In order to preserve as many degrees of freedom as possible, it is assumed that:

$$\alpha_{11}=\alpha_{21}=\beta_{10}$$

$$\alpha_{31}=\alpha_{41}=\beta_{11}$$

$$\alpha_{51}=\alpha_{61}=\beta_{12}$$

$$\alpha_{71}=\alpha_{81}=\beta_{13}$$

and denote:

$$\alpha_0=\beta_0$$

$$\alpha_{10}=\beta_1$$

$$\cdots$$

$$\alpha_{80}=\beta_8$$

$$\alpha_9=\beta_9$$

Equation (10) is then rewritten as:

$$S_t=\beta_0+\beta_1 O_{t-1}+\beta_2 O_{t-2}+\ldots+\beta_8 O_{t-8}+\beta_9 R_t+\beta_{10}\{(PO)_{t-1}+(PO)_{t-2}\}+\beta_{11}\{(PO)_{t-3}+(PO)_{t-4}\}+\beta_{12}\{(PO)_{t-5}+(PO)_{t-6}\}+\beta_{13}\{(PO)_{t-7}+(PO)_{t-8}\}+U_t \quad (11)$$

Equation (11) shows that S_t is dependent on previous new orders, the interaction of new orders with product mix, and the rate of capacity utilization.

3. Data and Statistical Results

Data on the new orders, shipments, unfilled orders, and inventories of defense products are published by the Bureau of Census as monthly series in "Manufacturers' Sales, Inventories, and Orders." To avoid the necessity of including an excessive number of lagged variables in the equation, the data are aggregated to obtain a quarterly series. This aggregation reduced the size of observations to a smaller number. But it also resulted in some loss of precision. Seasonally adjusted data are used in this investigation.

The rates of capacity utilization are those of the Federal Reserve Board series. The ratios of the obligations on missiles and electronic equipment to the obligations on total procurement are calculated from various issues of *Monthly Report on Status of Funds* published by the Department of Defense.

The statistical estimates of equation (1) are summarized in table 1.

Table 1

Variables	Coefficients	Standard errors	Variables	Coefficients	Standard errors
Constant	438.21		O_{t-6}	0.1142	0.0693
O_{t-1}	.1366	0.0631	O_{t-7}	.0190	.0636
O_{t-2}	.1464	.0665	O_{t-8}	.0024	.0548
O_{t-3}	.1707	.0680	R_t	−.0413	.0140
O_{t-4}	.1640	.0707	R^2=.8189	$d.f.$=30	
O_{t-5}	.1189	.0745	Se=33.24	d=.6697	