

Figure 4.1.1 A table presenting the correlation between given variables and transfermarkt.de values.

Variables	Descriptions	GK	DEF	MID	FWD
aerials_lost	aerial duels lost	-0.04	0.14	0.09	-0.01
aerials_won	aerial duels won	-0.04	0.21	0.08	-0.03
aerials_won_pct	% of aerial duels won.	0.09	0.11	-0.01	-0.01
age	Player's age.	-0.25	-0.16	-0.12	-0.06
assisted_shots	number of assisted shots	-0.02	0.14	0.39	0.47
assists	Player's assists.	0.14	0.22	0.43	0.51
assists_per90	Assists per 90 minutes.	0.08	0.13	0.29	0.30
avg_distance_def_actions_gk	Average distance of defensive actions as goalkeeper.	0.15	-0.01		
ball_recoveries	Number of ball recoveries.	0.22	0.28	0.22	0.28
blocked_passes	number of times player blocking passes	-0.05	0.06	0.23	0.14
blocked_shots	number of times player blocking shots	-0.04	0.11	0.06	0.12
blocked_shots_saves	number of blocked shots that were on target		0.09	0.02	-0.02
blocks	number of player's blocks	-0.05	0.10	0.21	0.15
cards_red	Red cards	0.01	-0.01	-0.02	0.07
cards_yellow	yellow cards	0.00	0.03	0.07	0.09
cards_yellow_red	red & yellow cards		-0.01	-0.01	0.03
carries	Number of times the player controlled the ball with the feet.	0.28	0.50	0.49	0.52
carry_distance	total distance the player moved with the ball by his feet	0.18	0.45	0.46	0.48
carry_progressive_distance	Number of times the player controlled the ball with the feet towards enemy's goal.	0.16	0.44	0.46	0.47
CL	Binary measuring if the player's team played in Champions League following season.	0.45	0.52	0.48	0.53
clean_sheets	Player's clean sheets.	0.59			
clean_sheets_pct	Percentage of matches that result in clean sheet.	0.45			
clearances	number of ball clearances	-0.03	0.13	0.03	0.01
corner_kick_goals_against_gk	number of goals from corners against as goalkeeper	-0.03			
corner_kicks	number of corner kicks	-0.03	0.08	0.20	0.21
corner_kicks_in	corner kicks in a penalty goals	0.00	0.08	0.11	0.10
corner_kicks_out	number of outswinging corner kicks		0.08	0.13	0.07
corner_kicks_straight	number of straight corner kicks		0.03	0.14	0.07
crosses	number of crosses	-0.04	0.05	0.21	0.29
crosses_gk	Crosses as goalkeeper	0.17	-0.01		
crosses_into_penalty_area	number of crosses into penalty area	-0.05	0.01	0.15	0.18
crosses_stopped_gk	Crosses stopped as goalkeeper	0.16	-0.01		
crosses_stopped_pct_gk	% of stopped crosses as a goalkeeper.	0.06	-0.01		
D	Player's team draws	-0.10	-0.19	-0.18	-0.21
def_actions_outside_pen_area_gk	Defensive actions outside the penalty area as a goalkeeper.	0.25	-0.01		

Figure 4.1.2 A table presenting the correlation between given variables and transfermarkt.de values.

