santa Anita Operating Company as a real estate investment trust, owns the Santa Anita race track. The race track is leased by the realty company to the Los Angeles Turf Club (LATC), a wholly-owned subsidiary of Santa Anita Operating Company, Inc., for a predetermined portion of the pari-mutuel handle. LATC conducts an annual 17-week Thoroughbred racing meet at Santa Anita from late December through mid-April.

Santa Anita Realty also owns the real estate underlying the Santa Anita Fashion Park Shopping Center. The Fashion Park is situated on approximately 73 acres of land that was once a training track for Thoroughbred horses. In addition, the realty company is a limited partner in Anita Associates, which owns and operates Fashion Park, and owns a 72,000 square-foot medical building built in 1986.

Oak Tree Racing Association

The Oak Tree Racing Association (Oak Tree) was incorporated as a mutual benefit, non-profit corporation in 1968 and began Thoroughbred racing during the 1969 racing season at the Santa Anita race track. Oak Tree sublets the Santa Anita race track from LATC to conduct its annual Thoroughbred horse racing meet. The Oak Tree meet commences in late September or early October, and lasts five to six weeks. Oak Tree is distinguished from the other five associations in that it uses the facilities of another association. Moreover, the net proceeds of Oak Tree's racing activities are devoted to the welfare of the Thoroughbred racing industry including the support of equine research, care and breeding.

Del Mar Thoroughbred Club

The Del Mar race track is located on the fairgrounds of the 22nd Agricultural Association District in the city of Del Mar, approximately 18 miles north of central San Diego. The Del Mar Thoroughbred Club (DMTC), a non-profit corporation, leases the track from the State of California for the purpose of conducting its summer meet. Under its lease agreement with the state, DMTC is allowed to retain 25 percent of the racing profits for working capital and track improvement.

Aside from a brief period of closure during World War II, the Del Mar track has been the site of an annual Thoroughbred horse racing meet since 1937. The race track re-opened in 1945, but growth in attendance, pari-mutuel handle and purses was too slow to provide revenue for appropriate maintenance of the facilities. By the mid-1960s, the grandstand and backstretch were in disrepair. When the initial lease to the Del Mar Thoroughbred Club came to its end, the State of California enacted legislation establishing the State Racetrack Leasing Commission, charged with the responsibility of controlling and overseeing the leasing of the race track. In 1968, the commission awarded the Del Mar lease to the DMTC for a 20-year period, commencing in 1970. That lease established a partnership unique in North American horse racing, committing, as it does, all the profit of Del Mar racing to the improvement of facilities and the betterment of Thoroughbred racing.

The Satellite Wagering Facilities

The 1980s were a decade of significant structural change for the horse racing industry. The California State Lottery, initiated in October of 1985 with the "scratcher" game, was a major catalyst for change. While most people anticipated success for the new lottery, sales from the first year were well in excess of the original projections. The introduction of a variety of new games, combined with a particularly intensive advertising campaign, ensured the lottery's continued popularity for a number of years. In the very recent past, however, the public's enthusiasm for the lottery appears to be diminishing.

As a legal wagering alternative, the lottery competes directly with pari-mutuel betting on horse races. While the lottery does not offer participants the spectator appeal of horse racing, lottery wagering is much simpler to understand and less demanding of participants' time. Moreover, lottery wagering is more widely available to Californians because of the broad geographical distribution of the lottery retail sites, the density of such sites in each area, the frequency of lottery games, and the low price of lottery participation. In short, the lottery brings wagering to the consumer in a convenient, mass merchandized format. For these reasons, introduction and expansion of the lottery games has been of concern to the participants of the horse racing industry, who regard the lottery as a state-funded incursion on the monopoly franchise originally granted to the racing associations.

In response to this source of competition, the horse racing industry sought and gained authorization to

establish satellite wagering in California. Among those involved with satellite wagering are the host track, the guest site and the simulcast service suppliers, who facilitate the transmission of the satellite signal from host to guest. The track holding the live racing meet is called the *host track*. The races are sent via satellite from the host track to an off-track receiving site called the *guest location*. Guest locations are equipped with monitors to televise the races, and pari-mutuel facilities so that people can place their wagers. Money wagered at the guest site is combined with the host track pari-mutuel pool for the determination of pari-mutuel odds. Initially, only tracks holding a license to conduct live Thoroughbred racing were eligible to act as guest locations. The list of potential guest sites has since expanded to county and agricultural fairs other than racing fairs, and more recently, Indian reservations.

The video system is operated by an entity that is separate from both the host and guest locations. This ensures the continual flow of signal from host to guest, no matter which track is actually hosting the live meet. The video signals for the north are handled by Simulcast Enterprises, Inc. Satellite broadcasts in southern California are managed by Southern California Off Track Wagering Incorporated.

Simulcast wagering began on an experimental basis in the northern region of California in 1985. The CHRB has recommended the controlled expansion of satellite wagering each year since the initial successful season (Table 3-2). Satellite wagering was expanded to the southern region in 1987. Figure 3-2 displays the location of every guest satellite site in California as of December, 1989.

Economic Environment

Association revenues are derived from two major sources: pari-mutuel activities, and spectator services (which includes admission and parking fees) provided at race tracks. This subsection presents a detailed discussion of the revenue sources.

Revenue From Pari-mutuel Activities

Since the introduction of satellite wagering in California, pari-mutuel activities include involvement in televised, as well as live Thoroughbred racing. Pari-mutuel revenue may be generated from the following activities:

1) hosting a live meet, 2) transmitting a satellite signal to a guest location in California, 3) transmitting a satellite signal to a guest location outside of California, 4) acting as a guest location for a live meet hosted at another track in California, and 5) acting as a guest location for a live meet hosted outside of California. Not all of the associations are involved in all of the satellite activities listed above. When bets are taken at a guest location, the money wagered at the guest facility is pooled with the money wagered at the host facility for the determination of pari-mutuel odds.

The state government legislates the takeout rate; the associations are responsible for distributing the resulting takeout among each of the industry participants. The association's share of the takeout is called the *track commission*. The commission is a legislated percentage of the total takeout, and it varies depending on whether the handle was generated at a live meet, or a guest receiving site. Furthermore, under existing legislation, the state receives a greater share of the takeout as the total pool increases. The progressive nature of the state tax means that the share going to the associations and the horsemen (in the form of purses) decreases as the pari-mutuel pool increases. Because of the state's regulatory role, the associations cannot directly control the price that they charge for pari-mutuel betting.

On a nominal basis, total pari-mutuel revenue retained by the associations has grown through time

Table 3-2. Summary Statistics on Satellite Wagering Facilities in California, 1985-1989

	1985	1986	1987	1988	1989
Number of Sites	5	6	14	22	26
Total Number of Days	194	973	1,604	4,498	5,204
Attendance*	207,000	907,362	1,211,398	3,427,097	3,833,883
Handle	$36,881,693	$166,752,490	$221,721,573	$660,799,512	$761,985,463

*The 1985 figure is an estimate.

Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

Figure 3-2. Location of Satellite Wagering Facilities in California, 1989

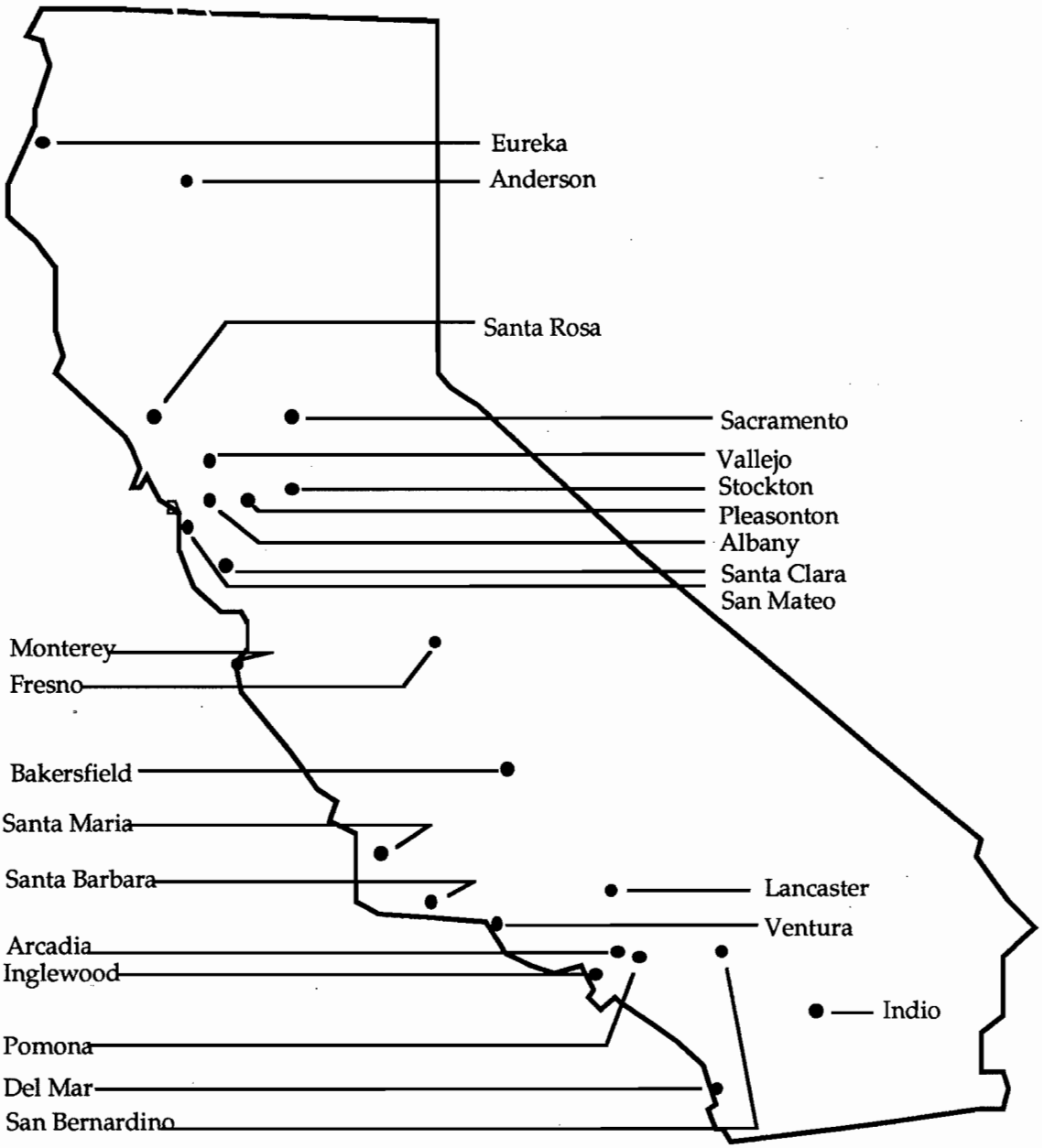
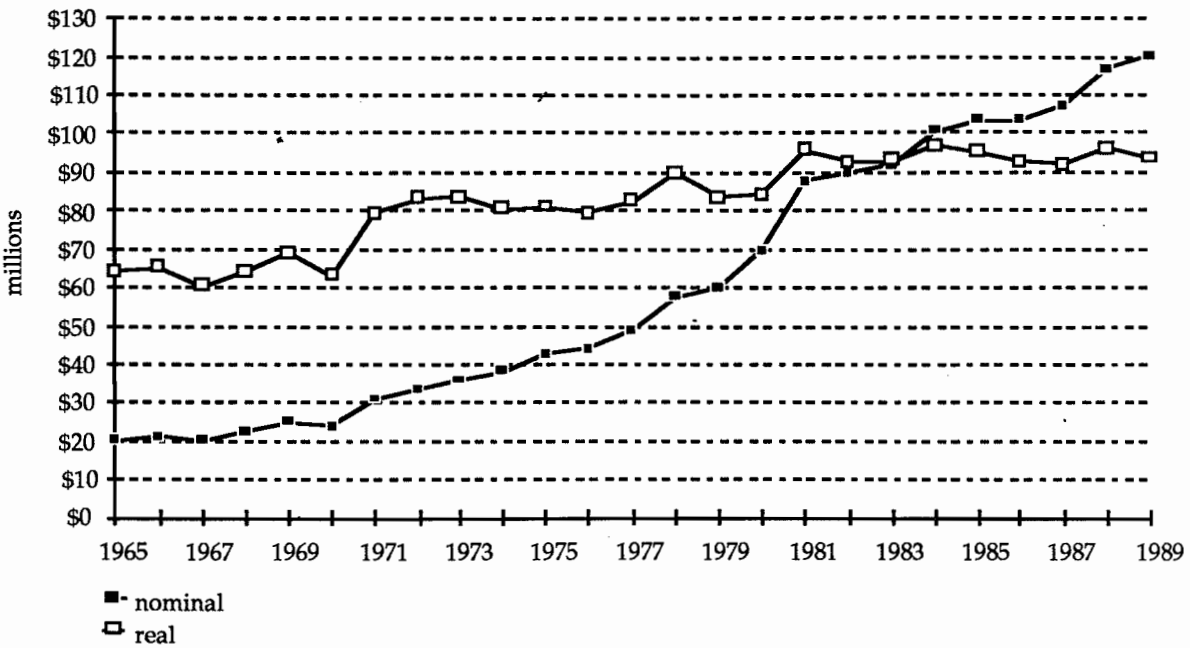


Figure 3-3. Total Pari-Mutuel Revenue Retained by Major Thoroughbred Racing Associations, Nominal and Real* Dollars, 1965-1989



* Real dollars are deflated by the California CPI (1982-1984=100).

Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

along with increases in the pari-mutuel handle. However, the growth in pari-mutuel revenues has been far less dramatic on a real basis (Figure 3-3).

The success of simulcasting has increased total handle. However, these revenues must be shared with the guest facility and signal-carrying company, so the host association receives a smaller share of the total pari-mutuel pool. This has been detrimental to association pari-mutuel revenues. That is, the growth in total handle due to satellite wagering has in part been offset by a reduction in on-track handle and the fact that they receive a smaller share of the off-track handle. Moreover, attendance-related revenues from admissions, parking and concessions have suffered as patrons choose off-track rather than on-track facilities.

The respective influence of such countervailing factors as racing days and the lottery on race track attendance and wagering are quantified in Chapter 4.

Revenues from Spectator Services

The main sources of non-pari-mutuel revenue include admission fees, and charges for goods and services such as food, parking, programs and boxseats. In general, these sources represent less than a third of total association revenues. However, the individual associations have far more control over the non-pari-mutuel prices and need not share profits associated with non-pari-mutuel activities with the state. On the other hand, some industry participants argue that the prices of food, parking, admission and programs are more visible to the public than is the takeout rate.

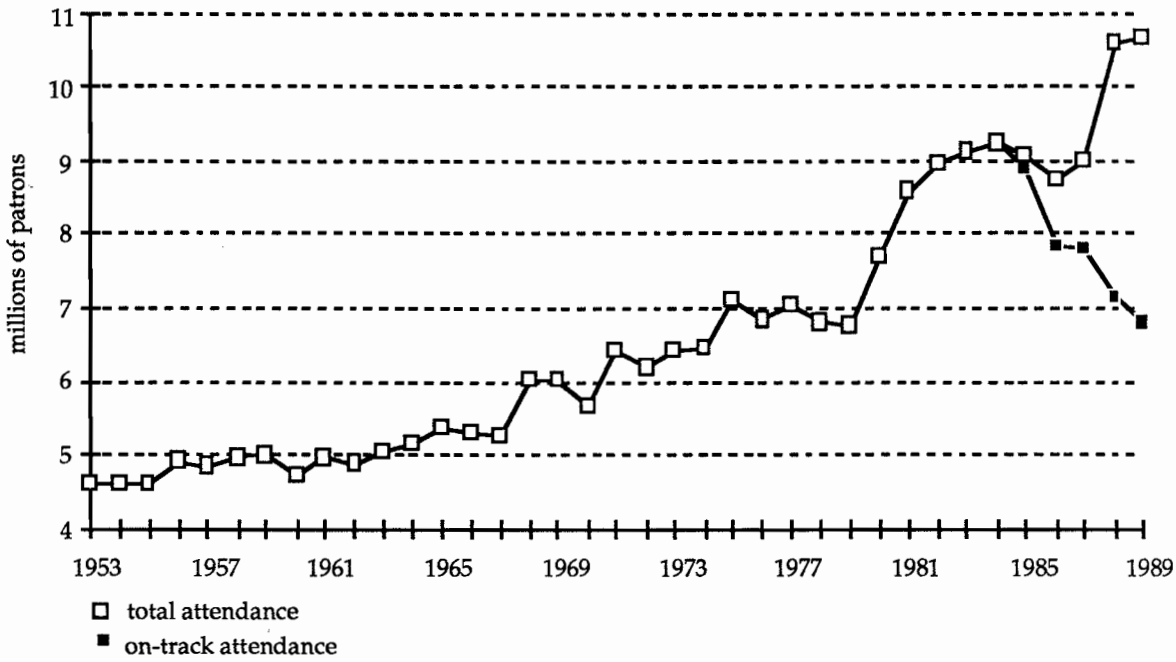
There is no secondary source of data for historical trends on revenue generated from the provision of spectator services. However, it is reasonable to assume that trends in these sources of revenue will follow the general pattern of trends in attendance. As illustrated in Figure 3-4, total attendance has grown significantly since 1953. However, virtually all of the gain in the past four years can be attributed to the satellite wagering facilities. As a result, the attendance-related revenues of the major Thoroughbred associations have probably suffered as patrons choose off-track rather than on-track facilities.

Economic Contribution of the Thoroughbred Associations

Data Sources and Methodology

Specific data regarding handle, attendance, and racing days were assembled from annual statistical reports

Figure 3-4. Total and On-Track Attendance, 1953-1989



Source: California Horse Racing Board, *Statistical Report of Operations,* Annual Issues.

published by the CHRB. Financial information on the Thoroughbred-related activities of the racing associations for the upcoming cash flow and profitability sections was extracted from financial reports that the associations are required to file with the CHRB. Additional information on the associations that operate as subsidiaries of larger public corporations was taken from the corporate annual reports and other documents filed with the Securities and Exchange Commission (10–Ks). Every effort was made to ensure that the final numbers reflect only Thoroughbred-related activities for each association.

The variety of reporting practices followed by the six associations required standardization of the revenue and expense categories. Once the data was collected and standardized, the numbers were sent back to the individual associations for confirmation before aggregating to industry levels.

The employment data was obtained from surveys that were sent to each association. Because only 50 percent of the associations responded, it was necessary to extrapolate to a statewide total. Estimates for the associations that did not respond were based on the length of the race meet, additional information available from public documents, and gross association payroll.

The dynamic market for real estate in California complicates the calculation of a rate of return on assets for the Thoroughbred racing associations. All of the tracks in California are located in major metropolitan areas, where development pressures have markedly increased land values. Consequently, book value is no longer an accurate reflection of the value of the land resources devoted to horse racing meets in California.

To facilitate the calculation of a meaningful rate of return on horse racing activity, an independent firm was employed to perform a Limited Scope Appraisal of the land underlying the five major Thoroughbred tracks in California. The resulting values were based on a visual appraisal of the property, as well as readily available public and private information. Issues such as location and the current social/political environment of the surrounding communities were considered by the appraisers. However, considerable uncertainty exists as to how local authorities would allow race track sites to be developed so appraisal values are only approximate. Appendix B-1, the Executive Summary of the appraisal, provides an overview of the methodologies employed.

Cash Flow

The direct revenues and expenditures of the Thoroughbred associations represent an important source of economic activity for the State of California. In 1989, the associations spent approximately $197 million conducting the business of horse racing (Table 3-3). These expenses supported thousands of association employ-

Table 3-3. Aggregate Revenues and Expenses for the Six Major Thoroughbred Racing Associations in California, 1989

Revenues	
Pari-Mutuel	$134,264,000
Admissions	28,930,000
Concessions, Parking, & Program	34,667,000
Other	12,185,000
Total Revenue	$210,046,000
Expenses	
Wages & Benefits	$88,019,000
Rentals & Services Contracted	50,733,000
Materials & Supplies	9,320,000
Marketing	10,704,000
Professional Services	4,286,000
Utilities	5,077,000
Depreciation	5,916,000
Net Payments to Charity	2,013,000
Insurance	6,317,000
Taxes: Real, Personal, Other	2,889,000
Interest Expense	3,115,000
Other	8,845,000
Total Expenses	$197,234,000
Net Revenues	$12,812,000

Source: Summary of Thoroughbred-related revenues and expenses on file at the CHRB, audited financial statements, and personal communications with association personnel.

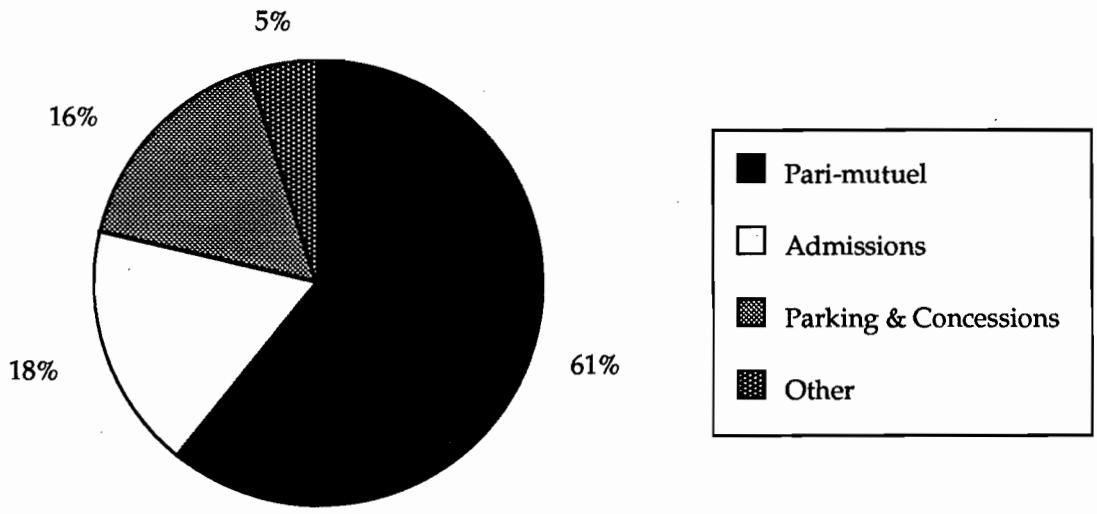
ees, as well as many other businesses throughout the state that provide goods and services to the horse racing industry.

Revenue

Pari-mutuel revenues accounted for approximately 61 percent of association gross revenues in 1989 (Figure 3-5). These revenues include funds generated by satellite wagering activity, as well as the commission earned from hosting a live meet. Most of the remaining revenue is derived from admission fees and the provision of spectator services.

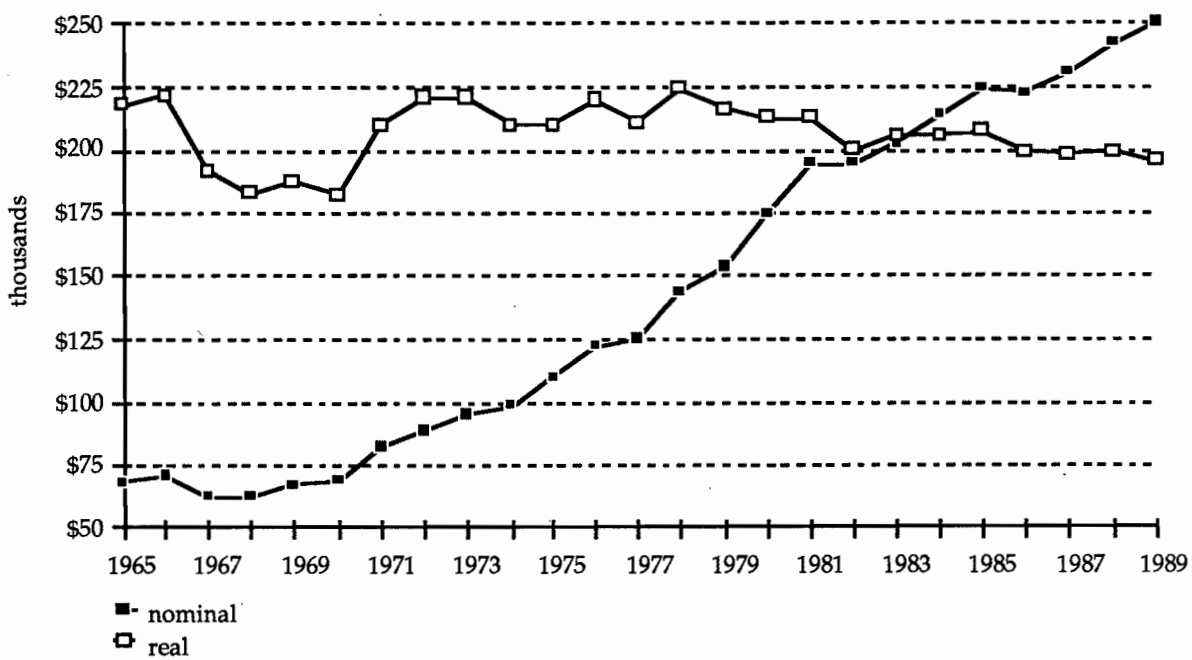
Aggregate figures, such as those presented in Table 3-3, can effectively mask the dynamic nature of an industry. Because pari-mutuel revenues constitute the majority of the total revenue for each association, it is instructive to consider these numbers more closely. It is reasonable to assume that the total cost of conducting a Thoroughbred meet is highly correlated with the number of days the facility is open to the public. Therefore, pari-mutuel revenue earned on a per-day basis provides a useful perspective on the financial position of the associations (Figure 3-6). As illustrated in Figure 2-4 of Chapter 2, the number of Thoroughbred racing days has steadily increased. As a result, there has been very little real gain in average pari-mutuel revenue earned per day by the associations. Daily pari-mutuel revenue has fluctuated through time with legislative changes in the track commission, and with fluctuations in daily attendance and handle per attendee. However, the overall trend in daily pari-mutuel revenues has been downward since 1972. The rate of decline has been more than one percent per year since 1978. While precise historical data on the cost of conducting meets is not available, it is unlikely that those costs have followed a similar decline. Accordingly, the associations find themselves in a classic cost-

Figure 3-5. Approximate Breakdown of Association Revenue, California, 1989



Source: See Table 3-3.

Figure 3-6. Pari-Mutuel Revenue Retained by Major Thoroughbred Racing Associations Per Day, Nominal and Real* Dollars, 1965-1989

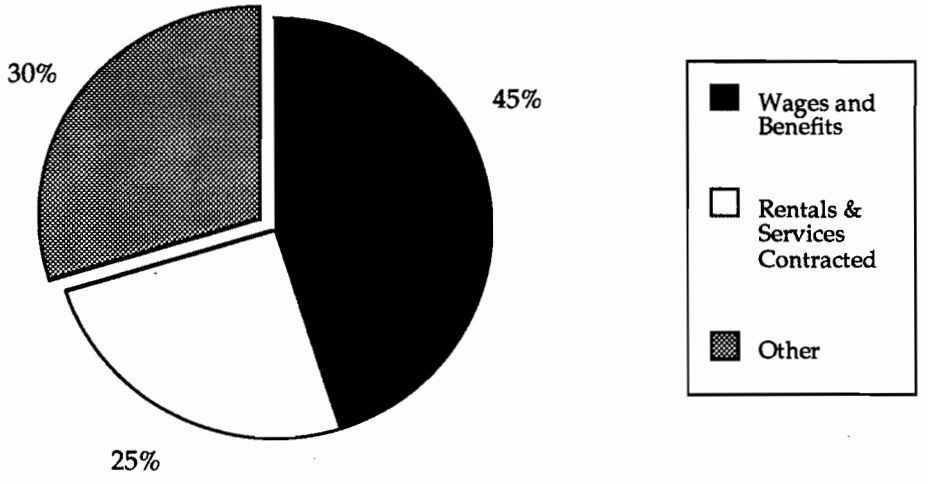


* Real dollars are deflated by the California CPI (1982-1984=100).

