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Are financing constraints binding for investment?

Evidence from natural experiment. *

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Abstract

This paper empirically tests the effects of financing constraints and cost of capital on investment using the 2006 Canadian income trusts tax reform as a natural experiment. Income trusts are two-layer Canadian flow-through entities that are not taxed at the trust level if they distribute all their cash flows. They consist of an income trust and an operating company. The popularity of the income trust structure can be attributed to two distinct tax advantages. The first one is the ability to decrease corporate income tax at the operating company level due to facilitating higher leverage, the second one is lower total tax on distributed profits for ultimate owners. Earnings, which might otherwise have been retained and used as a low cost source of finance for investment, are eliminated (by higher related-party debt) at the operating company level and cannot be retained (at the trust level) without foregoing the tax advantage. Therefore on one hand an income trust has a lower cost of capital for all sources of financing due to elimination of corporation tax, but on the other hand it has to rely more on the more expensive external sources to finance its investment. I investigate these conflicting forces and their effects on investment by looking at both immediate and longer run effects of the 2006 reform announcement, which imposed corporation tax on income trusts starting from 2011 and, by offering them an option to return to being a corporation, relaxed the financing constraint. The results show that financing constraints are binding. The 2006 reform announcement did not affect investment of income trusts until they converted back to corporate form. The availability of cash is more important for investment than cost of capital. Investment of income trusts increased after the reform, in spite of an increase in the cost of capital.

JEL: H25, H32, Key words: investment, financing constraints, income trusts

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1 Introduction

The question of how taxes affect investment has been extensively analyzed by the economic literature. It is relevant for policy design, especially in the context of designing tax reforms that aim to encourage growth. Through the analysis of various tax policies the literature assesses the effects of taxation on investment¹. The focus of the empirical and theoretical contributions centres around discussion of the effects of cost of capital and financing constraints.

The analysis of the effects of cost of capital on investment can be traced back to Jorgensen (1963) who introduces the neoclassical theory model. This model has later been tested empirically by Hall and Jorgensen (1967). Subsequent developments in the theoretical contributions to understand the effects of cost of capital on investment are primarily based on applications of q theory (Tobin (1969)). In general, this literature is vast and still very active.² The general agreement is that the estimated elasticity of the capital stock to the user cost of capital ranges between -0.25 and -1. Therefore an increase in the cost of capital in the neoclassical framework will tend to reduce investment.

Financing constraints and the availability of internal sources of finance also affect investment. Empirical literature in this field uses two different approaches: reduced-form regression of investment on cash flows or Euler equation methods with early contributions from Fazzari et al. (1988), Gertler and Hubbard (1988) and Fazzari and Petersen (1993). Generally, the conclusions reached are that improved access to internal finance and the availability of cash increase investment. Related to this, the cost of external sources of financing such as debt and new equity has been found to be higher than that of internal sources of financing such as retained earnings (Fazzari et al. (1988), Bond and Meghir (1994), Calomiris and Hubbard (1995)). The literature offers various explanations for why internal sources of financing may be less costly than new share issues and debt financing. Among the most important ones are transaction costs, tax advantages, agency problems, costs of financial distress and asymmetric information.

In the early literature, the effects of cost of capital on investment have been analyzed separately from financing constraints. The more recent contributions discuss the interplay between those two effects (Keuschnigg and Ribi (2010), Edgerton (2010), Zwick and Mahon (2016)). Keuschnigg and Ribi (2010) provide a model in which financing constraints interact with cost of capital and they find that, in the absence of financing frictions, profit taxes reduce investment by their effect on the user cost of capital. With finance constraints due to moral hazard, investment becomes sensitive to cash-flow and own equity of firms. In turn, Edgerton (2010) finds that firms are considerably more responsive to investment incentives when their ratio of cash flows to assets is high. He

¹For comprehensive literature reviews summarizing the effects of tax incentives on investment see HassettHubbard2002 (2002), Bond and Van Reenen (2007)

²For summaries see Hassett and Hubbard (2002) and Hanlon and Heitzman (2010).

explicitly models a firm facing financing constraints by using tax-adjusted Q model based on Hayashi (1982) and Summers (1981) in a setting with financial constraints and carry-backs and carryforwards of operating losses. His model allows him to hypothesize that investment responses to tax incentives may differ between taxable and nontaxable firms, and they may be dampened by a binding financing constraint. This is also what he finds in his empirical contribution. Zwick and Mahon (2016) show results from bonus depreciation reform in the US which indicate that financial frictions might amplify investment responses to tax incentives. What is more, they show that firms respond strongly when tax policy generates immediate cash flows but not when cash flows come in the future.

This paper contributes to the discussion of the joint effects of financing constraints and cost of capital on investment. It tests the binding nature of financing constraints using a tax reform of Canadian income trusts. Income trusts were two-layer Canadian flow-through entities that were not taxed at the trust level, if they distributed all their cash flows. They consisted of an income trust and an operating company. The unitholders of income trusts were taxed on the distributions made at their marginal income tax rates. The popularity of the income trust structure can be attributed to two distinct tax advantages. The first one is the ability to decrease corporate income tax at the operating company level due to facilitating higher leverage, the second one is lower total tax on distributed profits for ultimate owners. Earnings, which might otherwise have been retained and used as a low cost source of finance for investment, were eliminated (by higher related-party debt) at the operating company level and could not be retained (at the trust level) without foregoing the tax advantage. Therefore on one hand an income trust had a lower cost of capital for all sources of financing due to elimination of corporation tax, but on the other hand it was cash constrained and it had to rely more on the more expensive external sources to finance its investment.

In the context of a traditional company, reducing the effective tax rate to zero, reduces the cost of capital for all types of financing. Holding everything else constant, if a similar tax avoidance scheme was available to Canadian corporates, by decreasing cost of capital, it would induce higher investment. In the context of an income trust, the cost of capital for any given source of investment finance will also be lower if the effective corporate income tax rate can be reduced close to zero. However, the trusts structure also makes investment more reliant on external sources of finance (third party debt or issues of new units) which may be more costly than internal funds. Therefore for income trusts the financing constraints are often binding due to low availability of cash flows. Therefore the cost of investment of an income trust is higher than that of a traditional corporation with the same tax payments, and this could lead to lower investment than that of a traditional Canadian corporation.

Since the decision of the company to convert to income trust is an endogenous one, I do not analyze its effects on investment. Instead, to show whether financially constrained

companies respond to tax incentives, in this paper I use an exogenous tax reform which was announced in October 2006. In 2006 the Canadian government announced that tax privileges of income trusts were to be revoked from 2011. This meant that in 2011, there would no longer be a tax saving associated with being an income trust and hence the cost of capital would increase for all sources of financing. On the other hand, the financing constraint for investment would no longer be binding. There was to be no tax advantage from distributing all profits to unitholders. Income trusts were to be taxed on their income at a standard corporation tax rate whether they distributed it or not. The 2006 announcement has led to the anticipation of higher tax payments at the entity level. This expectation of a higher "corporate" tax rate in the future will tend to increase the cost of capital now, for any source of financing. Therefore the anticipated tax change in 2011 could create incentives for liquidity constrained firms with above average distributions, i.e. income trusts, to reduce their investment in the intermediate period. On the other hand, the reform could cause income trusts to revert to corporate structure and as a result relax the financing constraints. The reform could therefore result in an increase in investment of those structures.

I find that the 2006 reform announcement had no effect on investment so long as enterprises remained as income trusts, i.e. as long as they were financially constrained. An anticipation of an increase in the cost of capital in the future tends to increase investment of traditional corporations in the current period (Auerbach and Jr. (1986), Howitt and Sinn (1989), Auerbach and Hines (1988)). However, this decision, in case of income trusts, is dominated by financial constraints. For firms with low availability of internal sources of finance, these financial constraints might be binding and hence firms might be less responsive to investment incentive than they would be in a standard type of model. The investment rates stay below industry norms until the income trust converts to corporate structure. After conversion back to corporate form investment returns to respective industry norms.

To the extent that the 2006 reform caused income trusts to consider converting to corporate structure and conversion increased investment, the 2006 reform indirectly contributed to increasing investment. In addition, I show that the effect of conversion back to corporate form is strongest for companies that waited until the last possible moment to convert back. In other words, premature conversions back to corporate form did not affect investment of income trusts. Income trusts which converted before the expiry of their tax privileges did not see their investment rates return to industry means.

I further explore heterogeneity between different types of income trusts according to industries in which they operate. Specifically, I consider business and utility income trusts. Utility companies have a business structure that generates steady and predictable source of income. This makes the tax charge easy to anticipate and subsequently eliminate using the leverage of the operating company. Business income trusts come from various

industries, some of which are growing fast and hence the tax charge is less predictable. They were generally thought of as less suitable for income trust structure (Aggarwal and Mintz (2004), Lefebvre and Goomar (2006), Halpern and Norli (2006)). I show that the decision of a publicly traded company to convert to an income trust had a negative effect on investment rate, but only for utility type income trusts. I also show that utility type income trusts invested more than typical Canadian utility companies before they converted to the trust structure. Business income trusts outside the utilities sector did not lower their investment after their conversion, but companies which converted to business income trusts had lower investment than sector averages for corporates before they actually converted to the trust structure.³

These findings lead me to the conclusion that when financing constraints are binding firms do not react to tax (dis)incentives. They support recent contributions from the empirical literature on the effects of limited cash flow on investment incentives (Zwick and Mahon (2016) and Edgerton (2010)). In line with those studies, I show that limited availability of cash at the company level affects investment and dampens the effects of cost of capital. The conversion to income trust structure, in spite of offering very low cost of capital, reduces investment of converted companies. Further, similar to Zwick and Mahon (2016), investment does not react to the incentive unless there are immediate cash flow benefits. The 2006 reform had no immediate effects, since financing constraints were binding for income trusts until they converted back to corporate form. This effect dominates the expectation of higher cost of capital in the future. However, once financing constraints ceased to be binding and income trust converted back to corporate form, the investment of income trusts has returned to industry means. These results suggest that the effect of financial constraints strongly prevails over that of cost of capital for investment.

The rest of the paper is organized as follows. Section 2 gives an overview of Canadian Income trusts structure and their tax treatment in more detail, Section 3 presents a simple empirical model, Section 4 describes the data, while Section 5 reports the empirical results. Section 6 concludes.

³I draw on the research of Edwards and Shevlin (2011) and Doidge and Dyck (2013), who both analyze the 2006 Canadian trusts tax reform. Edwards and Shevlin (2011) look at the effects of the 2006 income trusts reform on market valuations of income trusts, while Doidge and Dyck (2013) analyze the impact of the reform on investment as well as payouts and leverage. In addition, they include empirical evidence for the effect of conversion to income trust status on those variables. Their findings point towards negative effects of conversion to income trust on investment, but positive effects on payouts. On the other hand, they find that after the 2006 reform trusts have significantly increased their investment rates relative to corporations, while their payouts declined relative to corporations. There is some evidence in the literature that the 2006 reform resulted in negative unit price and market value effects for income trusts (Doidge and Dyck (2013), Edwards and Shevlin (2011), Glew and Johnson (2011)).

2 Canadian Income Trusts

The structure of income trusts crucially consists of two main entities - an income trust and an operating company. The general mechanism of setting up an income trust usually starts with management of an existing company proposing the structure to the company shareholders. Subject to their approval a Canadian resident income trust is set up as a separate entity, which sells its units to the public via an offering. The trust is controlled by a group of trustees and is established for the benefit of investors who are its beneficiaries, and whose interests in the trust capital and income are represented by their ownership of publicly issued units in the trust (Mintz and Richardson (2006)). The proceeds gathered from the public offering are used to acquire subordinated debt and common shares of the operating company (usually third party loans such as bank loans remain in the hands of the operating company). The underlying company can either be a previously private company or income producing assets such as real estate.⁴

The subordinated notes owned by the income trust are long-term unsecured high-yield debt that is subordinated to third party issued debt. In reality this internal debt plays a role of tax advantaged form of equity. It is used by the income trust to minimize the taxable income of the operating company. The interest payments on this internal debt flow from the operating company to the income trust (see Figure 1) and the amount is usually set so that the taxable income of the operating company is reduced almost to zero.⁵ The income trust uses all of the income received from the operating company received in the form of interest, royalty or lease payments and distributes it to its unitholders. In Canada, income trusts were qualified as mutual funds, which meant that if they distributed all their income they were not liable to pay any tax and hence were flowthrough entities for tax purposes. Undistributed income at the trust level was subject to tax at the highest personal income tax rate - which was 46%.⁶ The amounts distributed to unitholders were taxed at the marginal personal income tax rate, which differed between different types of shareholders.

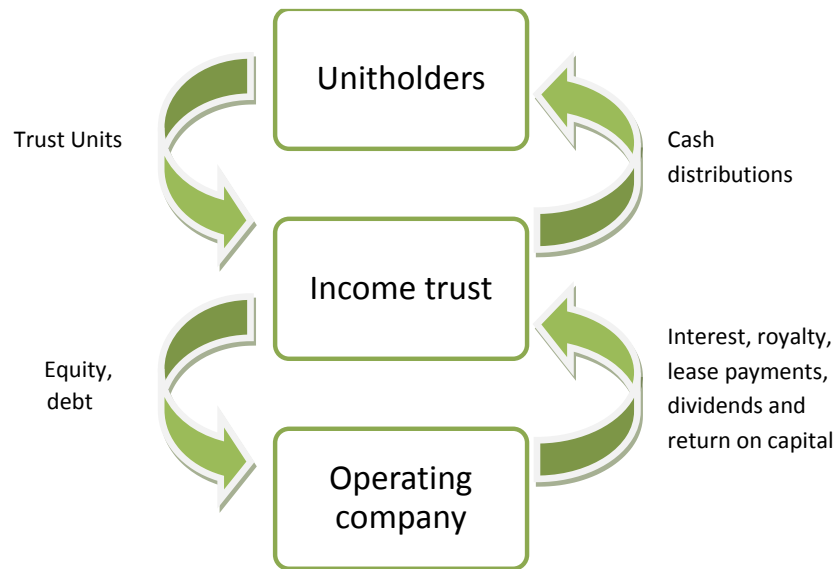
One of the reasons why the income trust scheme became so popular in Canada is that it allowed Canadian corporations to avoid paying corporate income tax. What appealed to unitholders was that the relevant marginal Canadian income tax rate was at the time lower than combined corporate and dividend tax rates across all types of investors. This meant that there was a tax advantage to unitholders of income trusts over shareholders

⁴For a detailed analysis of an example of income trust IPO - General Donlee, which was a private company before doing IPO as an income trust - see Hayward (2002).

⁵An alternative would be to set up a royalty income trust which buys all of the patents of the operating company and leases them the operating company for a fee that will wipe out the taxable profit. Therefore, the income paid to the income trust by the operating company can also take the form of lease or royalty payments.

⁶Distributions in excess of the income generated reduce the cost base of the trust units for capital gains purposes resulting in higher capital gain taxes on the sale of the trust units.

Figure 1: Simple sketch of income trust structure.



of Canadian corporates. Table 1 summarizes the after tax income of shareholders and unitholders in Ontario (one of Canadian provinces) and compares it between different types of investors.⁷

In Ontario the federal and provincial tax rate for a traditional corporation were 35%. On top of this a shareholder had to pay 14% tax rate on dividend payments, which meant the total tax was 49%.⁸ In turn the Canadian top personal tax rate was 46%. Pension funds in Canada are tax exempt entities, which meant that the only tax for pension fund shareholders in Canadian corporations was 35% - the corporate tax rate, while pension funds paid no tax if they held units of income trust. No tax credits were available for pension fund and non-resident shareholders of Canadian corporations. In addition, foreign investors are liable to pay withholding tax, which for example for US investors was 15%. This meant that foreign unitholders of income trusts paid 15% tax rate, while foreign shareholders of Canadian corporations paid 45% tax rate. It is clear that the benefits of holding trust units were largest for tax exempt investors such as pension funds, and also for foreign investors. It is less clear whether such structure was an attractive tax-saving opportunity for a Canadian resident tax payer.

A similar structure that yields similar tax benefits can of course be achieved by any company using a combination of debt and equity. For example, in the "closely held com-

⁷An additional complication in case of Canada was that the corporate provincial tax rate varied between provinces.

⁸Canadian resident tax payers could obtain a tax credit on tax paid by company, but before the tax reform of 2005 there was no full integration and hence taxable Canadian unitholders and shareholders were not indifferent between whether they held interests in income trusts or corporations. Income trusts were strictly preferred. This changed after the 2005 reform, which increased dividend tax credits and fully integrated the tax system for Canadian resident tax payers (for more details see Edwards and Shevlin (2011) and PwC report: http://www.caiti.info/resources/Income_trust_Dec_2006_discussion_paper.pdf)

Table 1: After-tax income received out of 100 dollars of income, by type of investor (Ontario).

type	Canadian tax treatment before 2005		
	top Canadian tax payer	pension fund	foreign investor (US)
100% debt capitalized income trust	54	100	85
corporation	51	65	55

pany" setting, where there are few shareholders, owners can lend to companies in order to reduce the corporate tax liability. However, Canada, as many other countries, has anti-avoidance rules for "closely held companies" designed to prevent owners lending to companies in order to reduce CIT liability.⁹ The high levels of debt required to reduce taxable profits are more difficult to obtain when there are many shareholders - i.e. in the "widely held company" setting. Income trusts seem intended to make the closely-held companies form of CIT avoidance available to more widely held companies. The lack of legislation to govern this particular form of tax avoidance seems to be an important omission and possibly a motivation for later reforms. The income trust structure internalizes the discussion between shareholders and debtholders by making them the same people. This is achieved by so called "stapled financing", which combines debt and equity into a single security - a unit, which pays out a combination of interest and dividends. This means that the company can handle large amounts of internal debt to create tax shelter without risk of default or bankruptcy. For example, if the operating company has lower cash flow and cannot make interest payments as they become due, the trust can renegotiate the debt terms by lowering interest payments in a manner that preserves value without entering into costly bankruptcy proceedings. Furthermore, by the fact that shareholders and debtholders are the same people, the incentives of the underlying company to make an unprofitable, value reducing investments are lower.¹⁰

It is possible for the operating company to retain some of their profits to fund investment. The retained profit is then taxed at the corporate tax rate and the treatment is no different than in the traditional corporation. If the operating company does not retain any profits to fund new investment, the alternative is for the income trust to rely on external funding. It faces two options, either to issue new units or third party debt. It is tax inefficient to retain income at the trust level as it is taxed at the highest marginal personal tax rate. This debt is senior to internal debt and can be either bank debt or privately placed debt. The problem is that this debt increases unitholders' risk, hence it was generally small compared to the trust's free cash flow.

⁹General Anti Avoidance Rules (GAAR) provisions were introduced in Canadian jurisdiction in 1988.

¹⁰In Canada, at the time, the thin capitalization rules which are intended to limit the ratio of debt to equity only applied to Canadian corporations, but not to partnerships or income trusts. Since then the rules have been tightened.

