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3.9. Effects of an Additional Regressor4. EFFECTS OF AN OBSERVATION ON A REGRESSION EQUATION; 4.1. Introduction; 4.2. Omission Approach; 4.2.1. Measures Based on Residuals; 4.2.1.1. Testing for a Single Outlier; 4.2.1.2. Graphical Methods; 4.2.2. Outliers, High-leverage, and Influential Points; 4.2.3. Measures Based on Remoteness of Points in X-Y Space; 4.2.3.1. Diagonal Elements of P; 4.2.3.2. Mahalanobis Distance; 4.2.3.3. Weighted Squared Standardized Distance; 4.2.3.4. Diagonal Elements of Pz; 4.2.4. Influence Curve; 4.2.4.1. Definition of the Influence Curve
4.2.4.2. Influence Curves for and 24.2.4.3. Approximating the Influence Curve; 4.2.5. Measures Based on the Influence Curve; 4.2.5.1. Cook's Distance; 4.2.5.2. Welsch-Kuh's Distance; 4.2.5.3. Welsch's Distance; 4.2.5.4. Modified Cooks Distance; 4.2.6. Measures Based on the Volume of Confidence Ellipsoids; 4.2.6.1. Andrews-Pregibon Statistic; 4.2.6.2. Variance Ratio; 4.2.6.3. Cook-Weisberg Statistic; 4.2.7. Measures Based on the Likelihood Function; 4.2.8. Measures Based on a Subset of the Regression Coefficients; 4.2.8.1. Influence on a Single Regression Coefficient
4.2.8.2. IInfluence on Linear Functions of 4.2.9. Measures based on the Eigensmcture of X; 4.2.9.1. Condition Number and Collinearity Indices; 4.2.9.2. Collinearity-Influential Points; 4.2.9.3. Effects of an Observation on the Condition Number; 4.2.9.4. Diagnosing Collinearhy-Influential Observations; 4.3. Differentiation Approach; 4.4. Summary and Concluding Remarks; 5. ASSESSING THE EFFECTS OF MULTIPLE OBSERVATIONS; 5.1. Introduction; 5.2. Measures Based on Residuals; 5.3. Measures Based on the Influence Curve; 5.3.1. Sample Influence Curve; 5.3.2. Empirical Influence Curve
5.3.3. Generalized Cook's Distance

Sommario/riassunto

Treats linear regression diagnostics as a tool for application of linear regression models to real-life data. Presentation makes extensive use of examples to illustrate theory. Assesses the effect of measurement errors on the estimated coefficients, which is not accounted for in a standard least squares estimate but is important where regression coefficients are used to apportion effects due to different variables. Also assesses qualitatively and numerically the robustness of the regression fit.