## DESCRIPTION OF TABLES 6.1-6.3

### Washington vs. U.S. Employment (Table 6.1)

Table 6.1 compares Washington's employment as a share of U.S. employment over time to help analyze the role of the R&D programs' impact on relative changes in employment. Selected two-, three- and four-digit SIC codes are used to show the majority of employment (about 76 percent is covered by this selection).

To compare relative employment changes the 1990-1994 period was compared with 1995-1998, which is the five-year period before the existence of the programs compared to the first five years of the programs. The trends relative to the U.S. employment level for the earlier period were forecast forward to the 1995-1998 period to make the comparison. Using this approach the later period favorably compares with the earlier period, both including the transportation equipment industry (SIC 3700) and excluding it. Relative employment is about 11 percent higher than what might have been expected given prior trends (2.12 percent vs. 1.91 percent).

This result should be taken as an indication of overall trends rather than an impact across all impacted industries. The right two columns show participant employment as a share of their industry's employment. It can be seen that the chemical industry including drugs (SIC 2800), computer equipment manufacturing (SIC 3570) and instrument manufacturing industry (SIC 3800) have all had relative declines in Washington employment compared to other Washington firms in the same industries. It is likely that this is caused by specific market conditions impacting those firms or management decisions to locate operations elsewhere. Regressions performed on various industry groupings indicated that U.S. employment patterns are not always followed by firms in this state in the same industries. It is suggested that future research on these effects might be clarified by using a study control group versus the participant group.

Employment series used for the trend comparison were compiled from U.S. Department of Labor ES202 data, Washington State Employment Security Department covered wage data, and the Department of Commerce County Business Patterns data. Estimates were necessary to conform the County Business Pattern data to annual averages and estimates to conform the ES202 data to the establishment concept of the County Business Pattern data. These conforming estimates were necessary due to a lack of consistent historic information and SIC code detail being suppressed due to disclosure considerations. Conversion of the SIC code system to a NAICS system had an impact on the ability to provide consistent industry data throughout the time period because historic and current published employment is not on the same industry code basis. It appears that future studies of these programs' impact on employment will be impaired by the ability to obtain consistent industry time series data.

**Tax Benefit Comparisons (Tables 6.2-6.3)**

In order to analyze and separate the effects of the R&D programs from the effects of other programs, estimates of the tax benefits received by participant firms from the manufacturing equipment exemption (RCW 82.08.02565), the rural deferral program (RCW 82.60) and rural B&O job credit (RCW 82.62) were made.

Table 6.2 summarizes over time the tax benefits received by R&D participant firms for these five programs along with employment, manufacturing activity, and gross revenue. The tax benefits estimated for the R&D deferral program and rural deferral programs are based on when projects are completed, rather than when approved, because it is believed that employment increases are not likely to occur until after a plant is completed. Over the five-year period 1995-1999, $394.4 million in tax benefits were received by R&D program participants.

Regressions performed on individual company data for major industry groups indicated that while employment effects were generally positive, they were not consistent across industries, and the correlation with U.S. industry employment trends for industries was also not consistent, as indicated by Table 6.1 as well. More sophisticated approaches might have generated more useful information on an industry basis.

Regressions performed on aggregate employment data for participants, removing the effect of the machinery and equipment exemption and historic trends, did not provide statistically significant results for the programs.

Another observation from Table 6.2 is that there has been a consistent decline in manufacturing activity as a share of Washington gross revenue for participants. Reductions in firm integration within the state may have caused this, or it may be the result of contracting out to other industries.

When comparing the tax benefits received to both gross revenue and average employees in Tables 6.2 and 6.3, there is an increasing tax benefit per employee and as a share of gross revenue. This pattern appears to be consistent across firm sizes but is more pronounced with smaller firms. This indicates a decreasing pattern of returns to the state for investments in these industries.