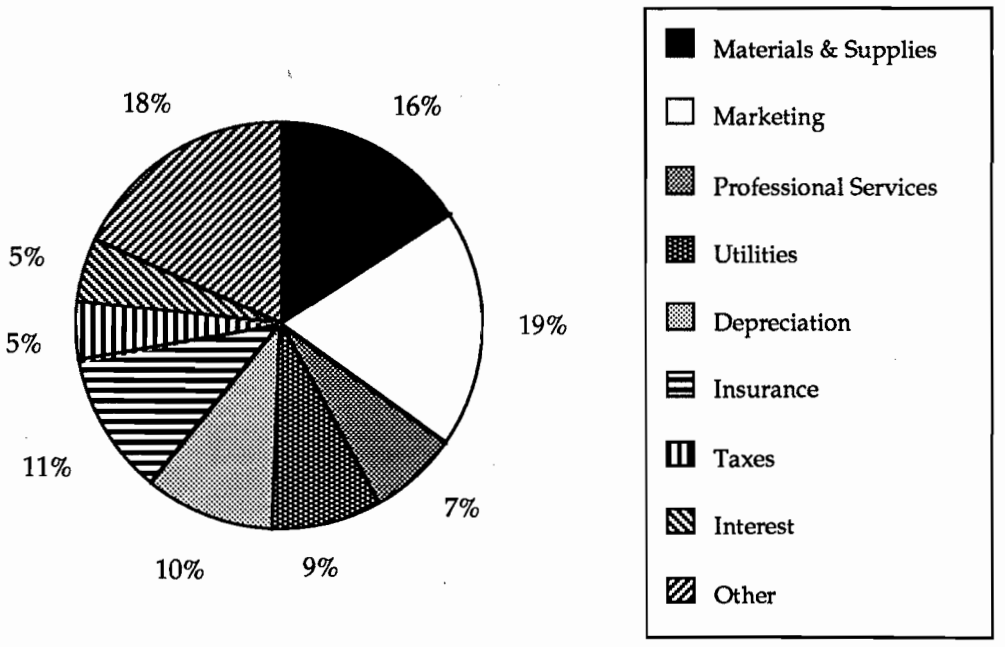
Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

Figure 3-7. Approximate Breakdown of California Association Expenditures (A) and Breakdown of the Category "Other" (B), 1989

A. Association Expenditures



B. "Other" Category



Source: See Table 3-3.

Table 3-4. Estimated Payments to Governments by California Thoroughbred Racing Associations, 1989

Payments to Governments	($1,000s)	
Sales Tax (State Government)		$880
Occupational License Fees and Fines		$180
Property Tax (Local Government)		$2,890
Employer Payroll Tax		
State	$2,070	
Federal	5,980	
Total Payroll Taxes		$8,050
Total Payments to Governments		**$12,000**

Source: Estimated from survey data and CHRB Annual Reports

price squeeze in the provision of horse racing and pari-mutuel services.

Satellite wagering has had a substantial impact on the components of association pari-mutuel revenue. Since the introduction of off-track wagering, an increasing percentage of the total pari-mutuel revenue has been derived from wagering activity at satellite guest locations. In addition, satellite capabilities allow the associations to remain open to the public year-round by acting as guest sites for other race tracks during the time that had traditionally been their off-season.

Expense

As is true with other service industries, the direct pre-tax expenses incurred by the associations are dominated by personnel costs (Figure 3-7). The approximately $88 million spent on payroll in 1989 accounted for nearly 45 percent of total pre-tax expenses. Another major expense category for the racing associations in 1989 was rentals and services contracted. Within this category race track rent amounted to almost $38 million, or just over 75 percent of the total services contracted. Rental of the totalister equipment is another important component of this category. For several of the associations, the race track rents are ultimately

Table 3-5. Handle, Attendance, and Racing Days by Association, California, 1989

	Days		Attendance		Handle	
Northern						
Bay Meadows	108	(22%)	1,324,712	(13%)	$246,942,069	(11%)
Pacific Racing Assoc.	110	(23%)	1,563,235	(15%)	305,773,774	(13%)
Sub Total	218	(45%)	2,887,947	(28%)	$552,715,843	(24%)
Southern						
Hollywood Park	98	(20%)	2,448,003	(24%)	$590,749,140	(26%)
Los Angeles Turf Club	90	(19%)	2,571,768	(25%)	654,077,964	(28%)
Oak Tree	32	(07%)	900,512	(09%)	199,121,852	(09%)
Del Mar	43	(09%)	1,491,245	(14%)	314,786,781	(14%)
Sub Total	263	(55%)	7,411,528	(72%)	$1,758,735,737	(76%)
Total	**481**		**10,299,475**		**$2,311,451,580**	

Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

Table 3-6. Handle Per Patron, Average Daily Handle and Attendance by Association, California, 1989

	Handle/Patron	Handle/Day	Attendance/Day
Northern			
Bay Meadows	$186	$2,286,501	12,266
Pacific Racing Association	$196	$2,779,762	14,211
Average	$191	$2,535,394	13,247
Southern			
Hollywood Park	$241	$6,028,052	24,980
Los Angeles Turf Park	$254	$7,267,533	28,575
Oak Tree	$221	$6,222,558	28,141
Del Mar	$211	$7,320,623	34,680
Average	$237	$6,687,208	28,181

Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

dispersed to shareholders through the REITs that own the facilities. As noted earlier, rental payments are based on formulas that incorporate a percentage of the total handle wagered. Consequently, the rents on an average daily basis are significantly lower in northern California than they are in the south.

Payments to Governments

The Thoroughbred racing associations, like those who participate in the horse sector, make payments to state, local and federal governments (Table 3-4). In addition to sales tax on goods, the state government collects occupational license fees and fines from the racing association sector. In 1989, these sources amounted to over $1 million. The associations also contributed over $2 million towards state payroll taxes in 1989. Data on association expenditures indicated that the associations paid almost $3 million in real and personal property taxes to local governments in 1989. The local governments also benefit from a legislated percentage of the pari-mutuel pool, which will be detailed in Chapter 5.

Comparison of 1989 Attendance and Wagering Activity Among Tracks

As the following figures illustrate, there is a substantial regional difference in the attendance and wagering activity of racing patrons in California. In 1989, the southern associations accounted for approximately 75 percent of total statewide Thoroughbred racing handle and attendance, but only slightly more than half of the racing days (Table 3-5). The Los Angeles Turf Club and the Hollywood Park Operating Company comprised between 70 and 75 percent of the total southern California handle and attendance and 73 percent of the total southern California racing days. Bay Meadows and Golden Gate Fields split the northern handle, attendance and racing days approximately equally.

Table 3-6 presents the data on a per-patron and per-day basis. Notice that while the state allocates racing days (wagering opportunities) almost equally between the northern and southern regions, the southern tracks drew almost twice as many patrons per day as the northern tracks in 1989. Moreover, these southern patrons tended to wager more than their northern counterparts. However, *within* the respective regions, wagering activity is remarkably similar across associations, suggesting that patron behavior is fundamentally different *between* the two regions. Historical data suggests that these patterns are not simply a one year anomaly. That the northern tracks offer longer meets but experience markedly lower attendance and handles likely reflects the smaller population and differing traditions, weather and entertainment opportunities of the San Francisco Bay Area.

Association Employment Levels

Much of the overall economic impact of an industry stems from the job opportunities created by the major employers of the industry. Because secondary sources of information indicate that the employment structure varies rather dramatically between northern and southern California, it is difficult to estimate the exact number of people employed by this sector of the industry from the survey data that was acquired from southern California. However, an industry wide extrapolation of the survey data indicates that there were approximately 3,680 full-time equivalent positions created by the California Thoroughbred associations in 1989 (Table 3-7).

Employment within the association sector of the industry is both highly seasonal and highly unionized. Seventy percent of the total association labor force is employed in positions required to support Thoroughbred racing during meets. Results from the employment survey indicate that it takes approximately 2,000 people (FTE) to conduct a Thoroughbred meet in southern California. Although no employment information was received from the northern California tracks, payroll information and public documents indicate that the northern California associations hire significantly fewer people to conduct their meets.

Table 3-7. Estimated Employment in the Association Subsector,* California, 1989

Pari-Mutuel and Racing	1,150
Administrative, Accounting and Operations	420
Marketing and Publicity	120
Janitorial and Track Maintenance	640
Security and Auto Park	430
Food Service	920
Total Employment	3,680

* Employment is presented on a Full-Time Equivalent basis.

Source: Estimated from survey data and published financial information from the parent corporations of the associations.

During the racing season, almost 40 percent of the association work force is involved with pari-mutuel and racing activities. Another 25 percent of the total labor force works in food service. Twenty-three percent of the employees maintain and secure the grounds and facilities, while the remaining 14 percent are employed in office and administrative positions. Because the seasons for each association do not overlap within a region, many seasonal employees can find year-round work in the racing industry.

According to the survey, the number of people required to conduct association business and maintain the track and facilities during the off-season varies from approximately 200 to over 500. Many of these people are year-round employees of the track. Almost 50 percent of the off-season employees are involved with track maintenance. The next largest employment category is office and administrative personnel. In contrast to the racing season, pari-mutuel, racing and food service employees combined make up less than 25 percent of the association work force when no meet is being conducted at the track.

In addition to the direct provision of almost 4,000 jobs in California, the associations contribute indirectly to employment levels in supporting industries through the course of their business operations. The most notable supporting industry since the mid-1980s has been satellite wagering. In addition to receiving signals from the major Thoroughbred associations, the satellite wagering facilities receive broadcasts from Quarterhorse and harness races, as well as from meets conducted at the various county fairs. Many of the facilities remain open to the public all year.

Major employment categories at the satellite sites include administration, communication, pari-mutuel, food service and maintenance. Although we did not survey these facilities in detail, telephone interviews indicate that satellite wagering may provide an additional 500 to 800 full-time equivalent positions.

Profitability of the Thoroughbred Racing Associations

The profitability of the racing associations (and their affiliated operating and realty companies) has significance that transcends the private interests of the associations and their stockholders. First, the associations act as a "retail window" for the broader Thoroughbred industry, thus bringing revenue into the industry from spectators and wagerers. With their portion of this income, the associations purchase the goods and services they need to conduct the business of racing. In addition, they distribute purse money to Thoroughbred owners who, in turn, create demand among other industry suppliers. Because they provide the vital link between the supply side and the demand side of the market, the financial health of the associations is crucial to the economic viability of the entire Thoroughbred racing industry.

The profitability of the racing associations also has significance from a public policy perspective both because they operate with government franchise and because the state shares directly in the takeout generated from horse racing. At one extreme, if the associations enjoy unusually high or "excessive" profits because of their favored position as purveyors of legalized gaming opportunities, the state may be called upon to reduce industry profits to "normal" levels, enhancing consumer welfare and, perhaps, state revenues. This might be achieved using regulatory controls such as manipulating the number of racing days, altering the takeout rate, or changing the distribution

of takeout among industry participants. At the other extreme, if profitability is persistently below returns realized in industries with comparable levels of risk, the state risks loss or deterioration of the race tracks and associations as assets currently devoted to racing become redeployed in more profitable uses. This, of course, would threaten the viability of the broader industry as well as a significant source of revenue for the state.

The question of whether, in the long run, it will be profitable to continue to employ association and race track assets in horse racing is more than a theoretical one in California. As noted earlier, two of the four privately owned tracks have already converted or are planning to convert significant real estate assets from horse racing to other uses. Moreover, two racing organizations have been the object of major proxy battles between competing shareholder groups looking to maximize returns on corporate assets. Only one racing organization that operates a track has neither engaged in real estate development nor been the object of shareholder battles. However, it faces another, equally perplexing dilemma: its occupancy of extremely valuable real estate on San Francisco Bay is subject to a ground lease expiring in 2002. The lease is held by a major public corporation that has recently restructured with the object of realizing the value of its real estate assets. In short, there exists an unmistakable trend towards conversion of race track real estate assets to other uses. That trend, prevalent in other Thoroughbred racing markets in North America, seems especially imminent in California, where land values have been subject to unparalleled appreciation.

Net Returns to Racing Associations

In order to determine the returns associated with conducting Thoroughbred horse racing events, net pretax returns reported by the associations must be adjusted to reflect their distinct corporate structure. As noted above, privately held, land-owning racing entities take the form of operating companies paired with real estate investment trusts (REITs) for tax reasons. The operating company pays the REIT rental for use of the track, and rents are distributed to REIT holders. In order to gain a truer picture of the net returns to Thoroughbred tracks and association assets, this intra-organization transfer of facility rents should be added back into income from racing. A three-year trend of pre-tax income with this adjustment is shown in Table 3-8.

The data indicate that adjusted net association pretax returns were subject to some variation between 1987 and 1989. In aggregate, the associations posted a $2 million loss in 1987, versus gains of $8 million and $13 million in 1988 and 1989 respectively. Note, too, that gains in 1988 and 1989 coincided with the development of satellite wagering opportunities in southern California. While off-track wagering has increased access to Thoroughbred racing for people who live some distance from the race tracks, introduction of this innovation is a one time phenomenon: as its effects are absorbed, net returns to the associations will likely plateau. For this reason and due to the unusually low returns in 1987 for one association, the 1988 and 1989 average adjusted pretax net returns, $48.5 million is accepted as a representative indicator of of annual net returns to Thoroughbred racing in California.

Table 3-8. Aggregate Returns and Adjusted Returns from Racing to California Thoroughbred Associations, 1987-1989

	million $		
	1987	1988	1989
Total Revenue from Racing	$172	$193	$210
Total Expenses from Racing	174	185	197
Pretax Net Returns from Racing	($2)	$8	$13
Plus Rental for Track Facilities	$39	$38	$38
Adjusted Pretax Returns from Racing	$37	$46	$51

Source: Summary of Thoroughbred-related revenues and expenses on file at the CHRB, audited financial statements, and personal communications with association personnel

Current Market Value of Thoroughbred Racing Facilities

The five Thoroughbred race tracks in California are situated on relatively large pieces of property in mature metropolitan areas. Because the tracks were established many years ago, the real estate resources devoted to racing are far more valuable than the association financial statements might suggest. Current market value is relevant to this analysis both because it more accurately represents the magnitude of resources that society devotes to racing and because it captures the potential for further conversion of racing assets to other purposes.

An appraisal of horse racing real estate assets was obtained from a private appraisal firm (see Appendix B-1 for an Executive Summary of the appraisal). This valuation was based on the firm's expert opinion of the most likely alternate uses of the lands, making allowance for a variety of factors including sales of comparable land and local land use policies. It was estimated that the land underlying the five major Thoroughbred race tracks in California is worth a total of $810 million.

This 1990 valuation cannot be directly compared to observations made in earlier studies because they did not include estimates of the value of tracks not owned by associations or their parent companies. However, the 1965 SRI study placed a $38 million value on three of the tracks. These tracks are now estimated to have a market value of $605 million, indicating an annual rate of appreciation of 12 percent. This coincides with other published estimates of real estate appreciation. For example, aggregate statistics indicate that during the last three decades the value of real estate rose by from 8 to 12 percent per year, depending on the region and type of property involved. Well located, urban commercial property in California can reasonably be expected to have experienced a rate of appreciation in the upper end of this range.

The $810 million appraisal of the five tracks reflects the associated value of the land without existing improvements because such things as grandstands, parking facilities and stables would be removed if the property were developed for more profitable purposes. The value of other assets used for racing, principally fixtures and office equipment, is likewise disregarded because of their negligible salvage value. Finally, no allowance is made for net working capital, because it is a relatively small component of assets because financial structure is subject to decisions made by the associations.

Rate of Return on Assets

On an aggregate basis, the rate of return to Thoroughbred racing (on *operations*) is estimated by dividing the average annual return from operations, $48.5 million, by the current market value of the principal assets employed in Thoroughbred racing, $810 million. This process supports an estimate of 6 percent as the average operating rate of return on race track land used for the production of horse racing events. Note that this is a pre-tax rate of return, suggestive of a 4 percent net, after tax rate of return.

Because of the conjectural nature of the alternative uses to which race track lands might be put, the 6 percent rate of return is an approximate figure. While no statistical basis exists on which to establish formal confidence intervals, the relatively narrow range of adjusted returns in the industry gives reason to believe that the long-term rate of return on horse racing assets is no lower than 4 nor greater than 8 percent, allowing for as much as a 50 percent variation in the actual value of the assets.

Drawing on data from the period 1960 to 1964, the SRI study reports average annual net operating income of about $3 million on real estate assets of $38 million for the three Thoroughbred land-owning associations. This corresponds to an after tax return on land of approximately 8 percent and pre-tax returns of approximately 12 percent. Figures from the 1960s thus reflect twice the rate of profitability noted in recent years, indicating that operating Thoroughbred races has become significantly less profitable during the intervening decades.

The 6 percent estimated rate of return compares to a pre-tax average rate of return on operations of 13 percent in the national gaming and hotel industry for the years 1987 to 1989. The corresponding nationwide average pre-tax rate of return on operations in the recreation industry, which includes amusement parks, motion pictures and other entertainment, was 17 percent. Real estate investment trusts as an industry group averaged an 11 percent rate of return between 1986 and 1989. These comparisons clearly indicate that returns to operating Thoroughbred races in California are markedly lower than returns observed in industries of similar focus, risk and scale.

There is significant a priori reason to have expected that returns to horse racing would be less than competitive. When horse racing was initially authorized by the Legislature, the associations enjoyed a virtual monopoly on wagering opportunities and shared with boxing a near monopoly on professional spectator sports. Since that time, California has witnessed rapid growth of the spectator sport industry with the creation of more than a dozen professional baseball, football, and basketball teams. In addition, numerous collegiate teams as well as a variety of other equestrian events compete for spectators' attention. Modern tele-

communications provide spectators television access to sports events throughout the world virtually round the clock. As a wagering alternative, horse racing competes with a heavily marketed state lottery and, increasingly, with bingo. Furthermore, improved air and ground transportation makes gambling in Nevada more accessible to Californians. Finally, casual empiricism suggests that many of the professional sports compete with horse racing for *wagering* dollars through illegal but widespread betting activities ranging from informal office pools to well organized book making operations. All of these forces would appear to have reduced significantly the economic profit once associated with the franchise granted by the state to horse racing associations.

While satellite wagering has provided recent stimulus to pari-mutuel handle, it quite likely will remain the case that future industry profitability will largely derive from *holding*, rather than *operating*, track assets. Indeed, the 12 percent rate of appreciation noted in the value of the tracks since the 1960s suggests that only about one-third of the total pre-tax return to racing entities comes in the form of operating profits. This industrial scenario is not without precedent. For example, a significant part of the long-term profit from farming, particularly near urban areas, has derived from rising land values. Likewise, at various times industries as diverse as rail road transportation, lumber production and paper manufacturing have attracted capital because of the prospect of asset appreciation rather than year to year operating returns. In the case of Thoroughbred racing, however, tracks would have to be closed in order to realize competitive rates of return. At a minimum, this threatens to bring the industry an element of dislocation as racing moves to suburban sites. At a maximum, it means closing one or more of the tracks that now provide the broader Thoroughbred industry with access to spectators and wagerers.

Summary and Conclusions

An indispensable component of the California Thoroughbred industry, the horse racing associations bring together the supply and demand factors that drive all sectors of the industry. For this reason, the continued flow of capital resources to the associations and the entrepreneurial expertise of association management are prerequisite to the success of the Thoroughbred industry within the state. The financial strength of the associations is essential to the industry's future success.

Each association, while it operates its scheduled meet, enjoys a spatial and temporal monopoly on Thoroughbred horse racing. However, the associations face fierce competition from alternative forms of entertainment and from other state-sanctioned wagering alternatives, which have been intensively marketed in the past three years. These kinds of dynamic pressures, as well as the pressure for development of their racing sites, will continue to test the financial viability and marketing ingenuity of associations, just as in the past other conditions and opportunities have shaped their structure and performance.

The horse racing industry faces a number of sobering facts. Most importantly, the total real handle wagered on-track has shown no significant growth over the past two decades. This has occurred despite significant growth in on-track attendance arising from an increase in racing days. The decline in real on-track handle per patron implicit in these patterns has to be a matter of concern for the associations and the broader industry.

On the other hand, total (on-track and off-track) attendance and total handle have increased significantly during the past three years. These forces appear to be directly attributable to the authorization, introduction, and expansion of simulcasting races and inter-track wagering. While this endeavor to bring racing and wagering to new patrons in new settings has unarguably enhanced short-run aggregate industry performance, that enhancement has occurred at the expense of on-track activities. Moreover, one worries that in time, once simulcasting has fully permeated its market, the trend toward lower handle per patron that surfaced between 1970 and the mid-1980s will once again dominate industry performance.

In meeting the demand for Thoroughbred racing, the associations generated total average annual revenues in excess of $210 million in 1989. The largest impact or expense of the associations is the personnel require to effectively conduct the business of Thoroughbred horse racing. The survey of the associations provided a glimpse of the diverse and highly unionized work force that fills approximately 3,680 full-time equivalent jobs within the state. The direct and indirect effects of the racing associations and the total Thoroughbred industry are estimated in Chapter 5.

Profitability of the racing associations represents an issue pertinent to the viability of the broader Thoroughbred industry as well as to the level and continuity of state revenues from racing. It is an especially significant issue because the four privately owned tracks face pressures for development of their large urban real estate holdings. After adjustments are made to reflect the distinct corporate structure of racing organizations, it appears that the five major Thoroughbred tracks produced an annual average net pretax return of approximately $48.5 million from Thorough-

bred horse race meets. Those tracks have an appraised estimated market value of $810 million. Thus the operating return on these assets is estimated to be approximately six percent and, certainly, within the range of four to eight percent. This rate is at least half the average rate of return on operations realized in industries of similar focus, risk and scale. The rapid appreciation of track real estate assets, coupled with increased competition for spectator and wagering dollars since the state franchise was granted to horse racing, appears to have reduced returns to operating Thoroughbred racing below competitive levels. This is true despite the recent augmentation to total handle provided by off-track wagering. The future of the racing associations and the broader Thoroughbred industry is clouded both by long term trends in industry demand and by the fact that association returns increasingly derive from holding rather than operating track assets.

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Chapter 4. The Demand for Thoroughbred Racing in California

Public racing events are the primary marketed output of the California Thoroughbred racing industry. Therefore, it is the level of public demand for attending and wagering on horse races that ultimately determines the economic health of the industry as a whole. An increase in public demand for racing activities results in larger purses for winning horsemen and larger commissions and attendance-related revenues for the racing associations. These additional revenues in turn stimulate the demand for inputs such as feed and labor. The State of California is also concerned with the public's demand for racing activities, since the revenues it collects are determined as a percentage of the total amount wagered, or "handle."[1] To investigate the factors influencing the demand for racing activities in California is thus an important component of this study.

In this chapter we provide an overview of factors likely to affect the public's demand for attending and betting on Thoroughbred races in California, and analyze statistically the relationship among them. Several issues are of particular interest:

1. How do changes in state policies affect the demand for racing? Could modification of current policies generate additional state revenues and/or industry profits?

   The state regulates the supply of racing through actions taken by the State Legislature and the CHRB. The Legislature has the ability to alter the effective "price" of wagering by adjusting the percentage of wagered dollars returned to bettors. The Horse Racing Board determines the number of racing days offered and how they are distributed among race meets, subject to legislated maxima. Additionally, the state regulates the availability of alternative forms of gambling, such as the lottery and off-track satellite wagering on horse races. Information regarding how consumers respond to these policy variables is needed in order for the state to manage Thoroughbred racing optimally.

2. Opportunities for legal gambling in California have expanded greatly since the introduction of the California lottery and of off-track satellite wagering. Have these alternative forms of gambling impacted on-track attendance and/or wagering significantly? What are their effects on total racing attendance and handle (on- and off-track combined)? Also, how does consumer demand for newer forms of exotic bets such as the "Pick Six" (which offer low probabilities of winning large prizes) compare with the demand for conventional bets at shorter odds?[2]

3. What other factors have important effects on the demand for Thoroughbred racing in California, and how might these be expected to change in the future?

This chapter is arranged as follows. First we review some prior studies of racing demand that are relevant to the empirical questions above, and provide a graphical overview of trends in factors affecting demand for California racing. Next, the results of our statistical demand analyses are presented. Two sets of annual data are analyzed: (i) statewide data for the years 1953-1989; and (ii) data by individual northern and southern California race tracks for 1970-1988. The chapter concludes with a brief discussion of our major findings.

Prior Research on Economic Determinants of Racing Demand

In this section we review a number of existing studies of the demand for attending and wagering on horse races in various markets, and briefly summarize their findings.

Morgan and Vasche (MV, 1979) investigated attendance and wagering patterns at the four major southern California race meets from 1958 through 1978. They estimated the effects on Thoroughbred racing demand of a number of variables, including consumer

[1] Figure 1-1 in Chapter 1 illustrates how revenues withheld from the pari-mutuel pool are distributed among the horsemen, the associations, and the state.

[2] Conventional wagers are those for which a winning outcome depends on the successful performance of a single horse; these include win, place and show wagers. Exotic wagers depend on the successful performance of more than one horse; examples include the Daily Double and the Pick Six.

income, unemployment, the number of racing days, competition from harness and Quarterhorse racing, and the effective takeout rate. Additionally, several dummy variables designed to measure impacts of events such as the 1970 labor strike at Santa Anita were included in the estimation. MV found that increases in per capita real disposable income had a positive effect on the size of an average (nominal) wager but reduced attendance; while unemployment had the reverse effect, leading to higher attendance but smaller wagers. The number of racing days offered had a positive impact on both attendance and average wager per attendee. The latter result was contrary to the authors' expectations, since it had been anticipated that an increase in racing days might "spread" the dollars available for wagering over more days. Quarterhorse and harness racing were found to negatively impact the demand for Thoroughbred racing when scheduled at night on dates of Thoroughbred (daytime) meets, but not otherwise.

Of particular interest from a policy standpoint are MV's estimates of the elasticities of attendance and wagering with respect to the effective takeout rate. The takeout rate is one measure of the average price of wagering. That is, in the long run a person who wagers $100 when the takeout rate is 15 percent can expect to win back $85, with the remaining $15 being retained for distribution to the track, the horse sector, and to the state as tax revenues. Economic theory suggests that when the price of wagering falls, the demand for wagering is likely to increase. If the percentage increase in total wagering is larger than the percentage decrease in the takeout, then total revenues can be raised by reducing the takeout rate. In this case, demand for wagering is said to be e*lastic* with respect to its own price. Conversely, if the percentage decline in total wagering is less than the percentage increase in the takeout, then total revenues can be enhanced by raising the takeout rate. In this latter case, racing demand is termed *inelastic.*[3]

MV reported that demand for track attendance was elastic with respect to the takeout rate; a one percent rise in takeout was estimated to lead to a 1.48 percent decline in attendance. For those individuals who did attend the races, the amount wagered per person appeared to decline when takeout rose, but the effect was not statistically significant. Given these findings, MV recommended that the racing industry and the state would benefit if the effective takeout rate was reduced. The percentage increase in attendance and total handle would be greater in absolute value than the percentage decline in the takeout rate, yielding a net revenue gain from wagering.

In response to MV, Guthrie (1980) pointed out that *revenue* maximization does not imply *profit* maximization unless marginal costs arising from additional attendance and wagering are near zero. In a reply, MV (1980) argued that marginal costs are indeed likely to be low, since race tracks have excess capacity on all but the busiest racing days. Furthermore, non-pari-mutuel revenues (admission, parking and concession fees) would also rise if the takeout rate was reduced due to increases in attendance. These non-pari-mutuel revenues would likely offset increases in variable costs at the tracks arising from higher attendance and betting activity, and so both state revenues and track profits would benefit from a lower takeout rate.

In an earlier study of annual data from New York's Aqueduct and Belmont Park race tracks over the period 1940-1969, Gruen (1976) found a similar impact of the takeout rate on wagering demand, reporting an elasticity of total (nominal) wagering with respect to the (effective) takeout rate of -1.57. He did not attempt to differentiate between attendance effects and impacts on wagering per attendee.

In a study of the demand for horse racing in Maryland, Ahern (1980) estimated the elasticity of per capita wagering with respect to the legislated takeout rate (not including breakage) to be -1.13. This study suggested that revenues from racing would be maximized if the legislated takeout rate were reduced to 14.6 percent from its mean of 16.6 percent over the sample period 1969-1978. Ahern also proposed that, as an alternative to imposing a pari-mutuel tax in the form of a takeout percentage, a lump sum tax per racing day could be charged by the state. Such a tax would not affect the marginal price of wagering, and could benefit the racing industry while maintaining the state's income at current levels.

