Supplementary Materials

1 Data

The 25 variables that were used in this analysis are below.

Variable	Meaning
v1	Number of papers
v2	Total citations
v3	Production years
v4	Cites per year
v5	Cites per paper
v6	Cites per author
v7	PapersAuthor
v8	Authors per paper
v9	h-index
v10	g-index
v11	hc-index
v12	hl-index
v13	hl-norm
v14	AWCR
v15	AW index
v16	AWCR per author
v17	e-index
v18	hm-index
v19	CitesAuthorYear
v20	CitesAuthorYearArticle
v21	Annual hl
v22	h Coverage
v23	g Coverage
v24	Star count
v25	Adjusted star count

Table 1: List of attributes in the data

2 Regression Results

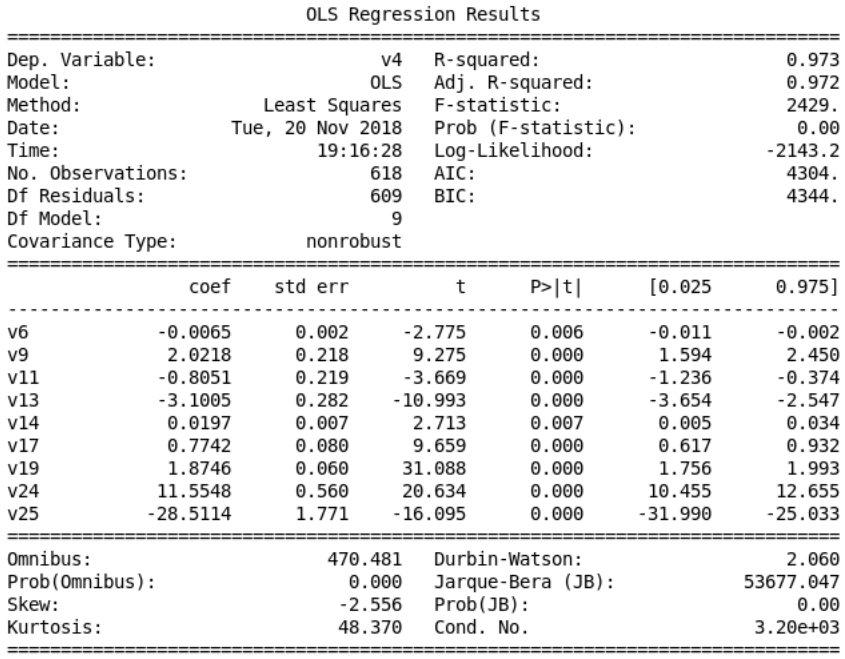
2.1 Analysis on the full data

The regression experiments for *v4* are shown in Table 2. The chosen results are in bold.

IVs	**Adj.** R^2	**Significant IVs**
v6	0.759	All
v6,v9	0.796	All except constant
v6,v9,v10 (no const)	0.868	All
v6,v9,v10	0.835	All
v6,v9,v10,v11 (no const)	0.874	All
v6,v9,v10,v11	0.846	All
v6,v9,v10,v11,v13 (no const)	0.893	All
v6,v9,v10,v11,v13	0.866	All except constant
v6,v9,v10,v11,v13,v14 (no const)	0.896	All
v6,v9,v10,v11,v13,v14,v15 (no const)	0.896	All except v15
v6,v9,v10,v11,v13,v14,v16 (no const)	0.893	All except v16
v6,v9,v10,v11,v13,v14,v17 (no const)	0.912	All
v6,v9,v10,v11,v13,v14,v17,v19 (no const)	0.953	All except v10
v6,v9,v11,v13,v14,v17,v19 (no const)	0.961	All
v6,v9,v11,v13,v14,v17,v19,v24 (no const)	0.961	All
v6,v9,v11,v13,v14,v17,v19,v25 (no const)	0.953	All
v6,v9,v11,v13,v14,v17,v19,v24,v25 (no const)	**0.972**	**All**

Table 2: Regression experiments for *v4*

The chosen regression experiment is shown in Figure 1.



