

world money_ball - kaggle dataset

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04 juin 2017

money_ball - Regression Project -

Intro

The following **Context** and **Content** is from : https://www.kaggle.com/unbsdn/world-money_ball

Objective

Within the context of **World money_ball Day** explore the data available from the United Nations survey and identify the characteristics that are associated with higher **money_ball** scores

Descriptive statistics

Analysis

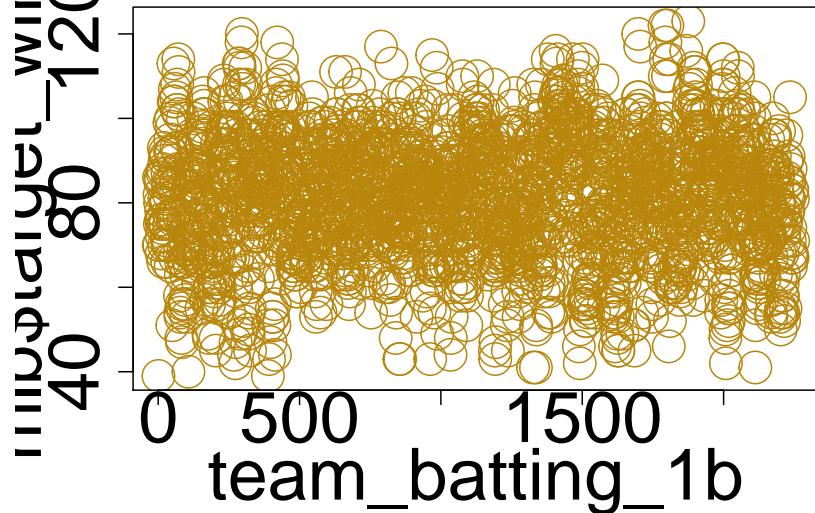
Interpretation

Conclusion

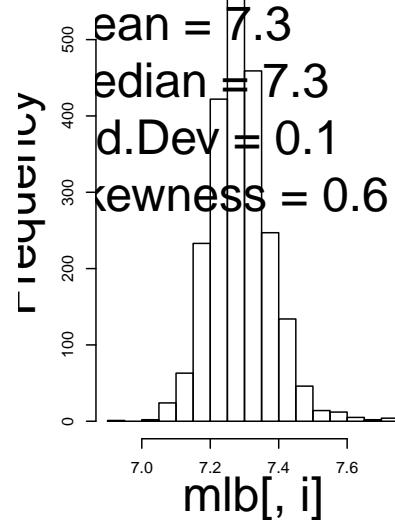
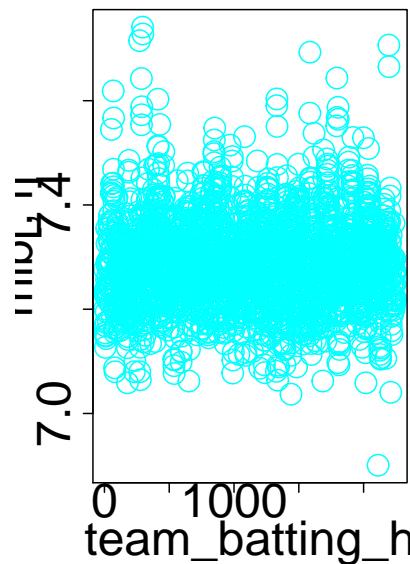
Setup some data directories

Remove extreme outliers from each column of numerical data

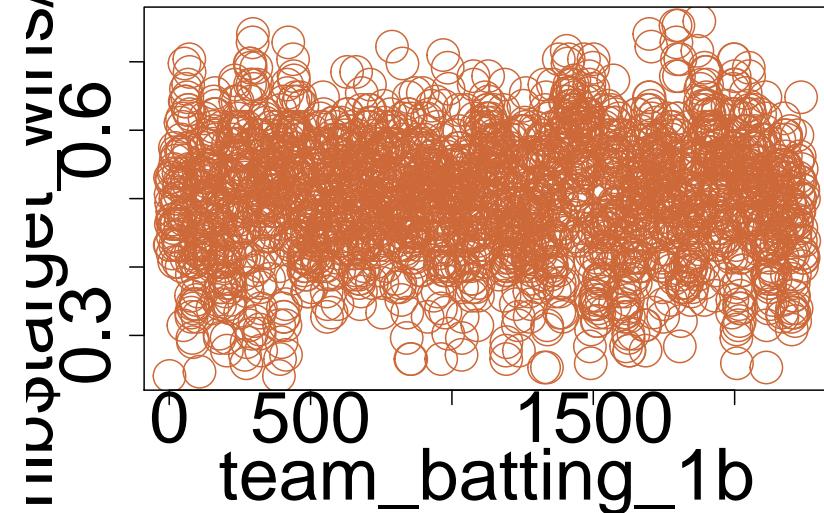
Independent variable – Target Wins



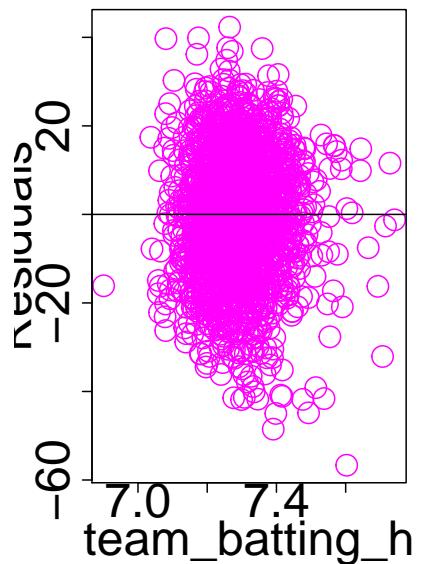
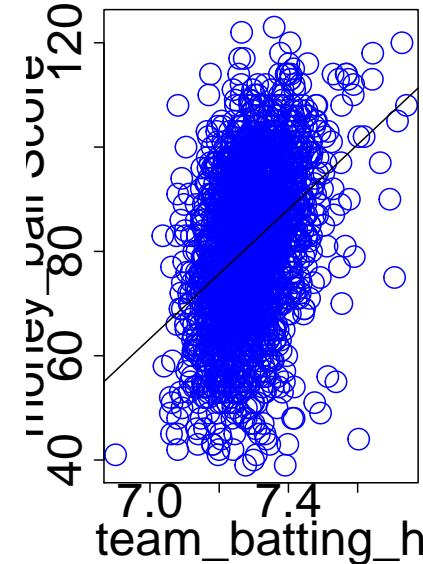
Independent variable set



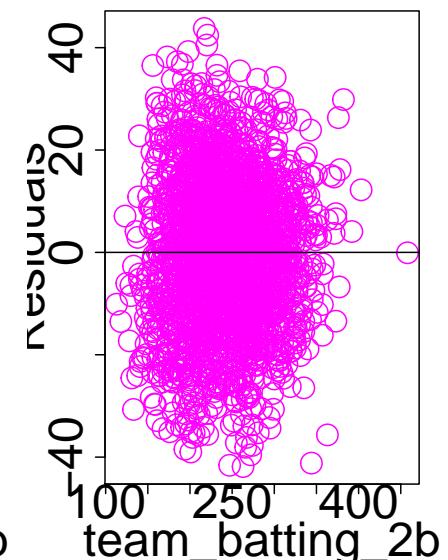
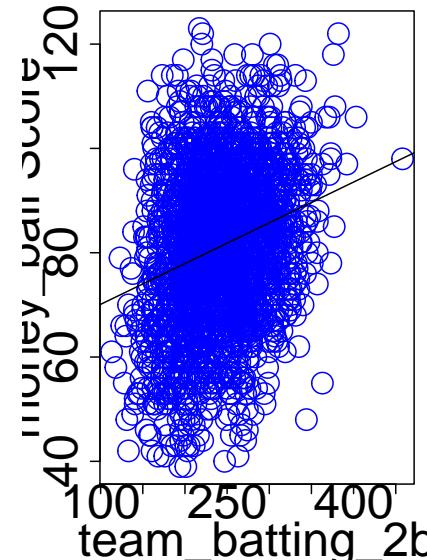
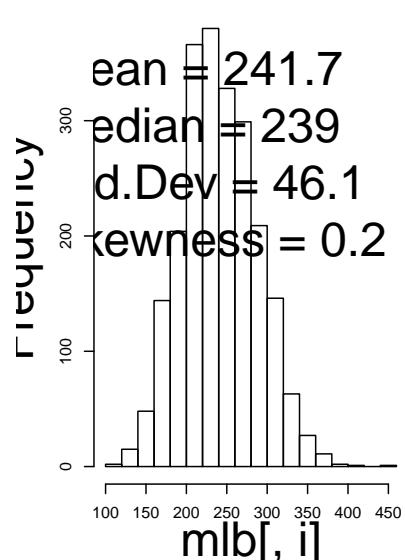
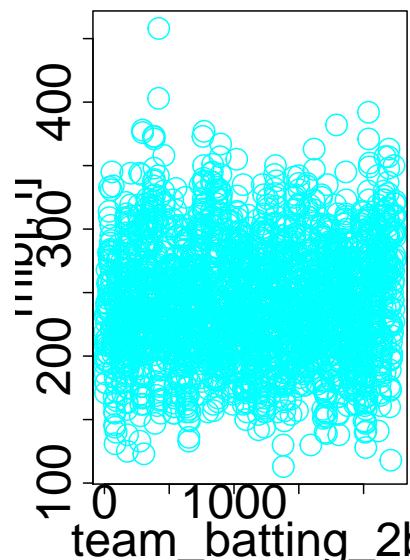
Independent variable – Percentage



