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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 rising inequality. 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 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, 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 savings 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 (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 broader trend. In many developed countries, firms in recent years have turned into a net lender to the rest of the economy (Chen, Karabarbounis and Neiman, 2017; 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 (Armenter, 2012; Wolf, 2015). More importantly, it also 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 booming asset prices, 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, as 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-Ieñalosa, 2010). Explaining what shapes the global trend towards higher corporate savings thus constitutes and important and often overlooked aspect of our understanding of rising inequality and its effects on democratic politics, voter preferences and political inequality (Dahl, 1986; 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, Karabarbounis and Neiman, 2017; Gruber and Kamin, 2015). It offers valuable insights in the macro-trends underlying this development. However, this paper argues that focusing solely on economics provides and 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 politics (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. Whereas 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 depend 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 in influence erodes, the larger 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 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 , I am able to causally identify the effect of increased labor influence on corporate savings. 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 4.3% 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 increases productivity, they should be used to raise 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 motives[1] 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).

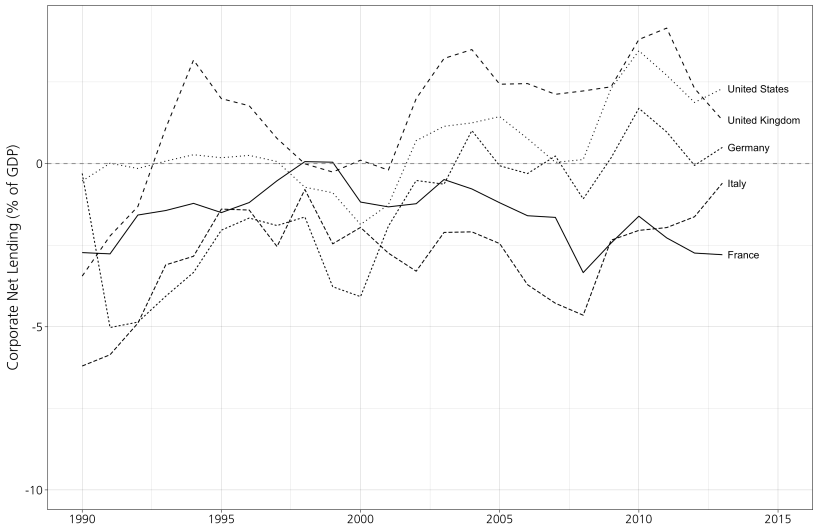

FIGURE 1: Development of Corporate Savings in Major Economies; Data based on Chen, Karabarbounis and Neiman (2017).

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

[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).

countries like France or Italy the corporate sector remains a net-borrowers until today. The e 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 savings surge.

It is important to point out that while this paper thus focuses on distributional conflicts 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, dividend payments have remained relatively stable since the 1990s (Gruber and Kamin, 2016) and changes in the ownership structures have mainly lead to a greater dispersion of ownership (Krippner, 2005). If anything, this should have lead to lower savings. I thus focus my theory on class cleavages and 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 or building up savings. For management and controlling owners, raising wages provides the least preferred strategy (Gourevitch and Shinn, 2007). While 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 perceived to be limited, saving today's profits helps financing future investments irrespective of possible credit constraints (Gruber and Kamin, 2016). Second, even if the economy is doing well, large amounts of savings provide opportunities to realize profits on financial markets. Since the 1990s, non-financial firms in many advanced economies increasingly rely on income from financial investments (Krippner, 2005; Crotty, 2005). The liberalization of capital accounts, the deregulation of financial markets and the expansion of financial instruments have made it lucrative for firms to retain parts of their profits and stash them in short-term, reversible assets which maximize yields without bearing the risks of fixed capital investments (Duchin et al., 2017). Finally corporate savings also have come to produce direct gains for executives. In many firms, a large share of executive compensation today is tied 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 inside a firm, the higher the value of its share. Second, savings are often used for share buybacks. By buying back stocks - which, as the investment does not leave the firm, accounting-wise counts as savings - executives can push the market value of their shares and 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. 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 productive assets and worker

[2] While I assume that workers favor wages over investment, this ordering could also depend on the specific status of workers. For example, long-term employees with firm-specific

training directly foster workers' job security. On the other hand, productivity increases also imply better prospects for future wage gains (Gourevitch and Shinn, 2007). For workers, corporate savings, thus, matter most for what they are not. While they might be preferable to distributing profits to outsiders, the accumulation of savings can only be be achieved at the expense of forgone wage raises and stagnant or reduced investments. At the same time, retaining profits in financial assets may increase the stock market value of a firm and help to realize short-term gains. Workers, however, have little opportunities to participates in these forms of profit generation (Akkemik and Özen, 2014).[3] 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 pie."[4]

Corporate Savings and Profit Sharing Capacities

Put simply, firms have little to loose 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. This balance is to a large degree shaped by economic factors such as the labor market situation, the skill endowment of workers and their position in the production process (Dean, 2015). However, most research assumes employers to enjoy a natural advantage in conflicts with labor - either due to their smaller numbers, lager material resources and their ownership of means of production (Olson, 1965; Acemoglu and Robinson, 2008) or due to the simple fact that workers must work to live (Polanyi, 1944).

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skills might prefer investments over the short-term gains of higher wages. However, this does not change the empirical implications of my arguments.

[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 view in independent interviews that I conducted in Berlin in December 2017.

To influence the distribution of profits, workers therefore rely on political context factors. 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 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). Here, I therefore define profit-sharing capacities as institutions, rules 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 power resource theory stresses the importance of associational power (Korpi and Palme, 2003; Bradley et al., 2003). The more workers are able to organize and to control the supply of labor into certain firms or industries, the better they are able to push through their preferences (Ahlquist, 2010; Rosenfeld, 2014). Power resource theory therefore emphasizes the strength of trade unionism as a core determinant of labor power (Volscho and Kelly, 2012). Second, research on corporatism focuses on legal power resources such as institutionalized labor rights - form shop-floor representation to labors' presence in macroeconomic corporatist institutions (Streeck and Thelen, 2005) -, which equip labor representatives with direct leverage in cases of conflicts with employers (Martin and Swank, 2004). My theoretical argument remains largely agnostic about the specific sources of profit-sharing capacities. Both institutionalized labor rights and associational power 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 and the more likely it becomes that labor successfully pushes towards using surplus revenues for higher wages and investment. Shifts in the balance of power between capital and labor should directly influence the saving behavior of the corporate sector. The more influence labor has on determining where profits flow, the lower the level of corporate savings.