Suits (1979) used two methods to estimate the price elasticity of demand for wagering on horses. First, he analyzed the response of bettors to a 1974 reduction (from 10 percent to two percent) in the Federal excise tax on legal Nevada bookmaking on horse races. Using observations of wagering activity before and after the tax reduction and assuming a constant price elasticity of demand, he calculated that the price elasticity of demand for wagering was -1.64. In the second portion of his study, he estimated three versions of a demand function for wagering, using real (as opposed to nominal) data and legislated takeout rates from 24 states over the period 1949-1971. He reported price elasticity estimates of -2.14, -2.73, and -1.59 respectively, with the third regression yielding the best fit.

[3]A more detailed explanation of elasticities can be found in Appendix D-1.

Pescatrice (1980a), using yearly data from both Aqueduct and Belmont race tracks in New York for 1944-1975, found that the elasticity of the real track handle with respect to the takeout rate was near unity (-1), which would imply that the on-track takeout was at that time near-optimal in terms of maximizing on-track revenues. (Whether *profits* were also being maximized would depend on costs as well as revenues.) He reasoned, however, that the response of off-track bettors to a takeout rate increase would likely be much less than that of on-track bettors, since the "churn" (i.e., the rewagering of winnings during the racing day) is much lower at off-track facilities than on-track. Since off-track betting constituted about half of the total handle at that time, he suggested that overall state revenues from racing would be enhanced by raising the takeout rate both on- and off-track, and attempting to avoid competition between the two types of facilities.

A possible explanation for Pescatrice's finding of a lower price elasticity than that reported by most other authors is his inclusion of (i) unanticipated changes in attendance, (ii) a time trend, and (iii) two dummy variables representing positive and negative market conditions, as explanatory variables. It is also possible that public responsiveness to the takeout rate varies greatly by track and/or by time period.

In a second paper, Pescatrice (1980b), following a similar methodology to that used in his previous work (1980a), found a price elasticity of -0.5 at the Fairgrounds race track in New Orleans, Louisiana. He noted that Gruen's study failed to account for inflation, and argued that Suits erred in using legislated, rather than effective, takeout rates in his analysis; furthermore, he stressed the need to examine track-specific rather than aggregated data. In response to this article, MV (1982) suggested that Pescatrice's estimate of the price elasticity of demand for wagering was biased downward by inclusion of attendance as an explanatory variable. (In this regard, it is not clear whether MV drew a distinction between total attendance and the residual attendance used in Pescatrice's analysis.)

As reported by Wolff (1986), a large reduction in the takeout rate (from 24.3 percent to 19.14 percent) at Assiniboia Downs race track in Winnipeg, Manitoba in 1984 resulted in a 26.5 percent increase in daily handle and a 10 percent increase in attendance by 1985. This was at a time when other tracks in western Canada were experiencing declining daily handles. These results again suggest that the demand for wagering is price-elastic. However, such anecdotal evidence of the effects of takeout rate reductions must be interpreted with some caution, as changes in factors other than the takeout rate are not controlled for.

Perhaps the most important issue raised in the empirical studies above is the size of the elasticity of demand for wagering with respect to the takeout rate. This elasticity determines whether total revenues are likely to rise or to fall in response to an increase in the takeout rate. Most (but not all) evidence from these demand studies suggests that the demand for wagering may be in the elastic range. Since elasticities can change over time and may vary by market location, these results cannot be applied indiscriminately in analyzing the current demand for attendance and wagering at California race tracks.

Another interesting aspect of the demand for parimutuel wagering has come to be known as the "longshot-favorite bias." Authors including Ali (1977) and Thaler and Ziemba (1988) have noted that the majority of the racing public, when given a choice between two bets having an equal expected value, appear to prefer a "longshot" bet offering a small probability of winning a large prize to a "favorite" bet that is more likely to pay off but with only small winnings. Longshot horses receive more public backing than their actual racing performance suggests is warranted, while favorites are underbacked; that is, longshots win even less often than their odds would indicate, while for favorites the opposite is true. Quandt (1986) showed that this pattern of demand is theoretically consistent with market equilibrium among a group of risk-loving bettors. De Seve (1973) argued persuasively that because the government's takeout rate is applied to the gross handle, and winnings are rounded down to the nearest dime per dollar or 20 cents per $2.00 wager ("breakage"), the payback on a successful favorite bid is taxed far more highly than are winnings from a longshot bet, offering racing patrons a price incentive to wager on longshots in comparison with favorites.

This "longshot-favorite bias" is relevant to the empirical analysis that follows later in this chapter since several new wagering opportunities in California now offer bettors low probabilities of winning very large prizes. First, the "Pick Six" (a type of exotic wager in which the bettor must correctly choose the winners of six races) was introduced in 1980 at Hollywood Park, and in 1981 at the remaining four major Thoroughbred tracks. More recently, the Pick Six has been modified to include a rollover of the pool from day to day until there is a winner; and at some tracks a Pick Nine pool has been initiated, offering even longer odds than the Pick Six. The creation of the California state lottery, beginning with instant-win ("scratchers") games in 1985 and followed by a lotto game in October of 1986, has provided a significant gambling alternative to California bettors in recent years—one offering very long odds of winning a very large prize. The popular-

ity of the lotto game and the success of the new exotic wagering alternatives at the track suggest that the public's demand for racing may have shifted in recent years in response to the introduction of these new, "longshot," types of bets.

Based on race-by-race data from Maryland tracks, Lawrence, Jones and Bender (1978) estimated that the total amount wagered on a given race was significantly higher if exotic wagering was offered. However, the effect of exotic wagering on total daily handle was not examined. Also, during the period of analysis, exotic wagering in Maryland was limited to one daily double and two exactas. The proliferation of exotic wagering opportunities in California permits further investigation of the longshot-favorite-bias issue.

Graphical Overview of Factors Affecting Demand for California Thoroughbred Racing

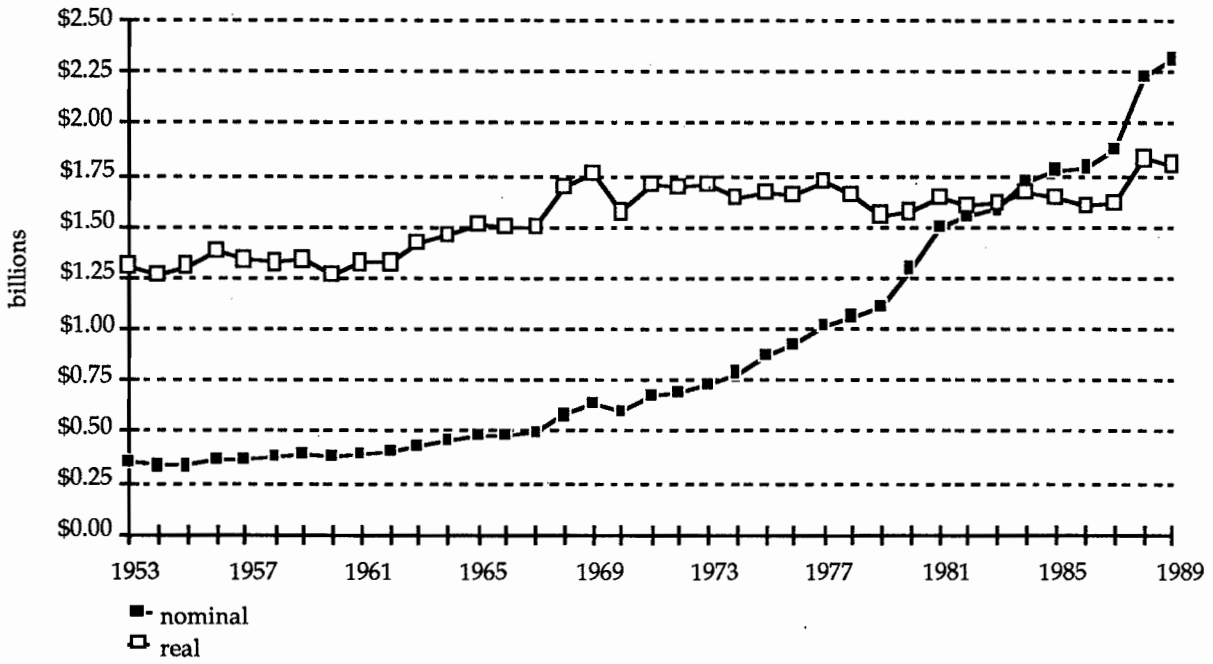
This section provides an overview of trends in (a) the demand for attendance and wagering at California's major Thoroughbred race tracks; and in (b) other variables that are likely to be important determinants of racing demand in the state. The time period considered is 1953 through 1989.

As mentioned in Chapter 3, total revenues derived from the public at race tracks are generated by pari-mutuel and non-pari-mutuel activities. Pari-mutuel sources of revenue are wagering-related; these revenues are based on the total amount wagered (the total handle) and on the takeout rate. Non-pari-mutuel revenues depend primarily on attendance; these include admission fees, concession sales, and parking fees. Wagering-related revenues are affected both by attendance and by the amount wagered per attendee. Thus trends in attendance, in handle per attendee and in the effective takeout rate all affect total revenues.

Figure 4-1 illustrates the nominal and real values of the total handle wagered per year on Thoroughbred racing at major California race tracks and satellite wagering facilities. In nominal terms, total handle has grown more than sevenfold over the sample period. On a real basis, growth has been far less dramatic, showing some strength during the 1960s, a slight downturn in the late 1970s, and renewed strength in 1988, while remaining essentially flat in other years. It is important to remember that this graph represents the sum of both on-track and off-track activity.

Figure 4-2 presents the annual nominal and real on-track handle for major California Thoroughbred meets.

Figure 4-1. Total Handle, Nominal and Real* Dollars, California, 1953-1989



* Real dollars are deflated by the California CPI (1982-1984=100).

Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

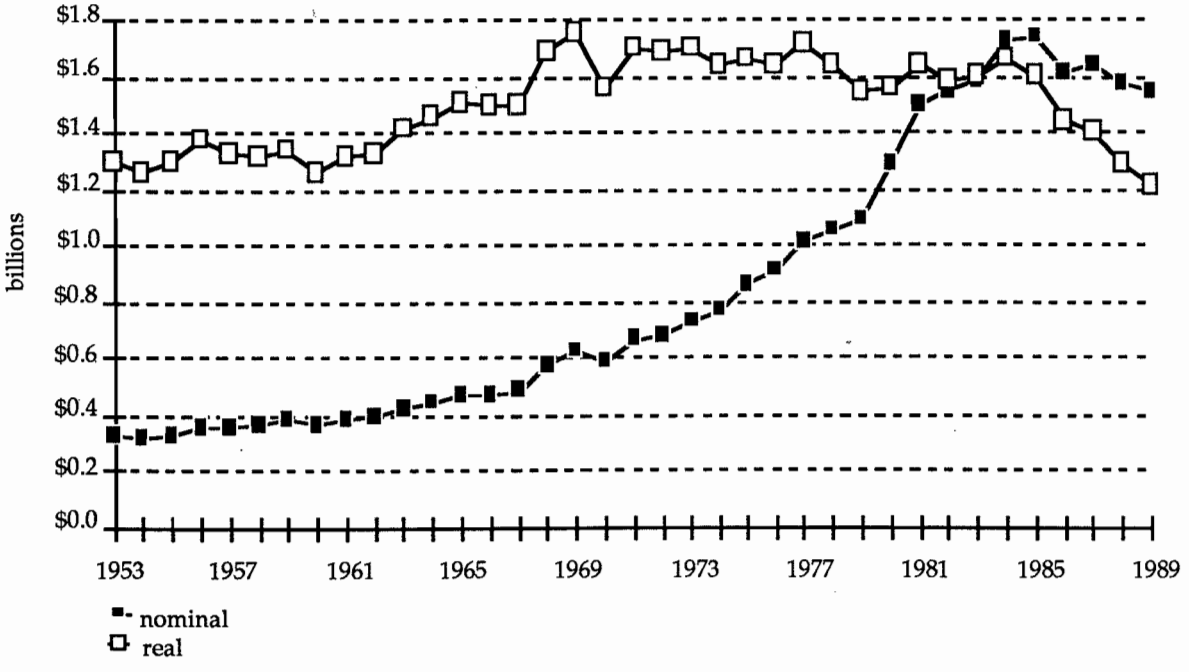
Until 1985, all wagering was on-track; thus this figure differs from Figure 4-1 only in excluding the handle from satellite wagering for the years 1985-89. Note that on-track handle dropped by approximately $400 million in real terms between 1985 and 1989, while total handle including satellite wagering rose by less than half that amount. It would appear that satellite wagering may be capturing a portion of the handle that otherwise would have been wagered on-track.

In addition to the total handle and on-track handle, another important measure of the demand for racing is attendance. Figure 4-3 portrays total and on-track attendance. Total attendance has grown quite steadily over most of the sample period and increased sharply in 1988, reflecting a surge in attendance at satellite wagering facilities. On-track attendance has dropped noticeably during the period coinciding with the introduction of satellite wagering and the California lottery.

Since total attendance has risen more rapidly than total real handle, it is clear that the real dollar amount wagered per attendee per day has been declining over much of the sample period. This trend can be seen in Figure 4-4. From 1953 to 1989, the amount wagered on-track per patron per day of attendance declined by over a third on a real basis.

While total handle and attendance are important indicators of the level of demand for Thoroughbred racing in California, they do not provide a complete picture of demand conditions. The population of California has been growing rapidly for many years, as illustrated in Figure 4-5. This increase in the pool of potential racegoers may conceal a decline in the frequency of attendance on a per capita basis, lending the appearance of healthy demand during periods when attendance is actually growing more slowly than is population. Figure 4-6 illustrates the number of track admissions per thousand residents of California. During the 1950s and early 1960s, the popularity of racing as measured by per capita attendance declined sharply, which would have implied a serious decline in overall demand had not population growth cushioned its impact. From 1967 through 1979, per capita attendance fluctuated about a slight upward trend. Beginning in 1980, a strong upsurge in per capita attendance has occurred; this might reflect bettors' enthusiasm for new types of bets such as the Pick Six, introduced in 1980 at Hollywood Park, and in 1981 at the other major tracks. The advent of satellite wagering appears to have led to a steep decline in on-track attendance per capita, while stimulating total (on- and off-track) attendance per capita. In 1988, total attendance per capita reached

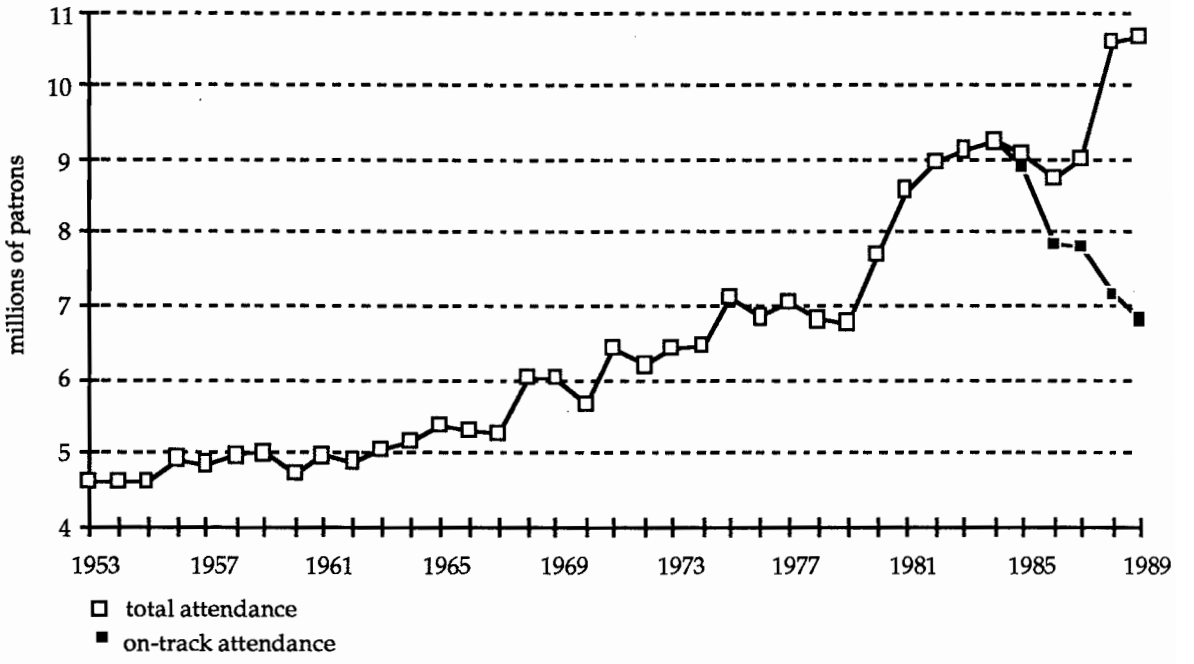
Figure 4-2. On-Track Handle, Nominal and Real* Dollars, California, 1953-1989



* Real dollars are deflated by the California CPI (1982-1984=100).

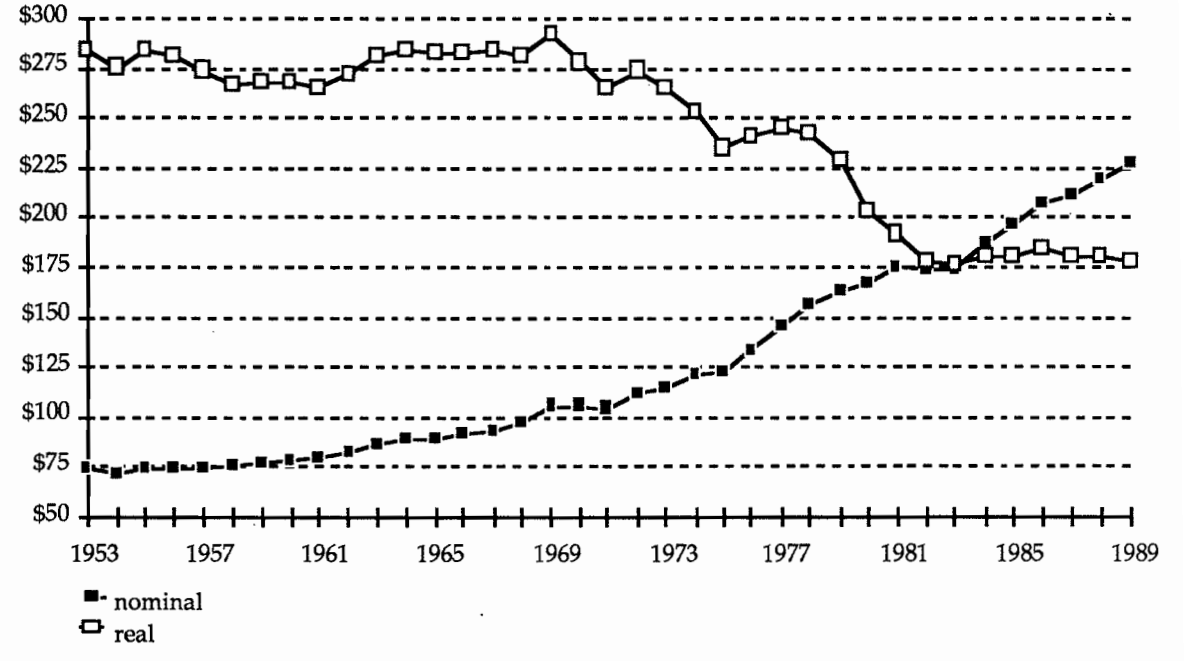
Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

Figure 4-3. Total and On-Track Attendance, California, 1953-1989



Source: California Horse Racing Board, *Statistical Report of Operations,* Annual Issues.

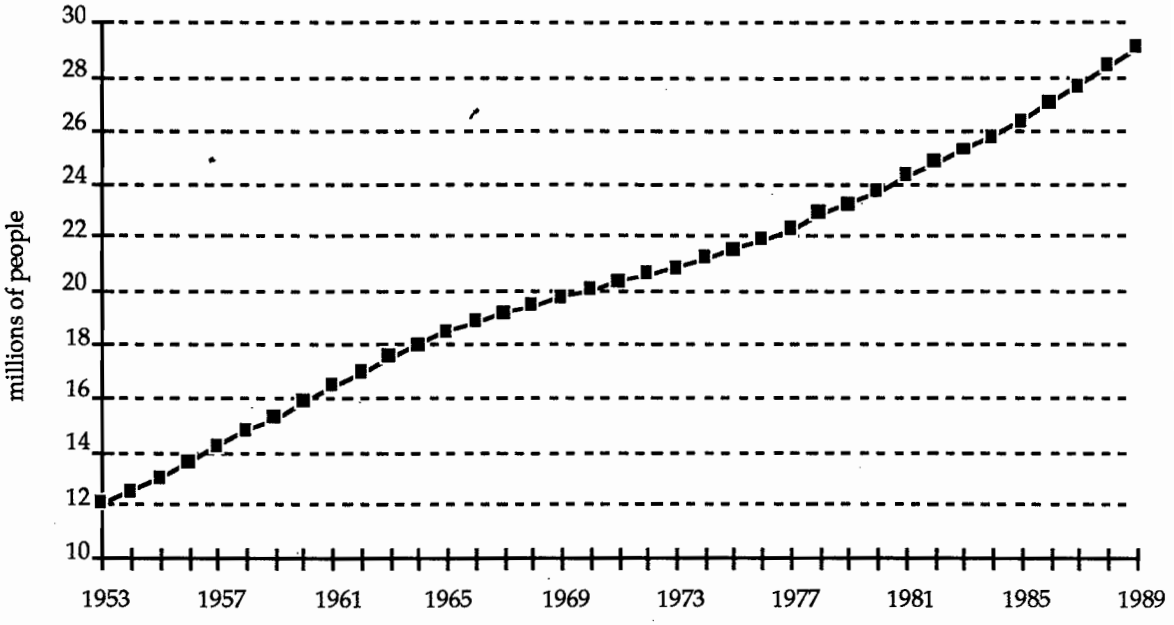
Figure 4-4. On-Track Handle Per Patron, Nominal and Real* Dollars, California, 1953-1989



* Real dollars are deflated by the California CPI (1982-1984=100).

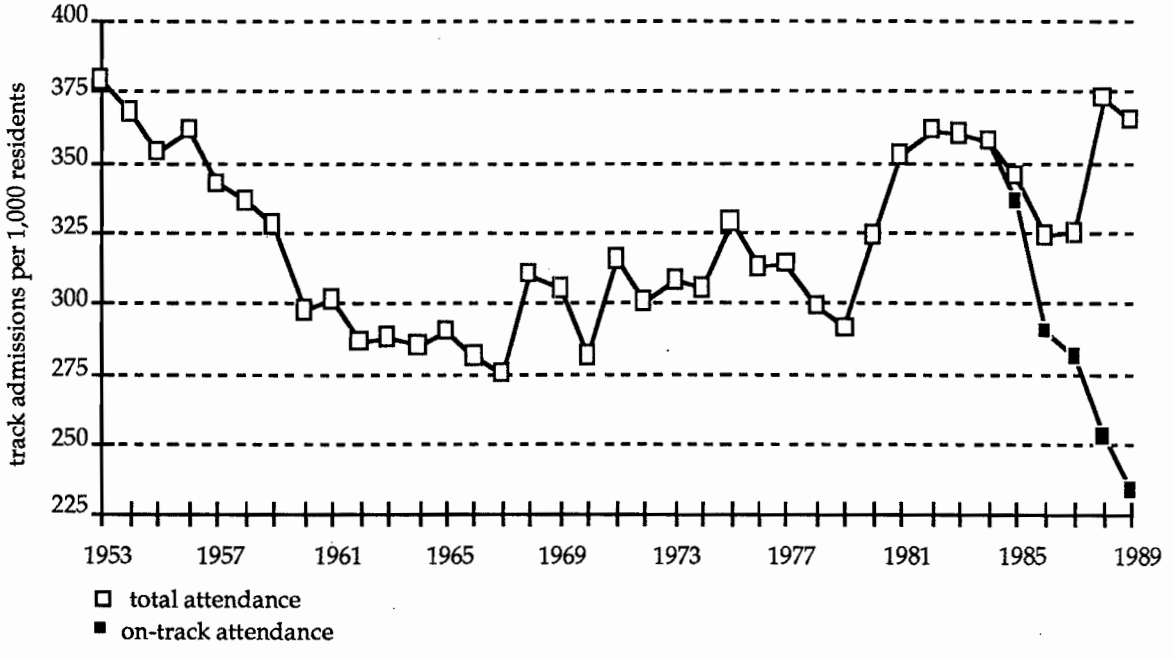
Source: California Horse Racing Board, *Statistical Report of Operations,* Annual Issues.

Figure 4-5. California Population, 1953-1989



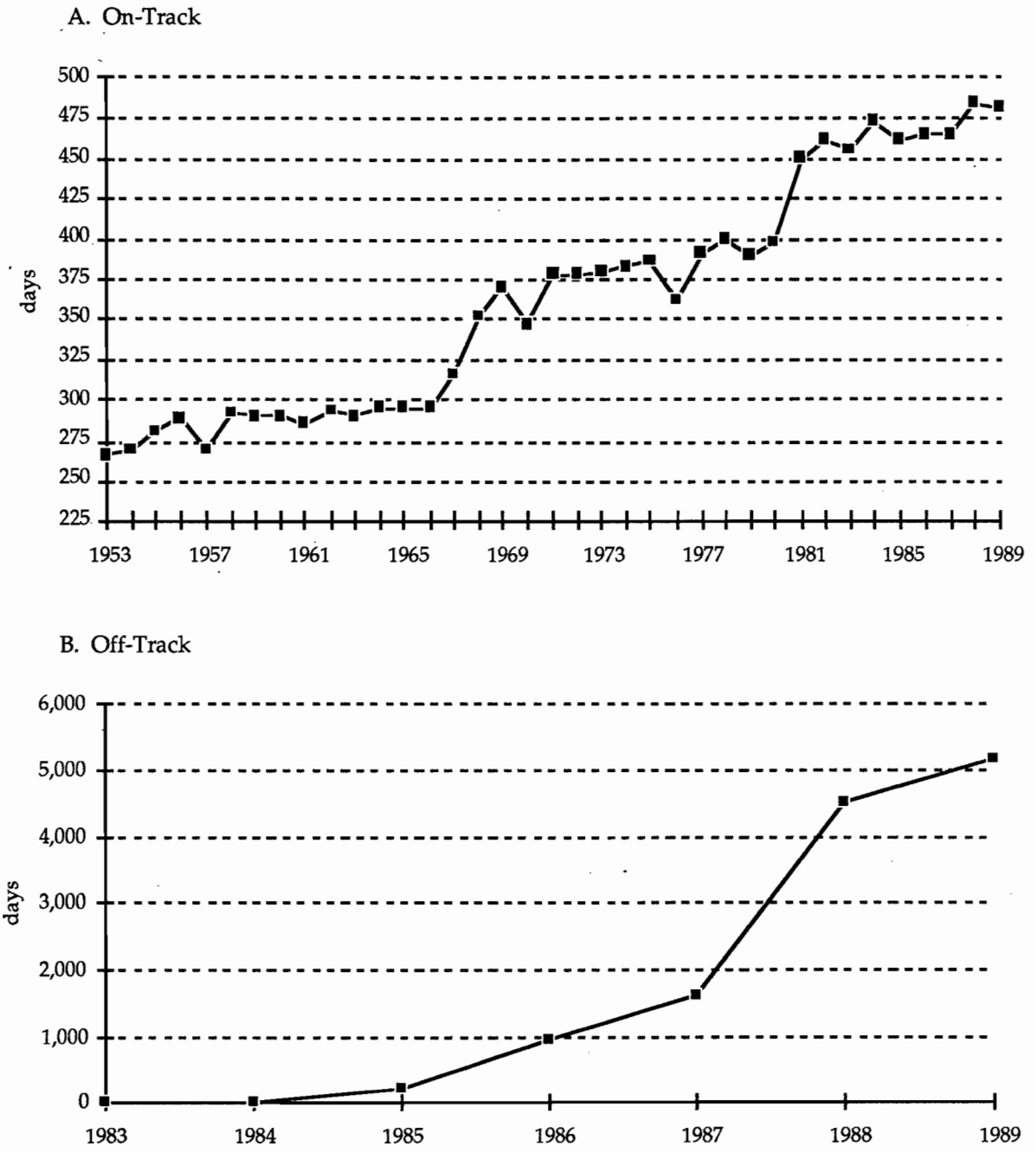
Source: Department of Finance, *California Statistical Abstracts*, 1989.

