

## **THE ECONOMICS OF NASCAR\***

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### **ABSTRACT**

Stick and ball sports have attracted most of the attention in the growing academic literature on the economics of sports. Less attention has been paid to motorsports, even though spectator attendance at automobile racing events matches or exceeds that of most other sporting events. This paper examines the sanctioning of motorsports in the U.S. by NASCAR and explores how the business model of this sanctioning body is distinguished from other sports. The economic incentive for contract compatibility between NASCAR and the tracks is explained and an economic rationale is provided for the generous contracts NASCAR has with downstream tracks. A statistical analysis of the uncertainty of outcomes for NASCAR and other professional sports provides a rationale for the growing popularity of stock car racing.

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## INTRODUCTION

In the scholarly literature on sports economics, most of the research has focused on team sports, where a league sanctions the sporting activity among discrete teams, amateur or professional, most of which are located in different cities. For example, in classic articles, Simon Rottenberg examined problems concerning the labor market for baseball players, Walter Neale studied industrial organization and labor-related phenomena within professional sports leagues, and Roger Noll analyzed the organization of sports leagues.<sup>1</sup>

A sport that is not often analyzed in the sports economics literature is stock car racing. This is peculiar in part because, in its NASCAR form, stock car racing is one of the largest spectator sports in the United States.<sup>2</sup> NASCAR holds 17 of the top 20 highest-attended sporting events in the U.S. and is rated second among all regular season sports on television.<sup>3</sup> One reason for the inattention may be because NASCAR, while a sanctioning body, does not follow the economic model of most professional sports. In NASCAR events, it is as though all the “teams” compete simultaneously and not two at a time; the “teams” are not identified with particular cities or individual schools; indeed most fans root for a particular driver (*e.g.*, Dale Earnhart, Jr. versus Jimmie Johnson); some fans have a favorite brand of automobile (*e.g.*, Ford versus Chevrolet); and some fans (the minority) have a favorite team (*e.g.*, Hendrick versus Roush).

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<sup>1</sup> See Rottenberg (1956); Neale (1964); Noll (2003).

<sup>2</sup> NASCAR stands for the National Association for Stock Car Auto Racing. NASCAR is privately owned and controlled by members of the France Family Group. International Speedway Corporation (ISC) was originally founded as Bill France Racing, Inc. by William H.G. France, who was also the founder of NASCAR. ISC is now a publicly-traded corporation.

<sup>3</sup> NASCAR, “About NASCAR,” <http://www.nascar.com/guides/about/nascar/> (accessed May 8, 2008).

Several books have attempted to describe the “culture” of NASCAR.<sup>4</sup> But there has been little systematic attempt to place NASCAR under the lens of economic analysis.<sup>5</sup> This article endeavors to develop an economic understanding of this popular and (from an economic standpoint) idiosyncratic sport.

Our article stands on three legs. The first is a description and brief history of NASCAR, placing it in the context of other auto sports which it has, so to speak, outraced. The second explains the economic logic of the NASCAR business model. The third offers a partial explanation, based on outcome uncertainty, as to the popularity of NASCAR and why it has outpaced other professional sports competitors.

## **I. NASCAR AND THE MOTORSPORTS INDUSTRY**

There is an old saying, usually attributed to the iconic NASCAR driver Richard Petty, that the first automobile race occurred right after the second car was built. In reality, the first formal automobile race in the United States involved six cars, and took place on November 28, 1895. It covered 54 miles from Chicago to Evanston, Illinois and back. The winner was J. Frank Duryea, who averaged 7.3 miles per hour and won \$2,000.<sup>6</sup>

Today, auto racing is among the most popular spectator sports in the United States and the world. There are numerous races involving different types of cars and different types of courses. The largest auto racing category in the United States, in terms of attendance, media exposure, and sponsorships, is stock car racing. Stock car racing evolved from equipment once

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<sup>4</sup> See Hembree (2000); MacGregor (2005); Menzer (2001); Garner (2006).

<sup>5</sup> But see O’Roark and Wood (2004); von Allmen (2001); Depken and Wilson (2004); Schwartz (2007).

<sup>6</sup> About.com: Inventors, “The Duryea Brothers,” [inventors.about.com/library/inventors/blDuryea.htm](http://inventors.about.com/library/inventors/blDuryea.htm) (accessed on May 21, 2008).

derived from standard passenger automobiles and races are typically staged on oval courses. Professional stock car racing developed in the Southeastern United States in the 1930's.

The most prominent sanctioning body in stock car racing today is NASCAR, which was founded in 1948 and has been influential in the growth and development of motorsports. NASCAR's success in competing for consumer patronage against other sports and other forms of auto racing has made stock car racing the largest auto racing category in the United States, and NASCAR has become the most prominent organizing body in stock car racing.

NASCAR racing began in 1949 with its Strictly Stock series of eight races generally run on short (*e.g.*, half-mile) dirt tracks in the southeastern portion of the United States. In the following years, NASCAR expanded the number of races in its Grand National series (the successor to the Strictly Stock series and a predecessor to the current Cup series). In 1950, there were 19 races, and the number of races in the series reached a maximum of 62 in 1964.<sup>7</sup> NASCAR also began to have more races hosted on longer paved tracks (speedways) rather than dirt tracks, which allowed for higher speeds and more exciting racing for fans. In 1957, William H.G. France, the founder of NASCAR, established what is now ISC in order to build a state-of-the-art speedway as a showplace for NASCAR. In 1959, ISC opened the Daytona International Speedway, which at 2.5 miles in length was more than twice as long as most other speedways at the time.<sup>8</sup>

With such a large number of races in the Grand National series, not all drivers competed in all races in the series. In 1971, the last year of this series, the number of cars in the 48 races

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<sup>7</sup> [www.racing-reference.info](http://www.racing-reference.info) (accessed May 22, 2007).