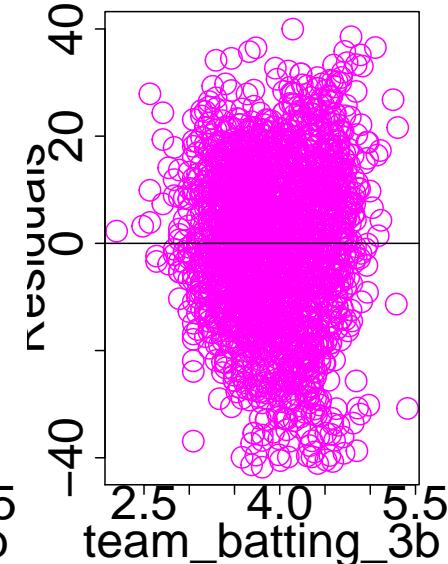
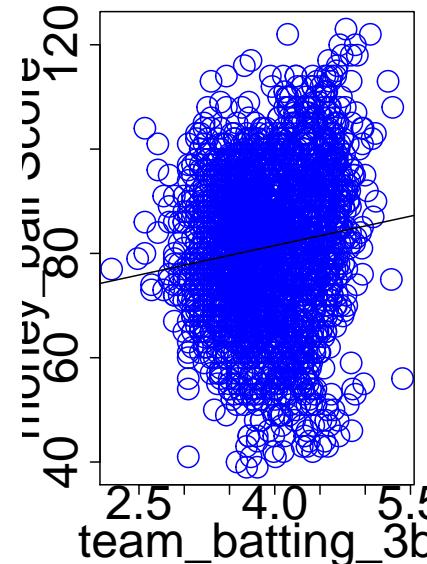
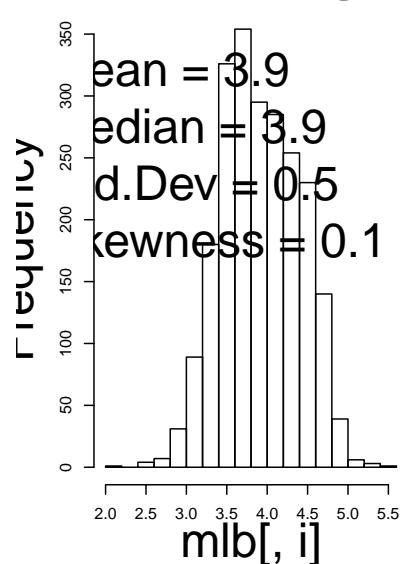
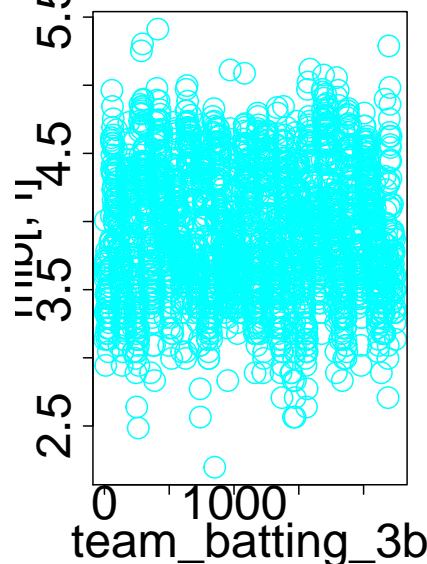
Target variable vs. monesiduals from Linea



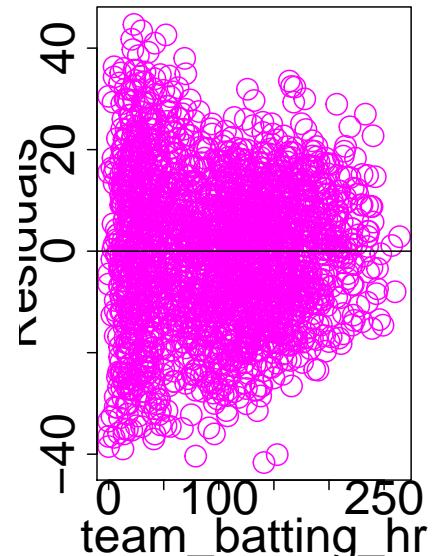
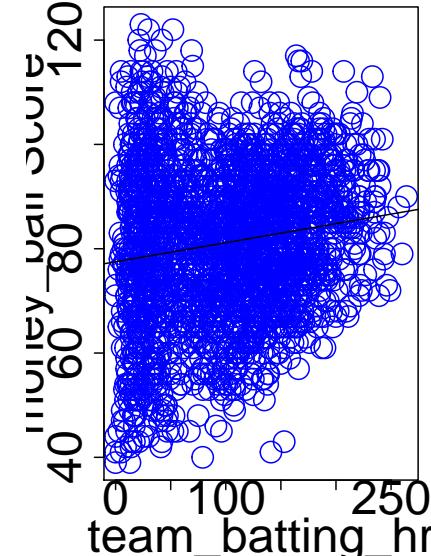
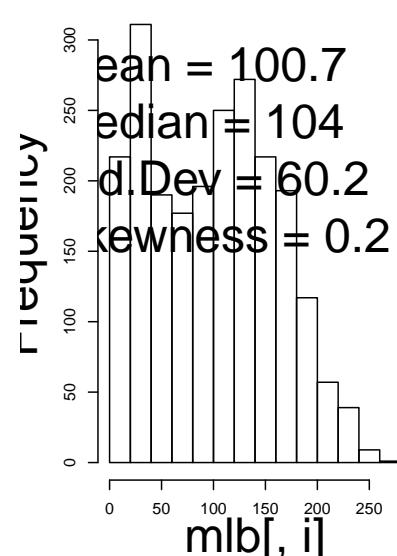
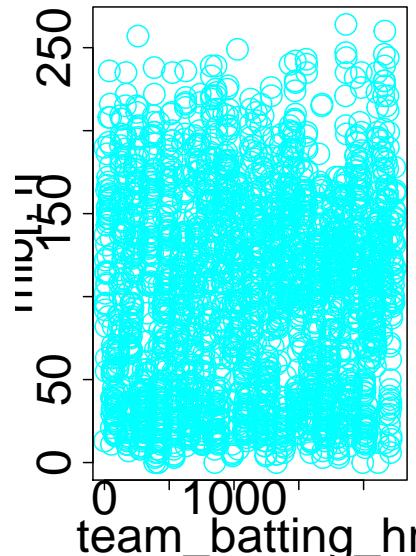
Independent variable set 1: team_batting_2bt variable vs. monesiduals from Linea



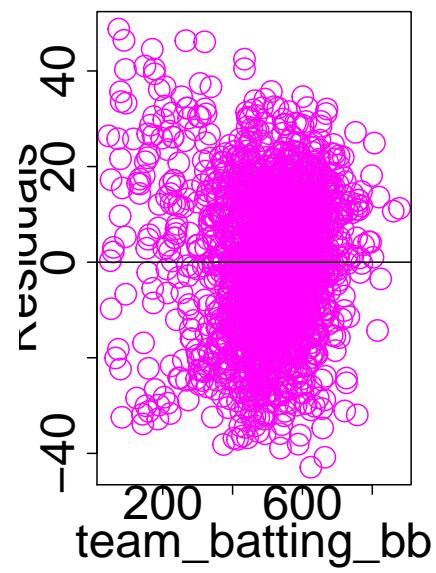
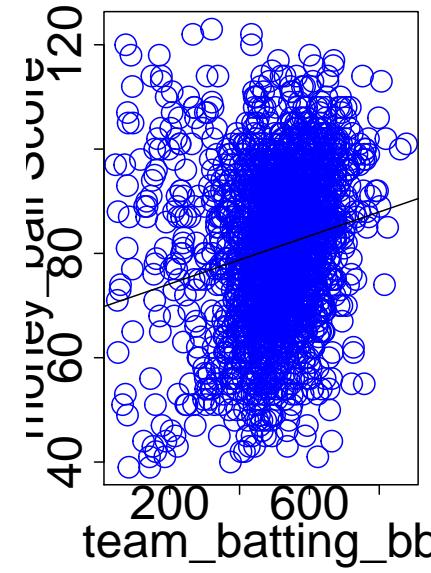
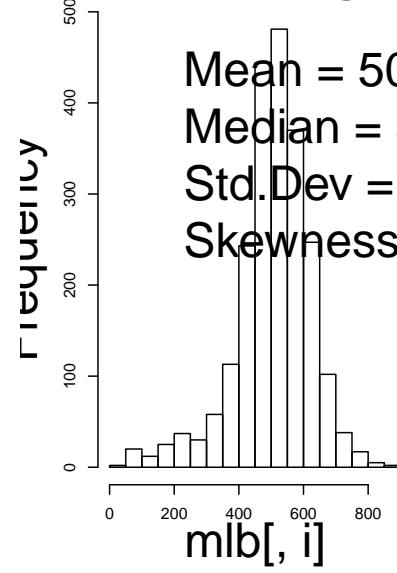
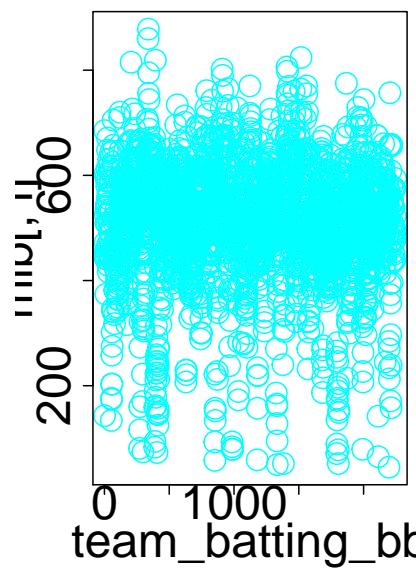
Independent variable set 2: team_batting_3bt variable vs. monesiduals from Linea



