

ever-growing population of ERIP inventors. The first evaluation of ERIP based on a sample of 204 inventors and a population of 305 estimated that 18% of the ERIP technologies had entered the market by the end of 1984 (Brown, et al., 1987, p. 22). This rose to 26% based on a sample of 181 inventors out of a population of 373, and data through the end of 1986 (Brown and Snell, 1988, p. 14). By the end of 1988, an evaluation based on a sample of 176 inventors estimated that 25% of 444 technologies had entered the market (Brown and Wilson, 1990, p. 10). The most recent evaluation based on a sample of 183 inventors out of a population of 486, estimated the same rate of market entry—25% (Brown, Wilson, and Franchuk, 1991, p. 3.5). The current evaluation's estimate (based on a sample of 253 inventors and a population of 557) is a rate of 23%.

The constancy of these rates and other key evaluation findings suggests that the evaluation designs have been sufficiently robust to enable extrapolation to the population of ERIP inventors at large, and to future cohorts of participants, as well.

8.3 EVALUATION CONCLUSIONS

This evaluation reveals that 1991-92 was a successful period for many ERIP technologies. By the end of 1992, at least 129 ERIP inventions had entered the market, generating total cumulative sales of \$763 million (in 1992 dollars). The success of ERIP inventors is also shown in their licensing revenues. It is estimated that in 1992 ERIP inventors earned royalties of \$1.0 million, and over the lifetime of the program, royalties total \$18.6 million. With \$41 million in grants awarded from 1975 through 1992, and \$106 million in program appropriations over the same period, ERIP has generated a 19:1 return in terms of sales values to grants, and a 7:1 return in sales versus program appropriations. It is estimated that 23% of the 557 ERIP inventions had achieved sales by the end of 1992. An analysis of sources of funding provides additional evidence of positive program impacts. While it is difficult to make exact comparisons between these percentages and other indicators of the success rates of technological innovations as a whole, the ERIP figures remain impressive.

The commercial progress of spinoff technologies is also documented. Altogether, 36 spinoff technologies have generated sales of \$63 million. Most of these involve alternative market applications, but some of them are second-generation technologies. Figure 8.1 portrays the cumulative sales of ERIP's inventions and spinoff technologies over the lifetime of the program and compares these values to ERIP program appropriations and grant awards.

The employment and tax benefits associated with ERIP technologies are also significant. It is estimated that at least 668 full-time equivalent employees were working on ERIP technologies in 1992. This employment is associated with a return of approximately \$2.7 million in individual income taxes to the U.S. Treasury.