

## Participation in ATP-Funded Research Consortia Increases Patenting Activity<sup>1</sup>

- **ATP research consortia increase overall research productivity and R&D spending of participating firms**
  - Firms increase research productivity 8 percent per year for each ATP-funded consortium project in which they participate.
  - Participating firms' overall R&D spending increases as patenting in the technological areas targeted by research consortia increases.
  
- **ATP research consortia increase patenting levels above pre-consortia levels in the technological areas targeted by consortium projects**
  - ATP research consortia show sharp increases in patent applications in the technological areas targeted by the consortia two to three years after inception of the ATP project.
  - Long-term benefits of ATP research consortia may be underestimated in current study because patent data are limited to a four-year period (1991-1995). Japanese data covering a 13-year period show increases in patent outcomes long after the inception of the project.
  - Firms that participate more frequently in ATP consortia generate more patents per unit of spending on research and development than firms that participate in fewer ATP consortia or do not participate in ATP research consortia at all.
  - Larger firms generate more patents from consortia-sponsored research than smaller firms.
  
- **Consortia whose members have technologically similar patent portfolios are more successful than other types of consortia**
  - ATP research consortia whose members are technologically similar in their patent portfolios apply for more patents than consortia whose member firms are technologically diverse.
  
- **Japanese data validate U.S. findings**
  - Japanese data confirm positive association between technologically similar firms in research consortia with patenting activity in the technological areas targeted by research consortia.

<sup>1</sup> These findings are taken from Mariko Sakakibara and Lee Branstetter's report to ATP, *Measuring the Impact of ATP-Funded Research Consortia on Research Productivity of Participating Firms: A Framework Using Both U.S. and Japanese Data*, NIST GCR 02-830 (November 2002).

- Japanese data confirm increases in patenting activity in technological areas targeted by research consortia above pre-consortia levels.
- **Japanese data show pre-commercial focus, decentralization, and exclusion of product market rivals from consortia are positively associated with patenting outcomes**
  - Research projects that Japanese firms perceive to be more “basic” or “pre-commercial” rather than “close to commercialization” are positively associated with patent outcomes.
  - Management of Japanese research consortia is more centralized than ATP model. Japanese government is more involved in establishing consortia, selecting member firms, and directing research objectives. In contrast, ATP relies on firms to organize themselves. Authors find that as centralization increases, “good” outcomes decline.
  - The number of times firms in a given consortia compete in a product market is negatively associated with patent outcomes. Bringing product market rivals into a consortium does not lead to successful outcomes. Few ATP consortia have this horizontal structure.
- **Future research suggested due to limitations of current study**
  - Expand patenting data beyond 1995 in order to examine long-term effects of ATP research consortia.
    - Difficult to examine long-term outcomes with current dataset. Few ATP projects begun in the early 1990’s ended by 1995. Majority of ATP projects began after 1995.
    - Develop more comprehensive mapping of technological goals of consortium projects to U.S. patent classification system.
  - Collect quantitative data on small, privately-held firms involved in ATP joint ventures (e.g., R&D spending, sales, and capital investments).
  - ATP staff should conduct additional firm-level analysis using ATP’s Business Reporting System (BRS) data to avoid compromising data confidentiality.
    - To maintain confidentiality, the study averaged survey responses among participating consortia members. Since BRS survey data on firms’ perceptions of the impact of participating in ATP research consortia are confidential, authors recommend ATP staff conduct additional firm-level analyses internally.

Factsheet 1.E3 (February 2003)