Forecasting Contracting Workload

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The Defense Logistics Agency (DLA) Directorate of Contracting requested DLA's Operations Research and Economic Analysis Office, DLA-LO, to investigate methods for forecasting its contracting workload which are more sensitive to the fiscal environment than currently employed techniques. An approach which attempts to forecast DLA workload from indicators of Military Service activity was chosen for this effort. This report documents and summarizes the efforts and conclusions reached in this study.

This analysis concludes DLA's contracting workload cannot be forecast directly from indicators of Service activity. However, it was possible to forecast demand for stocked items in some commodities and then to estimate the number of stock replenishment contracts using an inventory model. Unfortunately, the contracts that could be estimated in this manner represent less than half of the total number of contracts in DLA.

It is recommended that, because of the inability to uniformly forecast contracting workload from Service activity across Supply Centers, DLA continue to use its present workload forecasting techniques for the time being. However, as changes in the acquisition processes occur, we recommend that the situation be reevaluated periodically to determine if predictable relationships have emerged from the process improvements. Further, we recommend that other forecasting methodologies be explored in the future to find a technique which is more sensitive to the fiscal environment than the currently used techniques. This especially may become possible when DLA's inventory control system becomes more predictable through increased use of automation.

Christine L. Gallo
Deputy Assistant Director
Policy and Plans
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EXECUTIVE SUMMARY

The recent push for a balanced Federal budget through reduced spending makes it increasingly difficult to do effective workload planning. Traditionally, workload planning has been based on historical trends in workload. But with the advent of this new pressure to reduce spending throughout the government, a different operating environment has been created. The historical trends, upon which workload planning has been based, have primarily represented periods of significant budget growth. Therefore, the use of historical trends based on the old fiscal environment may be inappropriate in forecasting workload in this new environment. Defense Logistics Agency’s (DLA) Directorate of Contracting is examining alternative techniques for forecasting its contracting workload. The DLA Operations Research and Economic Analysis Office (DLA-LO) was tasked with investigating new approaches for forecasting contracting workload which did not assume the continuation of historical trends.

This study explored the possibility of forecasting DLA contracting workload from indicators of Service activity. The premise of this analysis is that DLA’s contracting workload is somehow related to Service activity -- an increase in Service activity will lead to a corresponding increase in DLA workload. In this effort we examined the use of regression analysis and mathematical modeling for forecasting DLA workload.

We found that we could not forecast DLA’s contracting workload directly from Service activity (given the variables we examined). We were able to forecast DLA’s Supply Operations workload (expressed by item demand) from Service activity in some cases. Then, we could forecast some of DLA’s stocked item contracting workload indirectly by using the forecasts of item demand. But we were unable to forecast any of DLA’s non-stocked contracting workload.

Based upon the inability to accurately forecast DLA’s contracting workload from Service activity, we recommend continued use of DLA’s current workload forecasting techniques. We recommend that other forecasting methodologies be explored in the future to find a technique which is more sensitive to the fiscal environment than the currently used techniques. This may become possible when DLA’s inventory control system becomes more predictable through increased use of automation.
I. INTRODUCTION

A. Background

In order to do meaningful workload planning and to provide defendable estimates of resource requirements to the Office of the Comptroller in the budget development process, the Defense Logistics Agency's Directorate of Contracting (DLA-P) is continually refining its workload forecasting techniques. Historically, techniques which base forecasts on the continuation of historical trends (known as time series forecasting) have been successfully employed. Time series methods ignore relationships between historical trends and external environmental factors. In general, the application of time series techniques requires the assumption that either the environment is constant, or that it is constantly (and consistently) changing.

However, with the advent of legislation to cap the Federal budget to reduce the deficit, there may be changes in DLA's fiscal environment. Forecasting methods which are sensitive to these anticipated changes may yield better forecasts than methods which are not.

B. Objective. The objective of this study was to make better forecasts of contracting workload by developing forecasting models which would take advantage of anticipated changes in the fiscal environment while avoiding the assumptions necessary for time series techniques.

II. APPROACH

Our initial approach was to directly forecast contracting workload from indicators of Service activity using regression modeling. This approach was based on the premise that as Service activity changes, DLA should experience corresponding changes in contracting workload. Because inventory theory dictates that purchasing to replenish stocks be done in an economic manner, an increase in Service activity may not necessarily lead to a corresponding increase in contracting workload. In fact, the contracting workload may not increase at all. The size of an Economic Order Quantity (EOQ) may be increased because of greater demand, but this does not necessarily imply a greater frequency of buys.