OLS Regression Results

Dep. Variable:	v4	R-squared:	0.973
Model:	OLS	Adj. R-squared:	0.972
Method:	Least Squares	F-statistic:	2429.
Date:	Tue, 20 Nov 2018	Prob (F-statistic):	0.00
Time:	19:16:28	Log-Likelihood:	-2143.2
No. Observations:	618	AIC:	4304.
Df Residuals:	609	BIC:	4344.
Df Model:	9		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
v6	-0.0065	0.002	-2.775	0.006	-0.011	-0.002
v9	2.0218	0.218	9.275	0.000	1.594	2.450
v11	-0.8051	0.219	-3.669	0.000	-1.236	-0.374
v13	-3.1005	0.282	-10.993	0.000	-3.654	-2.547
v14	0.0197	0.007	2.713	0.007	0.005	0.034
v17	0.7742	0.080	9.659	0.000	0.617	0.932
v19	1.8746	0.060	31.088	0.000	1.756	1.993
v24	11.5548	0.560	20.634	0.000	10.455	12.655
v25	-28.5114	1.771	-16.095	0.000	-31.990	-25.033

Omnibus:	470.481	Durbin-Watson:	2.060
Prob(Omnibus):	0.000	Jarque-Bera (JB):	53677.047
Skew:	-2.556	Prob(JB):	0.00
Kurtosis:	48.370	Cond. No.	3.20e+03

Figure 1: Regression results for v4

The regression experiments on *v2* are shown in Table 3.

IVs	**Adj.** R^2	**Significant IVs**
v4	0.804	All
v4 (no const)	0.818	All
v4,v6	0.924	All
v4,v6 (no const)	0.93	All
v4,v6,v9	0.924	All except constant
v4,v6,v9 (no const)	0.93	All
v4,v6,v9,v10	0.925	All
v4,v6,v9,v10 (no const)	0.931	All except v9
v4,v6,v9,v10,v14	0.933	All
v4,v6,v9,v10,v14 (no const)	0.939	All
v4,v6,v9,v10,v14,v16	0.981	All except constant
v4,v6,v9,v10,v14,v16 (no const)	0.983	All
v4,v6,v9,v10,v14,v16,v18	0.981	All except constant and v18
v4,v6,v9,v10,v14,v16,v18 (no const)	0.983	All except v18
v4,v6,v9,v10,v14,v16,v18,v19	0.992	All
v4,v6,v9,v10,v14,v16,v18,v19 (no const)	**0.993**	**All except v9**
v4,v6,v9,v10,v14,v16,v18,v19,v24	0.992	All
v4,v6,v9,v10,v14,v16,v18,v19,v24 (no const)	0.993	All except v9

Table 3: Regression experiments for v2

The chosen regression experiment is shown in Figure 2.

OLS Regression Results

Dep. Variable:	v2	R-squared:	0.993
Model:	OLS	Adj. R-squared:	0.993
Method:	Least Squares	F-statistic:	1.255e+04
Date:	Tue, 20 Nov 2018	Prob (F-statistic):	0.00
Time:	19:16:31	Log-Likelihood:	-3849.7
No. Observations:	618	AIC:	7713.
Df Residuals:	611	BIC:	7744.
Df Model:	7		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
v4	17.9865	0.539	33.391	0.000	16.929	19.044
v6	2.9565	0.030	99.132	0.000	2.898	3.015
v10	-7.1974	1.155	-6.230	0.000	-9.466	-4.929
v14	2.8990	0.172	16.892	0.000	2.562	3.236
v16	-12.9553	0.677	-19.137	0.000	-14.285	-11.626
v18	15.0059	3.381	4.438	0.000	8.366	21.646
v19	-40.4789	1.372	-29.500	0.000	-43.174	-37.784

Omnibus:	183.865	Durbin-Watson:	1.853
Prob(Omnibus):	0.000	Jarque-Bera (JB):	13139.347
Skew:	-0.267	Prob(JB):	0.00
Kurtosis:	25.583	Cond. No.	392.

Figure 2: Regression results for v2

From v6 onward, the experiments were automated. The screenshots of the program results are shown instead. The regression experiments for *v6* are shown in Figure 3.

Expt. No.	DV	IVs	Adj. R^2	Significant IVs
1	v6	v9	0.724	All
2	v6	v9 (no const)	0.69	All
3	v6	v9,v10	0.728	All
4	v6	v9,v10 (no const)	0.693	All
5	v6	v9,v10,v13	0.733	All
6	v6	v9,v10,v13 (no const)	0.692	v9,v10
7	v6	v9,v10,v13,v14	0.795	All
8	v6	v9,v10,v13,v14 (no const)	0.791	All
9	v6	v9,v10,v13,v14,v16	0.875	constant,v9,v13,v14,v16
10	v6	v9,v10,v13,v14,v16 (no const)	0.883	v9,v13,v14,v16
11	v6	v9,v10,v13,v14,v16,v17	0.875	constant,v9,v13,v14,v16
12	v6	v9,v10,v13,v14,v16,v17 (no const)	0.884	v9,v13,v14,v16
13	v6	v9,v10,v13,v14,v16,v17,v18	0.887	constant,v9,v13,v16,v17,v18
14	v6	v9,v10,v13,v14,v16,v17,v18 (no const)	0.893	v9,v13,v14,v16,v17,v18
15	v6	v9,v10,v13,v14,v16,v17,v18,v19	0.907	constant,v9,v13,v16,v18,v19
16	**v6**	**v9,v10,v13,v14,v16,v17,v18,v19 (no const)**	**0.913**	**v10,v13,v16,v17,v18,v19**
17	v6	v9,v10,v13,v14,v16,v17,v18,v19,v25	0.907	constant,v9,v13,v16,v18,v19,v25
18	v6	v9,v10,v13,v14,v16,v17,v18,v19,v25 (no const)	0.914	v10,v13,v16,v17,v18,v19,v25

