```
import numpy as np
import pandas as pd
import statsmodels.api as sm
df = pd.read csv('MLR-Feature-Elimination.csv')
exc = [1]
while True:
    X = df.drop(columns=['c1', 'c2', 'c241', 'c52'] + exc)
    X = sm.add constant(X)
    y = df['c52']
    mlr model = sm.OLS(y, X).fit()
    print(mlr model.summary())
    y pred=mlr model.predict(X)
    y_pred.head()
    e=y-y pred
    e.head()
    MSE = np.square(np.subtract(y,y pred)).mean()
    print(f"MSE={MSE}")
    p values = mlr model.pvalues[1:]
    max p = p values.max()
    if max_p> 0.05:
        vx = p \ values.idxmax()
        print(f"Excluding variable '{vx}' with p-value {max_p:.6f}")
        exc.append(vx)
    else:
        print("The variables with modulus of coefficients greater than
1 can be said to have a large impact on the output. These variables
and their coefficents will be printed in the following lines of
code.")
        sig = mlr model.params[abs(final mlr model.params) > 1]
        print("Variables with coefficients greater than one:")
        print(sig)
        break
                            OLS Regression Results
=======
Dep. Variable:
                                  c52
                                         R-squared:
0.785
```

| Model: | 0LS | Adj. R-squared: |
|-------------------|------------------|--------------------------------|
| 0.777 | | |
| Method: | Least Squares | F-statistic: |
| 97.27 | | |
| Date: | Sat, 02 Sep 2023 | <pre>Prob (F-statistic):</pre> |
| 1.11e-299 | | |
| Time: | 23:18:21 | Log-Likelihood: |
| -1479.4 | | |
| No. Observations: | 1025 | AIC: |
| 3035. | | |
| Df Residuals: | 987 | BIC: |
| 3222. | | |
| Df Model: | 37 | |

| | coef | std err | t | P> t | [0.025 |
|----------------|-----------|---------|--------|--------|----------|
| 0.975] | COET | sta en | | 17 4 | [0.025 |
| | | | | | |
| | | | | | |
| const | -136.4882 | 104.748 | -1.303 | 0.193 | -342.042 |
| 69.065 c26 | 0.3634 | 0.049 | 7.442 | 0.000 | 0.268 |
| 0.459 | 0.3034 | 0.049 | 7.442 | 0.000 | 0.200 |
| c27 | -0.1911 | 0.895 | -0.214 | 0.831 | -1.948 |
| 1.565 | | | - | | |
| c28 | 0.2266 | 0.044 | 5.150 | 0.000 | 0.140 |
| 0.313 | 0 4454 | 0.040 | 0 115 | 0.000 | 0.541 |
| c29 | -0.4454 | 0.049 | -9.115 | 0.000 | -0.541 |
| -0.349 c30 | 3.4632 | 0.458 | 7.568 | 0.000 | 2.565 |
| 4.361 | 3.4032 | 0.430 | 7.500 | 0.000 | 2.303 |
| c31 | 0.2667 | 0.035 | 7.699 | 0.000 | 0.199 |
| 0.335 | | | | | |
| c32 | 0.1781 | 0.199 | 0.895 | 0.371 | -0.212 |
| 0.569 | 0 6545 | 0.464 | 1 412 | 0 150 | 1 564 |
| c33 0.255 | -0.6545 | 0.464 | -1.412 | 0.158 | -1.564 |
| c39 | 12.9984 | 1.470 | 8.845 | 0.000 | 10.114 |
| 15.882 | 1213304 | 11470 | 0.043 | 0.000 | 10.114 |
| c139 | -0.8439 | 0.225 | -3.745 | 0.000 | -1.286 |
| -0.402 | | | | | |
| c142 | 0.0454 | 0.067 | 0.682 | 0.495 | -0.085 |
| 0.176 | 0 1527 | 0.020 | 2.056 | 0.000 | 0.220 |
| c143 -0.077 | -0.1537 | 0.039 | -3.956 | 0.000 | -0.230 |
| c155 | -0.0342 | 0.013 | -2.684 | 0.007 | -0.059 |
| 0133 | 010572 | 0.015 | 2100+ | 0.007 | 0.055 |

| -0.009 c157 | 0.2501 | 0.041 | 6.100 | 0.000 | 0.170 |
|-------------------------|---------|--------|--------|-------|----------|
| 0.331 | 0.2301 | 0.041 | 0.100 | 0.000 | 0.170 |
| c158 0.329 | 0.2836 | 0.023 | 12.121 | 0.000 | 0.238 |
| c160 0.008 | 0.0040 | 0.002 | 2.206 | 0.028 | 0.000 |
| c161 0.013 | 0.0105 | 0.001 | 9.632 | 0.000 | 0.008 |
| c162 | 0.0027 | 0.002 | 1.649 | 0.099 | -0.001 |
| 0.006 c163 | 0.0081 | 0.002 | 3.724 | 0.000 | 0.004 |
| 0.012 c7 | 0.3236 | 0.292 | 1.108 | 0.268 | -0.250 |
| 0.897 c8 | -0.4465 | 0.137 | -3.257 | 0.001 | -0.716 |
| -0.177 c9 | -0.6863 | 0.075 | -9.097 | 0.000 | -0.834 |
| -0.538 c10 | 8.8046 | 1.541 | 5.715 | 0.000 | 5.781 |
| 11.828 c11 | -0.1706 | 0.042 | -4.044 | 0.000 | -0.253 |
| -0.088 c12 | -0.3028 | 0.109 | -2.765 | 0.006 | -0.518 |
| -0.088 c13 | 0.0757 | 0.052 | 1.455 | 0.146 | -0.026 |
| 0.178 c15 | -0.4255 | 0.058 | -7.336 | 0.000 | -0.539 |
| -0.312 c16 | -0.5046 | 0.103 | -4.919 | 0.000 | -0.706 |
| -0.303 c17 | -0.0792 | 0.021 | -3.707 | 0.000 | -0.121 |
| -0.037 c19 | 0.3822 | 0.218 | 1.756 | 0.079 | -0.045 |
| 0.809 c20 | 0.2279 | 0.042 | 5.449 | 0.000 | 0.146 |
| 0.310 c21 | -0.1647 | 0.049 | -3.329 | 0.001 | -0.262 |
| -0.068 c22 | -0.1258 | 0.036 | -3.455 | 0.001 | -0.197 |
| -0.054 c23 | -0.3301 | 0.048 | -6.848 | 0.000 | -0.425 |
| -0.235 c34 | -0.5123 | 1.765 | -0.290 | 0.772 | -3.976 |
| 2.951 c35 | 6.3277 | 1.616 | 3.917 | 0.000 | 3.157 |
| 9.498 c36 175.541 | -1.8280 | 90.385 | -0.020 | 0.984 | -179.197 |

| Omn i h | 40 476 | Dunkin Watern |
|--|--|---|
| Omnibus: | 40.476 | Durbin-Watson: |
| 0.546 | | |
| Prob(Omnibus): | 0.000 | Jarque-Bera (JB): |
| 113.185 | | |
| Skew: | -0.049 | Prob(JB): |
| 2.64e-25 | | |
| Kurtosis: | 4.625 | Cond. No. |
| 3.48e+06 | | |
| ======================================= | | |
| | | |
| | | |
| Notes: | | |
| | accume that the co | ovariance matrix of the errors is |
| | | Ovaliance matrix of the errors is |
| correctly specified | | 40 - 10C This minht indicate that |
| | umber is large, 3.2 | 48e+06. This might indicate that |
| there are | | |
| strong multicolline | | erical problems. |
| MSE=1.05003742745816 | 603 | |
| Excluding variable | 'c36' with p-value | 0.983868 |
| | OLS Regres | ssion Results |
| | 3 | |
| | | |
| | | |
| ======= | | |
| | c52 | R-squared: |
| Dep. Variable: | c52 | R-squared: |
| Dep. Variable: 0.785 | | • |
| Dep. Variable: 0.785 Model: | c52 0LS | · |
| Dep. Variable: 0.785 Model: 0.777 | 0LS | Adj. R-squared: |
| Dep. Variable: 0.785 Model: 0.777 Method: | | Adj. R-squared: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 | 0LS Least Squares | Adj. R-squared: F-statistic: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: | 0LS | Adj. R-squared: F-statistic: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 | 0LS Least Squares | Adj. R-squared: F-statistic: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: | 0LS Least Squares | Adj. R-squared: F-statistic: Prob (F-statistic): |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: | OLS Least Squares Sat, 02 Sep 2023 | Adj. R-squared: F-statistic: Prob (F-statistic): |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 | OLS Least Squares Sat, 02 Sep 2023 23:18:21 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: | OLS Least Squares Sat, 02 Sep 2023 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: | OLS Least Squares Sat, 02 Sep 2023 23:18:21 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. Df Model: | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 36 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. Df Model: | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 36 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. Df Model: | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 36 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. Df Model: | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 36 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. Df Model: Covariance Type: | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 36 | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. Df Model: Covariance Type: ==================================== | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 36 nonrobust | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. Df Model: Covariance Type: | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 36 nonrobust | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. Df Model: Covariance Type: ==================================== | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 36 nonrobust | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |
| Dep. Variable: 0.785 Model: 0.777 Method: 100.1 Date: 1.10e-300 Time: -1479.4 No. Observations: 3033. Df Residuals: 3215. Df Model: Covariance Type: | OLS Least Squares Sat, 02 Sep 2023 23:18:21 1025 988 36 nonrobust ef std err | Adj. R-squared: F-statistic: Prob (F-statistic): Log-Likelihood: AIC: BIC: |