2.1 Why did companies convert to income trusts?

Income trusts were a controversial subject in Canada at the beginning of this century. The opinions on benefits and disadvantages of income trust structure have varied amongst policy makers and public opinion. Some say that income trusts have brought about investment gains and helped the stagnating market boom (Hayward (2002), Aggarwal and Mintz (2004), Glew and Johnson (2011), Elayan et al. (2009), Doidge and Dyck (2013), Hudec and Rogers (2004), Wang (2006)). Some say that they have caused big tax leakages for Canadian tax revenues and hampered growth via reducing investment (Aggarwal and Mintz (2004), Tait and Lawford (2007)). Many authors seem to agree that the income trust structure has no added benefits apart from the tax saving advantage (Edgar (2004), Alarie and Iacobucci (2007)). Specifically, Iacobucci (2013) points out that the fact the 2006 reform has almost eliminated income trusts from Canadian markets, means that even though they utilized some of the benefits of choosing their own governance form, this clearly was not the driving factor for choosing to convert into income trust structure.¹¹

Generally, a decision of a company to convert to income trust or to use income trust as a means of public offering is a complex one. Most of the companies at the time seemed to have been driven by the prospect of liquidity at attractive price (see the survey by Hudec and Rogers (2004)). This was especially beneficial for companies with large debt, who could obtain large amounts of cash without having to give up the control of management and decision making. What is more, Tait and Lawford (2007) suggest that the pressure from investors might have contributed to firms being forced into income trust structure to maximize shareholder value.¹²

There is obviously a cost to converting to income trust, which varied from \$200,000 to \$110,000,000 (see Iacobucci (2013)). This cost as a percentage of total market capitalization of these companies ranged from 0.02% to 6.9% (only 6 conversions were more than 1%). Part of this cost is certainly the investment banking industry fees. Jog and Wang (2004) estimate that these have amounted to \$800 million in the years 2001 - 2003. This clearly indicates that conversions from standard corporations as well as income trust IPOs were a very good deal for investment banks and encouragement on their side for companies to use this structure could not be neglected.

The fact that some firms used the structure to gather funds, while some seemed pressed to convert in spite of their misgivings, seems to suggest that some companies could have

¹¹The income trust structure allows owners of a taxable corporation to retain many of the non-tax advantages of the corporate form while avoiding payments of corporation tax. Specifically, units have attributes of ordinary common shares in that each carries a right to vote and to receive distributions. What is more, annual meetings of unitholders are held during which trustees are elected, auditors are appointed and other matters are discussed. Finally trustees have rights and obligations similar to those of directors of ordinary corporations (Hayward (2002), Mintz and Richardson (2006)).

¹²The authors of this paper discuss an enormous relief that some of the directors and CEOs of companies felt after the 2006 reform was announced. They cite a high profile CEO who said that companies were under increasing pressure to use the structure.

benefited from the structure more than others. The question that a large body of the Canadian tax law literature explores is what are the characteristics that make a business suitable to become an income trust (Aggarwal and Mintz (2004), Lefebvre and Goomar (2006), Halpern and Norli (2006)). The best candidates are the operating companies with relatively stable operating cash flows and minimal need for new investment. Therefore these companies display no cyclicalities, very limited existing or potential competition, mature products in mature markets, low levels of fixed and variable costs, and more than one revenue stream containing some degree of diversification.¹³ These characteristics imply that these companies have very predictable tax charges which is a key aspect in eliminating the taxation at the operating company level.

The best suited candidates for the income trust structure were real estate and utility type trusts. However, later conversions in spite of being other types of businesses, also display some of the listed characteristics; for example restaurants, sugar producers or transport companies might not be ideal candidates for this type of structure, but they possess some of the desirable characteristics such as mature products.¹⁴ The biggest worry in Canada in 2005 and 2006 was that the income trust structure became so popular that even businesses that did not have any characteristics conducive to being a good income trust started converting to the structure.

2.2 The rise and fall of income trusts

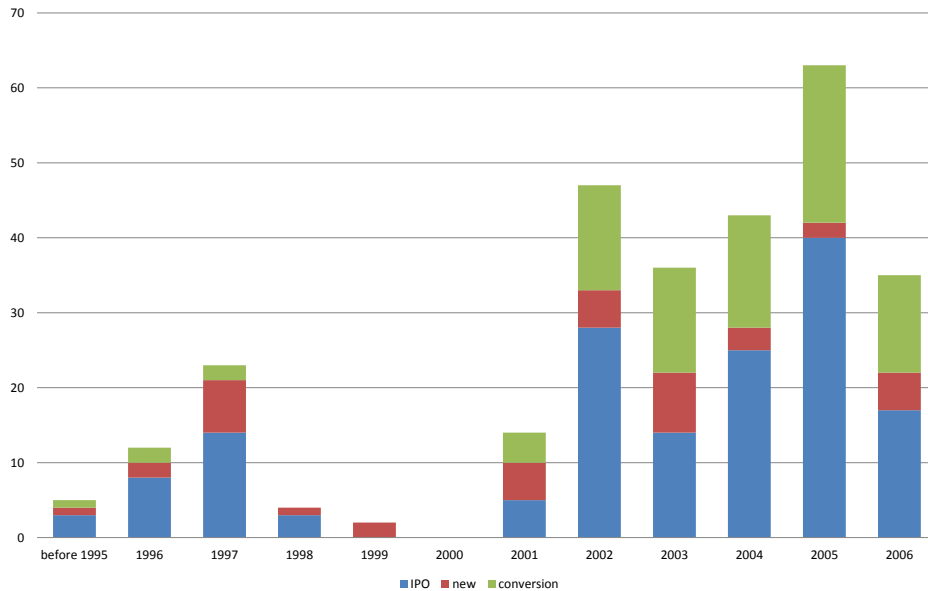
The first Canadian tax ruling that enabled the creation of income trust structures was awarded in December 1985 to Enerplus Resources Fund Royalty Trust. The first corporate conversion into an income trust structure occurred in 1995 and was done by Enermark Income Fund. Initially, the income trust structure was not very popular and there were not very many conversions or IPOs using this strategy until the beginning of 2000s (see

¹³NB. These are also the characteristics which allow leverage to be high for traditional corporations.

¹⁴Non-traditional income trust offerings include for example: Connors Brothers Income Fund (a sardine cannery), A & W Revenue Royalties Income Fund (a restaurant), Keg Royalties Income Fund (a restaurant), Sun Gro Horticulture Income Fund (a distributor of peat moss), Davis + Henderson Income Fund (a cheque printer), Versacold Income Trust (an operator of refrigerated warehousing, distribution, and related businesses), General Donlee Income Fund (a manufacturer of precision-machined products for the military, aerospace, and other commercial industries), Swiss Water Decaffeinated Coffee Income Fund (a coffee producer), Prime Restaurants Royalty Income Fund (a restaurant).

Figure 2).^{15,16}

Figure 2: Number of income trusts created by year. Note: trusts, in their traditional form, were no longer created after the 2006 reform. Source: own data.



After the dot-com bubble crash of 2000, the IPO market in Canada dried out. This meant that investment banks were looking for new sources of fees. What is more, the tax efficient distributions of income trusts allowed unitholders to pay a premium to purchase income trust units when compared with shares in corporations, particularly in the low interest rate environment that followed the dot com crash. The first high profile conversion to income trust was done by Yellow Pages Group after it became Yellow Pages Income Fund in 2003.

Since then, income trusts recorded a spectacular surge in popularity starting from early 2000s. Aggarwal and Mintz (2004) report that in 2003 they represented 7% of the entire capitalization of the Toronto Stock Exchange, while Pazzaglia et al. (2005) state

¹⁵There are several different ways a taxable Canadian company can decide to take advantage of the income trust structure. First, the operating company can be a private stand-alone firm whose shareholders decide to raise funds through a public offering of income trust units. This is similar to the standard initial public offering, but at the time was more likely to be successful. Secondly, we may have a public or private firm whose shareholders decide to have only part of its business to become an income trust. This can for example occur by setting up a royalty income trust which buys all of the patents or licenses of the operating company and leases them for a fee back to the operating company. The ordinary business of the underlying company remains private. Thirdly, the income trust could have been previously a publicly traded company whose shareholders decide to convert all or part of its shares into income trust units without any new financing at the time of conversion. Finally, some of the utility type income trusts have been created by acquisition of new oil fields or pipelines which coincided with creation of an income trust.

¹⁶In Figure 2 conversion refers to conversion of a previously publicly traded company to income trust, IPO means that a previously private company used income trust as means of an IPO, new means newly acquired utility or real estate assets that went public in trust form immediately after inception as a company.

that the number of public offerings involving income trusts constituted 41% and 86% of the total Canadian IPOs in 2002 and 2003 respectively. At their peak in 2006 they were 13% of the total value of the Toronto Stock Exchange (Doidge and Dyck (2013)). Income trusts received another boost when some of the Canadian provinces in years 2004 - 2005 implemented limited liability legislation that shields trusts investors from personal liability. At the end of 2005 the largest income trusts were added to S&P/TSX Composite Index. Such a quick rise in their importance and numbers meant that sooner or later they must have come under detailed scrutiny of the Canadian government.

The Canadian government became concerned with the issue of income trusts, especially the potential tax leakage that they might cause. It made multiple attempts to discourage the increasing income trusts numbers; the first one was made in 2004. In that year's March budget the Canadian Finance Minister tried to prohibit pension funds from investing more than 1% of their assets in income trusts or owning more than 5% of any one trust. This proposal was not accepted by the parliament, but this indicated that income trusts had clearly become a very important part of the political debate in Canada.

Further, in 2005 the Canadian government officially started investigating the issue of income trusts. In September, the Minister of Finance announced a freeze on advance tax rulings for companies converting to income trusts, which was interpreted as an action against the trust structure. This led to cessation of IPO activity for 2 months (from September until November) and a reduction in trust index value of approximately 20% (as reported by Halpern and Norli (2006)). Everyone anticipated that the government's next move would be to eliminate the tax-free status of income trusts (Elayan (2007)). Instead, in November that year the government announced that it would not be implementing any changes to the taxation of Canadian income trusts, but instead introduced dividend tax reform. Specifically, by introducing enhanced gross up and dividend tax credit mechanism it equalized the treatment of Canadian resident taxpaying shareholders and unitholders in terms of their tax liability. This eliminated the tax advantage income trusts had for taxable Canadian domestic investors. However, it did not eliminate the advantage held by tax exempt or foreign shareholders.¹⁷

After that reform, the issue of income trusts appeared to be settled, which resulted in more income trust conversions at the end of 2005 and at the beginning of 2006. However, in October 2006 the final blow to Canadian income trusts was given by the government as it announced a tax on income trust distributions (excluding REITs) with effect from 1st January 2011. The reform, which was announced on October 31, 2006, is also known as Halloween Massacre or Tax Fairness Plan (TFP).¹⁸ The imposition of tax, which was

¹⁷This move had academic support before it was introduced. The advocates of the dividend tax credits were Aggarwal and Mintz (2004).

¹⁸The 2006 reform has met with some criticism in the academic literature. Namely, Alarie and Iacobucci (2007) suggest that in spite of claims of being neutral, the reform actually actively discouraged the

announced to be equivalent to that paid by corporations, was meant to equalize the tax treatment of Canadian corporations and income trusts.¹⁹ The government said that the main motivation behind the reform was a response to an increase in tax avoidance. As a result the income trust structure would no longer be tax beneficial to companies starting from January 2011. The reform was to take effect immediately with respect to all new trusts created after 31st October 2006, but no new ones were created. Trusts that already existed were given 4 years grandfathering period during which they were allowed to exist on previous terms, provided that they adhered to "normal growth" limitations imposed after the TFP reform. Specifically, if the trust grew by more than 100% of its market capitalization in 2006, it would immediately be subject to the new tax.²⁰ After January 2011 companies were allowed to remain in the trust structure with no tax benefits associated with the structure.

Table 2 describes the tax rates imposed on income trusts and corporates as of January 2011. As mentioned above the combined federal and provincial corporation tax rate has been decreased in Canada from 35% in 2006 to 31.5% in 2011. This meant that pension funds, which were not liable to pay any investor-level tax and received no tax credits, were only taxed at the corporate tax level of 31.5%. In turn, domestic Canadian residents who were shareholders of Canadian corporations were now taxed at 31.5% corporation tax rate and 14% dividend tax rate (after tax credits), which meant that the total investor tax rate was 45.5% in 2011. In the case of foreign investors, with 31.5% corporation tax rate and 15% withholding tax rate (US), their total tax liability was 41.5% in 2011. The reform has changed the tax treatment of pension funds and non-resident investors, without altering that of resident taxpayers (apart from the 0.5% tax cut).

Table 2: After-tax income received out of 100 dollar of income, by type of investor (Ontario).

type	as of January 2011		
	top Canadian tax payer	pension fund	foreign investor (US)
100% debt capitalized income trust	54.5	68.5	58.5
corporation	54.5	68.5	58.5

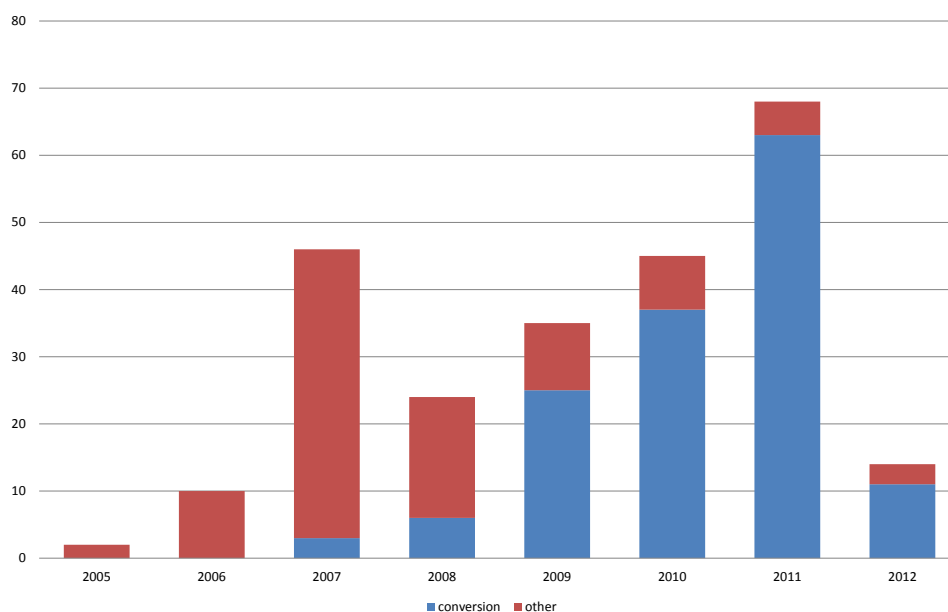
Due to the fact that the 31.5% tax rate was imposed on distributions of income adoption of trust structure. They say that this might not be welcome from an efficiency perspective.

¹⁹The government announcement in October 2006 did not give a specific tax rate that was to be applied to income trusts. The only aspect that was specified by the government was that trusts and corporates will be taxed the same. Crucially, the 2006 reform also announced a decrease in corporate tax rates by 0.5 percentage points from 2011. This was coupled with corporation tax rate decreases already announced in the 2006 budget that decreased the Canadian federal corporation tax rate from 21% to 19% by 2010. Combined with provincial taxes that meant that the rate would fall from 35% in 2006 to 32% by 2010 and then to 31.5% in 2011.

²⁰For example, government cited the example of insertion of a disproportionately large amount of additional capital as one of the situations when tax would be immediately imposed.

trusts, it effectively equalized the treatment of corporates and income trusts for all types of investors. Until the expiry of their privileges on January 1st 2011, existing trusts had 4 years to decide what to do next. The first option was given to them by the Canadian Department of Finance which announced that income trusts would be allowed to convert into taxable Canadian corporations without any adverse tax consequences to them or their unitholders so long as the conversion occurred before December 31st 2012. Therefore, in the period between January 2011 and December 2012 trusts could still convert to corporate structure, but in that period there would be no advantage from being an income trust. If they converted after December 2012 there would be a tax cost associated with conversion. Therefore, as Figure 3 shows, most of the conversions happened before or on January 1st 2011.²¹ Some of income trusts have exited the income trust status immediately in 2007, some waited longer even until 2011 when their privileges expired. The "normal growth" constraint on income trusts would have meant that trusts with better growth prospects would exit the trust structure before January 2011 and only trusts with lower growth prospects would remain trusts for as long as possible. After December 2012 only 16 companies that were not REITs have remained in a trust structure and only 11 of those were still trading as of September 2013.

Figure 3: Number of exits out of the trust structure. Conversion means conversion to publicly traded corporate structure, other is either conversion to private company, liquidation etc..Source: own data.



Alternatively, income trusts could have converted to private companies. The reform

²¹The Conversion Rules were enacted into law in 2009 and allow two different conversion methods. The first one is exchange method: unit for share exchange with corporate successor. The second one is distribution method: distribution of shares of a corporate subsidiary by the income trust to its unitholders on redemption of the trust units.

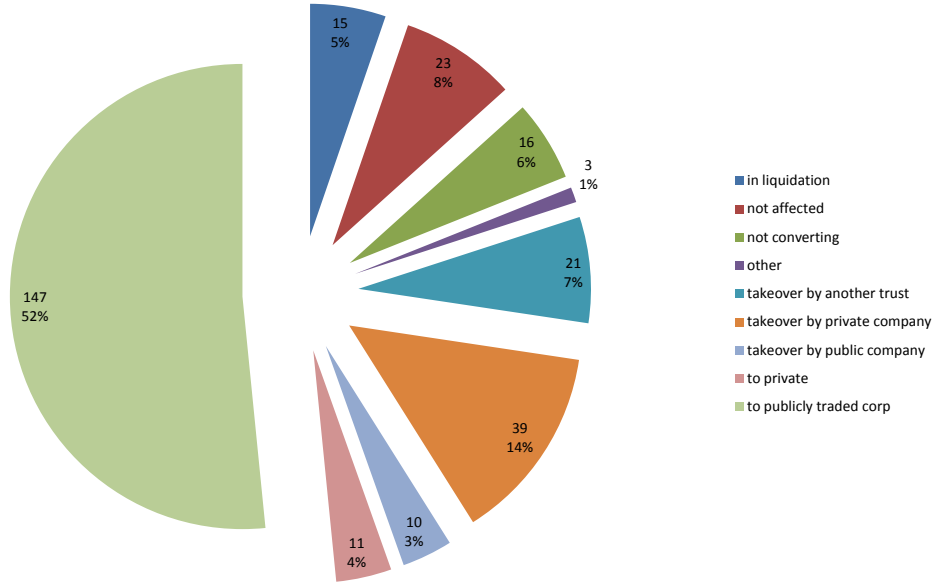
could have induced large pension funds to take existing trusts, in which they had large shares, private. Another option was a takeover by other private or public companies or other income trusts. This could have occurred due to the fact that the 2006 reform caused the aggregate market capitalization of income trusts to drop by 13% (Doidge and Dyck (2013)). As a result of this market capitalization drop, companies which converted to income trust structure for tax saving purposes, but whose underlying business might have not been suitable for the structure, could have faced withdrawal of investors and might have been forced to liquidate or to become acquisition targets. Most of those other types of exits from the trust structure occurred in the early years after the 2006 reform (see Figure 3).

