Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
| **Model:** | OLS | **Adj. R-squared:** | 0.399 |
| **Method:** | Least Squares | **F-statistic:** | 56.05 |
| **Date:** | Thu, 03 May 2018 | **Prob (F-statistic):** | 7.20e-11 |
| **Time:** | 14:24:59 | **Log-Likelihood:** | 12.672 |
| **No. Observations:** | 84 | **AIC:** | -21.34 |
| **Df Residuals:** | 82 | **BIC:** | -16.48 |
| **Df Model:** | 1 | | |
| **Covariance Type:** | nonrobust | | |

| | coef | std err | t | P>\|t\| | [0.025 | 0.975] |
|---|---|---|---|---|---|---|
| **const** | 0.2750 | 0.409 | 0.673 | 0.503 | -0.538 | 1.088 |
| **SAT** | 0.0017 | 0.000 | 7.487 | 0.000 | 0.001 | 0.002 |

| | | | |
|---|---|---|---|
| **Omnibus:** | 12.839 | **Durbin-Watson:** | 0.950 |
| **Prob(Omnibus):** | 0.002 | **Jarque-Bera (JB):** | 16.155 |
| **Skew:** | -0.722 | **Prob(JB):** | 0.000310 |

Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
| **Model:** | OLS | **Adj. R-squared:** | 0.399 |
| **Method:** | Least Squares | **F-statistic:** | 56.05 |
| **Date:** | Thu, 03 May 2018 | **Prob (F-statistic):** | 7.20e-11 |
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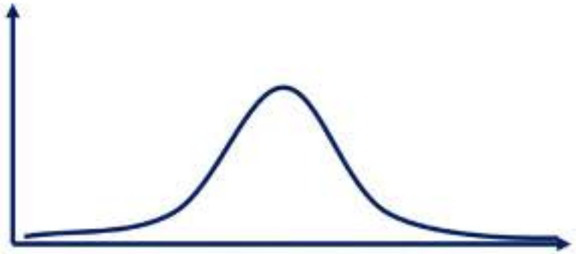

z-statistic

Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
| **Model:** | OLS | **Adj. R-squared:** | 0.399 |
| **Method:** | Least Squares | **F-statistic:** | 56.05 |
| **Date:** | Thu, 03 May 2018 | **Prob (F-statistic):** | 7.20e-11 |
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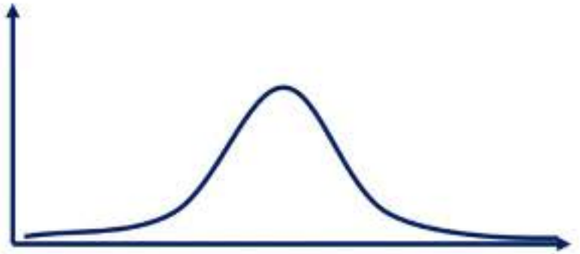

z-statistic

t-statistic

Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
| **Model:** | OLS | **Adj. R-squared:** | 0.399 |
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| **Date:** | Thu, 03 May 2018 | **Prob (F-statistic):** | 7.20e-11 |
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| **Covariance Type:** | nonrobust | | |

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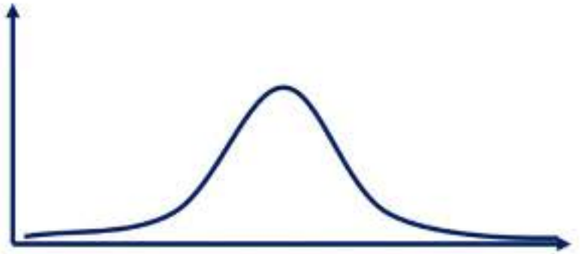
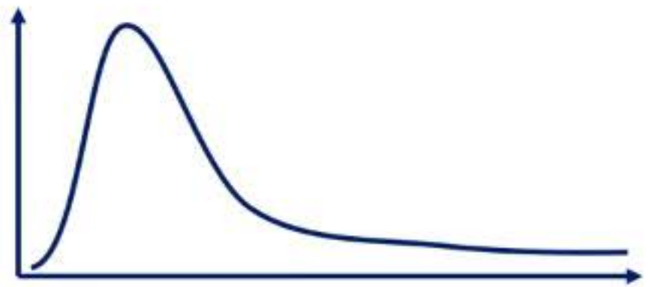