Figure 4-6. California Per Capita Attendance, 1953-1989



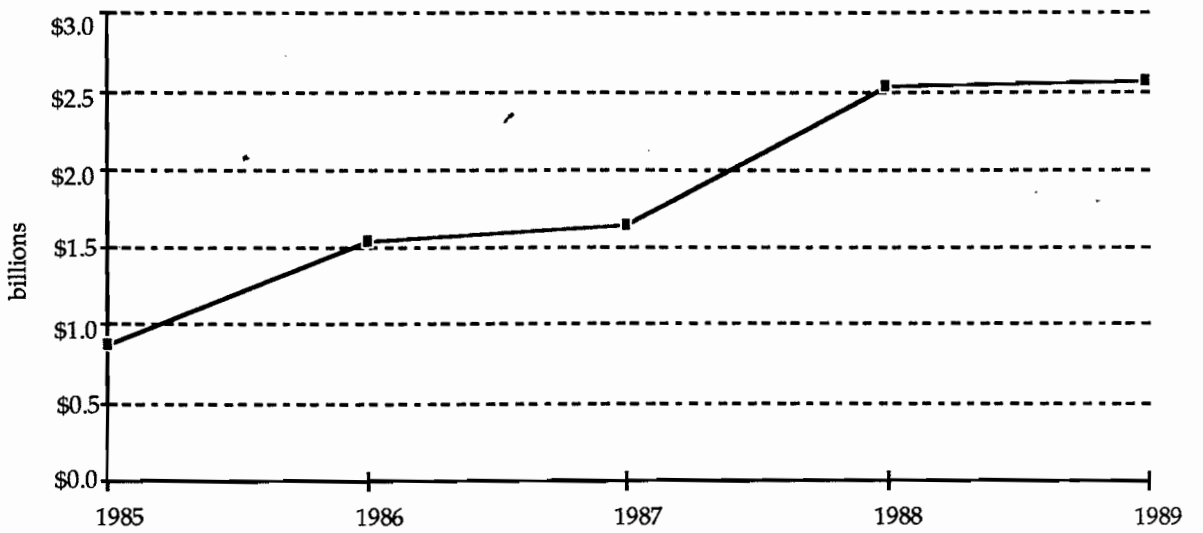
Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

Figure 4-7. Racing Days On-Track (A) and Off-Track (B), California, 1953-1989



Source: California Horse Racing Board, *Statistical Report of Operations*, Annual Issues.

Figure 4-8. Annual California Lottery Sales, 1985-1989*



* Lottery sales began in October, 1985.

Source: State Lottery Commission, *Quarterly Financial Reports.*

its highest level since 1953, while in 1989 on-track attendance fell to a new low of 234 (per thousand California residents).

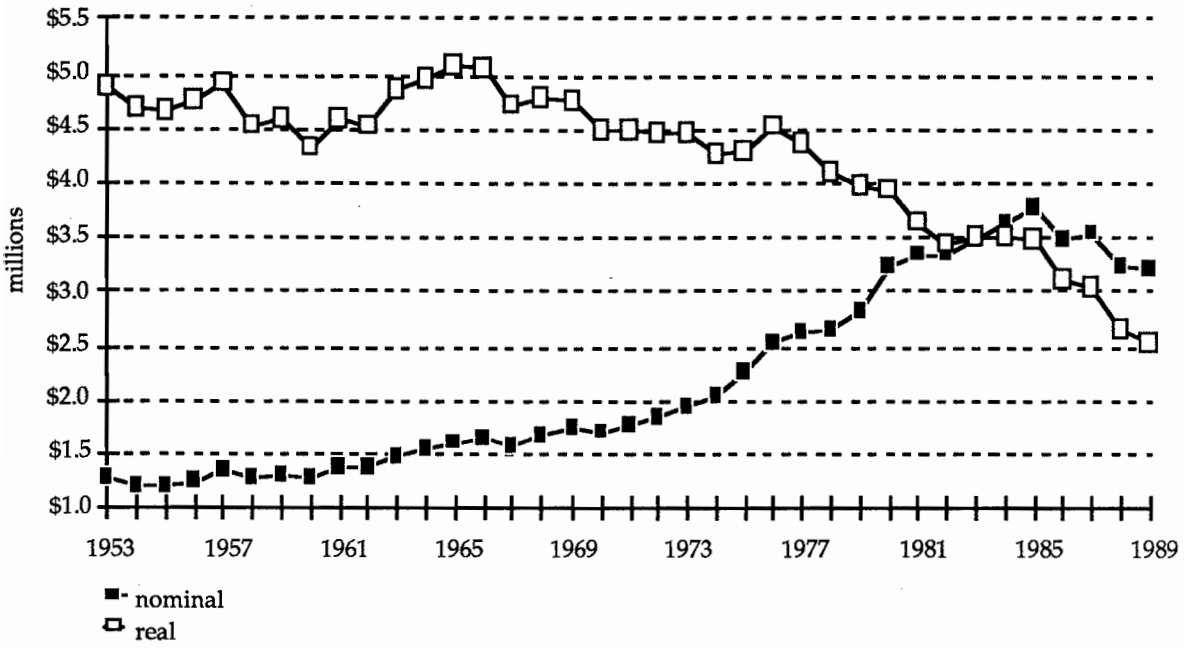
The remaining figures show trends in several variables that are hypothesized to affect attendance and wagering at major Thoroughbred tracks in the state. First, attendance and handle are influenced by the number of racing days available. As mentioned in previous chapters, the supply of on-track and satellite racing days are regulated by the State of California; they are graphed in Figure 4-7. On-track days have risen quite steadily throughout the entire sample period, while off-track days have increased precipitously, from zero to over 5,000 days offered per annum in just a five-year period. Another form of legal gambling, the California state lottery, has also become available only since 1985, as shown in Figure 4-8. Clearly, the market environment in which Thoroughbred racing competes for customers is currently in a state of rapid change.

Figure 4-9 presents the on-track handle on a per-racing-day basis. Nominal handle per day exhibited steady growth through 1985. The decline since 1985 may be related to the advent of satellite wagering, and perhaps to competition from the state lottery as well. On a real basis, the on-track handle per day has slipped by almost half since 1953. However, this in itself does not necessarily imply weak demand for wagering on races since the number of days of racing has grown substantially during the same period.

The demand for many goods and services tends to increase when consumers' per capita real incomes increase. Goods for which demand rises when incomes rise are termed *normal* goods. The demand for some products, however, declines when income rises; this type of good is termed an *inferior* good. For example, when income rises a person may switch from eating beans (an inferior good) to eating more beef (a normal good) since he or she can now afford to do so. Whether racing is a normal or inferior good is an empirical question, discussed later in this chapter. Per capita real income in California is depicted in Figure 4-10. Overall, it has grown strongly except during the recession period of the early 1980s and smaller declines in 1954, 1958 and 1975.

The demand for any product will typically decline when that product's price rises. One measure of the "price" of pari-mutuel wagering is the effective takeout rate. Figure 4-11 plots movements in the effective takeout rate over the sample period. This rate has risen by more than four percentage points since 1953, implying that bettors are paying a higher price to wager than was true in earlier years. In 1953, bettors would on average expect to win back more than 86 cents on every dollar wagered. Today, the expected return per dollar has fallen to less than 82 cents.

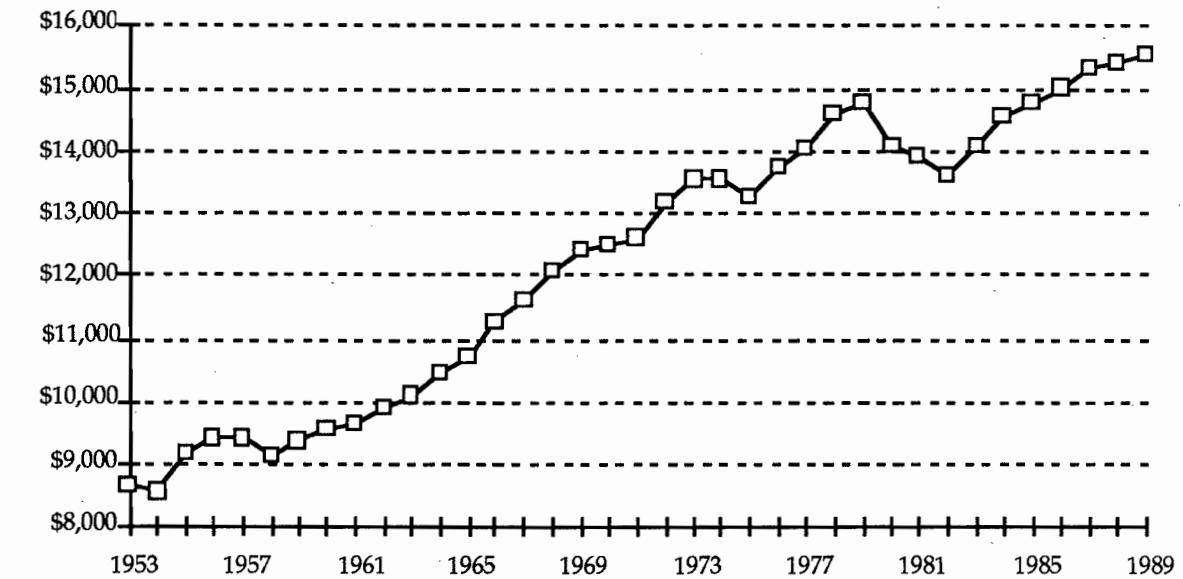
Figure 4-9. On-Track Handle Per Day, Nominal and Real* Dollars, California, 1953-1989



* Real dollars are deflated by the California CPI (1982-1984=100).

Source: California Horse Racing Board, *Statistical Report of Operations,* Annual Issues.

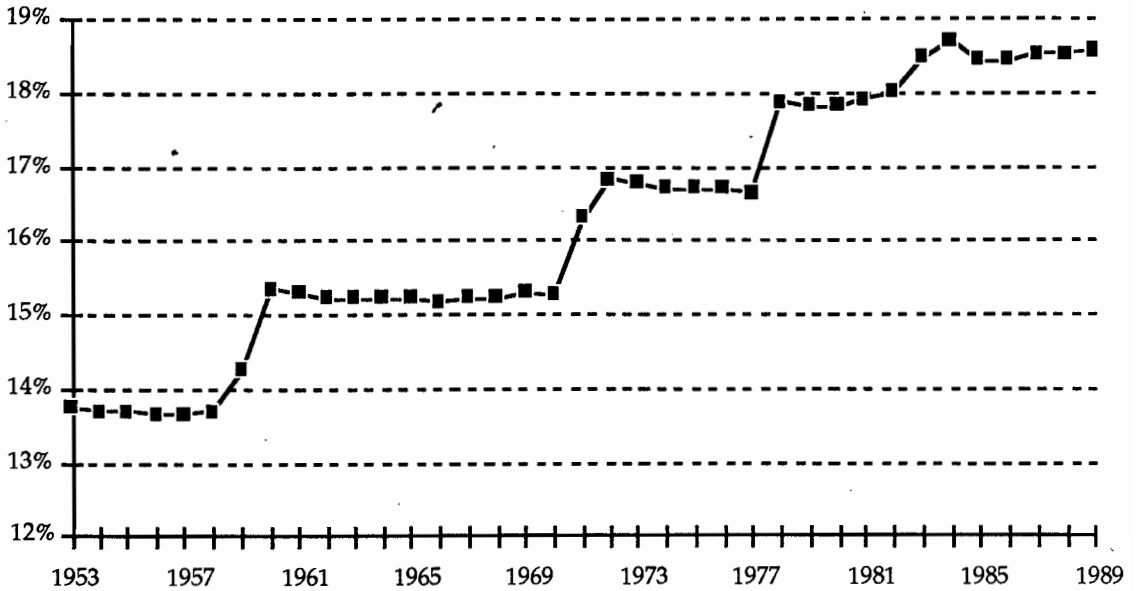
Figure 4-10. Real* Income Per Capita, California, 1953-1989



* Real dollars are deflated by the California CPI (1982-1984=100).

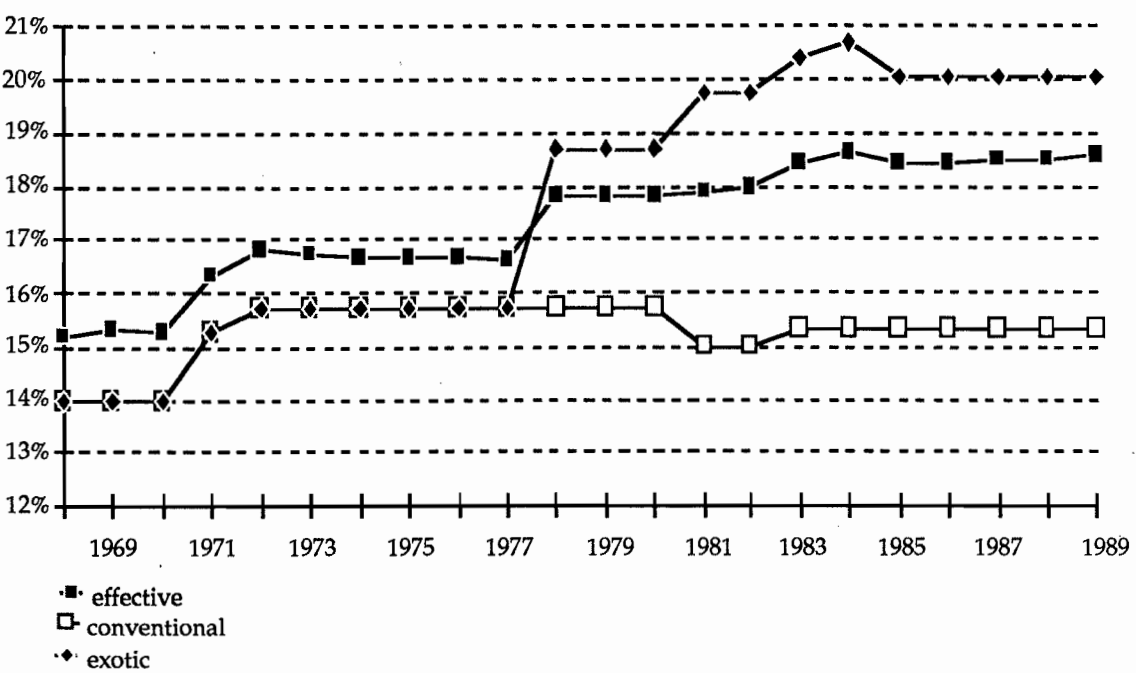
Source: Department of Finance, *California Statistical Abstracts,* 1989.

Figure 4-11. Effective Takeout Rate, California, 1953-1989



Source: California Horse Racing Board, *Statistical Report of Operations,* Annual Issues.

Figure 4-12. Takeout Rates on Conventional and Exotic Bets, California, 1968-1989



Source: California Horse Racing Board, *Statistical Report of Operations,* Annual Issues.

Recently, there has been an important change in the way in which the effective takeout rate is determined in California. Since 1978, the state has authorized the racing associations to collect a surcharge on exotic bets from the total handle wagered on exotic bets, in addition to the standard legislated takeout rate that applies to all types of bets. The surcharge was three percent in 1989. As a result, the overall takeout rate from all bets combined now increases when the percentage of the total handle that is in exotic pools (such as Exactas, the Daily Double or the Pick Six) rises relative to the percentage wagered in conventional (win-place-show) pools. For this reason, consumer demand for wagering not only is affected by the takeout rate, but now also affects the rate. This can be seen in Figure 4-12.

In the decade prior to 1978, the effective takeout tended to be about one percent higher than the baseline legislated takeout rate. The difference arose because amounts paid on winning tickets are rounded down to the nearest 10 cents per dollar, with the remainder, known as "breakage," not paid back to bettors. Once the surcharge on exotic wagers was put into effect in 1978, the effective takeout rate became a weighted average of the two differing legislated rates (conventional and exotic), plus breakage.

This section has provided a graphical overview of trends in the demand for attending and wagering on Thoroughbred races in California from 1953-1989, and also has illustrated the behavior over time of other variables that may affect demand. In the following section, equations describing the relationship between these variables will be developed and estimated in order to examine in more depth the determinants of public demand for attendance and wagering opportunities in the state.

Empirical Analysis of the Demand for Thoroughbred Racing in California

In this section we identify factors that may be important in explaining the public's demand for attending and wagering on Thoroughbred races in California, and use multiple regression analysis to measure their effects on racing attendance and handle wagered per attendee. We first discuss some basic issues that were considered in developing the demand equations to be estimated and describe the data used. Next we report two sets of regression results. These correspond to the two sets of annual data used in this analysis: (i) statewide data for the period 1953-1989; and (ii) observations by major Thoroughbred track from 1970-1988. The chapter concludes with a summary of our findings and some policy implications.

General Considerations

A first step in understanding how the demand for racing activities is determined is to identify those variables that are believed to influence racegoers' attendance and wagering patterns in some manner. Economic theory indicates that the demand for any consumer good typically is affected by the population of potential consumers and their income levels; the good's own price; and the quantities or prices of substitute or complementary goods. In addition, there may be other demand shifters that are specific to the good in question. For instance, the demand for attending outdoor sporting events can be influenced by the weather, the location and quality of the facilities, and the quality of the event itself. (For team sports, quality might be measured by the win-loss record; and for horse racing, by the calibre of horses entered in competition.)

Using economic theory and findings from the existing racing literature as guidelines, a number of factors likely to influence the demand for California parimutuel wagering and race attendance were identified for possible inclusion in our econometric analysis. These variables included state population; real income per capita; the unemployment rate; various measures of the price of attendance and wagering; the number of on-track and satellite racing days offered; the existence of Pick Six and Pick Nine wagers; and the availability of other forms of gambling and/or spectator activities such as Nevada wagering, professional sporting events, harness and Quarterhorse racing, and the California lottery. The size of purses paid by California race tracks was included as an indicator of the quality of racing offered, since larger purses tend to attract better horses. From this list, the final set of variables that was included in each regression equation was chosen based on (a) the availability of consistent time series observations for the period under consideration; and (b) statistical limitations on the number of parameters that can be estimated given the limited number of observations in each data set.

Several of these variables were not available for the entire period of this analysis, and thus were omitted. However, this is not meant to suggest that their impacts on racing are negligible. Nevada gaming revenues were not available prior to 1965 at the statewide level. We were unable to locate complete records of race track admission fees for the entire period. The same was true for attendance and admissions fees for professional football, baseball and basketball, since such data would need to be disaggregated by dates so as to match sporting events with the relevant race meets. California's definition of unemployment was altered in 1970, so that the reported statewide unemployment rate is inconsistent prior to that date. Also,

reporting of unemployment by county (for use in the track-specific regressions) is inconsistent prior to 1975.

In choosing explanatory variables for the demand analysis, several difficulties were encountered that are peculiar to the racing industry. First, while consumers purchasing a good typically pay a single price, this is not the case for the consumer of racing activities. Rather, the racing patron pays an admission fee (which varies depending on whether a box seat is chosen), along with miscellaneous charges such as fees for parking and for a racing program. Once in attendance at the track, the average "price" paid to wager can be viewed as the percentage of the total handle that is not returned to bettors as winnings. As discussed in the literature review, this is termed the "effective takeout rate" per dollar wagered. A further complication in identifying a "price" of wagering has existed since 1978, when the legislated takeout rate on exotic bets was increased relative to the takeout rate on conventional (win-place-show) wagers. As a result of this surcharge on exotic wagers, the average takeout rate paid by an individual now varies based on the consumer's pattern of wagering. Since there is no single "price" that patrons must pay in order to enjoy horse racing activities, the demand/price relationship for racing is more complex than it is for many other goods.

A second difficulty encountered in estimating racing demand involves the recent changes in the structure of the racing industry mentioned in Chapter 3. Prior to 1985, on-track wagering on horse races constituted the primary legal form of gambling in California; the leading alternative wagering opportunity required travel to Nevada. However, since 1985, drastic changes in the economic environment within which live racing operates have occurred. These include the introduction of satellite wagering at off-track facilities (late 1985) and the advent of the California lottery (also in late 1985). Since these important events occurred nearly simultaneously and have only existed for the past few years, data on which to base estimates of their likely effects on the demand for racing are limited.

Even within the on-track betting environment itself, there have been significant changes in the types of betting opportunities offered to patrons during the period considered in this study. As previously mentioned, new types of exotic wagers (such as the Pick Six and Pick Nine) have been introduced in recent years. These offerings can be viewed as new products, with demand characteristics that are likely to differ somewhat from the demand for more traditional forms of wagers.

As was shown in Figure 4-5, California's population has grown dramatically over the period 1953-1989. This factor alone would be likely to cause total attendance and handle to rise over time, even if per-capita attendance and wagering were declining. In order to better distinguish how factors other than population growth influence racing demand, this analysis follows the approach of Morgan and Vasche (1979) in focusing on two key demand components: (1) attendance per capita and (2) handle or wager per attendee. Note that, by multiplying:

[attendance per capita * wager per attendee * total population],

the total dollars wagered on racing can be derived.

Data Sources

In order to measure the impact of various explanatory factors on the public's demand for racing, three sets of data were assembled and analyzed, each designed to focus on particular aspects of demand behavior.

The first data set consists of statewide observations (aggregated across all race tracks and all regions of the state) for the period 1953-89, and provides an historical perspective of racing demand in the state. The second data set includes individual observations for each of the five major Thoroughbred tracks in California for the years 1970-1988. This disaggregated information permits a more detailed analysis of consumer demand behavior in recent years. Data used to construct these variables were taken from the following sources:

California personal income, population and the California Consumer Price Index (1982 – 1984 = 100) were reported by the California Department of Finance primarily in the annual issues of the California Statistical Abstracts. All data reported in real dollar terms have been deflated by the California CPI.

Data series concerning Thoroughbred horse racing meets and pari-mutuel wagering within California were assembled from the annual statistical reports published by the California Horse Racing Board over the period 1953-1989.

Lottery data, representing total state lottery sales by calendar year, were obtained from the California State Lottery Commission.

In the discussion below, we report our findings first from the statewide analysis and then from the track-specific model.

Regression Results and Statistical Analysis

The Statewide Econometric Model

In this section we examine patterns of attendance and handle per attendee at major Thoroughbred races for California as a whole, over the period 1953-89. We seek to explain how the demand for both live racing activities (on-track) and total racing activities (on-track plus satellite) are affected by various factors in the economy. The explanatory variables included in the analysis are real income per California resident; the effective takeout rate on wagers; the number of on-track racing days; the number of off-track racing days; and real sales of lottery tickets. Since only 37 observations are included in the statewide data set, we defer consideration of the effects of Pick Six wagering and purse size until the track-specific analysis in the next section, where more observations are available and track-specific effects can be accounted for.

The equations to be estimated are:

(1) Attendance per capita = $\alpha_0 + \alpha_1 *$ (per capita income) $+ \alpha_2 *$ (effective takeout rate) $+ \alpha_3 *$ (racing days) $+ \alpha_4 *$ (off-track days) $+ \alpha_5 *$ (lottery sales) $+ e_1$

(2) Real handle wagered per attendee = $\beta_0 + \beta_1 *$ (per capita income) $+ \beta_2 *$ (effective takeout rate) $+ \beta_3 *$ (racing days) $+ \beta_4 *$ (off-track days) $+ \beta_5 *$ (lottery sales) $+ e_2$

where e_1 and e_2 represent random disturbances, and Greek letters indicate unknown parameters to be estimated from the data.

The equations above were estimated by ordinary least squares. Definitions of the variables used in these regressions are given in Table 4-1. Table 4-2 presents the regression results where the variables to be explained are on-track attendance per capita and handle per attendee. Table 4-3 reports the comparable estimated equations for total (including satellite facility) attendance and handle per attendee.

Table 4-1. Definitions of Variables

(Note: Variables measured in real dollars have been deflated by the California consumer price index; base year = 1982-1984)

ATTEND	Annual on-track attendance per thousand California residents at major California Thoroughbred meets.
HANDLE	Amount wagered on-track per attendee, in real dollars.
PCY	Real per-capita annual income of California residents.
ETO	Effective take-out; the percentage of total handle that was not returned to bettors as winnings.
DAYS	The sum of all racing days offered by major California race tracks per annum.
OTDAYS	The sum of all racing days offered by off-track satellite wagering facilities per annum.
LOTTERY	Real dollars wagered per thousand California residents on the California state lottery.
TATTEND	Actual attendance per thousand California residents at major California Thoroughbred meets. This figure includes attendance at satellite facilities receiving a signal from a major Thoroughbred meet.
THANDLE	Amount wagered per attendee on major California Thoroughbred meets in real dollars. This figure includes the money wagered at satellite facilities receiving a signal from a major Thoroughbred meet.

Table 4-2. Estimated Demand for On-track Attendance and Pari-Mutuel Wagering at Major California Thoroughbred Race Tracks, 1953-1989[a]

Equation 1. Annual On-Track Attendance per Thousand California Residents

$$\underset{}{\text{ATTEND}} = \underset{(7.26)}{409.92} - \underset{(-4.44)}{.0217} * \text{PCY} - \underset{(-1.69)}{11.817} * \text{ETO} + \underset{(5.02)}{1.017} * \text{DAYS} - \underset{(-2.03)}{.0140} * \text{OTDAYS} - \underset{(-1.22)}{.00052} * \text{LOTTERY}$$

$R^2 = .70$

Equation 2. On-Track Handle Wagered per Attendee

$$\underset{}{\text{HANDLE}} = \underset{(14.04)}{544.72} + \underset{(4.87)}{.0163} * \text{PCY} - \underset{(-3.91)}{18.837} * \text{ETO} - \underset{(-4.56)}{.530} * \text{DAYS} + \underset{(0.46)}{.0022} * \text{OTDAYS} - \underset{(-1.18)}{.00035} * \text{LOTTERY}$$

$R^2 = .90$

[a]Figures in parentheses are t-ratios.

Effect of Takeout Rate on Attendance and Handle

As mentioned earlier in this chapter, the elasticity of demand for pari-mutuel wagering with respect to the effective takeout rate is a key figure, since it indicates whether the current takeout percentage maximizes wagering revenues. This number indicates the percentage change in handle that results from a one percent increase in the effective takeout rate. If this elasticity is less than -1, then reducing the effective takeout rate will increase total takeout revenues, since the reduction in the takeout rate is more than offset by the resulting increase in total handle. If instead the elasticity is between 0 and -1, then track and state revenues will grow if the takeout rate is increased.[4]

Referring to Table 4-2, equation 1, the effective takeout rate (abbreviated ETO) is found to have a negative effect on per capita on-track attendance that is statistically significant at the .90 confidence level as measured by the t-test. Evaluated at the means of the data, the elasticity of attendance with respect to the ETO is -.61. This implies that a one percent increase in ETO results in a decline of .61 percent in per capita on-track attendance, given that all other factors remain unchanged.

In Table 4-2, equation 2, an increase in ETO is also seen to reduce on-track handle per attendee; this effect is significant at the .99 level. The elasticity of on-track handle per attendee with respect to ETO (evaluated at the means) is -1.25.

Perhaps of greatest interest is the elasticity of total on-track handle with respect to the effective takeout rate. This elasticity equals the sum of the effects of the takeout rate on attendance and on wagering per attendee, and is estimated to equal -1.86. This price elasticity implies that a reduction in the current effective takeout rate will increase total on-track revenues from wagering, other variables held constant. About one-third of the estimated effect of ETO on total on-track handle is due to changes in attendance, with the remaining two-thirds of the effect arising from changes in wagering per attendee.

Regression results in Table 4-3 differ from those in Table 4-2 in that attendance and wagering at satellite facilities are included in the data. An increase in the effective takeout rate is found to decrease both total attendance and wagering per attendee. The former effect is significant at the .90 level, the latter at the .99 level. A one percent increase in ETO is estimated to cause a .60 percent decline in total attendance per capita; a 1.25 percent drop in handle per attendee; and an overall reduction in total handle of 1.85 percent. As with on-track handle, total handle is elastic with respect to ETO (since -1.85 is less than -1). This implies that the total revenues from wagering would rise if the ETO were reduced.

[4] See appendix D-1 for a more detailed explanation of elasticities.

Effect of Live (On-track) Racing Days on Attendance and Handle

The estimated effect of increasing on-track racing days by one percent is to raise on-track attendance by 1.18 percent, while decreasing handle per attendee by .79 percent (Table 4-2). Both effects are statistically significant at the .99 level. As expected, an expansion of available days stimulates on-track attendance; it also appears to cause some bettors to spread their wagering activity over more days and thus bet less per visit to the track. These estimates imply that, historically, a one percent increase in racing days has generated a net gain of .39 percent in total wagering revenues (1.18 percent increase due to attendance gains minus .79 percent loss from declining wagering per attendee).