Summing up, I argue that corporate savings are the result of concrete distributional conflicts between management and labor and that their emergence is shaped by worker's

profit-sharing capacities. The better the political contexts equip labor to push through its 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 savings and trade union density as the most straight-forward proxy for the strength of profit-sharing capacities. I find that higher levels of trade union density are strongly associated with lower levels of corporate savings. Second, 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 of increased labor power on corporate savings.

4.2 Cross-Country Analysis - Trade Union Density & Corporate Saving

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 corporate saving at the country level, which is defined as the excess of gross savings of all firms in an economy over their aggregated investment spending. The variable measures all savings (that is profits after taxes, interest payments, dividends etc. minus capital investment) - irrespective of whether they are held in cash, cash equivalents or other financial assets - as a percentage of GDP. Data is taken from Chen, Karabarbounis and Neiman (2017), who collected it based on national-accounts information.[5] As the savings of banks and other financial firms follow different logics than non-financial firms, I only analyze the non-financial sector. Furthermore, I focus on OECD

[5] I arrive at my final measure for savings by subtracting gross fixed capital formation (item GFCF) form the gross savings (item GS)

countries. Advanced economies have been the main driver of increased corporate savings, they traditionally have the most established forms of profit-sharing capacities and they offer the best data quality. Finally, national-accounts data remains scattered for earlier time periods. To balance my panel, I thus focus on the period between 1995 and 2013. Since the main changes in the corporate savings trends occurred in the late 1990s and early 2000s, this should not constrain the validity of the analysis.[6] Details of the variable construction and its development across countries can be found in the appendix (p.1).

Independent Variables and Controls

My argument suggests that rising savings reflect a decrease in labor's profit-sharing capacities. To compare these capacities cross-nationally, I operationalize profit-sharing capacities as trade-union power and measure it using *trade union density* (Baccaro and Howell, 2011). Union density measures the proportion of wage earners that is organized in trade unions. While it mainly 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). Importantly, whereas other measures of labor power such as union concentration mainly capture labor's political power - e.g. the ability to jointly mobilize in favor or against specific policies (Owen, 2015) - trade union density comes closest to measuring economic power vis-a-vis employers.[7] To test for

[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.

[7] These aspects also provide a distinct advantage over other measures of trade union power such as union centralization 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. Whereas they 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 affect saving decisions at the *firm-level*.

robustness, I replicate my analyses with collective bargaining coverage as a complementary measure of labor power (Thelen, 2012). Table A.3 in the appendix (p.6) shows that the results remain substantially the same.

To control for the macroeconomic environment, I include *real GDP growth* and the annual *real interest rate*. One problem with the national accounts data is that profits that are invested abroad still show up as domestic savings. To make sure that I analyze 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 savings. *Technological change* has been proposed as a key explanation for rising savings. As technological advances make capital goods cheaper, firms substitute machines for labor leading to an increased capital share and higher savings. To control for technological change, I use the share of routine task employment (Autor, Levy and Murnane, 2003; Owen and Johnston, 2017) [8] by weighting employment in each occupational category per year as a percentage of total employment by its routine task intensity score (Meyer, 2017). The lower its value, the more technology intensive the economy and the higher corporate savings should be. I also include 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, I also add *statutory corporate income tax rates* as a final control (Chen, Karabarbounis and Neiman, 2017). The appendix lists all summary statistics and data sources (p.4).

Method

I analyze the relation between corporate savings and trade union density with a panel regression. Since the data is time-series cross-sectional the Gauss Markov assumptions of

[8] Technological change mainly affects tasks that can be accomplished by machines following programmed rules. Examples 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).

standard ordinary least squares (OLS) regression analyses are likely to be violated. Especially, test statistics reveal the presence of autocorrelation and heteroskedasticity.[9] I thus opt for a Prais-Winsten transformation and calculate panel corrected standard errors (Beck and Katz, 2011; Wilson and Butler, 2007).[10] Further test statistics show that the data is stationary.[11] To control for time-invariant, country-specific factor that may affect savings such as, for example, ownership concentration, I thus include country fixed effects(Dittmar, Mahrt-Smith and Servaes, 2003).[12] I include year-fixed effects in some specifications to control for common shocks across countries. As a robustness test , I also report a dynamic panel model including a one year lag of corporate savings as well as autoregressive distributed lag model, which additionally controls for trade union density in the previous year.[13]

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 possible biases and reduced statistical power, I use multiple imputation as described in Honaker, King and Blackwell (2011). In the imputation model, I include all variables of the subsequent analysis and add a number of variables that have few missing values and that are likely to correlate 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). I impute five data sets, which corresponds to the average missing-data rate of the variables in the model (Lall, 2016). I then calculate the means of the coefficients

[9] More precisely, a Breusch–Godfrey test rejects the null hypothesis of no autocorrelation and Breusch-Pagan tests reject the null hypothesis of constant variance.

[10] As an alternative way to address autocorrelation, I also run dynamic models with a lagged dependent variable(Keele and Kelly, 2006).

[11] Augmented Dicker-Fully tests reject the null that the data has a unit root.

[12] 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.

[13] The combination of country fixed effects with lagged dependent variables can result in biases (Nickell, 1981). However, given my relative long time series of almost 20 years this is less of a concern(Beck and Katz, 2011). Nonetheless, I will focus my substantial discussion on the non-dynamic models.

and standard errors from these five imputations. Details on the procedure and imputation diagnostics can be found in the appendix (p.2).

Cross-Country Results and Discussion

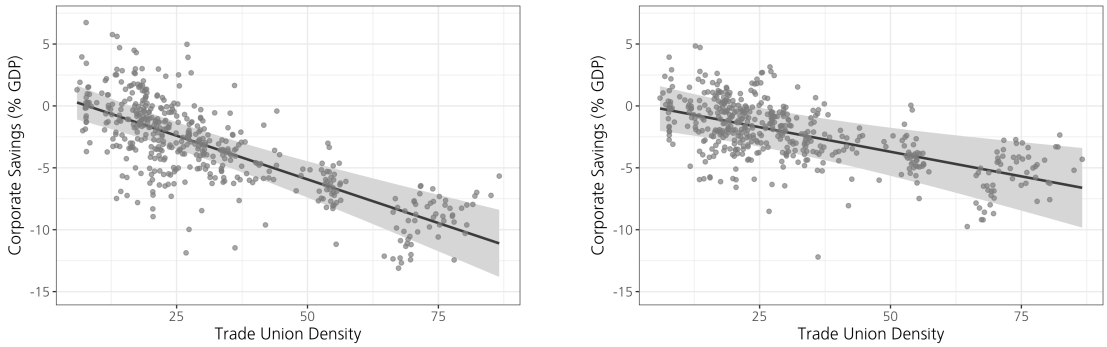
Table 1 presents the main findings for the cross-country analysis. Model 1 shows a simple bivariate regression with country-fixed effects, Model 2-3 add the relevant controls, Model 4 additionally includes year-fixed effects.[14] As a robustness test, Model 5 and 6 add a one-year lag of the dependent variable as well as the independent variable.

