

The Differences of Micro Data and Macro Data Used in Statistical Analysis: C-D Production Function

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In empirical studies, we discussed the differences of micro data and macro data used in statistical analysis. Based on the 2008 Economic Census, we not only analyzed the differences of micro data and macro data in one variable descriptive statistics and correlation of two variables, but also we discussed their differences in multiple regression analysis. In descriptive analysis, we discovered that macro data are much closer to normal distribution than micro data, but not the case after logarithm of the data. In the correlation analysis of two variables, the correlation calculated on macro data is higher than correlation calculated on micro data. In the regression model analysis, we used OLS method to estimate C-D production function, and found that when heteroscedasticity and multicollinearity didn't be eliminated, the estimation based on macro data is quite different from the result based on micro data in the economy of scale, the marginal contribution of production factors, and the explanatory power of factors to output. After eliminating heteroscedasticity and multicollinearity, the difference of the estimation in the explanatory power of factors to output still exists. And when we tested whether the model satisfied the conditions of OLS, we discovered that micro data are more prone to producing heteroskedasticity while macro data are prone to producing multicollinearity.

Key Words: C-D production function, descriptive statistics analysis, macro data, micro data,