In Table 4-3, the effects of an increase in on-track racing days on total attendance and handle per attendee are found to be similar to those for on-track activity. Again, attendance rises while handle per attendee falls, with both effects significant at the .99 level. A one percent increase in racing days leads to a 1.15 percent gain in attendance per capita, a .79 percent decline in handle per attendee, and therefore a net revenue gain from wagering of .36 percent.

While these empirical findings suggest that further expansion of live racing days has some potential to increase revenues, several caveats are in order. First, the number of live racing days in each region of the state (north, south) has risen greatly in recent years. Thus, the opportunity for further expansion of racing days is limited if overlapping of race meets within the same market area is to be avoided. Second, to expand racing days is not costless; such additional costs must be weighed against any potential pari-mutuel and non-pari-mutuel revenue increases resulting from an increase in racing days. As a third consideration, off-track wagering was in effect only during the last five years covered by the regression analysis. Dramatic recent increases in off-track days may alter the historical relationship between on-track wagering and racing days.

Effect of Satellite Days on Attendance and Wagering

In Table 4-2 equation 1, OTDAYS (the number of days offered at California satellite facilities per annum) is found to have a negative effect on on-track attendance that is statistically significant at the .95 confidence level. However, the estimated effect of a one percent increase in off-track days on on-track attendance is very small (only -.015 percent.) The impact of off-track days on on-track handle per attendee appears to be negligible; it is near zero and not statistically significant.

Turning to Table 4-3, a one percent increase in OTDAYS is estimated to increase total attendance very slightly (by .01 percent). This effect is significant at .90 level. The estimated effect of OTDAYS on total handle per attendee appears negligible.

Table 4-3. Estimated Demand for Attendance and Pari-Mutuel Wagering at Major California Thoroughbred Race Tracks and Satellite Facilities, Statewide Data, 1953-1989[a]

Equation 1. Total Annual Attendance per Thousand California Residents

$$\text{TATTEND} = 410.73 - .0217 * \text{PCY} - 11.88 * \text{ETO} + 1.017 * \text{DAYS} + .0096 * \text{OTDAYS} - .00035 * \text{LOTTERY}$$

(7.29) (–4.45) (–1.70) (6.03) (1.40) (–0.83)

$R^2 = .63$

Equation 2. Total Handle Wagered per Attendee

$$\text{THANDLE} = 544.68 + .0163 * \text{PCY} - 18.83 * \text{ETO} - .529 * \text{DAYS} - .00077 * \text{OTDAYS} - .00036 * \text{LOTTERY}$$

(14.04) (4.86) (–3.91) (–4.56) (–0.16) (–1.23)

$R^2 = .91$

[a]Figures in parentheses are t-ratios.

Given these estimates, it would appear that substantial gains in revenues are unlikely to come from further expansion of satellite racing days in California. However, satellite wagering was in existence only during the final five years included in this analysis, so this finding is based on limited data. Also, the effect of an additional satellite day will certainly vary depending on the market in which it is offered; site-specific information is required to make this decision.

Effect of the California Lottery on Attendance and Wagering.

Increases in LOTTERY (real lottery sales per thousand California residents) are found to be negatively related to both on-track (Table 4-2) and total (Table 4-3) attendance and handle per attendee. Thus there is some evidence that the lottery competes with racing for customers' dollars. However, in each case the estimated effect of the lottery on racegoing and wagering is small in magnitude and not statistically significant at the usual levels. Because only the final five observations of the statewide data set include the lottery, the sample period may simply be too short to allow for an accurate measurement of the impact of the lottery on race track attendance and wagering.

Effect of Per Capita Real Income on Attendance and Wagering

Another explanatory variable of interest is per capita real income. Rising real income is found to have a negative and statistically significant effect on race track attendance, but a positive and significant effect on wager per attendee. A one percent increase in PCY is estimated to reduce on-track attendance by .85 percent, and total attendance by .82 percent. At the same time, on-track and total handle per attendee each rise an estimated .82 percent.

Income's negative effect on attendance may in part reflect the scarcity of free time that is associated with high levels of employment and earnings in the population; track attendance is a time-consuming activity. Once at the track, however, attendees appear to wager more during prosperous periods, as would be expected. Since attendance and wagering effects are nearly equal in magnitude and opposite in sign, the net result is that total handle is not very sensitive to changes in PCY.

Demand Analysis by Major Thoroughbred Track

In this section the demand for attendance and wagering (on- and off-track combined) is analyzed using data collected individually from each major Thoroughbred race track in California over the years 1970-1988. The data set includes 19 annual observations per track and five major tracks, for a total of 95 observations. Because five observations are available per year, this data set is better suited to examining the effects of recent changes in the racing environment (such as the introduction of satellite wagering, new types of bets, and the California lottery) than is the statewide data set used in the previous section. Another advantage of using track-specific data is that factors unique to each track, such as location or quality of facilities, can be accounted for by allowing the intercept of each estimated demand function to vary by track.

As in the statewide analysis, we estimate two equations: (i) attendance per thousand California residents and (ii) handle wagered per attendee (including satellite facility activity). Explanatory variables include those used in the statewide model, plus additional variables designed to capture the impacts of track-specific effects, horse quality as measured by the size of purses, and the introduction of new types of wagers such as the Pick Six. Definitions of these variables, together with their abbreviations, are found in Table 4-4. Regression results are reported in Table 4-5.

Track-specific Components of Attendance and Wagering

In the regression equations of Table 4-5, the variables GG, BM, HP, SA and DM represent the effects of factors specific to each race track (such as location or ease of access) that are not otherwise included in this model. As an example, the variable GG equals one for any observation taken at Golden Gate Fields, and zero for observations from other race tracks. In equation 1 (Table 4-5), the estimated intercepts for attendance per thousand residents range from approximately 54 (at Del Mar) to 112 (at Santa Anita). These estimates imply that, even if all other factors could be held equal for every track, Santa Anita and Hollywood Park would be expected to have substantially higher attendance per capita than do the remaining tracks.

Handle wagered per attendee varies less by track than does attendance. The track-specific variables in Equation 2 (Table 4-5) have coefficients ranging from 501 (Del Mar) to 529 (Bay Meadows), indicating that, all else equal, handle per attendee at each major race track would be fairly uniform across tracks.

Effect of Takeout Rate on Total Attendance and Handle

Recall that the elasticity of demand for racing activities with respect to the effective takeout rate measures how revenues will respond when the takeout rate is raised by one percent. In the track-specific analysis for 1970-1988 (Table 4-5), the estimated elasticity of the total handle with respect to ETO is -1.77, indicating (as in the statewide analysis) that pari-mutuel revenues can be enhanced by reducing ETO.

The effective takeout rate is found to be negatively related both to per capita attendance and to handle per

attendee. However, its estimated impact on attendance is small and does not differ significantly from zero. A one percent increase in ETO results in a estimated decline of .20 percent in on-track attendance and a reduction in handle per attendee of 1.57 percent, given that all other factors remain unchanged.

Effect of Live (On-track) Racing Days on Attendance and Handle

A one percent increase in on-track racing days is estimated to raise attendance by .78 percent, while decreasing handle per attendee by .016 percent (Table 4-5). The impact on attendance is statistically significant at the .99 level, while the effect on wagering per attendee does not differ significantly from zero as measured by the t-test.

Comparing these estimates with those from the statewide regressions, note that attendance and handle per attendee appear to have been less responsive to the number of live racing days during 1970-1988 than was the case during the longer 1953-1989

Table 4-4. Definitions of Variables for Track-Specific Econometric Model

(Note: Variables measured in real dollars have been deflated by the California consumer price index; base year = 1982-1984)

TATTEND	Total attendance per thousand California residents by major Thoroughbred track. This figure includes people attending satellite facilities to wager on races hosted by the major Thoroughbred track.
THANDLE	Amount wagered per attendee on each major Thoroughbred meet in real dollars. This figure includes the money wagered at all satellite facilities acting as a guest site for the major Thoroughbred meet.
GG	Dummy variable to indicate that the observation came from the meet at the Golden Gate Fields race track.
BM	Dummy variable to indicate that the observation came from the meet at the Bay Meadows race track.
DM	Dummy variable to indicate that the observation came from the meet at the Del Mar race track.
HP	Dummy variable to indicate that the observation came from a meet at the Hollywood Park race track.
SA	Dummy variable to indicate that the observation came from the meet at the Santa Anita race track.
PCY	Real per capita income of Northern California residents if the observation came from BM or GG, or southern California residents if the observation came from SA, HP, or DM (see Figure 2-3 for definition of North versus South).
ETO	Effective takeout by major Thoroughbred tracks.
DAYS	The number of racing days granted to each major Thoroughbred track.
OTDAYS	The sum of all racing days offered by satellite facilities in northern California if the observation came from BM or GG, or southern California if the observation came from HP, SA or DM.
LOTTERY	Real dollars wagered per thousand California residents on the California State Lottery.
PURSE	Real purse money paid per day, in 1,000s.
P6	A dummy variable indicating whether "Pick Six" and/or "Pick Nine" wagering was offered.

period although a significant and positive relationship between days and attendance is still found. However, because handle per attendee was estimated to decline very little in response to additional live racing days in the track-specific model, the percentage increase in total handle from a one-percent increase in live racing days is estimated to be .77, which exceeds the aggregated statewide estimate of .36.

Effect of Satellite Days on Attendance and Wagering

The variable OTDAYS (representing the number of days offered at California satellite facilities per annum in the region where a given race track is located) is found to have a positive effect on total attendance but a negative effect on handle per attendee. These effects are significantly non-zero, but are small in magnitude. A one-percent increase in satellite days in the region where a given track is located (northern or southern California) is estimated to cause a .0140 percent rise in total attendance per capita; a .0063 decline in handle per attendee; and thus a small positive net change (.0077 percent) in total handle per capita.

Effect of the California Lottery on Attendance and Wagering

The estimated effects of real lottery sales on racing attendance and handle per attendee are negative. However, these effects are small in value (implying that a one-percent increase in real lottery sales results in a -.013 percent decline in total handle) and are not statistically different from zero at the usual significance levels. It is possible, that since the lottery variable used here represents real sales of lottery tickets for the state as a whole, the true impact of the lottery on demand for racing activities at each track may be understated. Data on lottery sales by location and date would allow an improved estimate of the lottery's track-specific impacts. Additionally, the lottery existed only during the last five years of the sample period; further observation would allow for a more accurate estimate of its effect on racing demand. Nevertheless, the limited evidence here suggests that the lottery competes to some extent with racing for consumer dollars, but is not viewed by the public as a close substitute for wagering on horse races.

Table 4-5. Estimated Demand for Pari-Mutuel Betting at Major California Thoroughbred Race Tracks, Track-Specific Data, 1970-1988[a]

Equation 1. Total Annual Attendance per Thousand California Residents

TATTEND = 64.546 * GG + 60.075 * BM + 91.813 * HP + 112.38 * SA
(2.68) (2.53) (3.41) (4.20)

+ 54.32 * DM - 1.41 * ETO + 1.13 * DAYS + 0.022 * OTDAYS
(2.22) (-0.64) (8.95) (3.87)

- 0.004 * PCY -0.00008 * LOTTERY + 0.185 * PURSE -1.01 * P6
(-1.90) (-0.91) (3.69) (-0.30)

R^2 = .92

Equation 2. Total Handle Wagered Per Attendee

THANDLE = 519.31 * GG + 528.50 * BM + 525.32 * HP + 505.48 * SA
(11.27) (11.51) (11.03) (10.65)

+ 501.16 * DM - 19.691 * ETO - 0.041 * DAYS - 0.018 * OTDAYS
(10.75) (-4.86) (-0.32) (-2.30)

+ 0.0047 * PCY - 0.00011 * LOTTERY + 0.0406 * PURSE -40.526 * P6
(1.15) (-0.67) (0.87) (-6.43)

R^2 = 0.89

[a]Figures in parentheses are t-ratios.

Effect of Per Capita Real Income on Attendance and Wagering

As in the statewide regressions, income is found to have a negative effect on race track attendance, but a positive on handle per attendee. A one-percent increase in PCY is estimated to reduce attendance per capita by .50 percent, and increase wager per attendee by .36 percent. The effect on wager per attendee is not statistically significant at normal levels here, although it was found to be significant in the statewide model.

These estimates imply that the demand for racing activities has been little affected since 1953 by business cycle fluctuations. Racing demand may even respond countercyclically, rising during business slowdowns and weakening when the general economy is robust.

Effect of Purse Size on Attendance and Handle

We included the variable PURSE in these regressions as an indicator of the average quality of racing offered at each track by year; it measures the average real value of purses paid per racing day during each year, by track. That is, we have assumed that larger purses attract a higher calibre of horses to a race track, thus creating more exciting racing events.

In Table 4-5, Equation 1, PURSE has an estimated effect on attendance that is positive and significant at the .99 level. A one-percent increase in average purse per racing day results in an estimated .28 percent increase in attendance per thousand residents per annum. The estimated effect of PURSE on handle per attendee is also positive, but small and statistically insignificant.

In interpreting the estimated effect of purse size on racing demand, note that amount of money currently available for purses at a track is affected by past levels of wagering activity since a portion of the pari-mutuel pool is set aside as revenue for purses. Thus the purse variable may capture not only the public's response to the quality of racing, but also any other time trends in attendance or handle per attendee. For instance, if attendance at race tracks depends in part on habit formation and past familiarity with racing, then high levels of past attendance will be positively correlated with both high current attendance, and large current purses. To test whether introduction of the PURSE variable affects other parameter estimates in the model, a second set of regressions were run in which purse was omitted. The estimates thus obtained varied only slightly from those reported in Table 4-5.

Effect of Pick Six and Pick Nine Wagering on Attendance and Handle

The variable P6 indicates whether a track offered Pick Six and/or Pick Nine wagering during a particular year; it equals one if so, and zero otherwise. This variable is estimated to have a substantial negative effect on handle per attendee, and the effect is significant at the .99 confidence level. The presence of Pick Six or Pick Nine wagering is associated with a $40 decline in handle per attendee. Surprisingly, the P6 variable does not appear to have a significant impact on attendance.

While these results suggest that Pick Six and Pick Nine wagering may have significantly harmed pari-mutuel revenue generation, a cautionary note is required. The P6 variable indicates only whether these types of bets were offered, not the actual dollar amount wagered on them. Thus estimates of P6's effects can include impacts of any other factors not in the regression equations, provided that their effects occurred at approximately the same time as the introduction of the Pick Six. For instance, if the public's general level of interest in racing activities was lower in the 1980s than in previous years, this would be measured here by the P6 variable. (Because all major California Thoroughbred tracks introduced some type of Pick Six or Pick Nine betting during 1980 or 1981, no "control group" is available to allow examination of wagering and attendance patterns in the absence of such wagers.)

Nevertheless, wagers that depend on the outcome of six or nine races remove money from attendees early in the racing day and do not return winnings until later in the afternoon. This reduces the "churn" (the rewagering of winnings during the day). Total handle will fall unless a substantial portion of wagers on Pick Six/Pick Nine are "new dollars" that would not otherwise have been wagered on other types of bets. The limited information at hand suggests that consumer response to these new wagering opportunities has been insufficient to avoid a negative effect on handle.

A Note on the Effective Takeout Rate

Analysis of both statewide and track-specific data has indicated that pari-mutuel revenues could be enhanced by reducing the current effective takeout percentage (ETO). However, it should be noted that the effective takeout rate is not a single policy variable that can be adjusted directly by the legislature. Instead, the effective takeout rate is itself affected by the behavior of consumers, as is explained below.

Since 1978, a surcharge takeout percentage has been charged on exotic wagers, so that the legislated takeout rate on exotic bets (here termed XTO) is higher than the legislated takeout rate on conventional win-place-show wagers (CTO). The effective takeout rate is a weighted average of the two legislated rates, plus breakage:

ETO = (Exotic Handle * XTO + Conventional Handle * CTO + Exotic Breakage + Conventional Breakage)/Total Handle

The effective takeout rate is thus influenced indirectly, rather than directly, by the legislature, since it can vary if consumers shift dollars from conventional to exotic pools or vice versa. For example, if the overall takeout rate on exotic wagers (including the percent exotic breakage) is higher than the overall rate on conventional wagers (including conventional breakage), then a shift by bettors toward more exotic wagering will cause the effective takeout rate to rise even without any changes in the legislated rates (XTO and CTO).

An analysis of wagering activity by bet type was conducted to explore whether an optimal price differential between the two major categories of wager could be determined. However, no clear-cut consumer response was found to changes in relative legislated takeout rates on conventional and exotic wagers. We feel that our poor statistical results are at least in part due to severe data limitations.

Perhaps the most serious limitation for an analysis of this complexity, is the extremely small size of the data set. Second, the legislated conventional takeout rate was changed only twice during the entire 12-year period included in the data set. On each of these occasions the exotic rate was changed as well. Consequently, the effects of each rate change cannot be clearly distinguished statistically.

Finally, while breakage is a significant component of the effective takeout rate for each type of bet, it is not considered here since past breakage revenues were not reported by type of bet. The variables representing exotic takeout and conventional takeout thus did not represent the entire "price" of each type of wager. On average, the percentage of wagers paid as breakage is likely to be higher on conventional than on exotic pools, so the difference in the overall takeout rate on exotic versus conventional wagers may be smaller than is the difference between the variables we used to represent exotic and conventional takeout rates.

To explore the relationship between the conventional and exotic takeout rates and wagering activity, and to discover whether revenues might be enhanced by changing the relative prices of the two types of wagering, it would be useful to alter one rate but not the other and observe consumer responses (perhaps reducing the conventional takeout rate, but not the exotic takeout rate, for example). If such an experiment were performed, data on breakage should also be maintained by type of bet, to allow a more complete picture of the actual takeout rates on each category of bet.

Summary and Policy Implications

This chapter has examined the effects of various factors on the public's demand for attending and wagering on Thoroughbred races in California. Two sets of annual data were analyzed: statewide data for the years 1953-1989; and data by major race track for 1970-1988. Here we briefly summarize our major results and discuss their policy implications.

Perhaps most notable is the finding that total pari-mutuel revenues are very responsive to changes in the effective takeout rate. In economic terms, the demand for wagering is found to be highly elastic with respect to the "price" of a typical wager. This result indicates that pari-mutuel revenues can be enhanced by reducing the current effective takeout rate.

The estimated effect of reducing the takeout rate varies by year, depending on the current values of model variables. Based on statewide data from 1953-1989 evaluated at mean levels, a one-percent reduction in the effective takeout rate is found to increase the total pari-mutuel handle by 1.77 percent. Using track-specific data from 1970-1988, a one-percent reduction in the effective takeout rate is estimated to cause a 1.86 percent increase in the pari-mutuel handle. Because the total handle increases by a larger percentage than the percent decline in the takeout rate, these estimates imply that pari-mutuel revenues rise when the effective takeout rate is reduced.

To illustrate how pari-mutuel revenues would likely respond to a lower effective takeout rate, we simulated the effects of reducing the 1989 effective takeout rate of 18.55 by (i) one percent to 18.36 percent; and by (ii) five percent to 17.62 percent. Based on the estimated demand functions from Table 4-3 and data values from 1989, we find that:

(i) A simulated one-percent reduction in the 1989 effective takeout rate (from 18.55 to 18.36 percent) resulted in a 2.65 percent increase in expected total handle and 1.59 percent gain in expected pari-mutuel revenues for 1989. This implies an increase in pari-mutuel revenues of approximately $8.7 million (in nominal dollars) over actual 1989 values.

(ii) A simulated five-percent reduction in the 1989 effective takeout rate (from 18.55 to 17.62) resulted in a 14.44 percent increase in expected total handle, and an 8.70 percent gain in expected pari-mutuel revenues for 1989. This implies an increase in pari-mutuel revenues of approximately $47.8 million (in nominal dollars) over actual 1989 values.

Because the econometric methods used in this chapter measure the effects of small changes in relevant

variables on demand, simulations of more substantial reductions in the effective takeout rate were not undertaken. A stepwise reduction in the effective takeout rate would allow observation of market responsiveness to lower rates.

The effective takeout rate is not a single policy variable; rather, it is the sum of separate legislated takeout rates on (a) conventional and (b) exotic wagers, plus breakage on each type of bet. Thus there are alternative ways in which the overall effective and exotic takeout rate can be reduced. For example, legislated conventional and exotic takeout rates could each be lowered by an equal amount; or, instead, one legislated rate could be adjusted downward while maintaining the other at current levels.

A number of other variables are found to affect the total pari-mutuel handle. A one-percent increase in the number of live racing days is estimated to increase total handle by an average of between .36 and .76 percent. However, because the current racing calendar offers little opportunity for further increases in live racing days without overlapping race meets, this policy variable is not likely to provide an important source of new revenues.

A one-percent expansion in the number of satellite racing days is found to have little effect on total handle, suggesting that, in general, the current supply of satellite wagering days is adequate. This does not rule out the possibility that expansion into selected new markets may enhance handle and revenues. Increases in satellite racing days reduce on-track attendance; the effect is small but statistically highly significant. Since on-track attendance generates more attendance-related revenues (admission fees, parking fees and concession sales) per patron than does attendance at satellite facilities, an effort should be made to minimize further competition between satellite and on-track facilities.

We find some evidence that sales of California lottery tickets have a negative impact on Thoroughbred wagering activity, but these effects are small in magnitude and not statistically significant at the usual levels. Based on only the first five years of the lottery's existence, it appears that racing and the lottery compete for wagering dollars, but are not viewed as close substitutes by the public.

A variable that indicates whether Pick Six and/or Pick Nine wagering was offered at each track during a given year was included in the analysis of track-specific data. This variable was associated with a decline in wager per attendee of approximately $40. This negative effect may reflect a reduction of the "churn"; dollars wagered on such bets are temporarily unavailable for rewagering on later races. The negative relationship may also reflect other changes in consumer behavior that coincide with the time of introduction of these types of wagers. Although this finding suggests that Pick Six and Pick Nine wagering can reduce total handle, it may be advisable to continue offering these types of wagers to avoid generating consumer dissatisfaction.

Real per capita income is found to have a negative effect on attendance, but a positive effect on handle per attendee. Overall, total handle changes little in response to changing income. In fact, handle may respond countercyclically, rising slightly when income declines.

Several factors likely to have important effects on the demand for racing activities were not included in the statistical analysis due to lack of data. Admission and parking fees almost certainly affect attendance. Another factor which may impact the demand for racing is the amount of free or recreational time available to potential racing patrons. As mentioned in the discussion of income effects on racing demand, race track attendance requires a substantial amount of free time. This is especially true in comparison with the time required to purchase a lottery ticket. In a busy society, lack of free time is likely to limit track attendance even if admission fees and takeout rates are very reasonable. In this respect, increases in "two-earner families" might hurt racing, while the so-called "graying of America" may boost racing demand in future years, since retirees typically have more time available for entertainment activities than do the fully employed.

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Chapter 5. Total Economic Impact of the Thoroughbred Racing Industry on State and Local Economies

Previous chapters of this report have discussed the principal participants in the Thoroughbred horse racing industry and presented separate estimates of the economic activity generated by each participant group. However, these estimates do not account for the total economic impact of the industry. In this chapter we summarize the economic activity of the entire industry, and examine how the industry as a whole contributes directly and indirectly to the California economy.

Government Revenues

The State of California plays a key role in the Thoroughbred racing industry by controlling market forces (such as the number of racing days and the takeout rate) and regulating the industry. The state also receives a significant amount of revenue from the industry. Estimates of the state revenue generated by the Thoroughbred horse racing industry in 1989 are displayed in Table 5-1. The majority of this revenue was from the legislated percentage of the pari-mutuel pool which the state retains in the form of license fees (recall the discussion in Chapter 1), estimated to be approximately $137.5 million in 1989.

In addition to pari-mutuel license fees, the industry generates state revenues from sales taxes. Most sales of Thoroughbred horses in California are subject to sales tax. Purchases of goods used by both the horse sector and the racing associations (those not for resale) are also subject to sales tax. Because we do not have estimates of all taxable transactions occurring in the Thoroughbred horse racing industry (e.g., private horse sales), the sales tax estimate reported in Table 5-1 can be considered a lower bound on taxes paid—that is, the industry generated directly *at least* $9.2 million in state sales taxes.

The state also collects an occupational license fee from all horse people working on California race tracks

Table 5-1. Estimated Government Revenues From the California Thoroughbred Horse Racing Industry, 1989

	Revenue (in $1,000s)	
To State:		
Pari-Mutuel License Fee Revenue[a]	$137,460	
State Sales Tax[b]	9,230	
Occupational License Fees and Fines[c]	1,330	
Subtotal, State		$148,020
To Local Governments:		
Admission Taxes, Local License Fees[d]	8,050	
Property Taxes[e]	7,760	
Subtotal, Local Governments		15,810
Total		$163,830

[a] State takeout from pari-mutuel pool, including an estimate of state revenue generated by Thoroughbred racing at fair race meets.

[b] This is an estimated lower bound on the state sales tax paid directly by trainers, farm and ranch owners, horse owners, and the racing associations. Therefore, it does not include all sales taxes generated by the industry. See Tables 2-19B and 3-4.

[c] See Tables 2-19B and 3-4.

[d] A legislated percentage of the pari-mutuel pool.

[e] See Tables 2-19B and 3-4.

Source: Estimated from survey and industry data.

Table 5-2. Estimated Revenues of the California Thoroughbred Horse Racing Industry, 1989

		Revenue (in $1,000s)
Horse Sector Pari-Mutuel Revenues[a]		$131,500
Racing Association Revenues[b]		
Pari-Mutuel	$134,264	
Admissions	28,930	
Concessions, Parking, Programs, etc.	34,667	
Other	12,185	
Total Racing Associations Revenues		210,046
Total		$341,546

[a] Includes estimate of Thoroughbred horse sector pari-mutuel revenue from fair race meetings; does not include purse money contributed by horse owners. See Chapter 2.

[b] See Table 3-3.

Source: Estimated from survey and industry data.

or auxiliary training facilities, from race horse owners, and from certain association employees. A relatively small amount of revenue is collected in fines from those who violate rules and regulations established by the state. These two state revenues are combined in Table 5-1.

Local governments in California also benefit from the Thoroughbred horse racing industry. They receive a percentage of the pari-mutuel pool for admission taxes and local license fees, along with property taxes collected from race tracks, Thoroughbred farm and ranch owners, and Thoroughbred horse owners. California local government revenues generated by the Thoroughbred horse racing industry were estimated to be approximately $15.8 million in 1989 (Table 5-1).

It is important to note that our estimates do not include all government revenues generated by the Thoroughbred horse racing industry in California. As mentioned previously, the estimate of sales taxes is a lower bound. Furthermore, we have not included an estimate of state and federal income, social security, self-employment, and other income-related taxes paid by individuals and corporations on income earned in California's Thoroughbred horse racing industry.

Industry Revenues

In 1989, over 10 million spectators wagered about $2.3 billion on Thoroughbred racing at major tracks and satellite wagering facilities. Table 5-2 shows that these spectators and bettors generated approximately $341.5 million in revenues for the horse sector and the racing associations. Of the total receipts, almost $265.8 million came from the pari-mutuel handle ($131.5 million to the horse sector and $134.3 million to the racing associations). The remainder of the receipts came from track admissions ($28.9 million) and other race track patron services ($46.8 million).

Indirect Economic Impact

The economic importance of the horse racing industry would be understated for the total economy if only these direct receipts of $341.5 million are considered. Whenever one sector of an economy experiences a change in activity, not only are the output, receipts, and expenditures of that sector directly affected, but there are also corresponding changes in many other sectors. This is somewhat analogous to throwing a rock in a lake; the splash is the direct effect, but there are also ripples growing out around the initial point of change. Economic "multipliers" quantitatively mea-

[1] Preliminary results of the updated 512 Sector California Input-Output Model were provided by Richard B. Le, Economist Division of Planning, Department of Water Resources, State of California, August 21, 1990.

Table 5-3. Estimated Employment in the California Thoroughbred Horse Racing Industry, 1989

	Total Employed (Full-Time Equivalent)
Horse Sector	
Employed by Trainers, Farms & Ranches[a]	5,405
Professionals & Self-Employed[b]	905
Other Employment[c]	170
Racing Associations[d]	3,680
Total	10,160

[a] See Table 2-8.

[b] Includes trainers, jockeys, veterinarians, and farriers. See Table 2-8.