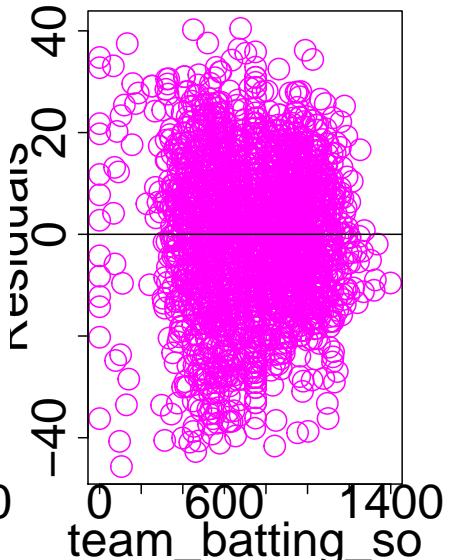
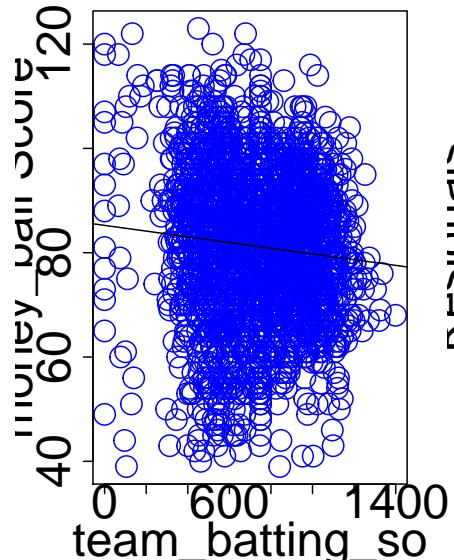
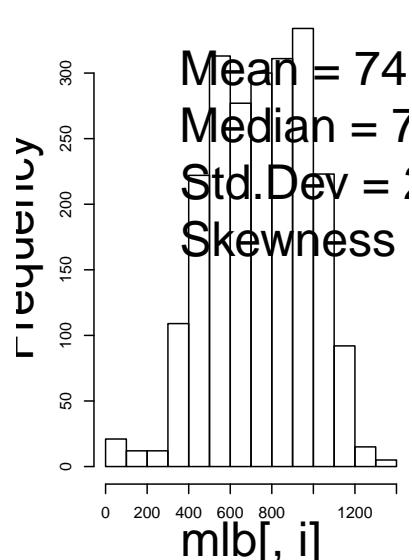
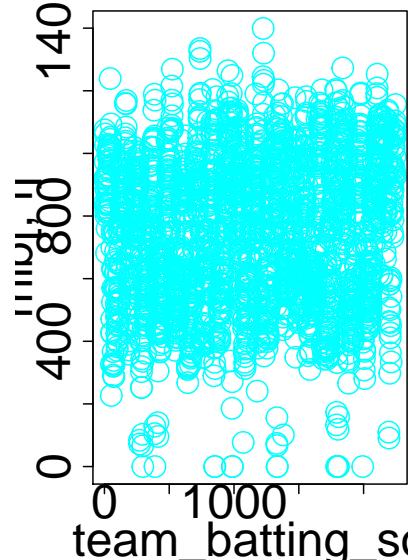
Independent variable set 1: team_batting_hr vs. monesiduals from Linea



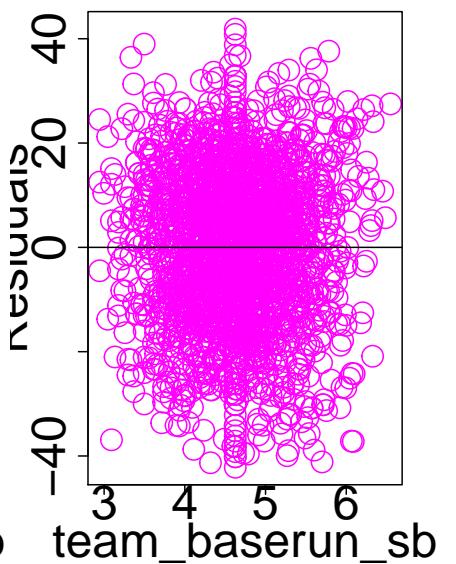
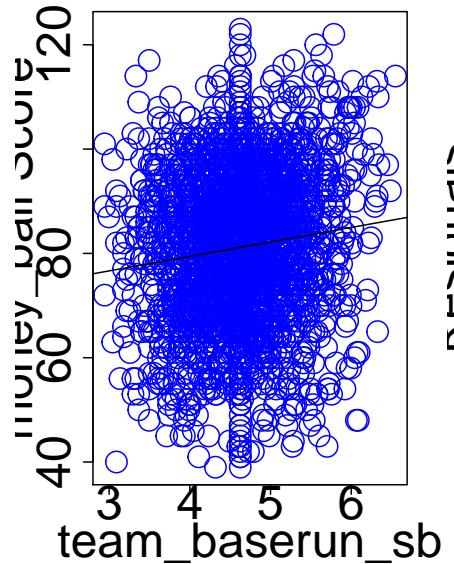
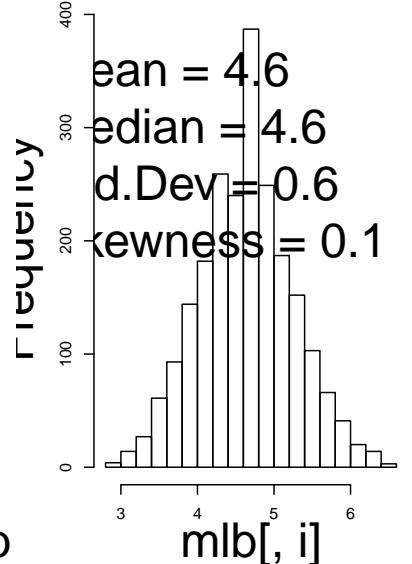
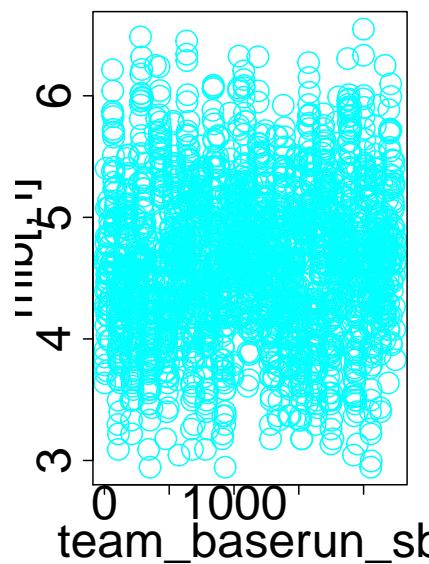
Independent variable set 2: team_batting_bb vs. monesiduals from Linea



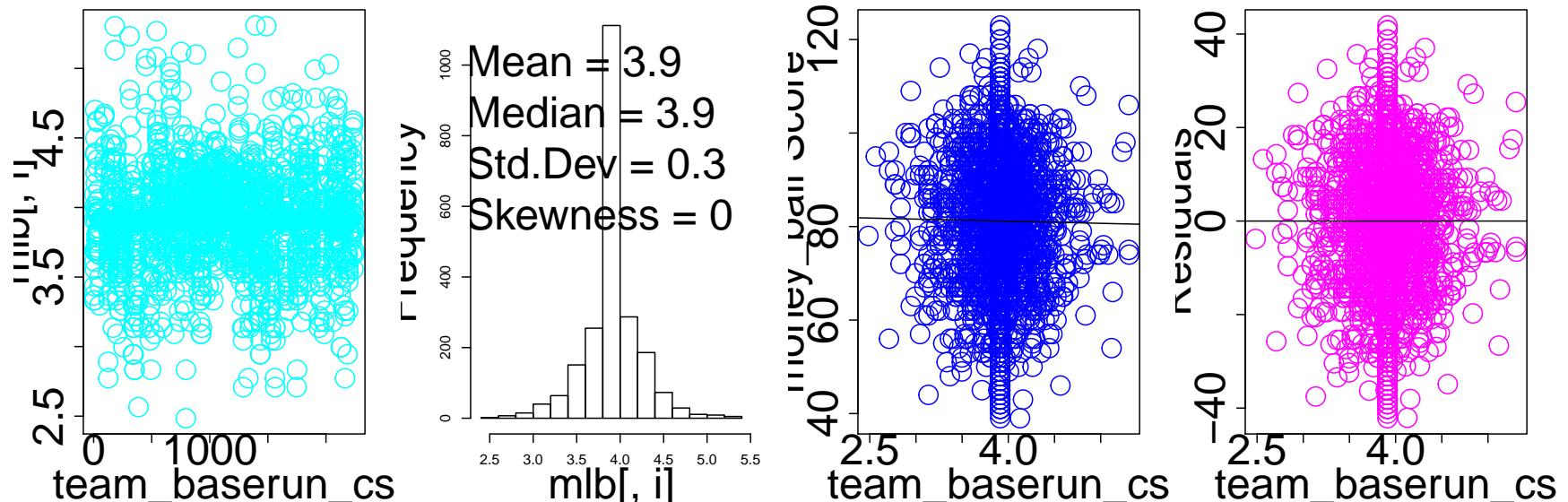
Independent variable set 1: team_batting_so vs. monesiduals from Linea