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

	Dependent variable:					
	Corporate Savings (% GDP)					
	(1)	(2)	(3)	(4)	(5)	(6)
Trade Union Density	−0.159***	−0.207***	−0.131***	−0.142***	−0.077***	−0.100***
	(0.041)	(0.033)	(0.033)	(0.032)	(0.023)	(0.024)
RTI Score		−0.317*	−0.094	0.002	−0.133	−0.132
		(0.171)	(0.125)	(0.128)	(0.130)	(0.130)
FDI out (% GDP)		−0.017	−0.020*	−0.012	0.003	0.001
		(0.012)	(0.011)	(0.011)	(0.010)	(0.010)
Real GDP Growth		0.042	0.075*	−0.016	0.110***	0.112***
		(0.049)	(0.045)	(0.055)	(0.040)	(0.040)
Real Interests		0.123*	0.137**	0.121*	0.164***	0.156***
		(0.063)	(0.063)	(0.067)	(0.052)	(0.052)
Crisis Dummy		−0.982**	−1.095***		−1.204***	−1.198***
		(0.450)	(0.414)		(0.375)	(0.375)
Stock Capital.			0.00005	0.002	0.001	0.001
			(0.004)	(0.004)	(0.003)	(0.003)
Old Age Dep.			0.179**	0.178**	0.160***	0.150***
			(0.083)	(0.089)	(0.049)	(0.048)
Corp. Income Tax			−0.112***	−0.070**	−0.091***	−0.092***
			(0.029)	(0.028)	(0.022)	(0.022)
Net Lending Lag					0.484***	0.474***
					(0.051)	(0.052)
Trade Union Density Lag						0.026**
						(0.012)
Country Fixed Effects	✓	✓	✓	✓	✓	✓
Year Fixe Effects	×	×	×	✓	×	×
Observations	474	474	474	474	474	474
R^2	0.613	0.656	0.684	0.712	0.783	0.785
Adjusted R^2	0.591	0.633	0.660	0.678	0.766	0.768
Residual Std. Error	2.362 (df = 448)	2.238 (df = 443)	2.152 (df = 440)	2.096 (df = 423)	1.787 (df = 439)	1.778 (df = 438)
F Statistic	28.351*** (df = 25; 448)	28.193*** (df = 30; 443)	28.873*** (df = 33; 440)	20.924*** (df = 50; 423)	46.493*** (df = 34; 439)	45.808*** (df = 35; 438)
Note:						*p<0.1; **p<0.05; ***p<0.01

As expected, trade union density consistently correlates negatively with corporate savings. The effect is statistically significant and substantially large. To pick one example, between 1995 and 2013 trade union density in Germany declined by about 12 percentage points. In the full-controls model (model 4), such a drop is associated with an increase of

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



(A) Country-fixed effects (Table 1 - Model 1) (B) FE & controls (Table 1 - Model 4)

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

corporate saving by about 1,7 % of GDP (in total, Germany's corporate savings rose by about 2.5% of GDP in the same period). In this sense, almost 68% 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 analysis provides first evidence for a negative relationship between labor power[15] and corporate savings. The association is substantially relevant and holds for a wide range of specifications. However, the cross-national design also operates at a high level of aggregation, which makes it difficult to clearly identify the causal relation that my argument suggests. Whereas 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

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

[15] Robustness tests on p.6 in the appendix show that this relation also holds for bargaining coverage as an alternative measure of labor power.

of countries with positive savings. 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 (Belabed, Theobald and Treeck, 2018) 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 and the specificities of the German law on co-determination allow me to 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 Germany, the total dataset includes observations on 1390 individual firms and about 18500 firm-years. I again focus on the savings behavior of non-financial firms and exclude all banks and other financial institutions. 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 savings in a given year. While this variable is not readily available in Compustat, it can be calculated based on information in the balance sheets. I follow Chen, Karabarbounis and Neiman (2017) in defining net savings as the excess of savings over investment and deducing it from a range of variables available in Compustat. Details can be found in the appendix (p.7). The resulting variable measures corporate savings at the end of each company's fiscal year. One problem with this measure is that 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 saving

could thus stem from lending to foreign affiliates and therefore constitute FDI 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" and "short-term investments"[16] 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 saving position. Firms could, for example, issue long-term debt and acquire liquid assets, which would boost their cash holdings without changing their savings 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 savings 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 (p.8).

Parity Co-determination as Randomly Assigned Profit-Sharing Power

The German Co-determination Act provides a handy case to test this claim that larger profit-sharing capacities lead to less savings. 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. Members of the supervisory board, on the other hand, have the right to supervise 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). Their monitoring role and the fact that supervisory board members directly appoint managers provide them with powerful means to influence decision making:

[16] 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.

if they are not satisfied with a manager's performance, they can deny her re-election (Lin, Schmid and Xuan, 2018).

In general, German firms with more than 500 employees have to occupy one third of their supervisory boards with workers. However, the potency of co-determination significantly increases for larger firms. German law 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 goes back to the early 1950s, it was only under a coalition of the Social Democratic Party (SPD) and the Free Democratic Party (FDP) in 1976 that the law was actually implemented (Kim, Maug and Schneider, 2018). According to Lopatta, Böttcher and Jaeschke (2018) the regulation 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 in the form of institutionalized labor rights. Managers in firms with parity co-determination not only have to justify their savings decisions to labor representatives, they also have to fear not to be re-elected if their strategies hurt workers' interests. While this power differs from firm to firm and is affected by institutional factors such as specific board voting rules, I assume that, everything else being equal, the jump 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 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, German law stipulates that:

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

where i indicates firms, t years and X the number of employees. 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 arbitrary statutory threshold allows me to analyze firms that are very close to this cut-off

point and that should therefore be similar on most dimensions except for their respective level of labor power (Imbens and Lemieux, 2008).[17]. The main model reads as:

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

where $Y_{i,t}$ represents savings of firm i 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 to one if a firm is across 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 $D_{i,t}$.

Identifying Assumptions

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 pin down the effect of parity co-determination it is crucial that it is the *only* firm characteristic that changes at the 2000 employee threshold. I 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, firms should not strategically manipulate their number of employees in order to avoid having to establish LPC. If such sorting occurred, firms would self-select into treatment and control groups and treatment assignment would not be as good as a random. Two theoretical considerations mitigate these concerns. First, Lin, Schmid and Xuan (2018) argue that keeping the number of employees artificially small would imply that both manages 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 actually benefit of reducing growth in order to postpone this point seems relatively small.