[c] Includes Other Self-Employed and those employed by horsemen's organizations, from Table 2-8.

[d] Excluding depreciation and taxes. See Table 3-7.

Source: Estimated from survey and industry data.

sure a total change for the economy that includes the direct *and* indirect effects from a change in demand in one sector. The California Department of Water Resources (CDWR) has constructed an input-output model of the California economy with 512 sectors.[1] One sector in the CDWR input-output model—*Racing and Track Operations*—is closely aligned with the horse racing component of this study. Another sector—*Miscellaneous Livestock*—most closely corresponds to what we identify as the Horse Sector. The Type II income multipliers for the *Racing and Track Operations* sector and *Miscellaneous Livestock* is 1.76 and 5.20, respectively.[2] Using these two multipliers with the corresponding revenues in Table 5-2 provides an estimate of the total (direct, indirect, and induced) income contribution of the California Thoroughbred industry to the state's economy. This amounts to approximately $1,053 million {(1.76 x $210.05 million) + (5.2 x $131.50 million)}.[3]

Employment and Cash Flow

Table 5-3 shows the total number of persons directly employed in California's Thoroughbred horse racing industry in 1989. The diversity of jobs required to support a complex Thoroughbred racing industry is indeed impressive. Approximately 6,480 full-time equivalent jobs are supported within the horse sector, ranging from general farm labor to self-employed professionals. Another 3,680 full-time equivalent workers are employed by the racing associations, filling positions in such general categories as pari-mutuel clerk, corporate officer, accountant, maintenance worker, and parking lot attendant. Thus, full-time equivalent employment for the total industry is estimated to be approximately 10,160.

All direct payments to households and other industries for goods and services, excluding intra-sector and

[2] Two types of income multipliers are defined in the literature. The type I multiplier is the ratio of the "direct plus indirect" to "direct" household income generated by a $1 increase in final demand. The Type II multiplier is similar but also reflects induced or second-round adjustments affecting households.

[3] It should be noted that the portion of the total income impact related to the horse sector (5.2 x $131.5 million = $684 million) may well be understated. The analysis in chapter 2 revealed substantial negative cash flows for the horse sector in 1989 (i.e., revenue of $131.5 million compared to expenditures of $275.3 million). Calculating the total (direct and indirect) income effects from the horse sector expenditures on goods and services (rather than receipts) almost doubles the multiplier effect ($1,278 million). Combining this alternative total income estimate for the horse sector ($1,278 million) with the previous estimate for the racing sector (1.76 x $210.05 million = $369.7 million) gives a substantially higher estimate of the total income contribution of the Thoroughbred industry to the state economy of $1,647.7 million (compared to $1,053 million). It seems unlikely, however, that the horse sector can sustain over time such negative cash flows as were measured in 1989; therefore, we conclude that the multiplier effect based on horse sector receipts is the better overall estimate.

[4] Note that this does not include the relatively minor payments to employees of horsemen's organizations nor to 125 "other" self-employed (see Table 2-8). These payments could not be identified separately and so are included with payments for other goods and services.

Table 5-4. Estimated Payments for Goods and Services by the California Thoroughbred Horse Racing Industry, 1989[a]

	Expenditures (in $1,000s)	
Horse Sector[b]		
Labor (employees of trainers and farms & ranches)	$75,660	
Professionals & Self-Employed	50,030	
Feed and Bedding	55,610	
Payments for Other Goods and Services Outside Horse Sector	73,630	
Subtotal		$254,930
Racing Associations[c]		
Wages and Salaries	88,019	
Rentals and Services Contracted	50,733	
Marketing	10,704	
Materials and Supplies	9,320	
Insurance	6,317	
Utilities	5,077	
Professional Services	4,286	
Payments to Charity	2,013	
Interest	3,115	
Other	8,845	
Subtotal		188,429
Total		$443,359

[a] These expenditures do not include major intra-sector and government payments.

[b] See Table 2-19A.

[c] See Table 3-3.

Source: Estimated from survey and industry data.

Table 5-5. Estimated Investment in the California Thoroughbred Horse Racing Industry, 1989

	Investment (in $1,000s)
Horse Sector[a]	
Thoroughbred Horses	$712,680
Farm and Ranch Land and Other Assets	386,500
Racing Associations[b]	810,000
Total	$1,909,180

[a] Estimated market value. See Table 2-20 and 2-23.

[b] Estimated by independent appraisal.

Source: Estimated from survey and industry data, and from independent appraisal.

government payments, made by the Thoroughbred racing industry are shown in Table 5-4. Direct expenditures made to persons employed in the industry totaled nearly $214 million.[4] Of this, $125.7 million was paid by the horse sector and $88 million was paid by the racing associations. Other payments include purchases for feed and bedding, specialized equipment and machinery, utilities, insurance, advertising, and supplies for track patron services, all of which indirectly affect a wide range of businesses through the multiplier effect.

Investment

Total investment in Thoroughbred horses, farms and ranches, and race track real property is exhibited in Table 5-5. As shown, the estimated market value of horses, land, and other assets used primarily for producing horses and horse racing in California was nearly $2 billion in 1989. The largest component of this figure is the estimated value of the land on which the major race tracks are located, which is appraised at $810 million.

Surveys of the horse sector indicate that there were almost 34,000 Thoroughbred horses in California in 1989 including racing stock, breeding stock, young horses and potential race horses (those two years old and older) not in training. Based on owners' estimates of the current market value of their racing and breeding stock, the total market value of Thoroughbred horses in California was $712.7 million in 1989 (Table 5-5).

Besides horses, Thoroughbred farm and ranch owners invest in land, permanent and semi-permanent facilities (fencing, barns, other buildings, pens, training tracks, feed storage facilities, water and irrigation systems and employee housing) and equipment (tractors, trucks, horse trailers, tack, etc.). The estimated market value of these farm and ranch assets was $386.5 million for 1989.

Summary and Conclusions

In 1989, 10.5 million spectators wagered about $2.3 billion on Thoroughbred racing in California. This generated $341.5 million for the horse sector and the racing associations and added at least $163.8 million to state and local government coffers (excluding payroll taxes and income taxes). The industry provided full-time equivalent employment to approximately 10,160 people and made payments to these individuals of over $213.7 million. Combining the indirect as well as the direct economic effects, the industry contribution to the state economy is over one billion dollars. Total market value of investment in Thoroughbred horses, farms and ranches, and race tracks is estimated to be just under two billion dollars.

Appendix A-1

Thoroughbred Breeding and Racing

An economic impact study by the University of California, Davis

SURVEY QUESTIONNAIRE FOR OWNERS AND BREEDERS OF THOROUGHBRED RACEHORSES

Please return to:
Department of Agricultural Economics
University of California, Davis
Davis, CA 95616
ATTENTION: Katie Blackman

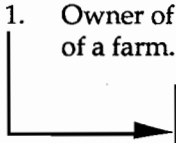
Thoroughbred Racing and Breeding Survey

YOUR ANSWERS TO THESE QUESTIONS ARE ENTIRELY CONFIDENTIAL. Data from this questionnaire will be reported in terms of averages and totals. The number stamped on the outside cover is for mailing purposes only. This is so your name will be crossed off the address list when your completed survey is returned.

The following questions focus mainly on issues such as employment, cashflow and investment. Therefore, the person who is most familiar with the financial decisions involving your Thoroughbred horse or operation should provide the answers. It is very important that your completed questionnaire be included in our analysis. If you cannot answer a question exactly, please give the best estimate you can.

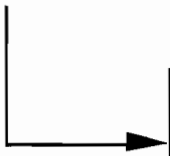
Which of the following titles best describes your involvement in the Thoroughbred industry?

1. Owner of a Thoroughbred horse (or horses), but NOT the owner or operator of a farm.



Please proceed to Section One of the questionnaire, beginning on page 2.

2. Owner or managing operator of a Thoroughbred breeding farm.



If you owned Thoroughbred horses in addition to managing a farm, please fill out the entire questionnaire. If you did not own any Thoroughbred horses in 1988, please skip Section One of the questionnaire, and proceed to Section Two, beginning on page 8.

SECTION ONE: THOROUGHBRED OWNERS

PLEASE FILL OUT PAGES 2 THROUGH 7 IF YOU OWNED THOROUGHBRED HORSES IN 1988. IF YOU MANAGED A THOROUGHBRED FARM IN 1988, BUT DID NOT OWN ANY HORSES, SKIP TO SECTION TWO, BEGINNING ON PAGE 8.

Q-1 How many Thoroughbred horses did you own in 1988? Please include syndicated stallions, and other horses you co-owned with others. Do not report breeds other than Thoroughbreds in your answer to this question.

NUMBER OF THOROUGHBRED HORSES	
_____	RACING STOCK (18 months old and older.)
_____	BROODMARES
_____	STALLIONS AT STUD
_____	YOUNG STOCK (Less than 18 months of age.)
_____	OTHER HORSES
_____	

Q-1 a. How many of your racehorses were in training in 1988?

_____ HORSES IN TRAINING

Q-1 b. On average, how many months out of the year where the horses reported above in training in 1988?

_____ MONTHS

Q-2 Did you own, or co-own, any horses in 1988 that were not Thoroughbreds? (Circle the correct answer.)

1. YES → Q-2 a. Please specify breed and main use of non-Thoroughbreds.

BREED	MAIN USE
_____	_____
_____	_____

2. NO

Q-3 How many of the Thoroughbred stallions reported in question Q-1 are syndicated?

_____ SYNDICATED THOROUGHBRED STALLIONS

Q-3 a. How many shares do you own per stallion?

_____ SHARES OWNED PER STALLION

Q-4 Aside from syndicated stallions, how many of the horses reported in question Q-1 do you co-own with others? (For example, horses owned in partnership.)

_____ RACING STOCK (18 months of age or older.)

_____ BROODMARES

_____ STALLIONS AT STUD

_____ YOUNG STOCK (Less than 18 months old.)

_____ OTHER HORSES

_____ TOTAL THOROUGHBRDS OWNED WITH OTHERS IN 1988

What is your best estimate, by category, of the following values: 1) the MOST expensive Thoroughbred you owned in 1988, 2) the LEAST expensive Thoroughbred you owned in 1988, and 3) the AVERAGE VALUE of all Thoroughbreds you owned in 1988?

MOST EXPENSIVE THOROUGHBRED	LEAST EXPENSIVE THOROUGHBRED	AVERAGE VALUE	
$_____	$_____	$_____	STALLIONS AT STUD
$_____	$_____	$_____	BROODMARES
$_____	$_____	$_____	RACING STOCK
$_____	$_____	$_____	YOUNG STOCK

Q-6 How many of the horses reported in question Q-1 are Cal-breds? (According to the definition of a California-bred Thoroughbred outlined by the California Horse Racing Law and the California Thoroughbred Breeders Association)

_____ CAL-BREDS

Q-8 In total, how many races did your Thoroughbred horses start in 1988?

_____ RACES

Q-9 At which tracks did your Thoroughbred horses race in 1988?

_____ _____

_____ _____

Q-10 How many of your racehorses were temporarily laid up due to injury in 1988?

_____ HORSES LAID UP DUE TO INJURY

Q-10 a. How many months, on average, were your horses laid-up in 1988?

_____ MONTHS

Q-11 Did you retire any of your racehorses from the track in 1988?

1. YES →
2. NO

Q-11 a. How many horses did you retire?

_____ HORSES RETIRED IN 1988

Q-11 b. What were the principle reasons for retirement?

NUMBER OF HORSES	REASON FOR RETIREMENT
_____	INJURY
_____	OLD AGE
_____	NOT COMPETITIVE
_____	RETIRED FOR BREEDING
_____	DEATH
_____	OTHER

Q-12 Did you own any Thoroughbred horses in 1988 that were stabled outside California?

1. YES →
2. NO

Q-12 a. How many of your horses were stabled outside California?

_____ HORSES

Q-12 b. Why were your horses stabled outside California? (Circle all that apply)

1. FOR BREEDING PURPOSES
2. FOR RACING PURPOSES
3. OTHER

Q-13 How many of your broodmares were bred in 1988?

_____ MARES

Q-14 How many of the mares reported in question Q-13 produced a live foal in 1989?

_____ MARES

Q-15 If some of the mares reported in Q-13 did not produce a live foal, what were the principle reasons? (Circle all that apply)

1. THE MARE DID NOT CONCEIVE
2. THE MARE ABORTED
3. THE FOAL DIED AT BIRTH
4. OTHER (please specify _____)

What was the average stud fee you paid in 1988?

_____ DOLLARS

Q-17 Did you breed any of your mares to stallions that were not based in California in 1988?

1. YES → Q-17 a. How many of your mares were bred to stallions based in states other than California?

   _____ MARES

2. NO

What is your best estimate of the cost of keeping a pregnant mare throughout her pregnancy?

_____ DOLLARS

Q-19 What is your best estimate of the costs associated with raising a foal from the time it is born until January 1 of the following year?

_____ DOLLARS

Q-20 How do you obtain your horses? (Circle all that apply)

1. THROUGH PUBLIC AUCTIONS
2. THROUGH PRIVATE SALES
3. THROUGH CLAIMING RACES
4. PROGENY OF YOUR OWN BREEDING STOCK
5. OTHER (Please specify_____)

Q-21 In which county (counties) were your Thoroughbred horses stabled in 1988?

_____ COUNTY

Q-22 Did you keep any of your Thoroughbred horses on your own property in 1988?

1. YES → Q-22 a. How many acres are devoted to your Thoroughbred horses?

_____ ACRES

Q-22 b. What is your best estimat of the value of the land and buildings that are used to conduct Thoroughbred related activities?

$ _____ TOTAL ASSETS

$ _____ EQUITY

2. NO

Q-23 What were your total Thoroughbred related expenses in 1988?

_____ DOLLARS

Q-24 What percent of your total expenses reported in Q-23 were spent in each of the following categories?

PERCENT	
____	LABOR
____	STUD FEES AND PURCHASE OF HORSES
____	BOARD AND TRAINING FEES
____	VETERINARY, DENTAL AND FARRIER BILLS
____	VANNING AND TRAVEL EXPENSES FOR YOUR HORSES
____	INSURANCE, INTEREST, ADVERTISING AND LEGAL FEES
____	PERSONAL TRAVEL AND ENTERTAINMENT
____	TAXES
____	OTHER EXPENSES
TOTAL = 100%	

Q-25 Approximately what percent of the total annual expenses reported in question Q-23 was spent outside of California? (For example, out of state stud fees.)

_____ PERCENT OF TOTAL 1988 EXPENSES SPENT OUT OF STATE

Q-26 What was the total income generated by your Thoroughbreds in 1988?

_____ DOLLARS

Q-27 What percent of your total income reported in Q-26 was generated by each of the following categories?

PERCENT	
_____	PURSES AND INCENTIVE AWARDS
_____	SALE OF HORSES
_____	STUD FEES
_____	OTHER
TOTAL = 100%	

Q-27 Which of the following best describes the organizational structure of your involvement in the Thoroughbred industry?

1 In business by myself.

2 Involved in a partnership with others.

3 Own shares in a corporation whose primary business is horses

Q-28 What is your principal occupation?

_____

Q-29 On average over the past five years, did you make a profit, break even, or lose money with your Thoroughbred horses? (Circle one)

1. MADE A PROFIT

2. BROKE EVEN

3. LOST MONEY

This is the end of Section One. If you owned or managed a Thoroughbred breeding and/or racing operation, please proceed to Section Two, beginning on the next page. If not, feel free to add any additional comments you may have on the back cover. Thank you very much for your cooperation in filling out and returning this questionnaire.

SECTION TWO: THOROUGHBRED BREEDERS

Please fill this section out if you are the owner or managing operator of a Thoroughbred breeding farm.

Q-1 In which county is your horse operation located?

_____ COUNTY

Q-2 How many acres are devoted to your horse operation? Please include only the acreage that is used to conduct Thoroughbred related activities.

_____ ACRES

Q-3 How many of the acres reported in question Q-2 are irrigated?

_____ IRRIGATED ACRES

Q-4 Which of the following services does your horse operation provide, and what is the daily, monthly or 'one time' fee that you charge?. Please fill in all that apply, and indicate whether the fee is on a daily, monthly or 'one time' basis.

	FEE			FEE	
1.	$_____	BREEDING	5.	$_____	LAYUPS
2.	$_____	BOARDING	6.	$_____	FOALING
3.	$_____	TRAINING FOR RACING	7.	$_____	SALES
4.	$_____	TRAINING FOR OTHER EQUESTRIAN EVENTS			

Q-5 Was the value of your horse operation assessed in 1988?

1. YES → Q-5 a. What was the assessed value?

$ _____ TOTAL ASSETS

$ _____ EQUITY

2. NO

Q-5 b. What is your best estimate of the value of your horse operation?

$_____ TOTAL ASSETS

$ _____ EQUITY

Q-6 Assuming no vacant stalls or paddocks, how many horses can be stabled at your operation?

NUMBER OF HORSES	
_____	HORSES IN STALLS
_____	HORSES IN PADDOCKS OR CORRALS
_____	HORSES IN PASTURE
_____	TOTAL CAPACITY OF OPERATION

Q-7 How many horses were actually stabled at your operation in 1988? Please include horses you owned, as well as horses you boarded for others in your answer to this question.

_____ HORSES

Q-8 How many of the horses reported in question Q-7 are Thoroughbreds? Please fill in the number of Thoroughbreds by category.

NUMBER OF THOROUGHBREDS	
_____	STALLIONS AT STUD
_____	BROODMARES
_____	RACING STOCK (18 months of age or older.)
_____	YOUNG STOCK (Less than 18 months old.)
_____	OTHER

Q-9 Did you stable any horses on your property in 1988 that were not Thoroughbreds? (Circle the correct answer)

1. YES → Q-9 a. Please specify breed and main use of non-Thoroughbreds.

BREED	MAIN USE
_____	_____
_____	_____

2. NO

Q-10 How many of the horses reported in Q-7 were boarded for other people?

_____ HORSES

Q-11 Did all of the horses you boarded for others in 1988 remain on your property for the entire year?

1. YES
2. NO →

Q-11 a. On average, how many months did the boarders remain on your property in 1988?

AVERAGE MONTHS ON PROPERTY IN 1988		AVERAGE MONTHS ON PROPERTY IN 1988	
_____	BROODMARES	_____	LAYUPS
_____	HORSES IN TRAINING	_____	OTHER
_____	HORSES RECEIVING GENERAL CARE		

Q-12 Were all the horses you owned in 1988 stabled on your property for the entire year?

1. YES
2. NO →

Q-12 a. Where were the horses kept that were not stabled on your property for the entire year?

1. IN TRAINING AT ANOTHER FACILITY
2. AT A RACE TRACK
3. BOARDED OUT FOR BREEDING
4. OTHER

Q-13 If you owned any horses in 1988 that were in training at another facility, how many months did you board them away from your property?

_____ MONTHS

Q-14 If you owned any mares that you sent out for breeding in 1988, how many months were they stabled away from your property?

_____ MONTHS

Q-15 What is your best estimate, by category, of the following values: 1) the MOST expensive Thoroughbred horse on your operation in 1988, 2) the LEAST expensive Thoroughbredhorse on your operation in 1988, and 3) the AVERAGE VALUE of all Thoroughbred horses on your operation in 1988?

MOST EXPENSIVE THOROUGHBRED	LEAST EXPENSIVE THOROUGHBRED	AVERAGE VALUE OF ALL THOROUGHBREDS	
$ _____	$ _____	$ _____	STALLIONS AT STUD
$ _____	$ _____	$ _____	BROODMARES
$ _____	$ _____	$ _____	RACING STOCK
$ _____	$ _____	$ _____	YOUNG STOCK

Q-16 How many workers were employed on your horse operation in 1988? (Include seasonal, part-time and permanent employees.)

_____ EMPLOYEES → If this number is zero (0), skip to question Q-23 on page13.

Q-17 How many of the employees reported in Q-16 worked the entire year?

_____ YEAR-ROUND EMPLOYEES

Q-17 a. If this number is greater than zero, how many year-round employees worked on a full-time basis (at least 40 hours per week)?

_____ FULL-TIME, YEAR-ROUND EMPLOYEES

Q-18 How many of the employees reported in Q-16 worked only part of the year?

_____ SEASONAL EMPLOYEES

Q-18 a. If this number is greater than zero, how many seasonal employees worked on a full-time basis (at least 40 hours per week)?

_____ FULL-TIME, SEASONAL EMPLOYEES

Q-18 b. On average, how many months did your seasonal employees work in 1988?

_____ MONTHS

Q-19 Did you provide housing for any of your employees in 1988?

1. YES
2. NO

Q-19 a. How many employees received housing in 1988?

_____ EMPLOYEES

Q-20 Please fill in the number of employees that worked on your operation in 1988 and their average wage or salary beside the most appropriate job title. Please indicate whether you are reporting the compensation on an hourly, weekly, monthly or yearly basis..

NUMBER OF EMPLOYEES	AVERAGE WAGE OR SALARY	JOB TITLE
_____	_____	MANAGERS
_____	_____	TRAINERS
_____	_____	BREEDING SPECIALISTS
_____	_____	EXERCISE RIDERS
_____	_____	GENERAL STABLE HANDS
_____	_____	OFFICE STAFF
_____	_____	OTHER EMPLOYEES
_____		TOTAL EMPLOYEES

Q-20 a. If the number of OTHER EMPLOYEES is greater than zero, please do the following: 1) specify a more appropriate job title, 2) indicate how many employees are in each new category, 3) indicate the average wage or salary of the employees in each new category.

JOB TITLE	NUMBER OF EMPLOYEES	AVERAGE WAGE OR SALARY
_____	_____	_____
_____	_____	_____
_____	_____	_____

Q-21 What was your total wage bill (including taxes and benefits) in 1988?

_____ TOTAL WAGE BILL FOR 1988

Q-22 What percent of the total wage bill went to workman's compensation?

_____ PERCENT

Q-23 What were the total gross expenses associated with operating and maintaining your horse operation in 1988?

_____ DOLLARS

Q-24 Roughly what percent of the total expenses reported in Q-23 were spent in each of the following catetories?

PERCENT	
_____	LABOR
_____	STUD FEES AND PURCHASE OF HORSES
_____	TRANSPORTATION AND BOARD FOR HORSES
_____	VETERINARY SERVICES, SHOEING AND MEDICAL SUPPLIES
_____	TACK, FEED AND BEDDING
_____	REPAIRS AND MAINTENANCE FOR HORSE OPERATION
_____	INSURANCE, INTEREST, ADVERTISING AND LEGAL FEES
_____	TAXES
_____	OTHER

TOTAL = 100%

Q-24 a. If the OTHER category is greater than 5.0%, please specify the additional major horse related expenditures in the following spaces:

_____

_____

_____

Approximately what percent of the total annual expenses reported in question Q-23 was spent outside of California? (For example, out of state stud fees.)

_____ PERCENT OF TOTAL 1988 EXPENSES SPENT OUT OF STATE

Q-26 What was the total gross income (before taxes) of the horse operation in 1988? Please report only the dollar amount that was generated from horse related activities.

DOLLARS

_____

Q-27 Please estimate the percent of the total gross income from question Q-26 that resulted from the following activities:

PERCENT	
_____	STUD FEES AND SALE OF HORSES
_____	PURSES AND INCENTIVE AWARDS PROGRAMS
_____	BOARD AND TRAINING FEES
_____	COMMISSION ON SALE OF HORSES
_____	OTHER HORSE RELATED ACTIVITIES
_____	

TOTAL = 100%

Q-27 a. If the "OTHER" category is greater than 5.0%, please specify the other major horse related activities resulting in revenue:

_____

_____

_____

Q-28 On average over the past five years, did you make a profit, break even, or lose money conducting horse related activities? (Circle one answer.)

1. MADE A PROFIT
2. BROKE EVEN
3. LOST MONEY

Q-29 Is the horse operation the only source of income for the owner(s) of the operation?

1 YES

2 NO → Q-29 a. What is the owner's principal source of income?

_____

Is there anything else you would like to tell us about any aspect of your horse operation in particular, or the Thoroughbred industry in general? If so, please use this space and other pieces of paper if necessary.

Thank you very much for your cooperation in filling out and returning this survey.

Appendix A-2

Thoroughbred Breeding and Racing Industries

An economic impact study by the University of California, Davis

SURVEY QUESTIONNAIRE FOR TRAINERS OF
THOROUGHBRED RACE HORSES

Please return to:
Department of Agricultural Economics
University of California, Davis
Davis, CA 95616
ATTENTION: Kim Craft

INTRODUCTION

This survey is for trainers of **Thoroughbred** racehorses who stable the majority of their horses at Northern California Race Tracks. **Information should be reported by head trainers (or a representative)** in regard to stables directly under their care or under the care of an assistant trainer employed by the head trainer. **Horses and employees should be counted by the trainer who pays the employees (who care for those horses) and the other training bills** normally paid by the head trainer.

For purposes of this survey, "**horses in training**" will be defined as any Thoroughbred horse which is two years old or older, and which is exercised regularly for the purpose of preparation for racing.

"**Other**" California racing or training facilities refers to any public or private facility in California where Thoroughbred racehorses are trained.

For purposes of this survey, Northern and Southern California will be defined according to the map on the opposite page.

YOUR ANSWERS TO THESE QUESTIONS ARE ENTIRELY CONFIDENTIAL. Data from this questionnaire will be reported in terms of averages and totals.

SECTION 1: Horses in Training and Employment At Bay Meadows and Golden Gate Fields

1. NUMBER OF HORSES IN TRAINING. Please estimate the average number of horses you had in training and stabled full time at **Bay Meadows** and/or **Golden Gate Fields** (if you had horses at both locations at the same time, add them together) during each quarter of 1989.

Average Number of Horses in Training At Bay Meadows and Golden Gate Fields During Each Quarter of 1989			
Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
_____	_____	_____	_____

2. FULL-TIME (PAYROLL) EMPLOYEES. Please indicate the average number of people you employed full time (employees whose primary occupation was working for you) at **Bay Meadows** and/or **Golden Gate Fields** during each quarter of 1989, by the most appropriate job title:

Job Title	Average Number Of Full Time Employees At Bay Meadows and Golden Gate Fields During Each Quarter of 1989			
	Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
ASSISTANT TRAINER	_____	_____	_____	_____
BARN FOREMAN	_____	_____	_____	_____
EXERCISE RIDER	_____	_____	_____	_____
GROOM	_____	_____	_____	_____
HOTWALKER	_____	_____	_____	_____
OTHER (Please Specify)*				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

_____

* e.g. office staff, van driver, night watchman, other stable help, etc.

3. CONTRACT LABOR. Please indicate how many times per month on average you used self-employed, free-lance, or contract labor at **Bay Meadows** and/or **Golden Gate Fields** during each quarter of 1989 (excluding professional services such as Jockey, Veterinarian, or Farrier).

Job Title	Average Number of Times Used Per Month At Bay Meadows and Golden Gate Fields During Each Quarter of 1989			
	Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
EXERCISE RIDER	_____	_____	_____	_____
PONY BOY/GIRL--MORNING	_____	_____	_____	_____
PONY BOY/GIRL--TO POST	_____	_____	_____	_____
HOTWALKER	_____	_____	_____	_____
OTHER? (Specify _____)	_____	_____	_____	_____

4. PART TIME EMPLOYEES. If you employed any part time help at **Bay Meadows** and/or **Golden Gate Fields** during each quarter of 1989, please specify the number of part time employees along with job title and approximate number of hours worked per week:

Job Title	Hours per Week	Average Number of Part Time Employees At Bay Meadows and Golden Gate Fields During Each Quarter of 1989			
		Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
_____	___	_____	_____	_____	_____
_____	___	_____	_____	_____	_____
_____	___	_____	_____	_____	_____

SECTION 2: Horses in Training and Employment At Facilities Other Than Bay Meadows and Golden Gate Fields

1. If you had horses in training at locations **in California** other than Bay Meadows and Golden Gate Fields during 1989--**horses for which you paid the feed and labor bills**--please indicate the name of the racing or training facility, its location, and the average number of horses in training for each quarter.

If you maintained a racing stable on the California fair racing circuit for most of the fair racing season, count the average number of horses in that stable as if they were at one location in quarter 3.