| 68.779 c26 | 0.3634 | 0.049 | 7.447 | 0.000 | 0.268 |
|------------------------|---------|-------|--------|-------|--------|
| 0.459 | 0.3034 | 0.049 | 7.447 | 0.000 | 0.200 |
| c27 | -0.1912 | 0.895 | -0.214 | 0.831 | -1.947 |
| 1.565 c28 | 0.2266 | 0.044 | 5.156 | 0.000 | 0.140 |
| 0.313 c29 | -0.4453 | 0.049 | -9.127 | 0.000 | -0.541 |
| -0.350 c30 | 3.4636 | 0.457 | 7.578 | 0.000 | 2.567 |
| 4.361 c31 | 0.2666 | 0.035 | 7.718 | 0.000 | 0.199 |
| 0.334 c32 | 0.1779 | 0.199 | 0.895 | 0.371 | -0.212 |
| 0.568 c33 | -0.6542 | 0.463 | -1.413 | 0.158 | -1.563 |
| 0.254 c39 | 12.9990 | 1.469 | 8.852 | 0.000 | 10.117 |
| 15.881 c139 | -0.8438 | 0.225 | -3.748 | 0.000 | -1.286 |
| -0.402 c142 | 0.0454 | 0.066 | 0.683 | 0.495 | -0.085 |
| 0.176 c143 | -0.1537 | 0.039 | -3.958 | 0.000 | -0.230 |
| -0.077 c155 | -0.0342 | 0.013 | -2.685 | 0.007 | -0.059 |
| -0.009 c157 | 0.2502 | 0.041 | 6.105 | 0.000 | 0.170 |
| 0.331 c158 0.329 | 0.2836 | 0.023 | 12.128 | 0.000 | 0.238 |
| c160 0.008 | 0.0040 | 0.002 | 2.209 | 0.027 | 0.000 |
| c161 0.013 | 0.0105 | 0.001 | 9.659 | 0.000 | 0.008 |
| c162 0.006 | 0.0027 | 0.002 | 1.650 | 0.099 | -0.001 |
| c163 0.012 | 0.0081 | 0.002 | 3.726 | 0.000 | 0.004 |
| c7 0.895 | 0.3241 | 0.291 | 1.113 | 0.266 | -0.247 |
| c8 -0.178 | -0.4465 | 0.137 | -3.258 | 0.001 | -0.715 |
| c9 -0.538 | -0.6863 | 0.075 | -9.104 | 0.000 | -0.834 |
| c10 11.825 | 8.8058 | 1.539 | 5.724 | 0.000 | 5.787 |
| c11 -0.088 | -0.1705 | 0.042 | -4.058 | 0.000 | -0.253 |
| | | | | | |

| c12 | -0.3028 | 0.109 | -2.768 | 0.006 | -0.517 |
|---------------|---------|-------|------------|---------|--------|
| -0.088 c13 | 0.0757 | 0.052 | 1.456 | 0.146 | -0.026 |
| 0.178 | | | | | |
| c15 -0.312 | -0.4255 | 0.058 | -7.349 | 0.000 | -0.539 |
| c16 -0.303 | -0.5045 | 0.103 | -4.922 | 0.000 | -0.706 |
| c17 -0.037 | -0.0792 | 0.021 | -3.709 | 0.000 | -0.121 |
| c19 | 0.3821 | 0.217 | 1.757 | 0.079 | -0.045 |
| 0.809 c20 | 0.2280 | 0.042 | 5.454 | 0.000 | 0.146 |
| 0.310 c21 | -0.1648 | 0.049 | -3.331 | 0.001 | -0.262 |
| -0.068 | 0 1050 | 0.006 | 2 457 | 0 001 | 0 107 |
| c22 -0.054 | -0.1258 | 0.036 | -3.457 | 0.001 | -0.197 |
| c23 | -0.3301 | 0.048 | -6.852 | 0.000 | -0.425 |
| -0.236 c34 | -0.5115 | 1.763 | -0.290 | 0.772 | -3.972 |
| 2.949 | C 22C0 | 1 614 | 2 010 | 0.000 | 2 150 |
| c35 9.495 | 6.3269 | 1.614 | 3.919 | 0.000 | 3.159 |
| | | | | | |
| Omnibuci | | 40 | 100 Durhin | Watconi | |

Omnibus: 40.480 Durbin-Watson:

0.546

Prob(Omnibus): 0.000 Jarque-Bera (JB):

113.199

Skew: -0.049 Prob(JB):

2.62e-25

Kurtosis: 4.625 Cond. No.

3.47e+06

======

Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 3.47e+06. This might indicate that there are

strong multicollinearity or other numerical problems.

MSE=1.0500378626383262

Excluding variable 'c27' with p-value 0.830837

OLS Regression Results

======

| Dep. Varia | ble: | С | 52 R-squ | ared: | |
|-----------------|-------------|--------------|------------|--------------|----------|
| 0.785 | | 0 | IC V4+ | D. sausnad. | |
| Model: 0.777 | | U | LS Adj. | R-squared: | |
| Method: | | Least Squar | oc | tistic: | |
| 103.0 | | Least Squar | es r-sta | LISTIC: | |
| Date: | Sa | t, 02 Sep 20 | 23 Proh | (F-statistic | ١. |
| 1.10e-301 | Ja | t, 02 Sep 20 | 25 1100 | (1-3tat13t1t | , . |
| Time: | | 23:18: | 21 Log-L | ikelihood: | |
| -1479.5 | | 231101 | | INCCINOCAL | |
| No. Observ | ations: | 10 | 25 AIC: | | |
| 3031. | 4 (2 ()) | | 25 7.201 | | |
| Df Residua | ıls: | 9 | 89 BIC: | | |
| 3208. | | _ | | | |
| Df Model: | | | 35 | | |
| | | | | | |
| Covariance | e Type: | nonrobu | st | | |
| | | | | | |
| | | | | | |
| ====== | | | _ | D. 1+1 | [0 025 |
| 0.975] | coef | std err | t | P> t | [0.025 |
| 0.9/5] | | | | | |
| | | | | | |
| const | -156.6963 | 45.447 | -3.448 | 0.001 | -245.880 |
| -67.512 | 130.0303 | 731777 | 3.440 | 0.001 | 2431000 |
| c26 | 0.3634 | 0.049 | 7.451 | 0.000 | 0.268 |
| 0.459 | 013031 | 01015 | , 1 13 1 | 01000 | 01200 |
| c28 | 0.2268 | 0.044 | 5.166 | 0.000 | 0.141 |
| 0.313 | | | | | V |
| c29 | -0.4452 | 0.049 | -9.130 | 0.000 | -0.541 |
| -0.349 | | | | | |
| c30 | 3.4624 | 0.457 | 7.579 | 0.000 | 2.566 |
| 4.359 | | | | | |
| c31 | 0.2668 | 0.035 | 7.729 | 0.000 | 0.199 |
| 0.335 | | | | | |
| c32 | 0.1783 | 0.199 | 0.897 | 0.370 | -0.212 |
| 0.568 | | | | | |
| c33 | -0.6554 | 0.463 | -1.416 | 0.157 | -1.564 |
| 0.253 | | | | | |
| c39 | 13.0024 | 1.468 | 8.859 | 0.000 | 10.122 |
| 15.883 | 0.0470 | 0.225 | 2 744 | 0.000 | 1 202 |
| c139 | -0.8412 | 0.225 | -3.744 | 0.000 | -1.282 |
| -0.400 | 0 0445 | 0.066 | 0 671 | 0 500 | 0.000 |
| c142 | 0.0445 | 0.066 | 0.671 | 0.502 | -0.086 |
| 0.175 | 0 1526 | 0 020 | 3 050 | 0.000 | 0.220 |
| c143 -0.077 | -0.1536 | 0.039 | -3.959 | 0.000 | -0.230 |
| c155 | -0.0341 | 0.013 | -2.682 | 0.007 | -0.059 |
| CIJJ | -0.0341 | 0.013 | -2.002 | 0.007 | -0.039 |
| | | | | | |

| -0.009 | 0.2502 | 0.041 | 6 111 | 0.000 | 0 170 |
|---------------|---------|-------|---------|-------|--------|
| c157 0.331 | 0.2503 | 0.041 | 6.111 | 0.000 | 0.170 |
| c158 | 0.2832 | 0.023 | 12.154 | 0.000 | 0.237 |
| 0.329 | | | | | |
| c160 | 0.0040 | 0.002 | 2.214 | 0.027 | 0.000 |
| 0.008 c161 | 0.0105 | 0.001 | 9.687 | 0.000 | 0.008 |
| 0.013 | 0.0103 | 0.001 | 3.007 | 0.000 | 0.000 |
| c162 | 0.0027 | 0.002 | 1.657 | 0.098 | -0.001 |
| 0.006 | 0.0000 | 0.000 | 2 722 | 0.000 | 0.004 |
| c163 0.012 | 0.0080 | 0.002 | 3.722 | 0.000 | 0.004 |
| c7 | 0.3199 | 0.290 | 1.102 | 0.271 | -0.250 |
| 0.890 | | | | | |
| c8 | -0.4479 | 0.137 | -3.273 | 0.001 | -0.716 |
| -0.179 c9 | -0.6866 | 0.075 | -9.114 | 0.000 | -0.834 |
| -0.539 | 0.0000 | 0.075 | 3.114 | 0.000 | 0.054 |
| c10 | 8.8092 | 1.538 | 5.729 | 0.000 | 5.792 |
| 11.827 | 0 1600 | 0.042 | 4 055 | 0.000 | 0.252 |
| c11 -0.088 | -0.1699 | 0.042 | -4.055 | 0.000 | -0.252 |
| c12 | -0.3042 | 0.109 | -2.787 | 0.005 | -0.518 |
| -0.090 | | | | | |
| c13 | 0.0757 | 0.052 | 1.458 | 0.145 | -0.026 |
| 0.178 c15 | -0.4252 | 0.058 | -7.349 | 0.000 | -0.539 |
| -0.312 | 01.1232 | 0.050 | 7.13.13 | 01000 | 0.333 |
| c16 | -0.5034 | 0.102 | -4.920 | 0.000 | -0.704 |
| -0.303 c17 | -0.0793 | 0.021 | -3.718 | 0.000 | -0.121 |
| -0.037 | -0.0793 | 0.021 | -3./10 | 0.000 | -0.121 |
| c19 | 0.3806 | 0.217 | 1.752 | 0.080 | -0.046 |
| 0.807 | | | | | |
| c20 0.310 | 0.2279 | 0.042 | 5.456 | 0.000 | 0.146 |
| c21 | -0.1654 | 0.049 | -3.350 | 0.001 | -0.262 |
| -0.069 | 0.1200. | 0.0.5 | 3.330 | 0.001 | 0.202 |
| c22 | -0.1257 | 0.036 | -3.457 | 0.001 | -0.197 |
| -0.054 c23 | -0.3295 | 0.048 | -6.854 | 0.000 | -0.424 |
| -0.235 | -0.3293 | 0.046 | -0.634 | 0.000 | -0.424 |
| c34 | -0.5183 | 1.762 | -0.294 | 0.769 | -3.977 |
| 2.940 | | | 2 222 | 0.000 | 2 |
| c35 9.501 | 6.3356 | 1.613 | 3.928 | 0.000 | 3.170 |
| 9.301 | | | | | |

