

The Politics of Stashing Wealth

The demise of labor power and the global rise of corporate savings

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Abstract

This paper investigates the political roots of the global rise of corporate savings. In recent years, firms throughout advanced economies have started to accumulate enormous savings. Instead of using their revenues to reinvest or raise wages, many firms now stash their profits on financial markets, contributing to sluggish growth, financial fragilities and a deepening of economic inequalities. I argue that political institutions that determine the balance-of-power between firms and employees play an important role in shaping this trend. The stronger unions are, the more they will pressure firms into using revenues for wage raises and investment. The more their influence erodes, the stronger the rise of savings. Using panel data from 25 OECD countries as well as a regression discontinuity design leveraging the German law on co-determination, I find robust and causal evidence supporting this claim. These results have implications for our broader understanding about how political institutions affect financial imbalances and economic inequality.

1 Introduction

In January 2017, several news outlets reported that the US tech giant Apple was sitting on \$246 billion of cash (Wang, 2017). Rather than using its profits to expand its business, to increase payouts to shareholders or to raise the wages of its workers, the company had accumulated saving reserves that surpass the Gross Domestic Product (GDP) of a country like Finland. In the US, these and similar reports about other companies sparked heated debates over appropriate tax policy responses and the political issue of excessive corporate wealth more generally (The Economist, 2016; Summers, 2016). But while the corporate rivers of riches in the tech industry are especially strong, they do fit well into a much broader trend. In many developed countries, firms in recent years have turned into a net lender to the rest of the economy (Chen, Neiman and Karabarbounis, 2016; Karabarbounis and Neiman, 2012).

Economically, this is a puzzling development. Since companies should take idle resources and put them into productive use, economists expect corporations to use the savings of other sectors (e.g. private households) to fund operations and finance investments (Gruber and Kamin, 2015). The recent turn towards corporate saving therefore has gained substantial attention from economists and the global financial press (Loeys et al., 2005; Armenter, 2012; Wolf, 2015). What is more important, however, is that the trend has crucial political implications.

First, corporate savings are a main driver behind the global macroeconomic imbalances that were at the heart of the Great Recession and the Eurocrisis (Gruber and Kamin, 2015; Pozsar, 2013; Duchin et al., 2017). While companies across the world have stopped investing and started to stash profits on financial markets, the trend was especially pronounced in countries like Germany and Japan, where firm savings have become a key reason for capital exports and current account surpluses. In Europe, debates about these surpluses have dominated much of the politics of the Eurocrisis (Frieden and Walter, 2017). At the international level, they have turned into an important justification for the reemergence of protectionism and trade conflicts (Irwin, 2016).

Second, the rise of corporate savings fuels economic inequality. As more and more firms retain their revenues and park them on financial markets, less and less of their profits find their way back into the real economy. While this leads to rising asset prices and financial booms, the flip sides of this trend are lower investment rates and decreased demand for

labor. Income generated from firm savings falls mostly on the side of capital (Brufman, 2013; Piketty, 2014). For workers they mean less jobs and lower wage growth. As Karabarbounis and Neiman (2012) point out, while the share of firm savings in total global savings in recent years increased by more than 20 percent, this increase was associated with a 5 percent drop in the share of national income that was paid to workers and employees. This falling labor share is directly linked to several measures of income inequality (Checchi and García-Iñalosa, 2010). Explaining what shapes the global trend towards higher corporate savings thus constitutes an important and often overlooked aspect of our understanding of rising inequality and its effects on democratic politics, voter preferences and political inequality (Dahl, 1986; Hacker and Pierson, 2010; Bartels, 2016).

Economic research so far ascribes the trend towards large firm savings mostly to structural factors such as technological advances and demographic change (Chen, Neiman and Karabarbounis, 2016; Gruber and Kamin, 2015). It offers valuable insights in the macro-trends underlying this development. However, in this paper I argue that focusing solely on economics provides an incomplete account of the rise of corporate savings. Political institutions play a key role in mitigating this trend. A vast literature within political science documents the secular decline in the political power of organized labor and its impact on wage inequality (e.g. Ahlquist, 2017; Scheve and Stasavage, 2009; Rueda and Pontusson, 2000), democratic politics and partisan preferences (e.g. Becher, Stegmueller and Käppner, 2018; Mosimann and Pontusson, 2017; Rosenfeld, 2014) as well as trade politics and market regulation more generally (e.g. Mosley and Singer, 2015; Dean, 2015). Building on these insights, I argue that the demising organizational power of labor also helps explaining the rise of corporate savings. While economic insecurity and the deregulation of financial markets have made it attractive for firm owners and managers to retain profits and stash them in financial assets, this strategy comes at considerable opportunity costs for workers, who would prefer the fruits of their labor to be used for employee expenses and productive investment. Savings are thus subject to distributional conflict between capital and labor. Their emergence depends on political institutions that determine the balance-of-power between the two actors. The larger labor's political profit-sharing capacities are, the more they will pressure firms into using revenues for wage raises and investment. The more their influence erodes, the stronger the rise of savings.

I employ two strategies that provide evidence in line with this argument. As a first descriptive test, I analyze panel data from 25 OECD countries over 19 years. I show that there is a robust negative relation between corporate savings and trade union density at the country level. The larger the share of organized workers in an economy, the lower the savings rate of the corporate sector. Second, I move my analysis to the firm level and exploit a natural experiment provided by the specific setting of the German law on co-determination. The law mandates firms with more than 2000 domestic employees to occupy half of their supervisory boards with employee representatives. As these boards not only monitor investment decisions and strategic business choices but also directly appoint the firm's management board, parity co-determination renders workers with considerable power resources. Using the discontinuity around the mandated threshold of 2000 workers, I am able to causally identify the effect of increased labor influence on corporate savings. In line with my argument, I find that labor power in the form of co-determination significantly decreases savings. On average, firms with parity co-determination accumulate more than US\$46 Million (or about 6% of total assets) less in cash and short-term investments than similar companies without such institutions.

Besides adding to our understanding of the political economy of large corporate savings, this paper makes two broader theoretical contributions. First, it adds to a growing literature within international political economy which analyses the domestic sources of global imbalances (e.g. Ahlquist, 2010; Baccaro and Pontusson, 2016). By showing that the demise of labor power in some countries has contributed significantly to the rise of corporate savings, the paper helps to explain an important driver of global balance-of-payments imbalances and financial fragilities. Second, it contributes to the literature on the effects of declining labor power and trade unionism. By showing that the rise of corporate savings can be causally linked to a decline in labor's politically-backed ability to push for profit-sharing, the paper illustrates the political power of labor has become an important determinant of to what degree the revenues of private firms are spent in ways that stipulate growth and employment.

2 The Global Rise and National Variation of Corporate Savings

Corporate savings are defined as the excess of revenues over debts, investment and payouts. Savings are thus retained profits which are held in the form of cash and other financial assets (Gruber and Kamin, 2016). In recent years, these savings have experienced a dramatic rise.

Global corporate saving has increased from below 10% of global GDP in the 1980s to almost 15% in the 2010s. This is especially puzzling as building up savings is not what economic theory expects firms to do. Instead, surplus revenues should be reinvested to expand business and increase productivity, they should be used to increase employee remuneration or they should be distributed to shareholders (Blanchard, Rhee and Summers, 1993). To explain this trend, research so far has focused on structural factors such as technological advances which push down the prices of investment goods and increase corporate profits (Karabarbounis and Neiman, 2012), strengthened precautionary saving motives¹ due to the financial crises of the late 1990s and 2000s (Sánchez, Yurdagul and S, 2013) and a protracted decline in the investment incentives of private firms due to lower interest rates and other factors linked to the "secular stagnation" hypothesis (Summers, 2014).



FIGURE 1: Development of Corporate Savings in Major Economies; Data based on Chen, Neiman and Karabarbounis (2016).

However, as Figure 1 illustrates the trend towards higher savings also has varied considerably across countries. In some countries, like the US and the UK, non-financial corporations

¹ Precautionary savings motives also play an important role for research within the field of corporate finance which analyses firm-level motives for savings and cash holdings (Lins, Servaes and Tufano, 2010). Other important determinants from this literature include CEO compensation schemes (Liu and Mauer, 2011) as well as strategic motives in wage negotiations with employees (Matsa, 2010).

(NFCs) have been net lenders to the economy since the early 2000s. The lending position of the German corporate sector, on the other hand, has only recently turned positive and in countries like France or Italy the corporate sector remains a net-borrowers until today. Despite the importance of structural factors, the national contexts in which firms operate thus seem to play an important role in mitigating this trend. Against this background, this paper analyses the role of political institutions in shaping the trend towards higher corporate savings.

3 Corporate Savings and Profit Sharing Capacities

To explain the rise of corporate savings, I focus on its distributional implications. While for managers and large owners, it has become beneficial to retain profits and park them on financial markets, this strategy comes at significant opportunity costs for workers. Given these distributional implications, I argue that political institutions, which increase workers' profit-sharing capacities counteracts the rise of corporate savings. The more such institutions erode, the stronger the rise of corporate savings.

Before going into the details of this argument, it is important to point out that while this paper thus focus on distributional conflicts that run along class lines (Gourevitch and Shinn, 2007), conflicts about savings may also arise between managers and different types of owners. Especially, small shareholders should push towards the distribution of surplus profits since they cannot monitor firms' executives closely enough to make sure they do not use them for their private benefits (La Porta et al., 2000). However, in most developed countries firms are still owned by a few large owners, which can directly influence the decisions of executives and whose savings motives are therefore aligned with those of managers (e.g. Anderson and Hamadi, 2009). Also, trends with regards to firm ownership do not fit rise of corporate savings. Dividend payments have remained relatively stable since the 1990s (Gruber and Kamin, 2016) and where we witnessed changes in the ownership structures, these changes have lead to a greater dispersion of firm ownership (Krippner, 2005). If anything, this should have lead to lower savings. I thus focus my theory on class cleavages and only to account for the role of shareholders empirically.

