**1.Modelo RF5\_Indeg Apoio Controlo Diques X All var**.

***Instrucciones modelo***: **test size = 0.31 ; rd\_state = 3**

***Variables indep select to fit***:

variables = [

    'id', 'Indeg\_RedeRisk\_Cen', 'Indeg\_RedeConfianc','PC1\_Distance\_Pro',

'Degree\_RedeTotFamil', '1\_VarExp\_Moranca', '2\_VarExp\_Atri\_Tabanca',

    '5\_VarExp\_Atri\_Idade','9\_VarExp\_Atri\_IndMelhorTecnDiqCint',

    'OutDeg\_IntimAmigos\_', 'OutDeg\_RedeRisk\_Cen', 'OutDeg\_RedeConfianc']

***Model performance (scores):***

Mean Squared Error: 1.3

R^2 Score: 0.5076 (In Excel: R2 = 0.5275; y = 0.4773 X + 1.4545 )

**Model tot:**

Mean Squared Error (MSE): 0.6744

Root Mean Squared Error (RMSE): 0.8212

Mean Absolute Error (MAE): 0.5349

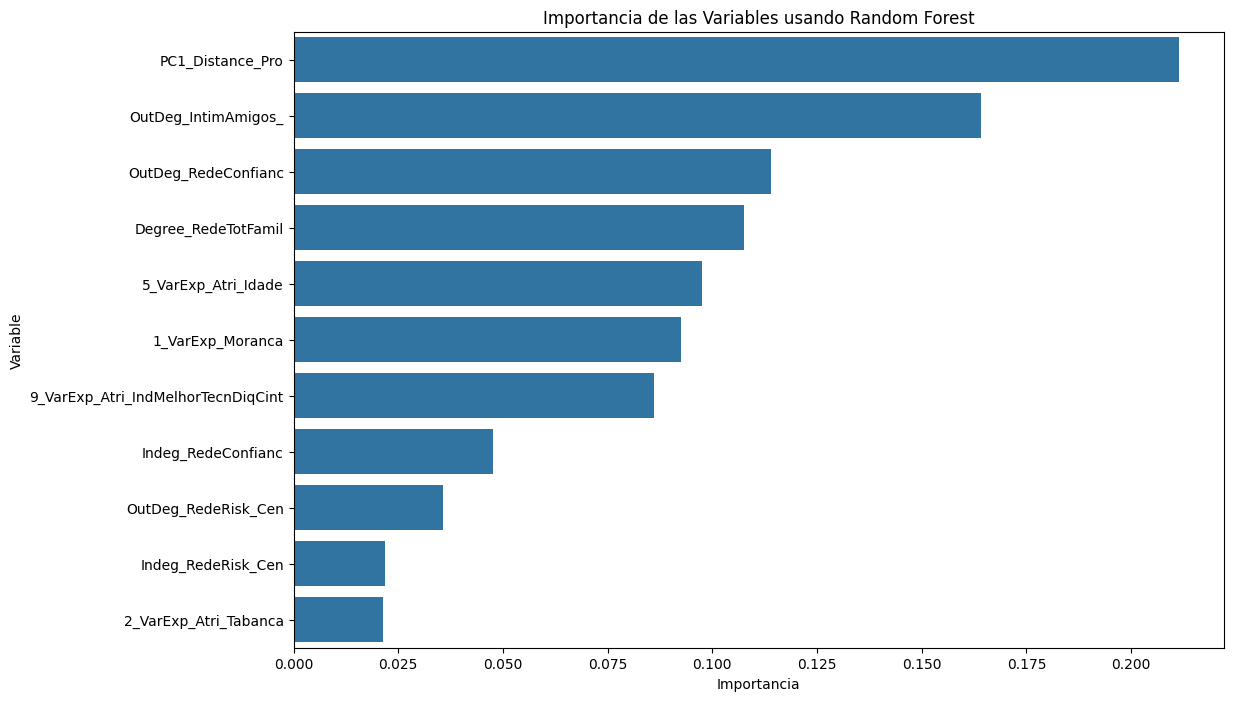
R^2 Score: 0.7948

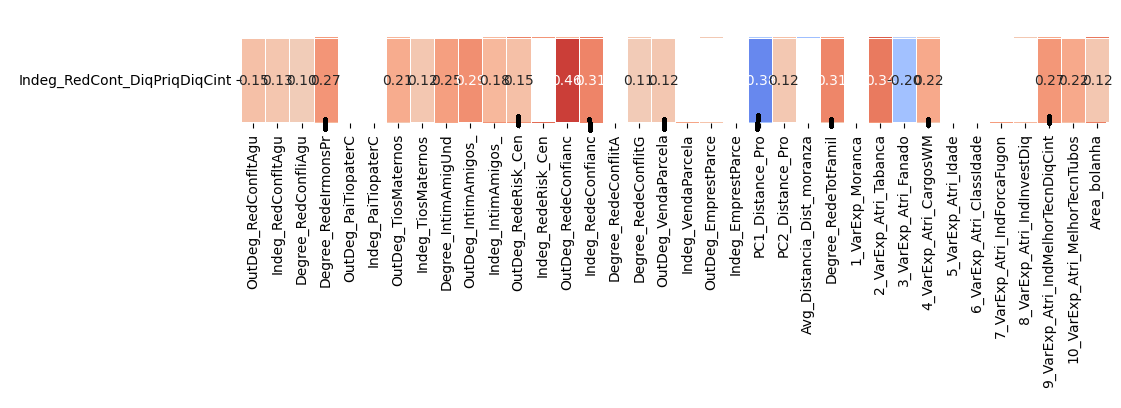
Pearson Correlation: 0.9040

***Interactions***:

| **Interacción** | **Importancia** | **Dirección** |
| --- | --- | --- |
| 0 | (Degree\_RedeTotFamil, OutDeg\_IntimAmigos\_) | 0.730004 | 0.073682 |
| 1 | (PC1\_Distance\_Pro, OutDeg\_IntimAmigos\_) | 0.667989 | -0.017593 |
