**Version3**

1. Descriptive statistics

Actual\_Donation\_Amount Average: 9813.046623693597

Actual\_Donation\_Amount Variance: 3966231020.7807913

Actual\_Donation\_Amount Min: 0.0

Actual\_Donation\_Amount Max: 3431670.0

Actual\_Donation\_Amount Median: 1300.0

Campaign\_Goal Average: 44797.3589085675

Campaign\_Goal Variance: 23844896574.26401

Campaign\_Goal Min: 100

Campaign\_Goal Max: 5000000

Campaign\_Goal Median: 5000.0

NPO\_Tax\_Deductibility Average: 0.9386069215845798

NPO\_Tax\_Deductibility Variance: 0.0576239683380983

NPO\_Tax\_Deductibility Min: 0

NPO\_Tax\_Deductibility Max: 1

NPO\_Tax\_Deductibility Median: 1.0

duration\_day Average: 107.733400087615

duration\_day Variance: 12088.133442917157

duration\_day Min: -170

duration\_day Max: 630

duration\_day Median: 60.0

Campaign\_Video Average: 0.40459352900682144

Campaign\_Video Variance: 0.2408976052926278

Campaign\_Video Min: 0

Campaign\_Video Max: 1

Campaign\_Video Median: 0.0

Msg\_category Average: 1.1299831028224545

Msg\_category Variance: 1.5541038297413958

Msg\_category Min: 0

Msg\_category Max: 3

Msg\_category Median: 1.0

Campaign\_Image\_num Average: 2.8678265223105326

Campaign\_Image\_num Variance: 2.5242411674773044

Campaign\_Image\_num Min: 0

Campaign\_Image\_num Max: 5

Campaign\_Image\_num Median: 3.0

Num\_desc\_cam Average: 137.2523311846799

Num\_desc\_cam Variance: 4579.946342115488

Num\_desc\_cam Min: 1

Num\_desc\_cam Max: 309

Num\_desc\_cam Median: 143.0

Num\_desc\_NPO Average: 100.5663683584705

Num\_desc\_NPO Variance: 3181.0814422902467

Num\_desc\_NPO Min: 1

Num\_desc\_NPO Max: 179

Num\_desc\_NPO Median: 115.0

Org\_causes Average: 3.019275298829714

Org\_causes Variance: 2.3911423247988264

Org\_causes Min: 0

Org\_causes Max: 5

Org\_causes Median: 4.0

Cam\_causes Average: 3.4542211652794292

Cam\_causes Variance: 0.9677240617311409

Cam\_causes Min: 0

Cam\_causes Max: 4

Cam\_causes Median: 4.0

A picture containing chart

Description automatically generated

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mean | Variance | Max | Min |
| Actual\_Donation\_Amount | 9813 | 3966231020 | 3431670 |  |
| NPO\_Tax\_Deductibility |  |  |  |  |
| Campaign\_Goal |  |  |  |  |
| Campaign\_Video |  |  |  |  |
| Campaign\_Image\_num |  |  |  |  |
| duration\_day |  |  |  |  |
| Msg1\_category |  |  |  |  |
| Msg2\_category |  |  |  |  |
| Msg3\_category |  |  |  |  |
| Msg4\_category |  |  |  |  |
| Msg5\_category |  |  |  |  |
| Num\_desc\_cam |  |  |  |  |
| Num\_desc\_NPO |  |  |  |  |

I will make a table like this when you need

Graphical user interface, application, table, Excel

Description automatically generated

Table1 Descriptive statistics and correlation

Linear Regression Result

I checked the codes and found that there is no significant error in coding.

I searched some articles which they said that this phenomenon is reasonable because when we have many independent variables they will compete with each other. Even though some independent variables have positive relationship with dependent variable they may have negative regression relationship with dependent variable. I think this is one important character of liner regression. In order to test it I changed the model and compared the result as below.