The Distributional Implications of Large Corporate Savings

There are four ways in which surplus revenues can be used: raising wages, paying dividends to shareholders, increasing investment into the firm or building up savings. For management and controlling owners, raising wages provides the least preferred strategy (Gourevitch and Shinn, 2007). While for these actors the second option - increasing dividends - is preferable to higher wages, distributing profits also comes at the cost of losing access to valuable resources. A large literature within corporate finance shows that it needs a whole battery of minority shareholder rights to pressure firm insiders into handing out profits to outside owners (e.g. La Porta et al., 2000). This leaves management and controlling owners with two options: retaining profits or reinvesting them. The attractiveness of savings has increased for at least three reasons.

First, large savings ensure flexibility. Especially if investment opportunities in the current environment are limited, saving today's profits helps financing future investments irrespective of possible credit constraints. The more pessimistic firms are about the present state of the economy, the more rational it is for them to hold on to what they earn and wait for better times to come (Gruber and Kamin, 2016). Second, even if the economy is doing well, large amounts of savings provide ample opportunities to realize profits on financial markets. Since the 1990s, non-financial firms in many advanced economies increasingly rely on financial investments as a considerable source of income (Krippner, 2005; Crotty, 2005). This trend is not just driven by declining growth rates in the real economy but also by the liberalization of capital accounts, the deregulation of financial markets and the broad expansion of financial instruments (Stockhammer, 2004; Witko, 2016). This deepening of financial markets has made it increasingly lucrative for firms to retain parts of their profits and stash them in short-term, reversible assets where they maximize yields without bearing the long-term risks of fixed capital investments (Duchin et al., 2017). Finally, large corporate savings have also come to produce direct gains for executives. In many firms, a large share of executive compensation today is composed of stock options and other instruments that tie managers' pay to the company's stock value (Krippner, 2011). Corporate savings benefit these values in two ways. First, financial investors in many sectors place a high value on savings (Pinkowitz and Williamson, 2007). The higher the savings stashed up inside the firm, the higher the value of its share. Second, savings are often used for share buybacks. By buying back their

own stocks - which, as the investment does not leave the firm, accounting-wise counts as savings - executives can push the stock market value of their shares and thus boost their compensation (Gruber and Kamin, 2016).

Accumulating savings has become increasingly attractive for management and controlling owners. This is, however, not the case for workers. First, labor's preferred way of using surpluses should be to increase wages. Higher salaries are the most direct way in which workers can benefit from profits. Large financial surpluses signal that current revenues exceed current needs. Assuming that workers want to maximize their income, employees of firms with substantial surpluses should first and foremost push to increase wages (Ahlquist, 2010). If higher wages cannot be achieved, increasing investment renders an attractive alternative.² On the one hand, real investments in tangible assets, expenses for worker training and the expansion of a firm's business directly foster workers' immediate job security. On the other hand, these strategies imply productivity increases and better prospect for future wage gains and thus benefit the material interests of workers through more indirect channels (Gourevitch and Shinn, 2007). Compared with that, retaining profits and stashing them in financial assets, comes with little benefits for labor. First, increased savings can only be achieved at the expense of forgone wage raises and stagnant or even reduced investments. From the perspective of labor, retaining profits thus means to withdraw resources from strategies that benefit their interest. Second, stashing profits on financial markets also means putting revenues at a place where their benefits fall exclusively to owners and management (Akkemik and Özen, 2014). Profits that are banked up on financial markets may increase a firm's stock

² While I assume that workers favor wages over investment, it could also be argued that this ordering depends on the specific status of different workers. For example, long-term employees with low degrees of mobility and which have invested into firm-specific skills at times might prefer long-term investments into competitiveness and productivity over the short-term gains of higher wages. However, the empirical implications of my theoretical conjecture are fully consistent with these arguments.

value or realize short-term gains. However, employees have little opportunities to participate in these forms of profit generation.³

For workers, corporate savings thus matter most for what they are not. While they might be preferable to distributing profits to outside, the accumulation of savings can only be achieved if surplus revenues are neither used for higher wages nor for productive investment. Stashing profits thus hurts the direct material interests of employees. As a representative of one of the biggest trade unions in Germany put it in a personal interview: "If firms now are able to build-up these huge savings, this simply means that we have failed in fighting for our share of the profits."⁴

Corporate Savings and Profit Sharing Capacities

Put simply, firms have little to lose and much to gain from retaining their profits, whereas for workers, these savings come at considerable costs. Given these distributional implications, I expect savings to be subject to conflicts between management and labor and the outcomes of these conflicts to be shaped by the balance of power between the two actors. Of course, this balance is to a large degree shaped by economic factors such as the labor market situation, the skill endowment of workers as well as their specific position in the production process (Dean, 2015). However, most research also assumes employers to enjoy a natural advantage in conflicts with labor - either due to their smaller numbers, larger material resources and their ownership of means of production (Olson, 1965; Acemoglu and Robinson, 2008) or due to the simple fact that individual workers must work to live (Polanyi, 1944).

To gain influence, workers therefore rely on political context factors that render them with an effective voice in decisions concerning the usage of profits. Building on Dean's (2015) recent work on profit-sharing institutions, I call these factors the *profit-sharing capacities* of labor. Dean defines profit-sharing institutions as "a set of rules that govern wage negotiations and create a credible link between an increase in profits and an increase in workers

³ This distinction is less clear for companies with employee-ownership plans or stock options. However, in most OECD countries these plans remain a niche phenomenon and most prevalent among financial firms (Lowitzsch and Hashi, 2014).

⁴ Representatives of German trade unions (DGB and verdi) confirmed this assumption in independent interviews that I conducted in Berlin in December 2017.

wage” (p.32 Dean, 2015). However, not all of labor’s profit-sharing capacities are rooted in institutions in a strict sense. And while rising salaries are a top concern for most employees, research has shown that employment security often ranks equally high (e.g. Johnston, Hancké and Pant, 2014; Gourevitch and Shinn, 2007). For the purpose of this paper, I therefore define profit-sharing capacities as rules, norms and organizational environments that strengthen the link between capital’s profits and worker’s welfare - either in the form of higher wages or due to better employment prospects through productive investments.

Two factors determine the strength of such capacities. First, literature rooted in the tradition of power resource theory stresses the importance of labor’s associational power (Korpi and Palme, 2003; Bradley et al., 2003). The more workers are able to organize in large numbers to effectively control the supply of labor into certain firms or industries, the better they are able to put management under pressure and to push through their preferences (Ahlquist, 2010; Rosenfeld, 2014). In order to have stable and lasting effects, labor’s associational power needs to be institutionalized. Power resource theory therefore emphasize above all the strength of trade unionism as a core determinant of labor power (Volscho and Kelly, 2012). As a second source of labor power, research on corporatism emphasizes the role of legal power resources such as institutionalized labor rights in the form of shop-floor representation, mandatory works councils and co-determination at the plant level to labors presence in macroeconomic corporatist institutions (Schmitter and Streeck, 1991; Streeck and Thelen, 2005), which equip labor representatives with direct leverage and crucial resources in cases of direct conflicts of interest with employers (Martin and Swank, 2004). My theoretical argument remains largely agnostic about the specific sources of profit-sharing capacities. What is important is that associational powers and institutionalized labor rights both provide workers with an audible voice in decisions over the usage of profits. The louder this voice, the more difficult it is for management and owners to retain profits in the form of savings and the more likely it becomes that labor either successfully pushes towards using surplus revenues for higher wages or extorts compromises in the form of expanded investment. I therefore expect any shift in the balance of power between management and labor to have a direct impact on the lending behavior of the corporate sector. The more influential labor representative are in determining where profits flow, the lower the level of corporate savings.

Summing up, I argue that corporate savings, rather than being some by-product of macroeconomic changes in the global economy - are the result of concrete distributional conflicts between management and labor. They are therefore fundamentally shaped by the extent of worker's profit-sharing capacities. The better the political contexts equip labor to push through their material interests, the lower I expect corporate savings to be.

4 Analysis

4.1 Research Design

I investigate this argument in two steps. First, I use panel data on 25 OECD countries over 19 years to analyze the relationship between country-level corporate net lending and trade union density as the most straight-forward proxy for the strength of profit-sharing capacities. This analysis covers advanced economies that have been mainly responsible for the global rise of corporate savings as well as the time period in which they occurred. In line with my argument, I find that higher levels of trade union density are associated with lower levels of corporate savings and that the relationship is substantially sizable. This first step allows me to trace the relationship between corporate savings and the strength of profit-sharing capacities over a large set of countries. However, while the panel regression set-up allows me to control for a range of observable alternative explanation, it renders it difficult to establish a causal relationship between profit-sharing capacities and corporate savings. To further corroborate the finding, I complement the cross-country analysis with a case study on publicly listed firms in Germany. I exploit a "natural experiment" provided by the setting of the German law on co-determination which mandates firms with more than 2000 employees to occupy one half of their supervisory boards with employee representatives. Using the discontinuity around this mandated threshold, I am able to causally identify the expected negative effect that profit-sharing institutions have on corporate savings.