| 2 | (9\_VarExp\_Atri\_IndMelhorTecnDiqCint, OutDeg\_In... | 0.644580 | 0.019023 |
| 3 | (5\_VarExp\_Atri\_Idade, OutDeg\_IntimAmigos\_) | 0.644370 | 0.011874 |
| 4 | (OutDeg\_IntimAmigos\_, OutDeg\_RedeRisk\_Cen) | 0.642941 | 0.124816 |
| 5 | (1\_VarExp\_Moranca, OutDeg\_IntimAmigos\_) | 0.617453 | -0.002763 |
| 6 | (Indeg\_RedeConfianc, OutDeg\_IntimAmigos\_) | 0.599006 | 0.039904 |
| 7 | (2\_VarExp\_Atri\_Tabanca, OutDeg\_IntimAmigos\_) | 0.598547 | 0.067985 |
| 8 | (Indeg\_RedeRisk\_Cen, OutDeg\_IntimAmigos\_) | 0.597560 | -0.003735 |
| 9 | (PC1\_Distance\_Pro, OutDeg\_RedeConfianc) | 0.589277 | -0.021657 |

***Key results****:*





**2.Modelo RF5\_Outdeg Apoio Controlo Diques X All var**.

***Instrucciones modelo***: **test size = 0.21 ; rd\_state =9**

***Variables indep select to fit***:

variables = ['id', 'Degree\_IntimAmigUnd', 'Indeg\_RedeConfianc', 'Degree\_RedeTotFamil', '9\_VarExp\_Atri\_IndMelhorTecnDiqCint',

'Area\_bolanha', 'OutDeg\_RedeRisk\_Cen']

***Model performance (scores):***

Mean Squared Error: 4.0714

R^2 Score: 0.8381 (In Excel: R2 = 0.8597 ; y = 0.7923 X + 0.1188 )