Reference – *“When the path coefficient [regression coefficient] and the correlation between latent constructs do not have the same sing, the original relationship between the two has been suppressed. In general, there are three reasons for suppressor effects. The first is due to the fact that the original relationship between the two variables is so close to zero that the difference in the signs simply reflects random variation around zero. The second reason for suppression is that there are two or more variables que contain the same information and are therefore redundant. The switching of signs in this case is due to the order of the variables in the equation. In this situation the redundancy is artificially changing the signs, and one or more of the redundant variables must be eliminated.”*

<https://www.researchgate.net/post/What-does-it-indicating-If-there-is-positive-correlation-but-negative-regression-coefficient>

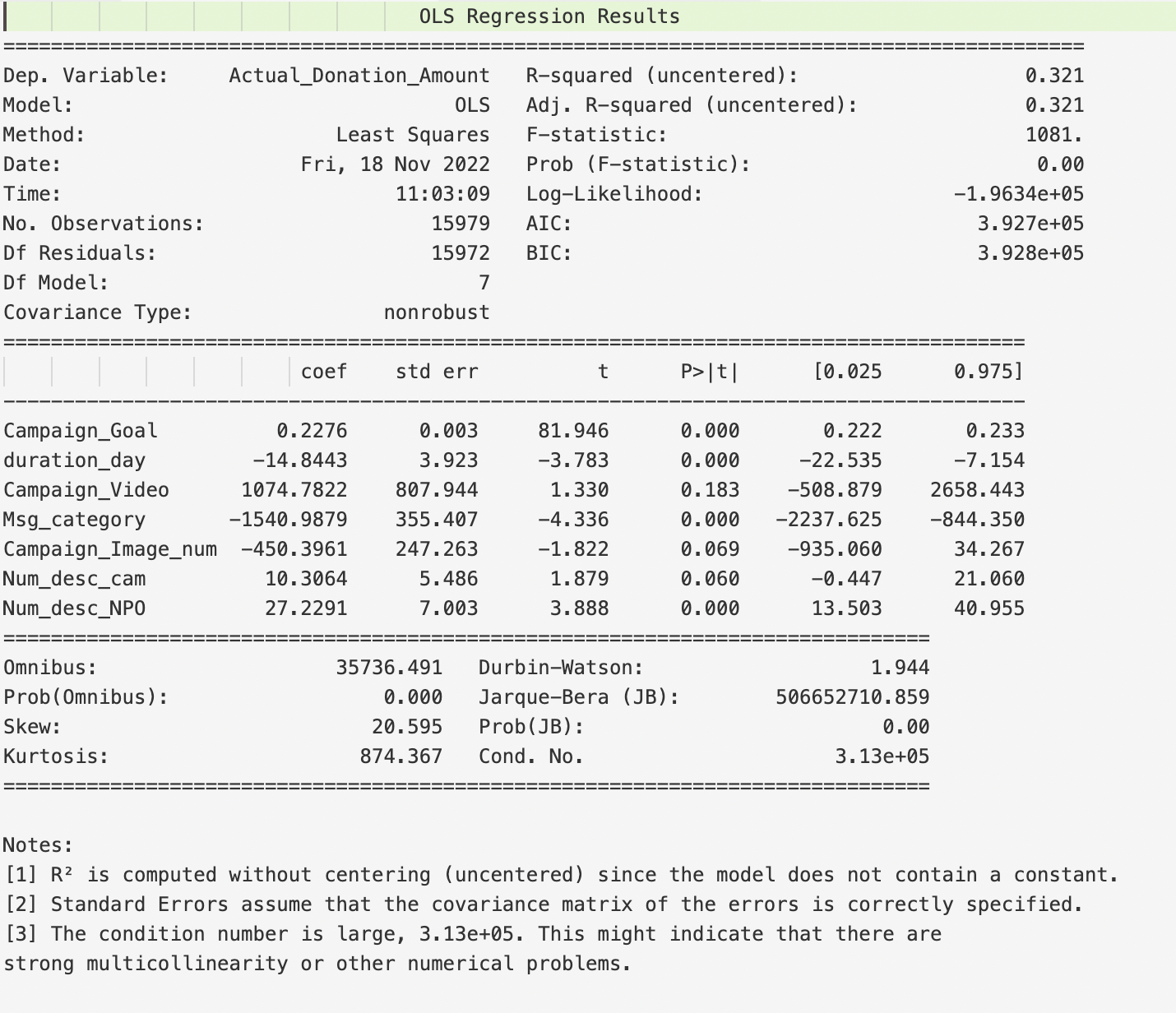
You can make a double check about it.