4.2 Cross-Country Analysis - Trade Union Density & Corporate Net Lending

Dependent Variable

For the cross-country analysis, I assemble a dataset on 25 OECD countries between 1995 and 2013. My main variable of interest is the net lending position of the corporate sector

at the country level. This position is defined as the excess of gross savings of all firms in an economy over their aggregated investment spending. The variable thus measures all corporate savings (that is profits after taxes, interest payments, dividends etc. minus capital investment) irrespective of whether these savings are held in cash, cash equivalents or other financial assets. I standardize corporate net lending as a percentage of GDP. I obtain the necessary information from a dataset assembled by Chen, Neiman and Karabarbounis (2016) based on national accounts from the United Nations and the Organization for Economic Cooperation and Development.⁵ As the savings dynamics of banks and other financial firms obviously follow different logics than non-financial firms, I focus my analysis on the non-financial sector. Furthermore, profit-sharing institutions have mostly been established in advanced economies. To analyse to what degree the demise of these institutions and capacities predicts a rise in corporate savings, I therefore exclude non-OECD countries from my analysis. Finally information in the national account remains scattered for earlier time periods. To balance my panel, I thus focus on the period between 1995 and 2013. As the main changes in the corporate savings trends occurred in the late 1990s and early 2000s, this, however, should not constrain the validity of the analysis. Supplementary materials in the Appendix describe the details of constructing this variable and plot the development of net lending across countries in the sample.⁶

Independent Variables and Controls

My argument suggests that the rise of corporate savings reflects a decrease of labor's profit-sharing capacities. To be able to compare these capacities cross-nationally, I operationalize profit-sharing capacities as the power of trade unions and measure it using *trade union density* (Baccaro and Howell, 2011). Union density measures the proportion of wage earners that

⁵ I arrive at my final measure for net lending by subtracting gross fixed capital formation (item GFCF) from the gross savings (item GS)

⁶ Furthermore, as outlined above the factors that made savings an increasingly attractive strategy for management (capital account liberalization, financial deregulation and innovation, changes in the structure of executive etc.) mainly occurred from the 1990s onwards. My argument would therefore not necessarily expect differences in profit sharing institutions to have similar effects in earlier periods.

is organized in trade-unions. While it only captures the associational dimension of profit-sharing capacities, it is a useful proxy for trade-unions' overall ability to mobilize, pose strike threats and to build up pressure in negotiations with management (Witko, 2016).⁷

In addition, I include a number control variables. To control for the macroeconomic environment, I include *real GDP growth* and the annual *real interest rate*. One problem with the national account data is that profits that are invested abroad still show up as domestic savings. To make sure that I analyse actual savings, I therefore control for annual *FDI outflows* (% of GDP). I also include a *crisis dummy* for the years 2007 and 2008 which I expect to have a negative impact on corporate net lending.

Besides the general economic climate, *technological change* has been proposed as one explanation for the rise of savings. As technological change makes capital goods cheaper, firms substitute machines for labor leading to an increased capital share and higher savings. To measure the role of technological change, I use the share of routine task employment (Autor, Levy and Murnane, 2003; Owen and Johnston, 2017). As technological change mainly affects occupational tasks that can be accomplished by machines following explicit programmed rules,⁸ the share of routine task employment in total employment provides information on the extent to which an economy has been affected by technological advancements. I construct a country-year measure of routine-task intensity (RTI), by weighting employment in each occupational category as a percentage of total employment by its routine task intensity score from Autor et al. (Meyer, 2017). The lower the value of this variable, the more technology intensive the economy and the higher I expect corporate net lending to be. I also include

⁷ These aspects also provide a distinct advantage over other classical national measures of trade union power such as union centralisation and wage coordination. Both of these variables capture the degree to which trade unions are able to extend their influence beyond the single firm or industries and to coordinate wage raises across different sectors. While both of these measures are informative when it comes to the influence of trade unions at the macro-level, trade union density provides a more useful proxy for union's ability to effect *local outcomes* such as saving decisions.

⁸ Examples for routine tasks include manual labor such as moving a windshield into place on an assembly line but also programmable accounting and other calculating services (Autor, Levy and Murnane, 2003).

the value of *stock market capitalization* as percentage of GDP and the *old-age dependency ratio*. The former is a widely used proxy for the level of financial deepening and should be negatively associated with savings. Old-age dependency ratio measures the proportion of dependents (older than 64) to working age population and should be positively associated with savings as firms in aging societies might see fewer investment opportunities and fear future credit constraints. Last, previous research has found lower *corporate tax rates* to have a positive effect on net lending (Chen, Neiman and Karabarounis, 2016). I therefore also add statutory corporate income tax rates as a final control. Summary statistics and data sources for these variables can be found in the supplementary materials.

Method

To analyse the relation between corporate net lending and trade union density, I perform a standard panel regression. My preferred model includes country-fixed effects to control for time-invariant country-specific differences such as for example ownership concentration (Dittmar, Mahrt-Smith and Servaes, 2003).⁹ In addition, I also include year-fixed effects in some specifications to control for common shocks across countries. To account for heteroskedasticity and contemporaneous correlation, I use panel-corrected standard errors (Bailey and Katz, 2011). To address concerns about serial correlation, I include a model with a lagged dependent variable. Panel data on macroeconomic variables that cover many countries and years often suffer from missing values that do not occur completely at random (Lall, 2016). To address concerns of possible biases and reduced statistical power, I use multiple imputation as described in Honaker, King and Blackwell (2011) and estimate the values with the Amelia II R package. In the imputation model, I include all variables in the subsequent analysis and add a number of variables that have few missing values and that are likely to be correlated with the covariates such as inflation, unemployment, capital openness, fiscal deficits and the share of high-tech exports as well as leads and lags of key variables (Honaker and King, 2010). As the number of imputations, I use the average missing-data rate of the variables in the model (Lall, 2016) which is five for my data set. For the final

⁹ A Breusch and Pagan Lagrangian multiplier test rejects the null hypothesis of no country-specific variance and a Hausman test confirms that estimating the model with fixed effects is preferable to random effects.

model results, I calculate the means of the coefficients and standard errors from these five imputations. Details on the procedure and imputation diagnostics can be found in the supplementary material. For the final model results, I calculate the means of the coefficients and standard errors from these five imputations.

Cross-Country Results and Discussion

Table 1 presents the main findings for the cross-country analysis. Model 1 shows a simple bivariate regression with country-fixed effects, Model 2-3 add the relevant controls, Model 4 additionally includes year-fixed effects¹⁰ and, finally, Model 5 adds a one-year lag of the dependent variable.

TABLE 1: Higher Trade Union Density is associated with lower Corporate Savings

	<i>Dependent variable:</i>				
	Corporate Net Lending (% GDP)				
	(1)	(2)	(3)	(4)	(5)
Trade Union Density	-0.187*** (0.031)	-0.225*** (0.028)	-0.162*** (0.027)	-0.157*** (0.026)	-0.077*** (0.023)
RTI Score		-0.771*** (0.184)	-0.469*** (0.163)	-0.481*** (0.170)	-0.133 (0.130)
FDI out (% GDP)		0.014 (0.015)	0.011 (0.014)	0.023 (0.014)	0.003 (0.010)
Real GDP Growth		-0.066 (0.051)	0.026 (0.046)	-0.012 (0.059)	0.110*** (0.040)
Real Interests		0.170*** (0.058)	0.246*** (0.057)	0.258*** (0.062)	0.164*** (0.052)
Crisis Dummy		-1.145** (0.544)	-1.439*** (0.432)		-1.204*** (0.375)
Stock Capital.			-0.002 (0.004)	0.005 (0.004)	0.001 (0.003)
Old Age Dep.			0.070 (0.056)	0.007 (0.056)	0.160*** (0.049)
Corp. Income Tax			-0.162*** (0.026)	-0.133*** (0.025)	-0.091*** (0.022)
Net Lending Lag					0.484*** (0.051)
Country Fixed Effects	✓	✓	✓	✓	✓
Year Fixed Effects	×	×	×	✓	×
Observations	455	455	455	455	455
R ²	0.611	0.655	0.698	0.726	0.787
Adjusted R ²	0.590	0.632	0.675	0.693	0.770
Residual Std. Error	2.405 (df = 430)	2.279 (df = 425)	2.142 (df = 422)	2.079 (df = 405)	1.801 (df = 421)
F Statistic	28.185*** (df = 24; 430)	27.835*** (df = 29; 425)	30.415*** (df = 32; 422)	21.954*** (df = 49; 405)	47.035*** (df = 33; 421)

Note:

*p<0.1; **p<0.05; ***p<0.01

¹⁰ To make sure that the effects are not driven by a general trend over years, I also included time-trend variable instead of fixed effects. This does not change the results.

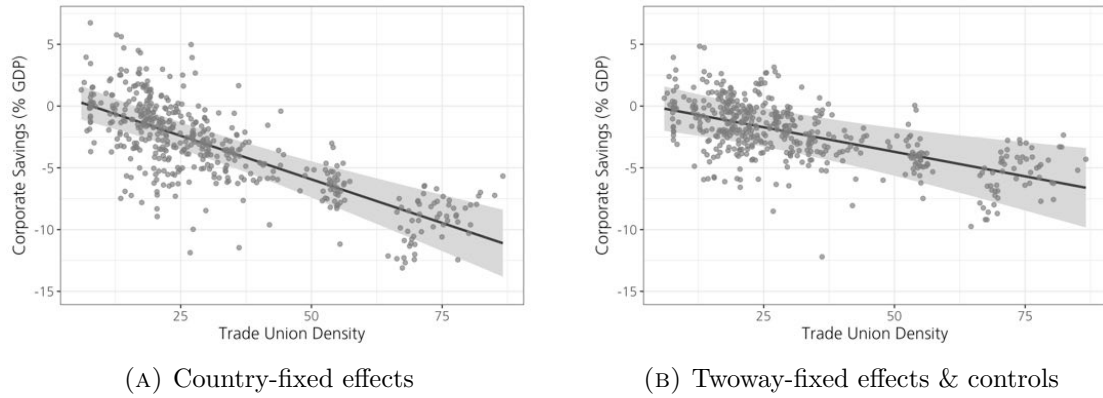


FIGURE 2: Corporate Savings & Trade Union Density - Partial Residual Plots

As expected, trade union density consistently correlates negatively with corporate net lending across all specifications. The effect is not only statistically significant at all conventional levels but also substantially important. To pick one example, between 1995 and 2013 trade union density in Germany declined by about 12 percentage points. Even in the most conservative specification (model 5), such a drop is associated with an increase of corporate net lending by about 1 % of GDP (in total, Germany’s corporate net lending rose by about 2.5% of GDP in the same period). In this sense, almost 40% of Germany’s increase in corporate savings could be associated with declining trade union density. All the controls point into the expected direction. To visualize these findings, Figure 2 plots the correlation between trade union density and corporate savings given country-fixed effects only and twoway-fixed effects and the full set of controls.