| Omnibus: | | 40.889 | Durbin- | Watson: | |
|--|--|---|---|--|---|
| 0.547 Prob(Omnibus | ١. | 0.000 | larque | Pora (1P) | |
| 115.091 | , . | 0.000 | Jaique | ·Bera (JB): | 1 |
| Skew: | | -0.050 | Prob(JE | 3): | |
| 1.02e-25 | | | | | |
| Kurtosis: | | 4.639 | Cond. N | 10. | |
| 1.50e+06 | | | | | |
| | | | | | |
| | | | | | |
| Notes: | F | | | | *h |
| correctly sp | | ume that the co | ovariance | matrix of | the errors is |
| | | is large, 1.5 | 5e+06. Thi | is miaht ir | ndicate that |
| there are | | | | | |
| | | or other nume | erical pro | blems. | |
| MSE=1.050086 | | | 0 760750 | | |
| Excluding va | riable 'c34' | with p-value | | .1+0 | |
| | | OLS Regres | ssion Rest | ILTS | |
| | | | | .======= | |
| | | | | | |
| | | | | | |
| Dep. Variabl | e: | c52 | R-squai | red: | |
| 0.785 | e: | | • | | |
| 0.785 Model: | e: | C52 OLS | • | red: -squared: | |
| 0.785 Model: 0.777 | e: | 0LS | Adj. R | squared: | |
| 0.785 Model: | e: | | Adj. R | squared: | |
| 0.785 Model: 0.777 Method: 106.2 Date: | | 0LS | Adj. R F-stati | squared: | c): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 | | OLS Least Squares 1, 02 Sep 2023 | Adj. R F-stati Prob (F | squared: stic: -statistic | c): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: | | OLS Least Squares | Adj. R F-stati Prob (F | squared: | :): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 | Sat | OLS Least Squares 2, 02 Sep 2023 23:18:21 | Adj. R F-stati Prob (F Log-Lik | squared: stic: -statistic | z): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat | Sat | OLS Least Squares 1, 02 Sep 2023 | Adj. R F-stati Prob (F | squared: stic: -statistic | 2): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 | Sat ions: | OLS Least Squares 2, 02 Sep 2023 23:18:21 | Adj. R F-stati Prob (F Log-Lik | squared: stic: -statistic | E): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. | Sat ions: | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 | Adj. R-F-stati Prob (FLog-Lik | squared: stic: -statistic | c): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals | Sat ions: | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 | Adj. R-F-stati Prob (FLog-Lik | squared: stic: -statistic | E): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. Df Model: | Sat ions: : | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 | Adj. R-F-stati Prob (FLog-Lik | squared: stic: -statistic | E): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. | Sat ions: : | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 | Adj. R-F-stati Prob (FLog-Lik | squared: stic: -statistic | c): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. Df Model: | Sat ions: : | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 | Adj. R-F-stati Prob (FLog-Lik | squared: stic: -statistic | c): |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. Df Model: | Sat ions: : | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 | Adj. R-F-stati Prob (FLog-Lik | squared: stic: -statistic | ======================================= |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. Df Model: Covariance T | Sat ions: : | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 | Adj. R-F-stati Prob (FLog-Lik | squared: stic: -statistic | ====================================== |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. Df Model: Covariance T | Sations: : : ype: ======== | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 34 nonrobust | Adj. R-F-stati Prob (FLog-Like AIC: BIC: | squared: Lstic: -statistic celihood: | |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. Df Model: Covariance T | Sations: : : ype: ======== | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 34 nonrobust | Adj. R-F-stati Prob (FLog-Like AIC: BIC: | squared: Lstic: -statistic celihood: | |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. Df Model: Covariance T ==================================== | Sations: : ype:coef | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 34 nonrobust std err | Adj. R- F-stati Prob (F Log-Lik AIC: BIC: | esquared: Estic: cstatistic celihood: P> t | [0.025 |
| 0.785 Model: 0.777 Method: 106.2 Date: 1.10e-302 Time: -1479.5 No. Observat 3029. Df Residuals 3202. Df Model: Covariance T ==================================== | Sations: : : ype: ======== | 0LS Least Squares 2, 02 Sep 2023 23:18:21 1025 990 34 nonrobust std err | Adj. R-F-stati Prob (FLog-Like AIC: BIC: | squared: Lstic: -statistic celihood: | |

| 0.459 | | | | | |
|----------------|---------|-------|--------|-------|--------|
| c28 | 0.2247 | 0.043 | 5.192 | 0.000 | 0.140 |
| 0.310 c29 | -0.4452 | 0.049 | -9.135 | 0.000 | -0.541 |
| -0.350 | V | 0.0.0 | 0.200 | 0.000 | 0.0.1 |
| c30 | 3.4585 | 0.456 | 7.578 | 0.000 | 2.563 |
| 4.354 c31 | 0.2667 | 0.034 | 7.729 | 0.000 | 0.199 |
| 0.334 | 0.2007 | 0.054 | 7.723 | 0.000 | 0.133 |
| c32 | 0.1769 | 0.198 | 0.891 | 0.373 | -0.213 |
| 0.566 | 0 6565 | 0.463 | 1 410 | 0.150 | 1 564 |
| c33 0.251 | -0.6565 | 0.463 | -1.419 | 0.156 | -1.564 |
| c39 | 13.0072 | 1.467 | 8.867 | 0.000 | 10.129 |
| 15.886 | | | | | |
| c139 | -0.8471 | 0.224 | -3.787 | 0.000 | -1.286 |
| -0.408 c142 | 0.0452 | 0.066 | 0.683 | 0.495 | -0.085 |
| 0.175 | 0.0432 | 0.000 | 0.005 | 0.433 | -0.005 |
| c143 | -0.1520 | 0.038 | -3.958 | 0.000 | -0.227 |
| -0.077 | 0 0225 | 0.012 | 2 670 | 0.000 | 0.050 |
| c155 -0.009 | -0.0335 | 0.013 | -2.670 | 0.008 | -0.058 |
| c157 | 0.2476 | 0.040 | 6.202 | 0.000 | 0.169 |
| 0.326 | | | | | |
| c158 0.329 | 0.2829 | 0.023 | 12.156 | 0.000 | 0.237 |
| c160 | 0.0040 | 0.002 | 2.252 | 0.025 | 0.001 |
| 0.008 | 0.00.0 | 0.002 | 2.252 | 0.025 | 0.001 |
| c161 | 0.0105 | 0.001 | 9.693 | 0.000 | 0.008 |
| 0.013 c162 | 0.0027 | 0.002 | 1.651 | 0.099 | -0.001 |
| 0.006 | 0.0027 | 0.002 | 1.051 | 0.099 | -0.001 |
| c163 | 0.0081 | 0.002 | 3.797 | 0.000 | 0.004 |
| 0.012 | 0 2227 | 0.200 | 1 110 | 0.266 | 0 247 |
| c7 0.892 | 0.3227 | 0.290 | 1.112 | 0.266 | -0.247 |
| c8 | -0.4491 | 0.137 | -3.285 | 0.001 | -0.717 |
| -0.181 | | | | | |
| c9 | -0.6860 | 0.075 | -9.114 | 0.000 | -0.834 |
| -0.538 c10 | 8.7578 | 1.527 | 5.735 | 0.000 | 5.761 |
| 11.754 | 0.7570 | 1.527 | 5.755 | 0.000 | 3.701 |
| c11 | -0.1689 | 0.042 | -4.046 | 0.000 | -0.251 |
| -0.087 | 0.2045 | 0 100 | 2 702 | 0.005 | 0 510 |
| c12 -0.090 | -0.3045 | 0.109 | -2.792 | 0.005 | -0.519 |
| c13 | 0.0764 | 0.052 | 1.472 | 0.141 | -0.025 |
| 0.178 | | | | | |
| | | | | | |