Model1

I change another OLS model which don’t have a constant the result is improved a little.

Actual\_Donation\_Amount = Campaign\_Goal + duration\_day + Msg\_category

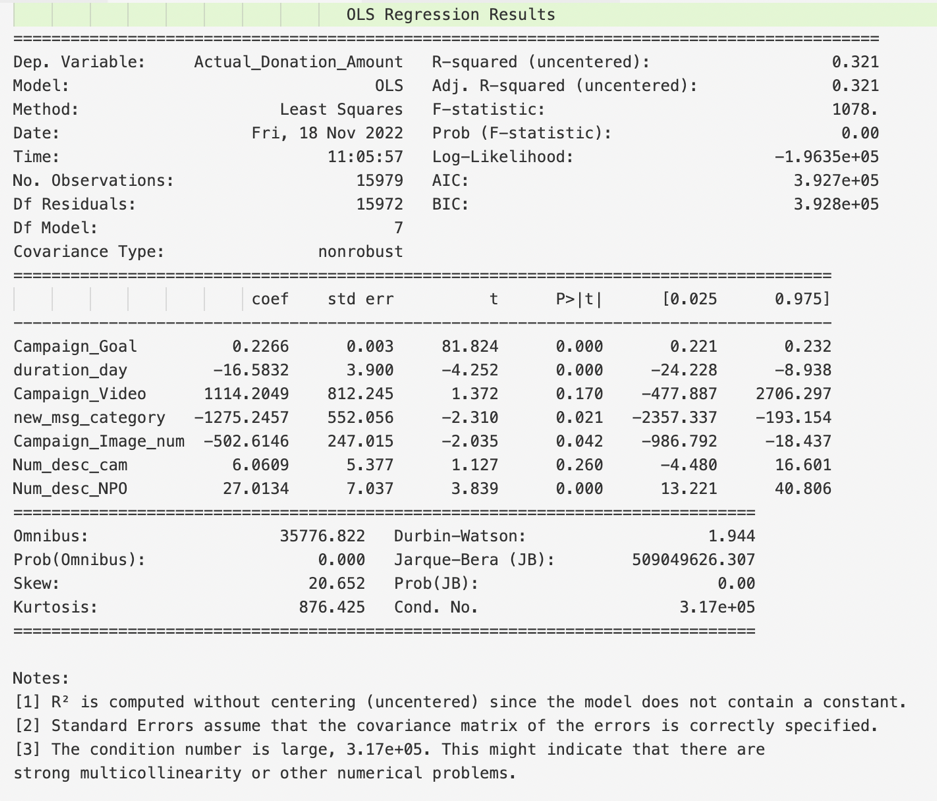
+ Campaign\_Image\_num + Campaign\_Video + Num\_desc\_cam + Num\_desc\_NPO