The cross-country analysis provides descriptive evidence that there is a negative relationship between trade-union density and corporate savings. The effect is statistically significant and substantially relevant and the relation holds for a wide range of specifications and controls. However, the cross-national design also forces the analysis to operate at a very high level of aggregation, which feeds in a lot of noise and makes it difficult to clearly identify the causal relation that I propose in my argument. While I control for the theoretically most relevant alternative explanations as well as for country- and time-specific unobservables, the development of trade union density might still be endogenous to a range of factors that I am unable to grasp in this set-up. To counter these problems and to investigate the effect of profit-sharing institutions more carefully, the next section looks at a case study on corporate governance in Germany.

4.3 Case Study - Co-determination and Corporate Savings in Germany

To circumvent these problems, I focus on Germany as a important case for the relationship between corporate savings and labor power. As pointed out in Figure 1, Germany was relatively late in joining the club of countries with corporate net lending. Ever since the mid 2000s, German companies, however, have accumulated large piles of retained profits. This savings have been one of the main drivers of the country's large current-account surplus (Brufman, 2013), they have been associated with sluggish domestic demand (Theobald, Belabed and van Treeck, 2013) and they have contributed massively to Germany's large capital exports, for which the country has widely been criticized (Obstfeld, 2012; IMF, 2014). At the same time, though Germany still has a comparatively strongly organized workforce and one of the world's most sophisticated system of labor representation (Thelen and Turner, 1999), the institutional foundations underpinning much of the countries' traditional labor strength have experienced substantial changes (Baccaro and Howell, 2011). Germany thus provides an excellent context to study the relation between labor power and corporate savings. At the same time, the specificities of the German law on co-determination allow me to neatly analyze the causal link between corporate savings and the strength of profit sharing institutions at the firm level.

Measuring Corporate Savings at the Firm Level

I obtain firm-level data on corporate savings from Compustat Global. The database provides the financial statements of publicly listed firms in most advanced economies since 1990. For the case of Germany, the total dataset includes observations on 1390 individual firms and about 18500 firm-years. As in the cross-country analysis, I again focus on the savings behavior of non-financial firms. I thus exclude all banks, insurance companies and other financial institutions (SIC code 6). Since Compustat only lists publicly listed firms, the sample is somewhat skewed towards larger companies. However, since these firms account for a large share of Germany's output, employment and productivity, they provide a good starting point for investigating the savings behavior of German companies.

The main dependent variable of interest is a firm's net lending position in a given year. While this variable is not readily available in Compustat, it can be calculated based on the information listed in the balance sheets. I follow Chen, Neiman and Karabarbounis (2016)

in defining net lending as a firm's excess of savings over investment and deducing it from a range of variables available in Compustat. The details of this procedure can be found in the supplementary materials. The resulting variable measures corporate savings at the end of each company's fiscal year. One problem with this measure is that the sheer quantity of net lending does not entail information on how these savings were used. Most importantly, the balance sheet data only registers capital expenditures in the company's country of origin. Similar to the cross-country analysis above, some share of my measure of net lending could thus stem from lending to foreign affiliates and therefore constitute foreign direct investment rather than actual savings (IMF, 2014).

I circumvent this problem by focusing my analysis on a narrower definition of savings: cash and short term investments on financial markets. This measure is the sum of the balance sheet accounts "cash and cash equivalents" (Compustat item CH) and "short-term investments"¹¹ (Compustat item IVST). It includes cash holdings in firm's deposits as well short-term financial assets such as corporate bonds, government bonds, stocks, and mortgage-backed securities. It excludes corporate savings that are used for more long-term investment on financial markets or the repayments of debt obligations. While providing me with a more conservative estimate of corporate savings, this approach should be taken with a grain of salt. There is no one-to-one relation between a firm's liquid assets and its net lending position. Firms could for example issue long-term debt and acquire liquid assets, which would boost their cash holdings without changing their lending positions. At the same time, not all speculative assets on financial are bound to be short-term (Duchin et al., 2017). However, the two measures are tightly correlated and in the period between 2008 and 2015 more than 60 percent of the variation in firm's net lending positions can be explained by their holdings of liquid financial assets. More details on the correlation between the two measures can be found in the supplementary materials.

¹¹ Cash and cash equivalents refer to financial assets with a maturity of up to 90 days. Short-term investments include financial assets that a firm intends to liquidate within a year.

Parity Co-determination as Randomly Assigned Profit-Sharing Power

My main hypothesis is that corporate savings are directly affected by the degree of employee influence and the prevalence of profit-sharing institutions at the firm level. The larger the power of workers, the less firms are able to retain large parts of their profits. The German law on co-determination allows me to causally identify the impact of labor power on savings. Introduced in 1976, the German Co-determination Act regulates the composition of supervisory boards for both private and public firms. In general, companies in Germany have a two-tier board system with a management and a supervisory board. The former consists of managers and is the main body responsible for running the daily business. The members of the supervisory board, on the other hand, have the right to supervise the executive managers, to approve major firm strategy and investment decisions and to appoint the members of the management board for at most five years, with the possibility of re-election (Section 84 (1) of the Stock Corporation Act). Though supervisory boards have no formal role the daily operations of a firm and cannot take binding decisions with regards to its operation, their monitoring role and the fact that they directly appoint managers provide them with powerful means to influence decision making: if they are not satisfied with a manager's performance, they can deny their re-election (Lin, Schmid and Xuan, 2016).

In general, German firms with more than 500 employees have to occupy one third of their supervisory boards with workers. However, the potency of this form of co-determination significantly increases for larger firms. The German law on co-determination mandates that the supervisory boards of firms with more than 2000 employees has to consist of an equal number of owners and employee representatives. While the idea of implementing parity co-determination in supervisory boards goes back to the early 1950s, it was only under a coalition of the Social Democratic Party (SPD) and the Free Democratic Party (FDP) and against fierce opposition from employers associations and share holder organizations that the law was actually implemented (Kim, Maug and Schneider, 2014). According to Lopatta, Böttcher and Jaeschke (2017) the regulation explicitly aimed at expanding democratic elements into the work place by allowing workers to exert direct pressure on managers. It thus constitutes a prime example of profit-sharing capacities that come in the form of institutionalized labor rights. Managers operating in firms with parity co-determination not only have to justify their savings decisions to labor representatives, they also have to fear difficulties

in the process of re-election if their decisions fall outside the range of what is acceptable to these representatives. While this power differs from firm to firm and is affected by institutional factors such as specific board voting rules and economic context conditions, my main assumption is that, all other things being equal, the jump from having only one third of the seats in supervisory boards to full fledged parity co-determination provides an significant increase of labor’s profit-sharing capacities at the firm level.

To identify the causal effect of employee influence in the form of labor parity co-determination (LPC) on corporate savings, I apply a regression discontinuity design around the threshold of 2000 employees (Eggers et al., 2018; Sekhon et al., 2016). In a more formal way, the German law stipulates that:

$$(1) \quad LPC_{i,t} = \begin{cases} 1 & \text{if } X_{i,t} > 2000 \\ 0 & \text{if } X_{i,t} \leq 2000, \end{cases}$$

where i indicates firms, t years and X the number of employees.¹² Naturally, I can never observe both potential outcomes for the same unit (i.e. the exact same firm in the same year having parity co-determination *and* not having parity co-determination). However, the more or less arbitrary statutory threshold of 2000 employees allows me to focus my analysis on firms that are very close to the cut-off point and that should therefore be similar on most dimensions except for their respective level of labor power.¹³ Under the assumption of a small amount of extrapolation around the threshold, I can estimate the local average treatment effect (LATE) of labor co-determination on corporate savings with local linear regressions based on pooled regressions on both sides of the 2000 employee threshold (Imbens and Lemieux, 2008). The main model of my empirical analysis thus is:

¹² This assumes that firms with a up to 2000 employees do not voluntarily establish parity co-determination. This is, however, a reasonable assumption as it would require that the firm’s owners voluntarily reduce their power on the supervisory board.

¹³ Gorton and Schmid (2004) and Lin, Schmid and Xuan (2016) use a similar design to analyse the effect of co-determination on firm valuation and working capital.

$$(2) \quad Y_{i,t} = \alpha + \tau \cdot D_{i,t} + \beta \cdot (X_{i,t} - c) + \gamma \cdot (X_{i,t} - c) \cdot D_{i,t} + \nu \cdot Z_{i,t} + \varepsilon_{i,t},$$

where $Y_{i,t}$ represents firm i 's corporate savings in the form of liquid assets at time t , $X_{i,t}$ is the forcing variable and denotes the number of employees in firm i at time t , c represents the mandatory threshold of 2000 employees, D is a dummy that switches on if a firm's number of employees exceeds the threshold and $Z_{i,t}$ constitutes a vector of control variables (e.g. year and industry fixed effects). The local difference between the intercepts of the regressions at both sides of the cut-off point constitutes the LATE. In the specification above, it is given by the coefficient τ of the treatment dummy $D_{i,t}$.

Identification Assumption - Contamination by other Treatments & Sorting Around the Threshold

It is important to rule out two factors that could harm the set-up of the RDD design: Contamination by other treatments and sorting around the threshold. First, in order to be able to pinpoint the effect of larger profit-sharing capacities through the establishment of parity co-determination it is crucial that this is the *only* firm characteristic that changes at the 2000 employee threshold. I therefore checked for a range of alternative regulations such as capital and corporate tax rates, financial disclosure rules and other corporate governance institutions. To the best of my knowledge, there are no institutionalized factors but parity co-determination that are affected by this particular threshold.