| c15 | -0.4250 | 0.058 | -7.349 | 0.000 | -0.538 |
|-----------------------|----------------|-------------|--------------|-------------|---------------|
| -0.312 c16 | -0.5026 | 0.102 | -4.916 | 0.000 | -0.703 |
| -0.302 c17 | -0.0793 | 0.021 | -3.719 | 0.000 | -0.121 |
| -0.037 c19 | 0.3836 | 0.217 | 1.768 | 0.077 | -0.042 |
| 0.809 | | | | | |
| c20 0.311 | 0.2288 | 0.042 | 5.493 | 0.000 | 0.147 |
| c21 | -0.1630 | 0.049 | -3.349 | 0.001 | -0.259 |
| -0.067 c22 | -0.1266 | 0.036 | -3.497 | 0.000 | -0.198 |
| -0.056 c23 | -0.3297 | 0.048 | -6.863 | 0.000 | -0.424 |
| -0.235 c35 | 6.4698 | 1.546 | 4.184 | 0.000 | 3.435 |
| 9.504 | 0.4030 | 1.540 | 7.104 | 0.000 | 5.433 |
| | ======== | | ======= | | ========= |
| Omnibus: 0.546 | | 41.0 | 13 Durbin | -Watson: | |
| Prob(Omnibus | s): | 0.0 | 00 Jarque | -Bera (JB): | |
| 115.921 Skew: | | -0.0 | 46 Prob(J | D\. | |
| 6.73e-26 | | -0.0 | 40 PIOD(J | D); | |
| Kurtosis: 1.50e+06 | | 4.6 | 45 Cond. | No. | |
| ========= | | | ======= | | |
| ====== | | | | | |
| Notes: | d Errors assur | ne that the | covariance | matrix of | the errors is |
| correctly s | pecified. | | | | |
| [2] The cond | dition number | is large | 1.5e + 06 Th | is might in | dicate that |

[2] The condition number is large, 1.5e+06. This might indicate that there are

strong multicollinearity or other numerical problems.

MSE=1.0501782202266756

Excluding variable 'c142' with p-value 0.495014

OLS Regression Results

======= =======

Dep. Variable: c52 R-squared: 0.785

Model: OLS Adj. R-squared:

0.777

Method: Least Squares F-statistic:

109.4

Date: Sat, 02 Sep 2023 Prob (F-statistic):

1.32e-303 Time: 23:18:21 Log-Likelihood:

-1479.7

No. Observations: 1025 AIC:

3027.

Df Residuals: 991 BIC:

3195.

Df Model: 33

| 0.0751 | coef | std err | t | P> t | [0.025 |
|------------------|-----------|---------|--------|-------|----------|
| 0.975] | | | | | |
| | | | | | |
| const -65.391 | -154.0761 | 45.193 | -3.409 | 0.001 | -242.761 |
| c26 0.457 | 0.3613 | 0.049 | 7.433 | 0.000 | 0.266 |
| c28 0.310 | 0.2423 | 0.035 | 6.992 | 0.000 | 0.174 |
| c29 -0.345 | -0.4397 | 0.048 | -9.152 | 0.000 | -0.534 |
| c30 4.313 | 3.4233 | 0.453 | 7.551 | 0.000 | 2.534 |
| c31 0.333 | 0.2823 | 0.026 | 10.957 | 0.000 | 0.232 |
| c32 0.541 | 0.1559 | 0.196 | 0.795 | 0.427 | -0.229 |
| c33 0.282 | -0.6193 | 0.459 | -1.349 | 0.178 | -1.520 |
| c39 15.773 | 12.9088 | 1.459 | 8.845 | 0.000 | 10.045 |
| c139 -0.401 | -0.8394 | 0.223 | -3.758 | 0.000 | -1.278 |
| c143 -0.073 | -0.1476 | 0.038 | -3.900 | 0.000 | -0.222 |
| c155 -0.008 | -0.0319 | 0.012 | -2.588 | 0.010 | -0.056 |
| c157 0.327 | 0.2491 | 0.040 | 6.250 | 0.000 | 0.171 |
| c158 0.326 | 0.2808 | 0.023 | 12.181 | 0.000 | 0.236 |
| c160 0.008 | 0.0041 | 0.002 | 2.276 | 0.023 | 0.001 |
| c161 0.013 | 0.0105 | 0.001 | 9.823 | 0.000 | 0.008 |

| c162 | 0.0028 | 0.002 | 1.693 | 0.091 | -0.000 |
|-----------------------------------|---------|---------|------------|-------------|--------|
| 0.006 c163 | 0.0080 | 0.002 | 3.765 | 0.000 | 0.004 |
| 0.012 c7 | 0.3284 | 0.290 | 1.133 | 0.258 | -0.240 |
| 0.897 c8 | -0.4400 | 0.136 | -3.235 | 0.001 | -0.707 |
| -0.173 c9 | -0.6781 | 0.074 | -9.120 | 0.000 | -0.824 |
| -0.532 c10 | 8.7586 | 1.527 | 5.737 | 0.000 | 5.763 |
| 11.754 c11 | -0.1650 | 0.041 | -3.991 | 0.000 | -0.246 |
| -0.084 c12 | -0.3034 | 0.109 | -2.783 | 0.005 | -0.517 |
| -0.089 c13 0.178 | 0.0765 | 0.052 | 1.476 | 0.140 | -0.025 |
| c15 -0.311 | -0.4243 | 0.058 | -7.341 | 0.000 | -0.538 |
| c16 -0.293 | -0.4899 | 0.100 | -4.874 | 0.000 | -0.687 |
| c17 -0.040 | -0.0816 | 0.021 | -3.880 | 0.000 | -0.123 |
| c19 0.813 | 0.3875 | 0.217 | 1.787 | 0.074 | -0.038 |
| c20 0.305 | 0.2240 | 0.041 | 5.458 | 0.000 | 0.143 |
| c21 -0.066 | -0.1619 | 0.049 | -3.329 | 0.001 | -0.257 |
| c22 -0.054 | -0.1243 | 0.036 | -3.449 | 0.001 | -0.195 |
| c23 -0.231 | -0.3229 | 0.047 | -6.873 | 0.000 | -0.415 |
| c35 9.374 | 6.3578 | 1.537 | 4.136 | 0.000 | 3.341 |
| | | ======= | | ======= | |
| Omnibus: | | 40.5 | 558 Durbin | -Watson: | |
| 0.546 Prob(Omnibus | 5): | 0.0 | 000 Jarque | -Bera (JB): | |
| 113.650 Skew: 2.09e-25 | | -0.0 |)48 Prob(J | B): | |
| Z.096-25 Kurtosis: 1.49e+06 | | 4.6 | 528 Cond. | No. | |

Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 1.49e+06. This might indicate that there are

strong multicollinearity or other numerical problems.

MSE=1.0506724977825554

Excluding variable 'c32' with p-value 0.426598

OLS Regression Results

======

Dep. Variable: c52 R-squared:

0.785

Model: OLS Adj. R-squared:

0.778

Method: Least Squares F-statistic:

112.9

Date: Sat, 02 Sep 2023 Prob (F-statistic):

1.69e-304

Time: 23:18:21 Log-Likelihood:

-1480.1

No. Observations: 1025 AIC:

3026.

Df Residuals: 992 BIC:

3189.

Df Model: 32

| ====== | coef | std err | t | P> t | [0.025 |
|---------|-----------|---------|--------|-------|----------|
| 0.975] | | | | | |
| | | | | | |
| | | | | | |
| const | -121.0921 | 17.957 | -6.743 | 0.000 | -156.330 |
| -85.854 | | | | | |
| c26 | 0.3582 | 0.048 | 7.395 | 0.000 | 0.263 |
| 0.453 | | | | | |
| c28 | 0.2395 | 0.034 | 6.948 | 0.000 | 0.172 |
| 0.307 | | | | | |
| c29 | -0.4366 | 0.048 | -9.119 | 0.000 | -0.531 |
| -0.343 | | | | | |
| c30 | 3.4079 | 0.453 | 7.525 | 0.000 | 2.519 |
| 4.297 | | | | | |
| c31 | 0.2758 | 0.024 | 11.293 | 0.000 | 0.228 |
| 0.324 | | | | | |
| c33 | -0.2600 | 0.083 | -3.139 | 0.002 | -0.423 |
| -0.097 | | | | | |

| c39 15.777 | 12.9132 | 1.459 | 8.850 | 0.000 | 10.050 | |
|------------------------|---------|-------|--------|-------|--------|--|
| c139 | -0.8435 | 0.223 | -3.778 | 0.000 | -1.282 | |
| -0.405 c143 | -0.1446 | 0.038 | -3.841 | 0.000 | -0.219 | |
| -0.071 c155 | -0.0321 | 0.012 | -2.607 | 0.009 | -0.056 | |
| -0.008 c157 | 0.2497 | 0.040 | 6.269 | 0.000 | 0.172 | |
| 0.328 c158 | 0.2835 | 0.023 | 12.440 | 0.000 | 0.239 | |
| 0.328 | 0.2033 | 0.023 | 12.440 | 0.000 | 0.239 | |
| c160 0.008 | 0.0041 | 0.002 | 2.305 | 0.021 | 0.001 | |
| c161 | 0.0105 | 0.001 | 9.817 | 0.000 | 0.008 | |
| 0.013 c162 0.006 | 0.0028 | 0.002 | 1.680 | 0.093 | -0.000 | |
| c163 | 0.0080 | 0.002 | 3.736 | 0.000 | 0.004 | |
| 0.012 c7 | 0.3649 | 0.286 | 1.275 | 0.203 | -0.197 | |
| 0.927 c8 | -0.4215 | 0.134 | -3.146 | 0.002 | -0.684 | |
| -0.159 c9 | -0.6717 | 0.074 | -9.089 | 0.000 | -0.817 | |
| -0.527 c10 | 8.8019 | 1.525 | 5.770 | 0.000 | 5.809 | |
| 11.795 | | | | | | |
| c11 -0.084 | -0.1655 | 0.041 | -4.002 | 0.000 | -0.247 | |
| c12 | -0.3057 | 0.109 | -2.804 | 0.005 | -0.520 | |
| -0.092 c13 | 0.0738 | 0.052 | 1.426 | 0.154 | -0.028 | |
| 0.175 c15 | -0.4244 | 0.058 | -7.343 | 0.000 | -0.538 | |
| -0.311 c16 | -0.4799 | 0.100 | -4.813 | 0.000 | -0.676 | |
| -0.284 | | | | | | |
| c17 -0.041 | -0.0818 | 0.021 | -3.890 | 0.000 | -0.123 | |
| c19 | 0.3957 | 0.216 | 1.828 | 0.068 | -0.029 | |
| 0.821 c20 | 0.2264 | 0.041 | 5.532 | 0.000 | 0.146 | |
| 0.307 c21 | -0.1625 | 0.049 | -3.342 | 0.001 | -0.258 | |
| -0.067 c22 | -0.1256 | 0.036 | -3.490 | 0.001 | -0.196 | |
| -0.055 | | | | | | |
| c23 | -0.3173 | 0.046 | -6.832 | 0.000 | -0.408 | |