Name and Location of Racing or Training Facility	Average Number Of Horses In Training, 1989			
	Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Fair Racing Circuit	XXXX	XXXX	_____	XXXX

2. FULL-TIME (PAYROLL) EMPLOYEES. Please indicate the average number of people you employed full time (employees whose primary occupation was working for you) in caring for the horses **at the facilities specified in question 1 of this section** (if more than one facility, add employees at each location together) during each quarter of 1989, by the most appropriate job title:

Job Title	Average Number Of Full Time Employees, 1989			
	Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
ASSISTANT TRAINER	_____	_____	_____	_____
BARN FOREMAN	_____	_____	_____	_____
EXERCISE RIDER	_____	_____	_____	_____
GROOM	_____	_____	_____	_____
HOTWALKER	_____	_____	_____	_____
OTHER (Please Specify)*				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

* e.g. office staff, van driver, night watchman, other stable help, etc.

3. CONTRACT LABOR. Please indicate how many times per month on average you used self-employed, free-lance, or contract labor **at the facilities specified in question 1 of this section** for each quarter of 1989 (excluding professional services such as Jockey, Veterinarian, or Farrier).

Job Title	Average Number Of Times Used Per Month, 1989			
	Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
EXERCISE RIDER	____	____	____	____
PONY BOY/GIRL	____	____	____	____
HOTWALKER	____	____	____	____
OTHER? (Specify_____)	____	____	____	____

4. PART TIME EMPLOYEES. If you employed any part time help **at the facilities specified in question 1 of this section**, during 1989, please specify the number of part time employees along with job title and approximate number of hours worked per week:

Job Title	Hours per Week	Average Number Of Part Time Employees, 1989			
		Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
_____	___	____	____	____	____
_____	___	____	____	____	____
_____	___	____	____	____	____

SECTION 3
Racing and Training Expenditures

1. FULL TIME EMPLOYEES: Please estimate the average base pay per full time employee per month that you paid in 1989 at Bay Meadows and Golden Gate Fields and at the other racing or training facilities specified in Section 2 (if applicable).

Full Time Employee	Average Base Pay Per Employee Per Month	
	Bay Meadows and Golden Gate Fields	Other California Training Facilities
ASSISTANT TRAINER		
BARN FOREMAN		
EXERCISE RIDER		
GROOM		
HOTWALKER		
OTHER (Please Specify)		
_____		
_____		
_____		

2. FREE-LANCE AND CONTRACT LABOR: Please estimate the average pay rate that you paid in 1989 for free-lance or contract labor at Bay Meadows and Golden Gate Fields and at the other racing or training facilities specified in Section 2 (if applicable).

Contract Laborer	Average Pay Rate For Contract Labor	
	Bay Meadows and Golden Gate Fields	Other California Training Facilities
EXERCISE RIDER		
PONY BOY/GIRL--MORNING		
PONY BOY/GIRL--TO POST		
HOT WALKER		
OTHER (specify_____)		

3. PAYROLL: Please estimate your total payroll expenditure in 1989 (for employees caring for or working with horses in training at the California locations specified in Sections 1 and 2) and the approximate percentage of that total which went to each of the indicated categories.

TOTAL PAYROLL EXPENDITURE, 1989 _____

ESTIMATED PERCENTAGE OF TOTAL GOING TO THE FOLLOWING:

- WORKMEN'S COMPENSATION _____ %
- EMPLOYER PAID PAYROLL TAXES _____ %
- EMPLOYEE BENEFITS (e.g. health insurance, pension plans) _____ %
- BONUSES, COMMISSIONS, OR "STAKES" _____ %
- CONTRACT LABOR _____ %
- PART TIME LABOR _____ %

4. If possible, please estimate the total amount of bonuses or "stakes" which your employees received from your owners in 1989. _____

5. How many of your employees lived full time in track provided housing (tack rooms) or in housing provided by you? _____

6. EXPENSES: For each of the following expenses, please estimate the total amount paid in 1989 for your entire stable(s) or the average annual cost per horse (whichever is easier) paid by you--**or estimate as closely as possible the amount paid by the owners of horses trained by you**--for horses you had in training at Bay Meadows and Golden Gate Fields and at the other California racing or training facilities specified in Section 2 (if applicable).

Expense	Average Annual Cost Per Horse Or Total Stable Cost For The Year	
	Bay Meadows and Golden Gate Fields	Other California Training Facilities
FARRIER		
VETERINARIAN		
EQUINE DENTIST		
STALL RENTAL		
VANNING		

7. FEED AND BEDDING COSTS PER HORSE: Please estimate your average cost per horse per month for feed and bedding at Bay Meadows and Golden Gate Fields and at the other California racing or training facilities specified in Section 2 (if applicable). If it is easier, just give the total feed and bedding cost per horse and indicate the approximate percentage of the total going to each category.

Expense	Average Cost Per Horse Per Month	
	Bay Meadows and Golden Gate Fields	Other California Training Facilities
FEED		
ALFALFA HAY	_____	_____
OTHER HAYS	_____	_____
GRAINS	_____	_____
FEED SUPPLEMENTS	_____	_____
BEDDING		
STRAW	_____	_____
WOOD SHAVINGS	_____	_____
OTHER	_____	_____
TOTAL FEED AND BEDDING COSTS Per Horse Per Month	_____	_____

8. STABLE OVERHEAD: Please estimate the total annual stable overhead expenses for your California racing and/or training stables. If it is easier, just give the total stable overhead expense for the year and indicate the approximate percentage of the total going to each category.

	Annual Stable Overhead Expenses
TACK & STABLE EQUIPMENT (INCLUDING REPAIRS)	_____
VET SUPPLIES SUCH AS LINIMENTS, BANDAGES, ETC.	_____
FEED SUPPLEMENTS	_____
EQUIPMENT RENTAL (E.G. HOTWALKERS, ICE MACHINES, ETC.)	_____
BARN OFFICE, TELEPHONE	_____
OTHER STABLE OVERHEAD EXPENSES	_____
TOTAL STABLE OVERHEAD EXPENSES	_____

9. BUSINESS OVERHEAD: Please estimate your annual race horse training business overhead expenses for 1989 by category. If it is easier, just give the total business overhead expense for the year and indicate the approximate percentage of the total going to each category.

	ANNUAL BUSINESS OVERHEAD EXPENSES
BUSINESS INSURANCE (OTHER THAN WORKMEN'S COMP.)	_____
INTEREST ON BUSINESS LOANS	_____
LICENSE FEES	_____
TELEPHONE FOR BUSINESS USE	_____
BUSINESS RELATED TRAVEL, LODGING	_____
BUSINESS RELATED ENTERTAINMENT	_____
BOX SEATS AT TRACK, PROGRAMS, RACING FORMS, ETC.	_____
OFFICE EXPENSES	_____
BOOKKEEPING, ACCOUNTING, OR TAX PREPARATION	_____
OTHER	_____
TOTAL BUSINESS OVERHEAD EXPENSES	_____

10. Approximately what percentage of your total business overhead expenses were spent out of state? _____

11. What were your daily training rates in 1989?

Daily Training Rates	
Bay Meadows and Golden Gate Fields	Other California Training Facilities
_____	_____

12. What percent of your total yearly income was generated by your race horse training business in 1989? _____

SECTION 4
Investment

1. Please estimate the market value of all Thoroughbred race horses which you had in training on December 31, 1989 by indicating your best estimate of the number of horses you had in each value category

Estimated Market Value	Number Of Horses On December 31, 1989
LESS THAN $5,000	_____
$5,000 - 9,900	_____
$10,000 - 14,900	_____
$15,000 - 24,900	_____
$25,000 - 49,900	_____
$50,000 - 99,900	_____
$100,000 - 199,900	_____
$200,000 - 499,900	_____
$500,000 - 999,900	_____
GREATER THAN $1,000,000	_____

2. Please estimate the number and market value of the pony horses you owned and used primarily for your race horse training business in 1989:

	NUMBER OF HORSES	AVERAGE VALUE
PONY HORSES	_____	_____

3. Estimate the value of your investment in depreciable assets and equipment which is used by you primarily for the racing or training of Thoroughbred race horses:

1. TACK & STABLE EQUIPMENT	_____
2. VANNING EQUIPMENT	_____
3. OTHER (Please Specify)	
_____	_____
_____	_____

Is there anything else you would like to tell us about your training operation in particular, or the Thoroughbred industry in general? If so, please use this space and the back cover if necessary.

Thank you very much for your cooperation in filling out and returning this survey.

Appendix A-3

Thoroughbred Breeding and Racing Industries

An economic impact study by the University of California, Davis

SURVEY QUESTIONNAIRE FOR TRAINERS OF
THOROUGHBRED RACEHORSES

Please return to:
Department of Agricultural Economics
University of California, Davis
Davis, CA 95616
ATTENTION: Kim Craft

This survey is for trainers of **Thoroughbred** racehorses who stable the majority of their horses at Southern California Race Tracks. **Information should be reported by head trainers (or a representative)** in regard to stables directly under their care or under the care of an assistant trainer employed by the head trainer. **Horses and employees should be counted by the trainer who pays the employees (who care for those horses) and the other training bills** normally paid by the head trainer.

For purposes of this survey, **"horses in training"** will be defined as any Thoroughbred horse which is two years old or older, and which is exercised regularly for the purpose of preparation for racing.

"Southern California Race Tracks" refers to Santa Anita, Hollywood Park, Del Mar, and Pomona, whether or not the meet is running.

"Other" California racing or training facilities refers to any public or private facility in California where Thoroughbred race horses are trained.

For purposes of this survey, Northern and Southern California will be defined according to the map on the opposite page.

YOUR ANSWERS TO THESE QUESTIONS ARE ENTIRELY CONFIDENTIAL. Data from this questionnaire will be reported in terms of averages and totals.

SECTION 1: Horses in Training and Employment At Southern California Race Tracks

1. NUMBER OF HORSES IN TRAINING. Please estimate the average number of horses you had in training and stabled full time at **Southern California race tracks and the corresponding off tracks** during each Southern California Race meeting of 1989.

Where Stabled	Average Number of Horses in Training During Each 1989 Race Meeting			
	Santa Anita (12/26 - 4/24)	Hollywood Park, Summer (4/26 - 7/24)	Del Mar (7/26 - 9/13)	Oak Tree & H.P., Fall (10/4 - 12/24)
ON TRACK DURING THE MEET	____	____	____	____
THE OFF TRACK DURING THE MEET	____	____	____	____

2. FULL-TIME (PAYROLL) EMPLOYEES. Please indicate the average number of people you employed full time (employees whose primary occupation was working for you) at **Southern California race tracks and the corresponding off tracks** (add together employees at both locations) during each race meeting of 1989, by the most appropriate job title:

Job Title	Average Number Of Full Time Employees At The Track And The Off Track During Each 1989 Race Meeting			
	Santa Anita (12/26 - 4/24)	Hollywood Park, Summer (4/26 - 7/24)	Del Mar (7/26 - 9/13)	Oak Tree & H.P., Fall (10/4 - 12/24)
ASSISTANT TRAINER	____	____	____	____
BARN FOREMAN	____	____	____	____
EXERCISE RIDER	____	____	____	____
GROOM	____	____	____	____
HOTWALKER	____	____	____	____
OTHER (Please Specify)*				
_____	____	____	____	____
_____	____	____	____	____
_____	____	____	____	____
_____				

* e.g. office staff, van driver, night watchman, other stable help, etc.

3. CONTRACT LABOR. Please indicate how many times per month on average you used self-employed, free-lance, or contract labor at **Southern California race tracks and the corresponding off tracks** (add together employees at both locations) during each race meeting of 1989 (excluding professional services such as Jockey, Veterinarian, or Farrier).

Job Title	Average Number of Times Used Per Month At The Track And The Off Track During Each 1989 Race Meeting			
	Santa Anita (12/26 - 4/24)	Hollywood Park, Summer (4/26 - 7/24)	Del Mar (7/26 - 9/13)	Oak Tree & H.P., Fall (10/4 - 12/24)
EXERCISE RIDER	_____	_____	_____	_____
PONY BOY/GIRL–MORNING	_____	_____	_____	_____
PONY BOY/GIRL--TO POST	_____	_____	_____	_____
HOTWALKER	_____	_____	_____	_____
OTHER? (Specify_____)	_____	_____	_____	_____

4. PART TIME EMPLOYEES. If you employed any part time help at **Southern California race tracks or the corresponding off tracks** during 1989, please specify the number of part time employees along with job title and approximate number of hours worked per week:

Job Title	Hours per Week	Average Number of Part Time Employees At The Track And The Off Track During Each 1989 Race Meeting			
		Santa Anita (12/26 - 4/24)	Hollywood Park, Summer (4/26 - 7/24)	Del Mar (7/26 - 9/13)	Oak Tree & H.P., Fall (10/4 - 12/24)
_____	___	_____	_____	_____	_____
_____	___	_____	_____	_____	_____
_____	___	_____	_____	_____	_____

SECTION 2: Horses in Training and Employment At Facilities Other Than Southern California Race Tracks

IF ALL THE HORSES THAT YOU TRAINED IN 1989 WERE STABLED AT SOUTHERN CALIFORNIA RACE TRACKS (I.E. SANTA ANITA, HOLLYWOOD PARK, OR DEL MAR), THIS SECTION DOES NOT APPLY TO YOU. PLEASE TURN THE PAGE TO SECTION 3.

1. If you had horses in training at locations **in California** other than Southern California race tracks during 1989--**horses for which you paid the feed and labor bills**--please indicate the name of the racing or training facility, its location, and the average number of horses in training for each quarter.

Name and Location of Racing or Training Facility	Average Number Of Horses In Training, 1989			
	Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

2. FULL-TIME (PAYROLL) EMPLOYEES. Please indicate the average number of people you employed full time (employees whose primary occupation was working for you) in caring for the horses **at the facilities specified in question 1 of this section** (if more than one facility, add employees at each location together) during each quarter of 1989, by the most appropriate job title:

Job Title	Average Number Of Full Time Employees, 1989			
	Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
ASSISTANT TRAINER	_____	_____	_____	_____
BARN FOREMAN	_____	_____	_____	_____
EXERCISE RIDER	_____	_____	_____	_____
GROOM	_____	_____	_____	_____
HOTWALKER	_____	_____	_____	_____
OTHER (Please Specify)*				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____				

* e.g. office staff, van driver, night watchman, other stable help, etc.

3. CONTRACT LABOR. Please indicate how many times per month on average you used self-employed, free-lance, or contract labor **at the facilities specified in question 1 of this section** for each quarter of 1989 (excluding professional services such as Jockey, Veterinarian, or Farrier).

Job Title	Average Number Of Times Used Per Month, 1989			
	Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)
EXERCISE RIDER				
PONY BOY/GIRL				
HOTWALKER				
OTHER? (Specify _____)				

4. PART TIME EMPLOYEES. If you employed any part time help **at the facilities specified in question 1 of this section**, during 1989, please specify the number of part time employees along with job title and approximate number of hours worked per week:

Job Title	Hours per Week	Average Number Of Part Time Employees, 1989			
		Quarter 1 (Jan 1 - Mar 31)	Quarter 2 (Apr 1 - Jun 30)	Quarter 3 (Jul 1 - Sep 30)	Quarter 4 (Oct 1 - Dec 31)

SECTION 3
Racing and Training Expenditures

1. FULL TIME EMPLOYEES: Please estimate the average base pay per full time employee per month, at Southern California race tracks and at the racing or training facilities specified in Section 2 (if applicable).

Full Time Employee	Average Base Pay Per Employee Per Month	
	Southern California Race Tracks	Other California Training Facilities
ASSISTANT TRAINER	_____	_____
BARN FOREMAN	_____	_____
EXERCISE RIDER	_____	_____
GROOM	_____	_____
HOTWALKER	_____	_____
OTHER (Please Specify)		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

2. FREE-LANCE AND CONTRACT LABOR: Please estimate the average pay rate that you pay for free-lance or contract labor at Southern California race tracks and at the racing or training facilities specified in Section 2 (if applicable).

Contract Laborer	Average Pay Rate For Contract Labor	
	Southern California Race Tracks	Other California Training Facilities
EXERCISE RIDER	_____	_____
PONY BOY/GIRL--MORNING	_____	_____
PONY BOY/GIRL--TO POST	_____	_____
HOT WALKER	_____	_____
OTHER (specify_____)	_____	_____

3. PAYROLL: Please estimate your total payroll expenditure in 1989 (for employees caring for or working with horses in training at the California locations specified in Sections 1 and 2) and the approximate percentage of that total which went to each of the indicated categories.

TOTAL PAYROLL EXPENDITURE, 1989 _____

ESTIMATED PERCENTAGE OF TOTAL GOING TO THE FOLLOWING:

- WORKMAN'S COMPENSATION _____
- EMPLOYER PAID PAYROLL TAXES _____
- EMPLOYEE BENEFITS (e.g. health insurance, pension plans) _____
- BONUSES, COMMISSIONS, OR "STAKES" _____
- CONTRACT LABOR _____
- PART TIME LABOR _____

4. If possible, please estimate the total amount of bonuses or "stakes" which your employees received from your owners in 1989. _____

5. How many of your employees lived full time in track provided housing (tack rooms) or in housing provided by you? _____

6. EXPENSES: For each of the following expenses, please estimate the total amount paid in 1989 for your entire stable(s) or the average annual cost per horse (whichever is easier) paid by you--**or estimate as closely as possible the amount paid by the owners of horses trained by you**--for horses you had in training at Southern California race tracks and at the other California racing or training facilities specified in Section 2 (if applicable).

Expense	Average Annual Cost Per Horse Or Total Stable Cost For The Year	
	Southern California Race Tracks	Other California Training Facilities
FARRIER	_____	_____
VETERINARIAN	_____	_____
EQUINE DENTIST	_____	_____
STALL RENTAL	_____	_____
VANNING	_____	_____

7. FEED AND BEDDING COSTS PER HORSE: Please estimate your average cost per horse per month for feed and bedding at Southern California race tracks and at the other California racing or training facilities specified in Section 2 (if applicable). If it is easier, just give the total feed and bedding cost per horse and indicate the approximate percentage of the total going to each category.

Expense	Average Cost Per Horse Per Month	
	Southern California Race Tracks	Other California Training Facilities
FEED		
ALFALFA HAY	_____	_____
OTHER HAYS	_____	_____
GRAINS	_____	_____
FEED SUPPLEMENTS	_____	_____
BEDDING		
STRAW	_____	_____
WOOD SHAVINGS	_____	_____
OTHER	_____	_____
TOTAL FEED AND BEDDING COSTS Per Horse Per Month	_____	_____

8. STABLE OVERHEAD: Please estimate the total annual stable overhead expenses for your California racing and/or training stables. If it is easier, just give the total stable overhead expense for the year and indicate the approximate percentage of the total going to each category.

	Annual Stable Overhead Expenses
TACK & STABLE EQUIPMENT (INCLUDING REPAIRS)	_____
VET SUPPLIES SUCH AS LINIMENTS, BANDAGES, ETC.	_____
FEED SUPPLEMENTS	_____
EQUIPMENT RENTAL (E.G. HOTWALKERS, ICE MACHINES, ETC.)	_____
BARN OFFICE, TELEPHONE	_____
OTHER STABLE OVERHEAD EXPENSES	_____
TOTAL STABLE OVERHEAD EXPENSES	_____

9. BUSINESS OVERHEAD: Please estimate your annual race horse training business overhead expenses for 1989 by category. If it is easier, just give the total business overhead expense for the year and indicate the approximate percentage of the total going to each category.

	ANNUAL BUSINESS OVERHEAD EXPENSES
BUSINESS INSURANCE (OTHER THAN WORKMEN'S COMP.)	_____
INTEREST ON BUSINESS LOANS	_____
LICENSE FEES	_____
TELEPHONE FOR BUSINESS USE	_____
BUSINESS RELATED TRAVEL, LODGING	_____
BUSINESS RELATED ENTERTAINMENT	_____
BOX SEATS AT TRACK, PROGRAMS, RACING FORMS, ETC.	_____
OFFICE EXPENSES	_____
BOOKKEEPING, ACCOUNTING, OR TAX PREPARATION	_____
OTHER	_____
TOTAL BUSINESS OVERHEAD EXPENSES	_____

10. Approximately what percentage of your total business overhead expenses were spent out of state? _____

11. What were your daily training rates in 1988?

Daily Training Rates	
Southern California	Other California Training Facilities
_____	_____

12. What percent of your total yearly income was generated by your race horse training business in 1989? _____

SECTION 4
Investment

1. Please estimate the market value of all Thoroughbred race horses which you had in training on December 31, 1989 by indicating your best estimate of the number of horses you had in each value category

Estimated Market Value	Number Of Horses On December 31, 1989
LESS THAN $5,000	_____
$5,000 - 9,900	_____
$10,000 - 14,900	_____
$15,000 - 24,900	_____
$25,000 - 49,900	_____
$50,000 - 99,900	_____
$100,000 - 199,900	_____
$200,000 - 499,900	_____
$500,000 - 999,900	_____
GREATER THAN $1,000,000	_____

2. Please estimate the number and market value of the pony horses you owned and used primarily for your race horse training business in 1989:

	NUMBER OF HORSES	AVERAGE VALUE
PONY HORSES	_____	_____

3. Estimate the value of your investment in depreciable assets and equipment which is used by you primarily for the racing or training of Thoroughbred race horses:

1. TACK & STABLE EQUIPMENT	_____
2. VANNING EQUIPMENT	_____
3. OTHER (Please Specify)	
_____	_____
_____	_____

Is there anything else you would like to tell us about your training operation in particular, or the Thoroughbred industry in general? If so, please use this space and the back cover if necessary.

Thank you very much for your cooperation in filling out and returning this survey.

Appendix B-1

Clark – Wolcott

October 22, 1990

Mr. Lawrence Shepard
Department of Agricultural Economics
University of California, Davis
Davis, California 95616

SUBJECT: Land Value Estimates for The California Horse Industry Study **90/116**

Dear Mr. Shepard:

In response to your request and authorization, we have completed a study leading to a *Limited Appraisal* of specified lands needed as input to the above-referenced study. During the study and preparation of the appraisal, a general viewing of lands identified in the attached **Executive Summary** was conducted and a limited investigation made for relevant market indicators.

Based on the consideration of data obtained during the inspections and investigation, we have estimated a value for the land only as though vacant, based on a *Limited Scope Appraisal* as of *October 15, 1990*. A summary of this appraisal, including the scope, methodology and the aggregate total of the estimated values are described in the attached **Executive Summary**.

The file report of the appraisal transmitted under separate cover includes a description of the scope of the assignment, and the Assumptions and Limiting Conditions that define the appraisal and its results. Your attention is directed specifically to these portions of the report for an understanding of the scope of the appraisal as mutually agreed upon, and the significance of the conclusions and estimates reached.

Respectfully submitted,

CLARK-WOLCOTT COMPANY, INC.

Clark-Wolcott Company, Inc.
Real Estate Analysts and Consultants
3230 Ramos Circle, Sacramento, California 95827
TEL. 916-366-3911
FAX: 916-366-3835

EXECUTIVE SUMMARY

The assignment is the preparation of a limited scope appraisal estimating the probable market value of five properties representing components of the California Horse Industry. The five properties are all currently developed race-horse tracks and related facilities, identified as:

Bay Meadows, San Mateo
Del Mar, Del Mar
Golden Gate Fields, Albany
Hollywood Park, Inglewood
Santa Anita, Arcadia

The appraisal is of the land only in each of these properties, as though vacant and available for development to their probable use other than as a race track.

The appraisal was requested by the client for consideration and input to a broader study of the horse industry in California.

The properties are valued as of *October 15, 1990.* The value estimated is the probable estimate of market value that would result from a full and complete appraisal of the properties.

Each of the five properties is located in a decidedly urban environment and within major metropolitan centers of the north and south state regions. With the exception of the Del Mar property situated on the coastal plain, the properties are surrounded by a mix of mature urban land uses varying in density, quality, and stage of useful life.

The size of the properties range from 154 to 334 acres, more or less. In the vacant state, the properties would represent an extraordinary land parcel in an otherwise near fully developed urban setting. Consequently, their actual utilization, absent the current use, would be subject to numerous opposing and conflicting social, economic and political forces that obscure the actual alternative use that might otherwise emerge.

The limited appraisal of these properties is based on and limited to three distinct components.

- Determination of the approximate land area occupied by each property and presumably available for alternative use.

- Estimation of the probable land use absent and ignoring the current use as a race track. This estimation is based on the properties' location, surrounding land uses, and the regulatory, political and social influences affecting local land use to the extent such influence is currently identifiable.

- An estimate of the probable value under the alternative land use and readily available and summarized indicators of price levels for comparable land use.

The complete assignment included preparation of a file report and maintenance of a file in support of the appraisal.

In completing the scope of the limited appraisals, data was gathered from public and private sources and agencies, and interviews held with some of their representatives. The data gathered included zoning ordinances, general and specific land use plans, indication of attitude toward land use, and indicators of price levels for land suitable for the various uses to which the property, if vacant, might be put.

In estimating the probable value of the respective properties, the appraisal considered:

- The size and other physical characteristics of each property.
- Land use and the type and quality of development surrounding the property.
- Alternative land uses for each property based on current zoning ordinances, existing and pending general and specific plans, local attitude toward specific forms of alternative use, and adjacent development and development trends.
- Market indicators of value for the most probable alternative uses.

Based on our consideration and analysis of these data and factors, we have concluded, as of *October 15, 1990*, that the most probable estimate of market value that would result from a full and complete appraisal of each property would amount to, in the aggregate, a total of:

EIGHT HUNDRED TEN MILLION ($810,000,000) DOLLARS

Further details of the appraisal are included in the file copy of the report of the appraisal. Attention is called to this report for a fuller understanding of the scope of the appraisal and the Assumptions and Limiting Conditions under which it was prepared and to which the estimate of value is subject.

CLARK-WOLCOTT COMPANY, INC.

By: _____ Date 10-22-90
Richard C. Wolcott, MAI

Assisted By:

REAL ESTATE ANALYSTS OF SAN FRANCISCO

By: Mary R. Vella Date 10-22-90
Mary R. Vella

SPECIAL ASSUMPTIONS AND LIMITING CONDITIONS

- No examination of title was made by this Company or any of its staff, nor was any report of title made available to the Company or any of its staff for review in the preparation of this appraisal. (See Assumptions and Limiting Conditions, Item 1).

- Location, size, and configuration of the properties is based on public information available from the offices of the respective county jurisdiction. Clark-Wolcott Company, Inc., and the appraiser make no representation relative to the accuracy of such information beyond it being available to the public in general.

- The area of each site described and employed for valuation purposes is only that area that is likely to be available for alternative use regardless of the ownership or total size of the property. An example of this condition is the Del Mar Race Track that is part of a larger, public-owned property.

- The "probable use" described for each property is based on published local regulations, land use studies, opinions expressed by representatives of the local jurisdiction and the appraiser's perception of the property's location and environment. The use described is not represented to be "highest and best use," nor the use to which the land may eventually be put, but is an estimation of the market's probable perception given the same information as considered by the appraiser.

- The estimates of "probable value" are based on indicators obtained from public and private sources who are familiar with the local market areas of the respective properties. The information is assumed valid and accurately reported, but has not been separately investigated by the appraiser, the Company, or any of its staff members.

- The estimates of value are for described land area only as though vacant without race track or structural improvements.