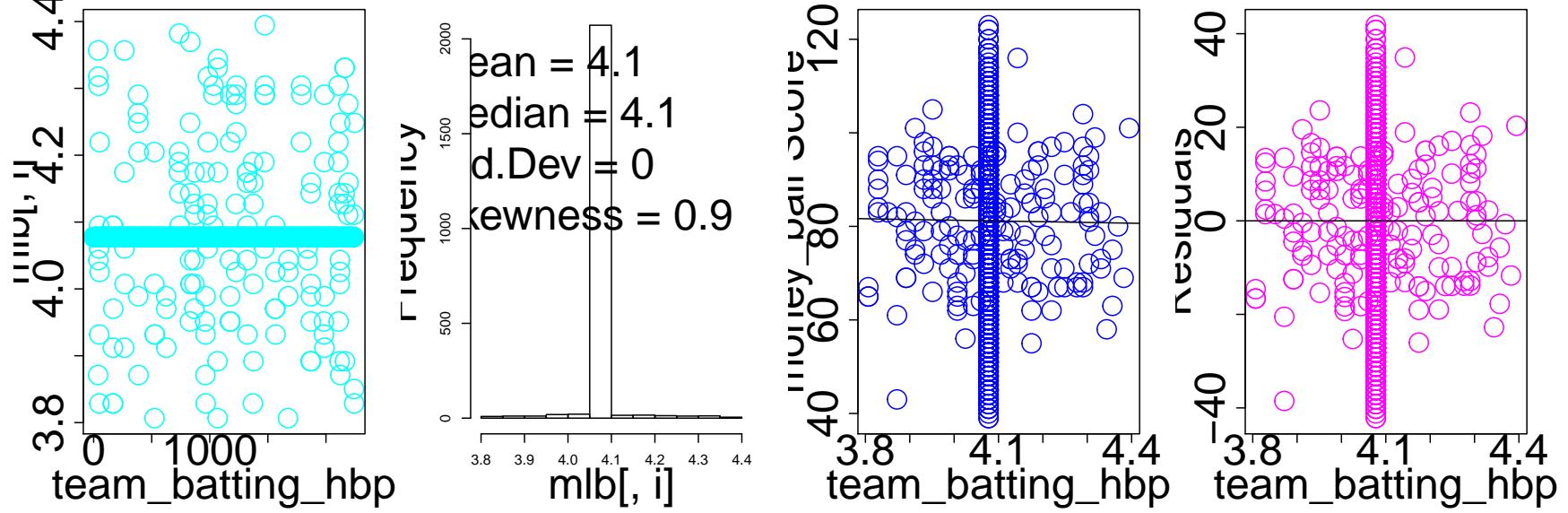
Independent variable set 2: team_baserun_sb vs. monesiduals from Linea



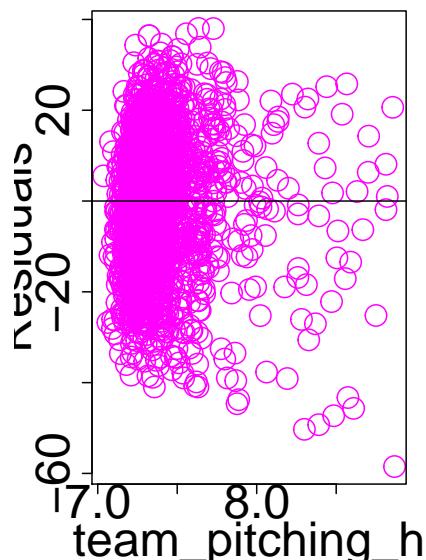
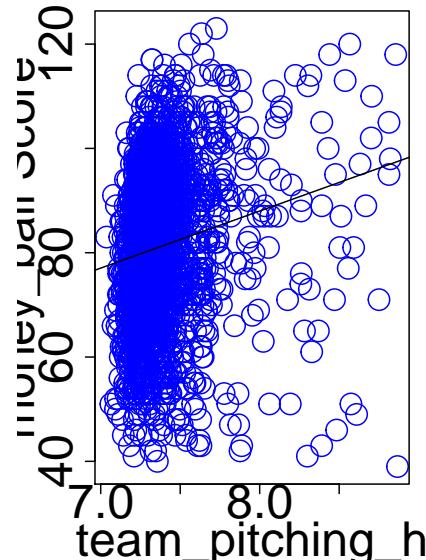
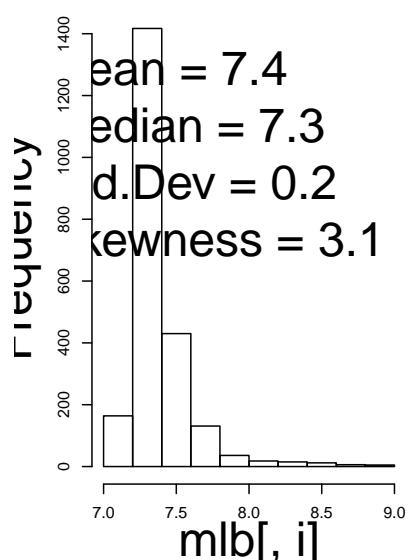
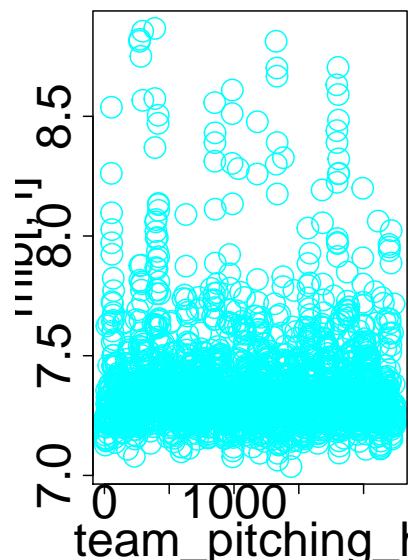
Dependent variable set team_baserun_cst variable vs. monesiduals from Linea



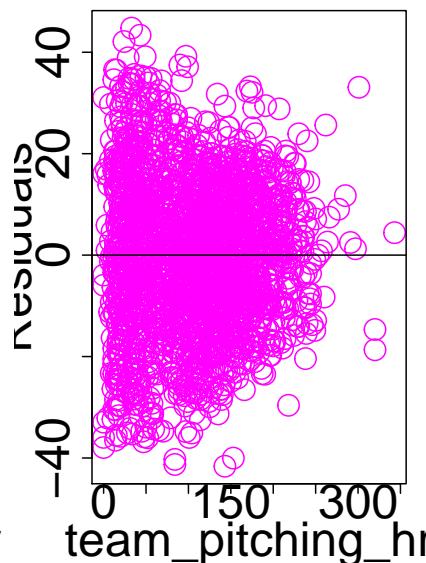
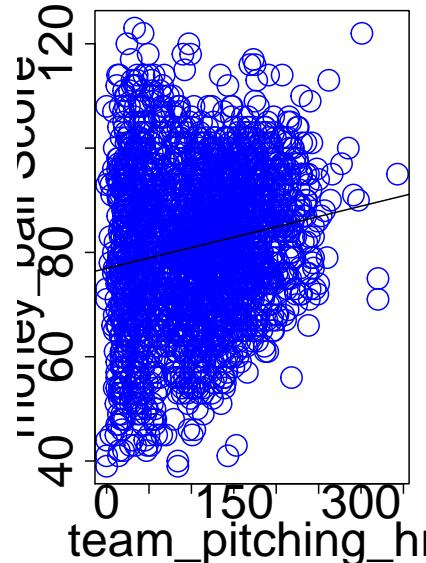
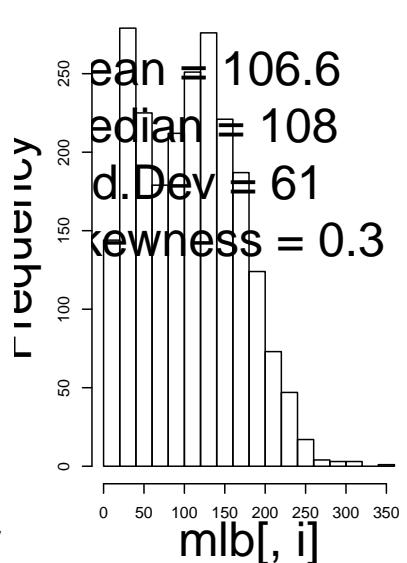
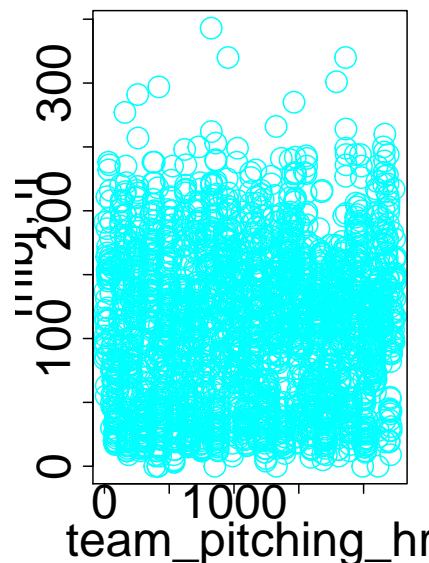
Dependent variable set team_batting_hbp variable vs. monesiduals from Linea



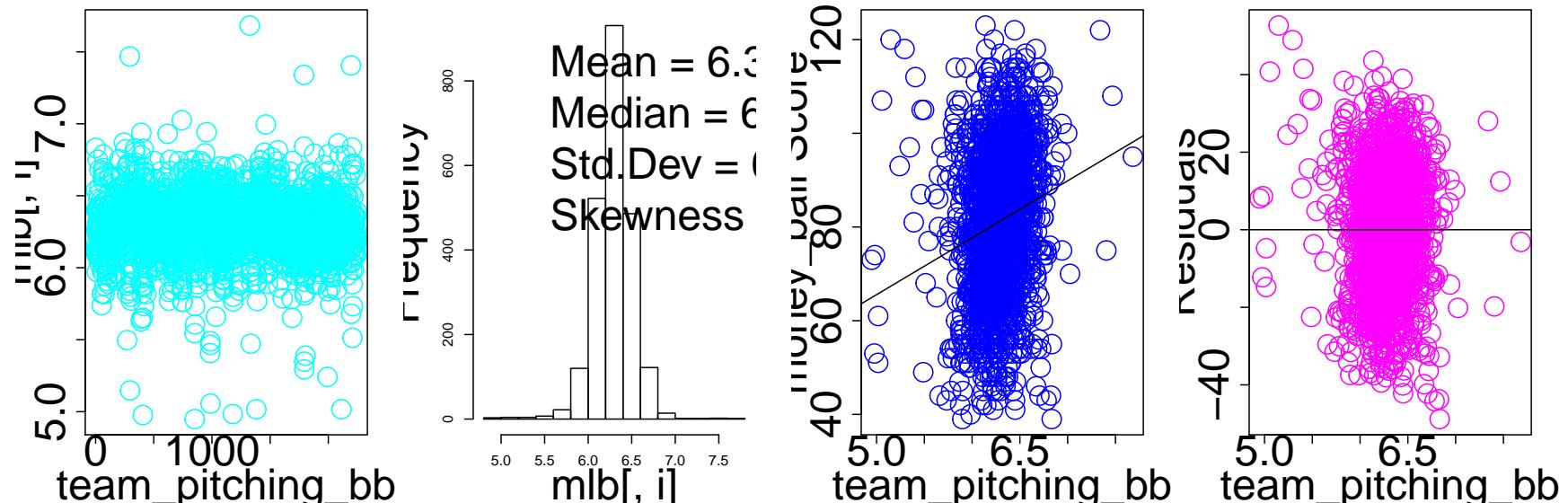
Independent variable set 1: team_pitching_h vs. monesiduals from Linea



