DISRUPTION IN LONG CYCLE
MADE-TO-ORDER PRODUCTION

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ABSTRACT

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Some cost models of made-to-order production incorporate learning and production rate as cost factors, but they fail to analyze empirically the disruptions' effects on cost of production.

The model developed in this research is an extension and application of a previous model by Womer and Camm (1987). This model is more detailed than previous aggregate planning models. The purpose of this research is to capture analytically, as well as empirically, the disruptive effects on production cost. The original model is estimated using non-disrupted data from the Black Hawk program then the revised model is estimated using data from the Black Hawk helicopter program, during the period when strike occurred. This program, as well as other defense programs, often suffers production disruptions. Therefore, it is useful to illustrate the disruptive effects in these kinds of programs.

Unweighted and weighted non-linear ordinary least squares and the frontier approaches to estimating cost functions are used to estimate the parameters of the models. The models and the estimated parameters will be simulated to illustrate the disruptions and to measure the resulting inefficiency.
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