| c35 | 6.2123 | 1.526 | 4.071 | 0.000 | 3.218 |
|---|---------|--|--|---|---------------|
| 9.207 | 012123 | 1.320 | 4.071 | 0.000 | 3.210 |
| ======== | | | ====== | | |
| Omnibus: 0.544 | | 47.547 | Durbin | n-Watson: | |
| Prob(Omnibus): 147.399 | | 0.000 | Jarque | e-Bera (JB): | |
| Skew: 9.83e-33 | | -0.071 | Prob(3 | JB): | |
| Kurtosis: 5.92e+05 | | 4.852 | Cond. | No. | |
| | | | ======= | | |
| | | | | | |
| Notes: | | | | | |
| [1] Standard Encorrectly speci | | me that the c | ovariance | e matrix of t | the errors is |
| [2] The conditi | | is large, 5. | 92e+05. | Γhis might ir | ndicate that |
| there are | | _ | | _ | |
| strong multicol MSE=1.051343177 | | or other num | erical p | roblems. | |
| Excluding varia | | with n-value | 0.202520 | | |
| zxocadzny var z | 20 00 | OLS Regre | | sults | |
| | | | | | |
| | | | | | |
| ======================================= | | ======== | | | |
| Dep. Variable: | | c52 | ======= R - squa | | |
| Dep. Variable: 0.784 | | | • | ====================================== | |
| Dep. Variable: 0.784 Model: | | c52 | • | | |
| Dep. Variable: 0.784 Model: 0.777 Method: | | | Adj. F | ====================================== | |
| Dep. Variable: 0.784 Model: 0.777 Method: 116.4 Date: | Sat | 0LS | Adj. F | ered: R-squared: Listic: |): |
| Dep. Variable: 0.784 Model: 0.777 Method: 116.4 | Sat | OLS Least Squares | Adj. F F-stat | ared: R-squared: tistic: (F-statistic) |): |
| Dep. Variable: 0.784 Model: 0.777 Method: 116.4 Date: 3.47e-305 Time: -1480.9 | | 0LS Least Squares , 02 Sep 2023 23:18:21 | Adj. F F-stat Prob Log-Li | ered: R-squared: Listic: |): |
| Dep. Variable: 0.784 Model: 0.777 Method: 116.4 Date: 3.47e-305 Time: -1480.9 No. Observation | | OLS Least Squares , 02 Sep 2023 | Adj. F F-stat Prob Log-Li | ared: R-squared: tistic: (F-statistic) |): |
| Dep. Variable: 0.784 Model: 0.777 Method: 116.4 Date: 3.47e-305 Time: -1480.9 No. Observation 3026. Df Residuals: | | 0LS Least Squares , 02 Sep 2023 23:18:21 | Adj. F F-stat Prob Log-L: | ared: R-squared: tistic: (F-statistic) |): |
| Dep. Variable: 0.784 Model: 0.777 Method: 116.4 Date: 3.47e-305 Time: -1480.9 No. Observation 3026. | | 0LS Least Squares , 02 Sep 2023 23:18:21 1025 | Adj. F F-stat Prob Log-L: AIC: BIC: | ared: R-squared: tistic: (F-statistic) |): |
| Dep. Variable: 0.784 Model: 0.777 Method: 116.4 Date: 3.47e-305 Time: -1480.9 No. Observation 3026. Df Residuals: 3184. | ns: | 0LS Least Squares , 02 Sep 2023 23:18:21 1025 993 | Adj. F F-stat Prob Log-L: AIC: BIC: | ared: R-squared: tistic: (F-statistic) |); |
| Dep. Variable: 0.784 Model: 0.777 Method: 116.4 Date: 3.47e-305 Time: -1480.9 No. Observation 3026. Df Residuals: 3184. Df Model: | ns: | 0LS Least Squares , 02 Sep 2023 23:18:21 1025 993 31 | Adj. F F-stat Prob Log-L: AIC: BIC: | ared: R-squared: tistic: (F-statistic) |): |
| Dep. Variable: 0.784 Model: 0.777 Method: 116.4 Date: 3.47e-305 Time: -1480.9 No. Observation 3026. Df Residuals: 3184. Df Model: | ns: | 0LS Least Squares , 02 Sep 2023 23:18:21 1025 993 31 nonrobust | Adj. F F-stat Prob Log-L: AIC: BIC: | ared: R-squared: tistic: (F-statistic) | [0.025 |

| const -91.735 | -126.1233 | 17.524 | -7.197 | 0.000 | -160.511 |
|-----------------------|-----------|--------|---------|-------|----------|
| c26 | 0.3694 | 0.048 | 7.750 | 0.000 | 0.276 |
| 0.463 c28 0.311 | 0.2435 | 0.034 | 7.089 | 0.000 | 0.176 |
| c29 -0.353 | -0.4457 | 0.047 | -9.413 | 0.000 | -0.539 |
| c30 4.362 | 3.4802 | 0.449 | 7.743 | 0.000 | 2.598 |
| c31 0.332 | 0.2872 | 0.023 | 12.625 | 0.000 | 0.243 |
| c33 -0.111 | -0.2722 | 0.082 | -3.306 | 0.001 | -0.434 |
| c39 16.192 | 13.4486 | 1.398 | 9.620 | 0.000 | 10.705 |
| c139 -0.406 | -0.8439 | 0.223 | -3.779 | 0.000 | -1.282 |
| c143 -0.073 | -0.1472 | 0.038 | -3.913 | 0.000 | -0.221 |
| c155 -0.013 | -0.0364 | 0.012 | -3.062 | 0.002 | -0.060 |
| c157 0.335 | 0.2576 | 0.039 | 6.541 | 0.000 | 0.180 |
| c158 0.330 | 0.2850 | 0.023 | 12.520 | 0.000 | 0.240 |
| c160 0.008 | 0.0040 | 0.002 | 2.246 | 0.025 | 0.001 |
| c161 0.013 | 0.0105 | 0.001 | 9.774 | 0.000 | 0.008 |
| c162 0.006 | 0.0028 | 0.002 | 1.684 | 0.093 | -0.000 |
| c163 0.012 | 0.0079 | 0.002 | 3.696 | 0.000 | 0.004 |
| c8 -0.193 | -0.4519 | 0.132 | -3.426 | 0.001 | -0.711 |
| c9 -0.582 | -0.7126 | 0.067 | -10.698 | 0.000 | -0.843 |
| c10 11.985 | 9.0072 | 1.517 | 5.936 | 0.000 | 6.030 |
| c11 -0.084 | -0.1647 | 0.041 | -3.984 | 0.000 | -0.246 |
| c12 -0.119 | -0.3294 | 0.107 | -3.067 | 0.002 | -0.540 |
| c13 0.178 | 0.0762 | 0.052 | 1.472 | 0.141 | -0.025 |
| c15 | -0.4017 | 0.055 | -7.304 | 0.000 | -0.510 |

| -0.294 | | | | | | |
|-------------------------------|--------------|-------------|------------|-------------------|---------------|--|
| c16 | -0.4728 | 0.100 | -4.748 | 0.000 | -0.668 | |
| -0.277 c17 | -0.0810 | 0.021 | -3.852 | 0.000 | -0.122 | |
| -0.040 | 0.0010 | 0.021 | 3.032 | 0.000 | 0.122 | |
| c19 | 0.3925 | 0.217 | 1.813 | 0.070 | -0.032 | |
| 0.817 | | | | | | |
| c20 | 0.2340 | 0.040 | 5.777 | 0.000 | 0.154 | |
| 0.313 c21 | -0.1670 | 0.049 | -3.443 | 0.001 | -0.262 | |
| -0.072 | -0.1070 | 0.043 | -3.443 | 0.001 | -0.202 | |
| c22 | -0.1252 | 0.036 | -3.476 | 0.001 | -0.196 | |
| -0.055 | | | | | | |
| c23 | -0.3121 | 0.046 | -6.744 | 0.000 | -0.403 | |
| -0.221 c35 | 6.4675 | 1.513 | 4.274 | 0.000 | 3.498 | |
| 9.437 | 0.40/3 | 1.313 | 4.2/4 | 0.000 | 3.490 | |
| ========= | | | | | | |
| ====== | | | | | | |
| Omnibus: | | 52.9 | 25 Durbi | .n-Watson: | | |
| 0.549 | \ | 0.00 | 00] | | | |
| Prob(Omnibus) |): | 0.0 | Jarqu | Jarque-Bera (JB): | | |
| Skew: | | -0.09 | 97 Prob(| JB): | | |
| 9.92e-39 | | | | ,02,1 | | |
| Kurtosis: | | 5.0 | 15 Cond. | No. | | |
| 5.78e+05 | | | | | | |
| | | | | | | |
| ====== | | | | | | |
| Notes: | | | | | | |
| [1] Standard | Errors assu | me that the | covariand | ce matrix of | the errors is | |
| correctly spe | | | | | | |
| | ition number | is large, | 5.78e+05. | This might i | ndicate that | |
| there are | | an athan n | umaniaal n | nablama | | |
| strong multic MSE=1.053066 | | or other n | umericat p | robtems. | | |
| Excluding va | | with n-val | ue 0.14120 |)6 | | |
| Execuating val | Tuble els | | ression Re | | | |
| | | - 3 | | | | |
| | | | | | | |
| Don Variable | | -1 | E) D | io nod . | | |
| Dep. Variable 0.784 | e: | C | 52 R-squ | uared: | | |
| Model: | | 0 | LS Adj. | R-squared: | | |
| 0.777 | | | | 54441.541 | | |
| Method: | | Least Squar | es F-sta | ntistic: | | |
| 120.0 | | | | | | |
| Date: | Sat | , 02 Sep 20 | 23 Prob | (F-statistic |): | |
| | | | | | | |