Second, I have to make sure that firms do not strategically manipulate their number of employees in order to avoid having to establish LPC. If such sorting would occur, firms would self-select into treatment and control groups and the assumption that treatment assignment in the neighborhood of the cut-off point is as good as random would be violated. Two theoretical considerations help mitigating these concerns. First, Lin, Schmid and Xuan (2016) argue that keeping the number of employees artificially small would imply that both managers and owners are willing to forgo future growth. Since firms close to the 2000 employee mark know that expansion at some point will mean that they have to implement co-determination, the actual benefit of reducing growth in order to postpone this point seems relatively small. Second, the fact that I am focusing on mid-sized and most importantly publicly listed firms

makes strategic sorting unlikely since the interest of managers, owners and shareholders may not be aligned. Especially, shareholders should object situations in which they give up firm growth in order to manipulate the composition of supervisory boards. In line with the arguments, neither Lin, Schmid and Xuan (2016) nor Kim, Maug and Schneider (2014) find any evidence for systematic clustering around the threshold and a Government Commission set up in 2005 in order to review the law on co-determination reported "only very few cases of companies avoiding board-level representation". As a formal analysis of possible sorting, I use a McCrary (2008) density test to investigate the distribution of employment numbers around the threshold. It investigates the density of the assignment variable around the threshold. If firms strategically manipulated their number of employees to circumvent co-parity determination, we should, for example, see an uptick in the number of firms with just below 2000 employees. Figure 3 plots the result. There is no evidence for systematic clustering on either side of the 2000 employee threshold (p-value = 0.27). As another indirect test of sorting, I perform covariate balance tests, to check that covariates which might affect firms' saving behavior are continuous at the cut-off. Table 2 shows the result of these tests for different measures of ownership concentration, sectoral composition and years for the sample. None of these firm characteristics are affected by crossing the threshold. It thus appears that business and operational considerations are the driving determinants of employment decisions for mid-sized firms.¹⁴

Analysis - Regression Discontinuity

To choose a bandwidth in which the assignment of the treatment is plausibly random, I rely on the data-based bandwidth selection method proposed by Cattaneo, Calónico and Titiunik (2015). To obtain the optimal bandwidth, I use a subsample of all firm-year observations with more than 1500 and less than 2500 employees. The result is an optimal bandwidth of about 170 employees on each side of the threshold, which includes 103 firms and 242 firm-

¹⁴ A more sophisticated form of sorting could occur when firm strategically choose their legal form to avoid co-determination. Publicly listed firms in Germany, for example, could change into European Companies (so known by its Latin name *Societas Europaea* or SE), to which the law does not apply. However, in Compustat only 17 SEs are listed and there is no evidence that these forms sort strategically around the 2000 employee threshold.

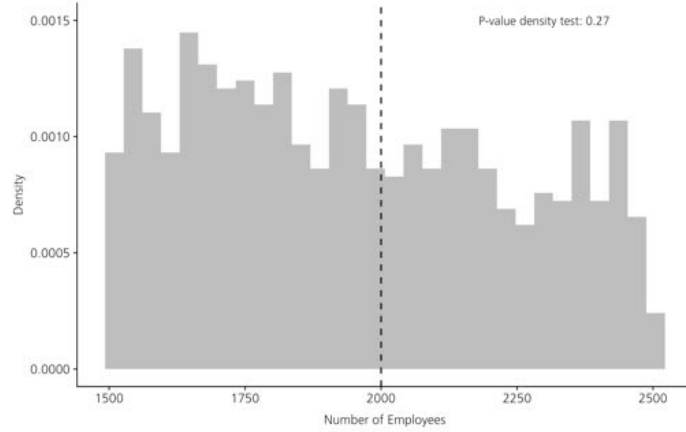


FIGURE 3: McCray (2008) density test shows that there is no jump in the density of firms around the threshold (p-value .262)

TABLE 2: Falsification tests: effect of parity co-determination on pre-treatment covariates

RD Falsification Test - Covariate Balance			
Outcome: Pre-treatment Covariates			
	Estimate	95% CI	p-value
Ownership Concentration (Share Largest)	10.436	[-48.35, 69.21]	0.73
Ownership Concentration (Mean Share 5 Largest)	0.829	[-34.344, 36.00]	0.963
Single Owner Dummy	-0.043	[-0.892, 0.805]	0.912
Manufacturing Dummy	0.143	[-0.221, 0.509]	0.440
Service Dummy	-0.069	[-0.322, 0.184]	0.593
Tech & Transport Dummy	-0.026	[-0.212, 0.159]	0.781
Trade Dummy	-0.063	[-0.213, 0.086]	0.407
Year	-1.093,	[-3.799, 5.986]	0.661

Columns 1-3 list the RDD estimate, confidence intervals and p-values of the pre-treatment covariate listed on the left at the cutoff of 2000 employees. All estimates are calculated with MSE-optimal bandwidths. Standard errors for the confidence intervals and p-values are robust to the bandwidth selection.

year observations. ¹⁵ However, since the optimal bandwidth calculations are not without criticism, I conduct sensitivity checks by varying the chosen bandwidth.

¹⁵ I choose the subsample of firms with between 1500 and 2500 firms, rather than the full sample (ranging from companies with 10 to 60 000 workers) because the above-mentioned optimal bandwidth algorithms otherwise choose bandwidths that are too large (e.g., 1000 employees) to make credible causal inferences.

Figure 4 plots the cash holdings of firms with between 1830 and 2170 employees. Since LPC is legally mandated for firms with more than 2000 employees, my argument would expect a discontinuity around this threshold (indicated by dashed vertical line). This simple graphical approach provides some first evidence, that firms in which workers have a larger say in the supervisory board indeed seem to hoard less cash and liquid financial assets. This finding holds independent of whether I employ linear (a) or quadratic fitting (b) around the threshold.

Table 3 displays the results of the main regression discontinuity analysis. Following Cattaneo, Calónico and Titiunik (2015), I report the local average treatment effect of LPC on corporate savings in its conventional form as well as bias-corrected and robust estimators. The findings support my argument. Model 1 reports the baseline estimates. For mid-sized firms close to the 2000 employee threshold, those that are legally mandated to occupy half of their supervisory boards with worker representatives display significantly lower levels of corporate savings. The effect is not only statistically significant but also substantially large. On average, firms with LPC hold more than \$US 40 Million less in cash and short-term investments than similar firms without labor representation. Model 2 adds industry and year fixed effects to my baseline specification. Since variation is likely to vary across different firms, model 3 furthermore clusters standard errors at the individual firm level. The magnitude, direction and statistical significance of the effect remains largely stable for these different set-ups.

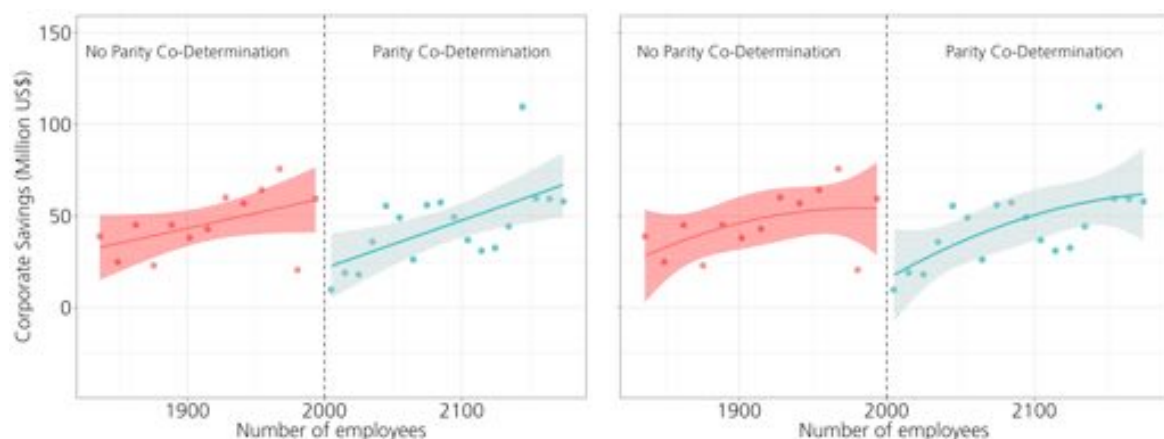


FIGURE 4: Regression Discontinuity Plots (90% Confidence Intervals) - Establishment of parity co-determination has a negative effect on corporate savings at the firm level

TABLE 3: The effect of labour parity co-determination on firm-level cash-holdings

RD Effect of Parity-Codeterminaiton on Corproate Savnigs					
Outcome: Corporate Savings					
	Estimate	95% CI	p-value	controls	clustered SE
Parity Co-determination	-45.699	[-88.327, -3.071]	0.036	No	No
Parity Co-determination	-47.174	[-89.485, -4.864]	0.029	Yes	No
Parity Co-determination	-46.5163	[-91.430, -1.602]	0.042	Yes	Yes

The dependent variable of all models are firm-year observations of corporate savings, measured as the sum of cash holdings and short-term investments (in millions). Estimate is the average treatment effect at the cutoff of 2000 estimated with local linear regression with triangular kernel and a common MSE-optimal bandwidth of 164 employees at each side of the cutoff. Controls include fixed effects for years and sectors (manufacturing, service, trade and IT) and different measures of ownership concentration. Clustered standard errors cluster at the individual firm level.

Robustness Checks

I conduct a range of robustness checks. As the law on co-determination only applies to domestic employees, I reduce the sample to firms which have no foreign affiliations to make sure that the number of total employees listed in Compustat does not include workers outside of Germany. As shown in Table B.1 in the supplementary materials, this increases the magnitude of the effect while not affecting its statistical significance. As cash holdings are not normally distributed across firms, I rerun the RDD with logged savings as the dependent variable and also calculate the effect of parity co-determination on savings as a share of total assets. This does not change the results substantially and on average firms at the cut-off hold about 6 percentage points less in savings if they have to implement LPC (see Table B.2 in supplementary materials). To further corroborate this finding, I conduct placebo tests with arbitrarily chosen alternative cut-offs. If corporate savings are actually decreased by the implementation of LPC, negative local treatments should *only* occur at the mandatory threshold of 2000 employees. I thus conduct a range of "placebo tests" with randomly chosen alternative thresholds. As Figure 5 displays, I find no indication that the level of corporate savings changes at these arbitrary thresholds. To further rule out that the negative effect of crossing the 2000 employee threshold stems from something else than increased labor power, I rerun the RDD in countries, which do not have similar changes of regulation at this cut-off. As Figure B.5 in the supplementary materials shows, negative effects occur only in Germany.

