Higher Dividend Taxes, No Problem: Evidence from Taxing Entrepreneurs in France *

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Abstract

We exploit a large increase in the dividend tax rate in France that affected three-quarter of firms to estimate the effect of dividend taxation on corporate policies. Using administrative data covering the universe of firms and employees, we find in a differences-in-differences setting that affected firms swiftly cut dividends, both at the extensive and intensive margin, with an implied elasticity of around −0.6. Part of the resulting cash retention is used to increase investment and employment, with a positive elasticity around +0.15. The rest is accumulated as liquidity and used to extend credit to customers. Newly-taxed entrepreneurs do not appear to engage in income shifting to evade tax increase.

Keywords: Financing Policy; Business Taxes; Capital and Ownership Structure .
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1 Introduction

Policy proposals to encourage firms to invest by limiting corporate payouts are regularly floated in the political debate. In 2019, U.S. Senators Schumer and Sanders argued that: "*when corporations direct resources [to payouts], they restrain their capacity to reinvest profits more meaningfully in the company in terms of R&D, equipment, higher wages*". In 2013, following its electoral victory, the French center-left party decided to raise the dividend tax rate for entrepreneurs explaining that: "*it is fair and legitimate to reward patient and productive investment (...) We want to incentivize investment rather than dividend payouts*".[1]

At the heart of this debate is the question of the impact of an increase in the payout taxes. The effect is a priori unclear and depends on three parameters: the marginal source of investment finance and the magnitude of liquidity-constraints (e.g. Sinn (1991)); [2] the agency costs of holding cash (Chetty and Saez (2010)); and firms' ability to carry resources over time by holding cash rather than investing it, creating a possible "intertemporal tax arbitrage" (Korinek and Stiglitz (2009)).

We provide a novel empirical answer to the question of the effects of dividend taxation by exploiting a 2013 reform in France, that led to an almost threefold increase in the dividend tax rate, from 15.5% to 46%, one of the largest increases in developed countries.[3] The French reform affected only firms with certain legal forms of incorporation, accounting for three quarters of the total firm population. This provides us with sizeable treated and control groups. In addition to being large, the

1. Francois Rebsamen in 2012, French senator and one of the most prominent figures of the "Parti Socialiste" (the left–wing party in power).)

2. The difference between cash-rich and cash-poor firms maps the distinction between the "Old view" and "New view" of dividend taxation. In the "Old view" investment will decrease because it is financed with new equity issuance and higher taxes raises the cost of equity (e.g. Harberger (1962), Feldstein (1970), Poterba and Summers (1983)). By contrast, in the "New View" higher taxes reduces the marginal return on investment but also reduces the ex–post marginal incentive to distribute payouts by a similar amount, leaving investment and payout unchanged (e.g. King (1977), Auerbach (1979), Bradford (1981).

3. By comparison, the 2003 dividend tax cut in the US cut the top dividend tax rate from 38% to 17% (Poterba (2004)).

French experiment is a rare case of an *increase* in dividend taxation. Thus, it is also useful for comparison with results in the literature, which essentially focused on tax rate decreases (and sometimes assumed symmetry).[4]

We exploit rich, administrative panel data for all French corporations from tax files to obtain detailed balance sheet and income statement information over the period 2008–2016. Our identification relies on ex-ante differences in legal forms, but does not require that firms choose a legal form randomly, nor does it require common support in the *level* of covariates across different forms. It does however, require that treated firms would have trended similarly to control firms in the absence of the reform, and that changes in the behavior of treated firms is driven by the reform of interest. We address this issue in two ways. We first show that the "parallel trend" assumption is verified. Key outcomes, like dividends, cash or investment, empirically trended similarly in our treated and control groups in the years leading to the reform. Second, our large administrative dataset allows us to control for many covariates, including industry–by–year, local labor market–by–year and ex-ante firm characteristics growth–by–year fixed effects. In our preferred specification, we compare firms in the same industry, located in the same city and the same quintile of pre–reform size growth.

The tax hike was a large and salient shocks for affected firms. We find that they adjusted their behavior along three dimensions. First, while firms existing before the reform did not change their legal status, newly created firms massively opted for the status not subjected to the tax increase. Second, firms pre–existing the reform abruptly reduced their dividends the year of the reform and kept paying lower dividends until the last year in our sample. This reduction in dividends happened both at the intensive and extensive margins and represents a total drop of 17% relative to the pre–reform sample mean, implying an elasticity of dividend to tax

4. e.g. Chetty and Saez (2005) and Yagan (2015) for the U.S., Jacob and Michaely (2017) for Sweden.

rate of between 0.5 and 0.6.[5] Third, the reform created a steep discountinuity, as the new tax rate of 46% only applied to the value of dividends above a value equivalent 10% of the firm share capital. We observe a large bunching in dividend distributions at this threshold after the tax hike. These different reactions validate our design and confirm that entrepreneurs were highly aware of the reform.

We next turn to the estimation of the real effects of this tax increase on investment, employment and employee compensation, which are the main variables that proponents of an increase in dividend taxation hope to affect. We find that on average, the tax increase had a precisely estimated, positive, small effect on these variables. Following the tax hike, affected entrepreneurs increase their investment by about 5–6%, implying an elasticity of investment with respect to the dividend tax rate of 0.15, with a 95 percent interval of 0.07 to 0.19. This modest increase is robust to alternative specifications, investment measures (total or tangible, gross or net of depreciation) and subsamples. We find a similar small and positive effect for employment, with an implied elasticity of around 0.04, but no effect on average employee compensation.

We test two possible explanations for this lack of an economically meaningful effect. First, while large in relative term, the drop in dividends may be small in euro terms, so that the extra retention is too small to make larger investments when new investment opportunities arise. By exploiting heterogeneity in the intensity of the treatment, we isolate a sub–group of firms for which the yearly increase in retention following the tax hike is actually larger than their pre–reform average investment. Despite being economically meaningful, the large tax–induced increase in retention does not translate into higher investment or employment.

Second, theory predicts that an increase in the dividend tax rate should only have a (negative) effect on firms issuing new equity to finance their investment (e.g. Poterba and Summers (1983)). By contrast, dividend taxation is not distortionary

5. The elasticity estimated for the 2003 Bush tax cut is around 0.5 (Chetty and Saez (2005) Yagan (2015)).

for firms that grow internally or mature firms that do not access equity markets (e.g. Auerbach (1979)). Since these two categories of firms dominate the population of firms (and thus my sample), the average effect of the level of dividend taxation on investment can be low. We compute different proxies for the degree of equity dependence and fail to find any differential effect, even among those firms most likely to face an increase in their cost of capital after the dividend tax hike.

We conclude the paper by exploring different additional margins of adjustment. We first show that affected entrepreneurs are not more likely to evade taxes by transferring some of their personal consumption to their company, measured using intermediary good consumption or intermediary service consumption. Second, we find that excess earnings neither distributed, nor invested, are accumulated in the firm balance sheet in the form of cash and short-term investments and use to extend credit to their customers.

Our paper is related to four prominent theoretical views on the effects of dividend taxation: the old and new view, the agency view and the intertemporal arbitrage view. Our set of results clearly reject both the "new view" and "old view" of dividend taxation. In the "old view" tax changes do not affect dividend payments directly, but instead affects equity issuance and investment, which eventually affects dividends when the additional investment pays off. The timing of dividend adjustments together with the small positive increase in investment is inconsistent with these predictions. If the new view predicts no change in investment, somewhat consistent with our findings, it also predicts no change in dividend payments, while we find a large reduction.

Our findings are consistent with the "agency view" (Chetty and Saez (2010)) could reconcile some of our findings as it predicts that a dividend tax increase would be immediately followed by a drop in dividends, particularly for firms with larger ex-ante cash holdings, which is what we observe. This swift adjustment in dividend payment would be explained by the fact that the increase in dividend tax rate raises

managers incentives to retain excess earnings and spend it on wasteful investments. At the same time, managers' incentives to invest in productive projects decrease, leading total investment (wasteful plus productive) to weakly increase. However, it is important to note that our setting only provides a very specific case of this theory. Indeed, in Chetty and Saez (2010), a key parameter is the amount of firm equity the manager owns, as it governs, together with the monitoring costs, the size of agency costs in the firm. In our setting, treated firms are always firms run by a managing director who is also the majority shareholder. By design, agency costs among our treated firms are therefore limited.

Our results could also be consistent with firms engaging in intertemporal tax arbitrage as in Korinek and Stiglitz (2009). In their model, if managers view the tax increase as only temporary, they have an incentive to reduce dividends, build up liquidity buffer and wait for the tax reversal to payout shareholders. Anticipations are unfortunately impossible to observe for the econometrician in large administrative datasets. It is however worth noting that so far, six years after its implementation, the reform has still not been undone, nor does any change appear to be imminent.

Related Literature. Our work relates to three strand of the literature. First, we contribute to the empirical literature on capital gain taxation. Despite a large theoretical literature on the question, empirical analyses have been lagging behind, due to the challenge of finding plausible control groups, as most reforms of capital gain affect all firms in the economy. Perhaps the most studied reform is the U.S. 2003 Dividend Tax Cut of the Bush Administration. It has been shown to have a positive effect on payout policy for listed firms on average (Chetty and Saez (2005), Brown, Liang, and Weisbenner (2007), Chetty and Saez (2010), Blouin, Raedy, and Shackelford (2011)), led to lower debt financing (Lin and Flannery (2013)) and higher stock prices (Auerbach and Hassett (2007)). The effect on firm investment is more nuanced. While Desai and Goolsbee (2004) and Yagan (2015) find no effect on physical investment of private firms, Ma (2018) finds a positive effect for innovation

of listed firms with high managerial ownership. Using a calibrated model of firms with idiosyncratic productivity shocks, Gourio and Miao (2010) find the tax cut increased aggregate investment and welfare, although the effect was mitigated by the increase in wages produced by firm investment and increased labor demand. The aggregate effect stems from the reallocation of capital that the dividend tax rate cut produces when firms have idiosyncratic productivity shocks. Cash distributed is reshuffled to more productive cash-constrained firms with higher marginal product of capital. In an international setting, dividend tax cut have been found to have no or positive effect on investment (Becker, Jacob, and Jacob (2013), Alstadsæter, Jacob, and Michaely (2017), Moon (2018)) and a positive effect on payout (Jacob and Michaely (2017)).

Second, we relate to the theoretical literature on capital gain taxation, in particular Sinn (1991) for the neoclassical model of dividend taxation embedding the "old" and "new" view, Chetty and Saez (2010) for the agency view and Korinek and Stiglitz (2009) for the "intertemporal arbitrage" view. While we can confidently reject the neoclassical model, disentangling between the agency and intertemporal arbitrage views is more challenging. In particular, it stresses the importance of anticipations about the permanent vs temporary nature of policy reforms, something rarely observed by the econometrician (e.g. Chemla and Hennessy (2017)).

Finally, we relate more broadly to the literature studying the effect of corporate taxes on firm policies that has found substantial real effects. Several aspects have been studied such as: investment (Zwick and Mahon (2017)), financial policies (Heider and Ljungqvist (2015), Ohrn (2018)), wages and profit (Suárez Serrato and Zidar (2016), spatial misallocation (Fajgelbaum, Morales, Serrato, Suárez, and Zidar (2019)) as well as innovation (Moretti and Wilson (2017), Hombert and Matray (2018), Akcigit, Grigsby, Nicholas, and Stantcheva (2018)).

2 Institutional Background and the 2012 Reform

2.1 French Companies Legal Status

French corporation legal status is mainly divided between three groups: "*Société à Responsabilié Limitée*" (SARL), "*Société Anonyme Simplifiée*" (SAS) and "*Société Anonyme*" (SA)[6]. In 2012, 77% of new firms were incorporated as SARL, 19% as SAS and 3% as SA.

SAS and SARL are similar along the following dimensions: they have no minimum number of shareholders, no restriction on the amount of nominal capital at creation and guarantee the liability of the partners limited to the amount of their contributions. This value is determined by the book value of the firm share capital and should not be mixed up with the broader concept of firm "equity" which also includes in particular retained earnings and reserve.[7] Share capital refers to the funds that a company raises in exchange for issuing an ownership interest in the company in the form of shares, which can take the form of either common stock or preferred stock.

There are three main differences between SARL and SAS.[8] First, SARLs are limited to a maximum of one hundred shareholders, while this number is not capped for SAS. Second, SAS status is more flexible. In particular, SAS can issue different share classes (e.g. preferred, ordinary), warrant and convertible bonds. SAS can also issue bonds without any condition, whereas a SARL must have an auditor and at least 3 years of existence. Finally, SAS managing directors are legally forced to be a firm employee, whereas SARL managing directors do not have to and can be paid solely in capital income (dividends) with no labor income (wage). We will see

6. There is actually two additional legal status: EURL and SASU, which are simply a SARL or a SAS with only one shareholder. To ease the exposition in the rest of the text we do not make the distinction between SARL–EURL and SAS–SASU.

