03_player_contributions_to_wins

December 18, 2025

1 Q3: Which Individual Player Stats Contribute Most to Team Wins?

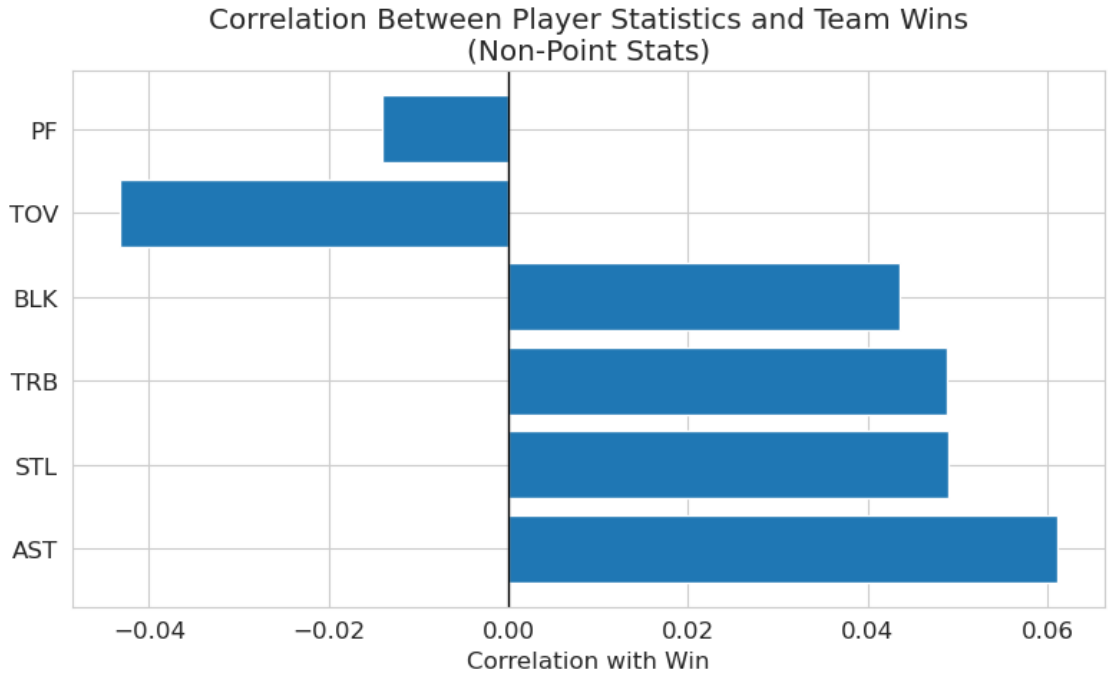
This notebook analyzes how various player-level statistics relate to their team's success.

We focus on non-scoring contributions:

- Assists
- Rebounds
- Steals
- Turnovers
- Blocks
- Efficiency

[15]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

# Load data
df = pd.read_csv("data/player_game_stats_clean.csv")

# Non-point statistics
stats = ['AST', 'TRB', 'STL', 'BLK', 'TOV', 'PF']

# Correlation with team win
corrs = (
    df[stats]
    .corrwith(df['Win'])
    .sort_values(key=np.abs, ascending=False)
)

# Plot
plt.figure(figsize=(8, 5))
plt.barh(corrs.index, corrs.values)
plt.axvline(0, color='black', linewidth=1)
plt.xlabel("Correlation with Win")
plt.title("Correlation Between Player Statistics and Team Wins\n(Non-Point␣
 ↪Stats)")
```

```
plt.tight_layout()
plt.show()
```



[16]:
```
# Show exact correlation values
corr_table = corrs.round(3)
print("\nCorrelation with Team Wins:")
print(corr_table)
```

```
Correlation with Team Wins:
AST    0.061
STL    0.049
TRB    0.049
BLK    0.044
TOV   -0.043
PF    -0.014
dtype: float64
```

Code Explanation: We used correlation to identify which statistics beyond points most influence wins. The corrwith() function efficiently compares multiple stats to win outcomes. The correlation data is displayed with the print() function.

Takeaway from results: In this instance, creating shots for teammates matters more than individual scoring. Maintaining possession through rebounds and limiting turnovers are key winning factors. This should be taken with a grain of salt because the correlation values were all low. This may be because no single statistic can have a strong prediction on the outcome of games.

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