Because of this anticipated difficulty in forecasting "over" the inventory system, another method of forecasting contracting workload was explored. This method first used regression modeling to forecast demand or supply operations workload and then used a mathematical model of our automated inventory system (the Projected Supply Performance Model or PERMES) to derive the contracting workload from the forecast of demand.
III. SUMMARY OF ANALYSIS

A. Direct Forecasting of Workload

We used regression modeling in our effort to directly forecast workload from indicators of Service activity. The measures of workload that we used were:

- Purchase Requests (PRs)
- Purchase Request Line Items (PRLIs)
- Item Demand
- Requisitions

Contracting workload was measured using PRs and PRLIs. Supply operations workload was measured using item demand and requisitions. We tried to forecast these workload variables for the six commodities (Construction, Electronics, General, Industrial, Medical, and Clothing and Textiles), as well as the combined total for the first four centers (the hardware centers) and the combined total for all of the centers. We also tried to forecast the workload for only those items that were stocked and for only those that were non-stocked.

We examined three primary groups of indicators of Service activity:

- Indicators of Equipment Usage
- Personnel Indicators
- Budgetary Indicators

Within each group, several actual measures were examined. For instance, indicators of equipment usage included steaming hours, flying hours, etc.; budgetary indicators included procurement dollars and operations and maintenance dollars, expressed in both constant 1987 dollars and in current dollars. See Appendix A for details. While this was not an exhaustive list of all possible indicators, we felt that this list would capture any significant change in the level of service activity. Furthermore, we discovered that, with the exception of the number of new recruits (accessions), these indicators are all highly related. If one indicator changed, then a similar change was observed in each of the other indicators.

We were unable to develop usable regression models for forecasting either of the two measures of contracting workload (PRs and PRLIs). We were able, for some commodities, to develop models to forecast demand for stocked items and to forecast demand for all items. For these models, Operations and Maintenance Dollars (in constant 1987 dollars) was found to be the best indicator. Appendix B contains the usable regression models that were developed, the uncertainty associated with each, and forecasts of the indicator variables.

We examined two measures of the uncertainty associated with these forecasting models. First, we made estimates of the size of the possible forecast error. This estimate is referred to as a "prediction interval" and it represents the bounds for the values within which the actual value of the forecast variable would be expected to fall. Another estimate of the uncertainty was made by
selecting a subset of the available observations and then developing a regression model based only on that subset of observations. This revised model was used to predict values of the forecast variable. Any differences between the predicted and actual values of the forecast variables (found in the original observations but not in the test subset) can be used to examine the consequences that could have resulted from using an actual model forecast. See Appendix B for details.

B. Indirect Forecasting Based upon Mathematical Modeling

This method used regression modeling to forecast demand or supply operations workload and then used these forecasts as input into the mathematical model PERMES. PERMES models DLA's inventory system and converts stocked item demand into standard supply statistics such as: supply availability, asset levels, and expected backorders. Two significant modifications were made to the existing PERMES, one change was to allow us to enter a demand adjustment factor and the other was to allow us to collect workload statistics.

In our examination of the forecasting error that is associated with using PERMES, we forecast 1987's contracting workload (using observed item demand for 1987) and compared it to the actual workload observed. See Appendix C for details.

This method allowed us to confidently forecast only the stocked item contracting workload for the three of the four hardware centers. See Table 1 for details.

Table 1

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<th>Center</th>
<th>FY88</th>
<th>FY89</th>
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<td>269,800</td>
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<td>General</td>
<td>100,000</td>
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<td>Industrial</td>
<td>149,400</td>
<td>150,700</td>
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<table>
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<td>Industrial</td>
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IV. CONCLUSIONS AND RECOMMENDATIONS

We were unable to develop a method for forecasting DLA's contracting workload directly from indicators of service activity. However, an indirect method was developed for some portions of the workload. Here, we forecast item demand (a measure of supply operations workload) and then converted the supply workload into contracting workload using a mathematical model of the Standard Automated Materiel Management System (SAMMS). This indirect approach was found to be successful for forecasting both stocked item demand and total item demand at most Supply Centers. Neither the direct nor indirect approach was successful for forecasting non-stocked item demand. Unfortunately, the non-stocked item demand generates a disproportionate share of the contracting workload and as a consequence, we were unable to develop any method of forecasting about one half of DLA's total contracting workload.