9.18e-306 Time: 23:18:21 Log-Likelihood:

-1482.0

No. Observations: 1025 AIC:

3026.

Df Residuals: 994 BIC:

3179.

Df Model: 30

| | ======== | ======== | | | |
|---------------|------------------|----------|--------|--------|----------|
| ====== | coof | atd ann | | Ds I+1 | [0 025 |
| 0.975] | coef | std err | t | P> t | [0.025 |
| | | | | | |
| const | -127.9672 | 17.489 | -7.317 | 0.000 | -162.287 |
| -93.647 | | | | | |
| c26 | 0.3701 | 0.048 | 7.761 | 0.000 | 0.277 |
| 0.464 | | | | | |
| c28 | 0.2502 | 0.034 | 7.346 | 0.000 | 0.183 |
| 0.317 | | | | | |
| c29 | -0.4470 | 0.047 | -9.436 | 0.000 | -0.540 |
| -0.354 | | | | | 2 222 |
| c30 | 3.4847 | 0.450 | 7.749 | 0.000 | 2.602 |
| 4.367 | 0. 2020 | 0.000 | 10 170 | 0.000 | 0.250 |
| c31 | 0.2939 | 0.022 | 13.179 | 0.000 | 0.250 |
| 0.338 | 0 2025 | 0.000 | 2 450 | 0 001 | 0 444 |
| c33 | -0.2835 | 0.082 | -3.458 | 0.001 | -0.444 |
| -0.123 | 14 0710 | 1 222 | 10 554 | 0 000 | 11 455 |
| c39 16.687 | 14.0710 | 1.333 | 10.554 | 0.000 | 11.455 |
| c139 | -0.8308 | 0.223 | -3.721 | 0.000 | -1.269 |
| -0.393 | -0.8308 | 0.223 | -3.721 | 0.000 | -1.209 |
| c143 | -0.1528 | 0.037 | -4.081 | 0.000 | -0.226 |
| -0.079 | -0.1320 | 0.037 | -4.001 | 0.000 | -0.220 |
| c155 | -0.0386 | 0.012 | -3.274 | 0.001 | -0.062 |
| -0.015 | -0.0500 | 0.012 | -3.2/4 | 0.001 | -0.002 |
| c157 | 0.2511 | 0.039 | 6.413 | 0.000 | 0.174 |
| 0.328 | 0.2311 | 0.055 | 0.415 | 0.000 | 0.174 |
| c158 | 0.2832 | 0.023 | 12.451 | 0.000 | 0.239 |
| 0.328 | 012032 | 01025 | 121131 | 01000 | 01233 |
| c160 | 0.0040 | 0.002 | 2.252 | 0.025 | 0.001 |
| 0.008 | 310010 | 0.002 | 2.232 | 0.025 | 0.001 |
| c161 | 0.0105 | 0.001 | 9.753 | 0.000 | 0.008 |
| 0.013 | 0.0100 | 2.002 | 2.,55 | 2.000 | 0.000 |
| c162 | 0.0026 | 0.002 | 1.581 | 0.114 | -0.001 |
| 0.006 | 3 : 3 : 3 | | | | |
| | | | | | |

| c163 0.012 | 0.0080 | 0.002 | 3.760 | 0.000 | 0.004 |
|-----------------------|---------|-------|------------|--------------|--------|
| c8 | -0.4393 | 0.132 | -3.336 | 0.001 | -0.698 |
| -0.181 c9 | -0.6975 | 0.066 | -10.591 | 0.000 | -0.827 |
| -0.568 | | | | | |
| c10 12.077 | 9.0999 | 1.517 | 5.999 | 0.000 | 6.123 |
| c11 -0.085 | -0.1666 | 0.041 | -4.028 | 0.000 | -0.248 |
| c12 | -0.2997 | 0.106 | -2.839 | 0.005 | -0.507 |
| -0.093 c15 | -0.4263 | 0.052 | -8.128 | 0.000 | -0.529 |
| -0.323 c16 | -0.4015 | 0.087 | -4.612 | 0.000 | -0.572 |
| -0.231 c17 | -0.0804 | 0.021 | -3.821 | 0.000 | -0.122 |
| -0.039 c19 | 0.3955 | 0.217 | 1.825 | 0.068 | -0.030 |
| 0.821 c20 | 0.2392 | 0.040 | 5.926 | 0.000 | 0.160 |
| 0.318 c21 | -0.1653 | 0.049 | -3.407 | 0.001 | -0.261 |
| -0.070 c22 | -0.1371 | 0.035 | -3.904 | 0.000 | -0.206 |
| -0.068 | | | | | |
| c23 -0.207 | -0.2952 | 0.045 | -6.580 | 0.000 | -0.383 |
| c35 9.408 | 6.4374 | 1.514 | 4.252 | 0.000 | 3.466 |
| | | | | | |
| Omnibus: | | 54.0 | 990 Durbin | -Watson: | |
| 0.548 Prob(Omnibus | s): | 0.0 | 900 Jarque | e-Bera (JB): | |
| 182.954 Skew: | | -0.0 | 93 Prob(J | B): | |
| 1.87e-40 Kurtosis: | | | 961 Cond. | | |
| 5.76e+05 | | ٦. (| OT COMA. | NU. | |

======

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

[2] The condition number is large, 5.76e+05. This might indicate that there are

strong multicollinearity or other numerical problems.

MSE=1.055366101176409 Excluding variable 'c162' with p-value 0.114240 OLS Regression Results

Dep. Variable: c52 R-squared:

0.783

Model: OLS Adj. R-squared:

0.777

Method: Least Squares F-statistic:

123.9

Date: Sat, 02 Sep 2023 Prob (F-statistic):

2.82e-306

Time: 23:18:21 Log-Likelihood:

-1483.3

No. Observations: 1025 AIC:

3027.

Df Residuals: 995 BIC:

3175.

Df Model: 29

| | | | | ======= | ========= |
|--------------------------|-----------|---------|--------|---------|-----------|
| | coef | std err | t | P> t | [0.025 |
| 0.975] | | | | | |
| | | | | | |
| const -90.168 | -124.1923 | 17.338 | -7.163 | 0.000 | -158.216 |
| c26 | 0.3611 | 0.047 | 7.621 | 0.000 | 0.268 |
| 0.454 c28 0.311 | 0.2447 | 0.034 | 7.216 | 0.000 | 0.178 |
| c29 -0.346 | -0.4380 | 0.047 | -9.306 | 0.000 | -0.530 |
| c30 | 3.3966 | 0.447 | 7.606 | 0.000 | 2.520 |
| 4.273 c31 0.337 | 0.2933 | 0.022 | 13.145 | 0.000 | 0.249 |
| c33 -0.119 | -0.2796 | 0.082 | -3.408 | 0.001 | -0.441 |
| c39 | 14.3943 | 1.319 | 10.917 | 0.000 | 11.807 |
| 16.982 c139 -0.391 | -0.8292 | 0.223 | -3.711 | 0.000 | -1.268 |
| c143 -0.071 | -0.1442 | 0.037 | -3.890 | 0.000 | -0.217 |