Variables	Descriptions	GK	DEF	MID	FWD
def_actions_outside_pen_area_per90_gk	Defensive actions outside the penalty area per 90 minutes as a goalkeeper.	0.07	- 0.01		
dispossessed	number of dispossessions	- 0.03	0.06	0.30	0.36
draws_gk	Draws of player's team when he played as a goalkeeper.	0.14	- 0.01		
dribble_tackles	Number of dribbles tackled	- 0.01	0.07	0.16	0.06
dribble_tackles_pct	% of dribbles successfully tackled by a player.	0.21	0.04	- 0.03	-0.04
dribbled_past	players dribbled past	- 0.03	0.06	0.18	0.13
dribbles	number of dribbles	0.02	0.08	0.32	0.47
dribbles_completed	number of successful dribbles	- 0.01	0.10	0.33	0.47
dribbles_completed_pct	% of dribbles completed.	0.16	0.04	0.04	0.07
dribbles_vs	number of dribbles vs given player	- 0.03	0.07	0.18	0.12
errors	Player's errors on-pitch.	0.18	0.05	0.03	0.02
foot_both	Binary measuring if player prefers both feet equally.		- 0.05	0.10	0.07
foot_left	Binary measuring if player prefers left foot.	0.12	0.00	- 0.03	0.07
foot_right	Binary measuring if player prefers right foot.	- 0.12	0.02	0.02	-0.10
fouled	number of players being fouled	0.00	0.08	0.23	0.28
fouls	number of fouls committed	- 0.04	0.09	0.13	0.07
free_kick_goals_against_gk	free kick against the player as goalkeeper	0.00			
GA	player's team goals against	- 0.44	- 0.40	- 0.36	-0.39
games	Games played.	0.35	0.23	0.29	0.30
games_gk	Games played as a goalkeeper.	0.35	- 0.01		
games_starts	Games played - the player as a starter.	0.35	0.24	0.30	0.38
games_starts_gk	Games played as a goalkeeper - the player as a starter.	0.35	- 0.01		
gca	Player's goal creating actions.	0.13	0.27	0.50	0.62
gca_dribbles	goal creating actions from dribbles		0.06	0.18	0.45
gca_fouled	goal creating actions - being fouled, leading to the goal		0.09	0.21	0.34
gca_og_for	goal creating actions leading to the opponent's own goal		0.09	0.03	0.11
gca_passes_dead	Goal creation from dead balls (including free kicks etc)	0.18	0.07	0.13	0.16
gca_passes_live	Goal creation actions from live-ball	0.05	0.26	0.53	0.59
gca_per90	Goal creation actions per 90 minutes.	0.08	0.17	0.36	0.39
gca_shots	goal creating actions with shots	- 0.04	0.14	0.16	0.33
GDiff	Goals vs goals lost difference.	0.48	0.55	0.52	0.58
GF	Goals for a team.	0.40	0.53	0.51	0.57
goal_kick_length_avg	average length of goal kicks	- 0.11	- 0.01		
goal_kicks	Number of goal kicks.	0.13	- 0.01		
goals	Player's goals.	- 0.04	0.24	0.42	0.60
goals_against_gk	goals against as a goalkeeper	- 0.03	- 0.01		
goals_against_per90_gk	goals against per 90 minutes as a goalkeeper	- 0.38	- 0.01		
goals_assists_pens_per90	Goals and assists related to penalties per 90 minutes.	0.03	0.18	0.38	0.50
goals_assists_per90	Goals and assists per 90 minutes	0.02	0.17	0.38	0.51
goals_pens_per90	goals from penalties per 90 minutes	- 0.04	0.13	0.31	0.43

Figure 4.1.3 A table presenting the correlation between given variables and transfermarkt.de values.