<sup>8</sup> France, though, had visions of an even bigger and faster speedway for NASCAR. In 1969, ISC opened Talladega Superspeedway, which is 2.66 miles in length. [www.iscmotorsports.com](http://www.iscmotorsports.com) (accessed May 22, 2007).

ranged from a low of 14 (at Houston) to a high of 51 (at Ontario). In 1972, R.J. Reynolds became the sponsor of NASCAR's top series, which was renamed the Winston Cup series.<sup>9</sup> At the sponsor's request, NASCAR reduced the number of races that season to 31. Less was believed to be more. R.J. Reynolds predicted that a shorter season profiling bigger events would generate more exposure for its brand and would be a more cost-efficient use of sponsorship dollars.<sup>10</sup> A shorter season also allowed the better drivers to compete in a higher percentage of the races in the series. This increased the quality of racing for fans. By 2006, there were 43 cars in each of the Cup races, and the top drivers participated in each race.<sup>11</sup>

NASCAR sanctions most of its Cup races on oval tracks which are closed circuits often banked at varying angles. NASCAR sanctions some of its races on road courses which are built solely for auto racing and are designed with left and right turns, straight-aways and elevation changes to simulate driving on a road. Some venues contain both oval tracks and road courses (*e.g.*, the road course is inside the oval).

NASCAR sanctions a number of local, regional, and national racing series. The top three are the NASCAR Sprint Cup series, the NASCAR Nationwide series<sup>12</sup> and the NASCAR Craftsman Truck series. The most popular stock car race in the United States today is the Daytona 500, traditionally the first race of the NASCAR Cup series. This race has been held at Daytona International Speedway since 1959. During 2006, there were 36 races that counted

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<sup>9</sup> In 2004, the Winston Cup series was renamed the Nextel Cup series. In 2008, the Nextel Cup series was renamed the Sprint Cup series. Hereafter we refer simply to the NASCAR "Cup" races.

<sup>10</sup> See Hagstrom (1998).

<sup>11</sup> [www.racing-reference.info](http://www.racing-reference.info) (accessed May 22, 2007).

<sup>12</sup> The Nationwide series was formerly known as the Busch series from 1982 through 2007.

towards determining the annual Cup champion, NASCAR's equivalent of the World Series or the Super Bowl champion (except that it is an individual driver who is named champion, not the team that sponsors the driver or the car driven by the Cup winner).

### **Rival Motorsports Sanctioning Bodies**

NASCAR is not the only auto sport sanctioning body. Stock car races also are sanctioned by the Automobile Racing Club of America ("ARCA"), founded in 1953. ARCA's top series is the ARCA RE/MAX series, which consisted of 23 races in 2006, many on tracks that also hosted one or more races in NASCAR's top three series.<sup>13</sup>

Internationally, the most recognized form of auto racing is open-wheel racing. These races are held on oval tracks and road courses (including some of the same venues that host NASCAR stock car races), as well as on temporary street courses. The latter typically are built on closed-off city streets, but can also be built on airport runways or similar facilities that have a primary purpose other than as a racing venue.

The most prominent open-wheel sanctioning bodies in the U.S. are Champ Car and the Indy Racing League ("IRL"), which have recently agreed to merge.<sup>14</sup> The most famous open-wheel race in this country is the Indianapolis 500, sanctioned by IRL and held annually at the Indianapolis Motor Speedway. IRL was formed in 1996 by the owner of the Indianapolis Motor Speedway who broke away from the predecessor of Champ Car (the predecessor was

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<sup>13</sup> A comprehensive listing of active U.S. race tracks may be found in: Brown (2006).

<sup>14</sup> As of February 2008, these two sanctioning bodies have signed an official agreement to merge together. The Champ Car World Series has promised to cease operations and cede control to the IRL. "IRL, Champ Car Agree to Unify Open-Wheel Series," *The Washington Post*, February 23, 2008, [http://www.washingtonpost.com/wp-dyn/content/article/2008/02/22/AR2008022202652\\_pf.html](http://www.washingtonpost.com/wp-dyn/content/article/2008/02/22/AR2008022202652_pf.html) (accessed May 9, 2008). Associated Press, "After 12 Years of Conflict, IRL and Champ Car Merge," *ESPN.com*, February 22, 2008, <http://sports.espn.go.com/rpm/news/story?id=3259364> (accessed May 5, 2008).

Championship Auto Racing Teams or CART) taking many of the predecessor's participating teams and drivers. In 2006, IRL put on 14 races (including one race overseas). During the same year, there were 14 Champ Car World Series races with six of them in foreign countries. Champ Car tends to run its races on road and street course while IRL tends to favor oval courses. The split between IRL and Champ Car was generally viewed as detrimental to open-wheel racing but beneficial to NASCAR.<sup>15</sup>

Relative to open-wheel racing, winning NASCAR Cup races may not be as easy as some might think. Although a half-dozen or so top drivers from the leading open wheel circuits have migrated to NASCAR, only Tony Stewart has had substantial success as a NASCAR driver. Stewart, who was the IRL Rookie of the Year in 1996 and won the IRL championship in 1997, came to the Cup series in 1999, has raced to average finishing positions ranging from 9.9 to 14.6, and won two NASCAR Cup championships in 2002 and 2005. The other open wheel transplants, although newer to NASCAR, have not fared as well. Juan Pablo Montoya, who finished sixth or better in each of his five full seasons with Formula 1, finished 34<sup>th</sup> in his only Cup race in 2006. Thereafter his average finishing positions were 22.7 in 2007 and 18.8 for the first 11 races in 2008. Sam Hornish Jr., who is the only three-time IRL champion in the history of that series, has an average finishing position in two partial seasons with NASCAR of 23.9. Patrick Carpentier, who has raced in the IRL, Champ Car, and CART open wheel series, has an average finishing position in two partial seasons with NASCAR of 26.4. Finally, Dario Franchitti, who was the 2007 IRL champion, raced to an average finishing position in seven NASCAR races in 2008 of 31.6. The critics of stock car racing who contend that the only skills

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<sup>15</sup> Ryan McGee, "Did 12-Year Split Between Champ Car, IRL Cause Irreparable Damage?" *ESPN.com*, [http://sports.espn.go.com/rpm/columns/story?seriesId=1&columnist=mcgee\\_ryan&id=3257069](http://sports.espn.go.com/rpm/columns/story?seriesId=1&columnist=mcgee_ryan&id=3257069) (accessed on May 9, 2008).

required are to go fast and turn left do not understand the motor skills (no pun intended) and endurance required to succeed in this sport.

