



2024 Soccer Project Revamp

Changes From Initial Project

Scraping

- Changed which statistics were used for analyzing player performance
- Switched to one singular website (FBReference)
- Consolidated data into fewer SQL tables
- Added 2022-23 Season

Analysis

- Changed calculation method for player score, team score, and transfer score
- Changed how to visualize data
- Grouped transfers into more specific groups

Statistics Used & Data Storage

Old Model:

- 11 GK statistics
- 17 Player Statistics
- 4 different websites used
- Lots of Missing Data
 - Chances stat
 - 20 Players Missing
- Many files used for Scraping
- 19 SQL Tables

New Model:

- 12 GK Statistics
- 34 Player Statistics
- 1 website used (FBReference)
- No Missing Data
 - 1600 Players Collected
- 1 File used for Scraping
- 2 SQL Tables

Player Performance Calculations

Old Model:

- Calculated player's performance score based on how they did in each stat relative to their position average
 - $\text{Score} = \text{Player Stat} / \text{Avg Stat} * 100$
- Calculated team scores by adding up all player scores
- Calculated player value by dividing accumulated score by transfer fee
- Team transfer value calculated by dividing total performance score by total spent

New Model:

- Calculated player's performance score based using percentiles (scipy)
- Calculated team scores by adding up all player scores (did not change)
- Calculated player value using percentiles
 - Compares players to other transfers and divides performance percentile by transfer fee percentile
- Team transfer value calculated by dividing total performance score by log of total spent

New 2018-19 Analysis



	WSA	EPL		WSA	EPL
1.			11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Top 3 Transfers (€25+)

1. Richarlison
2. Fabinho
3. Alisson
4. Riyad Mahrez
5. Jorginho

Top 3 Transfers (<€10)

1. Ryan Babel
2. Ben Foster
3. Jonny Evans
4. Fabian Schar
5. Ruben Vinagre

Top 3 Transfers (€10-25)

1. Lucas Digne
2. Cheikhou Kouyate
3. Willy Boly
4. Yves Bissouma
5. Adama Traore

Top 3 Free Transfers

1. Vicente Guaita
2. Bernard
3. Ryan Fredericks

Top Paid Loan

1. Andre Schurrle

Top Free Loan

1. Victor Camarasa

New 2019-20 Analysis

WSA

EPL






WSA

EPL






1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

11. 
12. 
13. 
14. 
15. 
16. 
17. 
18. 
19. 
20. 

Top 3 Transfers (€25+)

1. Pablo Fornals 
2. Yuri Tielemans 
3. Bruno Fernandes 
4. Mateo Kovacic 
5. Rodri 



Top 3 Transfers (<€10)

1. Erik Pieters 
2. Kortney Hause 
3. Aaron Mooy 
4. Ben Osborn 
5. James Justin 

Top 3 Transfers (€10-25)

1. Ezri Konsa 
2. Leandro Trossard 
3. Douglas Luiz 
4. Che Adams 
5. Leander Dendoncker 

Top 3 Free Transfers

1. Gary Cahill 
2. Adrian 

Top Paid Loan

1. Pepe Reina 






Top Free Loan

1. Dean Henderson 






New 2020-21 Analysis

	WSA	EPL		WSA	EPL
1.			11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		






Top 3 Transfers (€25+)

1. Gabriel 
2. Ollie Watkins 
3. Said Benrahma 
4. Nelson Semedo 
5. Kai Havertz 




Top 3 Transfers (<€10)

1. Joel Veltman 
2. Tosin Adarabioyo 
3. Antonee Robinson 
4. Kenny Tete 
5. Dale Stephens 

Top 3 Transfers (€10-25)

1. Kyle Walker-Peters 
2. Tomas Soucek 
3. Mohammed Salisu 
4. Emiliano Martinez 
5. Matty Cash 

Top 3 Free Transfers

1. Thiago Silva 
2. Danny Welbeck 
3. James Rodriguez 

Top Paid Loan

1. Joachim Andersen 

Top Free Loan


1. Ethan Ampadu 

New 2021-22 Analysis








	WSA	EPL		WSA	EPL
1.			11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		






Top 3 Transfers (€25+)

