1. Project Overview
2. **Research Question**: *To what extent is the performance of a Formula One car impacted by the driver’s skill or the constructor’s design?*
   1. The driver’s skill refers to the abilities of the person behind the wheel. This would include things like reaction time, mental and physical endurance, decision-making, and technique. A skilled driver is able to extract the maximum performance from a car even if the car is not necessarily the best performing.
   2. The constructor’s design refers to the craftsmanship and engineering of the Formula One car. Related factors would include aerodynamics, engine configuration, and suspension setup. A good constructor designs a car that provides great acceleration, maneuverability, grip, and reliability throughout the race.
   3. The purpose of this question is to determine if there is a significant difference in impacts between driver and constructor, or if the interaction between the two is more complex. The information, if definitive, could be valuable in team decision making in allocating scarce resources.
3. **Context/Background**:
   1. Formula One is one of the most competitive motorsports in the world. Teams focus resources on constructing a car that performs efficiently and reliably throughout the race and training a driver with the skill and endurance to win. Only one in twenty drivers will win any race. This leads to a highly entertaining sport which is adored by millions.
   2. By regulation each Formula One team is given a limited budget each season to spend on the research, development, and maintenance of their car as well as the salaries of team members. The maximum budget per team for the 2023 season was $135 million. With so many resources invested in each season, teams are always looking for any information that will provide an advantage on the track.
   3. The official Formula One world championship has been around since 1950. The sport has evolved overtime thanks to advancements in technology. There is ample data available for researching the impact of drivers vs constructors.
4. **Published Works**:
   1. “Race to the podium: separating and conjoining the car and driver in F1 racing”
      1. This study focuses on analyzing financial data with race results from the 2012-2019 Formula One seasons. The authors applied a regression model to each individual season, combining driver and team effects. This allowed them to account for season-specific factors.
      2. The 80/20 rule had been a prevalent heuristic in the Formula One competitive philosophy. It simply states that 80% of the odds related to a team’s success are on the car and 20% are on the driver. The authors challenge the efficacy of this rule with their observations, stating that the driver’s role in a team’s success is understated.
   2. “When Success Is Rare and Competitive: Learning from Others’ Success and My Failure at the Speed of Formula One”
      1. This study addresses a broader topic of learning from successes and failures. The observations of this study were conducted on Formula One drivers. The study found that a car failure can improve the next race’s win probability by 1.9% and drivers are not as likely to learn from their own mistakes.
   3. “Formula One Racing: Driver vs. Technology”

Works Cited

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