Other open-wheel sanctioning bodies include the Federation Internationale de L'Automobile ("FIA"), and the United States Automobile Club ("USAC"). FIA's top series, Formula 1 ("F1"), is held primarily outside the United States and is considered the most prestigious open-wheel series in the world. In 2006, there was only one F1 event held in the United States (the Grand Prix of the United States held at Indianapolis Motor Speedway). USAC, formed in 1956, was a prominent open-wheel sanctioning body in the United States but was largely displaced in 1979, when CART was formed, retaining the Indianapolis 500 as its only major event until IRL sanctioned that event in 1997. USAC's top series today is the Silver Crown series. In 2006, there were 14 Silver Crown races held in the United States.<sup>16</sup>

Sports car races are held on road courses and temporary street courses throughout the United States. These races are sanctioned by organizations such as International Motor Sports Association ("IMSA"), the Grand-American Road Racing Association ("Grand-Am"), and Sports Car Club of America ("SCCA"). IMSA was founded in 1969, and its top series is the American Le Mans Series, which was started in 1999. In 2006, there were 9 American Le Mans races in the United States. Grand-Am, established in 1999, is located in Daytona Beach, on the same corporate campus that is home to NASCAR and ISC. Grand-Am's top series is the Rolex Sports Car Series. In 2006, there were 14 Rolex Sports Car races in the United States. The

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<sup>16</sup> NASCAR, "Tony Stewart," <http://www.nascar.com/news/headlines/cup/stewart.bio> (accessed May 16, 2008). NASCAR, "Juan Montoya," <http://www.nascar.com/news/headlines/cup/montoya.bio> (accessed May 16, 2008). NASCAR, "Sam Hornish Jr.," <http://www.nascar.com/news/headlines/cup/hornishjr> (accessed May 16, 2008). NASCAR, "Patrick Carpentier," <http://www.nascar.com/news/headlines/cup/carpentier.patrick.bio> (accessed on May 16, 2008). NASCAR, "Dario Franchitti," <http://www.nascar.com/news/headlines/cup/franchitti.bio> (accessed on May 16, 2008).

Sports Car Club of America (“SCCA”) was founded in 1944. Its leading series is the SCCA World Challenge, which promoted 10 races in 2006, including one race in Canada.

Drag racing is another automotive speed contest. In this racing format, drivers and their vehicles compete in short races (usually a quarter mile) on a straight-line strip. Some venues contain both oval tracks and drag strips. The National Hot Rod Association (“NHRA”), founded in 1951, is the most prominent sanctioning body in drag racing in the United States. The NHRA’s premier series is the POWERade series. In 2006, there were 23 POWERade events in the United States.

### **NASCAR’s Growth and the Cup Series**

Unlike most sanctioning bodies in professional sports where the fundamental relationship is between the league and its team owners, NASCAR contracts with race tracks to host its events. In 2006, NASCAR’s Cup series was run at 22 different tracks in the United States, with several hosting two races in the series. Many of these tracks are owned and operated by public corporations, such as ISC with 12 tracks;<sup>17</sup> SMI with 6 tracks; and Dover with 4 tracks (one track hosts 2 Cup events and the 3 other tracks host Nationwide series races). Other tracks, often referred to as “independents,” are not affiliated with public corporations and are often privately owned by family groups, such as the Indianapolis Motor Speedway (owned by the Hulman-George family), Pocono Raceway (owned by the Mattioli family), and New Hampshire International Speedway.<sup>18</sup>

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<sup>17</sup> This includes Chicagoland Speedway – an acquisition ISC completed in early 2007.

<sup>18</sup> New Hampshire International Speedway was a privately-owned track under Bob and Gary Bahre. However, SMI agreed to purchase the speedway from Bob and Gary Bahre in the fourth quarter of 2007. “Speedway Motorsports Purchases New Hampshire International Speedway,” *Speedway Motorsports, Inc.*, November 2, 2007, <http://phx.corporate-ir.net/phoenix.zhtml?c=99758&p=irol-newsArticle&t=Regular&id=1071914&> (accessed May 9, 2008).

In 1994, NASCAR embarked on a strategy to expand from its traditional base in the southeastern United States. In that year, NASCAR added a Cup race at the Indianapolis Motor Speedway, which until then had only hosted the Indianapolis 500, the most famous open-wheel race in the United States.<sup>19</sup> Following the success of the inaugural stock car race at Indianapolis, NASCAR began to add more races to the series and did so at tracks outside the southeastern United States. NASCAR added Cup races at tracks in southern California (1997), Las Vegas (1998), Miami (1999), Kansas City (2001), and Chicago (2001),<sup>20</sup> each a relatively new facility that had been open for four seasons or less. NASCAR moved races from older, smaller tracks such as Darlington, North Wilkesboro, and Rockingham, all located in the Carolinas, to tracks serving larger markets outside of the Southeast.<sup>21</sup>

Table 1

NASCAR Cup Series Races: New Race Awards and Relocations\*

Year	New Race Location	Former Race Location
1997	California Speedway	**
	Texas Motor Speedway	North Wilkesboro Speedway, NC
	New Hampshire Int'l Speedway	North Wilkesboro Speedway, NC
1998	Las Vegas Motor Speedway	**
1999	Homestead-Miami Speedway	**
2001	Chicagoland Speedway	**
	Kansas Speedway	**
2004	California Speedway	North Carolina Speedway, NC
2005	Phoenix Int'l Raceway	Darlington Raceway, SC
	Texas Motor Speedway	North Carolina Speedway, NC

\* The NASCAR Cup series was called the Winston Cup series from 1972 through 2003 and was called the Nextel Cup series from 2004 through 2007. Since 2008, it has been renamed the Sprint Cup series.