[17] Gorton and Schmid (2004) and Lin, Schmid and Xuan (2018) use a similar design to analyze the effect of co-determination on firm valuation and working capital.

Second, the fact that I am focusing on 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 (2018) nor Kim, Maug and Schneider (2018) 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 sorting formal test, I use a McCrary (2008) density test to investigate the distribution of employment numbers around the threshold. If firms 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. Visual expectation and statistical tests find no evidence for systematic clustering around the threshold (McCrary Test: p-value = 0.27).

As another indirect test of sorting, I perform a 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.[18]

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, Calonico 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-

[18] To fully rule out that my findings are driven by specific violations of the identifying assumptions of RDDs, I also exploit the panel structure of the data for a difference-in-differences design and find similar effects (see robustness checks and p.12 in the appendix).

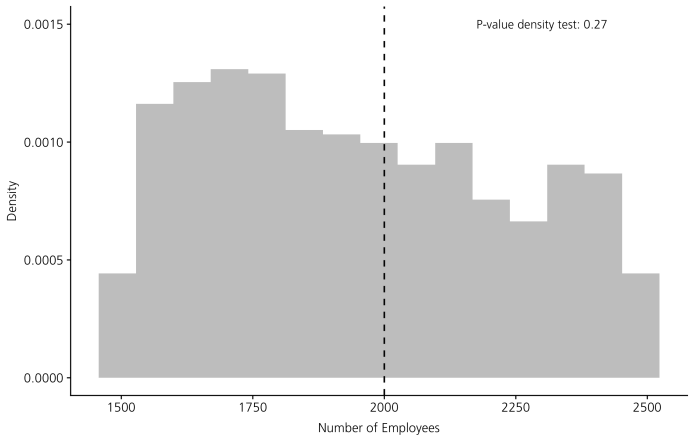


FIGURE 3: McCray (2008) density test shows that there is no jump in the density of firms around the threshold (p-value .262)

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

RD Falsification Test - Covariate Balance			
Outcome: Pre-treatment Covaraites			
	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. [19] However, since the optimal bandwidth calculations are not without criticism, I conduct sensitivity checks by varying the chosen bandwidth.

[19] 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. My argument would expect a discontinuity in savings around the 2000 employee threshold (indicated by dashed vertical line). In line with this expectation, 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.

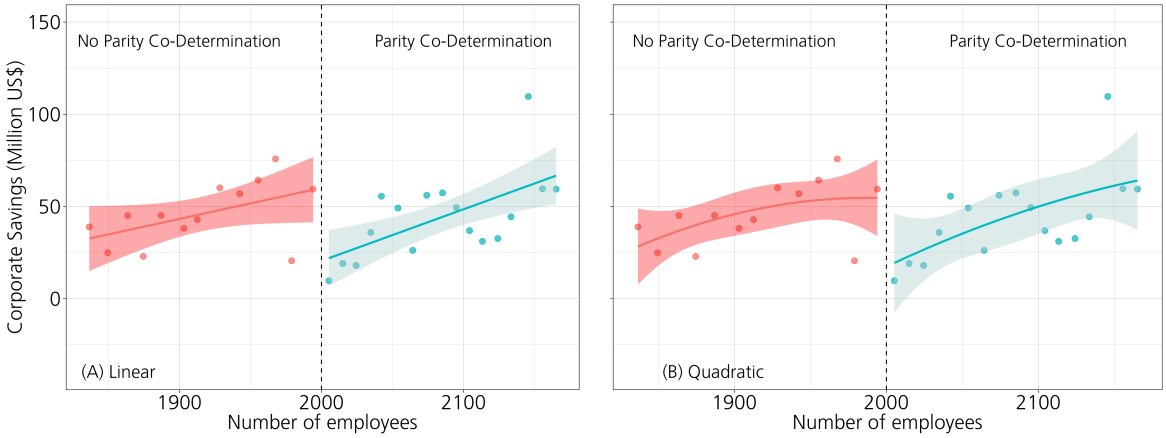


FIGURE 4: Regression Discontinuity Plots (90% Confidence Intervals) - Establishment of parity co-determination has a negative effect on corporate savings at the firm level

Table 3 displays the results of the main regression discontinuity analysis. Following Cattaneo, Calonico 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. 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 statistically significant and 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 and since variation is likely to vary across different firms, model 3 furthermore clusters standard errors at the individual firm level. This does not change the results substantially.

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

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.

sure that the number of total employees listed in Compustat does not include workers outside of Germany. As shown in Table B.1 (p.10) 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 4.3 percentage points less in savings if they have to implement LPC (see Table B.2 (p.10) 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 effects should *only* occur at the mandatory threshold of 2000 employees. As Figure 5 displays, I find no indication that the level of corporate savings changes at randomly chosen alternative thresholds. To further rule out that the negative effect of crossing the 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 (p.11) shows, negative effects occur only in Germany. Furthermore, Figure B.6 in the appendix shows the that my findings are not sensitive to the size of the bandwidth chosen.

As a final robustness check, I also change the identification strategy. Exploiting the panel structure of my data, I use a difference-in-difference design to compare the average change in savings in firms that cross the 2000 employee threshold to those that remain beneath

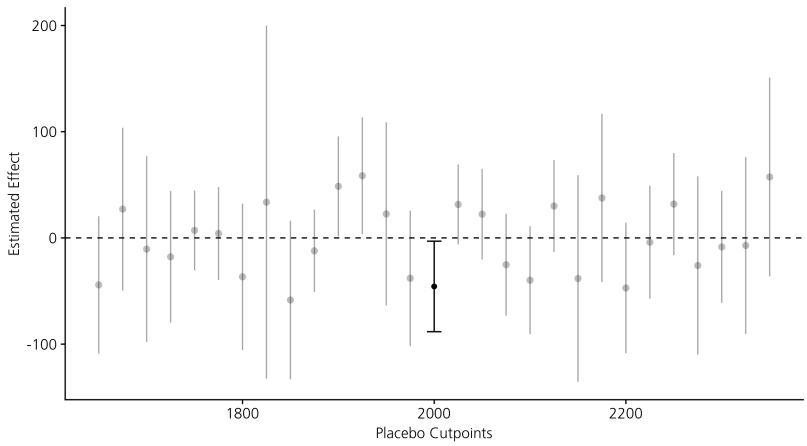


FIGURE 5: Placebo Tests with 95% Confidence Intervals - The negative treatment effect occurs only at the 2000 employee threshold.

it. Even in this very different set-up I find that adopting co-determination has a negative effect on savings, which turns significant two years after the establishment of LPC and which seems to become stronger (though also more imprecisely measured) over time. Details of the estimation and the full results can be found in the appendix (p.12).