7. Retained earnings is the accumulated net income of the corporation that is retained by the corporation at a particular point of time.

8. We detail the differences in the Appendix.

below that this distinction is of primary importance for the reform studied.

The higher flexibility of the SAS and the absence of limit to the number of shareholders explain why, on average, SAS firms tend to be bigger than SARL.

The last status, SA, is the mandatory status for listed firms. SA must have at least seven shareholders but have no upper limit, have a minimum level of share capital at creation of €37,000 and face more regulatory and reporting burden than SARL and SAS. It only concerns a small number of firms in our sample.

To ease exposition, we will refer in the rest of the text to SARL as "treated firms" and to SAS-SA as "control firms".

Comparison with U.S. firms All firms in our sample pay an entity-level tax and as such are similar to U.S. "C–corp". There is an equivalent of "S–corp" in France where SARL and SAS are pass–through entities, but (unlike in the U.S.) this status is highly restrictive. SARL and SAS owners can opt for this option only during the first five years of operation and for a period of five years maximum. In addition, firms must have less than 50 employees and sales lower than €10 millions. Therefore, unlike in the U.S., pass–through entities are only found among the youngest and smallest firms and mostly limited to self–employed individuals. Such firms are excluded from our sample as they report only limited items in their balance sheet and because we focus on firms with at least one employee.

2.2 Taxing Dividends in France and the 2013 Reform

French dividends' taxation. After having paid corporate taxes, firms are left with a net income that can be either held in cash and equivalents or distributed to shareholders in dividends. The net income affectation is decided on a yearly basis by the Annual Ordinary General Meeting.

Dividend taxation in France consists of two components. A payroll tax with a rate around 15% that applies to the gross dividend amount decided during the

General Meeting and withheld at source.[9] The second component is a standard progressive personal income tax that applies to the "net" dividend after payroll taxes. In 2012, the year before the reform, the payroll tax rate was 15.5% for all types of legal entities — treated and control.

Taxes on labor income have the same structure. The gross amount is subject to payroll taxes withheld at source and the net wage is then subject to a personal income tax. The noticeable difference between labor and capital income is that the payroll tax rate on labor income is much higher, around 46%. Since owner-managers of treated firms do not have to be an employee of their own firm, it created a strong incentive for them to receive their compensation as dividends rather than wages.

The reform. In 2012, the left-party candidate Francois Hollande is elected President and decides to reduce the distortion between capital and labor income for entrepreneurs of treated (SARL) firms.[10] Following the reform, all the dividends paid to the owner-manager of a treated firm became subject to the same payroll taxes as her wage and therefore taxed at around 46%, a threefold increase relative to the payroll tax rate on dividends.[11]

This new tax applies only to dividends accounting for more than 10% of the firm nominal capital owned by the manager and her family. Below this threshold, the payroll tax rate remains at 15.5%. While this can create an incentive for owner-manager to increase the amount of nominal capital in the company, it is important to note that this value determines the shareholders' financial liability in case of a default of the firm. As such, if shareholders want to benefit from the protection of

9. It may seem strange for dividends to be subject to a payroll tax. It should be noted however that the payroll tax paid by shareholders is of different nature than the payroll tax on wages, as it does not open right to future benefits. In this sense, it is more a "pure" tax rather than a "contributionââ.

10. *Loi de Finance pour le Financement de la Sécurité Sociale 2013*

11. This reform aligned the French tax system of entrepreneurs on the American one. Indeed, according to the IRS, "*distributions and other payments by an S corporation to a corporate officer must be treated as wages*" and managing owners of S–corp must "*pay themselves reasonable wage compensation*".

the limited liability, they have an incentive to keep the value of the share capital to its minimum. Dividends paid to the other minority shareholders remains taxed at 15.5%.[12]

To give a simplified example, consider an owner-manager of a treated firm with a share capital worth €100,000 and who owns 100% of the company. In 2013, she receives a dividend of €50,000. She will have to pay in payroll taxes: 15.5%×10,000 (the 10% of the €100,000 of share capital) + 46%×40,000 = €19,950. Her net dividend is then 50,000-19,950= €30,050, on which she will have to pay a personal income tax. Before the reform, the payroll tax would have been: 15.5%×50,000 = €7,500 instead of €19,950.

Control firms (SA and SAS) were left out of the reform, mostly because their managing directors have to be employees and as such pay the 46% payroll tax on their labor income. Their payroll tax on dividends remained at 15.5%., providing us with a natural control group that could have been subject to the reform, but never was.

Finally, regarding share buybacks, they are until 2015 typically taxed as dividends rather than capital gains (unless they can be explained by past losses that are forcing the firm to shrink). Following a reform of 2015 that retroactively applied to buybacks in 2014, share buybacks are now considered as capital gains.

Incidence. Estimating the exact increase in dividend tax rate is complicated by the changing nature of the taxation with the reform. While the pre-reform 15.5% tax rate is a pure *tax*, the new 46% rate is a social security *contribution*, which the OECD defines as "compulsory payments paid to general government that confer *entitlement* to receive a future social benefit."

This tax-benefit linkage therefore raises the question of whether wage earners in-

12. While creating a difference in the effective tax rate of dividends among shareholders, it is important to note that dividend policies are set at the firm level and it is illegal to pay different amount of dividends to different shareholders. Therefore, it seems reasonable to assume that the tax rate of the majority shareholder is the most important in setting the level of dividend policies.

corporate in their labor supply decision not only the net wage, but also the expected benefits. Early empirical studies have found that social security contributions (SSC) are fully shifted to employees (e.g. Gruber (1997)), implying in our setting a full valuation of the benefit. This idea has recently been challenged by Saez, Matsaganis, and Tsakloglou (2012) and Saez, Schoefer, and Seim (2019) who find in Greece and Sweden a full incidence on capital rather than labor.[13]

Bozio, Breda, and Grenet (2018) using data on France and different social security contribution reforms offer a way to reconcile these apparently conflicting results. They show that the incidence of a change in SSC marginal rate crucially depends on the degree of tax-benefit linkage. In many countries such as France, a large fraction of the SSC (if not the majority) is actually not a true "contribution", in the sense that the amount of benefit received does not equate one–for–one the amount of money paid. This is the case for instance for health care, child care benefits, etc. Other contributions have imperfect relationships with future benefits (e.g., main pension scheme, unemployment insurance), while some specific SSCs have very strong linkage (e.g., complementary pension schemes). For contributions with little tax–benefit linkage, Bozio, Breda, and Grenet (2018) estimate a precise zero incidence on labor, while they found a precise full incidence when the linkage is strong, namely for complementary pension schemes.[14]

The tax rate for retirement contribution of treated entrepreneurs is around 20% (17.7% for the main contribution, with complementary pension schemes that can go up to 7%),[15] which gives us a lower bound for the effective increase in dividend tax rate. If entrepreneurs fully value the benefits associated with retirement contribution, their payroll tax rate following the 2013 reform increased from 15.5% to 26% ($=46\% - 20\%$). If they fully discount the benefits, their effective tax rate increased

13. Using the Oregon Medicaid Experiment, Finkelstein, Hendren, and Luttmer (2019) estimate the recipients value Medicaid benefit at around 50%.

14. We are deeply indebted to Antoine Bozio for his detail explanation of the arcane of the French contribution system.

15. While 7% the maximum complementary possible, only a minority reach this maximum, hence the average around 20%.

to 46%. If they value it at half as in Finkelstein, Hendren, and Luttmer (2019), it increased to 36%.[16] Therefore, even in the case of a perfect valuation of their future benefits, the new tax rate of treated firms reduces their total return to dividends (the net-of-tax dividends plus the benefits associated with the contribution) by 26%.

Note that while it is unfortunately impossible to observe the valuation of the benefits by entrepreneurs, we can back-it out from the behavioral response in dividend policy. Using the tax–to–dividend elasticity estimated by Chetty and Saez (2005) and Yagan (2015) for the U.S. of 0.5, the implicit new dividend tax rate τ_{div}^{new} will be given by: $0.5 = \Delta Dividend \ / \ \Delta \tau^{div} = \Delta Dividend \ / \ [(\tau_{div}^{new} - 0.155)/0.845])$.[17]

Reactions to the reform. The decision to raise the payroll tax rate of dividends paid to the owner-manager of treated firms was part of a broader agenda to harmonize the taxation of capital and labor pushed by the newly-elected President. Control firms managed to stay out of the reform, thanks to more effective lobbying coming from a better representation among employers' unions and the fact that their managers are legally obliged to be employees and not independent workers. We give a detailed discussion of the reform and the reasons why control firms were left out of it in Appendix A.

The sharp increase in dividend taxation produced by the reform led treated firms' owner-managers to lobby hard against it but they ultimately failed, after having gained the support of the French upper house of the Parliament. The opposition remained strong after the law adoption. Parliamentary amendments to cancel were proposed in 2015, 2016 and 2018, however, no proposal to change the dividend tax increase has been passed.

16. Of course, we want to stress that Finkelstein, Hendren, and Luttmer (2019) estimation of the benefits valuation by recipients is made in a very specific context: Medicaid in the U.S. and therefore might not be representative for French entrepreneurs.

17. So for instance if we observe that treated firms decrease their dividend by 17%, the implicit dividend tax rate will be 46% ($0.17 = 0.5 \times [(0.46 - 0.155)/0.845]$), meaning that treated entrepreneurs have a valuation of zero of the benefits associated with the social security payment. If in contrast they fully value the benefits, they should reduce their dividends by $0.5 \times [(0.26 - 0.155)/0.845] = 6\%$

While it did not lead to important change in organizational form for existing firms, the reform had a very large impact on the legal status chosen by new entrepreneurs. Figure 1 shows the evolution of the fraction of firms registered as treated (SARL) for new firms and firms existing before 2012. While the fraction of treated stays essentially flat for firms existing before 2013, new entrepreneurs display important behavioral changes consistent with regulatory arbitrage. If over 80% of new firms were created as SARL prior to 2013, this number declines to 40% by 2018, with a sharp drop in 2014–2015. The important lack of behavioral response from existing entrepreneurs may be surprising, but is in line with results from Gordon and MacKie-Mason (1994), Mackie-Mason and Gordon (1997), Goolsbee (2004) or Giroud and Rauh (2018) who find for the U.S. that there is little shifting of organizational form between C and S–corp in responses to differential tax rates.

3 Data and Empirical Strategy

3.1 Firm Data

Tax files. We retrieve firm accounting information from tax files (*FICUS* for the period pre-2008 and *FARE* for 2008-onwards). The data contains income statements and balance sheets collected by the Treasury for the entire universe of French firms, both firms subject to the regular corporate tax regime (*Bénéfice Réel Normal*), the simplified corporate tax regime (*Régime Simplifié d'Imposition*) or "non commercial" firms such as accounting firms or lawyers (*Bénefice Non Commercial*). Firms with annual sales below 32,600 euros (81,500 euros in retail and wholesale trade) can opt out and choose a special micro-business tax regime (*Micro-Entreprise*), in which case they do not appear in the tax files. Since the micro-business tax regime does not allow firms to deduct expenses and in particular wages from taxable income, it is mainly used by firms with no employees.

The data contains the legal form of the company, which allows us to identify the following legal status for commercial firms: SA, SAS and SARL. We classify these firms in two groups: treated (SARL) and control (SA and SAS).

Ownership structure. We identify firms belonging to a business group using a yearly survey of business groups by INSEE called "Enquête Liaisons Financieres (LIFI)". It covers all economic activities. Since 1998, the survey has been crossed with information from Bureau Van Dijk. LIFI provides information both about direct and indirect stakes and cross–ownerships, which allows to reconstruct the group structure even in the presence of pyramids (Boutin, Cestone, Fumagalli, Pica, and Serrano-Velarde (2013), Hombert and Matray (2019)).

Firm creation. We use business creation files from the dataset "SIRENE", which contain the list of all business creation with the date of registration. We use this information to construct firm age.

3.2 Empirical Strategy

3.2.1 Analysis Sample

We focus on firms present during the period 2008–2016 and impose that we observe them in 2012 (the year of the reform). Because we are interested in the real effects of the tax reform in particular in term of investment, we exclude from the analysis financial firms (naf code 6000–6999) and utilities (naf code 3500–3999).[18] We also drop observations reporting zero or negative assets, total sales, property, plant and equipment and wage-bill. Therefore, all firms in our sample have at least one employee and are not operated by "self-employed".