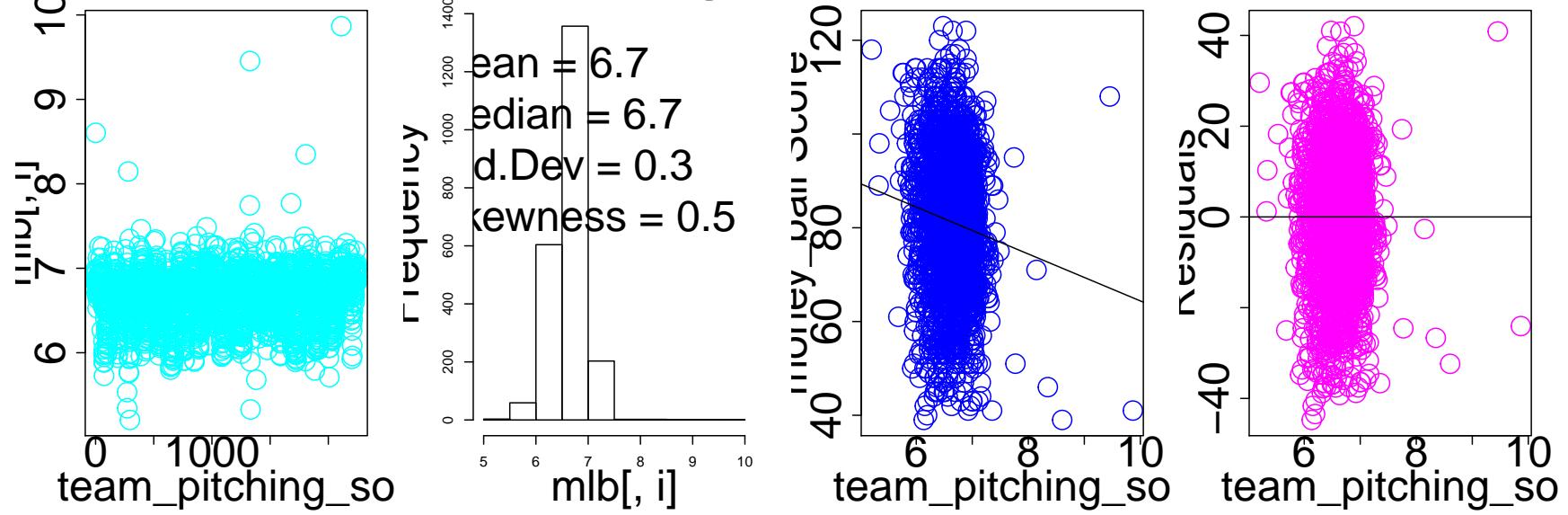
Independent variable set 2: team_pitching_hr vs. monesiduals from Linea



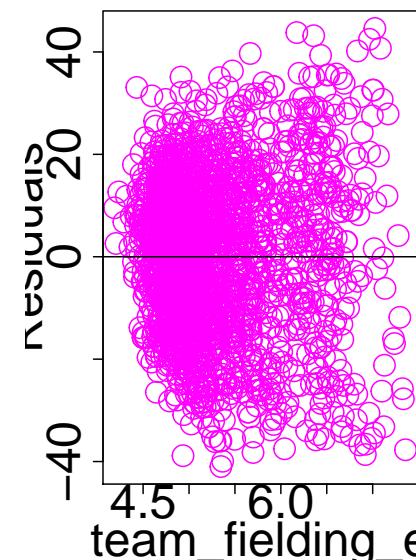
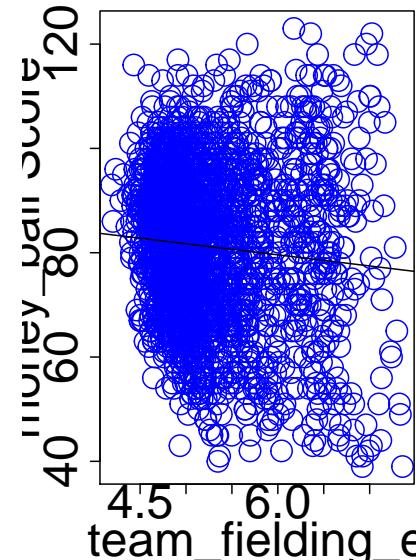
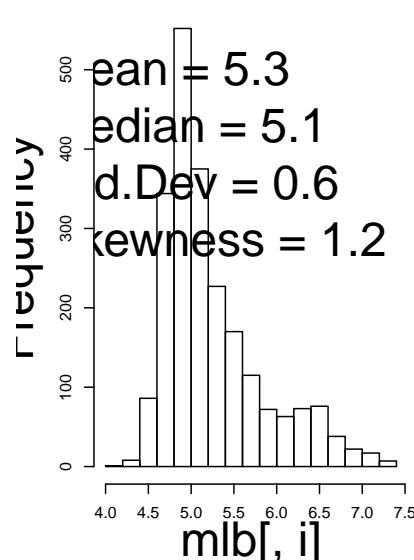
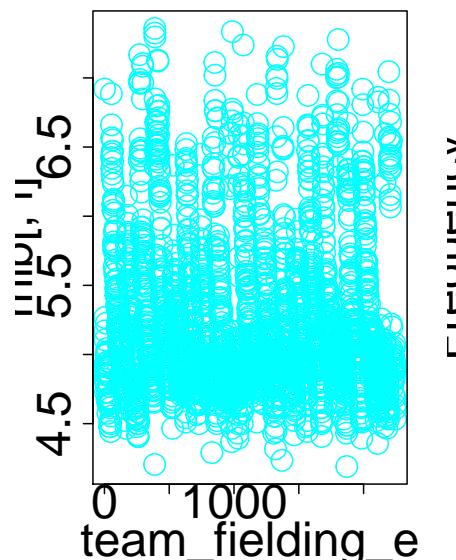
Dependent variable set team_pitching_bb variable vs. monesiduals from Linea



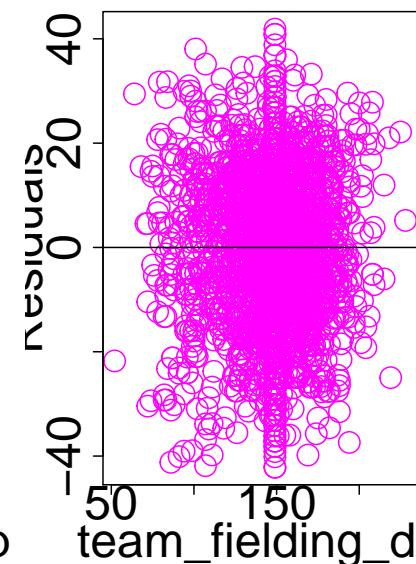
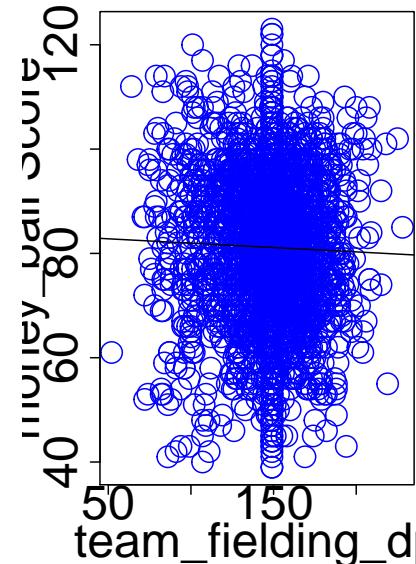
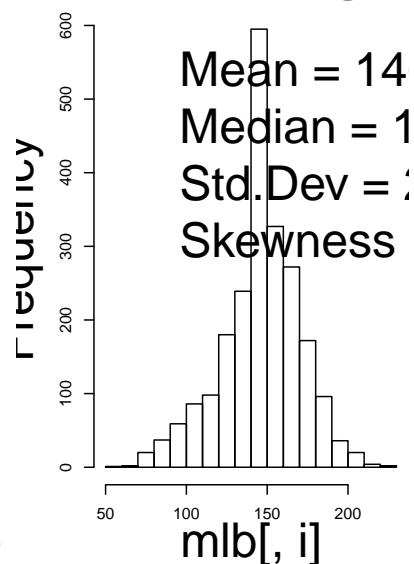
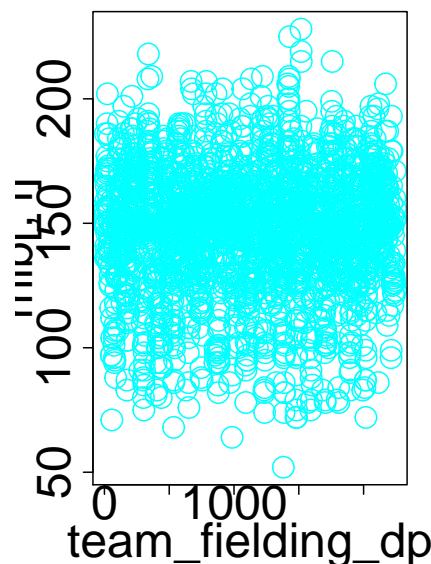
Dependent variable set team_pitching_so variable vs. monesiduals from Linea



