

Simple Regression - Ontario vs. Year (Year<1950)

Dependent variable: Ontario

Independent variable: Year

Selection variable: Year<1950

Double-squared: $Y = \sqrt{a + b \cdot X^2}$

Number of observations: 32

Coefficients

Parameter	Least Squares	Standard	T	P-Value
	Estimate	Error	Statistic	
Intercept	44926.3	10870.4	4.13292	0.0003
Slope	0.00414274	0.00290754	1.42483	0.1645

Analysis of Variance

Source	Sum of Squares	Df	Mean Square	F-Ratio	P-Value
Model	7.00E+05	1	7.00E+05	2.03	0.1645
Residual	1.03E+07	30	3.45E+05		
Total (Corr.)	1.10E+07	31			

Correlation Coefficient = 0.251758

R-squared = 6.33821 percent

R-squared (adjusted for d.f.) = 3.21615 percent

Standard Error of Est. = 587.25

Mean absolute error = 474.61

Durbin-Watson statistic = 0.900969 (P=0.0001)

Lag 1 residual autocorrelation = 0.535316

The StatAdvisor

The output shows the results of fitting a double squared model to describe the relationship between Ontario and Year. The equation of the fitted model is

$$\text{Ontario} = \sqrt{44926.3 + 0.00414274 \cdot \text{Year}^2}$$

Since the P-value in the ANOVA table is greater or equal to 0.05, there is not a statistically significant relationship between Ontario and Year at the 95.0% or higher confidence level.

The R-Squared statistic indicates that the model as fitted explains 6.33821% of the variability in Ontario. The correlation coefficient equals 0.251758, indicating a relatively weak relationship between the variables. The standard error of the estimate shows the standard deviation of the residuals to be 587.25. This value can be used to construct prediction limits for new observations by selecting the Forecasts option from the text menu.

The mean absolute error (MAE) of 474.61 is the average value of the residuals. The Durbin-Watson (DW) statistic tests the residuals to determine if there is any significant correlation based on the order in which they occur in your data file. Since the P-value is less than 0.05, there is an indication of possible serial correlation at the 95.0% confidence level. Plot the residuals versus row order to see if there is any pattern that can be seen.