As control firms tend to be larger than treated firms unconditionally, we increase the common support by removing all firms with assets below the 5% and above the

18. Results are robust to include these industries.

95% of *treated* firm distribution in 2012.[19] Finally, we only retain firms for which we observe at least four years in the data and with no gap in their filing year.

This leaves us with a total of 26,843 distinct firms in the control group (205,027 observations) and 143,993 distinct firms in the treated group (1,196,868 observations).

Table 1 reports the descriptive statistics for our sample of treated and control firms before and after the reform. Before the reform, treated firms are slightly smaller and employ fewer workers than control firms, but are more profitable. Treated and control are similar in their investment rate, capital structure (cash-holding and leverage) and have almost the same probability to pay dividends (37% vs 40%) and the same amount of dividend paid in proportion of their asset (2.5% vs 2.7%).

3.2.2 Econometric Specification

In order to test the effect of a change in dividend tax rate on firm outcomes, we estimate a series of differences-in-differences specifications of the form:

$$Y_{i,j,c,t} = \alpha + \beta\ Treated_i \times\ Post + X_{i,t} + \theta_i +\ \delta_{j,t} +\ \gamma_{c,t}\varepsilon_{i,j,c,t} \tag{1}$$

where $Y_{i,j,c,t}$ are various firm outcomes for firm i in industry j, located in area c at year t. θ_i are firm fixed effects and ensure that we remove time-invariant heterogeneity across firms. $\delta_{j,t}$ are industry×year fixed effects and control for time-*varying* unobserved heterogeneity across industries, such as differences in industry-level business cycles that may be correlated with the firm outcomes. In particular, the use of industry×year fixed effects forces the parameters of interest β to be identified solely by comparing firms within the *same* industry, but prevent comparison across industries.[20] In robustness tests, we also include $\gamma_{c,t}$ that are commuting zone×year

19. Results are virtually unchanged without this restriction.
20. We use the 2 digit Naf rev2 code which includes 66 distinct industries.

fixed effects to remove time-varying heterogeneity across local labor markets.[21] $X_{i,t}$ can be either a collection of time-varying firm-level controls, or ex-ante firm characteristics that we interact with year. Given that the reform may have a direct impact on the firm asset, using time-varying controls would bias the coefficient.[22]

In the most conservative specification that includes industry×year, commuting zone×year and pre-reform asset growth quintile×year, the coefficient of interest β is estimated by comparing firms operating in the same industry, located in the same city and having experienced the same size growth prior to the reform and measures the relative change in firm outcomes for firms facing a dividend tax rate increase relative to firms not facing this tax increase. Standard errors are clustered at the firm level to account for possible autocorrelation in the error term.

4 Effect on Payout

4.1 Baseline Effect

Figure 2 displays the yearly evolution of the raw data when we look at the probability to pay dividends (top figure) or when we scale dividends by 2011 firm's asset value (bottom figure).[23] In both cases, a clear pattern emerges. Between 2009 and 2012, the evolution of paid dividends is similar between treated and control firms, validating the "parallel trend" assumption. After 2013, firms affected by the tax reform experience a sharp and large drop in the probability to pay dividends (from 35% to 25%) and the amount of dividends paid as a percentage of their 2011 assets (from 2% to 1.2%). While the effect is already clear in the aggregate data, we test

21. The definition of "commuting zone" is the French "Bassin d'Emploi" 1990 definition, which corresponds to local labor markets and partition France into 357 geographic areas in France Metropolitan, plus two sub-regions for Corsica.

22. This is commonly referred to as the problem of "bad controls" This is why our preferred specification include use quintile of asset growth in the pre-period and age before the shock, both interacted with year.

23. We fix the value of assets in 2011 to abstract from changes of the ratio coming from changes in the denominator.

formally the effect of the tax reform and evaluate its robustness in Table 2.

Panel A of Table 2 reports the result of the dividend tax reform on dividends using different scaling when we include firm and industry×year fixed effects. In all cases, we find a negative effect, highly statistically significant with p-values well below 0.001. In column 1, we use dividends over lagged assets and find that taxed firms reduce their dividends by €0.0045 for every euro of asset, which is a sizable decrease given that the pre-reform mean for treated firms is 0.028, implying a 16% drop. In column 2, we fix assets in 2011 in order to abstract from changes in the denominator and find a very similar drop of €0.0042 for every euro of asset, a 17% drop in relative term.

So far, the estimation of the dividend tax hike mixes both the intensive margin (firms are paying less dividends) and the extensive margin (firms stop paying dividends). We decompose the two effects in columns 3 and 4. In column 3, we use dividends in (log) euros, which is thus defines only when dividends are positive and can be directly interpreted as semi-elasticities. We find a drop of -13%. In column 4, we estimate a linear regression on the probability to pay any dividend and find a drop of 3.9 percentage points, representing a 13% decrease relative to the pre-treatment mean. This result is somewhat surprising given that the higher tax rate only apply to amounts higher than 10% of the firm book value of share capital (cf. Section 2.2) and may be explained by a "behavioral" response, whereby the majority-owner manager finds it easier to justify to completely stop paying dividends for all shareholders, rather than aiming for the 10% threshold. The drop at the extensive margin does not imply that managers don't optimize. When we replace the dependent variable with a dummy equal to one if the total amount of dividends paid is above the 10% equity threshold, we find in this case that the tax increase leads to a drop by 5.5 percentage point (column 6), a magnitude 40% larger.

Figure 4 provides visual evidence that the reform created strong incentives for treated firms to restrict their dividends at the 10% threshold of the firm share capital.

This picture is consistent with the notion that entrepreneurs became progressively aware of and optimized over time. The figure plots the distribution of dividend scaled by equity for the sample of firms paying dividends. This distribution is similar among treated and control firms and the ratio is evenly distributed across the different values until 2012. After 2013, we observe a large bunching right below the 10% threshold for the firms affected by the tax reform, while the distribution of firms not affected remains stable. Consistent with the idea that agents do not immediately understand the subtleties of the new tax regime (Aghion, Akcigit, Lequien, and Stantcheva (2017)), the fraction of affected entrepreneurs who bunch at the threshold increases over time.

Panel B of Table 2 shows that the negative effect of dividend taxation is robust to a wealth of different fixed effects that removes different pre–2013 time–varying unobserved heterogeneity. Column 1 shows the result with only firm and year fixed effects, column 2 adds (2–digit) industry×year fixed effects, column 3 adds commuting zone×year fixed effects, column 4 includes quintile of pre–treatment asset growth×year fixed effects and column 5 include all three types of fixed effects (asset growth, local labor market and industry) jointly. In this final specification, the effect of the tax increase is estimated by comparing firms in the same industry, located in the same local labor market, and being in the same quintile of annualized asset growth over 2008–2012.

In column 5, we also add time–varying firm controls (profit margin, log of lagged sales and lagged sale growth, age and age-square). In all cases, the effect is highly significant and the magnitude is barely affected, ranges between -0.0046 with no control (column 1) to -0.0042 with industry×year fixed effects (column 2), providing comfort that the tax increase is orthogonal to other variables that might explain dividend payment.

In our preferred specification with the different set of fixed effects but without

time–varying firm controls,[24] the dividend tax increase led to a decrease in dividend payment of -€0.0045 for each euro of 2011-asset.

We also provide visual evidence of the decline by plotting the yearly coefficients of the regression with our preferred specification in Figure 3. The figure confirms what we showed in the aggregate. Prior to the reform, treated and controls behave similarly, confirming that the "parallel trend" assumption needed for differences-in-differences estimators is satisfied. Dividends then drop brutally the year after the reform and remains constantly lower afterwards.

As discussed in Section 2.2, while we observe with certainty the old tax rate (15.5%), finding the exact new tax rate is complicated by the fact that part of the new taxes paid are actually social contributions that provide rights to future benefits. Note that this complication does not bias in any way our reduced form estimates, but it is necessary to get a good approximation to compute later the elasticity of investment and employment with respect to the change in tax rate.

If we assume an elasticity of 0.5, similar to the one found for the U.S. following the 2003 dividend tax–cut (Chetty and Saez (2005), Yagan (2015)), we can back-out an implicit new tax rate using the formulae to estimate the elasticity of the change in dividend payment to the change as one-minus the new dividend tax rate τ^{new}: $(0.0045/0.025)/(\tau_{div}^{new}\text{-}0.155/0.845) = 0.5$, implying a tax rate of around 0.46, which is strikingly the upfront tax rate of after the reform. Given that the new tax rate is bounded by definition at 46%, the minimum elasticity of dividends to tax rate is 0.5. If we assume that French entrepreneurs have a higher elasticity than their American counterparts of 0.6 or 0.7, the new effective tax rate would be 40% or 36% respectively.

Another way think about the effective tax rate would be to assume entrepreneurs fully value the benefits associated with their contributions. As discussed in 2.2, the

24. We prefer to avoid using time–varying controls and instead just exploit ex-ante differences as post shock time–varying controls can create problems of what is sometimes refer to as "bad controls" (Angrist and Pischke (2008)).

maximum benefit is around 20 percentage points, implying a new effective tax rate of 26% (46%-26%). In this case, the associated elasticity of dividends relative to the tax rate would be 1.5, three times the magnitude found in the U.S. which seems implausibly large. In the rest of the paper, we will therefore assume a new effective tax rate of 46% and will also report elasticities computed using 40%.

5 Real Effects of the Reform: Investment and Employment

There are two opposite channels through which the increase in dividend tax rate can affect investment and employment. First, as we found in Section 2, higher dividend taxes make dividend payment today less desirable and leave firms with more cash reserves out of which they can finance larger investment, or pay more their employees.[25] This will happen if investment opportunities arise randomly and future dividend payments are discounted at a higher rate than the risk-free interest rate (Korinek and Stiglitz (2009)).[26]

Second, higher dividend taxes can increase the user cost of capital, which will negatively affect investment for firms which finance their marginal investment with new equity and use the return to investment to pay dividends. This is particularly likely the case for young firms and cash-constrained firms with limited access to bank credit (e.g. Sinn (1991)).

25. This is usually the argument made by politicians to justify why a tax rate increase can promote investment and the underlying justification of French politicians for the tax hike in 2013, as well as the argument behind the Sanders–Schumer proposal in 2019.

26. Cash holdings within firms can be discounted at a higher rate than cash holdings outside for multiple reasons: agency concerns (including managerial myopia) imperfections in risk markets, which may result in households being even more credit rationed than firm, or simply the accumulated retained earnings tax, which punishes firms for holdings excessive cash balances.

5.1 Average Effect

We define total investment as the yearly change in tangible and intangible capital and tangible investment as the yearly change in tangible capital. Tangible capital includes the book value of all property, plant and equipment at the end of tax year and intangible capital includes capitalized R&D spending, software, patent licences, goodwill, copyrights, franchises, goodwill. For both variables, we compute the gross and net change, with net defined as book value minus depreciation. As investment can be much more cyclical than other items of the balance sheet, we augment equation (1) with quintiles of pre–reform investment annualized growth interacted with year fixed effects in some specifications, as well as local labor market×year fixed effects to absorb local business cycles that may affect investment.

Figure 6 plot the raw value for total and tangible investment while Figure 7 plots the yearly coefficients, and their 95% confidence intervals of the differences-in-differences estimation of the tax's impact on investment when we include the different fixed effects. The dependent variable is scaled by the firm 2011 asset value. We scale the graph at 0.1 time the standard deviation of the dependent variable to ease economic interpretation. While point estimates are indistinguishable from zero before the reform, investment of treated firms start to increase relative to control firms two years after the take hike, which could either be due to the fact treated firms needed time to accumulate larger cash balance before investing or because they were initially anticipating a reversal of the policy that did not come.

Table 3 shows that our results are robust across different specifications and for the different measures of investment. Panel A shows the result when we use gross investment and Panel B the results for net investment. In all cases, we find a precisely estimated, positive, small effect of the dividend tax increase on investment. Taking at face value, the dividend tax hike leads firms to increase their total investment by €0.00055 (column 1) to €0.001 (column 2–3) for every euro of asset, which represents an increase between 3% to 6% relative to the pre-reform sample mean of

€0.017 per euro of asset. We find a similar, result for tangible investment, which increases at most by €0.00069 (column 2) for every euro of asset, a 5% increase relative to its pre–reform sample mean of €0.015 per euro of asset.

In panel B, we report the estimate after accounting for book depreciation and find again very similar (small) point estimates across all different specifications, both for tangible and total investment.