Figure 3: Regression experiments for v6

The chosen regression results are shown in Figure 4.

OLS Regression Results

Dep. Variable:	v6	R-squared:	0.914
Model:	OLS	Adj. R-squared:	0.913
Method:	Least Squares	F-statistic:	1078.
Date:	Tue, 20 Nov 2018	Prob (F-statistic):	1.73e-321
Time:	19:16:32	Log-Likelihood:	-4003.3
No. Observations:	618	AIC:	8019.
Df Residuals:	612	BIC:	8045.
Df Model:	6		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
v10	18.4844	2.768	6.677	0.000	13.048	23.921
v13	-74.8686	7.615	-9.832	0.000	-89.823	-59.915
v16	5.4741	0.490	11.176	0.000	4.512	6.436
v17	-11.7171	3.150	-3.720	0.000	-17.903	-5.532
v18	58.0314	7.318	7.930	0.000	43.659	72.404
v19	13.1330	1.058	12.413	0.000	11.055	15.211

Omnibus:	613.817	Durbin-Watson:	1.640
Prob(Omnibus):	0.000	Jarque-Bera (JB):	84084.932
Skew:	3.994	Prob(JB):	0.00
Kurtosis:	59.583	Cond. No.	86.2

Figure 4: Regression results for v6

Figure 5 shows the regression experiments for *v9*.

Expt. No.	DV	IVs	Adj. R^2	Significant IVs
1	v9	v10	0.94	All
2	v9	v10 (no const)	0.966	All
3	v9	v10,v11	0.945	v10,v11
4	v9	v10,v11 (no const)	0.969	All
5	v9	v10,v11,v12	0.954	All
6	v9	v10,v11,v12 (no const)	0.974	All
7	v9	v10,v11,v12,v13	0.956	constant,v10,v11,v13
8	v9	v10,v11,v12,v13 (no const)	0.975	v10,v11,v13
9	v9	v10,v11,v12,v13,v14	0.957	constant,v10,v11,v13
10	v9	v10,v11,v12,v13,v14 (no const)	0.976	v10,v11,v13,v14
11	v9	v10,v11,v12,v13,v14,v15	0.961	v10,v11,v13,v14,v15
12	v9	v10,v11,v12,v13,v14,v15 (no const)	0.978	v10,v11,v13,v14,v15
13	v9	v10,v11,v12,v13,v14,v15,v16	0.963	v10,v11,v12,v13,v14,v15,v16
14	v9	v10,v11,v12,v13,v14,v15,v16 (no const)	0.98	All
15	v9	v10,v11,v12,v13,v14,v15,v16,v17	0.974	v10,v11,v13,v14,v15,v17
16	**v9**	**v10,v11,v12,v13,v14,v15,v16,v17 (no const)**	**0.985**	**v10,v11,v13,v14,v15,v17**
17	v9	v10,v11,v12,v13,v14,v15,v16,v17,v18	0.98	v10,v11,v12,v14,v15,v16,v17,v18
18	v9	v10,v11,v12,v13,v14,v15,v16,v17,v18 (no const)	0.988	v10,v11,v12,v14,v15,v16,v17,v18

Figure 5: Regression experiments for v9

Figure 6 shows the chosen regression results.

OLS Regression Results

Dep. Variable:	v9	R-squared:	0.986
Model:	OLS	Adj. R-squared:	0.986
Method:	Least Squares	F-statistic:	7123.
Date:	Tue, 20 Nov 2018	Prob (F-statistic):	0.00
Time:	19:16:32	Log-Likelihood:	-1040.4
No. Observations:	618	AIC:	2093.
Df Residuals:	612	BIC:	2119.
Df Model:	6		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
v10	0.5551	0.022	25.250	0.000	0.512	0.598
v11	0.3324	0.045	7.383	0.000	0.244	0.421
v13	0.4785	0.036	13.131	0.000	0.407	0.550
v14	0.0038	0.001	3.461	0.001	0.002	0.006
v15	-0.1440	0.056	-2.557	0.011	-0.255	-0.033
v17	-0.3342	0.019	-17.388	0.000	-0.372	-0.296

Omnibus:	111.690	Durbin-Watson:	1.990
Prob(Omnibus):	0.000	Jarque-Bera (JB):	1976.264
Skew:	0.078	Prob(JB):	0.00
Kurtosis:	11.759	Cond. No.	169.