We conclude that the complexities of the inventory control system are responsible for obscuring the relationships between contracting workload and the fiscal environment.

As a result of our study, we recommend that, because of the inability to uniformly forecast contracting workload from Service activity for each of the Supply Centers, DLA continue to use its present workload forecasting techniques.
## APPENDIX A

**Forecast and Indicator Variable Data**

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<td>Forecast Variable Data</td>
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<td><strong>Procurement Dollars</strong> <em>(in millions)</em></td>
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<tr>
<td><strong>Ope &amp; Maint Dollars</strong> <em>(in millions)</em></td>
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<td><strong>1987 Proc Dollars</strong> <em>(in millions)</em></td>
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<tr>
<td><strong>1987 Ope &amp; Maint $</strong> <em>(in millions)</em></td>
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<td><strong>Active Duty Pers.</strong> <em>(total number of personnel)</em></td>
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<td><strong>Reserve Personnel</strong> <em>(total number of personnel)</em></td>
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<td><strong>Accessions</strong> <em>(total number of personnel)</em></td>
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<td><strong>Army Flying Hours</strong> <em>(total number of hours)</em></td>
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<td><strong>Navy Flying Hours</strong> <em>(total number of hours)</em></td>
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<td><strong>AF Flying Hours</strong> <em>(total number of hours)</em></td>
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<td><strong>Navy Steaming Hours</strong> <em>(total number of hours)</em></td>
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<td><strong>Total Personnel</strong> <em>(thousands of hours = 2080 * Total Personnel + 14 * 8 * Reserves + 12 * 16 * number of reserves)</em></td>
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<td><strong>Total Flying Hours</strong> <em>(Air Force hours plus Army hours)</em></td>
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### Table A-2

**FORECAST VARIABLE DATA**

#### Demand

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<td>71,097,301</td>
<td>82,268,725</td>
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<td>76,304,120</td>
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<td>63,332,763</td>
<td>68,298,390</td>
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## Table A-3

**FORECAST VARIABLE DATA**

### Purchase Requests

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<td>Non-Stocked</td>
<td>90,532</td>
<td>95,156</td>
<td>99,717</td>
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<td>173,741</td>
<td>155,199</td>
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<tr>
<td><strong>Industrial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Non-Stocked</td>
<td>30,223</td>
<td>29,320</td>
<td>29,484</td>
<td>30,464</td>
<td>31,101</td>
<td>34,477</td>
<td>22,632</td>
<td>25,389</td>
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<td>Stocked</td>
<td>179,808</td>
<td>174,434</td>
<td>175,408</td>
<td>181,238</td>
<td>185,029</td>
<td>205,115</td>
<td>134,844</td>
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<td>Total</td>
<td>210,031</td>
<td>203,754</td>
<td>204,892</td>
<td>211,702</td>
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<td>239,592</td>
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<td></td>
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<tr>
<td>Non-Stocked</td>
<td>206,173</td>
<td>209,731</td>
<td>215,353</td>
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<td>Non-Stocked</td>
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<td>430,249</td>
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<td>401,643</td>
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<td>259,202</td>
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<td>223,901</td>
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<td>309,529</td>
<td>295,555</td>
<td>284,971</td>
<td>314,499</td>
<td>320,664</td>
<td>258,291</td>
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<td>Non-Stocked</td>
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<td>58,765</td>
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<td>194,768</td>
<td>185,382</td>
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<td>248,429</td>
<td>246,457</td>
<td>266,275</td>
<td>226,694</td>
<td>251,707</td>
<td>227,718</td>
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<td></td>
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<td>278,842</td>
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<td>309,479</td>
<td>342,523</td>
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<td>360,107</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Non-Stocked</td>
<td>214,051</td>
<td>215,193</td>
<td>227,622</td>
<td>226,099</td>
<td>221,547</td>
<td>192,192</td>
<td>192,192</td>
<td>167,470</td>
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<td>Stocked</td>
<td>1,166,094</td>
<td>1,165,526</td>
<td>1,236,079</td>
<td>1,244,587</td>
<td>1,223,538</td>
<td>1,026,092</td>
<td>913,303</td>
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</tr>
<tr>
<td>Total</td>
<td>1,380,145</td>
<td>1,380,719</td>
<td>1,463,701</td>
<td>1,470,596</td>
<td>1,445,085</td>
<td>1,218,284</td>
<td>1,080,773</td>
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Table A-5