Assuming a new dividend tax rate of 46% and focusing on tangible investment, the dividend tax increase had an effect of +€0.0006 per euro of asset, with a standard error of €0.00018, relative to the pre–reform mean of €0.017 and standard deviation of 0.056. This estimates implies an elasticity of tangible investment relative to one–minus–the–tax rate of 13%, with a 95% confidence interval of 6.5% to 19.6%.[27].

As discussed in Section 4, the new dividend tax rate could be between 37% and 46%, implying an upper bound estimate for the elasticity of tangible investment of 28%.[28]

In Table 4, we report the results when we look at employment in full-time equivalent terms, average wage and the labor share, defined as the sum of wages and salaries, payments for employee benefit programs (e.g. health insurance), and contributions to pension, divided by the firm value added. We take employment and average compensation in log, so that the point estimate can be directly interpreted as semi–elasticity. Regressions are estimated with our preferred baseline set of fixed effects: industry×year and pre–reform asset growth quintile×year fixed effects. In odd columns, we also include commuting zone×year fixed effects given that heterogeneity across local labor markets are important to explain employment. We find that employment increases by 1.1% (column 1) to 1.2% (column 2) when we control for differences across local labor market, implying an elasticity ranging from 3.4% if the new rate is 46% to 5% if the new tax rate is 37%. Average compensation did

27. The elasticity is estimated as follows: (0.00069/0.015)/(0.3/0.845). The confidence interval is obtained by replacing 0.00069 by 0.00069 +/- 1.9 times the standard error of 0.0018.

28. If the new tax rate is 37%, the tax rate increase is 21 percentage point, so the elasticity of investment relative to one–minus–the–tax rate is (0.00069/0.015)/(0.21/0.845).

not change, while the labor share slightly increases relative to the pre-reform mean by +2.6%.

5.2 Heterogeneity Effect

The limited effect for the average firm may come as a surprise given the magnitude of dividend reaction. A possibility is that the tax change was not salient enough for entrepreneurs to notice. Evidence in the previous section suggests that this is unlikely. The tax hike led affected entrepreneurs to finely optimize their behavior in terms of choice of legal form for new entrepreneurs (Figure 1), dividend payment (the bunching at the 10% threshold in Figure 4) and to swiftly reduce their dividends paid (Figure 2). The tax increase was therefore both immediately salient and considered relevant for the treated entrepreneurs.

How to explain then this lack of reaction? Higher dividend tax rate could affect positively investment by "freeing up" cash-flows that are no longer paid to shareholders (Korinek and Stiglitz (2009)) or negatively, if it increases the user cost of capital and investment for equity dependent firms.

A first, almost mechanical, explanation for the small effect is that the amount of saved excess retained earnings was simply too small in euro terms to have a meaningful impact on real outcomes. This is for instance the conclusion reached by Yagan (2015) to explain the lack of investment response following the Bush 2003–dividend tax cut.

A second explanation is that despite a small average effect, the tax increase may have important consequences for the reallocation of resources across treated firms (e.g. Gourio and Miao (2010), Alstadsæter, Jacob, and Michaely (2017)) and may have been binding only for a sub–group of firms. In particular, "new-view" firms, which rely on the equity markets to finance their investment and therefore for which a higher dividend tax rate will increase the cost of equity finance, may co–exist in the economy with internally growing or mature firms, which finance investment out

of their cash reserves and therefore for which dividend taxation is not distortionary. Since internally growing and mature firms dominate firm population, the effect of dividend taxation can be low for the average firm and yet strongly increase credit constraints for equity-dependent firms. A final explanation is that both positive and negative effect of the increase in dividend tax rate are at play in the data, and hence the average effect is small and positive because it is an average of a positive and a negative effect.

We explore these different possibilities (economic magnitude and reallocation) by exploiting different sources of heterogeneity in our sample: the predicted size of the tax-induced cash built-up, the importance of equity dependence and finally the role of credit constraints in general.

Magnitude of resources available. The argument that the tax–induced cash built-up is too small in euro terms to generate any meaningful effect on investment is plausible for the average firm. Indeed, the average drop in dividend is 0.45% of total asset, while the average total investment rate is 1.7%, with a standard deviation of 5.6%. Therefore, even if firms carry larger cash balances for a while, which should allow them to make larger investment when an investment opportunity arrives, the change in investment could be too small to be detected.

Because dividend payment is very skewed in the data, it is possible to identify sub–groups of firms for which the amount of cash not distributed via dividends due to the tax increase is large. In Table 5, we compute the mean dividends over asset for the period 2008–2012 for each firm and split the sample in five bins. The first bin (the largest one) is made of all the firms with zero average dividend over the pre-reform period. We then split the distribution with positive support into four bins of similar size and re-estimate equation 1 for dividends (first line), total investment (second line) and employment (third line) for each bin separately.

The decomposition reveals that the tax–induced drop in dividend payments can be sizable at the top of the distribution of the pre–reform dividend payment. At the

fourth quintile (column 4), treated firms reduce their dividends by 0.83% of their asset, an amount equivalent to half of their pre-reform investment rate. At the fifth quintile (column 5), treated firms reduced their dividends by 1.9% of their asset, an amount larger than their pre-reform investment rate.

Despite the large drop in paying out cash at the top of the distribution, leaving them with potentially more resources to invest, firms do not expand more their investment relative to firms for which the tax rate hike do not affect their payout policy. Comparing column 1 and column 5 for total investment, we see that firms barely decrease their dividend payment after the tax hike (column 1) increase their investment by €0.001 for each euro of asset, while firms which decrease the most their dividend payments (column 5) increase their investment by €0.0012. We find similar equivalent behaviors for tangible investment, employment and average employee compensation.

Equity dependence. In the standard model of investment, higher dividend taxation would lower investment only if the marginal source of funding is equity. In order to identify such firms, we use three different proxies. First, we split firms along bins of age. Indeed, in firm life cycle models (Sinn (1991)), young firms start cash–constrained and finance investment via equity issuance, then become mature and generate enough cash–flows to finance their investment internally.

We therefore estimate equation 1 separately for each decile of age and report the point estimate and 95 percent confidence intervals for each coefficient regression in Figure 8. For each within–decile estimate, the reform has always a precise, positive, small effect the figure displays no upward or downward trends in point estimate cross–decile.

Second, we compute the fraction of capital that has been financed by equity prior to the reform, by summing up all equity issuance (including the amount of equity at creation) and dividing it by the value of total capital (tangible and intangible) in 2012. This proxy reveals that a large fraction of firms relied substantially on equity

to finance their previous investment, with the last tercile of the distribution having a ratio of equity issued over capital equal to 1.15, implying that for every euro of productive capital, the firm has issued €1.15. By contrast, the firms in the first tercile of the distribution have a ratio of equity over capital of 0.036, meaning that every euro of capital has been financed with only 2.3 cents of equity.

Columns 1 to 5 in Table 6 report the results when we estimate equation 1 for each bin separately. The effect of the tax increase on investment is positive and with somewhat similar point estimate.

The last proxy we use is the number of times a firm issued equity during the sample period. Of course, we would ideally like to estimate the probability to fund *future* investment via equity, which we don't observe. We acknowledge that counting instances of equity issuance after the tax increase can be problematic if the new tax rate precisely discourage firms to issue new equity but still view this proxy as informative.

Because instances of equity issuance are rare, we split the sample in only two categories: firms that never issued equity (column 1) and firms that issued at least once (column 2). We also compute the number of equity issuance over a longer time period (2004–2016), which allows us to split the sample in three categories: no issue (column 3), one issue (column 4) and two or more than two issues (column 5). Similarly to the other proxies for equity-dependence, we don't find that any difference across groups, with point estimate of the effect of the reform that are virtually the same.

Taken together, these results strongly reject the "old view" theory of dividend taxation, as it predicts that young, equity-dependent firms should reduce their investment following an increase in dividend tax rate, while we find that if anything, such firms increase more their investment in relative terms.

Credit constraints. We perform two types of analysis to estimate whether more credit constraints firms are more impacted by the reform. First, we estimate the

effect separately for each decile of size, measured by the firm asset, the year before the reform.

Figure 9 displays the effects on total investment by firm size decile. Each regression is estimated using equation 1 and we report the point estimate and 95 percent confidence intervals for each coefficient regression. As for age, the reform has always a precise small effect with no upward or downward trend, at the exception of the first three decile which displays slightly higher positive reaction.

Second, to investigate in a systematic and compact way heterogeneity effect for other classic firm characteristics, we follow Yagan (2015) and estimate seven triple–difference regressions, one for each characteristic: firm revenue, age, revenue growth, return on asset, liquidity over asset (cash plus short–term investment), leverage over asset and trade credit over sales.

For each characteristic, we use the distribution in 2011 and split the sample into quintile, drop the firms in the middle quintile and restrict to firms below the twentieth and above the eightieth percentile of the distribution.[29] We then define a dummy variable equal to one if the firm is in the top quintile and estimate regressions of the form:

The advantage of this procedure is that it allows to estimate heterogeneity effects in a non–parametric way.

$$Y_{i,j,f,t} = \beta\ Treated_i \times\ Post_t \times High_i^k + Treated_i \times\ Post_t$$
$$+ \theta_i +\ \delta_{j,t} \times High_i^k +\ \gamma_{f,t} + \varepsilon_{i,j,f,t}$$

Where $High_i^k$ is a dummy equal to one if firm i is in the top quintile of the distribution for the characteristic k. Because we fix the characteristic in 2011, the equation does not include the interaction $Treated_i \times High_i^k$ as it is colinear with firm fixed effects. Similarly, we do not include $Post_t \times High_i^k$ as we include in the

29. We find similar results if we use tercile instead of quintile

regression the full set of fixed effects $High_i^k$–by–industry–by–year. The coefficient of interest β gives the marginal effect for firms in the highest quintile relative to the lowest quintile.

Table 8 report the results for dividends (column 1), total investment (column 2), tangible investment (column 3) and total employment (column 4). Each line reports the point estimate of the triple–difference from a separate regression in which we use the firm–characteristic k. Except for dividends, we do not find any differential effects across the different characteristics.

6 Additional Margins of Adjustments

Since treated firms after the tax hike reduce their amount of dividends paid by around €0.0045 per euro of asset but only reinvest around one fifth of this (+€0.001), they potentially keep a large fraction of their past earnings in their balance sheet as cash. In this section, we use the detailed data about balance sheet and income statement in the tax files to answer two questions: did treated entrepreneurs find creative ways to take money out from their firm? Did they adjust their firm balance sheet structure?

6.1 Tax Avoidance

Because the tax reform only affected entrepreneurs owning at least 50% of the capital of treated firms, newly taxed entrepreneurs have substantial controls over the way firm spending is allocated and therefore have a larger ability to engage in income shifting between corporate and personal income (e.g. Gordon and Slemrod (1998), Piketty, Saez, and Stantcheva (2014)). In particular, owner–managers of closely-held firms can reduce their tax base by purchasing private consumption goods and services through their firm, instead of first paying themselves a dividend and then

buying the good / service.[30]

Such a behavior however should appear in the cash–flow statement of the firm. The French tax-files unfortunately do not report detailed itemized spending, but do provide the amount spends for "raw materials", "intermediary consumption of goods" and "intermediary consumption of services" (which includes e.g. office rent, cars renting, external consultants, etc.). The data also provides firm valued added, defined as total revenues minus all the costs related to production. We express each variable as a percentage of the business revenue since the income-shifting hypothesis would predict an "abnormal" increase in intermediary consumption relative to what the business used to need to produce one euro of revenue. This increase in intermediary consumption should lead to a decrease in the fraction of euros of revenues transformed in euros of value-added.

For each variable, we estimate equation (1) and report the results in Table 9. Whether it is intermediate goods (column 1), intermediate service (column 2), raw material (column 3) or value-added over revenues, we do not find any meaningful change. Most coefficients are not only statistically insignificant, their magnitudes is essentially zero, with changes around 0.2%–0.4% of revenues. If anything, the share of intermediate goods in the firm revenue decreases by 0.4% in relative terms (column 1).

6.2 Balance Sheet Adjustment

Owner–managers of treated firms are reinvesting only a fraction of their undistributed dividends and don't seem to shift part of their consumption to take money out from their firm without paying taxes. Therefore, the remaining of the undistributed dividends should accumulate in the firm balance sheet as gross working capital, either in the form of liquidity (defined as cash and short–term investment)

30. Classic examples of such behaviors include declaring the personal housing rent as a "work office" or personal dinners as "work dinner".

or in the form of credit to their customers.[31] They could also use this extra cash to repay faster their suppliers, reducing their net working capital (gross working capital minus short-term liabilities).