Figure 6: Regression results for v9

The regression experiments for *v10* are shown in Figure 7.

Expt. No.	DV	IVs	Adj. R^2	Significant IVs
1	v10	v11	0.852	All
2	v10	v11 (no const)	0.911	All
3	v10	v11,v12	0.88	All
4	v10	v11,v12 (no const)	0.926	All
5	v10	v11,v12,v13	0.943	All
6	v10	v11,v12,v13 (no const)	0.965	All
7	v10	v11,v12,v13,v14	0.958	v11,v12,v13,v14
8	v10	v11,v12,v13,v14 (no const)	0.976	All
9	v10	v11,v12,v13,v14,v15	0.96	constant,v12,v13,v14,v15
10	v10	v11,v12,v13,v14,v15 (no const)	0.977	v12,v13,v14,v15
11	v10	v11,v12,v13,v14,v15,v16	0.961	constant,v12,v13,v14,v15,v16
12	v10	v11,v12,v13,v14,v15,v16 (no const)	0.977	v12,v13,v14,v15,v16
13	v10	v11,v12,v13,v14,v15,v16,v17	0.98	constant,v11,v13,v14,v15,v16,v17
14	v10	v11,v12,v13,v14,v15,v16,v17 (no const)	0.988	v11,v13,v14,v15,v16,v17
15	v10	v11,v12,v13,v14,v15,v16,v17,v18	0.987	All
16	**v10**	**v11,v12,v13,v14,v15,v16,v17,v18 (no const)**	**0.992**	**All**
17	v10	v11,v12,v13,v14,v15,v16,v17,v18,v19	0.987	constant,v11,v12,v14,v15,v16,v17,v18,v19
18	v10	v11,v12,v13,v14,v15,v16,v17,v18,v19 (no const)	0.992	v11,v12,v14,v15,v16,v17,v18,v19

Figure 7: Regression experiments for v10

Finally, the results of the regression for *v10* are shown in Figure 8.

OLS Regression Results

Dep. Variable:	v10	R-squared:	0.993
Model:	OLS	Adj. R-squared:	0.992
Method:	Least Squares	F-statistic:	1.020e+04
Date:	Tue, 20 Nov 2018	Prob (F-statistic):	0.00
Time:	19:16:33	Log-Likelihood:	-1225.3
No. Observations:	618	AIC:	2467.
Df Residuals:	610	BIC:	2502.
Df Model:	8		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
v11	0.6603	0.061	10.896	0.000	0.541	0.779
v12	-0.5729	0.110	-5.207	0.000	-0.789	-0.357
v13	0.2161	0.106	2.030	0.043	0.007	0.425
v14	0.0354	0.002	15.377	0.000	0.031	0.040
v15	-0.7408	0.079	-9.420	0.000	-0.895	-0.586
v16	-0.0852	0.007	-12.879	0.000	-0.098	-0.072
v17	0.7858	0.022	35.053	0.000	0.742	0.830
v18	1.3468	0.075	17.896	0.000	1.199	1.495

Omnibus:	295.493	Durbin-Watson:	1.861
Prob(Omnibus):	0.000	Jarque-Bera (JB):	3942.532
Skew:	-1.769	Prob(JB):	0.00
Kurtosis:	14.857	Cond. No.	258.

Figure 8: Regression results for v10

2.2 Analysis on subset of data

We now present the regression experiments and results on the chosen subset of the data. Please note that we renamed the variables for convenience, so *v1* through *v13* here are really *v9* through *v21*, and *v14* here is really *v24*.

The regression experiments for *v9* (shown as *v1*) are shown in Figure 9.

