

Example

Discuss the importance of statistical methods applied for supply chain decisions in the motorsport industries.

Introduction

Statistical methods are used in many different ways for helping making a research and analyzing information in motorsports. In this report I will discuss why collecting data is from great importance for motorsport industries.

Statistics

Making a research is the first step of finding the answer of questions. Moreover, when we make a research we do it to collect data. In case of collecting a certain quantity data that can be measured with numbers by a device, for example a chronometer used to measure the time a race car will do one lap on the race track, It is called quantitative data. By contrast, the other type of data does not use numbers as a way of collecting, but more linguistic methods like descriptions and explanations. It is called qualitative. (Hilton, 2004)

Collecting data in motorsports

When collecting data for research in motorsports most commonly it is quantitative. For example when comparing two different kind of racing championships quantitative data is the main tool in the research because big part of the comparison is based on numeric statistics from both racing series. However, some of the facts are based on descriptions, so qualitative data is used too. (Silva, 2010) Here is a comparison between two completely different series Formula 1 and NASCAR Table 1:

Table 1

Physical Variables: Similarities and Differences Between NASCAR and F1 Racing in 2009

Characteristic	Motorsport	
	NASCAR	F1
Number of Drivers	43	20
Number of Crew Members During Pit Stops	7	20
Number of Races	36	17
Design of Cars	front-engine, "stock" car, heavy (1500 kg)	mid-engine, open-wheel, light (600 kg)
Technological Sophistication of Cars	basic; relatively simple engineering	sophisticated; advanced engineering
Racing Tracks and Circuits	oval-shaped speedways	circuits and road courses
Width of Tracks and Circuits	relatively wide, side-by-side racing is common	relatively narrow, side-by-side racing is rare
Length of Tracks and Circuits	relatively short (0.85 km to 4.18 km)	relatively long (3.34 km to 7.00 km)
Location of Races	23 locations in USA	17 countries in Asia, Australia, Europe, South America
Turning	all left turns 34 of 36 races	left and right turning
Overtaking and Lead Changes	relatively common	relatively rare
Qualifying	1 session consisting of 1 or 2 laps	3 sessions consisting of several (e.g., 7, 12) laps in each
Final Practice	occurs after qualifying	occurs before qualifying
Ability to race in wet weather	cannot race in rain under any circumstances	can race in rain with tires designed for this purpose
Time Limit	none	2 hours

Descriptive statistics in motorsports

From a marketing point of view customers, that are the actual motorsport fans are supplied with the product that is the actual race by the suppliers – the racing championships and organizations. Furthermore, that is exactly why racing organizations always ask the fans when something is not going well in the sport by making online questionnaires. For example, the 2017 season of the World Endurance Championship was not promising and that is why the series organizers made an online survey to ask the fans what they would like to see in the new season and how does it need to be ran. (World Endurance Championship , 2018) Moreover, as it can be seen in the new 2018 season entry list the teams have a visual growth compared to last year's one. (FIA WEC , 2018) That is a confirmation for the theory that the

best way to make a research and collect data in terms of improving a product is to make a questionnaire or survey for the customers.

Economic impact of motorsports and statistical methods used to support it

Generally speaking the need of motorsport related manufacturing is no different to any other industry. That's why manufactory brands have the tendency to knot in a certain region. Companies that do this normally have these things in common: buyer-supplier relationships; competitor and collaborator relationships; shared resources relationships. The geographical location is a key factor in relationships like these. For example, almost half of the world's motorsport industry is located in no bigger than fifty-mile radius in England. That's were almost all Formula 1 parts and cars are developed and made, also most of the Rally cars for the World Rally Championship. (John E. Connaughton, 2006)

The economic impact of motorsports is measured in the total income of a certain event involving motorsport or the jobs. The best approach of the output is the annual sales and reward that is generated by the organizations that compromise motorsports. A good example for multiplier methodology used in motorsports is the one provided by the Minnesota IMPLAN Group. (John E. Connaughton, 2006) "Once the estimates of direct output and employment are established, the multiplier concept can then capture the total effect of the economic activity on output, employment, value added, and employee compensation. For instance, a job multiplier value of 2.1 would mean that for each direct job in an industry, 1.1 additional jobs are generated in other parts of the economy (the total benefit to the economy being 2.1 jobs). Thus, an event or firm that creates 100 new jobs in a particular industry would, through the multiplier effect, translate into a subsequent employment gain of 110 jobs in other sectors, for a total employment gain of 210 jobs (100 x 2.1)."

Table 2.1 presents the IMPLAN sectors used in this study:

Table 2.1
IMPLAN and NAICS Codes

Sector	IMPLAN Code	IMPLAN Industry	NAICS Code(s)
NASCAR Teams	350	Motor vehicle parts manufacturing	3363
Suppliers	139	Commercial printing	32311
Suppliers	145	Petroleum lubricating oil and grease manufacturing	324191
Suppliers	180	Rubber and plastics hose and belting manufacturing	32622
Suppliers	205	Iron, steel pipe and tube from purchased steel	33121
Suppliers	247	Electroplating, anodizing, and coloring metal	33281
Suppliers	286	Other engine equipment manufacturing	333618
Suppliers	347	Truck trailer manufacturing	33621
Suppliers	350	Motor vehicle parts manufacturing	3363
Suppliers	358	Boat Building	336612
Suppliers	359	Motorcycle, bicycle, and parts manufacturing	336991
Suppliers	391	Air transportation	481
Suppliers	440	Specialized design services	5414
Suppliers	446	Scientific research and development services	5417
Suppliers	450	All other miscellaneous professional and technical	54191, 54193, 54199
NASCAR Testing	446	Scientific research and development services	5417
Marketing	450	All other miscellaneous professional and technical	54191, 54193, 54199
Retail	139	Commercial printing	32311
Retail	350	Motor vehicle parts manufacturing	3363
Retail	402	Furniture and home furnishings stores	442
Retail	408	Clothing and clothing accessories stores	448
Retail	411	Miscellaneous store retailers	453
Major Track	472	Spectator sports	7112
Drag Tracks	472	Spectator sports	7112
Short-Tracks	472	Spectator sports	7112
Drag Racers	350	Motor vehicle parts manufacturing	3363
Museums	475	Museums, historical sites, zoos, and parks	712
Sanctioning Org	474	Promoters of performing arts and sports and agents	7113, 7114
Miscellaneous Firms	393	Water transportation	483
	446	Scientific research and development services	5417
	447	Advertising and related services	5418
	456	Travel arrangement and reservation services	5615
	462	Colleges, universities, and junior colleges	6112, 6113
	463	Other educational services	6114, 6115, 6116, 6117
	474	Promoters of performing arts and sports and agents	7113, 7114
	493	Civic, social, professional organizations	8134, 8139
Non-NASCAR Teams	350	Motor vehicle parts manufacturing	3363
Short-Track Racers	350	Motor vehicle parts manufacturing	3363
Drag Racers	350	Motor vehicle parts manufacturing	3363
Travel & Tourism	4XB	Off-Site event expenditures	452, 453, 721, 722, 8111

Conclusion

In conclusion, summarizing all that was mentioned above, statistical methods of collecting information and data are the most used in the motorsport industry. Moreover, not only to measure the statistics of the sport between the fans and the customers but also to support decisions in the supply chain of the motorsport industries.

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