

Exploring the European Professional Football Inter-League Transfer Market: A Network Analysis Approach.

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Aim of the Project

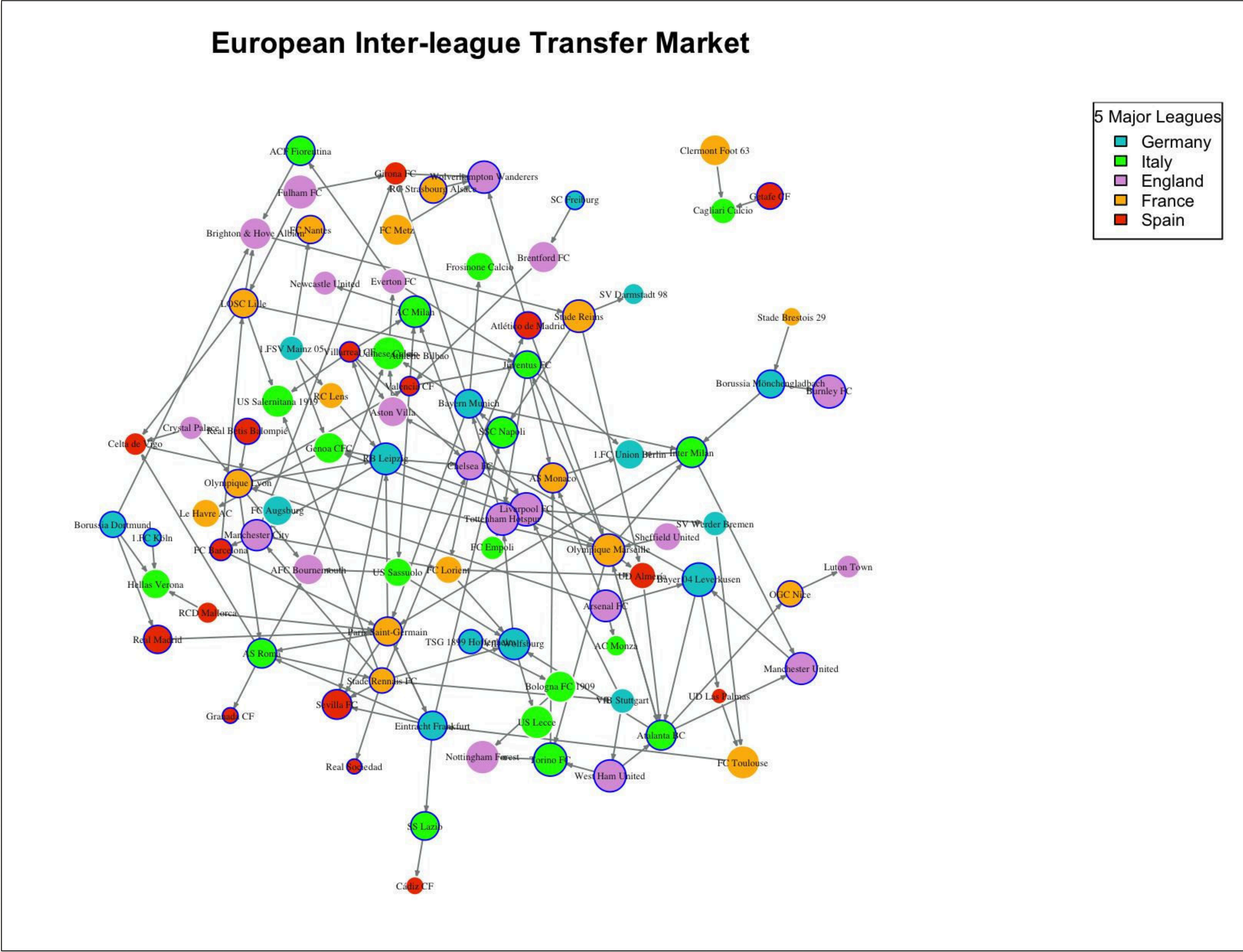
This project explores how clubs in Europe’s top five football leagues trade players across leagues, using social network analysis to uncover patterns in transfer behavior.

Abstract

Transfer patterns among clubs in Europe’s top five football leagues are analyzed with a focus on inter-league player mobility.

The inter-league transfer market is modeled as a network and Exponential Random Graph Models (ERGMs) are applied to identify structural and club-level effects.

Results show that participation in UEFA tournaments and greater nationality diversity within teams are associated with increased inter-league transfer activity, while relational and structural embeddedness appear to play a limited role.



Theoretical Framework – Transfer Patterns

Understanding Inter-League Transfers through Embeddedness and Cultural Proximity

In the European football transfer market, clubs compete not only for performance but also for access to talent. Transfers are strategic decisions shaped by clubs’ positions within the broader network and by the social and cultural attributes of their organizations. This study draws on theories of embeddedness and proximity to explain how inter-league transfers unfold.

Key Hypotheses: Status and Diversity Drive Transfer Attractiveness

We propose that two club-level characteristics shape their ability to attract transfer ties from other leagues:

- Positional Embeddedness:** Clubs participating in UEFA competitions hold a central and prestigious position in the European network. This status increases their visibility and desirability as trading partners.
- Cultural Proximity:** Clubs with higher internal nationality diversity offer a more globally oriented environment. This diversity serves as a signal of adaptability and lowers integration barriers, making these clubs more attractive to incoming players.

Findings

UEFA participation increases a club’s likelihood of selling players across leagues, supporting the role of positional embeddedness.