To trace out the change in net working capital, we estimate a series of models similar to equation (1), where dependent variables are different items of the firm balance sheet scaled by 2011 assets. We also decompose the *Post* dummy into four dummies for the years 2013, 2014, 2015 and 2016 to see how the effect evolves over time.

Table 10 reports the results. Column 1 simply reproduces the effect of the reform on dividends. Every year from 2013 on-wards, firms exposed to the tax increase reduce their dividends payment by around 0.5% of their 2011–asset. If all these undistributed dividends were used to expand the firm working capital or reduce its short-term liabilities, net working capital should increase by $4 \times 0.5 = 2$, which is what we observe in column 2 in 2016 and suggests that a large fraction of the unpaid dividends is kept in the balance sheet. This expansion in net working capital is driven for its majority by the hoarding of liquidity (column 3). Over time, treated firms increase continuously their liquidity to the point where by 2016, it reaches 1.2% of their asset. The rest is essentially an expansion in credit to their customers (column 5). This increase is not solely due to an expansion in the firm's business, but rather corresponds to an active change. Indeed, when we scale customer credit by the firm current revenues, we still observe a 10% increase relative the pre–reform mean.

By contrast, firms do not appear to repay faster their suppliers. If we observe a very small increase when we scale by 2011–assets (column 4), we find a point estimate equal to zero when account payable are scaled by current revenues (column 6).

31. To be precise, owner–managers could also decide to produce more and store the extra products as inventories, but this account for a small fraction of a firm working capital.

7 Concluding remarks

The share of capital income in the total income of skilled workers and individuals at the top of the income distribution has increased continuously over time (e.g. Eisfeldt, Falato, and Xiaolan (2019)). At the same time, it is becoming harder to clearly distinguished between labor income and capital income, in particular for business owners (e.g. Smith, Yagan, Zidar, and Zwick (2019)).

The question of the distortions introduced by tax wedges between capital and labor income is therefore more pressing than ever. France decided to align taxation on one form of capital income (dividends) with the one on labor in 2013 at no cost for investment and employment.

French entrepreneurs did not stop to invest, even the youngest and more dependent on equity financing, despite the substantial increase in dividend tax rate produced by the suppression of the distortion between wages and dividends for business owners.

Our estimate strongly rejects the neoclassical model of dividend taxation, both the "old view" and the "new view", as neither can predict at the same time a large change in dividend payments and no change in investment.

We are left with two main theories to explain the payout responses of firms: the "Agency View" (Chetty and Saez (2010)) and models taking into account intertemporal arbitrage (Korinek and Stiglitz (2009)). While both theories can reconcile several of our elasticities, the agency view does not fit well our framework as most affected firms are closely-held and therefore unlikely to face large agency costs, which suggests that anticipation of policy reversal can play an important role in the way agents react to economic reforms.

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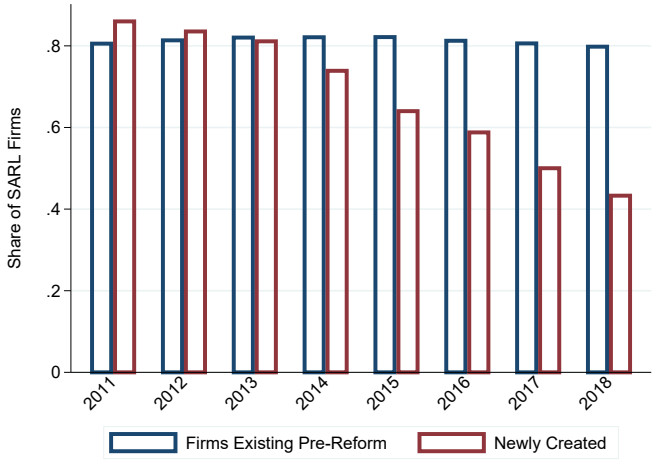
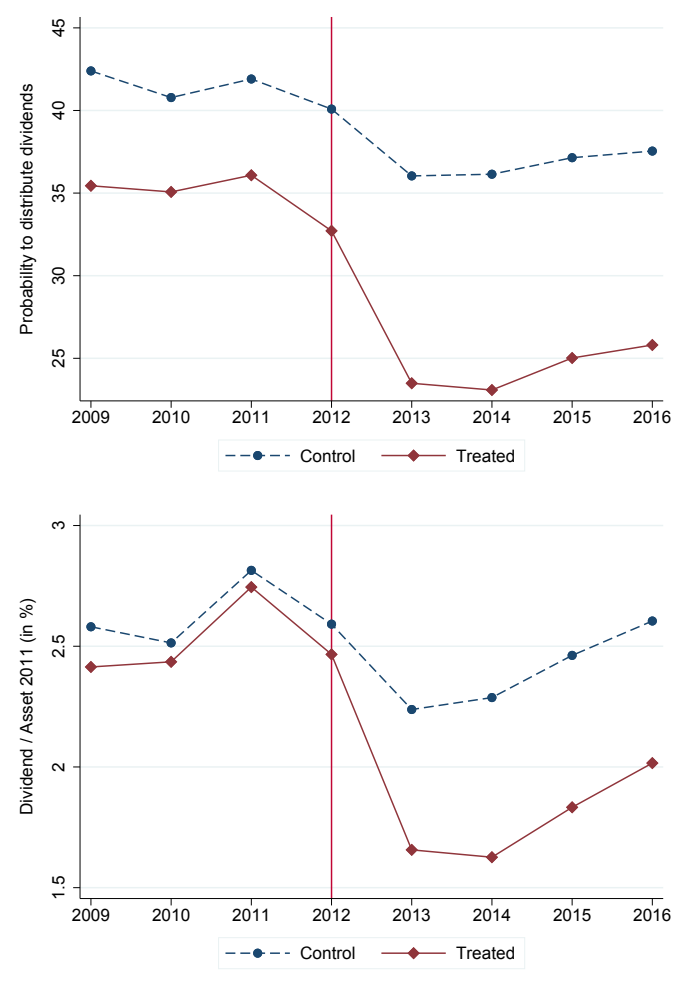
Figure 1: . Effect of Tax Reform on Organisational Form



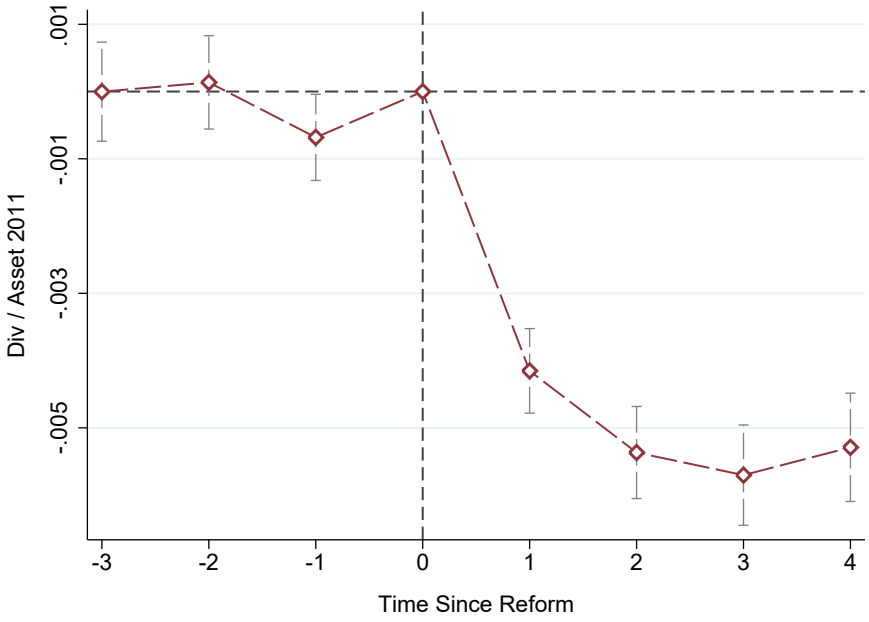
Legal forms of organization over time. This figure plots the percentage of companies whose legal form of organization is SARL for firms existing prior to the reform or younger than two year ("newly created").

Figure 2: . Effect of Tax Reform on Dividend Payment



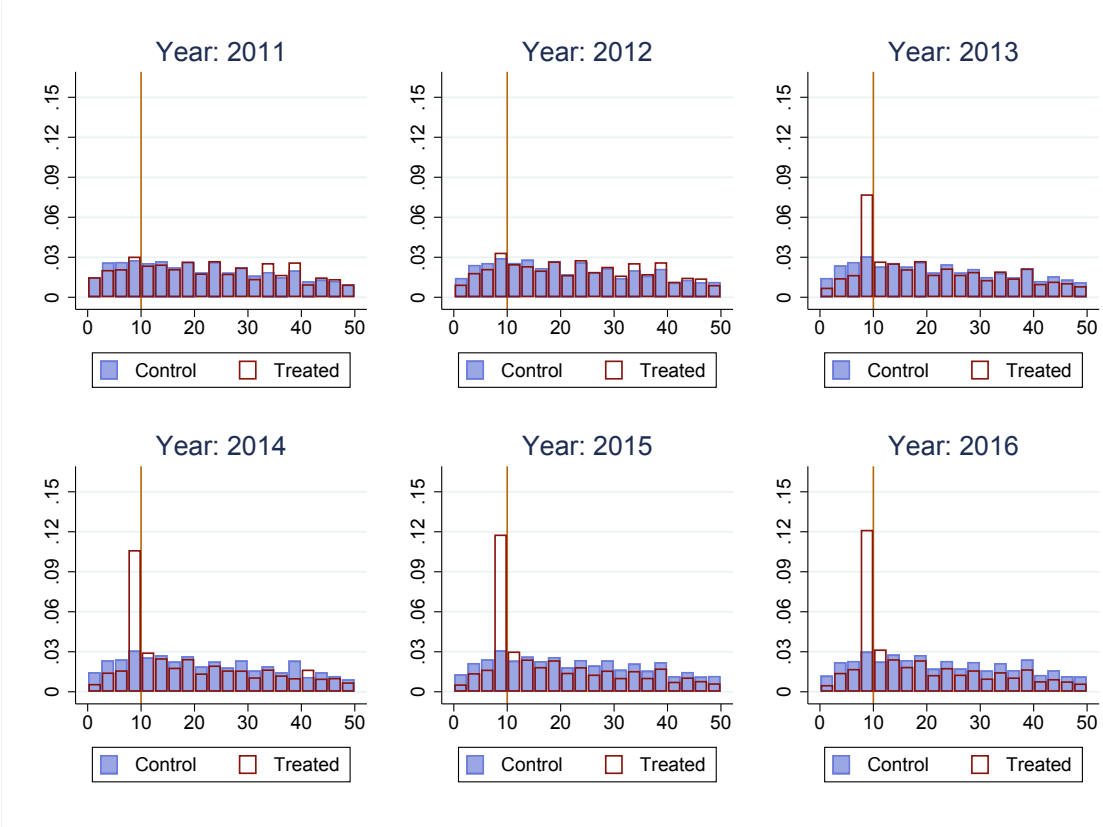
The top figure shows the evolution of the probability for a firm to pay dividend (in percentage) and the bottom figure shows the evolution of the ratio dividend over asset in 2011 (in percentage). "Treated" firms are firms affected by the 2013 tax reform on dividend payment (SARL) and "Control" firms are firms not affected (SA–SAS)

Figure 3: . Effect of Tax Reform on Dividend Payment



This figures plot the yearly coefficient and its 95 % confidence interval of the difference-in-difference estimator in equation (1) of the 2013 dividend tax increase, when the dependent variable is dividends over asset in 2011. The specification include industry–by–year, pre-reform asset growth quintile–by–year fixed effects.