z-statistic

t-statistic



Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
| **Model:** | OLS | **Adj. R-squared:** | 0.399 |
| **Method:** | Least Squares | **F-statistic:** | 56.05 |
| **Date:** | Thu, 03 May 2018 | **Prob (F-statistic):** | 7.20e-11 |
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| **Covariance Type:** | nonrobust | | |

| | coef | std err | t | P>\|t\| | [0.025 | 0.975] |
|---|---|---|---|---|---|---|
| **const** | 0.2750 | 0.409 | 0.673 | 0.503 | -0.538 | 1.088 |
| **SAT** | 0.0017 | 0.000 | 7.487 | 0.000 | 0.001 | 0.002 |

| | | | |
|---|---|---|---|
| **Omnibus:** | 12.839 | **Durbin-Watson:** | 0.950 |
| **Prob(Omnibus):** | 0.002 | **Jarque-Bera (JB):** | 16.155 |
| **Skew:** | -0.722 | **Prob(JB):** | 0.000310 |

# F-test:

$$H_0: \beta_1 = \beta_2 = \ldots = \beta_k = 0$$

Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
| **Model:** | OLS | **Adj. R-squared:** | 0.399 |
| **Method:** | Least Squares | **F-statistic:** | 56.05 |
| **Date:** | Thu, 03 May 2018 | **Prob (F-statistic):** | 7.20e-11 |
| **Time:** | 14:24:59 | **Log-Likelihood:** | 12.672 |
| **No. Observations:** | 84 | **AIC:** | -21.34 |
| **Df Residuals:** | 82 | **BIC:** | -16.48 |
| **Df Model:** | 1 | | |
| **Covariance Type:** | nonrobust | | |

| | coef | std err | t | P>\|t\| | [0.025 | 0.975] |
|---|---|---|---|---|---|---|
| **const** | 0.2750 | 0.409 | 0.673 | 0.503 | -0.538 | 1.088 |
| **SAT** | 0.0017 | 0.000 | 7.487 | 0.000 | 0.001 | 0.002 |

| | | | |
|---|---|---|---|
| **Omnibus:** | 12.839 | **Durbin-Watson:** | 0.950 |
| **Prob(Omnibus):** | 0.002 | **Jarque-Bera (JB):** | 16.155 |
| **Skew:** | -0.722 | **Prob(JB):** | 0.000310 |

# F-test:

$$H_0: \beta_1 = \beta_2 = \ldots = \beta_k = 0$$

$$H_1: \text{at least one } \beta_i \neq 0$$

Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
| **Model:** | OLS | **Adj. R-squared:** | 0.399 |
| **Method:** | Least Squares | **F-statistic:** | 56.05 |
| **Date:** | Thu, 03 May 2018 | **Prob (F-statistic):** | 7.20e-11 |
| **Time:** | 14:24:59 | **Log-Likelihood:** | 12.672 |
| **No. Observations:** | 84 | **AIC:** | -21.34 |
| **Df Residuals:** | 82 | **BIC:** | -16.48 |
| **Df Model:** | 1 | | |
| **Covariance Type:** | nonrobust | | |

| | coef | std err | t | P>\|t\| | [0.025 | 0.975] |
|---|---|---|---|---|---|---|
| **const** | 0.2750 | 0.409 | 0.673 | 0.503 | -0.538 | 1.088 |
| **SAT** | 0.0017 | 0.000 | 7.487 | 0.000 | 0.001 | 0.002 |

| | | | |
|---|---|---|---|
| **Omnibus:** | 12.839 | **Durbin-Watson:** | 0.950 |
| **Prob(Omnibus):** | 0.002 | **Jarque-Bera (JB):** | 16.155 |
| **Skew:** | -0.722 | **Prob(JB):** | 0.000310 |

Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
| **Model:** | OLS | **Adj. R-squared:** | 0.399 |
| **Method:** | Least Squares | **F-statistic:** | 56.05 |
| **Date:** | Thu, 03 May 2018 | **Prob (F-statistic):** | 7.20e-11 |
| **Time:** | 14:24:59 | **Log-Likelihood:** | 12.672 |
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| **Df Residuals:** | 82 | **BIC:** | -16.48 |
| **Df Model:** | 1 | | |
| **Covariance Type:** | nonrobust | | |

| | coef | std err | t | P>\|t\| | [0.025 | 0.975] |
|---|---|---|---|---|---|---|
| **const** | 0.2750 | 0.409 | 0.673 | 0.503 | -0.538 | 1.088 |
| **SAT** | 0.0017 | 0.000 | 7.487 | 0.000 | 0.001 | 0.002 |

| | | | |
|---|---|---|---|
| **Omnibus:** | 12.839 | **Durbin-Watson:** | 0.950 |
| **Prob(Omnibus):** | 0.002 | **Jarque-Bera (JB):** | 16.155 |
| **Skew:** | -0.722 | **Prob(JB):** | 0.000310 |

Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
| **Model:** | OLS | **Adj. R-squared:** | 0.399 |
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| **Date:** | Thu, 03 May 2018 | **Prob (F-statistic):** | 7.20e-11 |
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| **Df Model:** | 1 | | |
| **Covariance Type:** | nonrobust | | |

| | coef | std err | t | P>\|t\| | [0.025 | 0.975] |
|---|---|---|---|---|---|---|
| **const** | 0.2750 | 0.409 | 0.673 | 0.503 | -0.538 | 1.088 |
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| **Omnibus:** | 12.839 | **Durbin-Watson:** | 0.950 |
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Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
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| | coef | std err | t | P>\|t\| | [0.025 | 0.975] |
|---|---|---|---|---|---|---|
| **const** | 0.2750 | 0.409 | 0.673 | 0.503 | -0.538 | 1.088 |
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Out[7]:

OLS Regression Results

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**GPA = F (SAT, Rand 123)**

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.407 |
| **Model:** | OLS | **Adj. R-squared:** | 0.392 |
| **Method:** | Least Squares | **F-statistic:** | 27.76 |
| **Date:** | Tue, 06 Mar 2018 | **Prob (F-statistic):** | 6.58e-10 |
| **Time:** | 18:09:00 | **Log-Likelihood:** | 12.720 |
| **No. Observations:** | 84 | **AIC:** | -19.44 |
| **Df Residuals:** | 81 | **BIC:** | -12.15 |
| **Df Model:** | 2 | | |
| **Covariance Type:** | nonrobust | | |

Out[7]:

OLS Regression Results

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.406 |
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| | coef | std err | t | P>\|t\| | [0.025 | 0.975] |
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**GPA = F (SAT, Rand 123)**

| | | | |
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Out[7]:

OLS Regression Results

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**GPA = F (SAT, Rand 123)**

| | | | |
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| **Model:** | OLS | **Adj. R-squared:** | 0.392 |
| **Method:** | Least Squares | **F-statistic:** | 27.76 |
| **Date:** | Tue, 06 Mar 2018 | **Prob (F-statistic):** | 6.58e-10 = 0.000 |
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Out[7]:

OLS Regression Results

| | | | |
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| | | | |
|---|---|---|---|
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**GPA = F (SAT, Rand 123)**

| | | | |
|---|---|---|---|
| **Dep. Variable:** | GPA | **R-squared:** | 0.407 |
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| **Date:** | Tue, 06 Mar 2018 | **Prob (F-statistic):** | 6.58e-10 = 0.000 |
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