including speeches by officials of the Department and amounts requested in the Budget message. Though the former source of information is fairly difficult to quantify, the budget is readily available. Also, to the extent that the Department has unobligated appropriations in various accounts, information on the possibility of future obligations is passed on to the industry. Second, if off-the-shelf items are supplied, the effect of the government orders depends on firms' inventory policies and positions. If they were overstocked, for example, there may be few effects on employment and output until inventories are further reduced. In specialized defense firms this is probably not very important. Third, in many contracts the typical procedure is for the firm to bill the government as production takes place. These progress payments are made although no delivery takes place. In the past several years changes in progress payments have occurred which are of some importance. The percentage of costs paid monthly has been changed from 100 to 80 percent and then back to 100 percent. Peck and Scherer suggest that the ability of defense firms to operate is affected by their access to working capital, so that amounts received from the government might have an independent effect [16, p. 162–163]. Fourth, it is likely that firms do not respond completely to new contracts on a month to month basis, due perhaps to the high costs of rapid employment change.

These considerations suggest that a model designed to predict the impacts of changes in government procurement actions on employment should include among the independent variables:

(1) "Announcement" effects—specifically, budget plans and unobligated appropriations. The budget variable is equal to the budget amount from January until the month in which the appropriations bill is passed, after which, it is equal to zero until the following January. This formulation is intended to reflect the hypothesis that budget plans are the main source of information from January until the appropriation bill is passed. Unobligated appropriations constitute a backlog item, consisting of the balance in the appropriation account after currently incurred obligations are deducted and new appropriations are added. At any point in time, these unobligated balances of appropriations represent the amount available to make additional contract awards.
(2) Expenditures—to allow for the importance of working capital.
(3) Obligations—to measure the direct impact of contract letting. Several lags will be incorporated to capture the possibility that firms do not respond fully on a month-to-month basis.

Additional variables are needed to capture the effects of two other factors: price changes and changes in the amount of subcontracting. Since the empirical work will relate money amounts of expenditures and obligations to employment, changes in the price level will weaken the relationship. In a period of rising prices, for example, the same amount of obligations would lead to a smaller amount of employment.

Changes in the amount of subcontracting are important because the Department of Defense budget categories and the SIC employment categories do not cover the same industries. This problem is described more fully in the appendix. Briefly, Department of Defense budget categories are concerned with end items, such as aircraft or ships, while the SIC data are keyed to the major product class of individual establishments. The tendency for more electronics equipment to be included in ships is reflected in the Department of Defense data in the "ships" account, while in the employment data, it is reflected in the electronics category. This factor should operate negatively on employment, that is, a given amount of dollars obligated for ships will