\*\* New race award.

Sources: [www.racing-reference.info](http://www.racing-reference.info); [www.na-motorsports.com](http://www.na-motorsports.com); Penske 10-K405 for the fiscal year ended 12/31/1996; ISC 10-K for fiscal year ended 11/30/2004; Robert G. Hagstrom, *The NASCAR Way: The Business That Drives the Sport* (New York: Wiley, 1998: pp. 109-10); SMI 10-K for the fiscal year ended 12/31/2004.

<sup>19</sup> [www.indianapolismotorspeedway.com](http://www.indianapolismotorspeedway.com) (accessed May 22, 2007).

<sup>20</sup> See Hurt (2005).

<sup>21</sup> See Table 1, which lists race awards and relocations.

NASCAR also redesigned the manner in which stock car racing would be viewed by the television audience.<sup>22</sup> In the late 1990's, each track owner sold the television rights for its Cup race(s). While all the races in the series were televised, they were broadcast on a hodgepodge of different channels, three of which were only available on cable television (ESPN, TBS, and TNN), which required a monthly subscription. In 1999, NASCAR began to sell the rights for all Cup races for the 2001 to 2006 period. While this resulted in the races being broadcast on fewer channels, it led to a greater number of races appearing on network television, making the sport accessible to more viewers.<sup>23</sup> Viewers responded, as the average number of households watching Cup races increased from 3.5 million in 2000 to more than 5 million thereafter.<sup>24</sup>

Table 2

Growth of NASCAR Cup Series: 1998-2006\*

Statistics**	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number of Races	33	34	34	36	36	36	36	36	36
Number of States Hosting Races	17	17	17	19	19	19	19	19	19
US Population Within 200 Miles of Races (millions)	675	683	683	714	714	714	722	711	711
Total Seating Capacity (millions)***	3.4	3.6	3.8	4.0	4.0	4.0	4.1	4.2	4.3
Average TV Viewing Households (millions)	3.3	3.7	3.5	4.9	5.0	5.2	5.4	5.8	5.4

\* The NASCAR Cup series was called the Winston Cup series from 1972 through 2003 and was called the Nextel Cup series from 2004 through 2007. Since 2008, it has been renamed the Sprint Cup series.

\*\* Excludes non-points races.

\*\*\* 2001 seating capacity used for Pocono Raceway for 1998, 1999 and 2000 because data for these years are not available.

Sources: [www.racing-reference.info](http://www.racing-reference.info); Dover 10-Ks; ISC 10-Ks; SMI 10-Ks; [www.covers.com](http://www.covers.com); Census 2000 (Landview 6); Robert G. Hagstrom, *The NASCAR Way: The Business That Drives the Sport* (New York: Wiley, 1998: pp. 109-10); data provided by NASCAR.

Similarly, ISC contributed to the growth of NASCAR Cup racing. To compete against other sports and entertainment options, ISC expanded output to make stock car racing accessible to more track customers and increased the quality of races and venues where they are hosted.

<sup>22</sup> We do not discuss here the innovations in televising NASCAR sporting events as a factor in growing demand for the sport. But the use of multiple camera angles, from above (blimp), from trackside, to below (“Digger” the in-ground camera locations), to in-car cameras have been important innovations in visual perspectives for fans not at the tracks.

<sup>23</sup> See Kagan World Media, “U.S. TV Sports Databook 2003,” p. 134.

<sup>24</sup> See Table 2 which lists the growth of output statistics for the Cup series.

ISC has grown from owning just one track in Daytona in 1959 to owning or operating a dozen tracks today from coast to coast.

## **II. THE ECONOMICS OF NASCAR AND HOST TRACKS**

Beginning with the 2001 season, NASCAR's consolidated television contract dramatically increased the media revenues flowing into the sport.<sup>25</sup> From an economic perspective, the consolidation was a watershed event in the history of NASCAR and its host tracks. Much of these revenues flowed to host tracks instead of to NASCAR, the negotiator of the contracts and the sanctioning body of the sport. From the perspective of NASCAR's business model, this (at first glance) seemed myopic. But when one considers the economics of operating a race track and NASCAR's dependence on tracks, the allocation makes sense.

Tracks typically have excess capacity. Speedways hosting NASCAR's Cup Series, NASCAR's Nationwide Series, and/or NASCAR's Craftsman Truck Series races usually run only about 5 to 8 races per year.<sup>26</sup> As a result, the opportunity cost of a given race is low. In other words, hosting one race probably does not mean not hosting another. Consequently, tracks have an economic incentive to host any event that covers the track's incremental costs of offering the event.

Prior to NASCAR's 2001 consolidated television agreement, tracks obviously were willing to host Cup races under the terms and conditions offered by NASCAR. There do not appear to be any instances where a track turned down the chance to host a Cup race in those

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<sup>25</sup> NASCAR negotiated the consolidated television contract for the 2001 through 2006 racing seasons and allocated the proceeds to tracks, teams/drivers, and NASCAR. Prior to the 2001 season, NASCAR permitted host tracks to negotiate their own broadcast contracts for Cup races.

<sup>26</sup> Other than hosting automobile races, some tracks generate income from renting the facility for racing schools, automobile testing, and non-motorsports events (such as concerts and other special events).

days. The new broadcast contract produced a substantial increase in the money flowing into the sport. Indeed, television revenue became far more important as a source of revenue than ever before.