In Figure 4 we can see how income trusts have reacted to the 2006 reform in terms of decisions on how and whether to carry on operating.²² We can see that over a half of existing income trusts have decided to carry on as corporations and convert, while only 6% of all trusts decided to continue in the current form and not convert. Most of those have said that the cost of conversion to corporate form was too high (Doidge and Dyck (2013)). 14% of income trusts were taken over by private companies, while 4% were taken over by public ones. Not many businesses converted to private companies - only 4%. Once the company went public, it did not have incentives to go back to being private again.

Finally, after the 2006 reform no more traditional income trusts were created in Canada as there was no tax advantage to this structure anymore. However, the structure has recently received some attention with some new energy trusts emerging in 2010 - 2012. These new trusts are exploiting a loophole in the 2006 legislation, which allows trusts holding non-Canadian properties or assets to exploit the income trust structure. The 4 new energy trusts, currently trading on TSX, are Argent, Crius, Eagle and Parallel. They all hold utility type assets located in US, but the income trust itself is located in Canada.

²²In many cases, the question of what happened to income trusts after the 2006 reform does not have a straightforward answer. For example, the trust would first be taken over by another trust which then would convert to a publicly traded company. Or the trust would first go private but then one year later it will be in liquidation. In Figure 4, I only show what initially happens to the trust, i.e. if it first went private and then wound down, I will count it as "to private".

Figure 4: Conversions from income trusts to corporations by type of conversion over 2006-2011. Total sample of trusts is 286, REITs are included in the "not affected" category. Source: own data.



3 Empirical model

To estimate the effects of tax incentives on investment I use the exogenous shock created by the 2006 income trusts reform. This reform affected income trusts only, with no effect on corporates. Therefore it is suited to using difference in difference methodology by comparing income trusts to publicly traded Canadian corporations before and after the reform. The identification strategy relies on the fact that corporations were not affected by the announcement of the 2006 reform, while income trusts lost their tax privileges, though not immediately (see figure 5 for the unanticipated drop in the market value of income trusts relative to corporations). To identify the effects of the reform on investment I also require common trends in investment rate in the absence of the 2006 reform. As described above the reform was primarily intended to curb down tax avoidance, hence it is conceivable that it was not introduced in response to changes in investment for one type of companies.²³ To conduct the analysis I estimate, using OLS, the following baseline model:

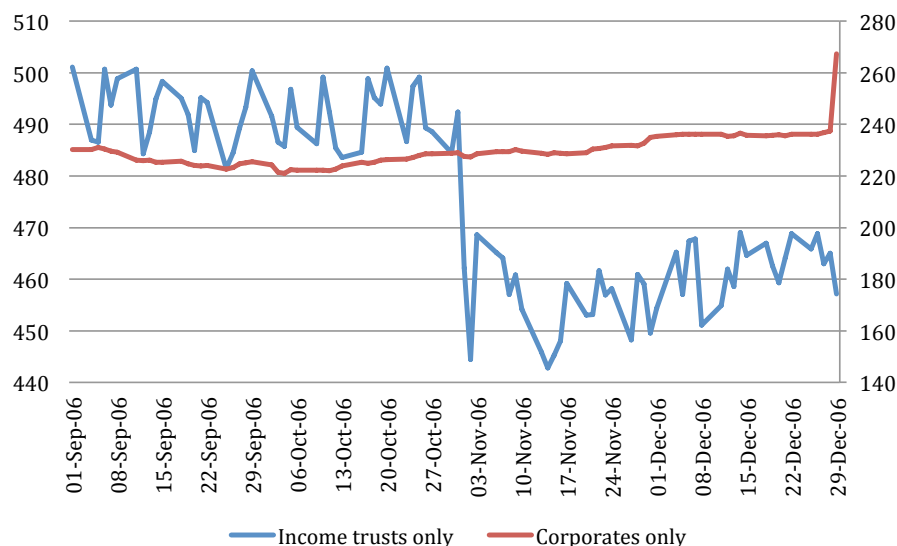
$$I_{it} = \alpha_i + \beta_1 trust_dummy_i + \beta_2 comp_is_trust_{it} + \beta_3 post_TFP_dummy + \\ + \beta_4 comp_is_trust_{it} \times post_TFP_dummy_t + \beta_5 post_conversion_{it} + \beta X_{it} + \zeta_t + \epsilon_{it},$$

where I_{it} is the investment rate of company i in year t , $trust_dummy$ is equal to 1 in

²³For a graph showing mean investment rates of income trusts from a balanced panel and corporates from a matched sample of traditional companies with similar characteristics see Fig 13 in the Appendix.

all years if the company was even an income trust, *comp_is_trust* is a dummy that takes value 1 in the year the company converts to income trust and remains 1 until it exits the structure and is 0 before that, *post_TFP_dummy* takes value 1 in the year 2007 and remains 1 after that, *post_conversion* takes value 1 in the year the income trust exits the trust structure and remains 1 forever after, ζ_t are industry fixed effects²⁴, X_{it} is a vector of control variables. The investment rate is defined as capital expenditures divided by last year's total assets. Vector X_{it} includes control variables as suggested by previous literature on Canadian income trusts; these are lagged log total assets, market to book ratio, cash flow, leverage and industry median investment, payouts, cash holdings and leverage.²⁵ I use the whole sample of observations from 1994 until 2013 in the baseline regression.

Figure 5: Market value of Canadian income trusts relative to corporations - Datastream.



I do not answer the question of what happens to investment of a company after it becomes an income trust separately. This is because the decision to become an income trust is an endogenous one and a company which is planning on reducing its investment in the future might have a incentive to convert to income trust structure. However, in estimating the effects of the 2006 reform on investment I separately include a dummy that signifies the conversion to income trust structure, *comp_is_trust_{it}*. Therefore the coefficient β_2 in the equation above will tell me how investment of previously publicly traded companies changes after they convert to income trust structure.

Due to the fact that existing trusts have received grandfathering period after the 2006 reform until 2011, it is very hard to identify the immediate effects of the 2006 reform.

²⁴See Appendix, Table 7 for a summary of industry codes and which industry they refer to.

²⁵More precise definitions of these control variables are provided in the Appendix, section 7.1.

This is due to difficulty in determining what the treatment group is in those immediate years. Trusts could choose to remain in the trust structure or convert to corporation and exit the trust sample at any point they wanted to without any additional tax cost associated with this decision beyond the loss of tax avoidance opportunity. This implies that after the 2006 reform companies would make a decision about the timing of the exit from trust structure. I use this information to look at two effects of the 2006 reform. Since the *comp_is_trust_{it}* dummy is 1 only when the company was an income trust and becomes zero once it converts back to corporate form, the coefficient β_4 on the interaction term with the *post_TFP_dummy* variable will give me the short run effects of the 2006 reform. If this coefficient is significant it means that the anticipation of higher cost of capital in the future affects present value investment in spite of financial constraints. In turn, the coefficient β_5 on the *post_conversion* dummy will tell me about the longer run effects of the 2006 reform on companies that decide to convert to income trusts. Therefore from this coefficient we will be able to infer whether relaxing financing constraints affects investment.

Alternatively, I estimate a variation of the above difference in difference specification which considers only the long run effects of the trust reform on investment and hence the joint effect of relaxing financing constraints and increasing cost of capital on investment. Instead of comparing years pre-2006 reform with years immediately after 2006 reform, I compare them with years 2011 and 2012. This effectively means that I am comparing enterprises that were trusts in 2005 and 2006, which subsequently converted to corporations, and which survived until 2011 and 2012.²⁶ Therefore the coefficients from this regression would tell me whether the investment gap between income trusts and Canadian corporates has shrunk after income trusts converted back to corporates. This coefficient will answer the question which effect dominates, the binding nature of financing constraints or a change in the cost of capital.

I further explore heterogeneity between different types of income trusts according to industries in which they operate. Specifically, I consider business and utility income trusts. Utility companies have a business structure that generates steady and predictable source of income. This makes the tax charge easy to anticipate and subsequently eliminate using the leverage of the operating company. Business income trusts come from various industries, some of which are growing fast and hence the tax charge is less predictable. They were generally thought of as less suitable for income trust structure (Aggarwal and Mintz (2004), Lefebvre and Goomar (2006), Halpern and Norli (2006)). What is more, utility type income trusts were more likely to merge within their sectors, and business income trusts were more likely to become private equity targets after the 2006 reform

²⁶Note that if a company becomes private or is taken over by private company, it disappears from the sample. Also I exclude trusts that never converted back to corporations from empirical analysis, yet this does not change the results.

(Glew and Johnson (2011)). To consider differing investment responses between different types of income trusts I run triple difference in difference model of the form:

$$\begin{aligned}
I_{it} = & \alpha_i + \beta_1 \text{business_trust}_i + \beta_2 \text{utility_trust}_i + \\
& + \beta_3 \text{business_trust}_i \times \text{comp_is_trust}_{it} + \beta_4 \text{utility_trust}_i \times \text{comp_is_trust}_{it} + \\
& + \beta_5 \text{business_trust}_i \times \text{post_TFP_dummy}_t \times \text{comp_is_trust}_{it} + \\
& + \beta_6 \text{utility_trust}_i \times \text{post_TFP_dummy}_t \times \text{comp_is_trust}_{it} + \\
& + \beta_7 \text{utility_trust}_i \times \text{post_conversion}_{it} + \beta_8 \text{business_trust}_i \times \text{post_conversion}_{it} + \\
& + \beta X_{it} + \zeta_t + \epsilon_{it},
\end{aligned}$$

The coefficients of interest here are β_5 which tells me how different was the immediate impact of the 2006 reform on investment of business income trusts relative to corporations and β_6 which tells me how different was the immediate effect of the reform on investment of utility type trusts relative to corporations. I am also interested in the coefficients on the *post_conversion* dummies for both utility and income trusts to estimate the indirect effects of the 2006 reform on investment.

In both of those difference in difference specifications I am initially comparing years 1994 - 2006 with years after the reform, either 2007 - 2013 in the baseline set of results and 2011-2012 for the long-run effects of the reform.

3.1 Sample selection

The problem with OLS estimations of the difference in difference is that the decision to convert to income trust may not be exogenous and, as mentioned in Section 2, there are particular types of companies that are more suited for the structure and hence more likely to convert. For example, Pazzaglia et al. (2005) find that the converting companies have higher market-to-book ratios and higher profitability than non- converting companies.²⁷ The comparison of characteristics of public companies that converted to income trusts in the years before they converted with characteristics of similar corporates over the similar time period (see Table 3) suggests that, on average, before they converted to the income trust structure these enterprises invested more than similar corporates, held less cash, were larger (more total assets, larger market capitalization and net sales).²⁸ Income trusts on average paid about the same amount of dividends out as corporates, but had higher leverage. This means that when estimating the effects of conversion to

²⁷NB. These could be associated with higher profitability to market power ratios, rather than with better growth opportunities.

²⁸I only have data before conversion to income trust for companies that were previously publicly traded.

income trust on investment, companies with certain characteristics might be self selecting themselves into the income trust sample.

Table 3: Descriptive statistics: income trusts vs corporates. Mean for income trusts calculated using years before conversion to income trust, Mean for corporates calculated on all observations for 1995 - 2005 and with comparable size and industry mix to the income trust ones. All data winsorized at 1 percent. Source: Datastream.

income trusts						
stats	N	mean	sd	median	max	min
investment rate (cap ex)	227	0.16	0.16	0.10	0.45	0
investment rate (cap ex plus acquisitions)	185	0.22	0.18	0.18	0.48	0
cash holdings	301	0.07	0.14	0.01	0.75	0
payouts	303	0.01	0.01	-	0.04	0
leverage	290	0.26	0.15	0.26	0.54	0
total assets	318	373,609	443,789	158,963	1,390,613	3,079
cash flows after dividends	303	0.09	0.06	0.11	0.14	-0.18
book value per share	293	4.70	3.64	3.82	11.39	0.01
market capitalization	185	390,772	416,528	213,472	1,141,345	5,319
net sales	341	249,658	260,464	116,163	770,935	0
net income before extraordinary items and dividends	340	13,770	18,132	7,174	47,689	-12740
income taxes	344	5,535	5,983	2,563	14,653	-726
income taxes/total assets	309	0.02	0.02	0.02	0.03	-0.02
corporates						
	N	mean	sd	median	max	min
investment rate (cap ex)	3,377	0.12	0.14	0.05	0.45	0
investment rate (cap ex plus acquisitions)	2,522	0.15	0.16	0.08	0.48	0
cash holdings	4,426	0.15	0.21	0.05	0.75	0
payouts	4,251	0.01	0.01	0.00	0.04	0
leverage	4,301	0.21	0.19	0.18	0.54	0
total assets	4,524	345,535	483,013	101,429	1,390,613	709
cash flows after dividends	4,233	0.01	0.15	0.06	0.14	-0.50
book value per share	4,460	4.36	4.12	2.80	11.39	0.01
market capitalization	4,006	289,787	387,630	94,210	1,141,345	2,084
net sales	4,575	212,707	287,489	51,055	770,935	0
net income before extraordinary items and dividends	4,581	8,758	18,286	1,567	47,689	-12740
income taxes	4,422	3,845	5,686	451	14,653	-726
income taxes/total assets	4,365	0.01	0.02	0.01	0.03	-0.02

To partially account for the self-selection problem I reestimate the empirical models discussed above using firm fixed effects regressions. The inclusion of firm fixed effects excludes the effects of selection of companies with particular, constant over time, characteristics on my results. But I also have to worry about companies self selecting to become an income trust based on time varying characteristics, for example, companies' expectations, at the time of conversion, that investment opportunities are deteriorating. To account for this, in addition to traditional controls, I also control for time trends as well as industry median investment, payouts, cash holdings and leverage in the baseline regression.

Alternatively, to account for the self selection of companies into income trust group I

use a non-parametric propensity score matching. This method allows me to estimate not only the causal effects of the reform but also the effects of conversion to income trust structure. Propensity score matching is a method that enables choosing comparable control companies with respect to the group of treated companies, in my case income trusts. As such, in the first stage I regress the income trust dummy on a set of observable characteristics that determine whether a company is likely to become an income trust. In the probit regression I include the following: lagged leverage, lagged payouts, lagged investment, lagged cash holdings, lagged tax rate, lagged growth opportunities, lagged tangibility, lagged profitability, lagged industry median investment, lagged industry median payouts, lagged industry median cashholdings, lagged industry median leverage, lagged logarithm of total assets. The predicted probabilities from the first stage regression, known as propensity scores, are then used to construct a matched sample of comparable corporates. It is important to note here that I want to choose comparable corporates based on the pre 2006 reform characteristics of both income trusts and corporates. Therefore I run the probit model on both 2005 and 2006 only and compare the results using either of those years.

The matching algorithm I use is the nearest neighborhood matching within a caliper, without replacement.²⁹ This means that for each income trust I find the closest comparable Canadian corporate in terms of the propensity score within a certain distance of predicted probability. This strategy generates a sample of income trusts that belong to the treated group and a same-sized sample of Canadian corporates that belong to the control group which have similar propensity scores.³⁰ In the second stage I estimate the same difference in difference model I discussed above but controlling for sample selection by using propensity score matched observations only.

4 Data

4.1 Data sources description

A substantial part of this project involved detailed data collection on Canadian income trusts. The sample of Canadian income trusts comes from a list of income trusts traded on the Toronto Stock Exchange (TSX) at the end of October 2006. To this, I also added income trusts that traded on TSX before October 2006 and were taken over or wound

²⁹I experiment with various matching approaches, but they all yield similar results. When considering propensity score matching one always has to trade off bias with variance of the estimates, i.e. using more observations to construct the matched sample (e.g. matching within a radius, k-nearest neighbourhood or kernel matching) implies lower variance in the estimates, but if the observations used for matching are not very similar to the treated group then the larger bias arises.

³⁰For the results from the first stage probit model see Table 8 in the Appendix. For the quality of matching post estimation test where I compare means of the explanatory variables for both matched and unmatched samples see Fig 14 in the Appendix.

down before the 2006 reforms. The total number of income trusts in my data sample is 286, of which 16 were no longer trading in October 2006.³¹

To obtain detailed information about each income trust I manually collect data on each of them from SEDAR.³² SEDAR offers access to most public securities documents and information filed by public companies in Canada. The type of information offered, which is useful in the context of this paper, includes:

- initial public offering (IPO) documents, which detail the operations of a private company before the income trust conversion as well as the name of underlying operating company
- material change documents, notices and news releases, which enable me to collect information on conversions to and from income trusts and exact dates of those events

The above documents also enable to me collect data on the type of company that the income trust was before the conversion, namely private or public and the method of conversion, namely using IPO and going from private to public or converting the shares into trust units or setting up a new entity to purchase properties or mines as was the case for a lot of REITs and energy trusts. SEDAR also allows me to include information on what happened with the income trust after it stopped reporting information in the Datastream database. Therefore, I collect information on names of corporations that income trusts converted to, names of trusts or companies that took over the income trusts and information on whether and how income trusts stopped their operations.

In Canada over the period 1994 - 2013 there were 286 income trusts in total, of which 61% were business income trusts, while the rest were either energy, pipelines or real estate income trusts (see Figure 6). 11% of companies in my initial sample are REITs, that were not publicly traded companies before, but either were created for the purpose of purchasing new properties at the time of the IPO or were private companies before. These trusts are dropped from the empirical analysis. Of the total 286 income trusts, almost 60% were private companies before they decided to do an IPO using business income trusts structure. 23% were publicly traded companies in Canada which decided to convert all of their shares into income trusts units, while 7% converted only part of their business into income trust.³³ Complementary to that information, 30% of income

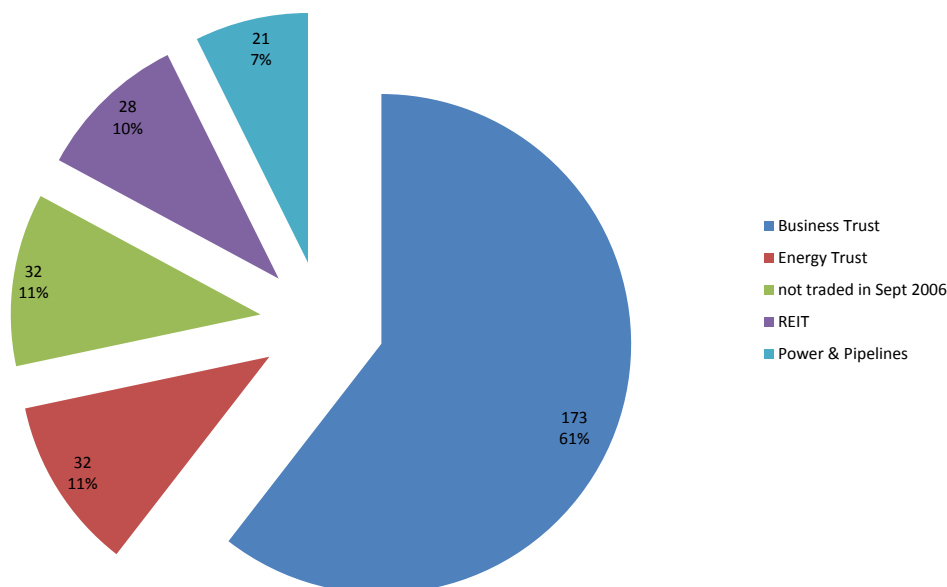
³¹In Datastream I only found data for 275 income trusts. This sample is further limited as I include more variables.