1. Martin Odegaard 
2. Joe Willock 
3. Aaron Ramsdale 
4. Ben White 
5. Emi Buendia 




Top 3 Transfers (<€10)

1. Demarai Gray 
2. Craig Dawson 
3. Moussa Sissoko 
4. Emmanuel Dennis 
5. Pierre Lees-Melou 

Top 3 Transfers (€10-25)

1. Jack Harrison 
2. Romain Perraud 
3. Dan Burn 
4. Joachim Andersen 
5. Odsonne Edouard 

Top 3 Free Transfers

1. Ashley Young 
2. Joshua King 
3. Christian Eriksen 

Top Paid Loan

1. Alvaro Fernandez 






Top Free Loan

1. Connor Gallagher 

New 2022-23 Analysis

	WSA	EPL		WSA	EPL
1.			11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Top 3 Transfers (€25+)

1. Morgan 
2. Gibbs-White 
3. Sven Botman 
4. Erling Haaland 
5. Oleksandr Zinchenko 

Top 3 Transfers (<€10)

1. Felipe 
2. Bernd Leno 
3. Idrissa Gana Gueye 
4. Andreas Pereira 
5. Degnand Gnoto 


Top 3 Free Transfers

1. James Tarkowski 
2. Ben Mee 
3. Willian 

Top 3 Transfers (€10-25)