Under these conditions, NASCAR might have been able to capture all of this incremental money for itself. But instead, NASCAR continued to split broadcast revenue as it had in the past: with 65% going to the tracks, 25% going to the teams and drivers, and 10% going to NASCAR. This proved to be a substantial benefit for the host tracks.

Table 3 shows the dramatic increase in television revenue and net sanction revenue received by tracks hosting Cup races as a result of the consolidated television contract. Using 2000 as the base year, which was the year before the consolidated contract went into effect, the base index value representing average annual television revenue received by Cup tracks has been set to 100. In 2001, under the consolidated contract, that index value rose to 193 and reached 427 in 2006. Similarly, in 2000, the base index value for average annual net sanction revenue received by Cup tracks has been set to 100.<sup>27</sup> With the consolidated contract, that index value rose *almost tenfold* to 976 in 2001 and then to 2,981 in 2006.

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<sup>27</sup> The net sanction revenue represents the excess of the track's share of broadcast revenue minus the costs of obtaining the Cup event which include the sanction fee paid to NASCAR, the purse and award money paid to the teams and drivers, and other costs specified in the sanction agreements.

Table 3

Average Television Revenue and Net Sanction Revenue Per Race Received by NASCAR Cup Tracks: 2000-2006\*  
(Index Values: Base Value of 100; Base Year 2000)

Statistics**	2000	2001	2002	2003	2004	2005	2006
Television Revenue***	100	193	223	258	313	369	427
Net Sanction Revenue†	100	976	1,191	1,455	1,947	2,452	2,981

\* The NASCAR Cup series was called the Winston Cup series from 1972 through 2003 and was called the Nextel Cup series from 2004 through 2007. Since 2008, it has been renamed the Sprint Cup series.

\*\* Excludes non-points races.

\*\*\* Defined as the share (65%) of live television revenue paid to the track.

† Defined as the live television revenue allocated to the event minus all expenses specified in the sanction agreement, which include the sanction fee, awards and purse money, the share of television revenue paid to NASCAR and the teams and drivers, and other costs. Net sanction revenue does not include the additional receipts the track takes in from the sale of tickets, concessions, and sponsorships for hosting a race.

Sources: NASCAR sanction agreement summary tables (NAS 216932-6, NAS 216939-43, NAS 216946-50, NAS 216953-7, NAS 216960-4, NAS 216967-71, and NAS 216974-8); www.racing-reference.info; Robert G. Hagstrom, *The NASCAR Way: The Business That Drives the Sport* (New York: Wiley, 1998: pp. 109-10).

### Track Income and NASCAR Cup Events.

On top of the income flowing from the sanction agreement between NASCAR and the host tracks (which averaged \$6.5 million in 2006), tracks earn additional revenue on their sale of tickets, sponsorships, concessions, and merchandise.<sup>28</sup> One consulting firm estimated that in 1997, a Cup race generated total revenues of over \$10 million and profits of over \$6 million.<sup>29</sup> Given the rise in television income since that time, the figure could now be close to double the estimate for 1997.

The Dover Motorsports SEC filings indicate the importance of the Cup races to the financial health of the company. Its 2004 Annual Report states, “Our two Dover NASCAR weekends once again produced record revenues and profits.”<sup>30</sup> Speedway Motorsports, which operated six tracks at the time, indicated that “We produce minimal operating income during our

<sup>28</sup> For example, ISC reported total revenues of \$740 million for the fiscal year ended 11/30/2005. Of that amount, 32 percent (\$235 million) was generated by admissions and 12 percent (\$87 million) was generated by food, beverage, and merchandise sales. International Speedway Corporation, Annual Report 2005, pp. 29 and 34.

<sup>29</sup> Dennis B. McAlpine, “The Motorsports Industry,” *Josephthal & Co., Inc. Institutional Research*, 12/01/1997, p. 5.

<sup>30</sup> Dover Motorsports, Inc. Annual Report 2004, “Shareholders’ Letter.”

third quarter when we host only one major NASCAR race weekend,” states its 2005 Annual Report.<sup>31</sup> The *Wall Street Journal* reports that Infineon Raceway, an SMI track in Sonoma, California, will have about 330 revenue producing days in a year, but the NASCAR weekend accounts for about two-thirds of the track’s total revenue.<sup>32</sup>

### **Hosting Cup Events and Economic Value**

Cup events typically are more profitable than any other events conducted by host tracks. The profits generated by hosting Cup events are reflected in the market values of tracks hosting these events. For example, in 1998, SMI purchased Las Vegas Motor Speedway, which hosted one Cup race, for \$150 million (after deducting additional payments for other assets); in 1999, ISC purchased Richmond International Raceway, which hosted two Cup races, for approximately \$215.6 million.<sup>33</sup>

### **Why NASCAR Shares Revenues with Host Tracks**

We believe there are two reasons why NASCAR shares its revenues with host tracks. The first requires a discussion of the cost structure of these tracks.

Operating a race track capable of hosting a Cup event entails relatively high fixed and relatively low variable costs.<sup>34</sup> When fixed costs are high relative to variable costs, a firm (in

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<sup>31</sup> Speedway Motorsports, Inc. Annual Report 2005, p. 40.

<sup>32</sup> Mark Yost, “At Speedways, Nonracing Events Accelerate,” *Wall Street Journal*, 6/20/2006, p. D8.

<sup>33</sup> Speedway Motorsports, Inc., Form 8-K for the period of December 1, 1998, Exhibit 99.5, p. 74. International Speedway Corp., Form 10-K405 for the period January 30, 2001, p. 5.