³²http://www.sedar.com/homepage_en.htm This is equivalent to UK's Company House in so far as it publishes accounting statements of all Canadian companies.

³³Bautex Energy Trust is an example of trust who did a conversion, but only partially. Bautex Energy Ltd reorganized itself into Baytex Energy Trust and Crew Energy Inc. In this arrangement Bautex Energy Ltd split into two units, an income trust that traded units and corporation which trades shares. Private companies also do partial IPOs, where only part of their company goes public using income trust

trusts converted from publicly traded corporations, while 55% became income trusts via IPO. The remaining 14% of companies were created just prior to IPO and those are mainly REITs and energy trusts.

Figure 6: Distribution of business income trusts by type. Source: own data.



For financial variables I use Datastream database, which is commonly used in Canadian corporate finance studies.³⁴ Datastream includes information on Canadian listed companies only. This is a limitation in that over 60% of Canadian business income trusts were private companies before the conversion to the trust structure. However, since the reporting requirement for private companies in Canada does not exist, there is no publicly available data on previous accounts of those companies anywhere.³⁵ What is more, the financial statements of income trusts are generally consolidated ones, which means that I cannot distinguish between accounts of income trusts and underlying businesses.³⁶

4.2 Data cleaning and selection

In the main analysis I always exclude REITs and income trusts that have done an IPO in Canada via IDS or IPS. These last two types of trusts are based in the US and their reactions to the reforms will not be comparable to the domestic Canadian income trusts.

structure. Example here is AirCanada, which operated as private company, but created Aeroplan income trust which purchased all customer license loyalty cards from the operating company and leased them back for a fee.

³⁴I also re-run some robustness checks using Compustat. However, Compustat covers fewer income trusts and does not offer any additional information over Datastream.

³⁵This has also been confirmed by looking at the income trusts in the Orbis dataset, which contains the accounting data on private and public companies if it is available.

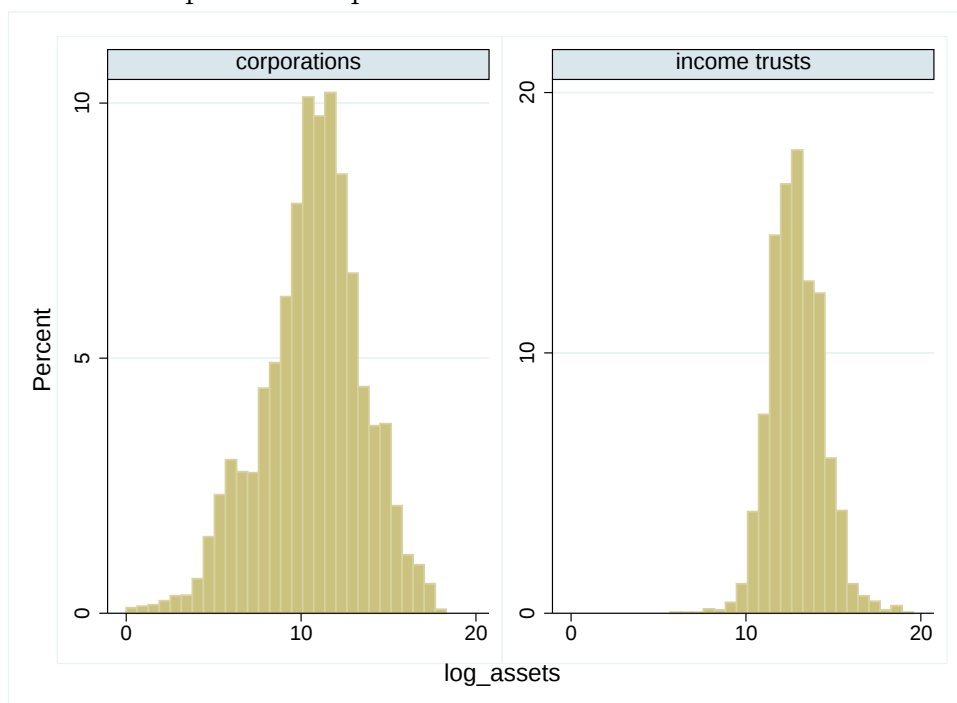
³⁶See Jog and Wang (2006) for further discussion on different disclosure requirements for Canadian enterprises.

I exclude REITs due to the fact that the reform of 2006 did not apply to them, hence I do not want them to be influencing my difference in difference estimations. This means that I exclude just over 10% of the income trusts at the outset.

The sample of Canadian traded companies used for my analysis comes from Datastream. Following Doidge and Dyck (2013) I initially included all the Canadian traded companies that have any data on their main financial variables. This however, means that in my empirical analysis I would be comparing income trusts to companies from different industries and with different size distributions. To the extent that different industries might react differently to economic outcomes, in my empirical analysis I drop all corporations from industries in which income trusts have no presence³⁷.

Further, I consider the size distribution of income trusts and traditional Canadian companies. In Figure 7 we can see that income trusts are quite large in comparison to traditional corporates. To make the sample of corporations more comparable I exclude all companies with $\log(\text{assets})$ smaller than 10, which means that I exclude all companies with assets smaller than \$22million. Small businesses are inherently different from larger ones and if income trusts are large relative to traditional Canadian companies it is imperative that we do not include the former in the analysis sample.

Figure 7: Size distribution plots after dropping industries in which trusts do not operate; income trusts and corporates comparison. Source: Datastream.



The manual sample selection is a simple way to construct a comparable sample of corporates to use for the difference in difference regressions. The more sophisticated

³⁷For a summary table with industries included in the selected sample see Table 7 in the Appendix.

strategy I use is propensity score matching described above that will choose the sample of corporates based on their predicted probabilities from the regression of explanatory variables on an income trust dummy. This method selects comparable corporates based not only on industry and size, but also additional relevant characteristics identified by the Canadian income trusts literature.

4.3 Summary statistics

In this subsection I provide descriptive statistics on the main variable of interest - investment. First, I look at the behaviour of this variable around the conversion to income trust date. Then I consider its behaviour around the 2006 TFP reform for both income trusts and other publicly traded companies. The summary statistics are the first indication of the effects the 2006 reform had on investment.

In Figure 8 I look at investment around the conversion date. I set year 0 as a conversion year for each company and look at what happens 2 years before and 2 years after the conversion to income trusts. I use a balanced sample of companies, hence I require a public company to exist for all 5 years around the conversion and a private company to exist at least 2 more years after the conversion. I can see that investment rate of formerly public companies decreases in the year of conversion as well as in the two years after conversion. It falls substantially from a mean of about 18% to a mean of about 11%. The investment rate of formerly private companies decreases from 24% in the year of conversion to below 5% 2 years after the conversion. However, in the case of formerly private companies we cannot be certain whether the investment rate in the year of conversion was unusually high or not.³⁸ In Figure 9 I compare business and utility income trusts, but only for companies that were previously publicly traded ones. There are significant differences in the reaction of investment rates to conversion between business and utility income trusts. Utility income trusts decrease their investment rates after conversion while business income trusts do not. Investment rate of business income trusts is much lower throughout the sample than that of utility income trusts.

This decrease in investment is coupled with an increase in payouts or distributions for formerly public companies. To some extent this effect is mechanical as to take advantage of the trust structure an income trust has to pay out all its cash flows. This will mean that cash flows minus payouts decline substantially for those companies. In the year of conversion we observe a sharp decrease in cash holdings of income trusts that were previously publicly traded companies. This decrease is much smaller one and two years after conversion. I find that the increase in payouts is larger than the increase in cash flows, which means a decrease in free cash flows (which is measured by cash flows minus dividends or distributions). This is consistent with what the trust structure implies

³⁸This was also the year of an IPO for all of these private companies.

in terms of its flow through nature. It also confirms the cash constrained nature of companies that do decide to convert to income trust structure. This is an important factor in explaining the effects of the 2006 reform on investment.

Furthermore, due to limited availability of internal finance, income trusts have to find other ways to finance its investment. One of the possibilities is external borrowing. Consistent with that, leverage of formerly public companies increases after conversion to income trusts. The increase in leverage suggests that borrowing from third parties increases in importance as a source of financing for investment.

Figure 8: Mean investment over previous years total assets, by type of entity before conversion; winsorized at 1 percent, balanced panel.

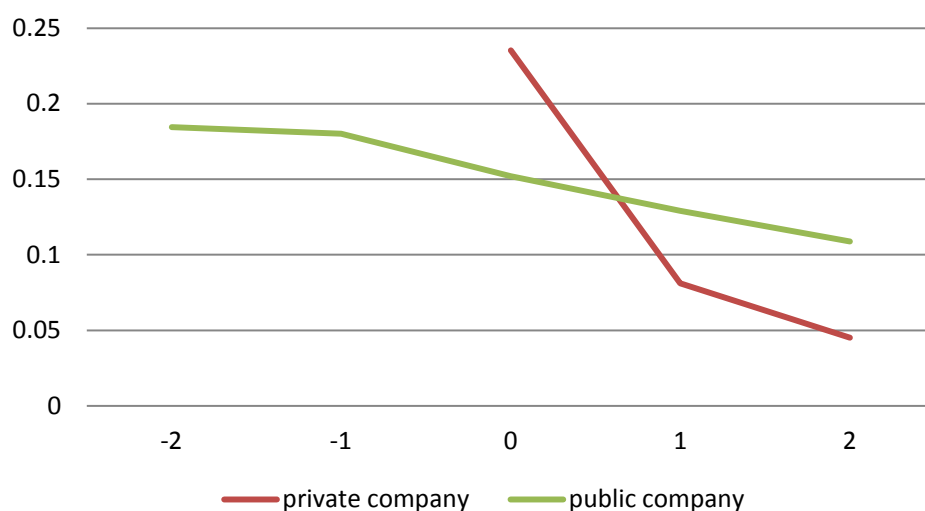
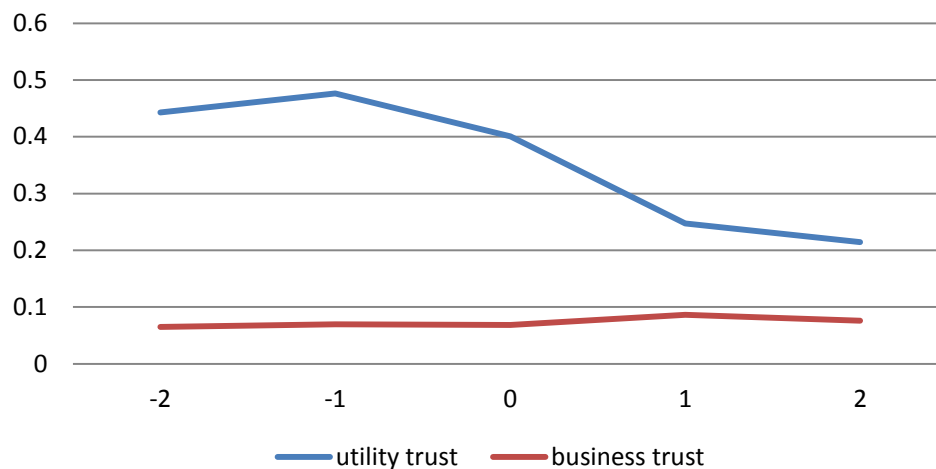


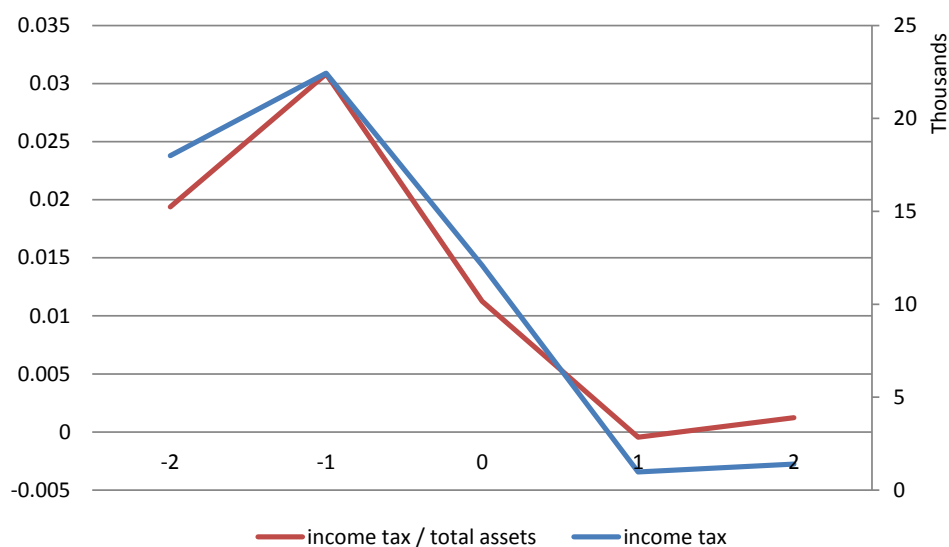
Figure 9: Mean investment over previous years total assets, by type of entity: business vs utility trusts; winsorized at 1 percent, balanced panel, only previously publicly traded companies included.



Income trusts were generally quite successful in reducing their corporate tax payments to almost zero through high internal leverage. We cannot obtain data on interest pay-

ments between the income trusts and their operating companies. Therefore we do not know the extent of internal debt that exists within these structures. However, we can look at tax payments of income trusts to proxy for the extent of internal leverage within the structures. Lower tax payments would imply successful reduction of taxable profits through the use of high interest payments.³⁹ In Figure 10 we can observe that income tax and income tax divided by total assets decrease sharply in the year of conversion and one year after conversion. There seems to be no change from first to second year after the conversion in terms of tax payable. What is more, the income taxes payable by converted companies are very close to zero, which implies that the income trust structure via its use of interest deductibility is very successful in reducing the overall tax charge.

Figure 10: Mean income taxes payable and income tax divided by total assets, balanced panel. Source: Datastream.



The second part of descriptive statistics involves looking at what happens to investment after the 2006 reform. Figure 11 explores a sample of 200 income trusts for which I have financial variables data and divides them by the year in which they exited the sample of income trusts. As such, the 2007 line refers to the mean investment rate of income trusts that exited the sample in 2007; the rest of the lines are defined accordingly. From this figure we can see that trusts that exited the sample in 2011 had the lowest investment rate on average amongst all groups. Trusts that exited in 2010 had slightly higher mean investment rate while trusts which exited in 2009 had even higher mean investment rate.⁴⁰ These results point to an important distinction between the indirect effects of the 2006 reform on income trusts which converted before 2011 versus those that

³⁹The only available measure in Datastream is total income tax, which represent all income taxes levied on the income of a company by federal, state and foreign governments. This is a crude proxy for Canadian corporate income tax, but it is the best one in the data we have. This is due to the inclusion of foreign taxes in the measure.

⁴⁰This pattern prevails for business income trusts, but not for utility income trusts.

converted before the expiry of their tax privileges. I will explore this difference in the empirical estimations.

Figure 11: Investment means for income trusts by when they exited the trust status, winsorized at 1 percent.