Mechanisms

Finally, I also look into the mechanisms that my argument suggests. In theory, firms could decrease savings either by paying higher dividends to shareholders, by increasing remuneration for employees or by investing more. I argue that larger labor power leads to lower savings, as it enables employees to pressure firms into using revenues 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 4 shows evidence in line with these arguments. While the establishment of parity-co-determination actually significantly lowers payouts to shareholders, it has positive but non-significant effect on expenses for wages and salaries.[20] However, other labor related expenses - which include employee

[20] 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.

benefit plans and other social expenditures as well as pension and retirement expenses - significantly increase at the threshold. Similarly, increased labor power also seems to have the expected positive effect on firm-level investment, measured as the annual change in total capital growth. The fact that data on these items is more patchy than for savings warrants caution. Nonetheless, these findings buttress the argument that higher labor power makes it more likely that surplus revenues are used in ways that benefit employees instead if being stashed in liquid assets.

TABLE 4: Mechanisms: Effect on firms' spending behaviour

	RD Effect of Parity-Codeterminaiton on Spending Behaviour					
	Dividends, Staff Expenses & Investment					
	Estimate	95% CI	p-value	bandwidth	controls	clustered SE
Dividends	-0.02	[−0.042, −0.003]	0.033	175	Yes	Yes
Staff Expenses (Wages & Salaries)	0.066	[−0.055, 0.186]	0.287	106	Yes	Yes
Staff Expenses (Other)	0.039	[0.015 , 0.063]	0.001	137	Yes	Yes
Investment	0.127	[0.014, 0.240]	0.027	104	Yes	Yes

Dividends compromise the total amount of dividends declared on all equity capital of the company. 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. The items are scaled by firm size measured in total assets. Investment is defined as the capital growth rate measured in annual changes of total investment (Peters and Taylor, 2017) divided by lagged 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). Standard errors are clustered at the firm level.

Overall, these tests support my theory. 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 have contributed to the global rise of corporate savings.

5 Conclusion

The rise of 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 to 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.

Much of the existing research ascribes the surging of corporate savings to macroeconomic and structural factors. This paper has argued that political factors play an important role in mitigating the trend. It suggests that stashing surplus profits on financial markets is at odds with the material interests of workers and employees. The erosion of political institutions and environments that strengthen the profit-sharing capacities of labor, therefore, has substantially contributed to the emergence the corporate savings glut.

I test this claim using panel data from 25 OECD countries as well as by exploiting a natural experiment provided by the German law on co-determination. At the cross-national level, I find a robust association between the decline of trade-union power and the rise of corporate savings. In addition, the firm level provides causal evidence that increasing the profit-sharing capacities of workers, indeed, leads to reduced savings and an increase labor related expenses and investments.

For theory, these findings contribute to a burgeoning literature on the domestic sources on global imbalances and financial fragilities (e.g. Ahlquist, 2010; Baccaro and Pontusson, 2016) as well as to research on the political and economic consequences of declining labor power in advanced economies (e.g. Becher, Stegmueller and Käppner, 2018). Especially, the paper shows that declining labor power not only affects the division of the economic pie between capital and labor (Kristal, 2013). It also influences whether profits end up being banked up on financial markets or are spent in ways that stipulate growth and employment. For policy, the finding that strengthening employee's voice in corporate decision making has important implications for firms' saving and spending behavior can help to inform ongoing debates about possible policy strategies to strengthen the link between capital profits and general welfare.[21]

However, 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 trade unionism and parity co-determination are both factors that strengthen workers ability to champion their interests,

[21] For a recent example, see debates about Sen. Warren's Accountable Corporatism Act in the US (Klein, 2018).

future research could take a more systematic look into how specific profit-sharing capacities mitigate corporate savings. Second, 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 the measurement of savings. Finally, this paper has focused on the distributional conflict between workers and management. However, for 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 do not insist on higher payouts. Future research should thus investigate the political context conditions that change owners preferences or enable management to pursue saving strategies against the interests of owners.

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** Supplementary Materials (Not Meant for Publication) **

Table of Contents

A Supplementary Material Cross-National Study

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

I obtain data on corporate savings at the county level from Chen, Karabarbounis and Neiman (2017), 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 saving 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:

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

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 the 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:

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

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

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

In the paper, I follow Chen, Karabarbounis and Neiman (2017) in defining my final measure of corporate savings 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 savings comes very close to the that in the national accounts (Chen, Karabarbounis and Neiman, 2017).

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).[22]

TABLE A.1: Chain length of imputations

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

[22] 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).

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 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 in ation, 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 densitsy. Overmputing treates 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. For a good fit, around ninety percent of these confidence intervals should contain the y = x line. The color of the lines represents the fraction of missing observations in the pattern of missingness for that observation (e.g. blue=0-2 missing entries).

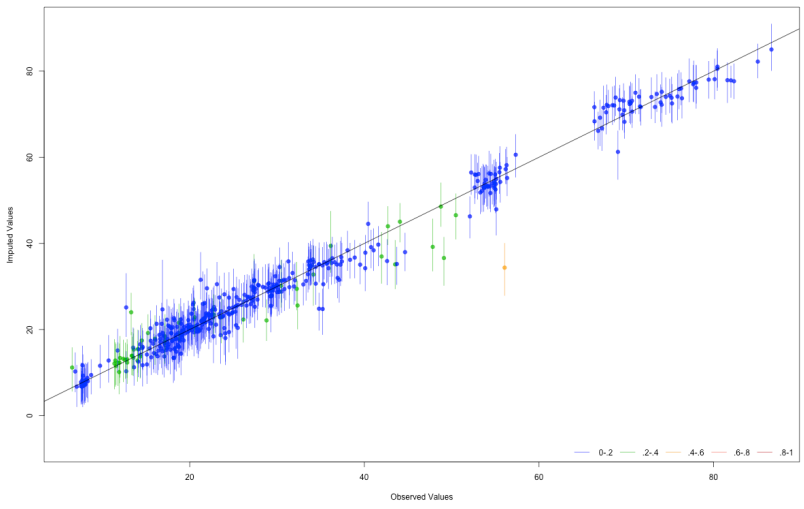


FIGURE A.1: Overimputed values of trade union density.

