**Referee Report: Measuring the Impact of Government R&D Contracts by John Ahlin**

**Overview**

This paper explores the impact of government-issued R&D contracts on manufacturing productivity, focusing on both the magnitude and time frame of effects. The author employs data from the Federal Procurement Data System (FPDS) and the NBER-CES Manufacturing Industry Database to link government spending with industry-level productivity changes, measured by Total Factor Productivity (TFP). Using a novel matching methodology to align R&D contracts with industries, the author proposes a regression framework to quantify the influence of R&D spending on future productivity growth.

The paper's intent is clear: to evaluate how government R&D contracts affect industry productivity and determine the time lag for realizing benefits. This investigation is timely and practical, providing insights for policymakers regarding the allocation of R&D funding.

**Critique (for a journal submission)**

Strengths

1. Relevance: The topic addresses a critical question in public economics, with significant policy implications.

2. Methodological Innovation: The manual crosswalk linking PSCs with NAICS codes is a creative and meticulous approach that adds credibility to the analysis.

3. Data Sources: Leveraging large and reliable datasets (FPDS and NBER-CES) strengthens the study's potential for robust insights.

4. Clarity of Intent: The introduction and methods sections provide a clear and logical flow, making the research question and approach easy to follow.

Weaknesses

1. Incomplete Results: The lack of regression results due to challenges in calculating ΔTFP limits the paper's contribution. Hopefully the author could manage to find a way solving the discrepency and run results.

2. Replication Challenges: The inability to replicate the NBER TFP calculations raises concerns about the robustness and comparability of the dataset.

3. Specification Issues: The proposed regression model could be refined to account for additional industry-specific characteristics or macroeconomic factors that may confound the relationship between R&D spending and productivity.

4. Discussion Gaps: The paper does not address potential endogeneity concerns, such as reverse causality between productivity and government spending or omitted variables that might influence both.

Recommendation to Editor

The paper demonstrates significant promise but falls short in its current form due to incomplete analysis and unaddressed methodological challenges. I recommend a "revise and resubmit" decision, contingent upon the inclusion of regression results, robustness checks, and a discussion of endogeneity concerns.

**Critique (for a class submission)**

Strengths

1. The research question is well-motivated and relevant.

2. The datasets used are comprehensive and appropriate for the study's aims.

3. The manual matching process demonstrates effort and attention to detail.

Areas for Improvement

1.ΔTFP Calculation: Provide more details about the discrepancies between calculated and published ΔTFP values and explore alternative approaches to resolve this issue (e.g., consulting with experts or using simpler measures).

2. Regression Framework: Expand the econometric model to include control variables such as industry size, capital intensity, or regional factors that may influence productivity growth.

3. Presentation of Methods: Streamline the explanation of the NAICS-PSC crosswalk for clarity and ensure consistency in describing primary vs. secondary contract classifications.

4. Endogeneity: Add a brief discussion on strategies (e.g., instrumental variable techniques) to address potential endogeneity.

Minor Points

1. Typos and Grammar:

- Avoid redundancy in phrases such as "practical" in the first sentence of the introduction.

- Clarify ambiguous terms, such as "close results" in the Results section.

2. Writing Suggestions:

- In the methods section, use bullet points or tables to summarize the crosswalk procedure for easier comprehension.

- Avoid passive voice in critical explanations (e.g., "was created manually" could be "I manually created").

3. Additional Results:

- Include descriptive statistics for the ΔTFP variable to provide preliminary insights.

- If regressions remain infeasible, consider exploratory correlations or visualizations of R&D spending and productivity growth.

Overall Recommendation

For a journal submission, the paper needs additional work to include results, robustness checks, and theoretical refinements. For a class submission, the current draft demonstrates clear effort and creativity but would benefit from improved clarity, expanded econometric discussion, and resolution of the ΔTFP calculation issue.