Furthermore, Figure B.6 in the appendix shows that my findings are not sensitive to the size of the bandwidth chosen.

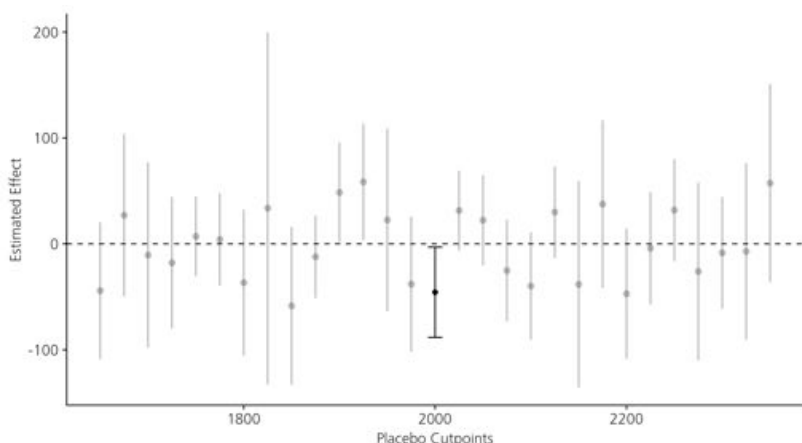


FIGURE 5: Placebo Tests with 95% Confidence Intervals - The negative treatment effect occurs only at the 2000 employee threshold.

Finally, I also look into the mechanisms that my theory suggests. I argue that larger profit-sharing capacities on the side of labor should decrease savings by strengthening employees' ability to make sure that revenues are used in ways that benefit their interests - above all for labor expenses and productive investment. Compustat data on firm expenses is more limited than for savings. Nonetheless, Table B.3 in the appendix shows some evidence in line with these predictions. While the establishment of parity-co-determination has a positive but non-significant effect on expenses for wages and salaries¹⁶, other labor related expenses - which include employee benefit plans and other social expenditures as well as pension and retirement expenses - significantly increase at the threshold. Similarly, parity co determination also has a positive effect on firm-level investment, measured as the annual capital growth rate. However, due to the larger amount of missing data on these items, all these findings should be taken with a grain of salt.

¹⁶ Besides a lack of statistical power, one reason for why we do not see a larger effect here could be that this item of course also includes expenses for executive salaries and bonuses. If parity co-determination not only increases wages for workers but also limits executive pay, the two effects could cancel each other out.

Overall, these tests support my causal claims. Since the strategy of hoarding cash and liquid assets on financial markets is at odds with the direct interests of workers, firms that are legally required to establish parity representation in their supervisory boards have significantly lower levels of savings. These findings make it plausible that the broader erosion of profit sharing capacities in other context are play a crucial role in the global rise of corporate savings.

5 Conclusion

The rise of large corporate savings constitutes a silent but fundamental transformation in the functioning of some advanced economies. Firms in many developed countries seem increasingly reluctant to use their profits as means to expand their business, to increase payouts to shareholders or to raise wages. Instead they retain large shares of their revenues, accumulate big portfolios on financial markets and have turned into a net lender for other sectors. This development is not only economically puzzling. It also contributes to a long list of political and economic problems, ranging from rising inequality to heated financial fragilities and an actuation of global imbalances. To understand this trend, most economists either point towards structural factors such as a relative decline in the costs of capital or focus on micro-level theories that help to explain how the incentives structures of CEOs with regards to cash hoarding might differ across firm types. While all of these aspects are likely to play a role, the large variation of saving trends across countries indicates that all of these accounts could overlook a decisive factor mitigating these trends: The political and institutional context in which they take place. To fill this gap, this paper has started to study the *political economy* of the corporate savings glut.

As a first step into investigating how political factors contribute to large corporate savings, this paper has focused on the role of profit-sharing capacities. As the process of retaining profits is at odds with the material interests of workers, this paper has argued that factors that strengthen employees voice in the usage of profits mitigate the trend towards higher savings. I have tested this argument in two steps. At the cross-country level, the analysis has shown that there is a substantive and robust negative association between the level of trade union density, as a prime institution determining labor's organizational, and corporate savings. At the firm level, I have exploited the unique context of the German

law on co-determination to investigate the effect more causally. This law stipulates that firms with more than 2000 employees have to occupy half of their supervisory boards with labor representatives. This renders significant power resources to employees and allowed me to make use of discontinuity around the mandatory threshold to gauge the causal effect of labor representation on corporate savings. The findings largely support my argument. Firms with labor representation hold substantially lower levels of cash and short-term investments than comparable firms without such institutions and this finding is robust across different specifications and robustness checks.

While both of these studies find evidence in line with the argument, three caveats should be addressed in future work. First, skeptics of my approach might point out that the forms of profit-sharing capacities I investigate at the cross-country and the firm level are quite different. While I would argue, that dense trade unionism as well as parity co-determination are both factors that directly strengthen workers ability to champion there interests, future research into the topic should take a more systematic look into the specificities of profit-sharing capacities that mitigate corporate savings. Second, future iterations of this work should try to develop a more sophisticated measure of corporate savings at the firm level. While most savings are still held in cash and short-term investments, not all forms of retained profits necessarily fall into this category. It is thus going to be important to find ways to include long-term financial assets into my measurement of savings. Finally, this paper has focused on the distributional conflict between workers and management. However, to paint an encompassing picture of the rise of corporate savings, future research should further unpack the capital side of the story. Especially in listed firms, it remains striking why stock owners accept that management stashes up profits inside the firm instead of insisting on their immediate returns in the form of higher payouts. To investigate the political context conditions that change owners preferences or enable management to pursue saving strategies against the interests of owners constitutes a promising avenue for future work on the political economy of the corporate savings glut.

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Supplementary Materials (Not Meant for Publication)

A Supplementary Material Cross-National Study

A.1 Construction Corporate Net-Lending Data at the Country Level

I obtain data on corporate net lending at the county level from Chen, Neiman and Karabarbounis (2016), who base their calculations on information from national accounts provided by the United Nations and the OECD. These accounts divide the economy into the corporate sector, the household sector and the government sector. For all the countries considered in this study, national accounts allow to further disaggregate the corporate sector into a financial and a non-financial sector.

Corporate net lending positions can be calculated based on a couple of accounting identities that serve as the backbone of these national accounts. First, in these accounts the value of the final production in a country is called the gross-value added (GVA), which equals the national GDP less net taxed on products. GVA is detailed in the generation of income account and equals the sum of income paid to capital, labor, and taxes:

$$(A.1) \text{ GVA} = \text{Gross Operating Surplus (GOS)} + \text{Compensation to Labor} + \text{Net Taxes Production}$$

In this equation, GOS captures the income available to corporations after paying for labor and subtracting taxes and adding subsidies associated with production. The GOS can be further disaggregated into gross saving, dividends, and other payments to capital such as taxes on profits, interest payments, reinvested foreign earnings, and other transfers:

$$(A.2) \quad \begin{aligned} \text{GOS} = & \text{Gross Saving (GS)} + \text{Net Dividends} + \text{Taxes on Profits} \\ & + \text{Interests} - \text{Reinvested Earnings on FDI.} \end{aligned}$$

Finally, the gross saving of the corporate sector at the national level can be further decomposed through the capital account identity:

$$(A.3) \quad \begin{aligned} GS = & \textit{Net Lending (NL)} + \textit{Gross Fixed Capital Formation} + \textit{Changes in Inventories} \\ & + \textit{Changes in Other Non Financial Produced Assets} + \textit{Net Capital Transfer}. \end{aligned}$$

In the paper, I follow Chen, Neiman and Karabarbounis (2016) in defining my final variable of NL as Gross Savings subtracted by Gross Fixed Capital Formation, i.e. as the excess of gross savings over investment spending. As evident from the identity above, this definition slightly differs from the identities in the national accounts. However, since the remaining items are small and stable over time, this measure of corporate net lending comes very close to the that in the national accounts (Chen, Neiman and Karabarbounis, 2016).

A.2 Multiple Imputation for TSCS Analysis

To avoid any biases that might result from missing values in my time-series cross-country analysis, I use multiple imputation. The core idea of multiple imputation models is that any case in a sample can be replaced by a new randomly chosen case from the same source population (Donders et al. 2006). Thus, in the case of a missing value in a variable this missing is replaced by a value drawn from an estimate of the distribution of this variable. This process is then called imputation. In the case of multiple imputation, not only a single estimate is used to replace the missing, but various estimates are used. This method is superior to more ad-hoc measures of dealing with missings such as pairwise deletion, if missings are not completely at random, i.e. if probability that a given value is missing does (at least partially) depend on information in the dataset (Honaker and King, 2010). As multiple studies have shown, this is the case for many political science datasets and especially for the macroeconomic and macro-political variables I use in my analysis (Cranmer and Gill, 2013; Lall, 2016).¹⁷

To impute the data, I follow the procedure described in Honaker, King and Blackwell (2011). For choosing the number of imputations, I use the average missing-data rate of the

¹⁷ To improve the numerical stability of the algorithm, I shrink the covariance of the variables in the model by including a positive rigid prior I also include a positive rigid prior as described in Honaker, King and Blackwell (2011).

TABLE A.1: Chain length of imputations

Imputation 1	31
Imputation 2	38
Imputation 3	30
Imputation 4	22
Imputation 5	26

variables in the model (Lall, 2016) which in my data set is five. In the imputation model, I include all variables in the subsequent analysis and add a number of variables that have few missing values and that are likely to be correlated with the covariates such as inflation, unemployment, capital and trade openness, fiscal deficits and the share of high-tech exports. Given the tscs structure of my data, my imputation model also makes use of lags and leads of the key variables (Honaker and King, 2010).

To give a better idea of the fit of the imputation model, Figure B.4 shows overimputed values of trade union density. Overimputing treats observed values of a variable as if they had been missing. For each observed value several hundred imputed values of that observed value are generated using the imputation algorithm. Figure B.4 plots the estimation of each observation against its true value as well as 90 % confidence intervals.

