BIVARIATE CONTROL CHART FOR QUALITY CONTROL ANALYSIS IN BREAD PRODUCTION PROCESS, INDONESIA

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ABSTRACT

Quality of bread production is of importance to be analyzed as it is a widely consumed food product in Indonesia, substituting rice. As bread production is located in the red ocean market, it is crucial for the companies to maintain the quality of the bread in order to preserve their customers. The statistical control chart is one of the tools to be used in overseeing product quality. A simple statistical control chart is based on the assumption that the field data are normally distributed. Nonetheless, in real case scenario, non-normal distribution of data is often found. Hence, this paper aims to construct bivariate control chart with copula as an alternative tool which regards the non-normal distribution of data and its effect on the firm-level quality management process. The numerical analysis is applied in this study to see whether or not bivariate control chart with copula is indeed better than the existing control chart. This paper makes use of simple random sampling methodology to evaluate one of the biggest bread companies in Indonesia, company ABC. By illustrating detail analysis using bivariate control chart with copula, the result shows that the alternative control chart is valuable in monitoring the quality of bread production in Indonesia.

Keywords: control chart, copula, bread production, quality control.