Variables	Descriptions	GK	DEF	MID	FWD
Height	Player's height.	0.03	0.10	0.00	-0.08
interceptions	number of interceptions	-	-	-	-
isBundesliga	Binary checking if player plays in Bundesliga.	0.04	0.12	0.14	0.14
isLaLiga	Binary checking if player plays in La Liga.	-	-	-	-
isLigue1	Binary checking if player plays in Ligue 1.	0.13	0.00	0.01	-0.05
isPremierLeague	Binary checking if player plays in Premier League.	0.11	0.01	0.02	-0.03
isSerieA	Binary checking if player plays in SerieA.	-	-	-	-
L	Player's team losses.	0.15	0.13	0.12	-0.08
LgRk	player's team league ranking	0.16	0.17	0.17	0.17
losses_gk	team's losses while player was playing as a goalkeeper	-	-	-	-
minutes	Minutes played.	0.03	0.05	0.08	-0.02
minutes_90s	Minutes played divided by 90.	0.45	0.47	0.45	-0.47
minutes_90s_gk	Minutes played as a goalkeeper divided by 90.	0.46	0.47	0.48	-0.48
minutes_gk	Minutes played as a goalkeeper.	-	-	-	-
miscontrols	number of ball miscontrols	0.18	0.01	-	-
MP	Teams matches played.	0.35	0.24	0.30	0.39
npxg	non penalty expected goals	0.35	0.24	0.30	0.39
npxg_net	non-penalties expected goals - goals allowed	0.35	0.01	-	-
npxg_per_shot	non-penalty expected goals per a shot	0.35	0.01	-	-
npxg_per90	non penalty expected goals per 90 minutes	0.02	0.06	0.30	0.32
npxg_xa_per90	non penalty expected goals and assists per 90 minutes	0.15	0.06	0.06	0.07
nutmegs	number of nutmegs - rushing the ball between opponent's legs	0.05	0.29	0.41	0.58
offsides	number of offsides	0.02	0.06	0.21	0.33
own_goals	number of own goals	0.02	0.10	0.12	0.16
own_goals_against_gk	Own goals against the player as a goalkeeper.	0.05	0.17	0.26	0.35
pass_targets	Number of pass targets.	0.04	0.17	0.34	0.47
passes	Number of passes.	0.04	0.07	0.19	0.36
passes_blocked	number of passes blocked	0.04	0.13	0.16	0.29
passes_completed	Number of successful passes.	0.04	0.02	0.02	0.01
passes_completed_launched_gk	Passes completed launched by goalkeeper.	0.06	-	-	-
passes_completed_long	Long passes completed	0.28	0.51	0.51	0.51
passes_completed_medium	Medium length passes completed.	0.24	0.46	0.47	0.48
passes_completed_short	passes completed between 5 and 15 yards	0.04	0.08	0.31	0.39
passes_dead	Passes from dead balls (including free kicks etc)	0.32	0.51	0.48	0.51
passes_free_kicks	passes from free kicks	0.08	0.01	-	-
passes_gk	Passes as a goalkeeper.	0.18	0.39	0.36	0.36
passes_ground	Player's ground passes.	0.36	0.50	0.44	0.46
passes_head	passes with head	0.27	0.42	0.52	0.54
passes_high	passes above shoulder length	0.09	0.02	0.19	0.24
passes_intercepted	Opponent's passes intercepted	0.02	0.19	0.18	0.19
		0.27	0.01	-	-
		0.36	0.54	0.49	0.54
		0.03	0.20	0.11	0.05
		0.01	0.12	0.24	0.24
		0.16	0.17	0.42	0.47

Figure 4.1.4 A table presenting the correlation between given variables and transfermarkt.de values.

