

CHAPTER 1

OBSERVATIONS AND FINDINGS

Positive Impacts

Rural county firms performing research and development (R&D) are growing in number and volume at least as fast as those in non-rural counties. This lends credence to positive geographic diversification as a result of the R&D programs (see Tables 3.2 and 3.3).

Washington's employment share of the U.S. for selected industries represented by firms participating in these programs has expanded somewhat faster than what might have been expected by previous trends (see Table 6.1). However, the Department could not find a statistically significant and consistent employment impact for these programs as a whole.

Washington is home to many firms in high technology high growth areas. There has been a significant increase in patents granted to these firms, which is a testament to innovation and an outcome of research (see Tables 6.4 and 6.5). About \$1 million of R&D credit or deferral received appears to be related to between two to five patents. Also, firms that have received patents tend to pay higher wages than firms that haven't received patents.

Based on firm survey results, \$10.4 billion of revenue annually is attributable to products developed during the last five years. About 44 percent of R&D credit participants indicated that expansions had taken place, and for those expansions about 59 percent of new employees were Washington residents (see Chapter 5).

Mixed Results

Growth in Washington employment shares of the U.S. for some industries is not enjoyed by all program participant firms within those industries (see Table 6.1).

Some firms have moved portions of their business out of state which reduces the long-run potential impact on Washington of research work performed here. The manufacturing share of gross revenue of participants has steadily declined since 1995 (see Table 6.2). This implies either a decrease in in-state diversification of products or a decline in in-state integration of production.

Over time there is an increasing benefit to the taxpayer and tax cost to the state per dollar of gross revenue generated by participant firms (see Table 6.3). This trend crosses all size groups of firms but appears more pronounced for smaller firms. This implies decreasing returns to investment for both the state and firms. Another indicator of this pattern was seen in the survey. The survey results indicated a \$10.4 billion sales level for new products (or 74 percent of current sales). This implies a relatively short life for new products which indirectly reduces future

income streams, which in turn reduces the potential tax revenue gain to the state of these products (see chapter 5).

Two of the technologies for which the incentives are granted appear to be in a declining research trend within Washington. These are advanced materials technology and environmental technology (see Table 3.1).

Some firms only take the R&D credits when audited, which places in question whether adequate information has been provided to firms and the extent to which the program acts as an incentive to perform research.

Other Observations

Our analysis of patents granted to Washington companies revealed that many areas of innovation in the state are not in “high technology” areas or in areas which are growing rapidly in the country. Of Washington’s top ten patent classes, two are “high technology” fields, whereas in the U.S. seven of the top ten patent classes are “high technology” fields. Thus Washington innovation and diversity is somewhat different than the norm (see Table 6.5 and technical notes). It appears that 47 percent of firms granted patents are firms that do not participate in the R&D programs.