| c155 | -0.0387 | 0.012 | -3.283 | 0.001 | -0.062 |
|--------------------|---------|-------|------------|-------------|--------|
| -0.016 c157 | 0.2565 | 0.039 | 6.573 | 0.000 | 0.180 |
| 0.333 | 0.2303 | 0.055 | 01373 | 0.000 | 0.1200 |
| c158 | 0.2832 | 0.023 | 12.445 | 0.000 | 0.239 |
| 0.328 c160 | 0.0039 | 0.002 | 2.171 | 0.030 | 0.000 |
| 0.007 | 0.0039 | 0.002 | 2.1/1 | 0.030 | 0.000 |
| c161 | 0.0109 | 0.001 | 10.639 | 0.000 | 0.009 |
| 0.013 | | | | | |
| c163 0.013 | 0.0086 | 0.002 | 4.082 | 0.000 | 0.004 |
| c8 | -0.4561 | 0.131 | -3.472 | 0.001 | -0.714 |
| -0.198 | 01.1301 | 0.131 | 31172 | 0.001 | 01721 |
| c9 | -0.6991 | 0.066 | -10.609 | 0.000 | -0.828 |
| -0.570 | 0 0000 | 1 516 | F 027 | 0.000 | 6 012 |
| c10 11.964 | 8.9883 | 1.516 | 5.927 | 0.000 | 6.013 |
| c11 | -0.1629 | 0.041 | -3.942 | 0.000 | -0.244 |
| -0.082 | | | | | |
| c12 | -0.3121 | 0.105 | -2.962 | 0.003 | -0.519 |
| -0.105 c15 | -0.4319 | 0.052 | -8.249 | 0.000 | -0.535 |
| -0.329 | -0.4319 | 0.032 | -0.249 | 0.000 | -0.555 |
| c16 | -0.4031 | 0.087 | -4.628 | 0.000 | -0.574 |
| -0.232 | 0.0700 | 0 001 | 2.764 | 0.000 | 0 101 |
| c17 -0.038 | -0.0792 | 0.021 | -3.764 | 0.000 | -0.121 |
| c19 | 0.3967 | 0.217 | 1.829 | 0.068 | -0.029 |
| 0.822 | | - | | | |
| c20 | 0.2357 | 0.040 | 5.843 | 0.000 | 0.157 |
| 0.315 c21 | -0.1610 | 0.048 | -3.320 | 0.001 | -0.256 |
| -0.066 | -0.1010 | 0.040 | -3.320 | 0.001 | -0.230 |
| c22 | -0.1381 | 0.035 | -3.930 | 0.000 | -0.207 |
| -0.069 | 0 2005 | 0.045 | 6 711 | 0.000 | 2.222 |
| c23 -0.213 | -0.3005 | 0.045 | -6.711 | 0.000 | -0.388 |
| c35 | 6.4788 | 1.515 | 4.277 | 0.000 | 3.506 |
| 9.452 | 011700 | 11313 | 11277 | 0.000 | 31300 |
| ========= | | | | | |
| ====== Omnibus: | | 53.1 | 66 Durhin | -Watson: | |
| 0.547 | | 33.1 | .00 Duibin | - watson. | |
| Prob(Omnibus) |): | 0.0 | 000 Jarque | -Bera (JB): | |
| 179.242 | | | 70 5 6 | D.) | |
| Skew: 1.20e-39 | | -0.6 | 79 Prob(J | B): | |
| Kurtosis: | | 5.0 | 042 Cond. | No. | |
| 5.63e+05 | | 310 | | | |
| | | | | | |

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

[2] The condition number is large, 5.63e+05. This might indicate that there are

strong multicollinearity or other numerical problems.

MSE=1.058019325710829

Excluding variable 'c19' with p-value 0.067650

OLS Regression Results

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Dep. Variable: c52 R-squared:

0.782

Model: OLS Adj. R-squared:

0.776

Method: Least Squares F-statistic:

127.9

Date: Sat, 02 Sep 2023 Prob (F-statistic):

1.30e-306

Time: 23:18:21 Log-Likelihood:

-1485.0

No. Observations: 1025 AIC:

3028.

Df Residuals: 996 BIC:

3171.

Df Model: 28

| ====== | | | | | |
|---------|-----------|---------|--------|-------|----------|
| | coef | std err | t | P> t | [0.025 |
| 0.975] | | | | | |
| | | | | | |
| | | | | | |
| const | -125.8111 | 17.336 | -7.257 | 0.000 | -159.831 |
| -91.791 | | | | | |
| c26 | 0.3663 | 0.047 | 7.734 | 0.000 | 0.273 |
| 0.459 | | | | | |
| c28 | 0.2515 | 0.034 | 7.454 | 0.000 | 0.185 |
| 0.318 | | | | | |
| c29 | -0.4401 | 0.047 | -9.342 | 0.000 | -0.532 |
| -0.348 | | | | | |
| c30 | 3.4022 | 0.447 | 7.610 | 0.000 | 2.525 |
| 4.280 | | | | | |
| c31 | 0.2953 | 0.022 | 13.236 | 0.000 | 0.252 |