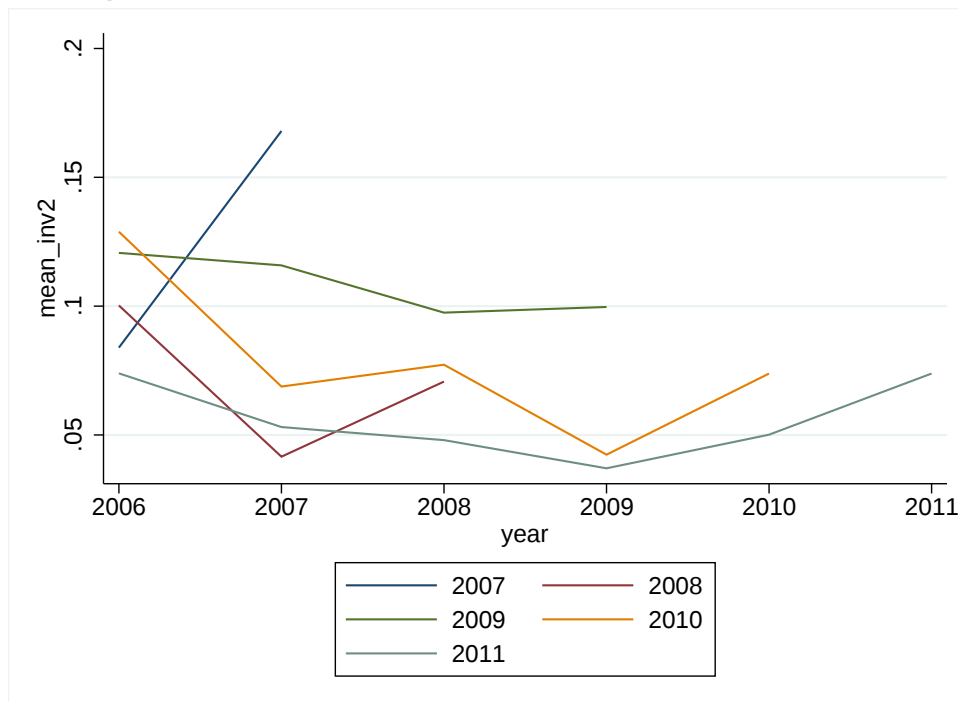
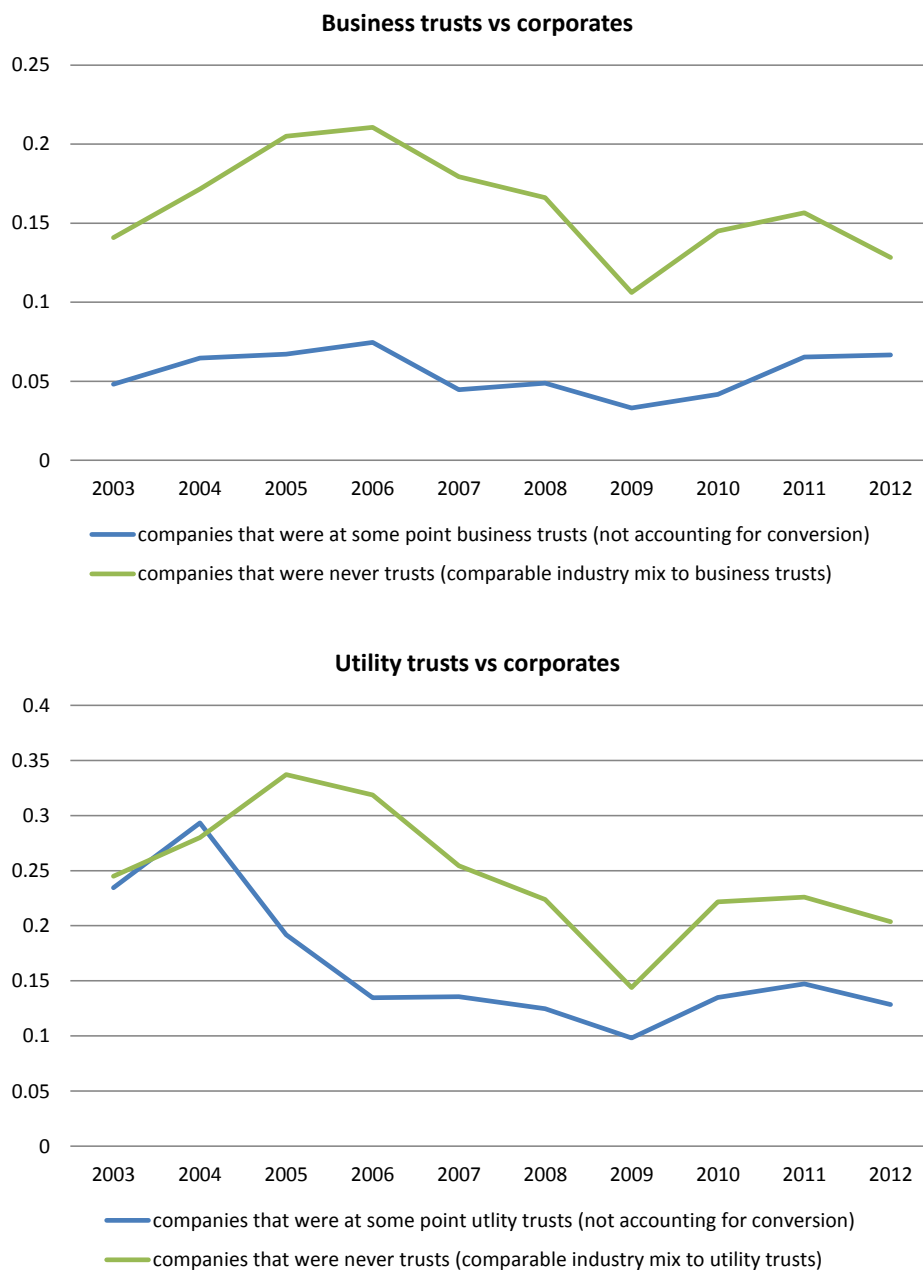


Figure 12 compares income trusts to corporations using a comparable industry and size mix and divides the comparison by business and utility trusts. We can see that investment rate of business income trusts declined following the 2006 reform announcement. However, the investment rate of corporations fell by more, suggesting an important role for other factors such as financial crisis in explaining the decline in investment rates of Canadian enterprises. This implies that the gap between investment rate of business trusts and investment rate of corporations narrowed after the 2006 reform announcement. Similar can be said about the effect of the 2006 reform announcement on investment rates of utility trusts relative to investment rates of corporations. This is unsurprising in so far as income trusts invest little and mainly in necessary running costs relative to corporations and pay out most of their cash flow. This means that when the financial crisis hit, corporations could have decreased their investment by larger amounts, while income trusts could not as they still need some cash to cover basic running costs.

Figure 12: Mean investment, corporations and income trusts comparison; winsorized at 1 percent, comparable industry and size corporate sample.



5 Results

5.1 Baseline estimates

Tables 4 and 5 present results on the effects of the 2006 reform announcement on investment rates of income trusts, where the specification estimated is discussed in section 3. The *post_TFP_dummy* is equal to 1 in year 2007 and in all subsequent years. Therefore the interaction term between *comp_is_trust* dummy and *post_TFP_dummy* will tell me how investment rate of income trusts changed relative to corporations from the

same sector after the 2006 reform announcement (Table 4) or relative to their own investment before the reform announcement (Table 5). Columns 2, 4 and 5-7 in each of those tables introduce a dummy called *post_conversion*, which equals 1 in the year the company converts from income trust to corporate status and remains 1 forever after; it is zero before that. The coefficient on this dummy estimates the effect of conversion from income trust to corporate status on investment rate, i.e. describes the indirect effect of the 2006 reform on investment.

In addition to time varying *comp_is_trust* dummy, I also include time invariant *trust_dummy*, which is equal to 1 in all years if the company was ever an income trust. All specifications include a set of control variables: logarithm of total assets, market to book ratio, cash flow, leverage and industry medians of investment, leverage, cash holdings and payouts.⁴¹ I define business trust as a dummy that is equal to 1 if the trust was classified by S&P as business type, while the utility trust is equal to 1 if it was not a business income trust or REIT. Therefore any trust classified as energy or power and pipelines is in that group. Table 4 includes industry and year fixed effects, while Table 5 includes firm fixed effects. These two tables utilize years 1994 -2013 in columns 1-5 and years 2000- 2013 in column 6 and 7 and the sample includes trusts before, during and after conversion as well as Canadian corporations. The sample size is 7,761 company year observations (columns 1-5) and 6,941 (in columns 6,7). The estimates of the coefficients on control variables can be found in Table 9 in the Appendix.

Before I discuss the main results, I consider the results related to the decision of companies to convert to income trust structure and its effect on investment. This is estimated by the coefficient on the *comp_is_trust* dummy, which is equal to 0 when the enterprise is in corporate status and is equal to 1 in the year the enterprise converts to income trust status and remains 1 while it is in that status. This dummy returns to 0 after the company converts out of the trust status. In Table 4 columns 1 and 2 estimate the average effect of becoming a trust on investment rate. Results from column 1 indicate that investment rates of companies which converted to trusts did not have unusually high or low investment rates relative to industry norms prior to conversion (coefficient on *trust_dummy* is insignificant and not different from zero). However, the conversion to income trust structure caused a significant and large decline in investment rates for companies which converted to the structure. What is more interesting is the difference between the behaviour of business and utility type income trusts. This heterogeneity between utility and business income trusts appears to be of first-order importance (see columns 3- 7). The results indicate that utility companies which converted to utility income trusts had significantly and unusually high investment rates relative to industry

⁴¹Note that at the moment previously private companies are included in the sample with dummy equal to 1 for all observations, but they have no observations prior to becoming an income trusts. The removal of those does not alter the results, but changes the magnitudes of my coefficients slightly.

norms prior to conversion. The conversion to utility income trust resulted in a large and significant drop in investment rates of corporations from utility sectors to much below the industry norms. At the same time companies which later converted to business income trusts appear to have had unusually and significantly low investment rates prior to conversion relative to the industry norms⁴².

These results suggest that companies in the income trust structure seem to invest less than similar corporates after conversion. This implies that in spite of lower cost of capital, the binding financial constraint dominates the investment decision. The estimates of those coefficients already suggest how important the availability of free cash flow is for investment. However, one might argue that due to self selection of income trusts into that category these coefficients do not estimate causal relationship but merely a correlation.

Therefore the main focus of this section are the effects of the exogenous 2006 reform. Columns 1 and 2 in Table 4 look at the effect of the 2006 reform announcement and find the coefficient on the interaction term between *comp_is_trust* and *post_TFP_dummy* to be insignificant and 0.007. This suggests that the 2006 reform announcement had no effect on investment rates of income trusts relative to industry norms, while they remained in the trust structure. This means that the anticipation of higher cost of capital in the future does not affect investment of cash constrained companies. The *post_conversion* dummy in Column 2 is insignificant, which would suggest there was no effect of conversion back to corporate structure on investment rate either. This would imply that financing constraints did not affect investment of income trusts either.

However, in columns 3-7 we can see that an important heterogeneity exists between business and utility type income trusts. Business trusts switch from investment rates below industry norms before (negative coefficient on *business_trust* dummy) and during (the interaction term between *business_trust* and *comp_is_trust* dummy is not significantly different from zero) period in trust status to investment rates at sector norms in years after conversion out of trust status in to corporate status (the sum of coefficients on *trust_dummy* and its interaction with *post_conversion* dummy is close to zero and not significantly different from it). It is too soon to judge whether this effect is temporary or persistent. What is more, it could also reflect self-selection of those trusts which

⁴²The inclusion of a utility comp dummy which takes value 1 if a company comes from the utility sector, but is not an income trust. It is insignificant due to the presence of industry fixed effects, but without industry fixed effect (results not reported here) it is significant and positive suggesting that the utility type companies invest more than other Canadian corporates. Results without industry fixed effects and firm fixed effects (not reported here) indicate that investment rate of business trusts is not low relative to overall sample average; when contrasted with results from Table 4 this suggests that these were the enterprises with low investment rates relative to sector norms, but tended to operate in sectors with high investment rates relative to overall sample average. What is more, in regressions without industry fixed effects trust dummy is positive which suggests that companies which converted to income trust have invested more than average Canadian corporates before the conversion, but that effect disappears when I include industry fixed effects (Table 4), which suggests that income trusts were from industries which on average invested more.

converted to corporate status. In contrast, for *utility_trusts* in columns 3-7 the net effect for period while they remained income trusts is negative (*utility_trust* dummy is positive and 0.058 in column 4, while *utility_trust* interacted with *comp_is_is_trust* is negative and significant and -0.094, which implies the total effect of -0.036, which is also significant), while net effect for period after conversion is zero (the positive coefficient on *utility_trust* dummy cancels out with the negative coefficient on its interaction with *post_conversion* dummy). This implies that utility income trusts switch from investment rates below sectoral norms during period in the trust status and after 2006 announcement to investment rates at sectoral norms in years after conversion out of trust status to corporate status. Therefore utility trusts are similar to business trusts in that respect.

The heterogeneity analysis confirms that there is no effect of the 2006 reform announcement on investment. Hence the anticipation of increased cost of capital does not affect firm behaviour. However, the distinction between utility and business income trusts reveals that binding financial constraints play an important role in how investment reacts to tax disincentives. In spite of higher cost of capital after conversion to corporate structure, income trusts which converted increase their investment back to industry norms. This implies that the availability of cash flow dominates the effect of cost of capital.

Columns 5-7 introduce dummies called *post_conv_early* and *post_conv_late*, which describe the timing of the conversion back to corporate structure for income trusts. These results test the implications of Figure 11 from descriptive statistics. Specifically, *post_conv_early* is equal to 1 if income trust converted to corporate form in years before the tax saving advantage expired, i.e. before 2011. *Post_conv_late* is a dummy which is 1 for income trusts trusts which waited until the last possible moment to convert back to corporate structure, i.e. the ones which converted in 2011 or 2012. These dummies similarly to *post_conversion* dummy take value 1 after the company converted back to corporate form. The results show that the effect of conversion back on investment is strongest for income trusts which delayed their conversion to corporate form until 2011. This suggest that income trusts which converted before their tax privileges expired did not see their investment return to industry norms after the conversion. Columns 6 and 7 additionally limit the sample by excluding years 1994 - 1999, but this does not seem to alter the result.

Column 7 in Table 4 includes industry fixed effects which are interacted with sub-period dummies. One may worry that comparing investment rates of income trusts to industry means over such a long time period could bias my results. This will especially be a problem if some industries have reacted to the financial crisis more strongly than others. I therefore interact the industry fixed effects with 3 sub-periods, 2003-2006, 2007-2010 and 2011-12. This enables me to control for time varying heterogeneity between industries. The results are broadly similar.

The results from Table 5 with firm fixed effects broadly confirm the results from Table 4. Therefore the overall conclusion from these results is that the TFP reform in itself did not change investment rates of income trusts. However, to the extent that this reform created a wave of conversions of income trusts to corporate structures it had an indirect effect on investment of income trusts. The conversion back to corporate structure has returned investment of business and utility type trusts to their sectoral norms from the level below the norms during the period they were in the trust structure.⁴³ Therefore overall, financial constraints appear to be binding in so far as investment only changes once income trusts convert to corporates and they are not subject to limited cash flow.

5.2 Propensity score matching

As discussed in the empirical methodology section the choice of the traditional corporations as a comparison group for income trusts can be done using propensity score matching. This approach not only controls for self selection on observables, but also allows construction of a more comparable sample of control observations in terms of observable characteristics. What is more, it serves as a robustness check for the difference in difference OLS estimates. The results from the difference in difference combined with propensity score matching confirm the OLS ones (see Tables 10 -13 in the Appendix). In Tables 10 and 11 I include industry fixed effects as controls in Table 12 I exclude them, while in Table 13 I control for firm fixed effects instead. In Table 10 in the first stage of propensity score matching I use 2005 as a baseline year for matching. This means that I run the probit regression for year 2005 that determines the likelihood of being an income trust. I perform the nearest neighborhood matching for this one year and use observations for companies that were matched in this year in the difference in difference regressions that follow. In tables 11-13 I instead use year 2006 as a baseline year, which offers slightly more observations, but does not affect the coefficient estimates substantially. We can see that in all these tables, the results from the baseline OLS come through in spite of the sample being much smaller than the baseline OLS one (2,637 in Tables 11-13).

5.3 Long-run effects

Results from Table 6 consider long-run effects of the 2006 reform announcement on investment rates and as such direct effects of relaxing the financial constraint on investment. They compare years immediately before the TFP reform (2003-2006) with years 2011-2012 - years after all income trusts that were going to convert to corporate structure have already done so. Years 2007-2010 are excluded from the sample completely. I only include

⁴³The results presented here use capital expenditure divided by total assets as a measure of investment, but they are also robust to using capital expenditure and acquisitions divided by total assets as well as capital expenditure divided by fixed assets.

income trusts which survived until 2011-12, therefore deleting the income trusts with no observations in 2011-12. What is more, I require a balanced sample of observations for the comparable corporations. Therefore I restrict my sample only to firms which have data for all years 2003- 2012. Results from regressions with industry fixed effects are in columns 1-3, results with firm fixed effects are in columns 4 and 5. The coefficient of interest is the one on the interaction between *trust_dummy* and *years_2011_12*. Trust dummy is 1 if the company was ever an income trust, while *years_2011_12* is 1 in years 2011 and 2012 and zero otherwise. This interaction terms enables me to look at the effect of conversion back to corporate structure on investment rates of income trusts.

Firstly, investment rate in years 2011-12 has decreased relative to years 2003-2006 for all Canadian companies. Secondly, on average income trusts have increased their investment rates in years 2011-2012 relative to their industry norms (column 1). This result turns out to be purely the effect of the increase in investment rates of business income trusts. Utility income trusts do not change their investment rates in 2011-12 relative to 2003-2006. Both of these effects are robust to different types of specifications and inclusion (columns 4 and 5) and exclusion (columns 2 and 3) of firm fixed effects. In addition, column 3 includes industry dummies interacted with sub-period dummies. The sub-period dummies are for years 2003-2006 and for 2011-12. This allows for time varying heterogeneity in investment rates. This does not change the conclusions albeit some of the coefficients are estimated imprecisely.

These results are consistent with what I have shown in Tables 4 and 5 in terms of *post_conversion* dummy, namely that after the conversion to corporate structure the investment rates of both utility and business income trusts return to their sectoral norms irrespective of where they started from.⁴⁴

5.4 Further robustness test

In this section I test the robustness of the baseline estimates. I reestimate the model using non-winsorized investment and the coefficients tend to have larger standard errors. One may be concerned that investment tends to be lumpy and a lot of firms actually have zero investment for a lot of years in the sample. Out of over 7,000 observations used in the baseline regressions about 700 report zero investment, i.e. about 10 percent. To see whether these zero investment observations affect the results I do two things. Firstly, I exclude all observations where investment was zero. Secondly, I run a lower bound censored Tobit model using investment bounded at zero as a censoring variable. The exclusion of zero investment observations makes the results more robust, while Tobit model's most interesting feature is that now business income trusts appear to have in-

⁴⁴These results are also robust to implementing them on the propensity score matched sample (Table 14 in the Appendix). If anything, the coefficients are estimated more precisely in the propensity score matched sample than in the full OLS sample.

creased their investment immediately after the 2006 reform. In addition, they also have decreased their investment following conversion from corporate to income trust form. Therefore the overall effect of the 2006 reform is still negative and investment of business income trusts do not appear to return to industry means even after conversion back to corporate form (see Table 15 in the Appendix).

I also experiment with using only years 2005 and 2006 as a pre treatment sample. The problem with using these years only is the 2005 dividend tax credit reform, that could have already had a first order effect on investment of corporates as well as second order effect on the investment of income trusts. This could mean that using only years 2005 and 2006 I am looking at very uncertain times for both treatment and control groups during which corporates could have increased their investment while income trusts could have already decreased their investment. I experiment with including different number of years before the 2006 reform to see how sensitive my results are to the sample choice. The results are available upon request; the coefficients have the same signs and similar magnitudes as in the baseline regressions, but they have larger standard errors, possibly due to fewer observations being used.

Furthermore, instead of using capital expenditure as a numerator for investment rate, I use capital expenditure together with acquisitions. This does not change the main results of the paper, the only substantial difference being that utility income trusts seem to record substantially lower investment after the announcement of the 2006 reform. This is most likely due to the fact that once the reform was announced acquisitions and expansion of income trusts beyond the normal 100% growth level would have resulted in immediate imposition of corporation tax. This suggests that post 2006 reform income trusts would have ceased to acquire new companies actively, if they wanted to avoid paying tax.

Since the starting point of this paper was the work of Doidge and Dyck (2013) on specific properties of income trusts, I discuss here why and how my estimates of the effects of the reform on investment differ from their result. Doidge and Dyck (2013) use data for years 2007 - 2010 and estimate changes in investment rates after the reform, attributing all of the differences between income trusts and corporates over the analyzed period to the 2006 reform. They find that investment rates of income trusts increased relative to investment rates of corporations following the announcement of the 2006 reform, and that conversion to corporate form had no effect on the change in investment rate. There are several reasons why my results differ from Doidge and Dyck (2013). Firstly, Doidge and Dyck (2013) might find no effects of conversion back to corporate structure on investment rate since their analysis stops in 2010, before most of the conversions to corporations actually happened. Since I utilize later years 2011-13, I observe investment rates of income trusts which converted to corporates for longer and for far larger sample than Doidge and Dyck (2013) could. As I show in the paper the strongest effects of conversion

back on investment rate occurred for companies which converted in 2011. What is more, I use difference in difference methodology to compare Canadian corporates to similar income trusts before and after the 2006 reform, while Doidge and Dyck (2013) utilize only years 2007-2010. Therefore they do not control for the pre-reform characteristics of income trusts relative to corporates. As I show in the paper companies which converted to income trusts have already had different investment rates from their respective industry means. Finally, the distinction between utility and business type income trusts, which Doidge and Dyck (2013) do not discuss at all, is of first order importance for my analysis.