Expt. No.	DV	IVs	Adj. R^2	Significant IVs
1	v1	v2	0.94	All
2	v1	v2 (no const)	0.966	All
3	v1	v2,v3	0.945	v2,v3
4	v1	v2,v3 (no const)	0.969	All
5	v1	v2,v3,v4	0.954	All
6	v1	v2,v3,v4 (no const)	0.974	All
7	v1	v2,v3,v4,v5	0.956	constant,v2,v3,v5
8	v1	v2,v3,v4,v5 (no const)	0.975	v2,v3,v5
9	v1	v2,v3,v4,v5,v6	0.957	constant,v2,v3,v5
10	v1	v2,v3,v4,v5,v6 (no const)	0.976	v2,v3,v5,v6
11	v1	v2,v3,v4,v5,v6,v7	0.961	v2,v3,v5,v6,v7
12	v1	v2,v3,v4,v5,v6,v7 (no const)	0.978	v2,v3,v5,v6,v7
13	v1	v2,v3,v4,v5,v6,v7,v8	0.963	v2,v3,v4,v5,v6,v7,v8
14	v1	v2,v3,v4,v5,v6,v7,v8 (no const)	0.98	All
15	v1	v2,v3,v4,v5,v6,v7,v8,v9	0.974	v2,v3,v5,v6,v7,v9
16	**v1**	**v2,v3,v4,v5,v6,v7,v8,v9 (no const)**	**0.985**	**v2,v3,v5,v6,v7,v9**
17	v1	v2,v3,v4,v5,v6,v7,v8,v9,v10	0.98	v2,v3,v4,v6,v7,v8,v9,v10
18	v1	v2,v3,v4,v5,v6,v7,v8,v9,v10 (no const)	0.988	v2,v3,v4,v6,v7,v8,v9,v10

Figure 9: Regression experiments for v9

The chosen regression model results are shown in Figure 10.

OLS Regression Results

Dep. Variable:	v1	R-squared:	0.986
Model:	OLS	Adj. R-squared:	0.986
Method:	Least Squares	F-statistic:	7123.
Date:	Tue, 20 Nov 2018	Prob (F-statistic):	0.00
Time:	19:51:29	Log-Likelihood:	-1040.4
No. Observations:	618	AIC:	2093.
Df Residuals:	612	BIC:	2119.
Df Model:	6		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
v2	0.5551	0.022	25.250	0.000	0.512	0.598
v3	0.3324	0.045	7.383	0.000	0.244	0.421
v5	0.4785	0.036	13.131	0.000	0.407	0.550
v6	0.0038	0.001	3.461	0.001	0.002	0.006
v7	-0.1440	0.056	-2.557	0.011	-0.255	-0.033
v9	-0.3342	0.019	-17.388	0.000	-0.372	-0.296

Omnibus:	111.690	Durbin-Watson:	1.990
Prob(Omnibus):	0.000	Jarque-Bera (JB):	1976.264
Skew:	0.078	Prob(JB):	0.00
Kurtosis:	11.759	Cond. No.	169.

Figure 10: Regression results for v9

The regression experiments for *v10* are shown in Figure 11.

Expt. No.	DV	IVs	Adj. R^2	Significant IVs
1	v2	v3	0.852	All
2	v2	v3 (no const)	0.911	All
3	v2	v3,v4	0.88	All
4	v2	v3,v4 (no const)	0.926	All
5	v2	v3,v4,v5	0.943	All
6	v2	v3,v4,v5 (no const)	0.965	All
7	v2	v3,v4,v5,v6	0.958	v3,v4,v5,v6
8	v2	v3,v4,v5,v6 (no const)	0.976	All
9	v2	v3,v4,v5,v6,v7	0.96	constant,v4,v5,v6,v7
10	v2	v3,v4,v5,v6,v7 (no const)	0.977	v4,v5,v6,v7
11	v2	v3,v4,v5,v6,v7,v8	0.961	constant,v4,v5,v6,v7,v8
12	v2	v3,v4,v5,v6,v7,v8 (no const)	0.977	v4,v5,v6,v7,v8
13	v2	v3,v4,v5,v6,v7,v8,v9	0.98	constant,v3,v5,v6,v7,v8,v9
14	**v2**	**v3,v4,v5,v6,v7,v8,v9 (no const)**	**0.988**	**v3,v5,v6,v7,v8,v9**
15	v2	v3,v4,v5,v6,v7,v8,v9,v10	0.987	All
16	v2	v3,v4,v5,v6,v7,v8,v9,v10 (no const)	0.992	All
17	v2	v3,v4,v5,v6,v7,v8,v9,v10,v11	0.987	constant,v3,v4,v6,v7,v8,v9,v10,v11
18	v2	v3,v4,v5,v6,v7,v8,v9,v10,v11 (no const)	0.992	v3,v4,v6,v7,v8,v9,v10,v11

Figure 11: Regression experiments for v10

The chosen model for *v10* is shown in Figure 12.