Use the new message category, the S square doesn’t change

Actual\_Donation\_Amount = Campaign\_Goal + duration\_day + new\_msg\_category

+ Campaign\_Image\_num + Campaign\_Video + Num\_desc\_cam + Num\_desc\_NPO

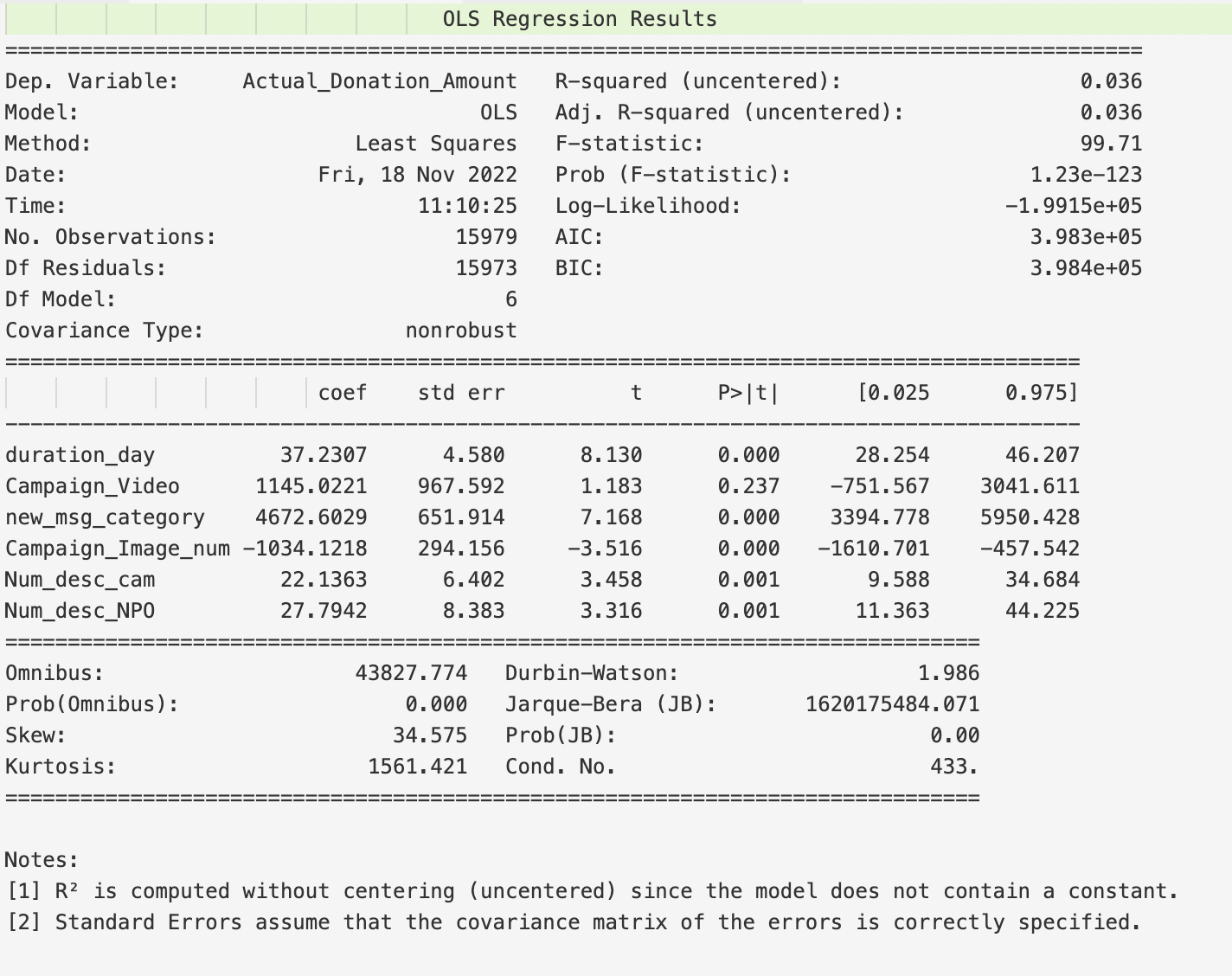


Model 3 The regression result

I remove Campaign\_Goal from independent variables the coef change a lot. Some negative coef become positive. So I think this can prove the words said above.

Actual\_Donation\_Amount = duration\_day + new\_msg\_category

+ Campaign\_Image\_num + Campaign\_Video + Num\_desc\_cam + Num\_desc\_NPO



Model

Actual\_Donation\_Amount = Campaign\_Goal + duration\_day + new\_msg\_category + NPO\_Tax\_Deductibility + Campaign\_Image\_num + Campaign\_Video + Num\_desc\_cam + Num\_desc\_NPO