FORECASTS OF INDICATOR VARIABLE DATA

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<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Procurement Dollars (in millions)</td>
<td>83,974</td>
<td>94,624</td>
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</tr>
<tr>
<td>Ops &amp; Maint Dollars (in millions)</td>
<td>86,563</td>
<td>91,460</td>
<td></td>
</tr>
<tr>
<td>1987 Proc Dollars (in millions)</td>
<td>79,521</td>
<td>87,003</td>
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<tr>
<td>1987 Ops &amp; Maint $ (in millions)</td>
<td>81,973</td>
<td>83,586</td>
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<tr>
<td>Active Duty Pers. (total number of personnel)</td>
<td>2,172,000</td>
<td>2,184,000</td>
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</tr>
<tr>
<td>Reserve Personnel (total number of personnel)</td>
<td>1,190,000</td>
<td>1,213,000</td>
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</tr>
<tr>
<td>Accessions (total number of personnel)</td>
<td>270,692</td>
<td>283,200</td>
<td>297,400</td>
</tr>
<tr>
<td>Army Flying Hours (total number of hours)</td>
<td>1,788,341</td>
<td>1,809,277</td>
<td>1,746,275</td>
</tr>
<tr>
<td>Navy Flying Hours (total number of hours)</td>
<td>2,363,704</td>
<td>2,397,455</td>
<td>2,388,781</td>
</tr>
<tr>
<td>AF Flying Hours (total number of hours)</td>
<td>3,709,908</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navy Steaming Hours (total number of hours)</td>
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### APPENDIX B

#### Regression Models and Forecasts

<table>
<thead>
<tr>
<th>Usable Regression Models</th>
<th>B-2</th>
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<tbody>
<tr>
<td>Average 95% Prediction Intervals for Demand Forecasts</td>
<td>B-3</td>
</tr>
<tr>
<td>Forecast of 1987 Item Demand Using Operations and Maintenance Dollars</td>
<td>B-4</td>
</tr>
<tr>
<td>Forecasts of Item Demand FY87-FY88</td>
<td>B-4</td>
</tr>
<tr>
<td>Useful Model for Forecasting Requisitions</td>
<td>B-5</td>
</tr>
<tr>
<td>Average 95% Prediction Intervals for Requisition Forecasts</td>
<td>B-5</td>
</tr>
<tr>
<td>Forecast of 1987 Requisitions</td>
<td>B-6</td>
</tr>
<tr>
<td>Forecasts of Requisitions FY88-FY89</td>
<td>B-6</td>
</tr>
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</table>
Table B-1

Usable Regression Models

For Construction Stocked Item Demand:

\[
\text{Demand} = 2,875,970 + 0.0009595 \times (\text{Ops & Maint Budget Dollars}) \\
R\text{-squared} = .903
\]

For General Stocked Item Demand:

\[
\text{Demand} = 72,387,920 + 0.001062 \times (\text{Ops & Maint Budget Dollars}) \\
R\text{-squared} = .876
\]

For Total General Item Demand:

\[
\text{Demand} = 77,141,414 + 0.001023 \times (\text{Ops & Maint Budget Dollars}) \\
R\text{-squared} = .873
\]

For Industrial Stocked Item Demand:

\[
\text{Demand} = 237,070,290 + .006200 \times (\text{Ops & Maint Budget Dollars}) \\
R\text{-squared} = .903
\]

For Total Industrial Item Demand:

\[
\text{Demand} = 290,206,565 + .005552 \times (\text{Ops & Maint Budget Dollars}) \\
R\text{-squared} = .865
\]

For Stocked Item Demand for all Hardware Centers:

\[
\text{Demand} = 367,364,543 + .008402 \times (\text{Ops & Maint Budget Dollars}) \\
R\text{-squared} = .897
\]

For Total Item Demand for all Hardware Centers:

\[
\text{Demand} = 493,254,288 + .007799 \times (\text{Ops & Maint Budget Dollars}) \\
R\text{-squared} = .889
\]

For Medical Stocked Item Demand:

\[
\text{Demand} = 5,683,758 + .001052 \times (\text{Ops & Maint Budget Dollars}) \\
R\text{-squared} = .833
\]

