A Detailed Analysis of Tax Reclassification on Corporate Investment in Canada

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"In this world, nothing can be said to be certain except death and taxes"
Benjamin Franklin

This study examines the connection between the 2008 Canadian scientific research and experimental development (SRED) reclassification and the estimated effect on tax deductions for SRED expenditures. Using a difference in the different regression model, I test the hypothesis that favorable tax reclassification is a statistically significant predictor of increases in research and development expenditures within the manufacturing industry.

This study attempts to observe a measurable link between tax policy at the federal level and long-term corporate R&D investment. Existing research by Danny Yagan, in *Capital Tax Reform and The Real Economy,* identifies no real effect of corporate tax cuts on corporate R&D investment. The principal contribution of this study is the discussion and examination of tax reform on an industry-wide level and the understanding of the effectiveness of reform using reclassification as our vehicle. The standard approach of analyzing industry trends within the United States only allows for a narrow understanding and neglects the global implications of tax policy. I hope to address this narrow approach by analyzing Canadian corporate tax data, adding to a more global understanding.

I approached this topic by first trying to understand why firms would invest in scientific research & development. Second, I explored whether SRED expenditures vary significantly across industry sectors. To begin my exploration, I gathered data from the Canada revenue agency, specifically T2 corporate tax summary statistics. After gathering the data, I explored my second inquiry and found that the manufacturing industry had the largest total qualified SRED expenditures, almost double compared to the next highest industry. This finding supported my hypothesis that manufacturing is an SRED-heavy industry, thus a good treatment industry for my difference in difference model.

Figure 1 and *Figure 2* help visualize my findings. *Figure 1* shows the lack of change in manufacturing after the SRED reclassification compared to the change seen in the control industries. *Figure 2* shows the lack of change in the tax reduction multiplier, TRM, compared to the change seen in the control industries. The TRM is a ratio of SRED expenditure to total tax deductions applied to income taxes (TRM = SRED Expenditure/Total Deductions). This ratio is helpful in understanding how the reform impacts both the corporate tax liability and the government's benefit. If we see a reduction in TRM, we can understand that the firm realizes a higher tax benefit as total tax liabilities are decreasing, whereas an increase signifies an increase in total tax liability by the firms.

In conclusion, this study was not able to find a statistically significant relationship between favorable tax reclassification and SRED expenditures. These results lead to two conclusions. First, no relationship was observed because no relationship exists. Second, a relationship does exist, but it was not observed due to exogenous market shock/pressures of the 2008 financial recession and the general nominal rigidity of corporate R&D expenditures.
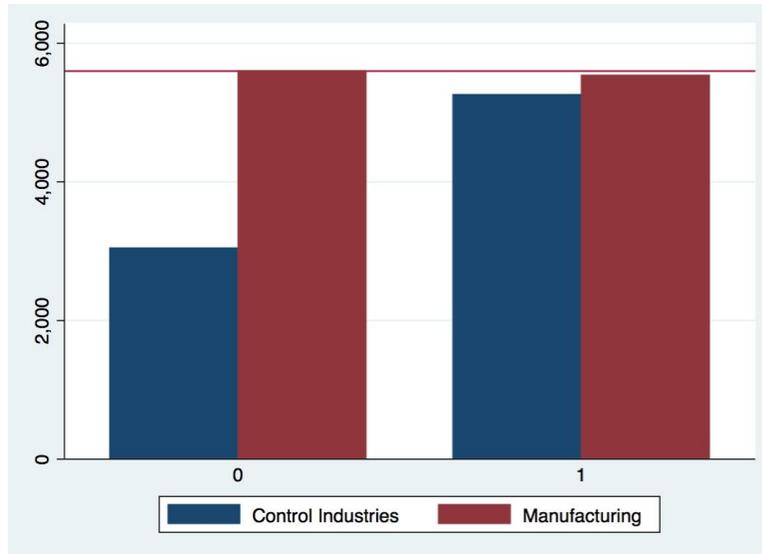
Figure 1
Bar Plot of Pre and Post-treatment SRED expenditures
CAD Hundreds (Control Industry) CAD Thousands (Manufacturing)

$$SRED = Treatment\,\beta_1 + \beta_2\,PostReferference + \beta_3\,Interaction + \beta_0 + \varepsilon$$
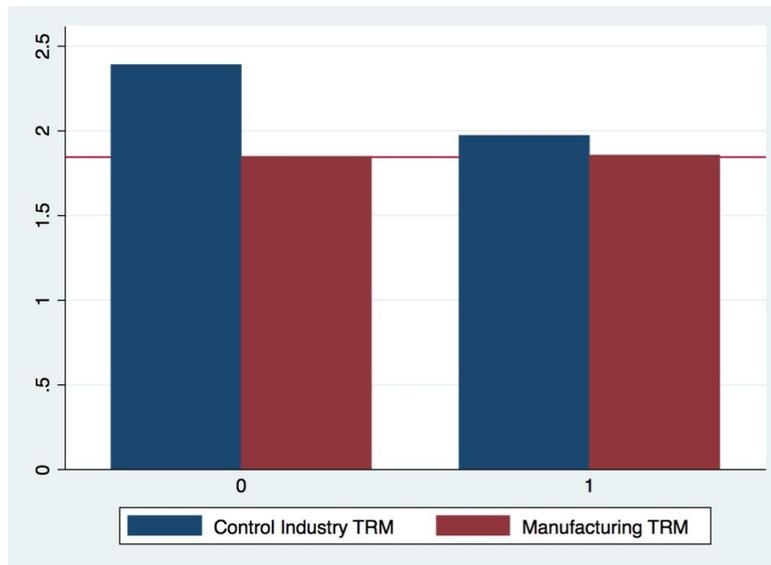
Figure 2
Bar Plot of Pre and Post-treatment TRM levels

$$TRM = Treatment\,\beta_1 + \beta_2\,PostReferference + \beta_3\,Interaction + \beta_0 + \varepsilon$$