A.3 Descriptives & Summary Statistics

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

Statistic	N	Mean	St. Dev.	Min	Max	Source
Corporte 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)

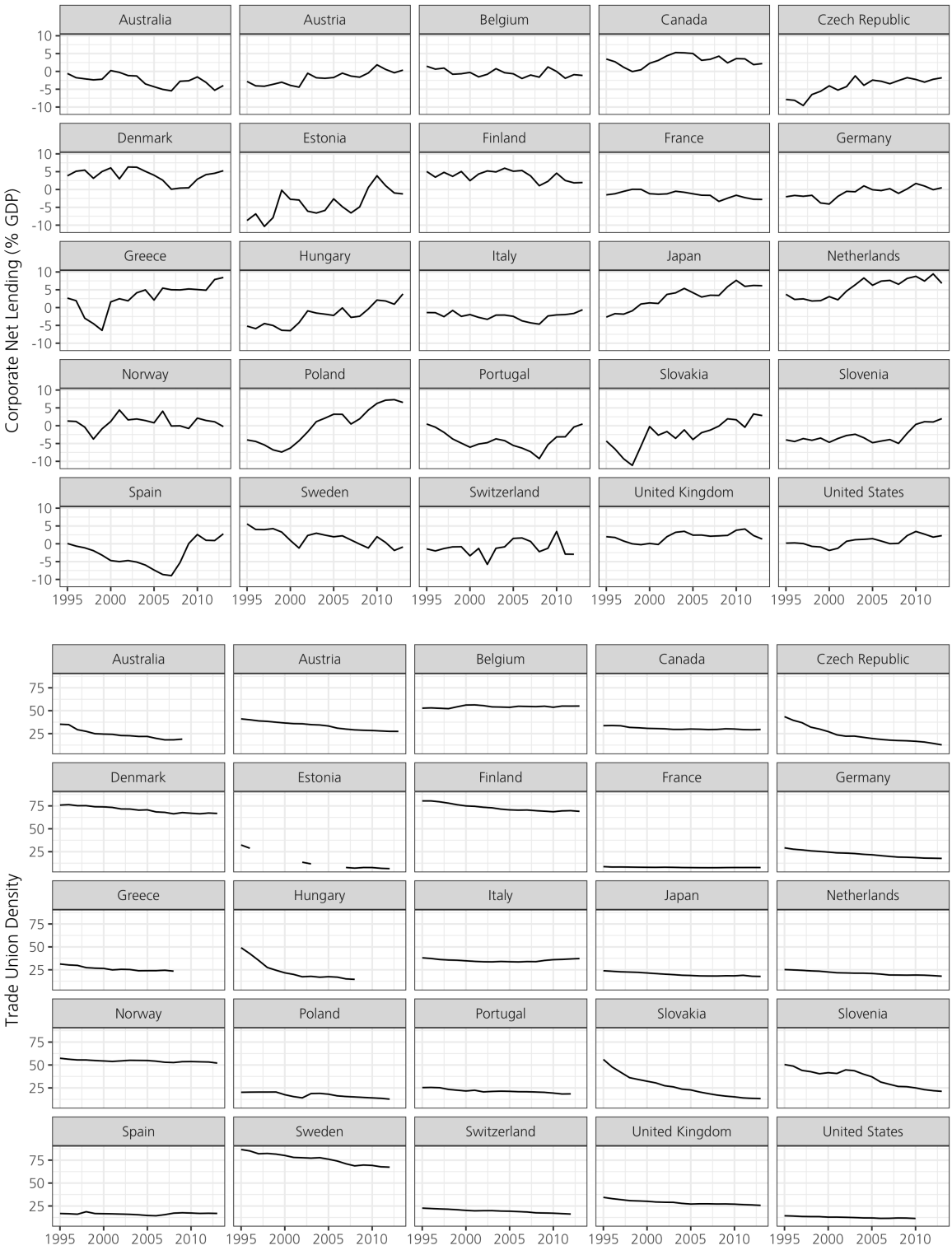


FIGURE A.2: Development of Corporate Savings and Trade Union Density across countries and time

A.4 TCSC Analysis: Bargaining Coverage as an Alternative Measure of Labor Power

TABLE A.3: Higher Trade Union Density is associated with lower Corporate Savings

	Dependent variable:			
	Corporate Savings (% GDP)			
	(1)	(2)	(3)	(4)
Bargaining Coverage	−0.098***	−0.110***	−0.067***	−0.065***
	(0.017)	(0.018)	(0.019)	(0.020)
RTI Score		−0.433**	−0.135	−0.189
		(0.199)	(0.136)	(0.141)
FDI out (% GDP)		−0.002	0.007	0.014
		(0.016)	(0.015)	(0.013)
Real GDP Growth		−0.007	0.035	0.039
		(0.042)	(0.032)	(0.067)
Crisis Dummy		−0.890**	−1.126***	
		(0.417)	(0.323)	
Stock Capital.			−0.009**	−0.010*
			(0.005)	(0.005)
Old Age Dep.			0.318***	0.314***
			(0.063)	(0.074)
Corp. Income Tax			−0.011	0.005
			(0.026)	(0.027)
Country Fixed Effects	✓	✓	✓	✓
Year Fixe Effects	×	×	×	✓
Observations	295	295	295	295
R^2	0.708	0.729	0.749	0.775
Adjusted R^2	0.681	0.699	0.718	0.729
Residual Std. Error	2.176 (df = 269)	2.112 (df = 265)	2.044 (df = 262)	2.002 (df = 245)
F Statistic	26.054*** (df = 25; 269)	24.556*** (df = 29; 265)	24.405*** (df = 32; 262)	17.176*** (df = 49; 245)

Note: *p<0.1; **p<0.05; ***p<0.01

Bargaining coverage measures the share of employees covered by collective (wage) bargaining agreements as a proportion of all wage and salary earners in employment, adjusted for the possibility that some sectors are excluded from the right to bargain (Visser, 2015). Higher values of bargaining coverge, thus, indicate higher levels of labor power. Models are based on a Prais-Winsten transformation and show panel corrected standard errors.

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):

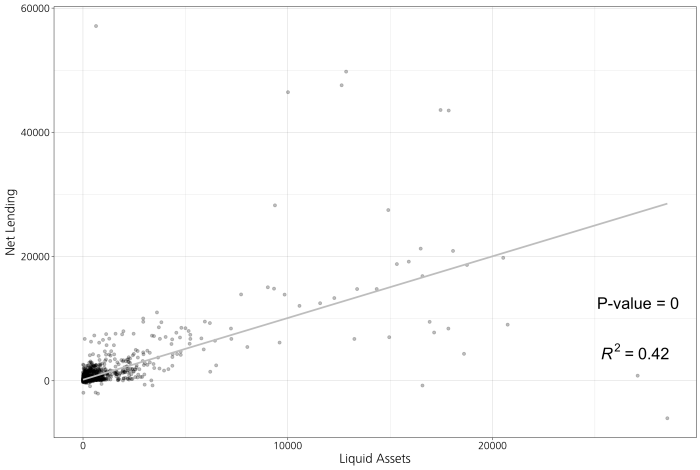
$$GOS_{f,t} = Sales_{f,t} - Operating\ Expenses_{f,t} + Depreciation_{f,t} + R\&D_{f,t} \tag{B.1}$$

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.

