

# Comparing the Pittsburgh Steelers under Bill Cowher vs. Mike Tomlin

STAT184 Final Project

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## Introduction

The Pittsburgh Steelers are one of the most famous franchises in NFL history, known for their iconic players, championship success, and leadership. Over the past three decades, the team has been shaped by two head coaches: Bill Cowher and Mike Tomlin.

Bill Cowher, who coached the team from 1992 to 2006, is known for his strong defensive-minded strategies, and running focused offence. Under his leadership, the Steelers reached the Super Bowl twice, winning in 2005. Following Cowher's tenure, Mike Tomlin took the reins in 2007, becoming the youngest head coach to win a Super Bowl in 2008.

In this report we will compare the Steelers' performance under Cowher and Tomlin, exploring their impact on the franchise through various metrics, including win-loss records, playoff consistency, and average offensive and defensive rankings. Additionally, we will consider how changes in the NFL's playstyle may have influenced their respective coaching tenures.

This analysis aims to answer a few critical questions about who has been the better coach, who demonstrated greater consistency, and who achieved more success during their time at the helm of the Pittsburgh Steelers?

## Methodology

This analysis compares the performance of the Pittsburgh Steelers under Bill Cowher (1992–2006) and Mike Tomlin (2007–present). The following outlines the approach taken to gather, analyze, and interpret data, as well as the methods used to account for changes in NFL playstyles over time.

Data was gathered from Pro Football Reference, and Statista, this data includes win-loss records, divisional rankings, offensive and defensive rankings, and points scored and allowed.

After the data was gathered we cleaned and merged the data sources in order to consolidate our data and make it easier to work with in the future. The data also meets the FAIR principles as it can be easily found, it is accessible and free to download, it can be easily interpreted in CSV format, and it can easily be reused.

We recognize that football is an ever evolving sport and understand how NFL rule changes can affect a teams playstyle. Over the years we have noticed the shift toward pass-heavy offenses and rule changes favoring offensive play and player safety. To address these changes, the analysis will consider and address these recent trends/changes before any type of conclusion is made.

### **Analysis:**

Graphical Comparisons: Include and interpret the graphs you created. Break these down by tenure, rankings, success metrics, and consistency. Evolving NFL Playstyle: Discuss trends in the league (e.g., changes in offensive/defensive styles) and their possible impact on the coaches' statistics. Discussion:

Address each research question in detail, supported by the data and insights from the graphs. Discuss any limitations in your analysis,

### **Conclusion**

Summarize your findings and provide a reasoned argument answering the main question of who was the better coach, supported by evidence.

### **References**

Include all references used in report and analysis.

### **Research Question:**

- State your research questions and explain them.
  - Describe the provenance of your data. That is, where did you get the data, who collected the data, for what purpose, who/what make up the cases.
  - Explain how your data meet the FAIR and/or CARE Principles.
  - Describe what attributes you'll focus your analysis on (mention if they are part of your data sets or if you created them out of your data sets).
  - Create multiple data visualizations (tables and figures) that assist both the team and readers in understanding the data.
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- Data visualizations should show a variety of your skills and geometries.
  - **\*\*Optional\*\***: If your research question/data make sense to do so, try creating a map.

- Data visualizations should be appropriately sized--not too small and not too big.
- Figures and Tables should have appropriate captions and appropriately cross-referenced.
- Your team must produce at least one table that is *\*not\** a display of raw data.
- Your team must produce at least one plot/graph.
- There should be narrative text helping readers to better understand what the visualization is about.
- Your report should have narrative text (beyond explaining tables and figures) that explains the context and helps the reader make sense of what is going on.
- **Optional:** For those who want to challenge themselves further, feel free to include a section on using other statistical methods such as hypothesis testing, regression, ANOVA, or machine learning—see Chapter 18 of the Data Computing eBook.
- You should properly cite any work you reference (including data) according to your choice of citation style. We’ve included files for APA7 and MLA9 as part of this template. If you want to use a different citation style, you will need to download the CSL file from the [Zotero Style Repository](#) and include it in your team’s repo.
- **\*\*Fail Safe:\*\*** You can also put your citations as footnotes.

## Running Code