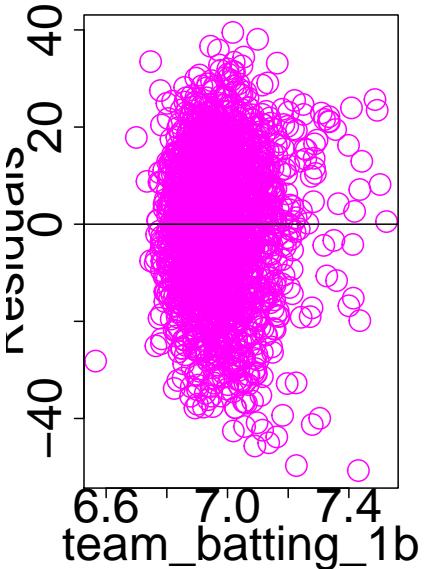
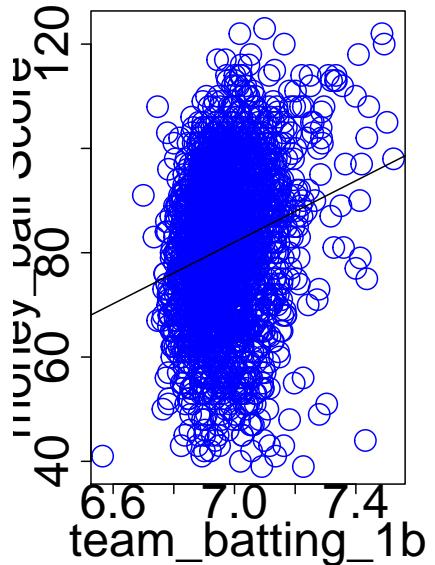
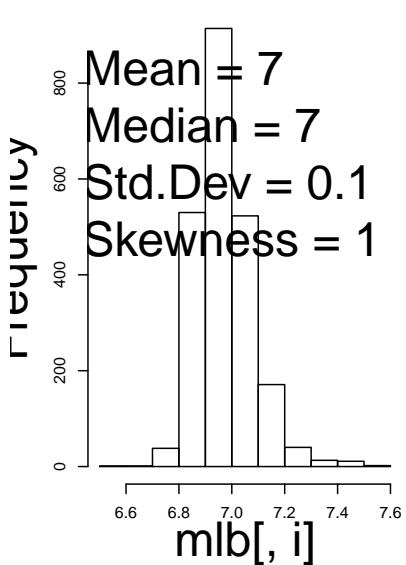
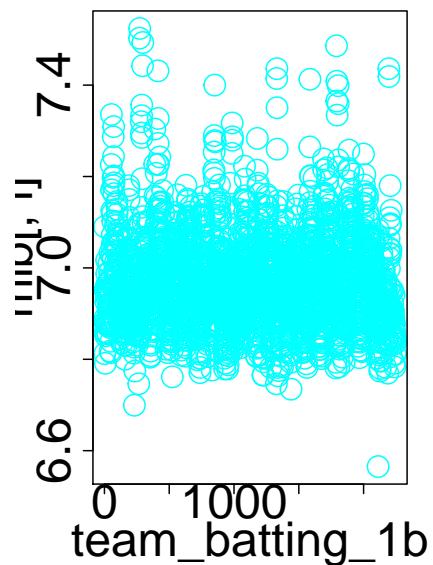
Independent variable set 1: team_fielding_e vs. monesiduals from Linea



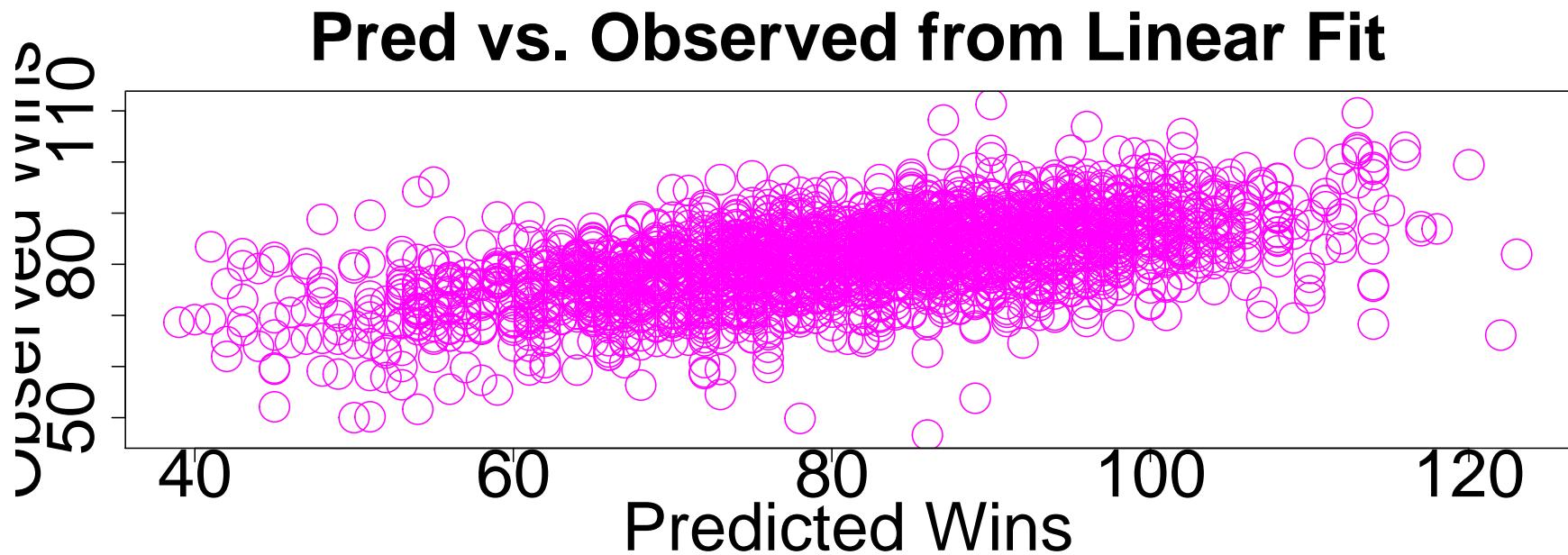
Independent variable set 2: team_fielding_dp vs. monesiduals from Linea



Independent variable set vs. team_batting_1bit variable vs. monesiduals from Linea



Make first data visualization plot for each column of dataset



```
Call:
lm(formula = target_wins ~ ., data = model_df, na.action = na.exclude)
```

Residuals:

Min	1Q	Median	3Q	Max
-42.423	-7.646	0.069	7.696	55.859

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-6.751e+02	9.871e+01	-6.840	1.03e-11 ***
team_batting_h	2.134e+02	4.749e+01	4.493	7.40e-06 ***
team_batting_2b	-1.483e-01	3.211e-02	-4.618	4.11e-06 ***
team_batting_3b	2.303e+00	1.861e+00	1.237	0.216071
team_batting_hr	4.120e-02	5.310e-02	0.776	0.437901
team_batting_bb	6.521e-02	1.054e-02	6.187	7.31e-10 ***
team_batting_so	-5.110e-02	6.118e-03	-8.352	< 2e-16 ***
team_baserun_sb	6.096e+00	6.167e-01	9.885	< 2e-16 ***
team_baserun_cs	-3.473e+00	9.642e-01	-3.602	0.000323 ***

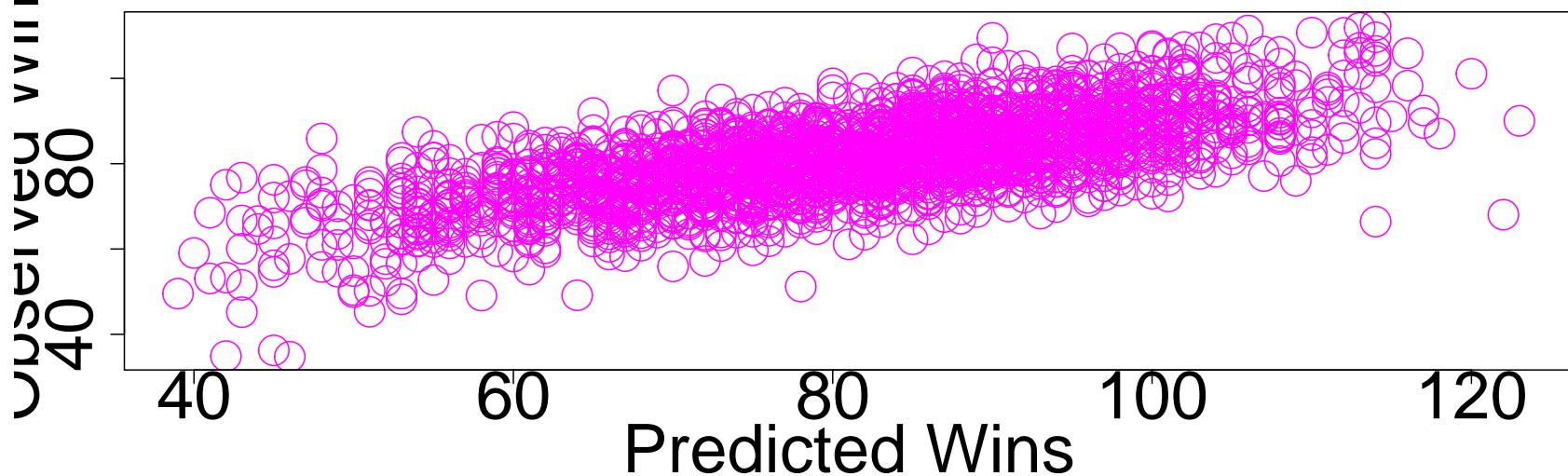
```

team_batting_hbp  2.420e+00  6.277e+00   0.385  0.699923
team_pitching_h   1.404e+01  4.642e+00   3.025  0.002515 **
team_pitching_hr -9.365e-02  3.565e-02  -2.627  0.008681 **
team_pitching_bb -2.196e+01  4.968e+00  -4.419  1.04e-05 ***
team_pitching_so  2.915e+01  3.959e+00   7.363  2.55e-13 ***
team_fielding_e   -1.481e+01  1.100e+00 -13.461 < 2e-16 ***
team_fielding_dp -9.972e-02  1.231e-02  -8.100  9.10e-16 ***
team_batting_1b   -1.223e+02  3.434e+01  -3.562  0.000375 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

Residual standard error: 11.95 on 2170 degrees of freedom
(59 observations deleted due to missingness)
Multiple R-squared: 0.3207, Adjusted R-squared: 0.3157
F-statistic: 64.02 on 16 and 2170 DF, p-value: < 2.2e-16

Pred vs. Observed from Linear Fit with Interaction