| 0.339 c33 | | | | | | |
|--|----------|----------------|---------|---------|---------|----------|
| -0.109 c39 | | | | | | |
| c39 14.6285 1.314 11.134 0.000 12.050 17.207 c139 -0.4288 0.045 -9.546 0.000 -0.517 -0.341 c143 -0.1502 0.037 -4.063 0.000 -0.223 -0.078 c155 -0.0418 0.012 -3.576 0.000 -0.065 -0.19 c157 0.2573 0.039 6.587 0.000 0.181 0.334 c158 0.2832 0.023 12.429 0.000 0.239 0.328 c160 0.0039 0.002 2.152 0.032 0.000 0.007 c161 0.0110 0.001 10.690 0.000 0.009 0.013 c163 0.0087 0.002 4.141 0.000 0.005 0.013 c8 -0.4440 0.131 -3.381 0.001 -0.702 -0.186 c9 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 c10 8.9184 1.518 5.876 0.000 -0.821 -0.103 c | | -0.2699 | 0.082 | -3.293 | 0.001 | -0.431 |
| 17, 207 c139 | | 1/ 6205 | 1 21/ | 11 12/ | 0 000 | 12 050 |
| c139 -0.4288 0.045 -9.546 0.000 -0.517 -0.341 -0.1502 0.037 -4.063 0.000 -0.223 -0.078 -0.018 0.012 -3.576 0.000 -0.065 -0.019 0.2573 0.039 6.587 0.000 0.181 0.334 0.2832 0.023 12.429 0.000 0.239 0.328 0.600 0.0032 0.000 0.239 0.328 0.600 0.0032 0.000 0.239 0.328 0.600 0.002 2.152 0.032 0.000 0.007 0.600 0.0032 0.000 0.009 0.000 0.009 0.000 0.009 0.000 0.009 0.000 0.009 0.000 0.009 0.000 0.009 0.000 0.009 0.000 0.009 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 | | 14.0203 | 1.314 | 11.154 | 0.000 | 12.030 |
| -0.341 c143 | | -0.4288 | 0.045 | -9.546 | 0.000 | -0.517 |
| -0.078 c155 | -0.341 | | | | | |
| c155 -0.0418 0.012 -3.576 0.000 -0.065 -0.019 0.2573 0.039 6.587 0.000 0.181 0.334 0.2832 0.023 12.429 0.000 0.239 0.328 0.600 0.002 2.152 0.032 0.000 0.007 0.011 0.001 10.690 0.000 0.009 0.013 0.0087 0.002 4.141 0.000 0.005 0.013 0.013 0.0087 0.002 4.141 0.000 0.005 0.013 0.013 0.000 0.000 0.005 0.005 0.005 0.013 0.013 0.000 0.001 0.000 0.005 0.005 0.013 0.013 0.000 0.000 0.000 0.000 0.000 0.016 0.186 0.000 0.066 -10.507 0.000 0.0821 0.1 0.084 0.1 0.4004 0.000 0.000 0.517 | | -0.1502 | 0.037 | -4.063 | 0.000 | -0.223 |
| -0.019 c157 0.2573 0.039 6.587 0.000 0.181 0.334 c158 0.2832 0.023 12.429 0.000 0.032 0.000 0.007 c160 0.007 c161 0.0110 0.001 0.003 0.013 c8 -0.4440 0.131 -3.381 0.001 -0.702 -0.186 c9 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 c10 8.9184 1.518 5.876 0.000 5.940 11.897 c11 -0.1655 0.041 -4.004 0.000 -0.247 -0.084 c12 -0.309 0.105 -2.939 0.003 -0.517 -0.331 c16 -0.4338 0.052 -8.278 0.000 -0.580 -0.238 c17 -0.0800 -0.235 0.040 5.827 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 -0.198 -0.061 c21 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.390 -0.214 -0.061 c23 -0.3024 0.045 -6.746 0.000 3.441 | | 0.0410 | 0.012 | 2 576 | 0.000 | 0.005 |
| c157 0.2573 0.039 6.587 0.000 0.181 0.334 c158 0.2832 0.023 12.429 0.000 0.239 0.328 c160 0.0039 0.002 2.152 0.032 0.000 0.007 c161 0.0110 0.001 10.690 0.000 0.009 0.013 0.013 0.002 4.141 0.000 0.005 0.018 0.04440 0.131 -3.381 0.001 -0.702 -0.186 0.9 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 0.001 -0.155 0.041 -4.004 0.000 -0.247 0.1 0.1655 0.041 -4.004 0.000 -0.247 -0.084 -0.103 -0.103 -0.537 -0.537 0.103 -0.4338 0.052 -8.278 0.000 -0.537 -0.331 -0.238 -0.238 -0.061 -3.797 0.000 -0.121 -0.039 -0.2353 0.040 5.827 0.000 0.156 | | -0.0418 | 0.012 | -3.5/6 | 0.000 | -0.005 |
| 0.334 c158 0.2832 0.003 12.429 0.000 0.007 c160 0.0010 0.007 c161 0.0110 0.001 0.002 2.152 0.000 0.000 0.007 c161 0.0110 0.001 0.003 0.003 0.0087 0.002 4.141 0.000 0.005 0.013 c8 0.4440 0.131 0.3381 0.001 0.702 0.186 c9 0.6920 0.066 0.10.507 0.000 0.000 0.001 1.897 c11 0.1655 0.041 0.404 0.000 0.003 0.003 0.0084 c12 0.3099 0.105 0.2939 0.003 0.517 0.0103 c15 0.4338 0.052 0.8278 0.000 0.537 0.331 c16 0.44095 0.087 0.084 c17 0.0380 c10 0.238 c17 0.04095 0.087 0.080 0.238 c17 0.0800 0.021 0.3797 0.000 0.156 0.315 c21 0.0800 0.2353 0.040 5.827 0.000 0.156 0.315 c21 0.1577 0.000 0.015 0.0161 c22 0.1296 0.035 0.041 0.045 0.061 c23 0.3024 0.045 0.045 0.000 0.000 0.000 0.000 0.000 0.0156 0.0214 c35 0.000 0. | | 0.2573 | 0.039 | 6.587 | 0.000 | 0.181 |
| 0.328 c160 0.0039 0.007 c161 0.0110 0.001 10.690 0.000 0.013 c163 0.0087 0.002 4.141 0.000 0.005 0.013 c8 -0.4440 0.131 -3.381 0.001 -0.702 -0.186 c9 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 c10 8.9184 1.518 5.876 0.000 5.940 11.897 c11 -0.1655 0.041 -4.004 0.000 -0.247 -0.084 c12 -0.3099 0.105 -2.939 0.003 -0.517 -0.103 c15 -0.4338 0.052 -8.278 0.000 -0.537 -0.331 c16 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 c17 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 0.156 0.315 c21 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 3.441 | | 012373 | 0.033 | 01307 | 01000 | 01101 |
| c160 0.0039 0.002 2.152 0.032 0.000 c161 0.0110 0.001 10.690 0.000 0.009 0.013 0.0087 0.002 4.141 0.000 0.005 0.013 0.013 0.013 0.001 -0.702 0.186 0.013 -3.381 0.001 -0.702 0.186 0.09 0.066 -10.507 0.000 -0.821 0.563 0.0 8.9184 1.518 5.876 0.000 5.940 11.897 0.1 -0.1655 0.041 -4.004 0.000 -0.247 0.084 0.1 -0.3099 0.105 -2.939 0.003 -0.517 0.0.103 0.103 -0.537 0.000 -0.537 0.331 0.1 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 0.1 -0.084 -3.797 0.000 -0.121 -0.039 0.0 0.2353 0.040 5.827 0.000 0.156 0.315 0.061 0.061 0.061< | | 0.2832 | 0.023 | 12.429 | 0.000 | 0.239 |
| 0.007 c161 0.0110 0.001 10.690 0.000 0.013 c163 0.0087 0.002 4.141 0.000 0.005 0.013 c8 -0.4440 0.131 -3.381 0.001 -0.702 -0.186 c9 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 c10 8.9184 1.518 5.876 0.000 5.940 11.897 c11 -0.1655 0.041 -4.004 0.000 -0.247 -0.084 c12 -0.3099 0.105 -2.939 0.003 -0.517 -0.103 c15 -0.4338 0.052 -8.278 0.000 -0.580 -0.238 c17 -0.0840 c10 -0.238 c17 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 -0.156 0.315 c21 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | | | | | |
| c161 0.0110 0.001 10.690 0.000 0.009 0.013 0.0087 0.002 4.141 0.000 0.005 0.013 0.013 -3.381 0.001 -0.702 -0.186 -0.186 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 -0.610 8.9184 1.518 5.876 0.000 5.940 11.897 -0.1655 0.041 -4.004 0.000 -0.247 -0.084 -0.122 -0.3099 0.105 -2.939 0.003 -0.517 -0.103 -0.15 -2.939 0.003 -0.517 -0.31 -0.537 -0.000 -0.537 -0.331 -0.4338 0.052 -8.278 0.000 -0.537 -0.537 -0.238 -0.238 -0.087 -4.699 0.000 -0.580 -0.121 -0.039 -0.200 0.2353 0.040 5.827 0.000 0.156 -0.315 -0.061 -0.251 | | 0.0039 | 0.002 | 2.152 | 0.032 | 0.000 |
| 0.013 c163 0.0087 0.002 4.141 0.000 0.005 0.013 c8 -0.4440 0.131 -3.381 0.001 -0.702 -0.186 c9 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 c10 8.9184 1.518 5.876 0.000 5.940 11.897 c11 -0.1655 0.041 -4.004 0.000 -0.247 -0.084 c12 -0.3099 0.105 -2.939 0.003 -0.517 -0.103 c15 -0.4338 0.052 -8.278 0.000 -0.537 -0.331 c16 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 c17 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 0.156 0.315 c21 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.390 -0.014 c35 6.4165 1.516 4.232 0.000 3.441 | | 0 0110 | 0 001 | 10 600 | 0.000 | 0.000 |
| c163 0.0087 0.002 4.141 0.000 0.005 0.013 c8 -0.4440 0.131 -3.381 0.001 -0.702 -0.186 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 c10 8.9184 1.518 5.876 0.000 5.940 11.897 c11 -0.1655 0.041 -4.004 0.000 -0.247 -0.084 c12 -0.3099 0.105 -2.939 0.003 -0.517 -0.103 c15 -0.4338 0.052 -8.278 0.000 -0.537 -0.331 c16 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 c17 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 0.156 0.315 c21 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 < | | 0.0110 | 0.001 | 10.090 | 0.000 | 0.009 |
| 0.013 c8 | | 0.0087 | 0.002 | 4.141 | 0.000 | 0.005 |
| -0.186 c9 | | 0.000. | 0.00= | | | 0.000 |
| c9 -0.6920 0.066 -10.507 0.000 -0.821 -0.563 8.9184 1.518 5.876 0.000 5.940 11.897 -0.1655 0.041 -4.004 0.000 -0.247 -0.084 -0.22 -0.3099 0.105 -2.939 0.003 -0.517 -0.103 -0.103 -0.4338 0.052 -8.278 0.000 -0.537 -0.331 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 -0.7 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 -0.039 -0.2353 0.040 5.827 0.000 0.156 0.315 -0.061 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 -0.061 -0.061 -0.061 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 -0.3024 0.045 -6.746 0.000 3.441 | | -0.4440 | 0.131 | -3.381 | 0.001 | -0.702 |
| -0.563 c10 | | | | | | |
| c10 8.9184 1.518 5.876 0.000 5.940 11.897 c11 -0.1655 0.041 -4.004 0.000 -0.247 -0.084 c12 -0.3099 0.105 -2.939 0.003 -0.517 -0.103 c15 -0.4338 0.052 -8.278 0.000 -0.537 -0.331 c16 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 c17 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 0.156 0.315 c21 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | -0.6920 | 0.066 | -10.50/ | 0.000 | -0.821 |
| 11.897 c11 | | 8 018 <i>1</i> | 1 518 | 5 876 | 0 000 | 5 0/0 |
| c11 -0.1655 0.041 -4.004 0.000 -0.247 -0.084 c12 -0.3099 0.105 -2.939 0.003 -0.517 -0.103 c15 -0.4338 0.052 -8.278 0.000 -0.537 -0.331 c16 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 c17 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 0.156 0.315 c21 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | 0.9104 | 1.510 | 3.070 | 0.000 | 3.940 |
| c12 -0.3099 0.105 -2.939 0.003 -0.517 -0.103 c15 -0.4338 0.052 -8.278 0.000 -0.537 -0.331 c16 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 c17 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 0.156 0.315 c21 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | -0.1655 | 0.041 | -4.004 | 0.000 | -0.247 |
| -0.103 c15 | | | | | | |
| c15 -0.4338 0.052 -8.278 0.000 -0.537 -0.331 c16 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 c17 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 0.156 0.315 c21 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | -0.3099 | 0.105 | -2.939 | 0.003 | -0.517 |
| -0.331 c16 | | 0 4220 | 0.053 | 0 270 | 0.000 | 0 527 |
| c16 -0.4095 0.087 -4.699 0.000 -0.580 -0.238 c17 -0.0800 0.021 -3.797 0.000 -0.121 -0.039 c20 0.2353 0.040 5.827 0.000 0.156 0.315 c21 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | -0.4338 | 0.052 | -8.278 | 0.000 | -0.557 |
| -0.238 c17 | | -0.4095 | 0.087 | -4.699 | 0.000 | -0.580 |
| -0.039 c20 | | 0.1.000 | 0.007 | | | 0.000 |
| c20 0.2353 0.040 5.827 0.000 0.156 0.315 c21 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | -0.0800 | 0.021 | -3.797 | 0.000 | -0.121 |
| 0.315 c21 | | | | | | |
| c21 -0.1557 0.048 -3.213 0.001 -0.251 -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | 0.2353 | 0.040 | 5.827 | 0.000 | 0.156 |
| -0.061 c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | -0 1557 | 0 0/8 | -3 213 | 0 001 | -0.251 |
| c22 -0.1296 0.035 -3.717 0.000 -0.198 -0.061 c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | -0.1337 | 0.040 | -3.213 | 0.001 | -0.251 |
| c23 -0.3024 0.045 -6.746 0.000 -0.390 -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | -0.1296 | 0.035 | -3.717 | 0.000 | -0.198 |
| -0.214 c35 6.4165 1.516 4.232 0.000 3.441 | | | | | | |
| c35 6.4165 1.516 4.232 0.000 3.441 | | -0.3024 | 0.045 | -6.746 | 0.000 | -0.390 |
| | | 6 4165 | 1 516 | 4 222 | 0.000 | 2 //1 |
| | | 0.4103 | 1.510 | 4.232 | 0.000 | 3.441 |
| | ======== | | ======= | | ======= | ======== |

| Durbin-Watson: |
|----------------------|
| |
| Jarque-Bera (JB): |
| • |
| <pre>Prob(JB):</pre> |
| · · · · |
| Cond. No. |
| |
| |
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Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 5.63e+05. This might indicate that there are

strong multicollinearity or other numerical problems.

MSE=1.0615776950310891

The variables with modulus of coefficients greater than 1 can be said to have a large impact on the output. These variables and their coefficents will be printed in the following lines of code.

Variables with coefficients greater than one:

const -125.811118 c30 3.402190 c39 14.628548 c10 8.918381 c35 6.416498

dtype: float64