<sup>34</sup> Examples of fixed costs incurred by track operators would be the upfront cost of building the track facility and paving the surface, taxes on the land and property where the track resides, and interest payments on debt. Examples of variable costs incurred by track operators would be the cost of labor to host an event, the cost of concessions sold at an event, the cost of promotional material for each event, and the cost of cleaning up after each event. I use the terms incremental and variable interchangeably.

this case a track) runs the risk of failing to earn at least a normal return on its *total* costs, *i.e.*, fixed *and* variable, if it does not host a substantial number of events. As a result, if NASCAR charged high prices in the form of sanction fees – high enough to extract all revenues in excess of the track’s variable costs – tracks would not be sufficiently profitable to cover all their costs and maintain their fixed assets. Tracks might deteriorate and eventually shut down. Because NASCAR is interested in preserving a healthy group of tracks to host its races, it is economically prudent for NASCAR to “subsidize” the tracks to help them cover their fixed costs.<sup>35</sup>

The second reason for NASCAR’s revenue sharing is that these funds align the incentives of the track with those of NASCAR. Incentive compatibility helps ensure that the track will host a successful event and that the value of NASCAR’s brand name, which is affected by the performance of the track, will be protected and enhanced. Here’s how this works.

If NASCAR set its prices to extract the entire value of its Cup events, tracks would earn, at best, a normal return on their invested capital (assuming as discussed above that the track is compensated for its cost of capital), with all of the additional profits flowing to NASCAR. NASCAR then would earn substantially more per event than the track would. At the margin, this would affect the incentive of the track to ensure that the event was conducted properly, safely, and in the best interests of NASCAR. If there were a problem at a Cup event, perhaps due to lax security, inadequate medical care, poor preparation of the racing surface, or insufficient parking space, NASCAR would have more to lose than the track. In the event of a problem, NASCAR might pull the event from the track, but the track would lose relatively little because the event covered little more than the track’s incremental costs. However NASCAR would have a lot to

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<sup>35</sup> This explains why NASCAR would encourage other forms of racing. As tracks handle more races, these other events share a portion of the tracks’ fixed costs, and a smaller burden falls on NASCAR.

lose, because problems at one event would adversely affect attendance at any future event.

NASCAR's brand name would suffer the consequences, not just at one track but potentially at other tracks where Cup events are held. This would impose a substantial cost on NASCAR, with little or no consequences to the track.

As the promoter of one track put it:

NASCAR wants things that are going to look good because the track represents NASCAR. We pay a sanction fee to be a part of NASCAR, which averages anywhere from a thousand to a couple thousand dollars a night. NASCAR will not sanction facilities that are potential problems for its reputation. Over the years a lot of strange things have occurred. Promoters did not have a good name because it was perceived that they would screw the drivers over at any opportunity. That was not necessarily the case, but all it took was a couple occurrences and the image was created. When I went out to Altamont our main problem getting started was that previous fly-by-night promoters had ripped off so many sponsors. Those are the kind of things NASCAR does not want. A lot of it comes down to tracks that are versatile. We run an all pro race, a NASCAR truck race, and a Goody's dash race. That is why we are a NASCAR track.<sup>36</sup>

One way to overcome this problem – that is, one way to efficiently align incentives between NASCAR and its host tracks – is for NASCAR to share the profits from the event with the track. NASCAR accomplishes this by keeping its sanction fee low and the share of broadcast revenues to tracks high. When NASCAR shares its profits with the track, the track has a strong interest, as does NASCAR, in a successful event. If the event does not go well, the track will lose its Cup races and the substantial profits that flow from these events. In short, the seemingly excess payments to the tracks are a means of insuring incentive compatibility between NASCAR and the track.

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<sup>36</sup> P. Scott Douglas, "P. Scott Douglas: *Promoter/Director of Media*, Louisville Motor Speedway," in *Profiles of Sport Industry Professionals: The People Who Make the Games Happen*, Matthew J. Robinson et al. (Gaithersburg, Maryland: Aspen Publishers, Inc., 2001), 215-6.

These practices are familiar to economists as a means of overcoming a principal-agent problem, a form of market failure where the promoter, who otherwise would have little riding on the success of the event, would not be incentivized to act in NASCAR's best interests. One implication of this insight is that that NASCAR would not want, even if it could, to charge monopoly prices. Charging higher fees would eliminate the incentive structure that NASCAR has adopted that ultimately expands the demand for Cup races and benefits consumers.

### **Vertical integration between NASCAR and ISC**

Economic theory teaches that a non-integrated or stand-alone NASCAR will expand its annual Cup schedule until the incremental revenue to NASCAR from additional races is offset by the incremental costs that NASCAR would incur from organizing additional races. As discussed earlier, NASCAR pays a premium to tracks hosting Cup races. Tracks receiving this payment would gladly host additional races above and beyond the number NASCAR has an economic interest in organizing. The premium is comparable to a tax on NASCAR that is collected by the tracks. The tax discourages output expansion by NASCAR, but leaves tracks with excess or unmet demand for additional races.

When NASCAR vertically integrates (at least partially through ownership or influence of NASCAR upon ISC), it becomes profitable for NASCAR to expand the number of races held at integrated tracks (*i.e.*, those owned by ISC).<sup>37</sup> In deciding on the optimum number of races to organize, an integrated NASCAR will consider not only its incremental revenues and costs, but

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<sup>37</sup> James C. France, Chairman of the Board and Chief Executive Officer of ISC, and Lesa France Kennedy, President of ISC and one of ISC's directors, are both members of the France Family Group, which controls NASCAR. Additionally, they both hold positions with NASCAR. France Family Group members, together, beneficially own approximately 35.0 percent of ISC's capital stock and over 65.0 percent of the combined voting power of both classes of ISC's common stock. International Speedway Corporation, Form 10-K for the fiscal year period ended 11/30/2007, pp. 3 and 8.

also those of its integrated tracks. The excess demand by integrated tracks becomes relevant to NASCAR, which will find it profitable to expand the number of contests by adding races at these locations. Comparing the premium payment to a tax, integration eliminates the output-restraining impact of the tax because the payment made by the sanctioning body now simply represents a transfer to its integrated tracks. As a consequence, integration benefits consumers because the total number of Cup races expands as NASCAR places additional races at the integrated tracks.<sup>38</sup>