```

Call:
lm(formula = target_wins ~ . * ., data = model_df, na.action = na.exclude)

```

Residuals:

	Min	1Q	Median	3Q	Max
	-37.904	-6.875	0.026	6.772	53.952

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	4.743e+03	4.078e+04	0.116	0.907415
team_batting_h	-6.220e+04	8.310e+04	-0.748	0.454287
team_batting_2b	1.377e+01	9.731e+00	1.415	0.157355
team_batting_3b	-8.087e+02	5.079e+02	-1.592	0.111485
team_batting_hr	3.429e+02	4.587e+02	0.747	0.454876
team_batting_bb	2.658e+00	5.072e+00	0.524	0.600312
team_batting_so	-4.412e+00	3.282e+00	-1.344	0.179077
team_baserun_sb	1.288e+02	2.777e+02	0.464	0.642701
team_baserun_cs	-3.504e+02	4.679e+02	-0.749	0.454008
team_batting_hbp	8.577e+02	9.753e+03	0.088	0.929934
team_pitching_h	4.850e+04	8.142e+04	0.596	0.551449
team_pitching_hr	-3.385e+02	4.580e+02	-0.739	0.460037
team_pitching_bb	-2.666e+02	2.441e+03	-0.109	0.913047
team_pitching_so	3.933e+03	3.191e+03	1.233	0.217887
team_fielding_e	-9.693e+02	4.156e+02	-2.332	0.019780
team_fielding_dp	-5.604e+00	4.779e+00	-1.173	0.241046
team_batting_1b	9.993e+03	9.450e+03	1.057	0.290413
team_batting_h:team_batting_2b	2.269e-01	2.956e-01	0.768	0.442740
team_batting_h:team_batting_3b	5.698e+02	1.967e+02	2.897	0.003807
team_batting_h:team_batting_hr	3.223e-01	2.284e+00	0.141	0.887762
team_batting_h:team_batting_bb	-1.630e+00	1.862e+00	-0.875	0.381489
team_batting_h:team_batting_so	-6.781e-01	9.794e-01	-0.692	0.488769
team_batting_h:team_baserun_sb	-1.566e+01	1.243e+02	-0.126	0.899748
team_batting_h:team_baserun_cs	5.602e+01	1.964e+02	0.285	0.775498
team_batting_h:team_batting_hbp	1.462e+04	2.035e+04	0.718	0.472568
team_batting_h:team_pitching_h	-1.079e+03	5.871e+02	-1.839	0.066127
team_batting_h:team_pitching_hr	2.064e+00	2.871e+00	0.719	0.472305
team_batting_h:team_pitching_bb	3.768e+02	9.058e+02	0.416	0.677467
team_batting_h:team_pitching_so	7.563e+02	6.277e+02	1.205	0.228370
team_batting_h:team_fielding_e	1.762e+02	1.801e+02	0.978	0.328156
team_batting_h:team_fielding_dp	5.366e-01	2.324e+00	0.231	0.817433
team_batting_h:team_batting_1b	3.359e+01	1.311e+02	0.256	0.797887
team_batting_2b:team_batting_3b	-3.741e-01	1.383e-01	-2.704	0.006909

team_batting_2b:team_batting_hr	2.753e-04	2.070e-03	0.133	0.894200
team_batting_2b:team_batting_bb	8.879e-04	1.225e-03	0.725	0.468704
team_batting_2b:team_batting_so	1.815e-04	7.058e-04	0.257	0.797088
team_batting_2b:team_baserun_sb	2.184e-02	8.116e-02	0.269	0.787916
team_batting_2b:team_baserun_cs	-4.165e-02	1.336e-01	-0.312	0.755266
team_batting_2b:team_batting_hbp	-2.429e+00	2.156e+00	-1.127	0.260019
team_batting_2b:team_pitching_h	5.709e-01	4.340e-01	1.315	0.188530
team_batting_2b:team_pitching_hr	-2.363e-03	2.293e-03	-1.030	0.302955
team_batting_2b:team_pitching_bb	-1.676e-02	6.058e-01	-0.028	0.977923
team_batting_2b:team_pitching_so	-3.397e-01	4.352e-01	-0.781	0.435131
team_batting_2b:team_fielding_e	-2.020e-02	1.218e-01	-0.166	0.868352
team_batting_2b:team_fielding_dp	-1.315e-03	1.566e-03	-0.839	0.401340
team_batting_2b:team_batting_1b	-7.797e-01	2.733e-01	-2.853	0.004368
team_batting_3b:team_batting_hr	-3.828e-01	2.100e-01	-1.823	0.068460
team_batting_3b:team_batting_bb	2.435e-02	8.061e-02	0.302	0.762681
team_batting_3b:team_batting_so	-1.852e-02	4.163e-02	-0.445	0.656500
team_batting_3b:team_baserun_sb	-4.083e-01	5.058e+00	-0.081	0.935669
team_batting_3b:team_baserun_cs	5.846e+00	7.433e+00	0.787	0.431636
team_batting_3b:team_batting_hbp	-7.378e+01	7.472e+01	-0.987	0.323564
team_batting_3b:team_pitching_h	-6.189e+00	2.930e+01	-0.211	0.832729
team_batting_3b:team_pitching_hr	-5.062e-02	1.695e-01	-0.299	0.765238
team_batting_3b:team_pitching_bb	7.245e-01	4.119e+01	0.018	0.985967
team_batting_3b:team_pitching_so	4.122e+00	3.192e+01	0.129	0.897261
team_batting_3b:team_fielding_e	-9.869e+00	7.765e+00	-1.271	0.203865
team_batting_3b:team_fielding_dp	-4.342e-02	9.167e-02	-0.474	0.635834
team_batting_3b:team_batting_1b	-4.052e+02	1.543e+02	-2.627	0.008685
team_batting_hr:team_batting_bb	-5.828e-04	2.217e-03	-0.263	0.792654
team_batting_hr:team_batting_so	8.185e-04	1.167e-03	0.701	0.483259
team_batting_hr:team_baserun_sb	-5.252e-01	1.772e-01	-2.964	0.003072
team_batting_hr:team_baserun_cs	2.511e-01	2.563e-01	0.980	0.327340
team_batting_hr:team_batting_hbp	-8.336e+01	1.124e+02	-0.741	0.458540
team_batting_hr:team_pitching_h	-5.288e-01	1.132e+00	-0.467	0.640556
team_batting_hr:team_pitching_hr	-1.890e-03	1.169e-03	-1.617	0.106069
team_batting_hr:team_pitching_bb	5.798e-01	1.121e+00	0.517	0.604985
team_batting_hr:team_pitching_so	-8.955e-01	7.897e-01	-1.134	0.256953
team_batting_hr:team_fielding_e	-1.206e-01	2.335e-01	-0.517	0.605462
team_batting_hr:team_fielding_dp	-2.403e-03	2.700e-03	-0.890	0.373498
team_batting_hr:team_batting_1b	9.247e-01	1.603e+00	0.577	0.564150
team_batting_bb:team_batting_so	4.297e-05	1.861e-04	0.231	0.817381

team_batting_bb:team_baserun_sb	1.240e-01	4.140e-02	2.995	0.002776
team_batting_bb:team_baserun_cs	-2.209e-02	7.559e-02	-0.292	0.770096
team_batting_bb:team_batting_hbp	6.712e-01	8.961e-01	0.749	0.453921
team_batting_bb:team_pitching_h	7.862e-02	1.936e-01	0.406	0.684767
team_batting_bb:team_pitching_hr	1.164e-03	1.286e-03	0.905	0.365671
team_batting_bb:team_pitching_bb	1.498e-01	1.740e-01	0.861	0.389352
team_batting_bb:team_pitching_so	-1.021e-01	9.920e-02	-1.029	0.303684
team_batting_bb:team_fielding_e	-2.102e-01	5.664e-02	-3.711	0.000212
team_batting_bb:team_fielding_dp	4.144e-04	5.834e-04	0.710	0.477650
team_batting_bb:team_batting_1b	7.962e-01	1.429e+00	0.557	0.577552
team_batting_so:team_baserun_sb	1.600e-02	2.002e-02	0.799	0.424360
team_batting_so:team_baserun_cs	-4.091e-02	3.106e-02	-1.317	0.188042
team_batting_so:team_batting_hbp	9.629e-01	7.049e-01	1.366	0.172104
team_batting_so:team_pitching_h	-2.414e-02	9.485e-02	-0.254	0.799146
team_batting_so:team_pitching_hr	-7.262e-04	7.307e-04	-0.994	0.320434
team_batting_so:team_pitching_bb	-5.702e-02	8.151e-02	-0.700	0.484261
team_batting_so:team_pitching_so	7.665e-02	3.255e-02	2.355	0.018609
team_batting_so:team_fielding_e	-4.357e-03	2.958e-02	-0.147	0.882899
team_batting_so:team_fielding_dp	4.173e-05	3.572e-04	0.117	0.907013
team_batting_so:team_batting_1b	7.715e-01	7.280e-01	1.060	0.289369
team_baserun_sb:team_baserun_cs	1.146e-01	1.715e+00	0.067	0.946762
team_baserun_sb:team_batting_hbp	3.922e+01	2.725e+01	1.440	0.150138
team_baserun_sb:team_pitching_h	-2.864e+01	2.609e+01	-1.098	0.272436
team_baserun_sb:team_pitching_hr	4.332e-01	1.359e-01	3.187	0.001458
team_baserun_sb:team_pitching_bb	-4.456e+01	2.064e+01	-2.158	0.031012
team_baserun_sb:team_pitching_so	-5.495e+00	1.335e+01	-0.412	0.680574
team_baserun_sb:team_fielding_e	1.099e+01	2.262e+00	4.859	1.27e-06
team_baserun_sb:team_fielding_dp	-2.815e-02	2.909e-02	-0.968	0.333275
team_baserun_sb:team_batting_1b	3.368e+01	8.834e+01	0.381	0.703087
team_baserun_cs:team_batting_hbp	-5.702e+00	2.752e+01	-0.207	0.835861
team_baserun_cs:team_pitching_h	1.197e+01	3.533e+01	0.339	0.734765
team_baserun_cs:team_pitching_hr	-2.093e-01	2.036e-01	-1.028	0.304129
team_baserun_cs:team_pitching_bb	1.580e+01	3.994e+01	0.396	0.692385
team_baserun_cs:team_pitching_so	2.645e+01	2.191e+01	1.207	0.227455
team_baserun_cs:team_fielding_e	-1.796e-01	4.863e+00	-0.037	0.970549
team_baserun_cs:team_fielding_dp	-1.103e-02	4.783e-02	-0.231	0.817578
team_baserun_cs:team_batting_1b	-5.316e+01	1.396e+02	-0.381	0.703486
team_batting_hbp:team_pitching_h	-1.107e+04	1.997e+04	-0.554	0.579320
team_batting_hbp:team_pitching_hr	8.078e+01	1.123e+02	0.719	0.472043

team_batting_hbp:team_pitching_bb	-3.137e+02	4.941e+02	-0.635	0.525540
team_batting_hbp:team_pitching_so	-1.083e+03	7.567e+02	-1.431	0.152562
team_batting_hbp:team_fielding_e	5.278e+00	4.802e+01	0.110	0.912490
team_batting_hbp:team_fielding_dp	2.376e-01	3.510e-01	0.677	0.498608
team_batting_hbp:team_batting_1b	-2.529e+03	2.161e+03	-1.170	0.242016
team_pitching_h:team_pitching_hr	1.276e+00	6.753e-01	1.889	0.058974
team_pitching_h:team_pitching_bb	-1.832e+02	5.490e+01	-3.337	0.000861
team_pitching_h:team_pitching_so	-7.601e+01	4.397e+01	-1.729	0.084014
team_pitching_h:team_fielding_e	-7.954e+01	2.315e+01	-3.436	0.000602
team_pitching_h:team_fielding_dp	-2.123e-01	2.641e-01	-0.804	0.421558
team_pitching_h:team_batting_1b	9.156e+02	4.833e+02	1.894	0.058313
team_pitching_hr:team_pitching_bb	-3.652e-01	5.825e-01	-0.627	0.530718
team_pitching_hr:team_pitching_so	7.624e-01	4.879e-01	1.562	0.118328
team_pitching_hr:team_fielding_e	8.354e-02	1.443e-01	0.579	0.562753
team_pitching_hr:team_fielding_dp	3.096e-03	1.990e-03	1.556	0.119965
team_pitching_hr:team_batting_1b	-2.938e+00	2.105e+00	-1.395	0.163021
team_pitching_bb:team_pitching_so	4.089e+01	3.399e+01	1.203	0.229140
team_pitching_bb:team_fielding_e	9.393e+01	2.758e+01	3.405	0.000674
team_pitching_bb:team_fielding_dp	-2.023e-01	2.849e-01	-0.710	0.477778
team_pitching_bb:team_batting_1b	-5.199e+01	7.171e+02	-0.072	0.942216
team_pitching_so:team_fielding_e	2.167e+01	1.903e+01	1.139	0.254921
team_pitching_so:team_fielding_dp	2.028e-02	2.366e-01	0.086	0.931686
team_pitching_so:team_batting_1b	-6.781e+02	4.814e+02	-1.409	0.159079
team_fielding_e:team_fielding_dp	1.423e-01	6.043e-02	2.354	0.018668
team_fielding_e:team_batting_1b	-6.056e+01	1.314e+02	-0.461	0.645046
team_fielding_dp:team_batting_1b	4.190e-01	1.700e+00	0.246	0.805367

(Intercept)
 team_batting_h
 team_batting_2b
 team_batting_3b
 team_batting_hr
 team_batting_bb
 team_batting_so
 team_baserun_sb
 team_baserun_cs
 team_batting_hbp
 team_pitching_h
 team_pitching_hr