Appendix C-1

Figure 2-4 (A)

Number of Days, Major Races		
Year	North	South
1953	125	141
1954	129	141
1955	134	146
1956	139	150
1957	119	151
1958	140	152
1959	139	152
1960	139	152
1961	134	152
1962	141	152
1963	139	152
1964	143	152
1965	144	152
1966	144	152
1967	144	172
1968	163	189
1969	158	212
1970	162	186
1971	165	213
1972	165	213
1973	168	212
1974	168	216
1975	169	217
1976	141	222
1977	171	221
1978	177	223
1979	168	222
1980	176	222
1981	192	258
1982	202	260
1983	193	262
1984	208	265
1985	202	260
1986	202	263
1987	202	263
1988	222	263
1989	213	263

Figure 2-4 (B)

Number of Days, Fair Races		
Year	North	South
1953	67	14
1954	67	14
1955	66	14
1956	70	14
1957	70	14
1958	72	14
1959	73	14
1960	73	14
1961	74	14
1962	74	14
1963	74	14
1964	95	14
1965	95	14
1966	96	14
1967	83	14
1968	87	14
1969	88	14
1970	88	14
1971	88	14
1972	89	14
1973	89	14
1974	91	14
1975	93	14
1976	81	14
1977	94	26
1978	94	28
1979	94	28
1980	109	52
1981	97	36
1982	95	31
1983	98	31
1984	97	31
1985	99	31
1986	100	31
1987	100	32
1988	100	35
1989	100	35

Figure 2-5 (A)

Number of Foals			
Year	Kentucky	California	Florida
1965	3,536	2,903	1,117
1966	3,640	3,092	1,284
1967	3,723	3,229	1,422
1968	3,825	3,480	1,655
1969	3,868	3,980	1,667
1970	3,889	3,967	1,904
1971	3,526	3,771	1,939
1972	3,837	3,949	2,228
1973	3,955	3,917	2,430
1974	4,306	3,768	2,485
1975	4,252	3,696	2,551
1976	4,287	3,863	2,547
1977	4,710	3,881	2,642
1978	5,037	3,856	2,695
1979	5,227	3,876	2,857
1980	5,885	4,117	3,202
1981	6,541	4,357	3,816
1982	7,521	4,867	4,237
1983	8,943	5,597	4,443
1984	9,110	5,832	4,672
1985	8,889	6,060	4,957
1986	8,957	5,960	4,999
1987	8,746	5,810	4,828
1988	8,363	5,620	4,548

Figure 2-5 (B)

Number of Foals	
Year	United States
1965	18,659
1966	19,881
1967	21,319
1968	22,911
1969	24,428
1970	25,147
1971	24,304
1972	25,793
1973	26,935
1974	27,473
1975	27,649
1976	28,290
1977	30,006
1978	31,466
1979	33,862
1980	35,613
1981	38,629
1982	42,829
1983	47,228
1984	49,228
1985	50,399
1986	51,102
1987	50,912
1988	48,950

Figure 2-6 (A)

Total Purse Paid/Nominal Dollars

Year	NORTH		SOUTH	
1953	$3,060,325		$6,695,200	
1954	$3,050,250		$7,450,300	
1955	$3,416,500		$7,361,400	
1956	$3,275,700		$7,953,650	
1957	$2,983,144		$8,185,900	
1958	$3,283,350		$8,238,350	
1959	$3,152,000		$8,603,600	
1960	$3,154,150		$8,088,600	
1961	$3,172,064		$8,525,555	
1962	$3,286,600		$8,658,931	
1963	$3,343,749		$9,424,037	
1964	$3,691,250		$10,481,625	
1965	$3,886,073		$10,545,107	
1966	$3,884,189	$3,809,489	$10,846,740	$10,124,600
1967	$4,825,105	$4,743,125	$11,766,190	$11,070,400
1968	$6,076,220	$5,970,570	$13,907,287	$13,110,107
1969	$7,241,388	$7,127,263	$15,899,549	$15,075,004
1970	$7,351,620	$7,279,520	$14,697,089	$13,949,219
1971	$7,271,949	$7,184,449	$19,187,822	$18,366,237
1972	$7,938,090	$7,815,715	$20,925,706	$19,860,906
1973	$8,542,809	$8,414,907	$21,909,077	$21,044,282
1974	$8,786,632	$8,655,032	$23,576,161	$22,420,721
1975	$9,756,630	$9,611,730	$25,754,325	$24,790,595
1976	$8,846,661	$8,671,046	$28,344,610	$27,331,650
1977	$10,878,350	$10,682,750	$30,371,926	$29,172,191
1978	$12,806,649	$12,541,849	$35,185,635	$34,069,020
1979	$12,161,014	$11,955,964	$37,543,454	$36,154,044
1980	$14,974,572	$14,734,972	$43,431,373	$41,976,413
1981	$18,938,456	$18,643,506	$61,521,047	$59,019,194
1982	$21,548,251	$21,152,851	$63,006,105	$60,187,823
1983	$20,838,106	$20,484,184	$62,589,544	$60,312,870
1984	$23,068,114	$22,325,686	$78,252,785	$64,134,974
1985	$23,417,999	$22,625,356	$71,176,167	$66,234,068
1986	$26,334,398	$25,275,446	$80,024,697	$64,448,725
1987	$26,268,706	$25,227,111	$82,098,200	$68,556,529
1988	$28,939,237	$27,525,347	$83,692,043	$78,499,391

Figure 2-6 (B)

Total Purse Paid/Real Dollars

Year	NORTH		SOUTH	
1953	$11,861,725		$25,950,388	
1954	$11,822,674		$28,877,132	
1955	$13,293,774		$28,643,580	
1956	$12,502,672		$30,357,443	
1957	$11,007,911		$30,206,273	
1958	$11,684,520		$29,317,972	
1959	$11,020,979		$30,082,517	
1960	$10,801,884		$27,700,685	
1961	$10,752,759		$28,900,186	
1962	$10,991,973		$28,959,635	
1963	$10,999,174		$31,000,122	
1964	$11,907,258		$33,811,694	
1965	$12,336,740		$33,476,530	
1966	$12,062,699	$11,830,711	$33,685,528	$31,442,857
1967	$14,621,530	$14,373,106	$35,655,121	$33,546,667
1968	$17,663,430	$17,356,308	$40,428,160	$38,110,776
1969	$20,059,247	$19,743,111	$44,043,072	$41,759,014
1970	$19,397,414	$19,207,177	$38,778,599	$36,805,327
1971	$18,503,687	$18,281,041	$48,823,975	$46,733,427
1972	$19,551,946	$19,250,530	$51,541,148	$48,918,488
1973	$19,866,998	$19,569,551	$50,951,342	$48,940,191
1974	$18,537,198	$18,259,561	$49,738,736	$47,301,099
1975	$18,655,124	$18,378,069	$49,243,451	$47,400,755
1976	$15,911,261	$15,595,406	$50,979,514	$49,157,644
1977	$18,282,941	$17,954,202	$51,045,254	$49,028,892
1978	$19,886,101	$19,474,921	$54,636,079	$52,902,205
1979	$17,056,121	$16,768,533	$52,655,616	$50,706,934
1980	$18,173,024	$17,882,248	$52,707,977	$50,942,249
1981	$20,720,411	$20,397,709	$67,309,679	$64,572,422
1982	$22,146,198	$21,739,826	$64,754,476	$61,857,989
1983	$21,069,875	$20,712,016	$63,285,687	$60,983,691
1984	$22,223,617	$21,508,368	$75,388,039	$61,787,066
1985	$21,563,535	$20,833,661	$65,539,749	$60,989,013
1986	$23,512,855	$22,567,363	$71,450,622	$57,543,504
1987	$22,528,907	$21,635,601	$70,410,120	$58,796,337
1988	$23,740,145	$22,580,268	$68,656,311	$64,396,547

Figure 2-7 (A)

Average Purse Per Race/Nominal Dollars		
Year	North	South
1953	$2,874	$5,888
1954	2,875	6,553
1955	3,103	6,244
1956	2,863	6,568
1957	3,035	6,211
1958	2,850	6,692
1959	2,748	7,012
1960	2,691	6,560
1961	2,630	6,777
1962	2,590	6,840
1963	2,671	6,986
1964	2,868	7,662
1965	2,996	7,708
1966	3,009	7,929
1967	3,723	7,596
1968	4,142	8,176
1969	5,092	8,333
1970	5,042	8,780
1971	4,897	10,009
1972	5,346	10,904
1973	5,650	11,483
1974	5,811	12,128
1975	6,415	13,187
1976	6,971	14,186
1977	7,068	15,270
1978	8,039	17,531
1979	8,043	18,791
1980	9,424	21,737
1981	10,960	26,495
1982	11,781	27,240
1983	11,648	26,443
1984	11,922	32,769
1985	12,096	30,262
1986	15,065	33,624
1987	14,062	34,758
1988	13,987	35,298

Figure 2-7 (B)

Average Purse Per Race/Real Dollars		
Year	North	South
1953	$11,138	$22,824
1954	11,143	25,398
1955	12,074	24,295
1956	10,929	25,068
1957	11,198	22,918
1958	10,143	23,816
1959	9,609	24,517
1960	9,217	22,466
1961	8,916	22,973
1962	8,662	22,875
1963	8,785	22,980
1964	9,252	24,716
1965	9,512	24,471
1966	9,344	24,624
1967	11,282	23,018
1968	12,041	23,767
1969	14,106	23,083
1970	13,304	23,165
1971	12,460	25,469
1972	13,166	26,858
1973	13,140	26,704
1974	12,260	25,586
1975	12,265	25,214
1976	12,538	25,515
1977	11,880	25,664
1978	12,483	27,223
1979	11,281	26,354
1980	11,437	26,380
1981	11,991	28,988
1982	12,108	27,996
1983	11,777	26,737
1984	11,485	31,570
1985	11,138	27,866
1986	13,451	30,021
1987	12,060	29,810
1988	11,474	28,957

Figure 2-8

Total Incentive Award

Year	Nominal $	Real $
1970	$678,954	$1,791,435
1971	$1,439,624	$3,663,165
1972	$1,480,000	$3,645,320
1973	$1,464,631	$3,406,119
1974	$1,772,193	$3,738,804
1975	$1,895,297	$3,623,895
1976	$1,962,219	$3,529,171
1977	$2,040,604	$3,429,587
1978	$2,851,228	$4,427,373
1979	$3,283,129	$4,604,669
1980	$3,836,624	$4,656,097
1981	$5,618,442	$6,147,092
1982	$6,607,425	$6,790,776
1983	$6,827,113	$6,903,047
1984	$7,945,304	$7,654,435
1985	$8,333,462	$7,673,538
1986	$8,070,186	$7,205,523
1987	$8,570,500	$7,350,343
1988	$11,090,581	$9,098,098
1989	$11,233,043	$8,762,124

Figure 2-9

Sales of Horses in California

Year	Public Auction	Claiming Races
1983	$41,930,750	$20,557,300
1984	$28,801,587	$22,981,375
1985	$20,953,900	$26,226,810
1986	$14,164,650	$28,224,750
1987	$22,786,900	$28,235,000
1988	$18,489,700	$35,322,500
1989	$27,906,950	$33,245,750

Appendix C-2

Figure 3-3

Total Pari-Mutuel Revenue Retained By Track Operators

Year	Nominal	Real
1965	$20,297,085	$64,435,189
1966	$21,108,124	$65,553,182
1967	$19,965,622	$60,501,884
1968	$22,099,057	$64,241,443
1969	$24,969,251	$69,166,900
1970	$24,001,757	$63,329,175
1971	$31,180,194	$79,338,915
1972	$33,853,323	$83,382,569
1973	$36,111,732	$83,980,772
1974	$38,142,382	$80,469,160
1975	$42,362,374	$80,998,803
1976	$44,333,731	$79,736,926
1977	$49,202,437	$82,693,171
1978	$57,775,150	$89,712,966
1979	$59,978,527	$84,121,356
1980	$69,592,884	$84,457,383
1981	$87,448,428	$95,676,617
1982	$90,033,936	$92,532,308
1983	$92,219,523	$93,245,220
1984	$100,869,188	$97,176,482
1985	$103,767,927	$95,550,577
1986	$103,416,034	$92,335,745
1987	$107,174,762	$91,916,605
1988	$117,383,435	$96,294,861
1989	$120,336,087	$93,865,902

Figure 3-4

Attendance

Year	Total	On-Track
1953	4,590,175	4,590,175
1954	4,600,355	4,600,355
1955	4,601,853	4,601,853
1956	4,908,009	4,908,009
1957	4,857,426	4,857,426
1958	4,961,616	4,961,616
1959	5,002,863	5,002,863
1960	4,720,666	4,720,666
1961	4,950,675	4,950,675
1962	4,863,821	4,863,821
1963	5,038,860	5,038,860
1964	5,138,285	5,138,285
1965	5,368,831	5,368,831
1966	5,309,313	5,309,313
1967	5,275,554	5,275,554
1968	6,018,214	6,018,214
1969	6,039,533	6,039,533
1970	5,641,540	5,641,540
1971	6,414,560	6,414,560
1972	6,179,678	6,179,678
1973	6,412,333	6,412,333
1974	6,470,857	6,470,857
1975	7,100,362	7,100,362
1976	6,852,345	6,852,345
1977	7,023,906	7,023,906
1978	6,820,014	6,820,014
1979	6,772,620	6,772,620
1980	7,708,803	7,708,803
1981	8,568,721	8,568,721
1982	8,958,000	8,958,000
1983	9,119,231	9,119,231
1984	9,225,864	9,225,864
1985	9,091,658	8,884,658
1986	8,735,403	7,828,041
1987	9,006,240	7,794,842
1988	10,579,418	7,152,321
1989	10,640,107	6,806,224

Figure 3-6

Pari-Mutuel Retained Per Day By Track Operators

Year	Nominal	Real
1965	$68,571	$217,686
1966	$71,311	$221,463
1967	$63,182	$191,462
1968	$62,781	$182,504
1969	$67,484	$186,938
1970	$68,971	$181,980
1971	$82,487	$209,891
1972	$89,559	$220,589
1973	$95,031	$221,002
1974	$99,329	$209,555
1975	$109,747	$209,841
1976	$122,131	$219,661
1977	$125,516	$210,952
1978	$144,438	$224,282
1979	$153,791	$215,696
1980	$174,856	$212,204
1981	$194,330	$212,615
1982	$194,879	$200,286
1983	$202,680	$204,935
1984	$213,254	$205,447
1985	$224,606	$206,819
1986	$222,400	$198,571
1987	$230,483	$197,670
1988	$242,028	$198,546
1989	$250,179	$195,147

Appendix C-3

Figure 4-1

Total Handle

Year	Nominal	Real
1953	$336,052,510	$1,302,529,109
1954	$326,842,150	$1,266,830,039
1955	$334,343,864	$1,300,948,887
1956	$360,341,915	$1,375,350,821
1957	$359,210,064	$1,325,498,391
1958	$371,058,022	$1,320,491,181
1959	$382,418,538	$1,337,127,755
1960	$368,796,798	$1,263,002,733
1961	$387,658,415	$1,314,096,322
1962	$395,538,155	$1,322,870,084
1963	$430,066,772	$1,414,693,329
1964	$451,827,624	$1,457,508,465
1965	$475,366,000	$1,509,098,413
1966	$481,636,241	$1,495,764,724
1967	$491,991,737	$1,490,884,052
1968	$579,483,305	$1,684,544,491
1969	$633,858,286	$1,755,840,127
1970	$592,160,726	$1,562,429,356
1971	$669,130,255	$1,702,621,514
1972	$684,822,000	$1,686,753,695
1973	$730,857,666	$1,699,668,991
1974	$776,395,505	$1,637,965,200
1975	$868,967,000	$1,661,504,780
1976	$913,630,175	$1,643,219,739
1977	$1,020,302,081	$1,714,793,413
1978	$1,058,411,082	$1,643,495,469
1979	$1,102,996,780	$1,546,980,056
1980	$1,288,006,239	$1,563,114,368
1981	$1,498,472,727	$1,639,466,879
1982	$1,547,222,583	$1,590,156,817
1983	$1,584,101,983	$1,601,720,913
1984	$1,722,738,246	$1,659,670,757
1985	$1,776,034,213	$1,635,390,620
1986	$1,780,309,693	$1,589,562,226
1987	$1,866,661,228	$1,600,910,144
1988	$2,229,796,480	$1,829,201,378
1989	$2,311,451,580	$1,803,004,353

Figure 4-2

On-Track Handle

Year	Nominal	Real
1953	$336,052,510	$1,302,529,109
1954	$326,842,150	$1,266,830,039
1955	$334,343,864	$1,300,948,887
1956	$360,341,915	$1,375,350,821
1957	$359,210,064	$1,325,498,391
1958	$371,058,022	$1,320,491,181
1959	$382,418,538	$1,337,127,755
1960	$368,796,798	$1,263,002,733
1961	$387,658,415	$1,314,096,322
1962	$395,538,155	$1,322,870,084
1963	$430,066,772	$1,414,693,329
1964	$451,827,624	$1,457,508,465
1965	$475,366,000	$1,509,098,413
1966	$481,636,241	$1,495,764,724
1967	$491,991,737	$1,490,884,052
1968	$579,483,305	$1,684,544,491
1969	$633,858,286	$1,755,840,127
1970	$592,160,726	$1,562,429,356
1971	$669,130,255	$1,702,621,514
1972	$684,822,000	$1,686,753,695
1973	$730,857,666	$1,699,668,991
1974	$776,395,505	$1,637,965,200
1975	$868,967,000	$1,661,504,780
1976	$913,630,175	$1,643,219,739
1977	$1,020,302,081	$1,714,793,413
1978	$1,058,411,082	$1,643,495,469
1979	$1,102,996,780	$1,546,980,056
1980	$1,288,006,239	$1,563,114,368
1981	$1,498,472,727	$1,639,466,879
1982	$1,547,222,583	$1,590,156,817
1983	$1,584,101,983	$1,601,720,913
1984	$1,722,738,246	$1,659,670,757
1985	$1,739,152,520	$1,601,429,576
1986	$1,613,557,203	$1,440,676,074
1987	$1,644,933,655	$1,410,749,275
1988	$1,568,996,968	$1,287,118,103
1989	$1,549,466,117	$1,208,631,917

Figure 4-3

Attendance

Year	Total	On-Track
1953	4,590,175	4,590,175
1954	4,600,355	4,600,355
1955	4,601,853	4,601,853
1956	4,908,009	4,908,009
1957	4,857,426	4,857,426
1958	4,961,616	4,961,616
1959	5,002,863	5,002,863
1960	4,720,666	4,720,666
1961	4,950,675	4,950,675
1962	4,863,821	4,863,821
1963	5,038,860	5,038,860
1964	5,138,285	5,138,285
1965	5,368,831	5,368,831
1966	5,309,313	5,309,313
1967	5,275,554	5,275,554
1968	6,018,214	6,018,214
1969	6,039,533	6,039,533
1970	5,641,540	5,641,540
1971	6,414,560	6,414,560
1972	6,179,678	6,179,678
1973	6,412,333	6,412,333
1974	6,470,857	6,470,857
1975	7,100,362	7,100,362
1976	6,852,345	6,852,345
1977	7,023,906	7,023,906
1978	6,820,014	6,820,014
1979	6,772,620	6,772,620
1980	7,708,803	7,708,803
1981	8,568,721	8,568,721
1982	8,958,000	8,958,000
1983	9,119,231	9,119,231
1984	9,225,864	9,225,864
1985	9,091,658	8,884,658
1986	8,735,403	7,828,041
1987	9,006,240	7,794,842
1988	10,579,418	7,152,321
1989	10,640,107	6,806,224

Figure 4-4

On-Track Handle Per Patron

Year	Nominal	Real
1953	$73	$284
1954	$71	$275
1955	$73	$283
1956	$73	$280
1957	$74	$273
1958	$75	$266
1959	$76	$267
1960	$78	$268
1961	$78	$265
1962	$81	$272
1963	$85	$281
1964	$88	$284
1965	$89	$281
1966	$91	$282
1967	$93	$283
1968	$96	$280
1969	$105	$291
1970	$105	$277
1971	$104	$265
1972	$111	$273
1973	$114	$265
1974	$120	$253
1975	$122	$234
1976	$133	$240
1977	$145	$244
1978	$155	$241
1979	$163	$228
1980	$167	$203
1981	$175	$191
1982	$173	$178
1983	$174	$176
1984	$187	$180
1985	$196	$180
1986	$206	$184
1987	$211	$181
1988	$219	$180
1989	$228	$178

Figure 4-5

California Population

Year	
1953	12,101,000
1954	12,517,000
1955	13,004,000
1956	13,581,000
1957	14,177,000
1958	14,741,000
1959	15,288,000
1960	15,863,000
1961	16,412,000
1962	16,951,000
1963	17,530,000
1964	18,026,000
1965	18,464,000
1966	18,831,000
1967	19,175,000
1968	19,432,000
1969	19,745,000
1970	20,039,000
1971	20,346,000
1972	20,585,000
1973	20,869,000
1974	21,174,000
1975	21,538,000
1976	21,936,000
1977	22,352,000
1978	22,836,000
1979	23,257,000
1980	23,780,000
1981	24,267,000
1982	24,786,000
1983	25,309,000
1984	25,780,000
1985	26,358,000
1986	27,001,000
1987	27,653,000
1988	28,315,000
1989	29,063,000

Figure 4-6

CA Per Capita Attendance

Year	Total	On-Track
1953	379	379
1954	367	367
1955	353	353
1956	361	361
1957	343	342
1958	337	336
1959	327	327
1960	298	297
1961	302	301
1962	287	287
1963	287	287
1964	285	285
1965	291	291
1966	282	282
1967	275	275
1968	310	310
1969	306	306
1970	282	282
1971	315	315
1972	300	300
1973	307	307
1974	306	306
1975	330	330
1976	312	312
1977	314	314
1978	299	299
1979	291	291
1980	324	324
1981	353	353
1982	361	361
1983	360	360
1984	358	358
1985	345	337
1986	324	290
1987	326	282
1988	374	253
1989	366	234

Figure 4-7 (A & B)

Thoroughbred Racing Days		
Year	On-Track	Off-Track
1953	266	--
1954	270	--
1955	280	--
1956	289	--
1957	270	--
1958	292	--
1959	291	--
1960	291	--
1961	286	--
1962	293	--
1963	291	--
1964	295	--
1965	296	--
1966	296	--
1967	316	--
1968	352	--
1969	370	--
1970	348	--
1971	378	--
1972	378	--
1973	380	--
1974	384	--
1975	386	--
1976	363	--
1977	392	--
1978	400	--
1979	390	--
1980	398	--
1981	450	--
1982	462	--
1983	455	--
1984	473	--
1985	462	209
1986	465	973
1987	465	1,604
1988	485	4,498
1989	481	5,204

Figure 4-8

Lottery	
Year	Total
1985	$862,175,649
1986	$1,533,139,653
1987	$1,632,823,623
1988	$2,521,116,904
1989	$2,563,080,073

Figure 4-9

On-Track Handle Per Day		
Year	Nominal	Real
1953	$1,263,355	$4,896,726
1954	$1,210,526	$4,691,963
1955	$1,194,085	$4,646,246
1956	$1,246,858	$4,758,999
1957	$1,330,408	$4,909,253
1958	$1,270,747	$4,522,230
1959	$1,314,153	$4,594,941
1960	$1,267,343	$4,340,216
1961	$1,355,449	$4,594,742
1962	$1,349,960	$4,514,915
1963	$1,477,893	$4,861,489
1964	$1,531,619	$4,940,707
1965	$1,605,966	$5,098,305
1966	$1,627,149	$5,053,259
1967	$1,556,936	$4,717,988
1968	$1,646,259	$4,785,638
1969	$1,713,131	$4,745,514
1970	$1,701,611	$4,489,740
1971	$1,770,186	$4,504,290
1972	$1,811,698	$4,462,311
1973	$1,923,310	$4,472,813
1974	$2,021,863	$4,265,534
1975	$2,251,210	$4,304,417
1976	$2,516,888	$4,526,776
1977	$2,602,811	$4,374,473
1978	$2,646,028	$4,108,739
1979	$2,828,197	$3,966,616
1980	$3,236,197	$3,927,423
1981	$3,329,939	$3,643,260
1982	$3,348,967	$3,441,898
1983	$3,481,543	$3,520,266
1984	$3,642,153	$3,508,818
1985	$3,764,399	$3,466,298
1986	$3,470,015	$3,098,228
1987	$3,537,492	$3,033,869
1988	$3,235,045	$2,653,852
1989	$3,221,343	$2,512,748

Figure 4-10

Real Income Per Capita	
Year	Real
1953	$8,620
1954	$8,539
1955	$9,156
1956	$9,416
1957	$9,410
1958	$9,121
1959	$9,351
1960	$9,541
1961	$9,631
1962	$9,910
1963	$10,079
1964	$10,429
1965	$10,724
1966	$11,252
1967	$11,630
1968	$12,087
1969	$12,424
1970	$12,522
1971	$12,616
1972	$13,202
1973	$13,572
1974	$13,572
1975	$13,291
1976	$13,752
1977	$14,072
1978	$14,613
1979	$14,763
1980	$14,081
1981	$13,921
1982	$13,603
1983	$14,081
1984	$14,543
1985	$14,763
1986	$15,016
1987	$15,301
1988	$15,391
1989	$15,544

Figure 4-11

Effective Takeout Rate	
Year	Percentage
1953	13.77%
1954	13.71%
1955	13.69%
1956	13.67%
1957	13.66%
1958	13.72%
1959	14.29%
1960	15.37%
1961	15.31%
1962	15.23%
1963	15.21%
1964	15.23%
1965	15.22%
1966	15.18%
1967	15.24%
1968	15.21%
1969	15.30%
1970	15.27%
1971	16.33%
1972	16.82%
1973	16.78%
1974	16.72%
1975	16.69%
1976	16.72%
1977	16.65%
1978	17.87%
1979	17.84%
1980	17.83%
1981	17.93%
1982	18.00%
1983	18.48%
1984	18.68%
1985	18.45%
1986	18.45%
1987	18.52%
1988	18.52%
1989	18.55%

Figure 4-12

Takeout Rates on Bets			
Year	Effective	Conventional	Exotic
1968	15.21%	14.00%	14.00%
1969	15.30%	14.00%	14.00%
1970	15.27%	14.00%	14.00%
1971	16.33%	15.25%	15.25%
1972	16.82%	15.75%	15.75%
1973	16.78%	15.75%	15.75%
1974	16.72%	15.75%	15.75%
1975	16.69%	15.75%	15.75%
1976	16.72%	15.75%	15.75%
1977	16.65%	15.75%	15.75%
1978	17.87%	15.75%	18.75%
1979	17.84%	15.75%	18.75%
1980	17.83%	15.75%	18.75%
1981	17.93%	15.00%	19.75%
1982	18.00%	15.00%	19.75%
1983	18.48%	15.33%	20.42%
1984	18.68%	15.33%	20.65%
1985	18.45%	15.33%	20.08%
1986	18.45%	15.33%	20.08%
1987	18.52%	15.33%	20.08%
1988	18.52%	15.33%	20.08%
1989	18.55%	15.33%	20.08%

Appendix D-1

A Note on Elasticities

In the analysis of the demand for horse racing in California, we frequently refer to the concept of the elasticity demand with respect to the various explanatory variables. Because this is an important concept, a more detailed explanation will be presented here.

Suppose the following demand equation is estimated from data on handle, the takeout rate and other explanatory variables:

$$H = b_0 + b_1R + b_2Z$$

where H represents total handle (demand), R represents the effective takeout rate, Z represents all other explanatory variables, and the b's are estimated coefficients. The elasticity of demand with respect to an explanatory variable is an estimate of the percentage increase or decrease in demand which will result from a one percent change in the explanatory variable. The elasticity of handle (demand) with respect to the takeout rate may be expressed as follows:

$$\varepsilon_R = \%\Delta H / \%\Delta R$$

where ε_R represents the elasticity of demand with respect to R and $\%\Delta$ means "percentage change."

Economic theory suggests that when the price of a good falls (rises) the demand for that good should increase (decrease). Thus, we would expect ε_R to be negative in this example. If ε_R is less than -1, then reducing the effective takeout rate will increase total handle, since the reduction in the takeout rate is more than offset by the resulting increase in total handle. In this case, demand is said to be *elastic* with respect to the takeout rate. If instead the elasticity is between 0 and -1, then reducing the takeout rate would reduce the total handle, since the percentage increase in handle would not be enough to cover the percentage decrease in the takeout rate. In this case, demand is said to be *inelastic* with respect to the takeout rate.

Referring to our example above, the elasticity of demand with respect to the effective takeout rate is calculated as follows:

$$\varepsilon_R = (b_1) \times (R/H)$$

where (b_1) estimated coefficient on the variable R. Note that many observations of H, R and Z were used to estimate the demand equation (there are individual observations for each track and year) and that ε_R varies with each individual observation of H and R. Therefore, the estimated elasticity evaluated at 1965 levels will be different than the elasticity evaluated at 1985 levels of H and R (assuming the levels of H and R are different in 1965 and 1985). When there is no reason to use one observation over another, it is common to evaluate elasticities "at the means of the data"—in other words, the elasticity is calculated using an average of all observations of each variable.

The demand analysis divided the measure of demand into two parts: attendance and handle per attendee. Elasticities of each demand component with respect to the explanatory variables were calculated and reported in the text. However, also of interest are the elasticities of *total handle* with respect to each of the explanatory variables. Note that total handle equals attendance times handle per attendee. The elasticity of total handle with respect to an explanatory variable is approximately equal to the elasticity of attendance with respect to the explanatory variable plus the elasticity of handle per attendee with respect to the explanatory variable. These elasticities, where of interest, were also calculated and reported in the text.