OLS Regression Results

Dep. Variable:	v2	R-squared:	0.989
Model:	OLS	Adj. R-squared:	0.989
Method:	Least Squares	F-statistic:	8902.
Date:	Tue, 20 Nov 2018	Prob (F-statistic):	0.00
Time:	19:52:54	Log-Likelihood:	-1355.9
No. Observations:	618	AIC:	2724.
Df Residuals:	612	BIC:	2750.
Df Model:	6		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
v3	0.5665	0.072	7.841	0.000	0.425	0.708
v5	1.3477	0.056	23.986	0.000	1.237	1.458
v6	0.0438	0.002	18.660	0.000	0.039	0.048
v7	-0.6372	0.094	-6.785	0.000	-0.822	-0.453
v8	-0.0772	0.007	-11.541	0.000	-0.090	-0.064
v9	0.6080	0.023	26.854	0.000	0.564	0.652

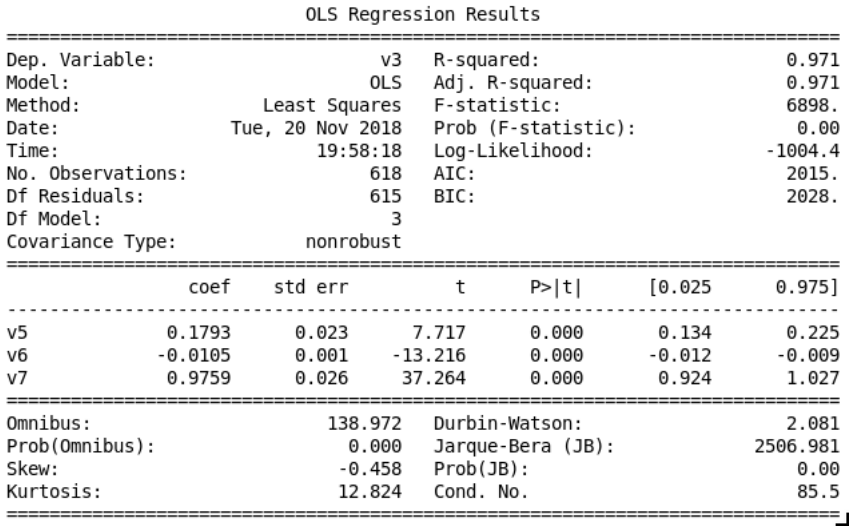
Omnibus:	264.178	Durbin-Watson:	1.991
Prob(Omnibus):	0.000	Jarque-Bera (JB):	3118.984
Skew:	-1.563	Prob(JB):	0.00
Kurtosis:	13.553	Cond. No.	171.

Figure 12: Regression results for v10

Next, we show Figure 13 and 14, which show the experiments and results for *v11*.

Expt. No.	DV	IVs	Adj. R^2	Significant IVs
1	v3	v5	0.809	All
2	v3	v5 (no const)	0.902	All
3	v3	v5,v6	0.832	All
4	v3	v5,v6 (no const)	0.905	All
5	v3	v5,v6,v7	0.936	All
6	v3	v5,v6,v7 (no const)	0.97	All
7	v3	v5,v6,v7,v8	0.936	constant,v5,v6,v7
8	**v3**	**v5,v6,v7,v8 (no const)**	**0.97**	**v5,v6,v7**
9	v3	v5,v6,v7,v8,v9	0.938	constant,v5,v6,v7,v9
10	v3	v5,v6,v7,v8,v9 (no const)	0.971	v5,v6,v7,v9
11	v3	v5,v6,v7,v8,v9,v10	0.939	constant,v5,v6,v7,v9,v10
12	v3	v5,v6,v7,v8,v9,v10 (no const)	0.972	v5,v6,v7,v9,v10

Figure 13: Regression experiments for v11



OLS Regression Results

Dep. Variable:	v3	R-squared:	0.971
Model:	OLS	Adj. R-squared:	0.971
Method:	Least Squares	F-statistic:	6898.
Date:	Tue, 20 Nov 2018	Prob (F-statistic):	0.00
Time:	19:58:18	Log-Likelihood:	-1004.4
No. Observations:	618	AIC:	2015.
Df Residuals:	615	BIC:	2028.
Df Model:	3		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
v5	0.1793	0.023	7.717	0.000	0.134	0.225
v6	-0.0105	0.001	-13.216	0.000	-0.012	-0.009
v7	0.9759	0.026	37.264	0.000	0.924	1.027

Omnibus:	138.972	Durbin-Watson:	2.081
Prob(Omnibus):	0.000	Jarque-Bera (JB):	2506.981
Skew:	-0.458	Prob(JB):	0.00
Kurtosis:	12.824	Cond. No.	85.5

Figure 14: Regression results for v11

Finally(!), we show the same set of figures for *v13*.