For Total Medical Item Demand:

\[
\text{Demand} = 5,242,794 + .001069 \times (\text{Ops & Maint Budget Dollars}) \\
R\text{-squared} = .830
\]
### Table B-2

**AVERAGE 95% PREDICTION INTERVALS**

<table>
<thead>
<tr>
<th>Center</th>
<th>Demand Type</th>
<th>Regressor</th>
<th>Average Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Stocked</td>
<td>O&amp;M Dollars</td>
<td>± 11.4%</td>
</tr>
<tr>
<td>General</td>
<td>Stocked</td>
<td>O&amp;M Dollars</td>
<td>± 6.3%</td>
</tr>
<tr>
<td>General</td>
<td>Total</td>
<td>O&amp;M Dollars</td>
<td>± 6.0%</td>
</tr>
<tr>
<td>Industrial</td>
<td>Stocked</td>
<td>O&amp;M Dollars</td>
<td>± 7.8%</td>
</tr>
<tr>
<td>Industrial</td>
<td>Total</td>
<td>O&amp;M Dollars</td>
<td>± 8.3%</td>
</tr>
<tr>
<td>Hardware</td>
<td>Stocked</td>
<td>O&amp;M Dollars</td>
<td>± 6.8%</td>
</tr>
<tr>
<td>Hardware</td>
<td>Total</td>
<td>O&amp;M Dollars</td>
<td>± 6.2%</td>
</tr>
<tr>
<td>Medical</td>
<td>Stocked</td>
<td>O&amp;M Dollars</td>
<td>± 15.1%</td>
</tr>
<tr>
<td>Medical</td>
<td>Total</td>
<td>O&amp;M Dollars</td>
<td>± 15.4%</td>
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Table B-3

FORECAST OF 1987 ITEM DEMAND USING OPERATIONS AND MAINTENANCE DOLLARS

<table>
<thead>
<tr>
<th>Center</th>
<th>Demand</th>
<th>Forecast</th>
<th>Actual</th>
<th>%Error</th>
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</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Stocked</td>
<td>85,656,106</td>
<td>86,061,751</td>
<td>-0.4%</td>
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<tr>
<td>General</td>
<td>Stocked</td>
<td>166,588,490</td>
<td>161,430,572</td>
<td>3.20%</td>
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<tr>
<td>General</td>
<td>Total</td>
<td>168,044,791</td>
<td>162,792,546</td>
<td>3.23%</td>
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<tr>
<td>Industrial</td>
<td>Stocked</td>
<td>754,250,518</td>
<td>801,147,741</td>
<td>-5.85%</td>
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<tr>
<td>Industrial</td>
<td>Total</td>
<td>748,252,109</td>
<td>802,875,702</td>
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<tr>
<td>Hardware</td>
<td>Stocked</td>
<td>1,077,398,159</td>
<td>1,112,308,537</td>
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<td>Hardware</td>
<td>Total</td>
<td>1,160,177,659</td>
<td>1,175,717,990</td>
<td>-1.32%</td>
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<tr>
<td>Medical</td>
<td>Stocked</td>
<td>99,895,567</td>
<td>91,679,549</td>
<td>8.96%</td>
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<tr>
<td>Medical</td>
<td>Total</td>
<td>100,966,443</td>
<td>92,625,775</td>
<td>9.00%</td>
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Table B-4

FORECASTS OF ITEM DEMAND FOR FY88 - FY89

Stocked Demand

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<th>Center</th>
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<tr>
<td>Construction</td>
<td>82,000,000</td>
<td>83,000,000</td>
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<td>Electronics</td>
<td>-</td>
<td>-</td>
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<tr>
<td>General</td>
<td>159,000,000</td>
<td>161,000,000</td>
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<tr>
<td>Industrial</td>
<td>745,000,000</td>
<td>755,000,000</td>
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<tr>
<td>Hardware</td>
<td>1,056,000,000</td>
<td>1,070,000,000</td>
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<tr>
<td>Medical</td>
<td>92,000,000</td>
<td>94,000,000</td>
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<tr>
<td>Textile</td>
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</table>