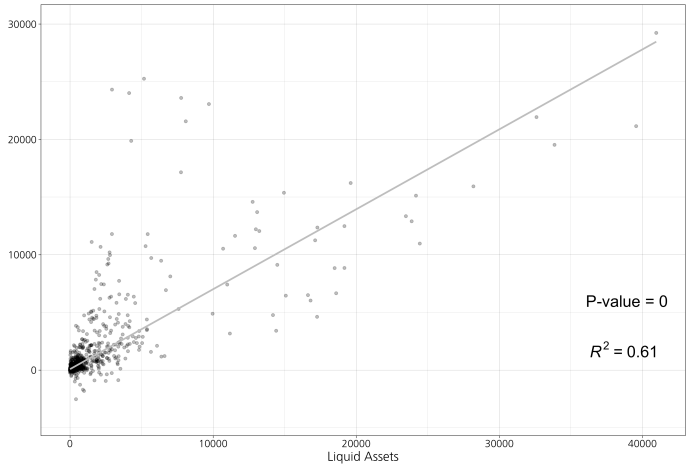
$$GS_{f,t} = GOS_{f,t} - Corporate\ Taxes_{f,t} - Interests_{f,t} - Dividends_{f,t} \tag{B.2}$$

Finally, net saving 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), i.e. its net savings by calculating:

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



(A) 1990 - 2000: Cash holding and Net Savings



(B) 2008 - 2015: Cash holding and Net Savings

FIGURE B.3: Cash holding and Net Savings

B.2 RDD Robustness Checks

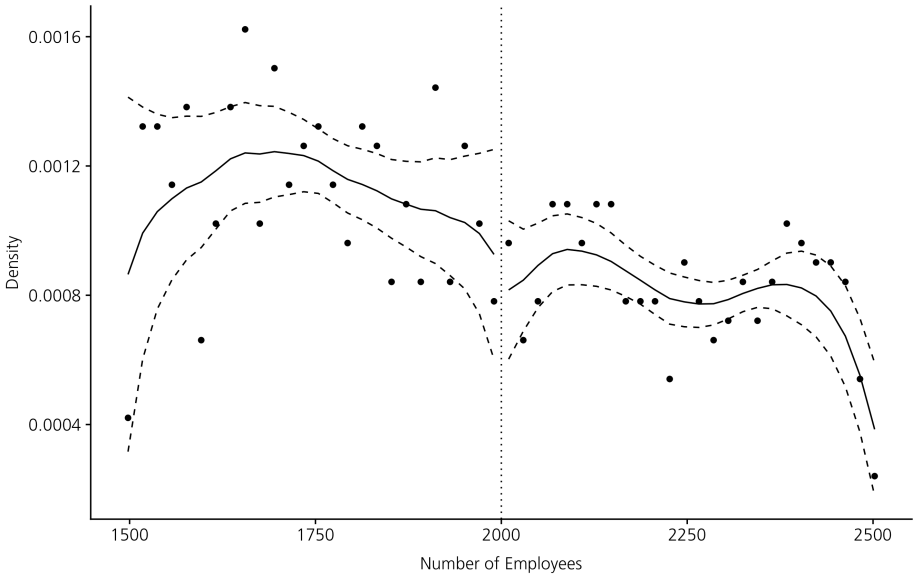


FIGURE B.4: McCrary Density Test Plot

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

	RD Effect of Parity-Codeterminaiton on Corproate Savnigs				
	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-Codeterminaiton on Corproate Savnigs					
	Robustness for different Measures of Corporate Savings					
	Outcome: Corporate Savings					
	Estimate	95% CI	p-value	bandwidth	controls	clustered SE
Logged cash	−1.088	[−2.043 , −0.134]	0.025	133	Yes	No
Logged cash	−1.068	[−2.143 , 0.006]	0.055	138	Yes	Yes
Savings (share total assets)	−0.043	[−0.084, −0.002]	0.040	158	Yes	No
Savings (share total assets)	−0.043	[−0.085, 0.000]	0.050	152	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). Clustered standard errors cluster at the firm level.

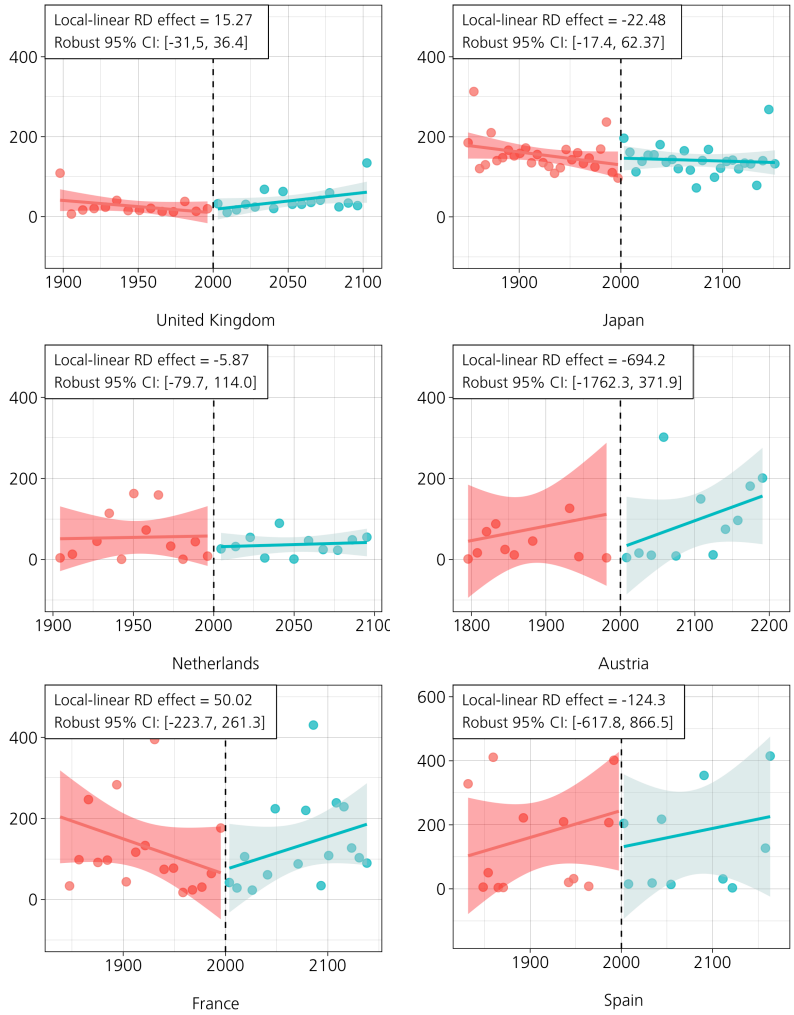


FIGURE B.5: Alternative Placebo Test. There is no jump in corporate savings at the 2000 employee threshold in countries without the establishment of parity-co determination. All models include robust bias-corrected standard errors and a MSE-optimal bandwidth selector.