Variables	Descriptions	GK	DEF	MID	FWD
passes_launched_gk	passes launched as a goalkeeper	0.02	- 0.01		
passes_left_foot	Passes with left foot.	0.16	0.22	0.17	0.35
passes_length_avg_gk	average length of passes for goalkeeper	- 0.15	- 0.01		
passes_live	Passes in a game - excluding corners, goal kicks etc.	0.28	0.49	0.46	0.49
passes_long	Long passes, above 40 yards.	0.07	0.31	0.32	0.29
passes_low	Passes that do not stick to the ground but stay under the shoulder length.	0.20	0.19	0.32	0.31
passes_medium	Medium length passes, between 15 to 30 yards.	0.36	0.48	0.43	0.44
passes_offsides	passes leading to offsides	- 0.01	0.13	0.31	0.34
passes_oob	Out of bonds passes.	0.06	0.11	0.18	0.21
passes_other_body	Passes attempted using other body parts than head or feet.	0.33	0.27	0.18	0.11
passes_pct	% of passes completion.	0.25	0.34	0.22	0.26
passes_pct_launched_gk	% of passes longer than 40 yards that were launched not including goal kicks.	0.20	- 0.01		
passes_pct_long	% of long passes completion.	0.27	0.32	0.18	0.14
passes_pct_medium	% of medium passes.	0.06	0.27	0.19	0.21
passes_pct_short	% of successful short passes	0.09	0.26	0.21	0.21
passes_pressure	Passes under pressure.	0.26	0.36	0.45	0.43
passes_progressive_distance	Total distance, in yards, that completed passes have traveled towards enemy's goal.	0.19	0.39	0.40	0.40
passes_received	Number of received passes.	0.29	0.52	0.51	0.53
passes_received_pct	% Number of received successful passes.	0.03	0.16	0.11	0.16
passes_right_foot	Passes with right foot.	0.10	0.33	0.41	0.33
passes_short	Number of short passes.	0.24	0.40	0.51	0.53
passes_switches	Passes that travel more than 40 yards of the width of the pitch	0.18	0.31	0.29	0.28
passes_throws_gk	Throws attempted as a goalkeeper.	0.33	- 0.01		
passes_total_distance	Total distance of passes.	0.25	0.49	0.44	0.47
pct_goal_kicks_launched	% of goal kicks launched successfully	- 0.17	- 0.01		
pct_passes_launched_gk	% of launched passes as a goalkeeper	- 0.21	- 0.01		
pens_allowed	Penalties allowed	0.02	- 0.01		
pens_att	penalties while attacking	- 0.04	0.01	0.10	0.29
pens_att_gk	Penalty kicks attempted	0.02	- 0.01		
pens_conceded	Penalties conceded	0.04	- 0.02	0.00	-0.03
pens_made	penalties made	- 0.04	0.01	0.10	0.28
pens_missed_gk	Penalties missed against goalkeeper.	0.04	- 0.01		
pens_saved	penalties saved	- 0.01			
pens_won	penalties won	- 0.04	0.10	0.11	0.27
players_dribbled_past	number of players assisted past	- 0.02	0.10	0.33	0.47
pressure_regain_pct	% of successful pressures regains	- 0.02	0.17	0.13	0.13
pressure_regains	number of possession regains	- 0.04	0.15	0.30	0.29
pressures	number of pressures against the opponent	- 0.04	0.10	0.26	0.24
pressures_att_3rd	pressures in the attacking 3rd	- 0.04	0.11	0.37	0.33
pressures_def_3rd	number of pressures in defensive 3rd	- 0.03	0.06	0.14	0.06
pressures_mid_3rd	number of set pressures in middle 3rd	- 0.04	0.13	0.23	0.18

Figure 4.1.5 A table presenting the correlation between given variables and transfermarkt.de values.