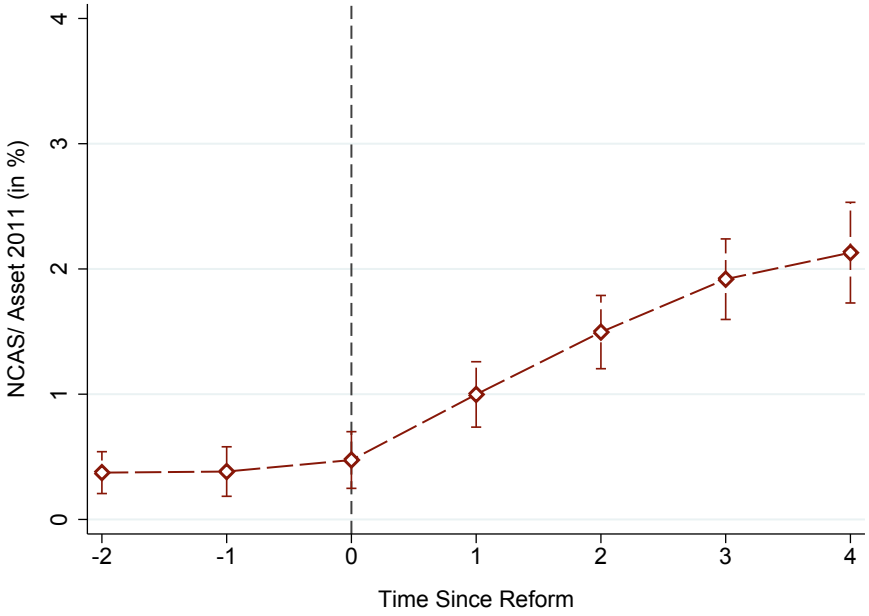
Figure 4: . Dividend Payment Around the 10% Threshold of Equity



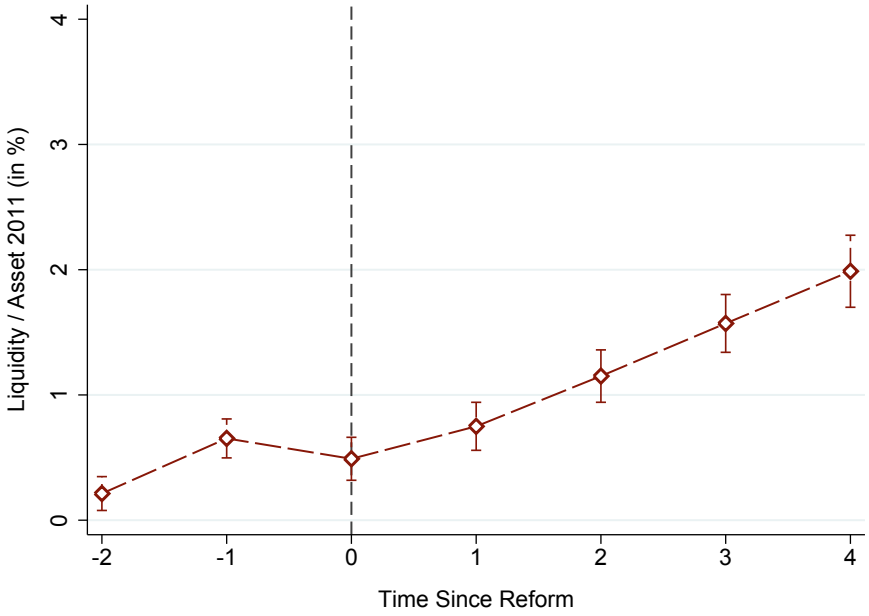
The figure plots the distribution of the ratio of dividends over equity for the years 2011–2016 for firms paying dividends. The x–axis is the ratio dividends dividend/equity (in percentage). The y–axis is the fraction of firms in a specific bin of dividend/equity. "Treated" firms are firms affected by the 2013 tax reform on all dividend paid above 10% of the firm's equity (SARL) and "Control" firms are firms not affected (SA–SAS)

Figure 5: Tracing Out Unpaid Dividends

Panel A: Net Current Asset



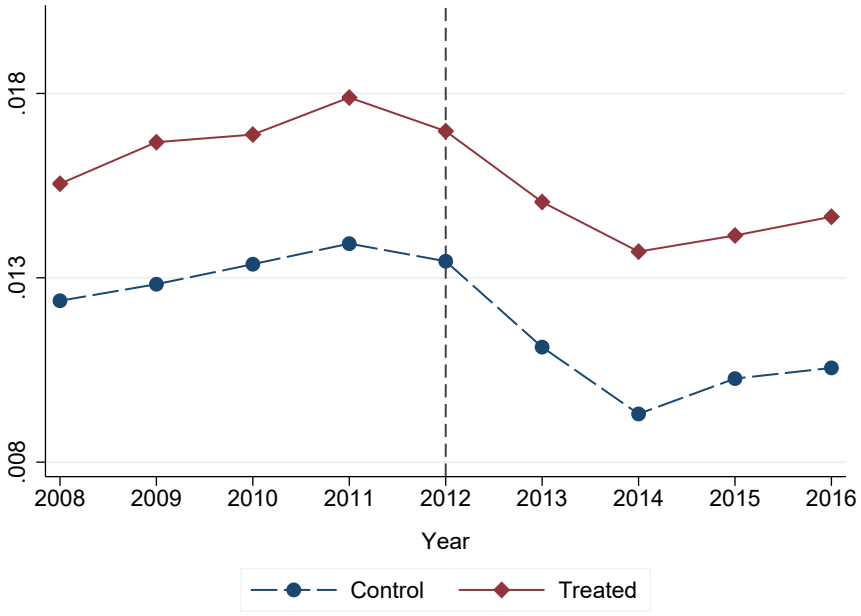
Panel B: Liquidity



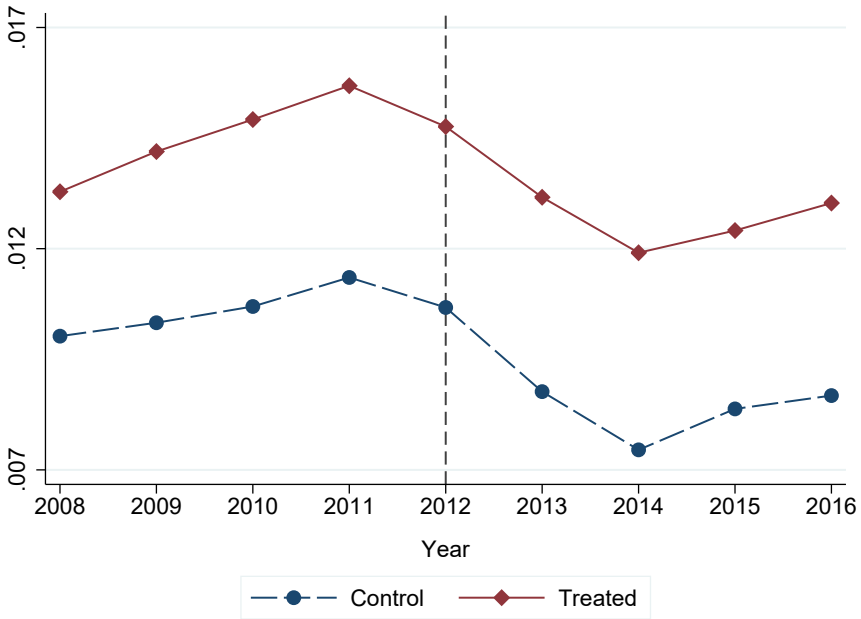
This figures plot the yearly coefficient and its 95 % confidence interval of the difference-in-difference estimator in equation (1) when the dependent variable is Net current assets (top figure) and Liquidity (bottom figure) scaled by asset in 2011 multiplied by 100 to express it as a percentage.

Figure 6: Effect of Tax Reform on Investment

Panel A: Gross Investment



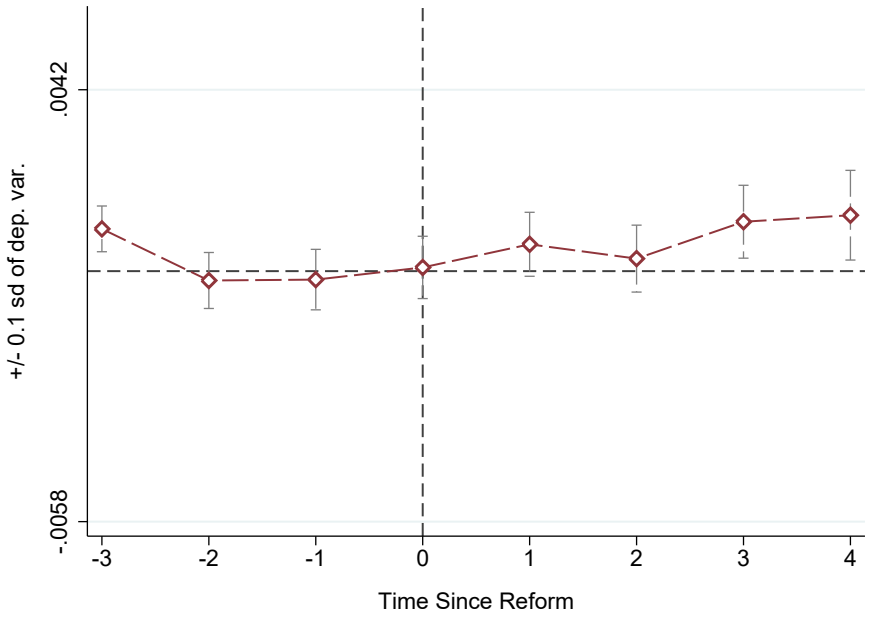
Panel B: Tangible Investment



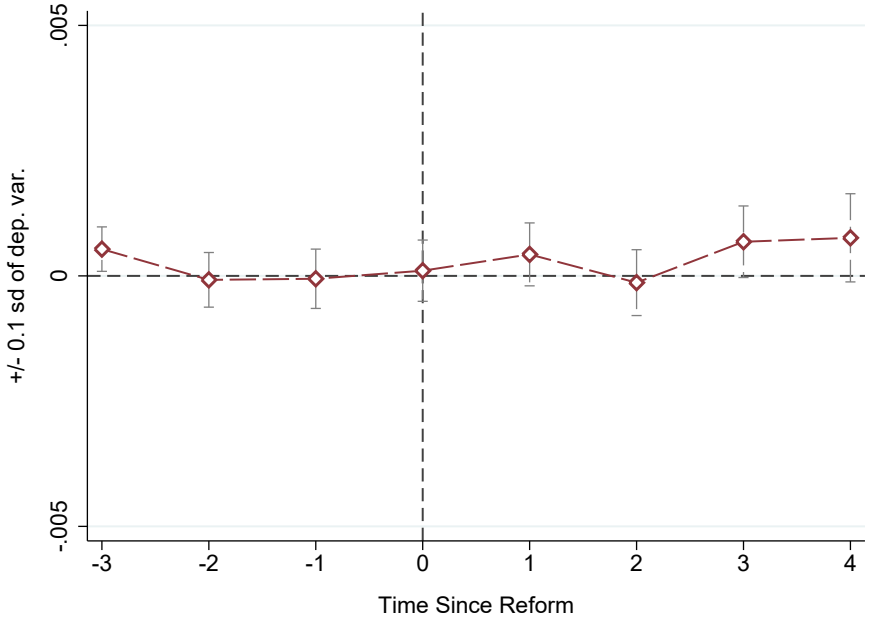
This figures plot the aggregate evolution of total investment (upper figure) and tangible investment (bottom figure), scaled by the firm asset in 2011.