The second economic characteristic of vertical integration is that integration stimulates investment in tracks that host Cup races. This happens because some of the risk associated with owning and operating a race track goes away when the track is owned (at least partially) by NASCAR. To the extent that the financial performance of a track depends on having one or more Cup races, one would not expect non-integrated entities to invest as much to build and maintain a premium facility.<sup>39</sup> It is riskier to invest the requisite \$100 to \$150 million dollars when the return hinges on decisions made by others. For this reason, one would expect vertical integration to take place in this industry because vertical integration reduces the risk associated with such investments. Risk reduction through vertical integration benefits consumers who can

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<sup>38</sup> NASCAR has done just this by issuing new race dates to tracks that, at the times of the date awards, were at least partially owned by ISC in Miami, Kansas City, and Chicago, and NASCAR is interested in expanding the schedule once more by placing a new race in New York.

<sup>39</sup> Public filings made by SMI and Dover indicate that their profitability could be adversely impacted by a deterioration in their relationship with NASCAR or NASCAR's decision not to renew events now hosted by these companies. See, for example, Speedway Motorsports, Inc., Form 10-K for the fiscal year ended 12/31/2005, p. 15, and Dover Motorsports, Inc., Form 10-K for the fiscal year ended 12/31/2005, p. 16.

attend races in newer and more accommodating facilities.<sup>40</sup> Even after a track has been built, acquisition by NASCAR/ISC likely will reduce the risk the facility faces by encouraging investments in maintaining and upgrading the facility. It is likely to be more risky for an independent track to fund these investments than it would be for ISC.

### **III. NASCAR SUCCESS AND OUTCOMES UNCERTAINTY**

Many factors contribute to NASCAR's growth in competing for consumer patronage against other sports and other forms of auto racing. Several factors include NASCAR's efforts to balance competition across large and small teams, incentives NASCAR provides for marquee drivers to participate in all races, and the points system and the Chase for the Cup that heighten spectator interest. One element we observed in our research is how races organized by NASCAR are structured so that the outcome remains largely uncertain right up until the very end of the contest. Indeed the results of NASCAR's races are significantly more uncertain during the course of the contest than in other major sports leagues.<sup>41</sup> NASCAR organizes contests where the outcome may be in doubt right through the last turn on the last lap.<sup>42</sup>

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<sup>40</sup> That vertical integration leads to greater investment is not unique to NASCAR and tracks. For an analysis of vertical integration between physicians and hospitals, see Ciliberto (2006).

<sup>41</sup> The literature on sports economics identifies uncertainty of outcome as one of the key drivers of demand or fan interest. See, for example, Borland and MacDonald (2003).

<sup>42</sup> See also Hagstrom (1998), p. 35, where the author notes that:

Five decades of experience have taught NASCAR that lopsided races lead to fan apathy and a drop in gate receipts. The reason 100,000 fans and millions more watching television stay glued to their seat for the entire race is that, until the checkered flag drops, it is still almost anyone's race to win. It is not unusual for a race to end with fifteen cars on the lead lap, separated by less than two or three seconds.

In this part of our paper, Cup races are compared with competition in five sports: Major League Baseball, the National Basketball Association, the National Football League, the National Hockey League (“NHL”), and the Professional Golfers’ Association (“PGA”). For NASCAR, each of the 36 points races from the 2006 Cup series was studied. The MLB data consist of all Saturday games during the 2006 regular season. The NBA and NHL data consist of the 2006-07 regular season Saturday games, through January 6, 2007; the NFL data consist of all Sunday games during the 2006-07 regular season; and the PGA data consist of the 2006 United States PGA Tour events.<sup>43</sup> The focus of the investigation was on Saturday and Sunday games in the MLB, NBA, NFL, and NHL to make the comparisons with the weekend events of NASCAR (and the PGA) more analogous. This also made the number of individual contests considered in each of those sports a manageable number.

To measure the uncertainty of a contest’s outcome, for each of the sports leagues the percentage of the contests when the leader at the halfway point of the contest went on to win the event was calculated.<sup>44</sup> The halfway point would be the end of the second quarter in basketball and football, the end of the second round in golf, and the completion of half of the laps in NASCAR races. For baseball and hockey, where the contests are not readily divisible into

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<sup>43</sup> We excluded the Chrysler Classic, which has five rounds, and four other tournaments with different rules or scoring systems (*e.g.*, match play, etc.). The four excluded tournaments are: WGC-Accenture Match Play Championship, The International, Ryder Cup, and WGC-World Cup.

<sup>44</sup> This approach has been utilized in other studies of the outcomes of sports contests. Magnus and Klaassen, for example, found in their analysis of a sample of singles tennis matches at Wimbledon, that the player who had won the next to last set also won the final set about 50% of the time (1999, pp. 461-8).

halves but are divisible into thirds, the first third of the contest was used. This would be the third inning in baseball and the end of the first period in hockey.<sup>45</sup>

The eventual winner was determined by taking into account the outcome of any overtime (including shootouts and extra innings) or playoff (as in the case of golf). For example, if a baseball game was decided in the thirteenth inning, the analysis compares the leader at the end of the third inning to the winner of the game (after all thirteen innings). In the event of a tie at the halfway point, neither team (or player or driver) is considered to be the leader.

Our research shows that in NASCAR events, the leader at the halfway mark is much less likely to win the contest than in any of these other professional sports. For NASCAR the early leader wins only 22% of the races. In golf, the early leader wins 27% of the contests. In hockey and baseball, the early leader wins roughly 50% to 60% of the time. In basketball and football, the early leader wins about 70% of the time. Table 4 summarizes the results of this study.<sup>46</sup>

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<sup>45</sup> A baseball game consists of nine innings and a hockey game consists of three periods.

