In Chapter Four, we show how different start dates and build periods affect total shipbuilder cost for CVN 77. Here, we break down these differences into shipyard labor (including variable overhead), fixed shipyard overhead, and contractor-furnished equipment (CFE) costs (including the costs of raw materials and purchased parts not typically considered CFE). For convenience, we first repeat Figure 4.10, which shows differences in total cost, as Figure D.1. Figures D.2, D.3, and D.4 illustrate the contributions of the three sources of cost to those differences in total cost (all graphs are to the same scale).

![Figure D.1—Effect of CVN 77 Start Date and Build Period on Total Shipyard Costs](image-url)
Figure D.2—Effect of CVN 77 Start Date and Build Period on Shipyard Labor Costs

Figure D.3—Effect of CVN 77 Start Date and Build Period on Shipyard Fixed-Overhead Costs
There is not much difference between the total-cost and labor-cost curves, because the fixed-overhead and CFE profiles do not vary much from the baseline and do so at different times. Figure D.3 shows the effect of different dates and build periods on the portion of NNS’s fixed-overhead costs attributed to CVN 77. The shipyard’s fixed overhead includes depreciation, amortization, taxes, etc., and therefore does not change with yard workload. The portion of fixed overhead attributed to CVN 77 is affected by the amount of other work that is in the yard at the same time; if there is more work, CVN 77 bears a smaller share of fixed overhead. Thus, the later the start date beyond 2001, the greater is the average amount of work in the yard over the build period and the smaller is the portion of the yard’s fixed overhead that CVN 77 must bear.

It should be kept in mind that the Navy generates the vast majority of the work at NNS. Thus, the Navy does not necessarily save overhead expense by postponing CVN 77. Whatever the CVN 77 program does not pay for will most likely be covered by another Navy program.

Figure D.4 shows the effect of different dates and build periods on the costs of construction materials and intermediate products provided to the shipyard by vendors. These costs are included in the contract let by the government to the
shipyard. They do not include the costs of government-furnished equipment, such as the reactor. The CFE cost differences over time are based on a survey of vendors conducted by NNS in fall 1996.