Fixed Effects Regression Models: Quantitative Applications in the Social Sciences

Fixed effects regression models are a type of regression model that is used to analyze longitudinal data. Longitudinal data is data that is collected over time, and it can be used to track changes in a variable or set of variables over time. Fixed effects regression models can be used to control for unobserved heterogeneity, which is a type of bias that can occur when the data is not randomly assigned.

Fixed Effects Regression Models (Quantitative Applications in the Social Sciences Book 160)

by Paul D. Allison

★★★★☆ 4.7 out of 5

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Text-to-Speech	: Enabled
Enhanced typesetting	: Enabled
Print length	: 134 pages
Screen Reader	: Supported

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Unobserved heterogeneity can bias the results of ordinary least squares (OLS) regression. OLS regression is a type of regression model that is used to estimate the relationship between a dependent variable and one or more independent variables. However, OLS regression can be biased if there is unobserved heterogeneity in the data. Unobserved heterogeneity is a type of bias that occurs when there are unobserved factors that are correlated with both the dependent variable and the independent variables.

Fixed effects regression models can be used to control for unobserved heterogeneity by including dummy variables for each individual or group in the data. These dummy variables will absorb the unobserved heterogeneity, and they will allow the researcher to estimate the relationship between the dependent variable and the independent variables without bias.

Fixed Effects Regression Model

The fixed effects regression model is a type of regression model that is used to estimate the relationship between a dependent variable and one or more independent variables. The fixed effects regression model is similar to the OLS regression model, but it includes dummy variables for each individual or group in the data. These dummy variables will absorb the unobserved heterogeneity, and they will allow the researcher to estimate the relationship between the dependent variable and the independent variables without bias.

The fixed effects regression model can be written as follows:

$$y = X\beta + \delta + \varepsilon$$

where:

* y is the dependent variable * X is the matrix of independent variables * β is the vector of coefficients * δ is the vector of fixed effects * ε is the error term

The fixed effects regression model can be estimated using a variety of methods, including ordinary least squares (OLS),generalized least squares

(GLS),and maximum likelihood estimation (MLE).

Applications of Fixed Effects Regression Models in the Social Sciences

Fixed effects regression models are a powerful tool for analyzing longitudinal data. They can be used to control for unobserved heterogeneity, which can bias the results of OLS regression. Fixed effects regression models have been used in a wide variety of applications in the social sciences, including:

* Economics: Fixed effects regression models have been used to study a variety of economic topics, such as the effect of education on earnings, the effect of government spending on economic growth, and the effect of trade on wages. * Political science: Fixed effects regression models have been used to study a variety of political science topics, such as the effect of campaign spending on election outcomes, the effect of incumbency on re-election rates, and the effect of term limits on legislative behavior. * Sociology: Fixed effects regression models have been used to study a variety of sociological topics, such as the effect of family structure on child outcomes, the effect of neighborhood poverty on crime rates, and the effect of social networks on job attainment.

Fixed effects regression models are a valuable tool for researchers who are interested in analyzing longitudinal data. They can be used to control for unobserved heterogeneity, and they can provide unbiased estimates of the relationship between the dependent variable and the independent variables.

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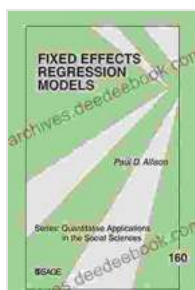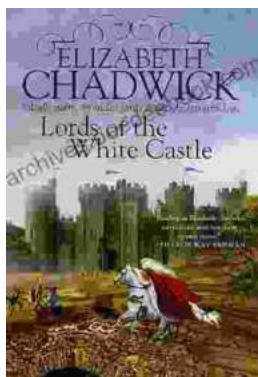
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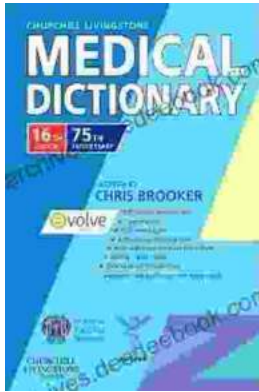
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