<sup>46</sup> We also performed this analysis using the three-quarters mark instead of the halfway point. This involved looking at the end of the third period in football and basketball; the end of the third round in golf; and the end of three-quarters of the laps in NASCAR. Again, for baseball and hockey, which are not divisible into quarters, this meant looking at the end of the two-thirds point, which is the end of the 6<sup>th</sup> inning in baseball and the end of the second period in hockey.

The resulting pattern is very similar to that shown in Table 4, except all the percentages are higher. The leader in NASCAR races at the three-quarters mark wins the event only about 40% of the time. The leader after three rounds in golf wins about 50% of the time. The leaders in the remaining sports win the contests about 70% to 80% of the time.

Table 4

Percentage of Contests in which the Halfway Leader is the Final Winner: Selected Sports

Organization	Sport	Percentage
NASCAR*	Auto Racing	22.2%
PGA*	Golf	26.7%
NHL**	Hockey	53.4%
MLB**	Baseball	57.3%
NBA*	Basketball	70.1%
NFL*	Football	70.9%

\* Halfway is 1/2 point of contest.

\*\* Halfway is 1/3 point of contest.

Note: MLB data from 2006 regular season Saturday games; NASCAR data from 2006 Nextel Cup Series points races; NBA and NHL data from 2006-07 regular season Saturday games, current as of 1/6/07; NFL data from 2006-07 regular season Sunday games; and PGA data from 2006 United States PGA Tour (excluding Bob Hope Chrysler Classic (five rounds) and four special rules tournaments: WGC-Accenture Match Play Championship, The International, Ryder Cup, and WGC-World Cup).

Sources: www.espn.com, www.mlb.com, www.nba.com, www.nfl.com, www.nhl.com, www.pga.com, and data provided by NASCAR.

Having compared early leaders and eventual winners, we sought a second measure to better understand what happens with lead changes. This entailed calculating the percentage of events when the leader at the halfway point was not the leader at the start of the final period and the leader at the start of the final period was not the eventual winner. In an event with two teams, this statistic shows the percentage of times the leader at halftime was trailing at the end of the third quarter, but then came back to win the contest. With more than two participants, the statistic shows the percentage of times the leader at halftime is not the leader at the end of the three-quarters mark, and the leader at the end of three-quarters is not the eventual winner. The results reveal the percentage of contests where there are at least two lead changes after the first

half (or in the case of baseball and hockey – after the first third). Higher percentages reflect more uncertainty – that is, lead changes are more common late in the contest.<sup>47</sup>

In NASCAR Cup races, nearly half of the time the leader at the mid-point of the race is not the leader at the three-quarters point, and that leader does not win the race. In golf, this happens nearly 44% of time. In all other sports, there are similar lead changes only about 7% to 18% of the time.<sup>48</sup> Table 5 summarizes the results of this analysis.

Table 5

Percentage of Contests with at least Two Lead Changes after the Halfway Point: Selected Sports

Organization	Sport	Percentage
NASCAR*	Auto Racing	47.2%
PGA*	Golf	44.4%
NHL**	Hockey	18.4%
MLB**	Baseball	11.6%
NFL*	Football	8.4%
NBA*	Basketball	7.2%

\* Halfway is 1/2 point of contest. Lead changes after the halfway point are measured at the 3/4 point and the end of the contest.

\*\* Halfway is 1/3 point of contest. Lead changes after the halfway point are measured at the 2/3 point and the end of the contest.

Note: MLB data from 2006 regular season Saturday games; NASCAR data from 2006 Nextel Cup Series points races; NBA and NHL data from 2006-07 regular season Saturday games, current as of 1/6/07; NFL data from 2006-07 regular season Sunday games; and PGA data from 2006 United States PGA Tour (excluding Bob Hope Chrysler Classic (five rounds) and four special rules tournaments: WGC-Accenture Match Play Championship, The International, Ryder Cup, and WGC-World Cup).

Sources: www.espn.com, www.mlb.com, www.nba.com, www.nfl.com, www.nhl.com, www.pga.com, and data provided by NASCAR.

Because there are 43 drivers in NASCAR races, but only two teams in NFL, MLB, NBA and NHL games, one might expect to observe that lead changes and uncertain outcomes are more

<sup>47</sup> To perform these calculations, the halfway and three-quarters points for football, basketball, golf, and NASCAR were used. The end of the third and sixth innings for baseball, and the end of the first and second periods for hockey, were used.

<sup>48</sup> A “mirror image” of this analysis examines the proportion of contests when the leader at the midpoint also leads at the start of the final period and ultimately wins the contest. For NASCAR, the eventual winner led at the halfway point and before the start of the final quarter less than 15% of the time. For all other sports, the eventual winner leads at halftime and at the start of the fourth quarter in about 25% to nearly 67% of the contests.

likely to occur in NASCAR than in these other sports.<sup>49</sup> But that only underscores the point we are making: the way NASCAR has structured its races (and the rules the driving teams operate under) allows the outcome of the contest to remain uncertain right up until the checkered flag, which keeps spectators engaged throughout the entire length of the race.

## **CONCLUSION**

This article discusses the economic structure and development of NASCAR stock car racing, a sport that has grown dramatically in the past decade or so. Our analysis indicates that NASCAR keeps its fees to host tracks low and the share of broadcast revenue to these tracks high in order to provide a strong incentive for tracks to act in the best interests of NASCAR by ensuring successful and well-run events. This fee structure makes track ownership particularly attractive to NASCAR, which has come, through its common ownership of NASCAR and ISC, to own a share of the tracks that host NASCAR's Cup events. This integration has stimulated output expansion as NASCAR has placed new and additional races at tracks owned by ISC. Many analysts have contemplated why demand for NASCAR events has grown so dramatically over time. Our analysis suggests one additional factor which is that races are structured so that the outcome is more uncertain than in most other sports right up until the very end of the event.

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<sup>49</sup> Like NASCAR, golf tournaments have multiple participants.

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