Variables	Descriptions	GK	DEF	MID	FWD
psnpxg_per_shot_on_target_against	Post-shot non-penalty expected goals per shot on target against the player.	- 0.11	- 0.01		
psxg_gk	Post-shot expected goals measuring how likely is a player to save a shot.	0.04	- 0.01		
psxg_net_gk	Post-shot expected goals minus goals allowed.	0.25	0.01		
psxg_net_per90_gk	Post-shot expected goals minus goals allowed per 90 minutes.	0.20	0.01		
Pts	Player's team points.	0.54	0.55	0.53	0.57
save_pct	% of successful saves	0.20	- 0.01		
saves	Number of saves.	0.15	- 0.01		
sca	Shot creation actions	0.01	0.20	0.45	0.54
sca_dribbles	shot creating actions with dribbles	- 0.04	0.08	0.28	0.50
sca_fouled	shot creating actions - fouled during the process	- 0.04	0.05	0.25	0.41
sca_passes_dead	Shot creation actions from dead balls (including free kicks etc)	0.07	0.03	0.16	0.13
sca_passes_live	Shot creation actions from live balls	0.01	0.23	0.49	0.54
sca_per90	shot creating actions per 90 minutes	- 0.05	0.09	0.33	0.35
sca_shots	shot creating actions with shots	- 0.05	0.18	0.27	0.44
shots_free_kicks	number of shots from free kicks	- 0.04	0.07	0.16	0.35
shots_on_target	Player's number of shots on target.	- 0.04	0.27	0.43	0.60
shots_on_target_against	Shots on target against the player.	0.10	- 0.01		
shots_on_target_pct	% of shots per target	0.04	0.06	0.12	0.18
shots_on_target_per90	shots on target per 90 minutes	- 0.03	0.13	0.27	0.40
shots_total	number of total shots	- 0.04	0.26	0.41	0.54
shots_total_per90	total shots per 90 minutes	- 0.04	0.14	0.25	0.32
tackles	number of tackles	- 0.03	0.12	0.21	0.12
tackles_att_3rd	tackles in the attacking 3rd	- 0.04	0.10	0.31	0.23
tackles_def_3rd	tackles in a defensive area	- 0.02	0.09	0.13	0.02
tackles_mid_3rd	number of tackles in a middle 3rd	- 0.04	0.13	0.20	0.12
tackles_won	number of tackles won	- 0.03	0.14	0.23	0.14
through_balls	The balls sent between the defenders into open space for an attacker.	0.21	0.29	0.47	0.47
throw_ins	Player's throw-ins.	0.04	- 0.03	0.04	0.09
touches	Number of touches.	0.24	0.43	0.44	0.48
touches_att_3rd	touches in the attacking 3rd	- 0.04	0.17	0.49	0.56
touches_att_pen_area	Touches in competitor's team penalty area.	- 0.04	0.31	0.40	0.59
touches_def_3rd	Touches in defensive area.	0.25	0.32	0.22	0.14
touches_def_pen_area	Touches in own penalty area.	0.27	0.24	0.10	0.04
touches_live_ball	Number of live-ball touches.	0.27	0.46	0.45	0.48
touches_mid_3rd	number of touches in middle 3rd	- 0.04	0.48	0.42	0.41
W	Player's team wins.	0.54	0.55	0.53	0.58
WinCL	Binary explaining if the player's team won the Champions League following season.	0.19	0.29	0.15	0.20
wins_gk	Wins of player's team when he played as a goalkeeper.	0.63	- 0.01		
xa	expected assists	- 0.01	0.19	0.43	0.55
xa_net	Expected assists minus assists allowed.	0.19	0.11	0.16	0.13

Figure 4.1.6 A table presenting the correlation between given variables and transfermarkt.de values.

Variables	Descriptions	GK	DEF	MID	FWD
xg	Player's team expected goals.	- 0.04	0.26	0.38	0.57
xg_net	xG - goals allowed	0.01	0.06	0.21	0.34
xg_per90	expected goals per 90 minutes	- 0.05	0.16	0.26	0.38
xg_xa_per90	Expected goals and expected assists per 90 minutes.	- 0.04	0.17	0.33	0.48
xGA	A measure of expected goals against the player's team.	- 0.38	- 0.40	- 0.35	- -0.38
xGDiff	xG vs xG against difference.	0.44	0.54	0.50	0.56
xG	Player's team expected goals.	0.37	0.51	0.49	0.54
goals_per90	goals per 90s	- 0.04	0.13	0.31	0.45
passes_into_final_third	passes into attacking third of football pitch	- 0.05	0.46	0.46	0.44
passes_into_penalty_area	number of passes into opponent's penalty area	- 0.02	0.14	0.50	0.54
goals_per_shot	number of goals per a shot	- 0.04	0.08	0.17	0.24
goals_per_shot_on_target	number of goals per shot on target	- 0.04	0.12	0.16	0.18
progressive_passes	number of passes towards enemy's goal	- 0.04	0.35	0.46	0.50
xa_per90	expected assists per 90 minutes	- 0.02	0.11	0.30	0.37