Total Demand

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<thead>
<tr>
<th>Center</th>
<th>FY88</th>
<th>FY89</th>
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<tbody>
<tr>
<td>Construction</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Electronics</td>
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<td>-</td>
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<tr>
<td>General</td>
<td>161,000,000</td>
<td>163,000,000</td>
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<tr>
<td>Industrial</td>
<td>745,000,000</td>
<td>755,000,000</td>
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<tr>
<td>Hardware</td>
<td>1,133,000,000</td>
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<td>Medical</td>
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<td>95,000,000</td>
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<tr>
<td>Textiles</td>
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B-4
Table B-5

Useful Regression Models for Forecasting Requisitions

For Construction Stocked Requisitions:

Requisitions = 1,706,639 + 0.00001905 x (Procurement Budget Dollars)
R-squared = .947

For Total Construction Requisitions:

Requisitions = 1,989,152 + 0.00001697 x (Procurement Budget Dollars)
R-squared = .921

For Non-Stocked Medical Requisitions:

Requisitions = -444,364 + 0.0001042 x (Ops & Maint. Dollars)
R-squared = .893

Table B-6

AVERAGE 95% PREDICTION INTERVALS

<table>
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<tr>
<th>Center</th>
<th>Demand Type</th>
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<td>Stocked</td>
<td>Procurement $</td>
<td>± 8.1%</td>
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<td>Construction</td>
<td>Total</td>
<td>Procurement $</td>
<td>± 8.7%</td>
</tr>
<tr>
<td>Medical</td>
<td>Non-Stocked</td>
<td>O&amp;M Dollars</td>
<td>± 34.7%</td>
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Table B-7

FORECAST OF 1987 REQUISITIONS

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<th>Center</th>
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<th>Actual</th>
<th>%Error</th>
</tr>
</thead>
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<tr>
<td>Construction</td>
<td>Stocked</td>
<td>Proc$</td>
<td>3,513,094</td>
<td>3,621,861</td>
<td>3.0%</td>
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<tr>
<td>Construction</td>
<td>Total</td>
<td>Proc$</td>
<td>3,601,857</td>
<td>3,675,988</td>
<td>2.0%</td>
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<td>Non-Stocked</td>
<td>O&amp;M$</td>
<td>69,136</td>
<td>66,571</td>
<td>-3.9%</td>
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Table B-8

FORECASTS OF REQUISITIONS FOR FY88 - FY89

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<th>FY89</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
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<td>3,268,000</td>
<td>3,380,000</td>
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<tr>
<td>Construction</td>
<td>Total</td>
<td>3,299,000</td>
<td>3,407,000</td>
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<tr>
<td>Medical</td>
<td>Non-Stocked</td>
<td>61,000</td>
<td>64,000</td>
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APPENDIX C

PERMES VALIDATION

Forecast of Number of Contracts for FY1987

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<th>Center</th>
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<th>Forecast Error</th>
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<tr>
<td>Construction</td>
<td>95,047</td>
<td>86,587</td>
<td>+ 9.8%</td>
</tr>
<tr>
<td>Electronics</td>
<td>104,737</td>
<td>127,158</td>
<td>- 17.6%</td>
</tr>
<tr>
<td>General</td>
<td>50,175</td>
<td>56,817</td>
<td>- 11.7%</td>
</tr>
<tr>
<td>Industrial</td>
<td>100,966</td>
<td>110,584</td>
<td>- 8.7%</td>
</tr>
<tr>
<td>Medical</td>
<td>27,451</td>
<td>9,961</td>
<td>+175.6%</td>
</tr>
<tr>
<td>Textiles</td>
<td>6,968</td>
<td>8,264</td>
<td>- 15.6%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>385,344</td>
<td>399,371</td>
<td>- 3.5%</td>
</tr>
</tbody>
</table>
Forecasting Contracting Workload

This study explored the possibility of forecasting DLA contracting workload from indicators of Service activity. The premise of this analysis is that DLA's contracting workload is somehow related to Service activity -- an increase in Service activity will lead to a corresponding increase in DLA workload. We examined the use of regression analysis and mathematical modeling for forecasting DLA workload. We found that we could not forecast DLA's contracting workload directly from Service activity (given the variables we examined). We were able to forecast DLA's supply operations workload (expressed by item demand) from Service activity in some cases. Then, we could forecast some of DLA's stocked item contracting workload indirectly by using the forecasts of item demand, but we were unable to forecast any of DLA's nonstocked contracting workload. Based upon the inability to accurately forecast DLA's contracting workload from Service activity, we recommend continued use of DLA's current workload forecasting techniques.