Figure 7: Effect of Tax Reform on Investment

Panel A: Gross Investment

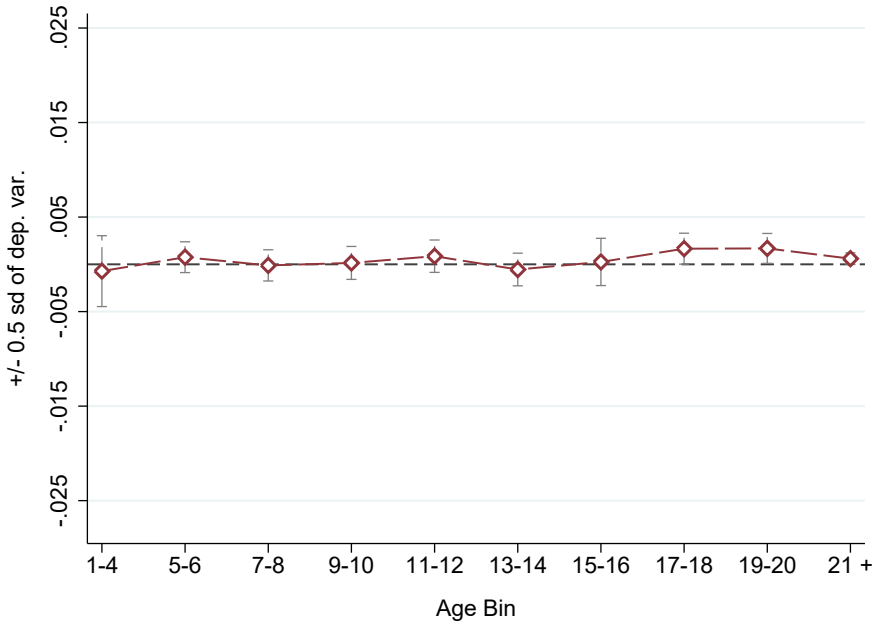


Panel B: Tangible Investment



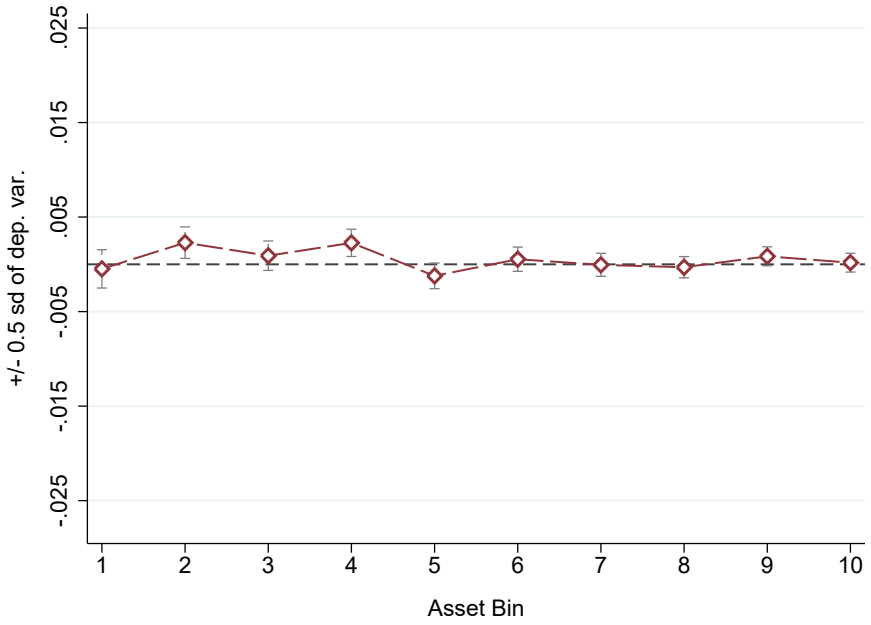
This figures plot the yearly coefficient and its 95 % confidence interval of the difference-in-difference estimator in equation (1) of the 2013 dividend tax increase, when the dependent variable is total investment (upper figure) and tangible investment (bottom figure), scaled by the firm asset in 2011. The height of the Y-axis is fixed at 0.1 s.d. of the pre-reform sample mean of the dependent variable to ease the economic interpretation.

Figure 8: Total Investment: Heterogeneity by Age



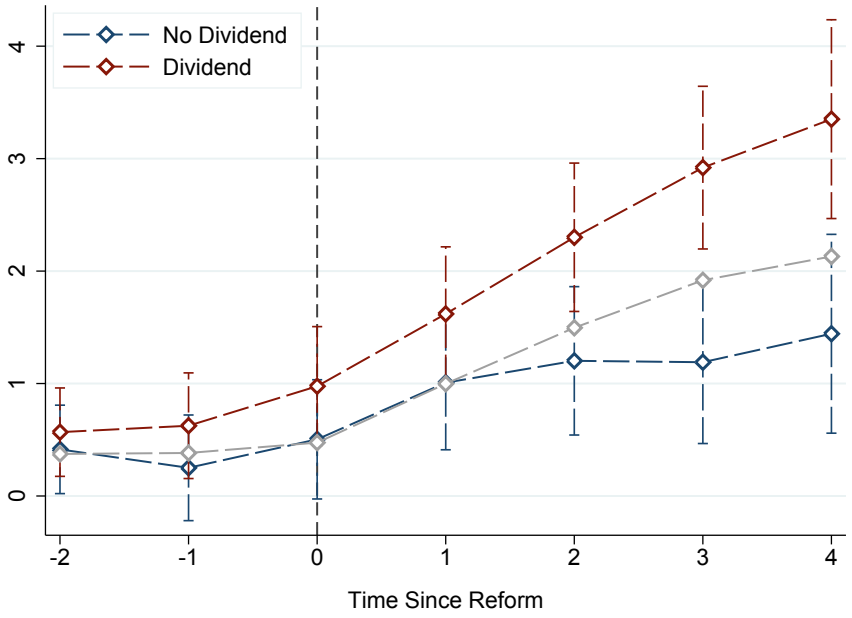
This figures plot the post coefficients and its 95 % confidence interval of the difference-in-difference estimator in equation (1) when the dependent variable is total gross investment scaled by asset in 2011. Each coefficients is estimated for a given bin of firms sorted by decile of 2012 assets' value. The height of the Y-axis is fixed at 0.5 s.d. of the pre–reform sample mean of the dependent variable to ease the economic interpretation.

Figure 9: Total Investment: Heterogeneity by Size



This figures plot the post coefficients and its 95 % confidence interval of the difference-in-difference estimator in equation (1) when the dependent variable is total gross investment scaled by asset in 2011. Each coefficients is estimated for a given bin of firms sorted by decile of 2012 assets' value. The height of the Y-axis is fixed at 0.5 s.d. of the pre–reform sample mean of the dependent variable to ease the economic interpretation.

Figure 10: Tracing Out Unpaid Dividends: Cross–Section



This figures plot the yearly coefficient and its 95 % confidence interval of the difference-in-difference estimator in equation (1) of the 2013 dividend tax increase, when the dependent variable is Net current assets scaled by asset in 2011 multiplied by 100 to express it as a percentage. The red line is estimated on the sample of firms having always paid dividends in the 2009-2012 period. The blue line is estimated on the sample of firms that have never paid dividends in the 2009-2012 period. The grey line is estimated on the whole sample as in Figure 5.

Table 1. Summary Statistics

	Panel A: Pre-Reform 2009–2012					
	Treated			**Control**		
	Mean	s.d.	p50	Mean	s.d.	p50
Dividend Variables						
Dividends (in K€)	19	53	0	40	110	0
Dividend / Asset_{2011}	.025	.052	0	.027	.053	0
Dividend ≥ 0	.37	.48	0	.4	.49	0
Dividend / Equity	1.2	3	0	.7	2	0
Other Firm Characteristics						
Asset (in K€)	871	716	641	1,592	944	1413
PPE (in K€)	206	267	115	395	420	248
Employment	7.9	9.8	6	13	16	10
Net Income / Asset_{2011}	.041	.094	.036	.033	.094	.03
Liquidity / Asset_{2011}	.17	.18	.12	.18	.18	.12
Debt / Asset_{2011}	.17	.18	.11	.13	.16	.075
Total Inv Brut / Asset_{2011}	.017	.056	.0045	.014	.05	.0039
Tangible Inv Brut / Asset_{2011}	.015	.047	.004	.011	.042	.0031
Observations	675,760			119,404		

	Panel B: Post-Reform 2013–2016					
	Treated			**Control**		
	mean	sd	p50	mean	sd	p50
Dividend Variables						
Dividends (in K€)	24	8,070	0	31	92	0
Dividend / Asset_{2011}	.016	.044	0	.023	.05	0
Dividend ≥ 0	.23	.42	0	.31	.46	0
Dividend / Equity	.7	2.5	0	.55	1.8	0
Other Firm Characteristics						
Asset (in K€)	1,014	812	756	1,725	1,009	1,556
PPE (in K€)	240	295	138	423	436	275
Employment	7.9	10	5	12	15	9
Net Income / Asset_{2011}	.035	.11	.032	.03	.1	.026
Liquidity / Asset_{2011}	.2	.22	.12	.19	.21	.12
Debt / Asset_{2011}	.16	.18	.098	.13	.17	.069
Total Inv Brut / Asset_{2011}	.014	.058	.0022	.01	.051	.0019
Tangible Inv Brut / Asset_{2011}	.013	.05	.0019	.0083	.043	.0015
Observations	521,108			85,623		

This table reports summary statistics. The number of observations are: 631,043 and 246,811 for the treated and control in the pre-period and 584,321 and 235,032 for the post period.

Table 2. Effect of Tax Reform on Dividend Payment

Panel A: Different Scaling

Dependent Variable	Div / Asset	Div / Asset_{2011}	Log(Div)	Div≥0	Div ≥ 10% [Div/Equity]
	(1)	(2)	(3)	(4)	(5)
Treated×Post	-.0045***	-.0042***	-0.13***	-0.039***	-0.055***
	(.00017)	(.00018)	(0.0063)	(.0017)	(.0017)
Obs.	1,397,067	1,397,067	1,397,067	425,705	1,397,067
Firm FE	✓	✓	✓	✓	✓
Ind× Year	✓	✓	✓	✓	✓
Mean LHS	0.028	0.025	0.3	3.3	0.37

Panel B: Saturating the Regression

Dependent Variable	Div / Asset_{2011}					
	(1)	(2)	(3)	(4)	(5)	(6)
Treated×Post	-0.0046***	-0.0042***	-0.0043***	-0.0045***	-0.0046***	-0.0044***
	(0.00018)	(0.00018)	(0.00018)	(0.00018)	(0.00018)	(0.00017)
Obs.	1,397,067	1,397,067	1,397,067	1,397,067	1,397,067	1,397,067
Firm FE	✓	✓	✓	✓	✓	✓
Ind × Year	✓	✓	✓	✓	✓	✓
Commuting Zone× Year	—	—	✓	—	✓	✓
Asset Growth Quintile × Year	—	—	—	✓	✓	✓
Controls Set 1	—	—	—	—	—	✓

This table shows the effect of the 2013 dividend tax increase on dividend payment. In Panel A, we use different scaling for dividends. In Panel B the dependent variable is dividend scaled by asset in 2011. In Column 4, "Commuting Zone" corresponds to local labor markets defined by the statistical office ("Bassin d'Emploi"). In column 5, Asset growth is firms' average assets' growth in the pre-reform period. In Column 6, controls include the second lags of sales, change of sales and profit margin as well as quartiles of age interacted with year fixed effects. In column 7, controls include assets and net income lags. ***, **, * and ∼ indicate statistical significance at the 0.1%, 1%, 5%, and 10% levels, respectively.

Table 3. Effect on Investment

Dependent Variable	Total Investment			Tangible Investment		
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A: Gross Investment			
Treated×Post	0.00055**	0.0011***	0.00096***	0.00029*	0.00069***	0.00061***
	(0.00021)	(0.00021)	(0.00021)	(0.00018)	(0.00018)	(0.00018)
			Panel B: Net Investment			
Treated×Post	0.00079***	0.0014***	0.0014***	0.00054**	0.0011***	0.001***
	(0.00022)	(0.0002)	(0.00021)	(0.00019)	(0.00018)	(0.00018)
Firm FE	✓	✓	✓	✓	✓	✓
Ind×Year	✓	✓	✓	✓	✓	✓
Asset Growth Quintile × Year	✓	✓	✓	✓	✓	✓
Pre–2012 Inv Growth Quintile × Year	—	✓	✓	—	✓	✓
Commuting Zone × Year	—	—	✓	—	—	✓
Obs.	1,397,067	1,397,067	1,397,067	1,397,067	1,397,067	1,397,067

This table shows the effect of the 2013 dividend tax increase on investment. Total investment includes tangible (machine, property, plant and equipment) and intangible (software, patents, licences) investment. Net investment is totalment investment minus depreciation. Pre-2012 investment growth quintile are computed for the period 2008–2012. Pre-reform sample for the dependent variables are 0.017 (total gross investment), 0.015 (tangible gross investment), -0.0097 (total net investment) and -0.012 (tangible net investment). All variables are scaled by asset in 2011. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 4. Effect on Wages and Employment

Dependent Variable	Employment		Mean Wage		Wages / Value Added	
	(1)	(2)	(3)	(4)	(5)	(6)
Treated×Post	0.011***	0.012***	0.0018	0.0014	0.0043***	0.0048***
	(0.0015)	(0.0015)	(0.0011)	(0L0012)	(0.0012)	(0.0012)
Fixed Effects Set	✓	✓	✓	✓	✓	✓
Ind×Year	✓	✓	✓	✓	✓	✓
Asset Growth Quintile × Year	✓	✓	✓	✓	✓	✓
Commuting Zone×Year	—	✓	—	✓	—	✓
Obs.	1,397,067	1,397,067	1,397,067	1,397,067	1,397,067	1,397,067

This table shows the effect of the 2013 dividend tax increase on employment. Employment is the total full-time equivalent. Mean wage is total compensation divided by number of employees. Both variables are in log. Asset growth is the annualized growth of firm asset between 2008 and 2012. ***, **, * and ∼ indicate statistical significance at the 0.1%, 1%, 5%, and 10% levels, respectively.