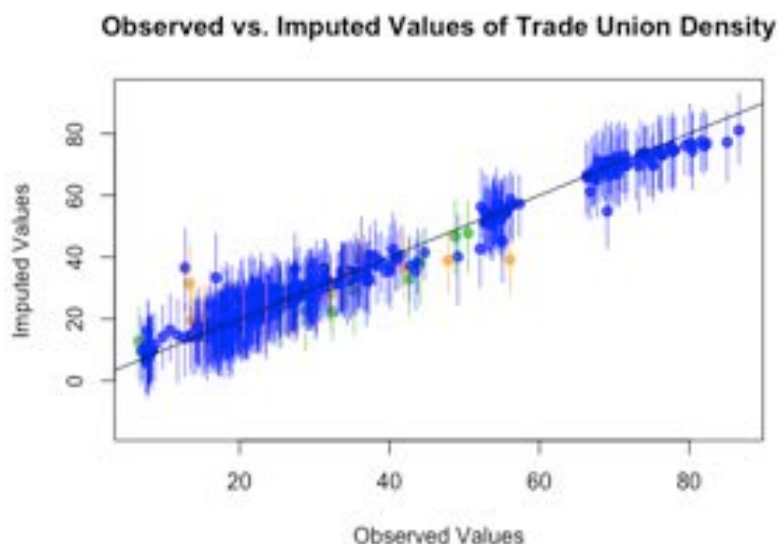


FIGURE A.1: Overimputed values of trade union density.

A.3 Descriptives & Summary Statistics

TABLE A.2: Summary Statistics & Sources for Cross-Country Analysis

Statistic	N	Mean	St. Dev.	Min	Max	Source
Corporate Net Lending (% GDP)	474	-0.204	3.694	-11.146	9.450	Chen et. al (2016)
Trade Union Density	451	32.067	19.627	6.531	86.621	Armingeon et al. (2017)
RTI Score	448	12.528	0.894	6.792	14.470	Author's calculations Based on Autor et al. (2013)
FDI out (% GDP)	435	4.909	8.633	-19.117	72.740	World Bank (2017)
Real GDP Growth	474	2.232	2.799	-14.260	11.909	Armingeon et al. (2017)
Real Interests	446	2.629	2.179	-3.568	20.996	Armingeon et al. (2017)
Crisis Dummy	474	0.105	0.308	0	1	-
Old Age Dep.	436	23.956	3.588	16.838	40.365	Armingeon et al. (2017)
Corporate Income Tax	426	30.548	7.391	16.000	56.799	OECD (2017)

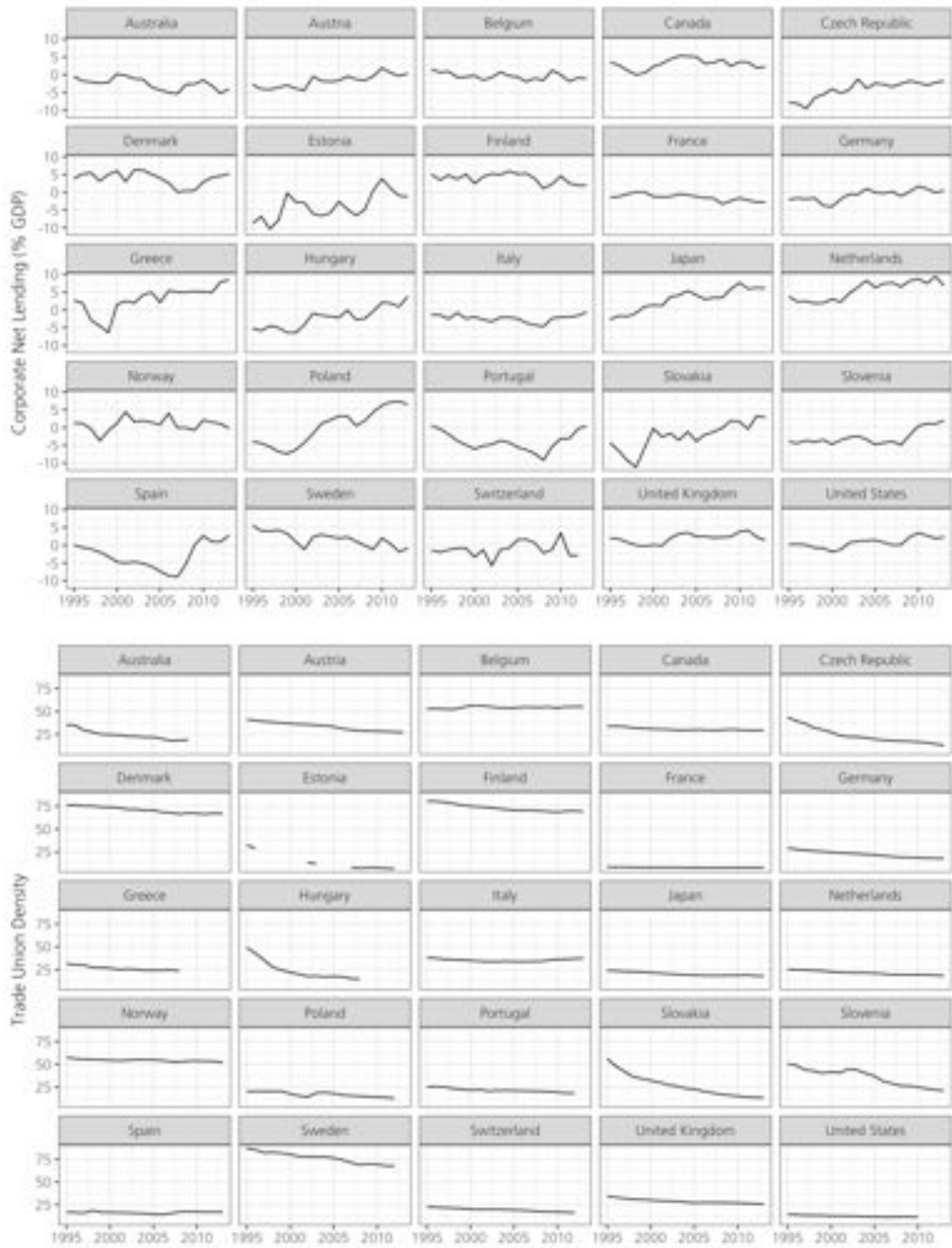


FIGURE A.2: Development of Corporate Net Lending and Trade Union Density across countries and time

B Supplementary Material RDD Germany

B.1 Calculating Firm-Level Corporate Savings

To calculate corporate savings based on information on Compustat, I proceed in three steps. First, a firm's gross operating surplus (GOS) equals total sales less operating expenses plus depreciation and expenses for research and development (R&D):

$$(B.1) \quad GOS_{f,t} = Sales_{f,t} - Operating\ Expenses_{f,t} + Depreciation_{f,t} + R\&D_{f,t}$$

Gross savings (GS) at the firm level can then be calculated by removing expenses for interests, corporate taxes and dividends from my measure of GOS.

$$(B.2) \quad GS_{f,t} = GOS_{f,t} - Corporate\ Taxes_{f,t} - Interests_{f,t} - Dividends_{f,t}$$

Finally, net lending is defined as the excess of gross savings over investment. Investment equals fixed capital formation (FCF) at the firm level and can be obtained by calculating expenses for acquisitions less income from sale and disposals of property, plant, and equipment, plus R&D expenditure. I thus am able to construct a firm's net lending (NL) by calculating:

$$(B.3) \quad NL_{f,t} = GS_{f,t} - Acquisitions_{f,t} - R\&D_{f,t} + Sale\ of\ PPE\ Gains_{f,t}$$

B.2 RDD Robustness Checks

TABLE B.1: The effect of labour parity co-determination on firm-level cash-holdings

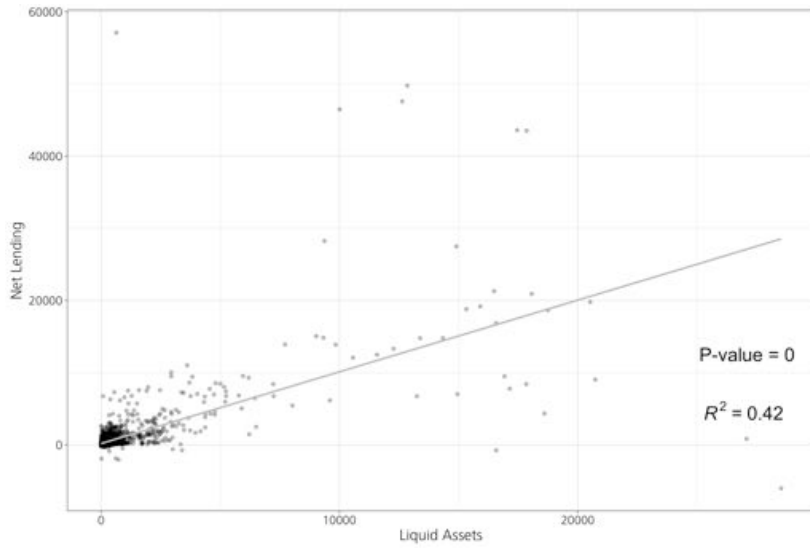
RD Effect of Parity-Codetermination on Corporate Savings						
Robustness Excluding Firms with Foreign Subsidiaries						
Outcome: Corporate Savings						
	Estimate	95% CI	p-value	controls	clustered SE	
Parity Co-determination	-58.65	[-110.151, -7.148]	0.026	No	No	
Parity Co-determination	-58.074	[-109.425, -6.723]	0.027	Yes	No	
Parity Co-determination	-58.893	[-111.374, -6.413]	0.028	Yes	Yes	

The dependent variable of all models are firm-year observations of corporate savings, measured as the sum of cash holdings and short-term investments (in millions). Estimate is the average treatment effect at the cutoff of 2000 estimated with local linear regression with triangular kernel and a common MSE-optimal bandwidth of 176 employees at each side of the cutoff. Controls include fixed effects for years and sectors (manufacturing, service, trade and IT) and different measures of ownership concentration. Clustered standard errors cluster at the individual firm level.