Finally, I test the robustness of the estimation results using placebo regressions. I vary the year of the reform to show that the effects discussed in this paper come from the 2006 reform and not from systematic differences between treatment and control groups. As shown in Figure 13 mean investment rates for corporations and income trusts before the reform look to be moving together. However, I do not have enough data for pre-reform years for income trusts to show longer time series trends of mean investment rates. Instead, I use the placebo regressions as shown in Tables 16-18. In Table 16 I use the regression from Table 4 column 1 and vary the *post_TFP* dummy to be any year from 2000 until 2011. I can see that the interaction effect of *company_is_trust* and *post_TFP_placebo* is only significant from 2007 onwards, but not before. In Table 17 I instead use column 4 from Table 4 as a baseline and vary the year of the reform between columns. Again, the interactions with *post_TFP_placebo* only become significant in 2005, but not before. The reason why some effects might already be seen for 2005 is that the *post_TFP_placebo* dummy is 1 from 2006 onwards in those regressions. It is entirely plausible that some of the effects of the 2006 reform could have already affected firms investment in 2006. Table 17 shows the results from Table 16 using the propensity score matched sample as in Table 11. It confirms what we see in Table 16.

Table 4: Levels of investment rate after TFP (with industry fixed effects).

VARIABLES	(1) cx	(2) cx	(3) cx	(4) cx	(5) cx	(6) 00-06 vs 07-13	(7) 00-06 vs 07-13
trust_dummy	0.003 (0.008)	0.003 (0.011)					
comp_is_trust	-0.042*** (0.010)	-0.042*** (0.012)					
post_TFP_dummy	-0.025*** (0.005)	-0.025*** (0.005)	-0.025*** (0.005)	-0.025*** (0.005)	-0.025*** (0.005)	-0.016*** (0.005)	-0.040*** (0.010)
comp_is_trust#c.post_TFP_dummy	0.007 (0.009)	0.007 (0.009)					
post_conversion		-0.000 (0.009)					
business_trust			-0.010 (0.009)	-0.026** (0.011)	-0.027** (0.011)	-0.033*** (0.011)	-0.035*** (0.011)
utility_trust			0.029** (0.013)	0.058*** (0.014)	0.060*** (0.014)	0.033* (0.018)	0.031* (0.018)
utility_trust#c.comp_is_trust			-0.065*** (0.017)	-0.094*** (0.017)	-0.096*** (0.017)	-0.068*** (0.019)	-0.074*** (0.019)
business_trust#c.comp_is_trust			-0.031*** (0.011)	-0.015 (0.012)	-0.015 (0.012)	-0.003 (0.011)	0.003 (0.013)
utility_trust*comp_is_trust* post_TFP_dummy			-0.010 (0.017)	0.002 (0.016)	0.001 (0.017)	-0.004 (0.017)	0.001 (0.018)
post_TFP_dummy*business_trust* comp_is_trust			0.012 (0.009)	0.008 (0.009)	0.008 (0.009)	-0.001 (0.009)	-0.011 (0.011)
post_conversion#c.business_trust				0.023** (0.009)			
post_conversion#c.utility_trust				-0.051*** (0.014)			
post_conv_early#c.business_trust					0.018 (0.014)	0.025* (0.014)	0.032** (0.014)
post_conv_early#c.utility_trust					-0.034** (0.014)	-0.012 (0.016)	-0.018 (0.015)
post_conv_late#c.business_trust					0.026*** (0.010)	0.031*** (0.010)	0.028** (0.012)
post_conv_late#c.utility_trust					-0.060*** (0.016)	-0.034** (0.017)	-0.025 (0.019)
Constant	0.182*** (0.021)	0.182*** (0.021)	0.183*** (0.021)	0.183*** (0.021)	0.182*** (0.021)	0.178*** (0.022)	0.194*** (0.033)
Observations	7,761	7,761	7,761	7,761	7,761	6,941	6,941
R-squared	0.290	0.290	0.291	0.292	0.292	0.297	0.320
Year FE	NO	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES	YES
Industry subperiod FE	NO	NO	NO	NO	NO	NO	YES
Firm FE	NO	NO	NO	NO	NO	NO	NO

Standard errors clustered at firm level in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Note: Investment winsorized at 1%. Removes trusts with no data post conversion. Columns 1-4 use the full sample 1994 - 2013, while columns 5 and 6 compare use 2000-2013. Trust_dummy equals 1 if a company was ever an income trust, comp_is_trust equals 1 in the year the company converts to income trust and stays 1 until the year it converts back, post_conversion equals 1 in the year a trust converts back to corporation and forever after, it is zero otherwise. Early_post_conv is a dummy which is 1 when an income trusts converted before the expiry of its privileges, i.e. before 2011, late_post_conv is a dummy which is 1 if an income trust converted in 2011 or 2012. Control variables are included in all regressions.

Table 5: Levels of investment rate after TFP (with firm fixed effects).

VARIABLES	(1) CX	(2) CX	(3) CX	(4) CX	(5) CX	(6) 00-06 vs 07-13
comp_is_trust	-0.032*** (0.010)	-0.029*** (0.011)				
post_TFP_dummy	-0.018*** (0.004)	-0.018*** (0.004)	-0.018*** (0.004)	-0.018*** (0.004)	-0.019*** (0.004)	-0.014*** (0.005)
comp_is_trust*post_TFP_dummy	0.009 (0.008)	0.009 (0.008)				
post_conversion		0.004 (0.009)				
utility_trust#*comp_is_trust			-0.047** (0.018)	-0.064*** (0.018)	-0.064*** (0.019)	-0.049** (0.020)
business_trust*comp_is_trust			-0.023** (0.010)	-0.010 (0.011)	-0.005 (0.012)	0.001 (0.011)
utility_trust*comp_is_trust*			-0.006 (0.019)	0.001 (0.018)	0.001 (0.019)	-0.001 (0.019)
post_TFP_dummy*business_trust*			0.015* (0.008)	0.011 (0.008)	0.013* (0.008)	0.009 (0.008)
comp_is_trust						
post_conversion*business_trust				0.019** (0.010)		
post_conversion*utility_trust				-0.027* (0.014)		
post_conv_early*business_trust					-0.006 (0.014)	-0.000 (0.014)
post_conv_early*utility_trust					-0.027** (0.013)	-0.013 (0.015)
post_conv_late*business_trust					0.030*** (0.010)	0.034*** (0.009)
post_conv_late*utility_trust					-0.027 (0.017)	-0.011 (0.018)
Constant	0.463*** (0.030)	0.463*** (0.030)	0.461*** (0.030)	0.459*** (0.030)	0.458*** (0.030)	0.452*** (0.033)
Observations	7,761	7,761	7,761	7,761	7,761	6,941
R-squared	0.111	0.111	0.112	0.113	0.114	0.115
Number of company1	1,226	1,226	1,226	1,226	1,226	1,144
Year FE	NO	NO	NO	NO	NO	NO
Industry FE	NO	NO	NO	NO	NO	NO
Firm FE	YES	YES	YES	YES	YES	YES

Standard errors clustered at firm level in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Note: Investment winsorized at 1%. Removes trusts with no data post conversion. Columns 1-4 use the full sample 1994 - 2013, while column 5 uses 2000-2013. Trust_dummy equals 1 if a company was ever an income trust, comp_is_trust equals 1 in the year the company converts to income trust and stays 1 until the year it converts back, post_conversion equals 1 in the year a trust converts back to corporation and forever after, it is zero otherwise. Early_post_conv is a dummy which is 1 when an income trusts converted before the expiry of its privileges, i.e. before 2011, late_post_conv is a dummy which is 1 if an income trust converted in 2011 or 2012. Control variables are included in all regressions.

Table 6: Levels of investment rate after TFP; comparison of 2003-2006 with 2011- 2012.

VARIABLES	(1) cx:03-06	(2) cx:03-06	(3) cx:03-06	(4) cx:03-06	(5) cx:03-06
trust_dummy	-0.032*** (0.008)				
years_11_12	-0.015** (0.007)	-0.015** (0.007)	0.076 (0.047)	-0.002 (0.007)	-0.002 (0.007)
trust_dummy*years_11_12	0.023** (0.010)			0.014 (0.011)	
utility_trust		-0.018 (0.015)	-0.034* (0.017)		
business_trust		-0.038*** (0.009)	-0.039*** (0.010)		
utility_trust*years_11_12		0.002 (0.018)	0.024 (0.022)		-0.001 (0.020)
years_11_12*business_trust		0.031*** (0.011)	0.025* (0.013)		0.018 (0.011)
Constant	0.181*** (0.028)	0.184*** (0.029)	0.128*** (0.032)	0.503*** (0.049)	0.501*** (0.049)
Observations	3,549	3,549	3,549	3,549	3,549
R-squared	0.321	0.322	0.351	0.119	0.119
Year FE	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	NO	NO
Industry subperiod FE	NO	NO	YES	NO	NO
Firm FE	NO	NO	NO	YES	YES

Standard errors clustered at firm level in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ Investment winsorized at 1%. Compare 2005-06 to 2011-12 and 2004-05 and 2011-12. Years 2006-2010 removed from the sample. Control variables are included in all regressions.

6 Conclusion

The results from the 2006 Canadian income trust reform indicate the importance of financing constraints for investment. The fact that income trusts were not affected by the announcement of the 2006 reform that introduced higher cost of capital in the future suggests that binding cash constraints dominate the effects of cost of capital. This is confirmed by the fact that income trusts seem to increase their investment after conversion back to corporate form. In spite of higher cost of capital, the increased availability of internal finance after conversion back to corporation, increases investment of income trusts back to industry norms. The emphasis on the heterogeneity of the effects between utility and business income trusts helps to highlight these results.

These findings feed into the literature on the importance of cash flow availability at a company level. The 2006 reform analysis has shown that tax policies targeted at financially constrained companies might possibly have limited effects. In turn, a simple change in the availability of internal finance affects the investment decision of a company to a much larger extent than change in the cost of capital.

References

- Aggarwal, L., Mintz, J., 2004. Income trusts and shareholders taxation: Getting it right. *Canadian Tax Journal* 52 (3), 792–818.
- Alarie, B., Iacobucci, E. M., 2007. Tax policy, capital structure and income trusts. *The Canadian Business Law Journal* 45 (1), 1–19.
- Auerbach, A. J., Hines, James R., J., May 1988. Investment Tax Incentives and Frequent Tax Reforms. *American Economic Review* 78 (2), 211–16.
- Auerbach, A. J., Jr., J. R. H., Apr. 1986. Anticipated Tax Changes and the Timing of Investment. NBER Working Papers 1886, National Bureau of Economic Research, Inc. URL <https://ideas.repec.org/p/nbr/nberwo/1886.html>
- Bond, S., Meghir, C., April 1994. Dynamic Investment Models and the Firm's Financial Policy. *Review of Economic Studies* 61 (2), 197–222. URL <http://ideas.repec.org/a/bla/restud/v61y1994i2p197-222.html>
- Bond, S., Van Reenen, J., January 2007. Microeconomic Models of Investment and Employment. In: Heckman, J., Leamer, E. (Eds.), *Handbook of Econometrics*. Vol. 6 of *Handbook of Econometrics*. Elsevier, Ch. 65.
- Calomiris, C. W., Hubbard, R. G., October 1995. Internal Finance and Investment: Evidence from the Undistributed Profits Tax of 1936-37. *The Journal of Business* 68 (4),

443–82.

URL <http://ideas.repec.org/a/ucp/jnlbus/v68y1995i4p443-82.html>

Doidge, C., Dyck, A., 2013. Taxes and corporate policies: Evidence from a quasi natural experiment. *The Journal of Finance*.

Edgar, T., 2004. The Trouble with Income Trusts. *canadian tax journal* 52 (3), 819–852.

Edgerton, J., December 2010. Investment incentives and corporate tax asymmetries. *Journal of Public Economics* 94 (11-12), 936–952.

URL <http://ideas.repec.org/a/eee/pubeco/v94y2010i11-12p936-952.html>

Edwards, A., Shevlin, T., 2011. The value of a flow-through entity in an integrated corporate tax system. *Journal of Financial Economics* 101 (2), 473–491.

Elayan, F. A., 2007. To tax or not to tax income trusts: The valuation effect of a canadian dividend tax cut. 2008 annual conference paper.

Elayan, F. A., Li, J., Donnelly, M. E., Young, A. W., 2009. Changes to income trust taxation in canada: Investor reaction and dividend clientele theory. *Journal of Business Finance and Accounting* 36 (5-6), 725–753.

Fazzari, S. M., Hubbard, R. G., Petersen, B. C., May 1988. Investment, Financing Decisions, and Tax Policy. *American Economic Review* 78 (2), 200–205.

URL <http://ideas.repec.org/a/aea/aecrev/v78y1988i2p200-205.html>

Fazzari, S. M., Petersen, B. C., Autumn 1993. Working Capital and Fixed Investment: New Evidence on Financing Constraints. *RAND Journal of Economics* 24 (3), 328–342.

URL <http://ideas.repec.org/a/rje/randje/v24y1993iautumnp328-342.html>

Gertler, M., Hubbard, R. G., 1988. Financial factors in business fluctuations. *Proceedings - Economic Policy Symposium - Jackson Hole*, 33–78.

URL <http://ideas.repec.org/a/fip/fedkpr/y1988p33-78.html>

Glew, I. A., Johnson, L. D., 2011. Consequences of the halloween nightmare: analysis of investors' response to an overnight tax legislation change in the canadian income trust sector. *Canadian Journal of Administrative Sciences / Revue Canadienne des Sciences de l'Administration* 28 (1), 53–69.

Hall, B., Jorgensen, D., 1967. Tax Policy and Investment Behavior. *American Economic Review* 57, 391–414.

Halpern, P., Norli, O., 2006. Canadian business trusts: A new organizational structure. *Journal of Applied Corporate Finance* 18 (3), 66–75.

- Hanlon, M., Heitzman, S., 2010. A review of tax research. *Journal of Accounting and Economics* 50 (2&A3), 127 – 178.
URL <http://www.sciencedirect.com/science/article/pii/S0165410110000340>
- Hassett, K. A., Hubbard, R. G., 2002. Tax policy and business investment. In: Auerbach, A. J., Feldstein, M. (Eds.), *Handbook of Public Economics*. Vol. 3 of *Handbook of Public Economics*. Elsevier, Ch. 20, pp. 1293–1343.
- HassettHubbard2002, 2002. Tax policy and business investment. In: Auerbach, A. J., Feldstein, M. (Eds.), *Handbook of Public Economics*. Vol. 3 of *Handbook of Public Economics*. Elsevier, Ch. 20, pp. 1293–1343.
- Hayashi, F., January 1982. Tobin’s Marginal q and Average q: A Neoclassical Interpretation. *Econometrica* 50 (1), 213–24.
- Hayward, P. D., 2002. Income trusts: A tax-efficient product or the product of tax inefficiency? *Canadian Tax Journal* 50 (5), 1529–1569.
- Howitt, P., Sinn, H.-W., March 1989. Gradual Reforms of Capital Income Taxation. *American Economic Review* 79 (1), 106–24.
- Hudec, A. J., Rogers, J. L., 2004. Canadian income funds: An attractive financing alternative for canadian and u.s. franchisors. *Franchise Law Journal*, 24 (2).
- Iacobucci, E. M., 2013. Innovation and the organizational contract: Lessons from income trusts. *New York University Law Review* 88 (1), 216–239.
- Jog, V., Wang, L., 2004. The growth of income trusts in canada and the economic consequences. *Canadian Tax Journal* 52 (3), 853–880.
- Jog, V., Wang, L., 2006. A comparison of business income trust governance and corporate governance: Is there a need for legislation or further regulation? *McGill Law Journal* 51, 327–383.
- Jorgensen, D., 1963. Capital Theory and Investment Behavior. *American Economic Review* 53, 247–59.
- Keuschnigg, C., Ribi, E., 2010. Profit Taxation and Finance Constraints. Tech. rep.
- Lefebvre, R., Goomar, A., Mar. 2006. Demystifying income trusts. Working Papers 060301, Certified General Accountants Association of Canada.
- Mintz, J. M., Richardson, S. R., 2006. Income trusts and Integration of Business and Investor Taxes: A Policy Analysis and Proposal. *canadian tax journal* 54 (2), 359–406.

- Pazzaglia, F., Aguerrevere, F., Ravi, R., 2005. What drives a corporation to convert into an income trust. Working papers.
- Summers, L. H., 1981. Taxation and Corporate Investment: A q-Theory Approach. *Brookings Papers on Economic Activity* 12 (1), 67–140.
URL <http://ideas.repec.org/a/bin/bpeajo/v12y1981i1p67-140.html>
- Tait, A., Lawford, J., 2007. Income trusts: A challenge for regulators. Tech. rep.
- Tobin, J., February 1969. A General Equilibrium Approach to Monetary Theory. *Journal of Money, Credit and Banking* 1 (1), 15–29.
URL <http://ideas.repec.org/a/mcb/jmoncb/v1y1969i1p15-29.html>
- Wang, Z., 2006. Income trust: A new way of corporate financing and governance? Tech. rep.
- Zwick, E., Mahon, J., January 2016. Tax policy and heterogeneous investment behavior. Working Paper 21876, National Bureau of Economic Research.

7 Appendix 1

Figure 13: Mean investment rates of income trusts and comparable corporates in the years before and after 2006 reform announcement.. Balanced panel, propensity score matched sample used. Source: Datastream.