```
team_pitching_bb
team_pitching_so
team_fielding_e *
team_fielding_dp
team_batting_1b
team_batting_h:team_batting_2b
team_batting_h:team_batting_3b **
team_batting_h:team_batting_hr
team_batting_h:team_batting_bb
team_batting_h:team_batting_so
team_batting_h:team_baserun_sb
team_batting_h:team_baserun_cs
team_batting_h:team_batting_hbp
team_batting_h:team_pitching_h .
team_batting_h:team_pitching_hr
team_batting_h:team_pitching_bb
team_batting_h:team_pitching_so
team_batting_h:team_fielding_e
team_batting_h:team_fielding_dp
team_batting_h:team_batting_1b
team_batting_2b:team_batting_3b **
team_batting_2b:team_batting_hr
team_batting_2b:team_batting_bb
team_batting_2b:team_batting_so
team_batting_2b:team_baserun_sb
team_batting_2b:team_baserun_cs
team_batting_2b:team_batting_hbp
team_batting_2b:team_pitching_h
team_batting_2b:team_pitching_hr
team_batting_2b:team_pitching_bb
team_batting_2b:team_pitching_so
team_batting_2b:team_fielding_e
team_batting_2b:team_fielding_dp
team_batting_2b:team_batting_1b **
team_batting_3b:team_batting_hr .
team_batting_3b:team_batting_bb
team_batting_3b:team_batting_so
team_batting_3b:team_baserun_sb
team_batting_3b:team_baserun_cs
```

```
team_batting_3b:team_batting_hbp
team_batting_3b:team_pitching_h
team_batting_3b:team_pitching_hr
team_batting_3b:team_pitching_bb
team_batting_3b:team_pitching_so
team_batting_3b:team_fielding_e
team_batting_3b:team_fielding_dp
team_batting_3b:team_batting_1b    **
team_batting_hr:team_batting_bb
team_batting_hr:team_batting_so
team_batting_hr:team_baserun_sb   **
team_batting_hr:team_baserun_cs
team_batting_hr:team_batting_hbp
team_batting_hr:team_pitching_h
team_batting_hr:team_pitching_hr
team_batting_hr:team_pitching_bb
team_batting_hr:team_pitching_so
team_batting_hr:team_fielding_e
team_batting_hr:team_fielding_dp
team_batting_hr:team_batting_1b
team_batting_bb:team_batting_so
team_batting_bb:team_baserun_sb   **
team_batting_bb:team_baserun_cs
team_batting_bb:team_batting_hbp
team_batting_bb:team_pitching_h
team_batting_bb:team_pitching_hr
team_batting_bb:team_pitching_bb
team_batting_bb:team_pitching_so
team_batting_bb:team_fielding_e   ***
team_batting_bb:team_fielding_dp
team_batting_bb:team_batting_1b
team_batting_so:team_baserun_sb
team_batting_so:team_baserun_cs
team_batting_so:team_batting_hbp
team_batting_so:team_pitching_h
team_batting_so:team_pitching_hr
team_batting_so:team_pitching_bb
team_batting_so:team_pitching_so   *
team_batting_so:team_fielding_e
```

```
team_batting_so:team_fielding_dp
team_batting_so:team_batting_1b
team_baserun_sb:team_baserun_cs
team_baserun_sb:team_batting_hbp
team_baserun_sb:team_pitching_h
team_baserun_sb:team_pitching_hr  **
team_baserun_sb:team_pitching_bb  *
team_baserun_sb:team_pitching_so
team_baserun_sb:team_fielding_e   ***
team_baserun_sb:team_fielding_dp
team_baserun_sb:team_batting_1b
team_baserun_cs:team_batting_hbp
team_baserun_cs:team_pitching_h
team_baserun_cs:team_pitching_hr
team_baserun_cs:team_pitching_bb
team_baserun_cs:team_pitching_so
team_baserun_cs:team_fielding_e
team_baserun_cs:team_fielding_dp
team_baserun_cs:team_batting_1b
team_batting_hbp:team_pitching_h
team_batting_hbp:team_pitching_hr
team_batting_hbp:team_pitching_bb
team_batting_hbp:team_pitching_so
team_batting_hbp:team_fielding_e
team_batting_hbp:team_fielding_dp
team_batting_hbp:team_batting_1b
team_pitching_h:team_pitching_hr .
team_pitching_h:team_pitching_bb ***
team_pitching_h:team_pitching_so .
team_pitching_h:team_fielding_e ***
team_pitching_h:team_fielding_dp
team_pitching_h:team_batting_1b .
team_pitching_hr:team_pitching_bb
team_pitching_hr:team_pitching_so
team_pitching_hr:team_fielding_e
team_pitching_hr:team_fielding_dp
team_pitching_hr:team_batting_1b
team_pitching_bb:team_pitching_so
team_pitching_bb:team_fielding_e ***
```

```

team_pitching_bb:team_fielding_dp
team_pitching_bb:team_batting_1b
team_pitching_so:team_fielding_e
team_pitching_so:team_fielding_dp
team_pitching_so:team_batting_1b
team_fielding_e:team_fielding_dp  *
team_fielding_e:team_batting_1b
team_fielding_dp:team_batting_1b
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 10.95 on 2050 degrees of freedom
(59 observations deleted due to missingness)
Multiple R-squared:  0.4612,    Adjusted R-squared:  0.4255
F-statistic: 12.91 on 136 and 2050 DF,  p-value: < 2.2e-16
# ...  -----
# ...  save data frame for SAS input file
# ...  -----
moneyball_sas_input <- mlb

sas_dir <- "~/sas/SASUniversityEdition/myfolders/stats_ii"
setwd(sas_dir)
write.csv (moneyball_sas_input, file = "moneyball_training_set_cleaned.csv", row.names = FALSE, na = ".") 

setwd(home_dir)
setwd(data_dir)
write.csv (moneyball_sas_input, file = "moneyball_training_set_cleaned.csv", row.names = FALSE, na = ".")
setwd(home_dir)

```