**Model tot:**

Mean Squared Error (MSE): 1.3101

Root Mean Squared Error (RMSE): 1.1446

Mean Absolute Error (MAE): 0.5659

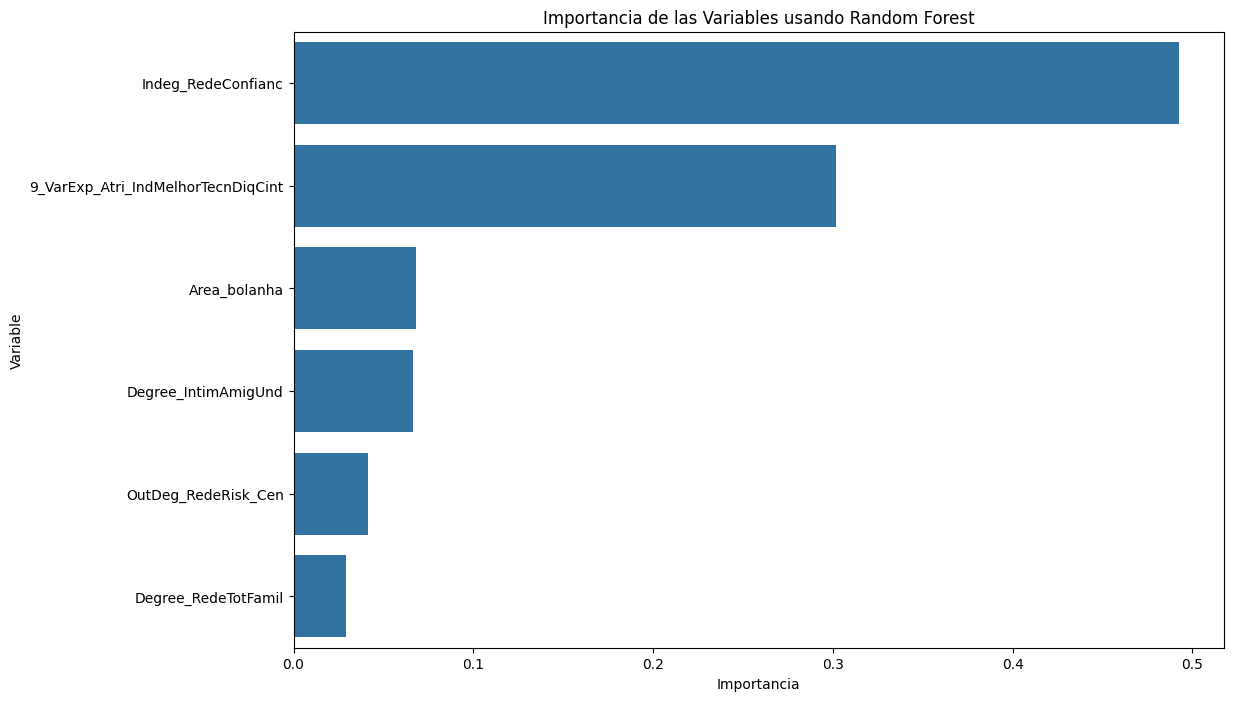
R^2 Score: 0.8964

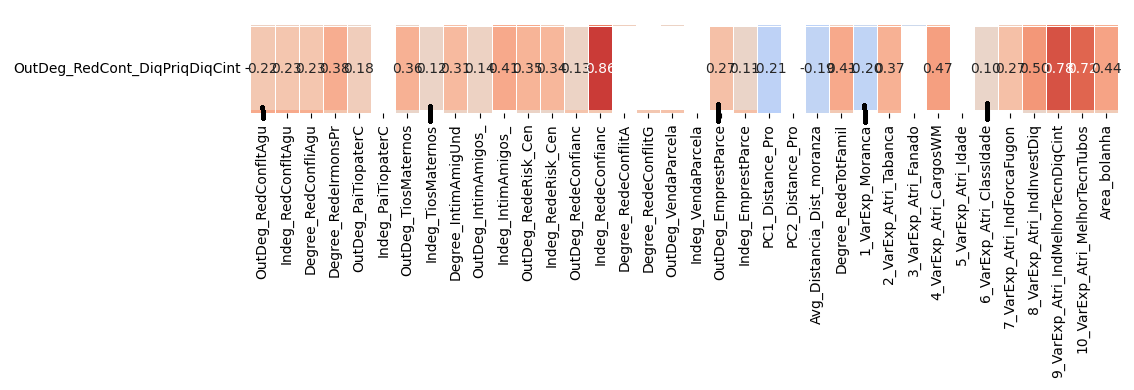
Pearson Correlation: 0.9516

***Interactions***:

| **Interacción** | **Importancia** | **Dirección** |
| --- | --- | --- |
| 0 | (Indeg\_RedeConfianc, 9\_VarExp\_Atri\_IndMelhorTe... | 2.507652 | 1.015145 |
| 1 | (Indeg\_RedeConfianc, OutDeg\_RedeRisk\_Cen) | 2.330239 | 1.055314 |
| 2 | (Indeg\_RedeConfianc, Degree\_RedeTotFamil) | 2.302416 | 1.050239 |
| 3 | (Indeg\_RedeConfianc, Area\_bolanha) | 2.301710 | 1.067860 |
| 4 | (Degree\_IntimAmigUnd, Indeg\_RedeConfianc) | 2.268476 | 0.000972 |
| 5 | (9\_VarExp\_Atri\_IndMelhorTecnDiqCint, OutDeg\_Re... | 1.455842 | 0.272629 |
| 6 | (Degree\_IntimAmigUnd, 9\_VarExp\_Atri\_IndMelhorT... | 1.436582 | -0.046575 |
| 7 | (Degree\_RedeTotFamil, 9\_VarExp\_Atri\_IndMelhorT... | 1.410904 | 0.002105 |
| 8 | (9\_VarExp\_Atri\_IndMelhorTecnDiqCint, Area\_bola... | 1.393346 | 0.271477 |
| 9 | (Degree\_IntimAmigUnd, OutDeg\_RedeRisk\_Cen) | 0.207099 | 0.010112 |

***Key results****:*





**INTEGRANDO VARIAVEL Melhor técnico tubos**

**2.Modelo RF5\_Outdeg Apoio Controlo Diques X All var**.

***Instrucciones modelo***: **test size = 0.27 ; rd\_state = 12**

***Variables indep select to fit***:

variables = ['id', 'Degree\_IntimAmigUnd', 'Indeg\_RedeRisk\_Cen',