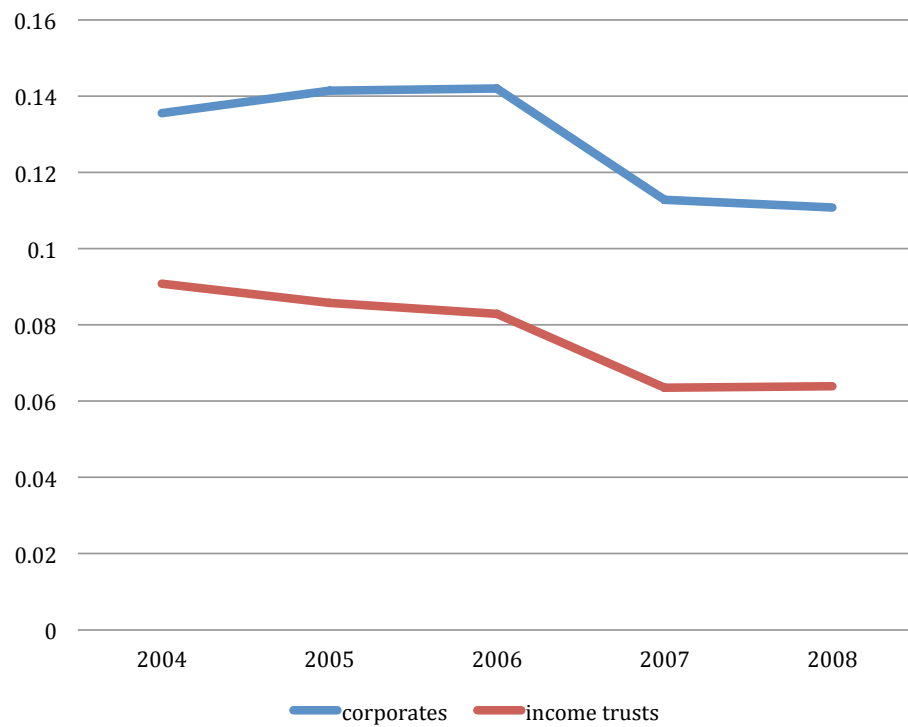


Table 7: Industry codes, corresponding names and number of income trusts and corporates in each industry. Source: Datastream data.

industry name	industry code	income trusts	corporates
Building Mat. & Fix.	30	7	47
Gas Distribution	31	1	19
Industrial Suppliers	32	2	13
Specialty Chemicals	33	3	41
Computer Hardware	34		17
Farm Fish Plantation	35	2	14
Home Construction	36		5
Electrical Equipment	37		31
Forestry	38	2	28
Heavy Construction	39	1	18
Delivery Services	40	1	6
Media Agencies	41	1	17
Consumer Finance	42	1	4
Industrial Machinery	43	3	55
Defence	44		6
Healthcare Providers	45	2	21
Financial Admin.	46	1	7
Waste, Disposal Svs.	47	1	15
Personal Products	48		3
Coal	49	2	35
Exploration & Prod.	50	39	701
Oil Equip. & Services	51	21	163
Pipelines	52	4	18
Nonferrous Metals	54	2	142
Recreational Services	55	1	15
Iron & Steel	56	1	37
Electronic Equipment	57		43
Software	58	1	145
Dur. Household Prod.	59	1	6
Furnishings	60	2	22
Toys	61		15
Nondur. Household Prod	62	1	7
Auto Parts	63	1	17
Transport Services	64	6	13
Automobiles	65		3
Apparel Retailers	66		11
Brewers	67	3	12
Distillers & Vintners	68		5
Clothing & Accessory	69		13
Containers & Package	70	1	14
Food Products	71	8	50
Restaurants & Bars	72	10	27
Renewable Energy Eq.	74		12
Consumer Electronics	75		6
Investment Companies	77	1	49
Plat. & Precious Metal	78		76
Tobacco	79		2
Hotels	80		8
Paper	82	3	26
Alternative Fuels	83		11
Publishing	84	3	37
Business Support Svs.	86	12	84
Broadline Retailers	87	2	14
Food Retail, Wholesale	88	3	18
Diamonds & Gemstones	89		39
Specialty Retailers	90	5	27
Multiutilities	91	2	5
Commodity Chemicals	92		21
Aluminium	93		7
Travel & Tourism	94	1	8
Pharmaceuticals	95		43
Alt. Electricity	96	6	23
Integrated Oil & Gas	97		18
Aerospace	98	1	15
Marine Transportation	99	1	4
Gambling	100	3	13
Divers. Industrials	101	1	15
Banks	102		20
Medical Supplies	103	1	7
Asset Managers	104		26
Life Insurance	106		12
Prop. & Casualty Ins.	107		13
Insurance Brokers	108		4
Investment Services	111	2	22
Real Estate Hold, Dev	112	6	74
Specialty Finance	113	4	245
Soft Drinks	114		9
Broadcast & Entertain	115	5	49
Unclassified	116		91
Comm. Vehicles, Trucks	117	2	14
Gold Mining	119		424
Drug Retailers	120		4
General Mining	122		609
Telecom. Equipment	126	1	58
Unquoted equities	127	5	139
Airlines	129	2	13
Semiconductors	130		20
Trucking	131	3	13
Medical Equipment	132	1	33
Full Line Insurance	141		4
Fixed Line Telecom.	142	2	26
Mobile Telecom.	143		12
Water	144		5
Computer Services	150	1	35
Internet	151		25
Mortgage Finance	152	3	22
Recreational Products	155	1	3
Spec. Consumer Service	156	4	19
Biotechnology	157		92
Exchange Traded Funds	159		1
Ind. & Office REITs	160	13	35
Retail REITs	161	8	19
Residential REITs	162	5	22
Diversified REITs	163	2	13
Specialty REITs	164		2
Hotel & Lodging REITs	166	5	12
Con. Electricity	169	7	23

7.1 Variable definitions

The main variable of interest in my paper is a rate of investment. In baseline specifications I define it as capital expenditures⁴⁵ divided by last years' total assets. In robustness checks

⁴⁵In Datastream capital expenditures are defined as funds used to acquire fixed assets other than those associated with acquisitions. It includes but is not restricted to: additions to property, plant and

I also use the sum of capital expenditures and acquisitions⁴⁶ divided by last years' total assets and capital expenditures divided by last years' fixed assets. The control variables are defined as follows:

- payouts: total dividends (or distributions in case of income trusts) paid divided by current year total assets
- cash holdings: cash and short term investments divided by total assets current year
- market to book ratio: short term debt plus long term debt plus market capitalization divided by current year total assets
- cash flow: net income before extraordinary items plus depreciation and amortization divided by current year total assets
- cash flow volatility: for a given firm in year t-1 the standard deviation of CF is computed over the previous (up to) 9 years, industry CF volatility in year t equal the average standard deviation of corporates in a given industry
- leverage: short term debt plus long term debt divided by current year total assets
- new working capital (NWC): current assets minus cash minus current liabilities divided by current year total assets
- (gross) profitability: operating income plus depreciation and amortization divided by current year total assets
- tangibility: net PPE divided by current year total assets, where net PPE is gross property plant and equipment minus accumulated reserves for depreciation depletion and amortization

7.2 Note to all tables that follow

Standard errors clustered at firm level in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Investment winsorized at 1%. Removes trusts with no data post conversion. Columns 1-4 use the full sample 1994 - 2013, while columns 5 and 6 compare use 2000-2013. Trust_dummy equals 1 if a company was ever an income trust, comp_is_trust equals 1 in the year the company converts to income trust and stays 1 until the year it converts

equipment and investments in machinery and equipment.

⁴⁶In Datastream acquisitions represent assets acquired through pooling of interests or mergers. It does not include capital expenditures of acquired companies. It includes but is not restricted to: net assets of acquired companies, additions to fixed assets from acquisitions, working capital of companies acquired, excess of cost of acquired companies, discount on acquisitions. Income trusts are observed to make on average larger acquisitions than corporations in similar sectors and of similar size.

back, `post_conversion` equals 1 in the year a trust converts back to corporation and forever after, it is zero otherwise. `Early_post_conv` is a dummy which is 1 when an income trusts converted before the expiry of its privileges, i.e. before 2011, `late_post_conv` is a dummy which is 1 if an income trust converted in 2011 or 2012. Table 13 compares 2003-06 to 2011-12. Years 2006-2010 removed from the sample .

Table 8: Results from estimating first stage equation for the propensity score matching.

VARIABLES	(1) full sample	(2) 2005	(3) 2006
L.leverage	-0.143 (0.117)	-0.662 (0.598)	-0.078 (0.586)
L.payout	0.133** (0.060)	11.497*** (2.838)	16.976*** (3.809)
L.investment	-0.386*** (0.145)	0.067 (0.104)	-0.289 (0.348)
L.cash_holdings	-3.045** (1.231)	-14.343*** (3.411)	-10.759*** (3.326)
L.tax_rate	-0.004* (0.002)	0.021 (0.021)	-0.181 (0.218)
L.growth_opportunities	-0.026 (0.046)	0.047 (0.064)	-0.048 (0.120)
L.tangibility	-0.318 (0.207)	-0.266 (0.478)	-0.913** (0.418)
L.profitability	0.679*** (0.216)	0.363 (0.767)	0.059 (0.180)
L.industry_median_investment	0.507** (0.206)	-9.839 (13.118)	-77.180 (57.769)
L.industry_median_payout	9.254*** (2.480)	7.185 (18.168)	31.729 (29.708)
L.industry_median_cashhold	0.174 (0.396)	5.927 (14.016)	-0.695 (23.034)
L.industry_median_leverage	-1.734*** (0.290)	-1.008 (3.576)	-9.163 (8.172)
L.log_asstes	0.150*** (0.028)	0.163*** (0.052)	0.092* (0.055)
Constant	-1.697*** (0.621)	-2.356** (1.095)	1.382 (2.505)
Observations	7,609	382	421
Year FE	NO	NO	NO
Industry FE	YES	YES	YES
Industry subperiod FE	NO	NO	NO
Firm FE	NO	NO	NO

Figure 14: The quality of propensity score matching procedure. Means of variables before and after matching.

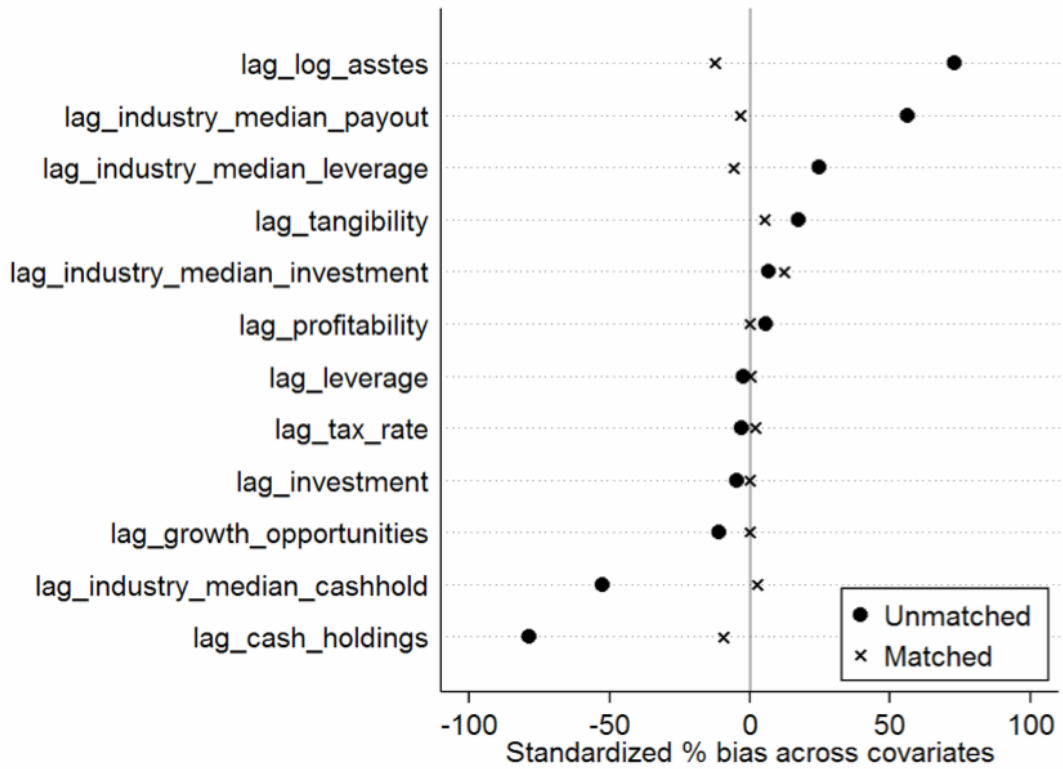


Table 9: Levels of investment rate after TFP, with industry fixed effects. Coefficient estimates on control variables.

VARIABLES	(1) cx	(2) cx	(3) cx	(4) cx	(5) cx	(6) 00-06 vs 07-13	(7) 00-06 vs 07-13
L.log_asstes	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)
growth_opportunities	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
cash_flow	0.007*** (0.003)	0.007*** (0.003)	0.007*** (0.003)	0.007*** (0.003)	0.007*** (0.003)	0.007*** (0.002)	0.007*** (0.002)
leverage	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.004 (0.002)
L.industry_median_investment	0.071* (0.040)	0.071* (0.040)	0.071* (0.040)	0.071* (0.039)	0.071* (0.039)	0.243*** (0.050)	0.121** (0.056)
L.industry_median_payout	-0.157 (0.148)	-0.157 (0.148)	-0.189 (0.149)	-0.192 (0.149)	-0.192 (0.149)	-0.026 (0.130)	0.377** (0.151)
L.industry_median_cashhold	0.098*** (0.026)	0.098*** (0.026)	0.099*** (0.026)	0.099*** (0.026)	0.100*** (0.026)	0.091*** (0.028)	0.091*** (0.030)
L.industry_median_leverage	-0.024 (0.017)	-0.024 (0.017)	-0.024 (0.017)	-0.026 (0.017)	-0.026 (0.017)	-0.037** (0.015)	-0.019 (0.021)
Constant	0.182*** (0.021)	0.182*** (0.021)	0.183*** (0.021)	0.183*** (0.021)	0.182*** (0.021)	0.178*** (0.022)	0.194*** (0.033)
Observations	7,761	7,761	7,761	7,761	7,761	6,941	6,941
R-squared	0.290	0.290	0.291	0.292	0.292	0.297	0.320
Year FE	NO	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES	YES
Industry subperiod FE	NO	NO	NO	NO	NO	NO	YES
Firm FE	NO	NO	NO	NO	NO	NO	NO

Table 10: Levels of investment rate after TFP (with industry fixed effects), no controls but the sample is the propensity score matched sample using 2005 as a baseline matching year

VARIABLES	(1) cx	(2) cx	(3) cx	(4) cx	(5) cx	(6) 00-06 vs 07-13	(7) 00-06 vs 07-13
trust_dummy	0.006 (0.011)	0.010 (0.013)					
comp_is_trust	-0.052*** (0.011)	-0.056*** (0.012)					
post_TFP_dummy	-0.040*** (0.007)	-0.039*** (0.007)	-0.041*** (0.007)	-0.040*** (0.007)	-0.040*** (0.007)	-0.039*** (0.008)	-0.022* (0.012)
comp_is_trust*post_TFP_dummy	0.017* (0.010)	0.017* (0.010)					
post_conversion		-0.009 (0.011)					
business_trust			-0.009 (0.012)	-0.024* (0.014)	-0.027* (0.014)	-0.037** (0.015)	-0.032* (0.017)
utility_trust			0.020 (0.019)	0.052** (0.020)	0.053*** (0.020)	0.026 (0.025)	0.015 (0.026)
utility_trust*comp_is_trust			-0.094*** (0.016)	-0.126*** (0.017)	-0.128*** (0.017)	-0.103*** (0.020)	-0.100*** (0.023)
business_trust*comp_is_trust			-0.023** (0.010)	-0.008 (0.011)	-0.005 (0.012)	0.006 (0.011)	0.002 (0.013)
utility_trust*comp_is_trust* post_TFP_dummy			-0.002 (0.018)	0.012 (0.017)	0.011 (0.018)	0.006 (0.018)	0.035* (0.020)
post_TFP_dummy*business_trust* comp_is_trust			0.025** (0.010)	0.017* (0.010)	0.019** (0.010)	0.018* (0.010)	0.013 (0.011)
post_conversion#c.business_trust				0.033*** (0.012)			
post_conversion#c.utility_trust				-0.073*** (0.017)			
post_conv_early*business_trust					0.006 (0.012)	0.009 (0.012)	0.010 (0.012)
post_conv_early*utility_trust					-0.050*** (0.017)	-0.035* (0.019)	-0.020 (0.020)
post_conv_late*business_trust					0.047*** (0.014)	0.055*** (0.014)	0.041** (0.017)
post_conv_late*utility_trust					-0.086*** (0.019)	-0.067*** (0.021)	-0.057* (0.031)
Constant	0.021*** (0.001)	0.021*** (0.001)	0.021*** (0.001)	0.021*** (0.001)	0.021*** (0.001)	0.026*** (0.002)	0.012 (.)
Observations	2,263	2,263	2,263	2,263	2,263	1,989	1,989
R-squared	0.449	0.449	0.462	0.471	0.473	0.463	0.516
Year FE	NO	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES	YES
Industry subperiod FE	NO	NO	NO	NO	NO	NO	YES
Firm FE	NO	NO	NO	NO	NO	NO	NO

Table 11: Levels of investment rate after TFP (with industry fixed effects), no controls but the sample is the propensity score matched sample using 2006 as a baseline matching year

VARIABLES	(1) CX	(2) CX	(3) CX	(4) CX	(5) CX	(6) 00-06 vs 07- 13	(7) 00-06 vs 07-13
trust_dummy	-0.003 (0.011)	-0.000 (0.013)					
comp_is_trust	-0.043*** (0.011)	-0.045*** (0.013)					
post_TFP_dummy	-0.043*** (0.007)	-0.041*** (0.007)	-0.043*** (0.007)	-0.042*** (0.007)	-0.042*** (0.007)	-0.041*** (0.008)	-0.037*** (0.014)
comp_is_trust*post_TFP_dummy	0.018* (0.009)	0.018* (0.009)					
post_conversion		-0.007 (0.010)					
business_trust			-0.016 (0.011)	-0.031** (0.013)	-0.034** (0.013)	-0.042*** (0.014)	-0.040*** (0.015)
utility_trust			0.019 (0.020)	0.056** (0.023)	0.058** (0.023)	0.036 (0.024)	0.040 (0.026)
utility_trust*comp_is_trust			-0.085*** (0.017)	-0.121*** (0.018)	-0.124*** (0.018)	-0.104*** (0.019)	-0.118*** (0.021)
business_trust#*comp_is_trust			-0.018* (0.010)	-0.004 (0.011)	-0.000 (0.011)	0.009 (0.011)	0.009 (0.011)
utility_trust*comp_is_trust* post_TFP_dummy			-0.008 (0.018)	0.006 (0.017)	0.005 (0.018)	0.002 (0.019)	0.031 (0.022)
post_TFP_dummy*business_trust* comp_is_trust			0.026*** (0.009)	0.019** (0.009)	0.021** (0.009)	0.020** (0.010)	0.014 (0.010)
post_conversion*business_trust				0.030*** (0.010)			
post_conversion*utility_trust				-0.077*** (0.018)			
post_conv_early*business_trust					0.002 (0.011)	0.005 (0.011)	0.010 (0.010)
post_conv_early*utility_trust					-0.046** (0.018)	-0.035* (0.019)	-0.025 (0.020)
post_conv_late*business_trust					0.045*** (0.012)	0.052*** (0.012)	0.040** (0.016)
post_conv_late*utility_trust					-0.096*** (0.021)	-0.080*** (0.022)	-0.079*** (0.030)
Constant	0.069*** (0.010)	0.069*** (0.010)	0.064*** (0.009)	0.063*** (0.009)	0.062*** (0.009)	0.062*** (0.009)	0.097*** (0.017)
Observations	2,637	2,637	2,637	2,637	2,637	2,369	2,369
R-squared	0.437	0.437	0.448	0.457	0.459	0.455	0.496
Year FE	NO	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES	YES
Industry subperiod FE	NO	NO	NO	NO	NO	NO	YES
Firm FE	NO	NO	NO	NO	NO	NO	NO