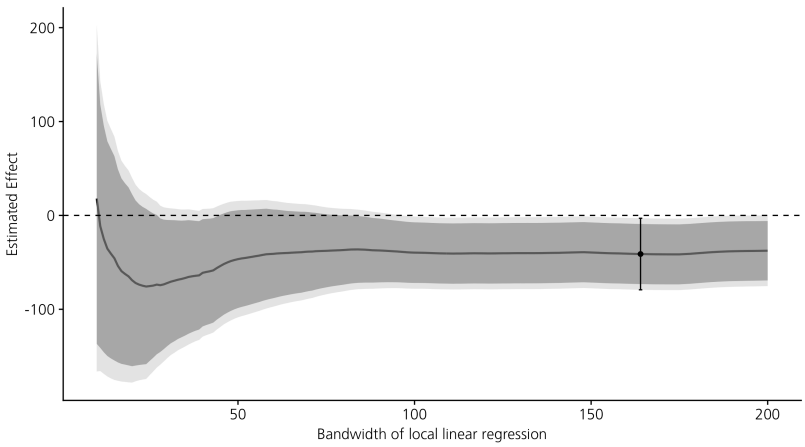


FIGURE B.6: Alternative RDD specifications with changing windows of domestic employees around the threshold of 2,000. All models include robust bias-corrected standard errors.

B.3 Firm-Level Difference-in-Difference Tests

As an alternative strategy to estimate the effect of parity co-determination on savings at the firm level, I exploit the panel structure of the firm-level data and use a difference-in-difference strategy to compare the average change in savings in firms that cross the 2000 employee threshold and have to establish co-determination (treatment group) to those that remain beneath it and thus do not have change the composition of their supervisory boards (control group). The difference between these two changes identifies the average treatment effect on the treated. The identifying assumption of this design is that the savings in firms in the treatment group (those that cross the 2000 employee), on average, followed the same trend as firms in the control group (firms that also grow but stay below the threshold). I implement the difference-in-difference strategy using a two-way fixed effect estimator controlling for firm and year fixed effects. I substantiate the identifying assumption by constructing a specification that estimates not only the treatment effect but also allows me to assess to what extent companies in treatment and control followed parallel trends in previous years. The specification looks as follows

$$Y_{i,t} = \gamma_i + \lambda_t + \sum_{\tau=0}^{m} \delta_{-\tau} \cdot D_{i,t-\tau} + \sum_{\tau=1}^{q} \delta_{+\tau} \cdot D_{i,t+\tau} + \beta X_{i,t} + \varepsilon_{i,t}, \tag{B.4}$$

where $Y_{i,t}$ represents savings in firm i at time t an $D_{i,t}$ is an indicator equaling one if a firm i has crossed the 2000 employee threshold at time t and zero otherwise. In addition, the specification includes m lags $(\delta_{-1}, \delta_{-2}, ..., \delta_{-m})$ or post-treatment effects and q leads $(\delta_{+1}, \delta_{+2}, ..., \delta_q)$ or anticipatory effects. If the identifying assumption is valid, I would expect that there is no statistically significant differences between firms in treatment and control in the years preceding the establishment of parity co-determination. In addition, the inclusion of several lagged periods allows me to study how the effect of increased labor power develops over time. Finally, $X_{i,t}$ is a vector of control variables. To develop credible counterfactuals, it is above all important to control for the different growth rates of firms that grow over the threshold and companies that stay below it. If firms that grow over the threshold, for example, are generally more dynamic than those that stay below it, this could influence savings independent of the establishment of parity co-determination. I thus control for firm growth as the change of numbers of employees in the entire time period under consideration.

In addition, I also control for the total number of employees as well as sector fixed effects. I use cluster-robust standard errors on the firm level, the level of the treatment variation.

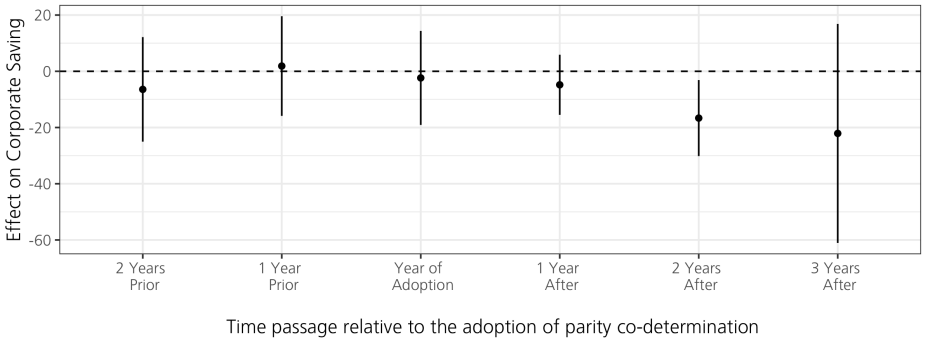


FIGURE B.7: Estimated impact of parity co-determination on corporate savings (in million $US) for years before, during, and after adoption: Difference-in-difference estimates with 95% confidence intervals cluster-robust standard errors at the firm level.

Figure B.7 plots point estimates and 95% confidence intervals of the effect of parity co-determination on corporate savings for the two years before and three years after the crossing of the 2000 employee threshold. In line with the identifying assumption it shows that the placebo estimates for the two years preceding the adoption of co-parity determination remain indistinguishable from zero. With the implementation of co-determination, however, the estimated effect turns negative and two years after the adoption the effect reaches statistical significance (δ=-.16.6, p=0.016). In the following year, savings of firms with and without parity co-determination grow further apart. However, the effect also becomes more imprecisely measured. Overall, the difference-in-difference estimation points into a similar direction as the RDD. Increasing labor power has a negative and lasting effect on corporate savings.