

INVESTIGATION OF FACTORS AFFECTING LOW PRODUCTIVITY IN APPAREL MANUFACTURING

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Textile and apparel industry occupies a prominent position in Sri Lanka's industrial structure and contributes significantly to the export revenue. On time deliveries not only increase the competitiveness in the world market and the customer satisfaction but also make path to high profits and more future orders. The purpose of this study was to investigate the root causes affecting low productivity which hinders on time deliveries in one of the leading apparel manufacturing companies in Sri Lanka. Productivity was defined as the dependent variable and it was measured by dividing the actual output by the planned output. Nine major factors which affected the productivity were recognized as the independent variables and daily loss production hours were calculated related to those particular factors. Identified loss production hours under production issues, cutting delays and damages, warehouse issues, machine break downs, quality issues, technical issues, embellishment and printing issues, worked hours variance and front end issues measured as the independent variables. The Multiple regression method was used to analyse the data and the productivity follows a normal distribution. The correlation matrix has shown colinearity among the independent variables. To remove multi-colinearity among the independent variables, square root of the warehouse issues has taken and front end issues remove from the model using Variance Inflation Factor (VIF) method. The model is identified as, $Productivity = 0.760 - 0.001 (Embellishment \& Printing \ issues) - 0.001 (Production \ issues) - 0.002 \sqrt{(Warehouse \ issues)} + 0.005 (Actual \ worked \ hours - Planned \ worked \ hours)$ at a 5% level of significance. The fitted model has shown a 97% accuracy and the residuals are normal and random. Therefore, this can be assumed to be a good fit to forecast productivity in apparel industry using loss production hours of embellishment and printing issues, production issues, warehouse issues and worked hour's variance. Those factors directly affect the productivity while other factors do not show much impact on the productivity.

Keywords: Apparel industry, Multiple regression, Productivity, Variance inflation factor