Table 12: Levels of investment rate after TFP (with no inudstry fixed effects), no controls but the sample is the propensity score matched sample using 2006 as a baseline matching year

VARIABLES	(1) cx	(2) cx	(3) cx	(4) cx	(5) cx	(6) 00-06 vs 07-13
trust_dummy	0.032* (0.017)	0.037* (0.021)				
comp_is_trust	-0.051*** (0.016)	-0.055*** (0.019)				
post_TFP_dummy	-0.039*** (0.008)	-0.037*** (0.007)	-0.039*** (0.007)	-0.036*** (0.007)	-0.036*** (0.007)	-0.039*** (0.008)
comp_is_trust*post_TFP_dummy	0.003 (0.011)	0.003 (0.011)				
post_conversion		-0.010 (0.013)				
business_trust			-0.024* (0.013)	-0.034** (0.015)	-0.035** (0.015)	-0.048*** (0.014)
utility_trust			0.143*** (0.022)	0.187*** (0.021)	0.188*** (0.021)	0.160*** (0.024)
utility_trust*comp_is_trust			-0.103*** (0.023)	-0.145*** (0.022)	-0.147*** (0.022)	-0.123*** (0.023)
business_trust*comp_is_trust			-0.032*** (0.011)	-0.021* (0.012)	-0.020 (0.012)	-0.012 (0.011)
utility_trust*comp_is_trust*post_TFP_dummy			0.005 (0.019)	0.021 (0.019)	0.020 (0.020)	0.018 (0.020)
post_TFP_dummy*business_trust*comp_is_trust			0.018 (0.011)	0.011 (0.011)	0.011 (0.011)	0.013 (0.011)
post_conversion*business_trust				0.021* (0.011)		
post_conversion*utility_trust				-0.092*** (0.019)		
post_conv_early*business_trust					0.012 (0.013)	0.017 (0.012)
post_conv_early*utility_trust					-0.074** (0.030)	-0.059** (0.029)
post_conv_late*business_trust					0.026** (0.012)	0.035*** (0.012)
post_conv_late*utility_trust					-0.104*** (0.020)	-0.082*** (0.021)
Constant	0.117*** (0.009)	0.117*** (0.009)	0.117*** (0.009)	0.116*** (0.009)	0.116*** (0.009)	0.120*** (0.011)
Observations	2,637	2,637	2,637	2,637	2,637	2,369
R-squared	0.037	0.038	0.126	0.136	0.137	0.118
Year FE	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES
Industry subperiod FE	NO	NO	NO	NO	NO	NO
Firm FE	NO	NO	NO	NO	NO	NO

Table 13: Levels of investment rate after TFP with firm fixed effects on a propensity score matched sample using 2006 as a baseline year for matching.

VARIABLES	(1) cx	(2) cx	(3) cx	(4) cx	(5) cx	(6) 00-06 vs 07-13
comp_is_trust	-0.035*** (0.012)	-0.042*** (0.014)				
comp_is_trust*post_TFP_dummy	0.018* (0.010)	0.023** (0.010)				
post_TFP_dummy	-0.044*** (0.007)	-0.042*** (0.007)	-0.044*** (0.007)	-0.042*** (0.007)	-0.043*** (0.007)	-0.041*** (0.007)
post_conversion		-0.012 (0.011)				
utility_trust*comp_is_trust			-0.056** (0.023)	-0.094*** (0.021)	-0.096*** (0.021)	-0.075*** (0.022)
business_trust*comp_is_trust			-0.026** (0.012)	-0.016 (0.012)	-0.009 (0.012)	-0.001 (0.012)
utility_trust* comp_is_trust* post_TFP_dummy			-0.010 (0.023)	0.006 (0.022)	0.006 (0.022)	0.000 (0.023)
post_TFP_dummy*business_trust* comp_is_trust			0.036*** (0.009)	0.030*** (0.009)	0.035*** (0.008)	0.031*** (0.009)
post_conversion*business_trust				0.016 (0.011)		
post_conversion*utility_trust				-0.065*** (0.017)		
post_conv_early*business_trust					-0.026 (0.017)	-0.024 (0.017)
post_conv_early*utility_trust					-0.051*** (0.015)	-0.041** (0.019)
post_conv_late*business_trust					0.036*** (0.012)	0.040*** (0.012)
post_conv_late*utility_trust					-0.071*** (0.021)	-0.056** (0.022)
Constant	0.126*** (0.005)	0.127*** (0.005)	0.125*** (0.004)	0.127*** (0.004)	0.126*** (0.004)	0.122*** (0.004)
Observations	2,637	2,350	2,350	2,350	2,350	2,090
R-squared	0.060	0.061	0.072	0.083	0.090	0.076
Number of company1	248	200	200	200	200	200
Year FE	NO	NO	NO	NO	NO	NO
Industry FE	NO	NO	NO	NO	NO	NO
Firm FE	YES	YES	YES	YES	YES	YES

Table 14: Levels of investment rate after TFP; comparison of 2003-2006 with 2011- 2012 using propensity score matched sample with 2006 as a baseline year for matching.

VARIABLES	(1) cx:03-06	(2) cx:03-06	(3) cx:03-06	(4) cx:03-06	(5) cx:03-06
trust_dummy	-0.048*** (0.011)				
years_11_12	-0.039*** (0.012)	-0.037*** (0.012)	-0.028 (0.039)	-0.029** (0.011)	-0.028** (0.011)
trust_dummy*years_11_12	0.029* (0.015)			0.018 (0.015)	
utility_trust		-0.069*** (0.022)	-0.077*** (0.023)		
business_trust		-0.037*** (0.013)	-0.036*** (0.014)		
utility_trust*years_11_12		-0.017 (0.023)	0.020 (0.031)		-0.027 (0.025)
years_11_12*business_trust		0.045*** (0.015)	0.034** (0.017)		0.035** (0.015)
Constant	0.069*** (0.012)	0.059*** (0.011)	0.068** (0.027)	0.113*** (0.002)	0.113*** (0.002)
Observations	1,246	1,246	1,246	1,246	1,246
R-squared	0.463	0.473	0.501	0.015	0.027
Year FE	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	NO	NO
Industry subperiod FE	NO	NO	YES	NO	NO
Firm FE	NO	NO	NO	YES	YES

Table 15: Levels of investment rate after TFP with industry fixed effects. Tobit model with lower bound censoring at zero.

VARIABLES	(1) cx	(2) cx	(3) cx	(4) cx	(5) cx	(6) 00-06 vs 07-13	(7) 00-06 vs 07-13
trust_dummy	-0.009 (0.010)	-0.009 (0.013)					
comp_is_trust	-0.061*** (0.013)	-0.061*** (0.015)					
post_TFP_dummy	-0.028*** (0.006)	-0.028*** (0.006)	-0.028*** (0.006)	-0.028*** (0.006)	-0.027*** (0.006)	-0.017*** (0.006)	-0.041*** (0.002)
comp_is_trust*post_TFP_dummy	0.016 (0.011)	0.016 (0.011)					
post_conversion		0.000 (0.011)					
business_trust			-0.018* (0.010)	-0.037*** (0.012)	-0.039*** (0.012)	-0.047*** (0.012)	-0.047*** (0.003)
utility_trust			0.010 (0.018)	0.049** (0.023)	0.052** (0.023)	0.019 (0.026)	0.019*** (0.004)
ctility_trust*comp_is_trust			-0.074*** (0.023)	-0.113*** (0.025)	-0.116*** (0.025)	-0.085*** (0.025)	-0.107*** (0.005)
business_trust*comp_is_trust			-0.056*** (0.013)	-0.037*** (0.013)	-0.036*** (0.013)	-0.022* (0.013)	-0.021*** (0.003)
utility_trust*comp_is_trust* post_TFP_dummy			-0.009 (0.020)	0.005 (0.019)	0.004 (0.019)	-0.000 (0.019)	0.026*** (0.005)
post_TFP_dummy*business_trust* comp_is_trust			0.027** (0.012)	0.021* (0.011)	0.021* (0.011)	0.012 (0.012)	0.003 (0.003)
cost_conversion*business_trust				0.029*** (0.010)			
post_conversion*utility_trust				-0.065*** (0.019)			
post_conv_early*business_trust					0.018 (0.013)	0.027** (0.013)	0.032*** (0.003)
post_conv_early*utility_trust					-0.041** (0.018)	-0.015 (0.019)	-0.018*** (0.003)
post_conv_late*business_trust					0.033*** (0.011)	0.041*** (0.012)	0.035*** (0.002)
post_conv_late*utility_trust					-0.079*** (0.022)	-0.048** (0.022)	-0.036*** (0.004)
Constant	0.136*** (0.026)	0.136*** (0.026)	0.136*** (0.026)	0.136*** (0.026)	0.135*** (0.026)	0.123*** (0.027)	0.124*** (0.002)
Observations	7,486	7,486	7,486	7,486	7,486	6,684	6,684
Year FE	NO	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES	YES
Industry subperiod FE	NO	NO	NO	NO	NO	NO	YES
Firm FE	NO	NO	NO	NO	NO	NO	NO

Table 16: Levels of investment rate after TFP with industry fixed effects. Placebo regressions using column 1 Table 4 as baseline and varying year of the reform.

VARIABLES	(1) 2000	(2) 2001	(3) 2002	(4) 2003	(5) 2004	(6) 2005	(7) 2006	(8) 2007	(9) 2008	(10) 2009	(11) 2010	(12) 2011
trust_dummy	-0.000 (0.008)	-0.000 (0.008)	-0.001 (0.008)	-0.001 (0.009)	-0.001 (0.009)	0.000 (0.008)	0.003 (0.008)	0.005 (0.008)	0.009 (0.008)	0.006 (0.009)	0.005 (0.009)	0.006 (0.009)
comp_is_trust	-0.040 (0.032)	-0.063*** (0.020)	-0.067*** (0.016)	-0.047*** (0.013)	-0.032** (0.013)	-0.034*** (0.011)	-0.042*** (0.010)	-0.047*** (0.010)	-0.053*** (0.009)	-0.048*** (0.009)	-0.046*** (0.009)	-0.047*** (0.009)
post_TFP_placebo	-0.028*** (0.005)	-0.023*** (0.005)	-0.013*** (0.005)	-0.009** (0.005)	-0.012** (0.005)	-0.018*** (0.005)	-0.025*** (0.005)	-0.028*** (0.005)	-0.036*** (0.005)	-0.022*** (0.005)	-0.020*** (0.005)	-0.032*** (0.005)
comp_is_trust*post_TFP_placebo	0.007 (0.033)	0.032 (0.020)	0.035** (0.015)	0.014 (0.011)	-0.004 (0.011)	-0.002 (0.010)	0.007 (0.009)	0.013* (0.008)	0.020*** (0.008)	0.018** (0.008)	0.024** (0.009)	0.024** (0.011)
Constant	0.197*** (0.021)	0.190*** (0.021)	0.176*** (0.021)	0.172*** (0.021)	0.174*** (0.021)	0.180*** (0.021)	0.182*** (0.021)	0.179*** (0.021)	0.179*** (0.020)	0.168*** (0.020)	0.164*** (0.020)	0.162*** (0.020)
Observations	7,761	7,761	7,761	7,761	7,761	7,761	7,761	7,761	7,761	7,761	7,761	7,761
R-squared	0.288	0.288	0.286	0.285	0.286	0.287	0.290	0.291	0.295	0.288	0.287	0.289
Year FE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry subperiod FE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Firm FE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Table 17: Levels of investment rate after TFP with industry fixed effects. Placebo regressions using column 4 Table 4 as baseline and varying year of the reform.

VARIABLES	(1) 2002	(2) 2003	(3) 2004	(4) 2005	(5) 2006	(6) 2007	(7) 2008	(8) 2009	(9) 2010	(10) 2011
business_trust	-0.024** (0.011)	-0.024** (0.011)	-0.025** (0.011)	-0.025** (0.011)	-0.026** (0.011)	-0.025** (0.011)	-0.025** (0.011)	-0.023** (0.011)	-0.022* (0.011)	-0.019* (0.011)
utility_trust	0.063*** (0.015)	0.063*** (0.015)	0.059*** (0.015)	0.057*** (0.015)	0.058*** (0.014)	0.060*** (0.015)	0.064*** (0.014)	0.073*** (0.015)	0.074*** (0.016)	0.067*** (0.015)
utility_trust*comp_is_trust	-0.127*** (0.023)	-0.100*** (0.018)	-0.077*** (0.019)	-0.077*** (0.018)	-0.094*** (0.017)	-0.101*** (0.018)	-0.110*** (0.016)	-0.116*** (0.017)	-0.113*** (0.016)	-0.103*** (0.014)
business_trust*comp_is_trust	-0.049*** (0.018)	-0.036*** (0.013)	-0.021 (0.013)	-0.017 (0.012)	-0.015 (0.012)	-0.018* (0.011)	-0.019* (0.011)	-0.019* (0.011)	-0.020* (0.011)	-0.023** (0.010)
post_TFP_placebo	-0.012** (0.005)	-0.008* (0.005)	-0.011** (0.005)	-0.017*** (0.005)	-0.025*** (0.005)	-0.028*** (0.005)	-0.036*** (0.005)	-0.022*** (0.005)	-0.020*** (0.005)	-0.031*** (0.005)
utility_trust*comp_is_trust*post_TFP_placebo	0.039* (0.022)	0.007 (0.017)	-0.022 (0.019)	-0.023 (0.018)	0.002 (0.016)	0.013 (0.018)	0.034** (0.016)	0.061*** (0.017)	0.083*** (0.022)	0.064*** (0.013)
post_TFP_placebo*business_trust*comp_is_trust	0.038** (0.017)	0.025** (0.010)	0.011 (0.010)	0.009 (0.009)	0.008 (0.009)	0.012 (0.007)	0.012 (0.008)	0.008 (0.008)	0.012 (0.011)	0.015 (0.011)
c.post_conversion#c.business_trust	0.013 (0.010)	0.012 (0.010)	0.015 (0.010)	0.018* (0.009)	0.023** (0.009)	0.025*** (0.009)	0.032*** (0.010)	0.023** (0.010)	0.019* (0.011)	0.018* (0.010)
c.post_conversion#c.utility_trust	-0.064*** (0.015)	-0.063*** (0.015)	-0.056*** (0.014)	-0.051*** (0.014)	-0.051*** (0.014)	-0.052*** (0.014)	-0.053*** (0.015)	-0.072*** (0.016)	-0.074*** (0.018)	-0.059*** (0.015)
Constant	0.176*** (0.021)	0.172*** (0.021)	0.174*** (0.021)	0.180*** (0.021)	0.183*** (0.021)	0.180*** (0.021)	0.180*** (0.021)	0.170*** (0.021)	0.166*** (0.021)	0.163*** (0.021)
Observations	7,761	7,761	7,761	7,761	7,761	7,761	7,761	7,761	7,761	7,761
R-squared	0.288	0.287	0.288	0.290	0.292	0.293	0.297	0.291	0.289	0.291
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Industry subperiod FE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Firm FE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Table 18: Levels of investment rate after TFP with industry fixed effects. Placebo regressions using column 4 Table 11 as baseline and varying year of the reform.

VARIABLES	(1) 2003	(2) 2004	(3) 2005	(4) 2006	(5) 2007	(6) 2008	(7) 2009	(8) 2010	(9) 2011
business_trust	-0.025** (0.013)	-0.029** (0.013)	-0.030** (0.013)	-0.031** (0.013)	-0.028** (0.013)	-0.027** (0.013)	-0.022* (0.013)	-0.020 (0.013)	-0.020 (0.013)
utility_trust	0.061*** (0.023)	0.056** (0.023)	0.054** (0.023)	0.056** (0.023)	0.060*** (0.023)	0.065*** (0.023)	0.074*** (0.023)	0.078*** (0.024)	0.069*** (0.022)
c.utility_trust#c.comp_is_trust	-0.126*** (0.021)	-0.106*** (0.019)	-0.107*** (0.019)	-0.121*** (0.018)	-0.127*** (0.019)	-0.135*** (0.019)	-0.142*** (0.019)	-0.143*** (0.020)	-0.131*** (0.017)
c.business_trust#c.comp_is_trust	-0.013 (0.013)	-0.002 (0.012)	-0.006 (0.011)	-0.004 (0.011)	-0.006 (0.011)	-0.006 (0.010)	-0.010 (0.010)	-0.011 (0.010)	-0.010 (0.010)
post_TFP_placebo	-0.017*** (0.005)	-0.023*** (0.006)	-0.033*** (0.006)	-0.042*** (0.007)	-0.041*** (0.007)	-0.042*** (0.007)	-0.028*** (0.007)	-0.020*** (0.007)	-0.024*** (0.008)
utility_trust*comp_is_trust*post_TFP_placebo	0.007 (0.018)	-0.016 (0.019)	-0.017 (0.017)	0.006 (0.017)	0.014 (0.018)	0.033* (0.018)	0.061*** (0.020)	0.107*** (0.029)	0.062*** (0.015)
post_TFP_placebo*business_trust*comp_is_trust	0.017 (0.011)	0.011 (0.010)	0.020** (0.008)	0.019** (0.009)	0.019** (0.009)	0.014 (0.009)	0.013 (0.009)	0.020 (0.013)	0.007 (0.012)
post_conversion#c.business_trust	0.009 (0.010)	0.016 (0.010)	0.022** (0.010)	0.030*** (0.010)	0.031*** (0.010)	0.035*** (0.010)	0.021** (0.010)	0.011 (0.011)	0.010 (0.010)
post_conversion#c.utility_trust	-0.100*** (0.018)	-0.090*** (0.018)	-0.081*** (0.018)	-0.077*** (0.018)	-0.079*** (0.018)	-0.085*** (0.019)	-0.106*** (0.020)	-0.120*** (0.022)	-0.103*** (0.018)
Constant	0.057*** (0.009)	0.060*** (0.009)	0.062*** (0.010)	0.063*** (0.009)	0.061*** (0.009)	0.058*** (0.009)	0.053*** (0.009)	0.050*** (0.009)	0.049*** (0.009)
Observations	2,637	2,637	2,637	2,637	2,637	2,637	2,637	2,637	2,637
R-squared	0.441	0.446	0.453	0.457	0.454	0.452	0.444	0.443	0.440
Year FE	NO	NO	NO	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry subperiod FE	NO	NO	NO	NO	NO	NO	NO	NO	NO
Firm FE	NO	NO	NO	NO	NO	NO	NO	NO	NO

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