1. Nick Pope 
2. Armel Bella Kotchap 
3. Marc Roca 
4. Marcus Tavernier 
5. Pervis Estupinan 

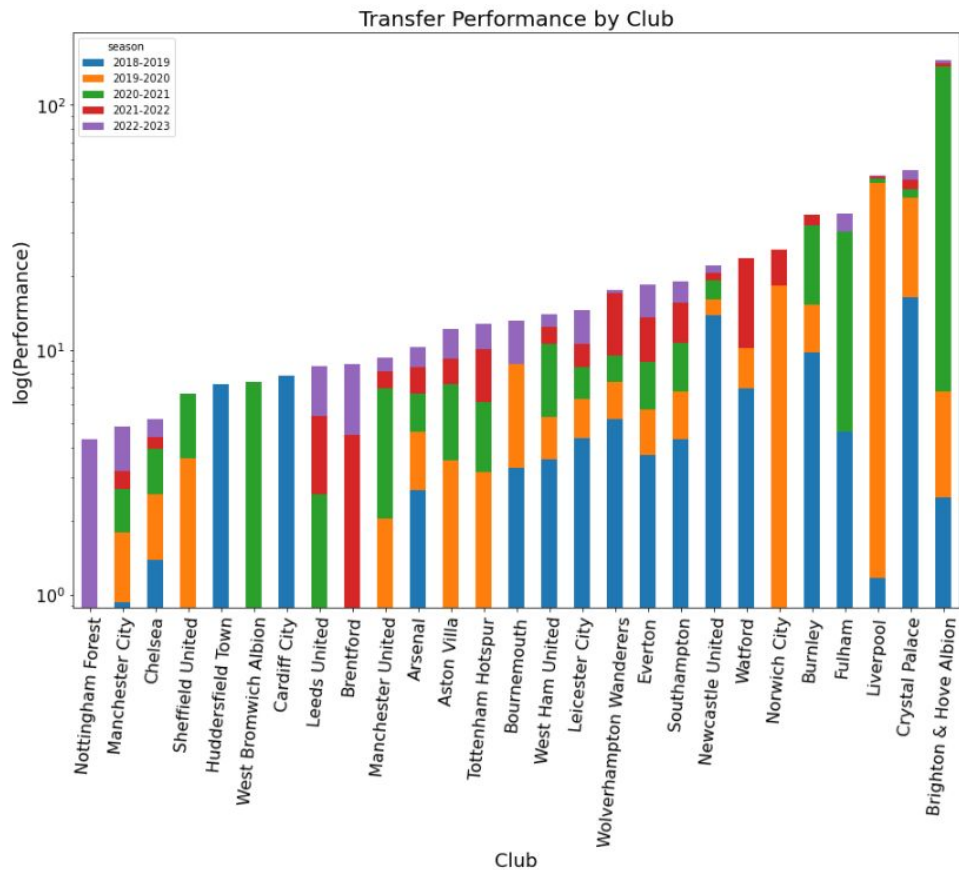
Top Paid Loan

1. Pedro Porro 

Top Free Loan

1. Clement Lenglet 

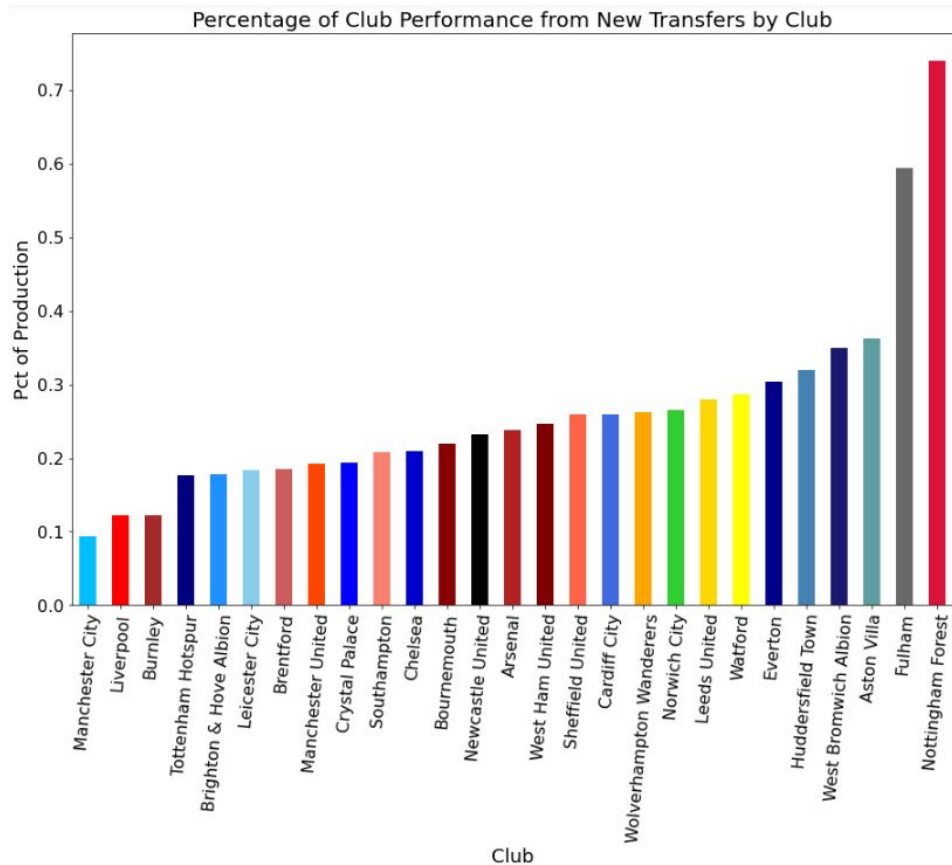
Improved Team Value Graph



Notes:

- 2020-21 Brighton – Acquired Joel Veltman, Adam Lallana, Danny Welbeck for combined €1
- 2019-20 Liverpool – Acquired Adrian for free
- 2019-20 Norwich – Acquired Ondrej Duda on free loan
- Manchester City and Chelsea – Acquired many players for large fees who did not contribute often (Ferran Torres, Kepa, Pulisic, Werner, Ziyech, etc.)

Improved Reliance on Transfers Graph



Notes:

- The two best clubs in recent memory have the least reliance on transfers
- Most of the clubs who are battling relegation frequently rely heavily on transfers

So.... Is This Model Better?

From a data collection perspective, absolutely!

- Key Improvement: No more missing data

From a model performance perspective, also yes!

- Table predictions improved
 - Old Errors: (avg = 3.01, sd = 2.82) → New Errors: (avg = 2.18, sd = 2.20)
 - Champ/UCL/Relegation% improved from 25%/69%/58% to 80%/80%/60%
- Hard to test if our transfer analysis is accurate but generally the results make sense (slightly more than before)
- Additionally, this model is now easier to read and understand than before with the new graphs

Future Improvements Again?

- This model can be updated after each Premier League season
 - This should be very straightforward now
- Larger changes could be made
 - Including more than top 16 players
 - Scraping transfer prices for players who have been around since before 2018-19
 - Could be expanded for other leagues