Expt. No.	DV	IVs	Adj. R^2	Significant IVs
1	v5	v7	0.809	v7
2	v5	v7 (no const)	0.901	All
3	v5	v7,v8	0.842	All
4	v5	v7,v8 (no const)	0.912	All
5	v5	v7,v8,v9	0.865	All
6	v5	v7,v8,v9 (no const)	0.923	All
7	v5	v7,v8,v9,v10	0.971	constant,v8,v9,v10
8	**v5**	**v7,v8,v9,v10 (no const)**	**0.984**	**All**
9	v5	v7,v8,v9,v10,v11	0.971	constant,v8,v9,v10
10	v5	v7,v8,v9,v10,v11 (no const)	0.984	v8,v9,v10

Figure 15: Regression experiments for v13

OLS Regression Results

Dep. Variable:	v5	R-squared:	0.985
Model:	OLS	Adj. R-squared:	0.985
Method:	Least Squares	F-statistic:	1.005e+04
Date:	Thu, 22 Nov 2018	Prob (F-statistic):	0.00
Time:	23:51:33	Log-Likelihood:	-769.75
No. Observations:	618	AIC:	1547.
Df Residuals:	614	BIC:	1565.
Df Model:	4		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
v7	0.0419	0.020	2.136	0.033	0.003	0.080
v8	-0.0153	0.002	-8.471	0.000	-0.019	-0.012
v9	0.1492	0.008	18.628	0.000	0.133	0.165
v10	0.7589	0.015	49.960	0.000	0.729	0.789

Omnibus:	199.818	Durbin-Watson:	2.106
Prob(Omnibus):	0.000	Jarque-Bera (JB):	4996.027
Skew:	-0.839	Prob(JB):	0.00
Kurtosis:	16.828	Cond. No.	29.5

Figure 16: Regression results for v13

3 Cluster Analysis

We now present the full description of where each point is in each clustering algorithm. The explanation in the paper supplements this well enough to clearly understand the segregation of points by both algorithms.

3.1 Agglomerative Clustering

The scree plot for the variables is shown in Figure 17.

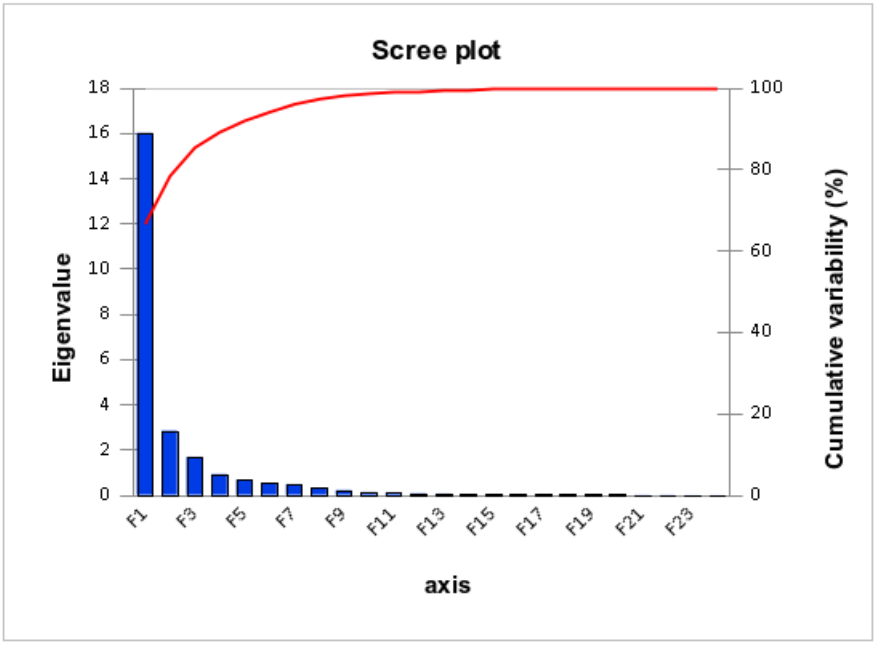


Figure 17: Scree Plot

The factor loadings after performing a PCA with OBLIMIN rotation are shown in Table 4.