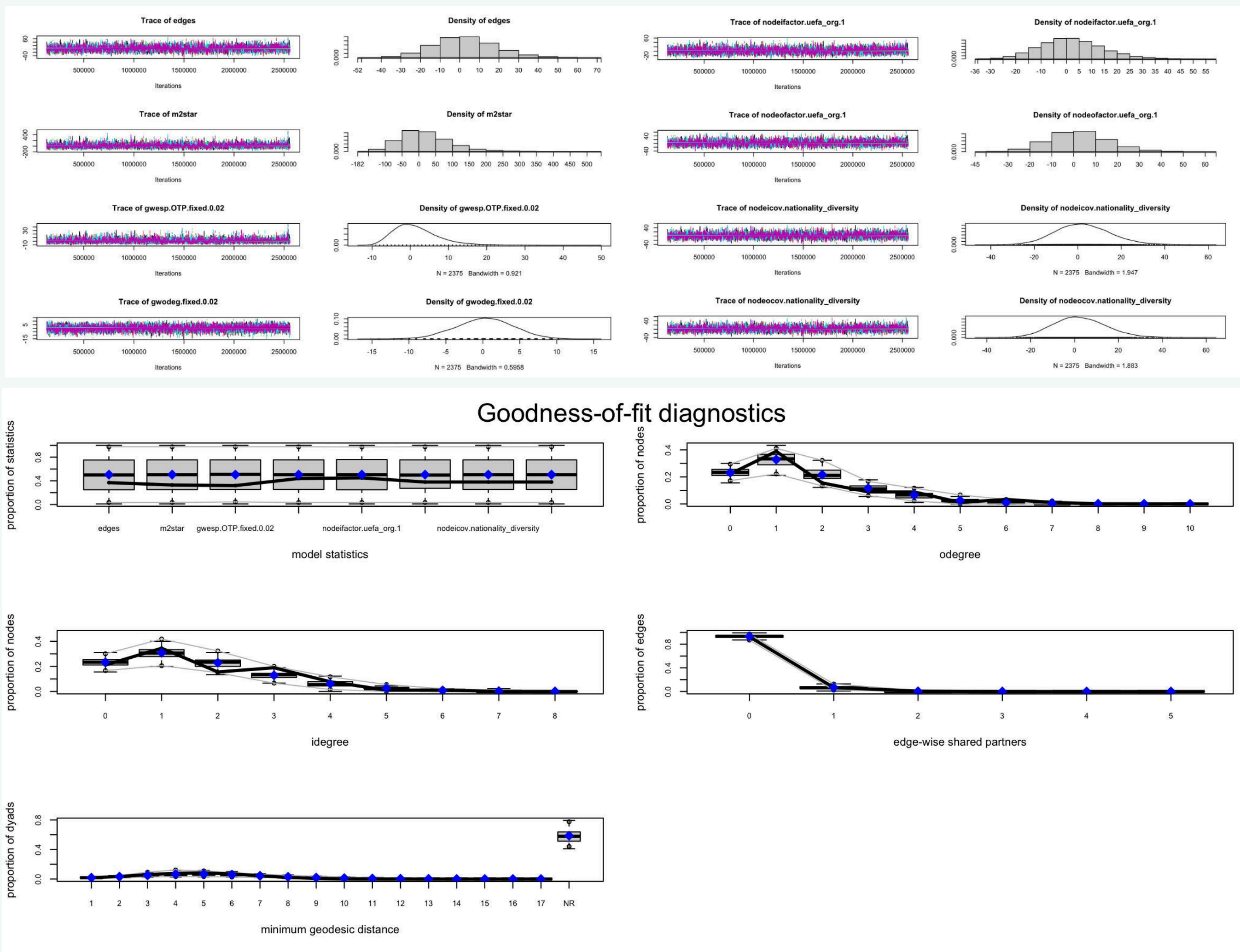
Nationality diversity is positively associated with incoming transfers, indicating that culturally diverse clubs are more attractive in the inter-league market.

No significant effects were found for m2star or GWESP, suggesting that relational and structural embeddedness do not strongly influence inter-league transfers.

| Model Terms | Estimates (Std. Error) |
|--|------------------------|
| edges | −7.82 (0.85)*** |
| m2star | 0.07 (0.06) |
| gwesp (OTP, fixed, 0.02) | 0.47 (0.30) |
| gdegree (fixed, 0.02) | 0.38 (0.40) |
| nodefactor UEFA participation (receiver) | 0.17 (0.19) |
| nodefactor UEFA participation (sender) | 1.03 (0.24)*** |
| nodecov nationality diversity (receiver) | 2.90 (0.77)*** |
| nodecov nationality diversity (sender) | 0.39 (0.72) |
| AIC | 1439.13 |
| BIC | 1495.03 |
| Log Likelihood | −711.56 |

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Model fit was evaluated using MCMC diagnostics and a goodness-of-fit plot, both indicating adequate model convergence and specification.



Methodology

Data Collection

Transfer data were collected for 90 clubs in Europe’s top five leagues (Premier League, La Liga, Bundesliga, Serie A, Ligue 1) during the 2023 summer transfer window. Player movement and nationality data were sourced from Transfermarkt.com; UEFA participation was retrieved from UEFA.com.

Modeling Framework

We use ERGMs to explain the structure of the network. ERGMs estimate the probability of tie formation by incorporating both network structures and club-level attributes.

Endogenous Network Terms:

- m2star: mixed-two-stars (two-path)
- gwesp: triadic closure based on shared partners

Exogenous Covariates:

- UEFA Participation: binary indicator of recent UEFA involvement
- Nationality Diversity: IQV from player nationalities

Conclusion

Clubs with recent UEFA tournament participation and multicultural squads have greater reach in the interleague market. Transfer patterns appear less shaped by network embeddedness and more by prestige and diversity.

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