'Indeg\_RedeConfianc','Degree\_RedeTotFamil', '9\_VarExp\_Atri\_IndMelhorTecnDiqCint', '10\_VarExp\_Atri\_MelhorTecnTubos'

'1\_VarExp\_Moranca', 'Area\_bolanha','OutDeg\_RedeRisk\_Cen']

***Model performance (scores):***

Mean Squared Error: 2.1429

R^2 Score: 0.8818 (In Excel: R2 = 0.9222 ; y = 0.7816 X + 0.7018 )

**Model tot:**

Mean Squared Error (MSE): 0.9225

Root Mean Squared Error (RMSE): 0.9605

Mean Absolute Error (MAE): 0.5194

R^2 Score: 0.9271

Pearson Correlation: 0.9738

***Interactions***:

| **Interacción** | **Importancia** | **Dirección** |
| --- | --- | --- |
| 0 | (Indeg\_RedeConfianc, 10\_VarExp\_Atri\_MelhorTecn... | 2.591623 | 0.956215 |
| 1 | (Indeg\_RedeConfianc, OutDeg\_RedeRisk\_Cen) | 1.966907 | 0.957644 |
| 2 | (Indeg\_RedeConfianc, 1\_VarExp\_Moranca) | 1.918252 | 0.961634 |
| 3 | (Indeg\_RedeConfianc, 9\_VarExp\_Atri\_IndMelhorTe... | 1.901907 | 0.884438 |
| 4 | (Indeg\_RedeRisk\_Cen, Indeg\_RedeConfianc) | 1.887464 | 0.015170 |
| 5 | (Indeg\_RedeConfianc, Degree\_RedeTotFamil) | 1.884086 | 0.957028 |
| 6 | (Degree\_IntimAmigUnd, Indeg\_RedeConfianc) | 1.866912 | 0.015944 |
| 7 | (Indeg\_RedeConfianc, Area\_bolanha) | 1.853616 | 0.952321 |
| 8 | (9\_VarExp\_Atri\_IndMelhorTecnDiqCint, 10\_VarExp... | 1.463815 | 0.143082 |
| 9 | (Indeg\_RedeRisk\_Cen, 10\_VarExp\_Atri\_MelhorTecn... | 1.404618 | 0.016575 |

***Key results****:*