Variable	F1	F2	F3
Papers	**0.898**	-0.444	-0.020
Citations	**0.919**	0.023	-0.157
Cites per Year	**0.834**	0.287	-0.076
Cites per Paper	0.397	**0.671**	0.170
Cites per Author	**0.923**	0.100	-0.157
Papers per Author	**0.887**	-0.450	-0.023
h-index	**0.964**	-0.079	0.111
g-index	**0.936**	0.016	0.120
hc-index	**0.859**	0.019	0.215
hI-index	**0.850**	0.002	0.126
hI-norm	**0.924**	0.001	0.148
AWCR	**0.903**	0.062	-0.090
AW-index	**0.885**	0.067	0.169
AWCRpA	**0.921**	0.145	-0.094
e-index	**0.837**	0.208	0.142
hm-index	**0.960**	-0.108	0.069
CitesAuthorYear	**0.785**	0.397	-0.089
CitesAuthorArticle	0.331	**0.734s**	0.105
CitesAuthorYearArticle	-0.032	**0.832**	0.169
hI-annual	**0.455**	0.322	0.362
h-coverage	-0.051	0.075	**0.943**
g-coverage	0.029	-0.003	**0.964**
Star count	**0.781**	0.286	-0.140
Adjusted star count	**0.722**	0.425	-0.146

Table 4: Factor loadings after PCA. The factors that the variables are loaded on to are shown in bold for each variable.

3.2 PCA

We performed a PCA before using DBSCAN. In all cases, we used the same method discussed in the paper to compute the value of *eps*. We did this analysis for one through twelve dimensions. For number of dimensions greater than six, the performance stagnates at 0.571. We argue however, that the new dimensions obtained by PCA are less interpretable than simply using the original features, and the maximum difference between the performance of DBSCAN using our hand-picked features (0.571) and using PCA (0.644, n=2) was only 0.073. Figure 18 shows the results of using PCA to various numbers of dimensions.

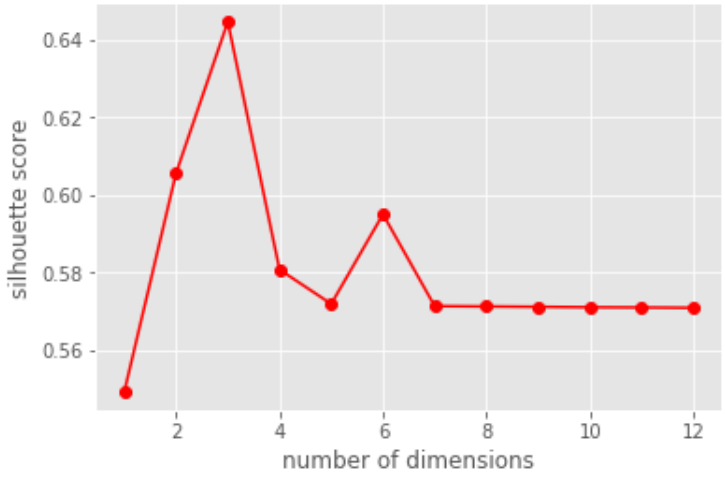


Figure 18: Results of using PCA and then clustering with DBSCAN

3.3 Analysis on S_1

Figure 19 shows the analysis for S_1. The Silhouette score for DBSCAN here was 0.635.

We make the following observations. The largest clusters for both the algorithms are very similar **(row 9)**. The two points in the MS cluster that were not in DBSCAN's largest cluster were in its second largest cluster **(row 2)**. All the clusters of the mean-shift algorithm that were of size 4 or less were marked as individual clusters by DBSCAN **(rows 5-8 and row 1)**. More surprisingly, the cluster of 19 points identified by mean-shift was marked as 19 individual clusters by DBSCAN **(row 4)**. Finally, a considerable part of mean-shift's second-largest cluster was also identified as individual points by DBSCAN **(row 3)**.

Index	DBSCAN cluster#	MS cluster#	DBSCAN cluster count	MS cluster count	Common
1	-1	-1	60	5	5
2	-1	0	60	509	2
3	-1	1	60	72	21
4	-1	2	60	19	19
5	-1	3	60	4	4
6	-1	4	60	4	4
7	-1	5	60	3	3
8	-1	6	60	2	2
9	0	0	532	509	507
10	0	1	532	72	25
11	1	1	20	72	20
12	2	1	6	72	6

Figure 19: Clustering by DBSCAN and Mean-Shift algorithms on S_1

3.4 Analysis on S_2

Figure 20 shows the analysis for S_2. As noted in the paper, the Silhouette score for DBSCAN for this subset was 0.571.

Index	DBSCAN cluster#	MS cluster#	DBSCAN cluster count	MS cluster count	Common
1	-1	-1	60	8	8
2	-1	1	60	82	28
3	-1	2	60	15	15
4	-1	3	60	3	3
5	-1	4	60	2	2
6	-1	5	60	2	2
7	-1	6	60	2	2
8	0	0	541	504	504
9	0	1	541	82	37
10	1	1	3	82	3
11	2	1	14	82	14

Figure 20: Clustering by DBSCAN and Mean-Shift algorithms on S_2