Table 5. Heterogeneity: Amount of Earnings Not Distributed

Pre–2013 Bin [Dividend/Asset]	1	2	3	4	5
Pre–2013 Total Inv / Asset	0.016	0.022	0.021	0.019	0.015
			Dividends		
Treated×Post	-0.001***	-0.0024***	-0.0057***	-0.0083***	-0.019***
	(0.00013)	(0.00028)	(0.00042)	(0.00056)	(0.00091)
			Total Investment		
Treated×Post	0.001***	0.0016**	0.0015**	0.0014**	0.0012**
	(0.00031)	(0.00057)	(0.00056)	(0.00055)	(0.00054)
			Tangible Investment		
Treated×Post	0.00052**	0.0012**	0.0012**	0.00089*	0.00095**
	(0.00026)	(0.00049)	(0.00049)	(0.00048)	(0.00046)
			Employment		
Treated×Post	0.012***	.021***	0.021***	0.022***	0.018***
	(0.0021)	(0.0034)	(0.0033)	(0.0032)	(0.0033)
Fixed Effects Set 1	✓	✓	✓	✓	✓
Obs.	672,071	173,678	173,291	172,035	169,215

This table shows the effect of the 2013 dividend tax increase when treated firms are sorted by their amount of dividends paid scaled by asset over the period 2008–2012. The first bin is made of all firms not paying any dividend. We then compute quartile over the positive distribution. The first line indicates the average of dividends paid over asset within each bin. The second line reports the average investment rate in the bin. We estimate equation 1 for each group separately and for four dependent variables: Dividends / Asset_{2011}, Total Investment / Asset_{2011}, Tangible Investment/ Asset_{2011} and (log of) employment. The set of fixed effects is: firm, industry×year, pre-reform asset growth quintile×year and pre-reform capital growth quintile×year. Standard errors are clustered at the firm level. ***, ** and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6. Heterogeneity: Equity Dependence–Fraction of Capital Financed Through Equity

Equity Issued / Capital$_{2012}$	.023	.065	.14	.31	1.5
			Total Investment		
Treated×Post	.0013***	.0026***	.0021***	.0022***	.0016***
	(.0006)	(.0005)	(.00045)	(.00042)	(.00039)
			Tangible Investment		
Treated×Post	0.0011**	0.0019***	0.0013**	0.0014***	0.0013***
	(0.00052)	(0.00044)	(0.0004)	(0.00035)	(0.00031)
			Employment		
Treated×Post	-0.0039	0.017***	0.018***	0.021***	0.025***
	(0.0025)	(0.0026)	(0.0027)	(0.0028)	(0.0033)
Fixed Effects Set	✓	✓	✓	✓	✓
Obs.	269,387	269,785	266,841	263,924	251,587

This table shows the effect of the 2013 dividend tax increase when firms are sorted by their degree of equity dependence. We measured equity dependence by two proxies: the number of times a firm issued equity after creation since 1994 (grouped by quartile) and the ratio between a firm's equity on its level 2012 of tangible assets (grouped by quantile). The first line indicates the average of equity issued / capital within each bin. We estimate equation 1 for each group separately and for three dependent variables: Total Investment / Asset$_{2011}$, Tangible Investment/ Asset$_{2011}$ and (log of) employment. The set of fixed effects is: firm, industry×year, pre-reform asset growth quintile×year and pre-reform capital growth quintile×year. Standard errors are clustered at the firm level. ***, ** and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7. Heterogeneity: Equity Dependence–Number of Equity Issuance

	2009–2016		2003–2016		
# equity issued	0	1	0	1	2
	(1)	(2)	(3)	(4)	(5)
			Total Investment		
Treated×Post	0.0012***	0.001***	0.0012***	0.001***	0.001*
	(0.00029)	(0.00029)	(0.00033)	(0.0003)	(0.00055)
			Tangible Investment		
Treated×Post	0.00085***	0.00059***	0.00084***	0.00068***	0.00062
	(0.00025)	(0.00026)	(0.00026)	(0.00026)	(0.00045)
			Employment		
Treated×Post	0.02***	0.015***	0.098***	0.014***	0.018***
	(0.0018)	(0.0018)	(0.002)	(0.0018)	(0.0073)
Fixed Effects Set	✓	✓	✓	✓	✓
Obs.	636,691	723,426	542,667	633,748	183,684

This table shows the effect of the 2013 dividend tax increase when firms are sorted by the number of instances of equity issued over the period 2009–2016 (columns 1 and 2) or the period 200X–2016 (columns 3–5). In columns 1 and 2, we split the sample between firms that never issued equity (column 1) or issued once or more than once (column 2). In columns 3–5, we split into no issue (column 3), one issue (column 4) or two or more issue (column 5). We estimate equation 1 for each group separately and for three dependent variables: Total Investment / Asset_{2011}, Tangible Investment/ Asset_{2011} and (log of) employment. The set of fixed effects is: firm, industry×year, pre-reform asset growth quintile×year and pre-reform capital growth quintile×year. Standard errors are clustered at the firm level. ***, ** and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8. Heterogeneity: Credit-Constraints Proxies

	Div/Asset	Total Inv/Asset	Tangible Inv / Asset	log(Emp)
	(1)	(2)	(3)	(4)
Treated×Post				
× Lagged Sale	.002***	0.00045	0.00027	.021***
	(.00052)	(.00069)	(.00058)	(.0035)
× Lagged Sales Growth	-.0044***	0.00019	0.00051	-.0036
	(.00054)	(.00074)	(.00063)	(.0039)
× Age	.0029***	0.00074	0.00054	-.0082*
	(.00049)	(.00065)	(.00054)	(.0042)
× Cash	-.0077***	0.00066	0.00095*	.0016
	(.00053)	(.00061)	(.00052)	(.0038)
× Debt	.0033***	-.00038	0.00025	.0025
	(.00048)	(.00065)	(.00054)	(.0039)
× ROA	-.011***	0.00056	0.00046	-.0004
	(.00065)	(.00068)	(.00057)	(.004)
× Dividend	-.017***	0.0009	.001*	.011**
	(.0011)	(.00069)	(.0006)	(.0043)
Fixed Effects Set	✓	✓	✓	✓
Obs.	558,826	558,826	558,826	558,826

This table shows the effect of the 2013 dividend tax increase for different proxies of credit constraints for separate regression and reports the coefficient on the triple interaction of a treated dummies interacted with the year being 2013 or later, and an indicator for the firm being in the top quintile rather middle three quintiles are omitted) of the traits specified in the row heading. We estimate equation 1 and interact all the different fixed effects with the firm characteristic dummy.The set of fixed effects is: firm, industry×year, pre-reform asset growth quintile×year and pre-reform capital growth quintile×year. Standard errors are clustered at the firm level. ***, ** and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 9. Tunneling

(scaled by Sales)	Intermediate Goods	Intermediate Services	Raw Material	Value Added
	(1)	(2)	(3)	(4)
Treated×Post	-0.00081***	-.00019	.00035	-0.000027
	(0.00035)	(.00037)	(.00027)	(0.00039)
Mean Sample	0.21	0.12	0.04	0.41
Fixed Effects Set	✓	✓	✓	✓
Obs.	1,397,067	1,397,067	1,397,067	1,397,067

This table shows the effect of the 2013 dividend tax increase on different intermediate consumption of the firm. Intermediate services include rents, consulting, vehicle renting etc. Each variable is scaled by contemporaneous sales. Asset growth is the annualized growth of firm asset between 2008 and 2012. Standard errors are clustered at the firm level. ***, ** and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 10. Balance Sheet Adjustments

	Dividends / Asset (1)	Net Working Capital/ Asset (2)	Liquidity/ Asset (3)	Supplier Debt/ Asset (4)	Customer Debt/ Asset (5)	Supplier Debt/ Sales (6)	Customer Debt/ Sales (7)
Treated×(Year=2013)	-0.004***	0.0041***	0.00099	0.0014**	0.0034***	.0004	.001
	(0.00029)	(0.0011)	(0.00088)	(0.00067)	(0.00088)	(.00054)	(.00068)
Treated×(Year=2014)	-0.0053***	0.0067***	0.0024**	0.002**	.0046***	-.00021	.0011
	(0.00031)	(0.0013)	(0.001)	(0.00075)	(0.00098)	(.00064)	(.00078)
Treated×(Year=2015)	-0.0056***	0.013***	0.0059***	.0025**	.0081***	-.0012*	.0015*
	(0.00034)	(0.0016)	(0.0012)	(0.0011)	(.00072)	(.00088)	
Treated×(Year=2016)	-0.0052***	0.021***	0.012***	.004***	.011***	-.00044	.0021**
	(0.00037)	(0.0018)	(0.0013)	(.00093)	(.0012)	(.00076)	(.00093)
Firm	✓	✓	✓	✓	✓	✓	✓
Industry×Year	✓	✓	✓	✓	✓	✓	✓
Asset Growth Quintile × Year	✓	✓	✓	✓	✓	✓	✓
Obs.	1,397,067	1,397,067	1,397,067	1,397,067	1,397,067	1,397,067	1,397,067

This table shows the effect of the 2013 dividend tax increase on the firm balance sheet. Asset growth is the annualized growth of firm asset between 2008 and 2012. Net working capital is defined as gross working capital (liquidity plus account receivables plus inventory) minus short-term liability. Liquidity is the sum of cash and cash-equivalents (marketable securities, commercial paper, Treasury bills). In columns 1 to 5, each variable is scaled by asset in 2011. In columns 6 and 7 the denominator is contemporaneous sales. Standard errors are clustered at the firm level. ***, ** and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Appendix A: Discussion of the Reform

A1 Why did the reform only impacted SARLs' firms?

The 2013 reform only impacted $SARL$ owner-managers. However the arbitrage opportunity also existed for SAS and SAS owner-managers. There are two main reasons that explain that the reform only affected $SARLs$:

Reform of independent workers' status. The first one is related to the status of the owner-manager and the social regime to which she contributes. As explained previously, $SARL$ owner-managers are legally treated as independent workers, whereas SAS and SA managers are employees. As a consequence, they do not share the same social regime. Independent workers contribute to the "RSI" *Regime Social des Independants*, whereas employees contribute to the french standard regime[32]. Furthermore, in 2009 another category of independent french workers, the "liberal professions"[33] was imposed the same change in taxation on their own dividends than the 2012 reform for $SARL$ owner-managers. One year after the 2012 reform, it was finally extended to another category of independent workers: the agricultural workers. The relationship between those three reforms is that they both concerned independent workers paying social contributions to the same RSI regime. Hence the 2012 reform impacting $SARL$ owner-managers was part of a global reform of the RSI regime and not the one of the "Regime Generale de la Securite Sociale".

Lobbying power. The second explanation lies in the bargaining power of $SARL$ owner-managers versus SA and SAS ones. As described in the paper, SA and SAS firms are, on average, bigger than $SARLs$. In turn SA and SAS are more likely to have a higher lobbying power. This is further discussed below as in 2015, a

32. *"Regime General de la Securite Sociale"*
33. French "Liberal professions" include notably lawyers, doctors, notary.

parliamentary amendment to extend the tax reform to SA and $SARL$ was rejected following intense lobbying by french two main employers' organisations.

A2 Subsequent Reactions to the reform

A strong opposition. The exclusion of SA and SAS of the scope of the reform, as well as the sharp increase in taxation, created a strong opposition to it. An opposition group of $SARL$ owner-managers, calling themselves *"The sheeps"* [34] lobbyied hard against it but ultimately failed, after having gained the support of the french Senate. However, the opposition remained strong afterwards. Parliamentary amendments to cancel the reform were proposed in the 2015, 2016 and 2018 *Loi de Finance pour le Financement de la Sécurité Sociale* [35]. To this date, they never have been accepted.

Attempt to extend it to SAS and SA. Even more interestingly, in 2014, a french deputy proposed an amendment to the social security funding law to enlarge the reform to SA and SAS which was ultimately rejected. The amendment[36] specifically stipulates that its aim is to reduce fiscal optimization of SA and SAS owner-managers while ensuring equity between them and $SARL$ owner-managers.

Thanks to an article in the french leading newspaper [37], we know that its rejection was the output of an intense lobbying campaign of the two french employers' organizations. The article reports that they lobby to Mister Macron, then at the head of the Economy Ministry, that finally managed to convince the French President, Francois Hollande, to ask the parliament to withdraw the amendment. The underlying explanation is that SA and SAS are better represented among those two organizations that were $SARL$.

34. https://www.lemonde.fr/economie/article/2012/10/18/apres-les-pigeons-les-chefs-d-entreprises-moutons-du-rsi$_1$776814$_3$234.*html*

35. In 2015, 2016 and 2018 the amendment was proposed by Senator Cadic.

36. Amendment 876 to the 2015 *Loi de Finance pour le Financement de la Sécurité Sociale*

37. https://www.lemonde.fr/politique/article/2014/10/30/comment-le-gouvernement-a-cede-au-patronat-sur-la-taxation-des-dividendes$_4$515630$_8$23448.*html*

Rajouter tentative du RSI lui meme pour soumettre les dividendes des SA/SAS aux cotisations sociales [38]