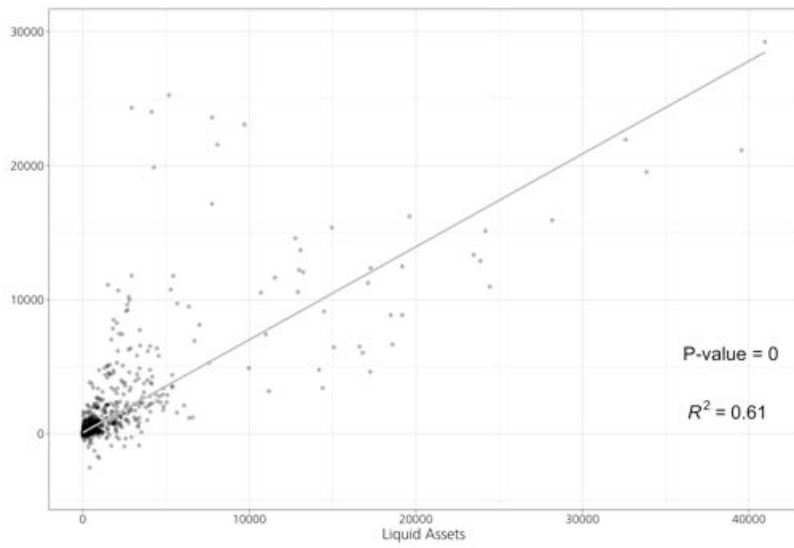
TABLE B.2: The effect of labour parity co-determination on firm-level cash-holdings

RD Effect of Parity-Codetermination on Corporate Savings						
Robustness for different Measures of Corporate Savings						
Outcome: Corporate Savings						
	Estimate	95% CI	p-value	bandwidth	controls	clustered SE
Logged cash	-1.050	[-2.248, -0.147]	0.085	137	Yes	No
Logged cash	-1.050	[-2.248, 0.147]	0.085	137	Yes	Yes
Savings (share total assets)	-0.058	[-0.123, 0.008]	0.084	184	Yes	No
Savings (share total assets)	-0.058	[-0.123, 0.008]	0.084	184	Yes	Yes

The dependent variable of all models are firm-year observations of corporate savings, measured as the sum of cash holdings and short-term investments (in millions). Estimate is the average treatment effect at the cutoff of 2000 estimated with local linear regression with triangular kernel and a common MSE-optimal bandwidth. Controls include fixed effects for years and sectors (manufacturing, service, trade and IT) and different measures of ownership concentration. Clustered standard errors cluster at the individual firm level.



(A) 1990 - 2000: Cash holding and Net Lending Positions



(B) 2008 - 2015: Cash holding and Net Lending Positions

FIGURE B.3: Cash holding and Net Lending Positions

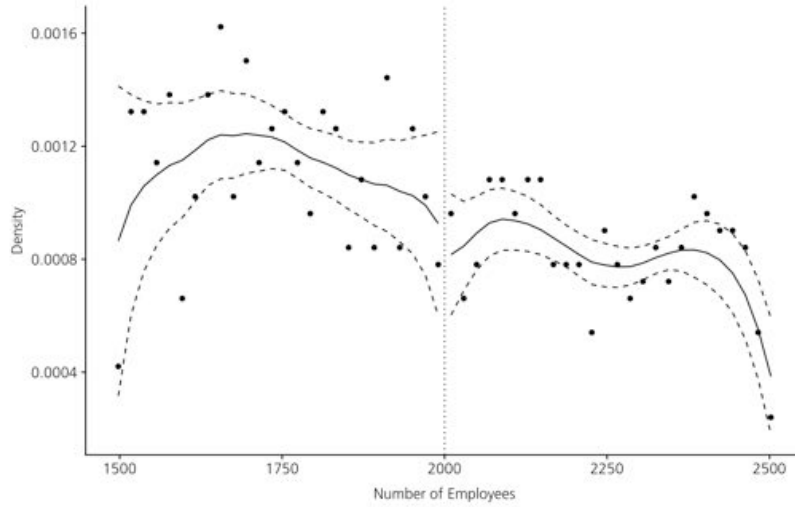


FIGURE B.4: McCrory Density Test Plot

TABLE B.3: Mechanisms: Effect on firms' spending behaviour

RD Effect of Parity-Codeterminaiton on spending behaviour						
	Staff Expenses & Investment					
	Estimate	95% CI	p-value	bandwidth	controls	clustered SE
Staff Expenses (Wages & Salaries)	0.073	[-0.075, 0.221]	0.334	170	Yes	Yes
Staff Expenses (Other)	0.038	[0.013, 0.071]	0.005	137	Yes	Yes
Investment (Capital Growth Rate)	0.068	[0.002, 0.133]	0.045	143	Yes	Yes

Staff expenses (wages & salaries) include all labor expenses that are linked to the direct remuneration of workers. Staff expenses (other) captures forms of indirect remuneration of labor such as employee benefits plans and other social expenditure, pension and retirement expenses as well as social security contributions. Investment is defined as the capital growth rate measured in annual changes in a firm's net property, plant and equipment expenses (Compustat data item PPENT). For the details of the variable definition see Dangl and Wu (2016). All variables are scaled by firm size measured as in total assets. Estimate is the average treatment effect at the cutoff of 2000 estimated with local linear regression with triangular kernel and MSE-optimal bandwidths. Controls include fixed effects for years and sectors (manufacturing, service, trade and IT) and different measures of ownership concentration. Clustered standard errors cluster at the individual firm level.

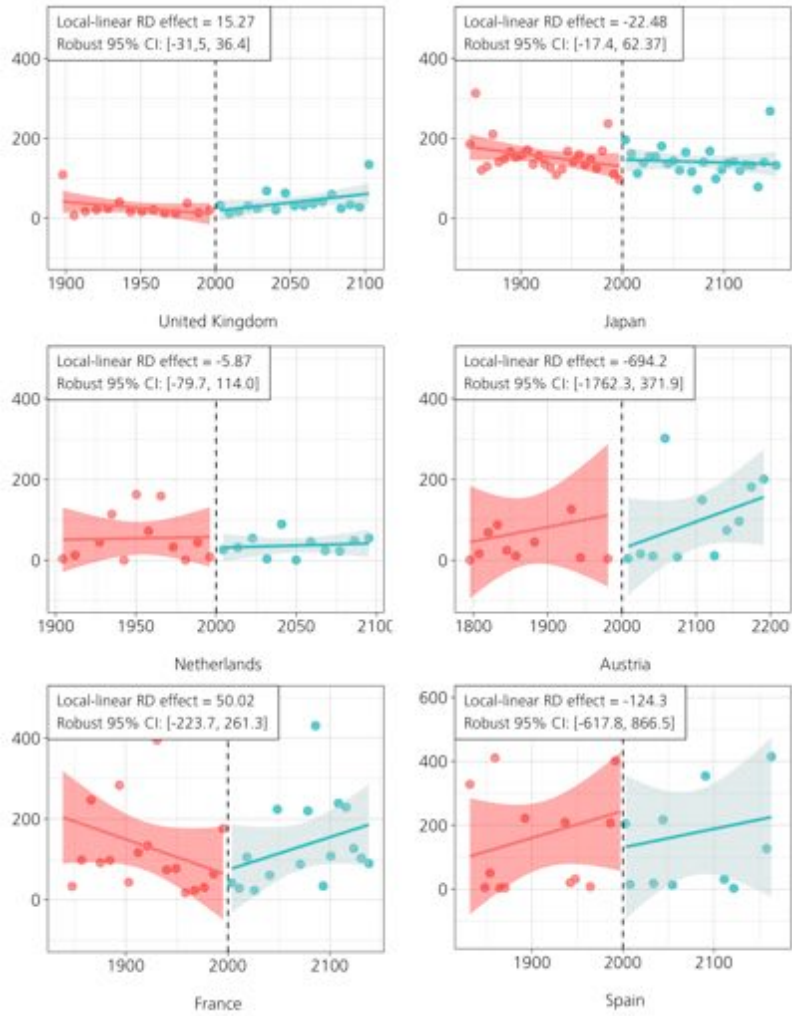


FIGURE B.5: Alternative Placebo Test. There is no jump in corporate savings at the 2000 employee threshold in countries without the establishment of parity-co determination. All models include robust bias-corrected standard errors and a MSE-optimal bandwidth selector.

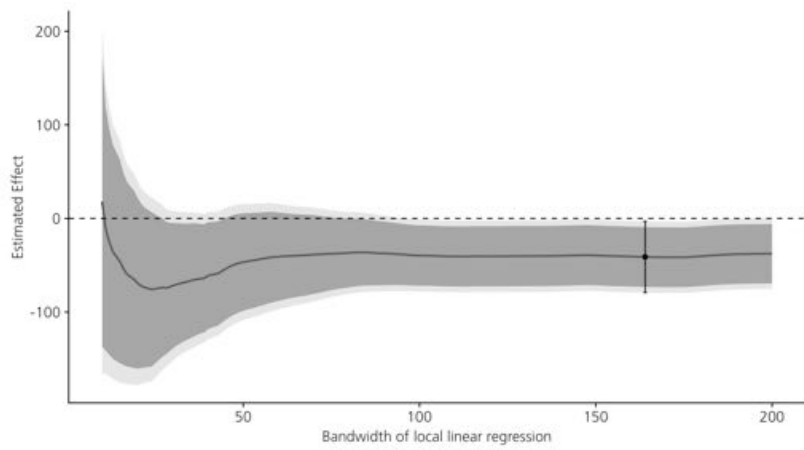


FIGURE B.6: Alternative RDD specifications with changing windows of domestic employees around the threshold of 2,000. All models include robust bias-corrected standard errors and a MSE-optimal bandwidth selector.