The Political Economy of Decentralization: Evidence from Bank Bailouts*

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Abstract

We exploit a unique set-up in Germany to explore how the organizational design of bailout institutions affects the efficacy of distress resolution. Financial distress in savings banks is resolved either by county politicians (mayors) or by state associations. Mayor-led bailouts are less likely when distress is severe or counties face fiscal constraints. Political conditions also matter: competitive elections reduce the likelihood of mayor-led bailouts and conservative mayors intervene less. Importantly, while the incidence of distress is unrelated to the electoral cycle, mayor-led bailouts become less likely just before elections. Using electoral cycles as an instrument, we provide evidence that mayor-led bailouts worsen bank performance, misallocate credit, and increase preferential lending, reducing aggregate output. These findings show that decentralization enables local politicians to extract private benefits from bank control, at substantial cost to efficiency and growth.

Keywords: political economy, bank bailouts, elections, decentralization, misallocation

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1 Introduction

Does decentralizing decision-making to local authorities improve or worsen citizens' welfare? Classical theories of fiscal federalism highlight key trade-offs. Decentralization allows governments to tailor policies to local preferences (Oates, 1972) and enhances the provision of public goods through jurisdictional competition (Tiebout, 1956). Conversely, centralization facilitates the internalization of cross-jurisdictional externalities, improves coordination, and achieves economies of scale. While these classical theories emphasize key trade-offs, they overlook agency conflicts among public officials that are common in decentralized systems. More recent theories in organizational economics incorporate these conflicts (Bardhan and Mookherjee, 2000; Lockwood, 2002; Besley and Coate, 2003).[1] From this perspective, decentralization is a double-edged sword: it offers better incentives and information but also increases opportunities for rent-seeking and regulatory capture (Shleifer and Vishny, 1993). Whether its informational benefits outweigh these agency costs remains an important and understudied empirical question.

Progress on this question has been hindered by two distinct empirical challenges. The first is data availability: testing theories of decentralization requires micro-level data on both the organizational structure of institutions and the outcome variables of interest, yet such datasets are rare. The second challenge is identification. Even when data are available, organizational variables tend to be "sticky"—they change infrequently and often for reasons correlated with the outcomes under study. Cross-sectional comparisons across jurisdictions with different organizational designs offer suggestive evidence but are limited by omitted-variable bias. Establishing causal relationships requires exogenous variation in organizational design, which is difficult to find in practice.

Our setting simultaneously addresses both challenges. The German savings bank sector's extensive administrative data and unique institutional features offer a rare opportunity to examine this question. The sector's distinctive bailout structure—where distress management can be handled either by the county mayor or by a state-level association—introduces variation in decision-making authority. We address endogeneity concerns using an instrumental-variables strategy, described in detail below.

The main institutional feature of our setting is the existence of state-level associations created to resolve distressed banks. The resolution mechanism of these associations

[1] This is in line with the new theory of the firm, see Grossman and Hart (1986), Hart and Moore (1990), Aghion and Tirole (1997), Radner (1993), Bolton and Dewatripont (1994), Garicano (2000) among others. For the discussion on accountability and incentives of government officials, see Bardhan and Mookherjee (2000), Lockwood (2002), Besley and Coate (2003), Harstad (2007), and Tommasi and Weinschelbaum (2007) among others. This is referred to as the second-generation theories of fiscal federalism in Bardhan and Mookherjee (2006a) and Mookherjee (2015).

closely resembles that of the US bankruptcy code. These associations maintain a common bailout fund financed by member savings banks and primarily employ two strategies to rescue troubled institutions: restructuring, similar to Chapter 11 of the U.S. bankruptcy code, or liquidation through a distress merger, much like Chapter 7. Despite the presence of state-level associations meant to handle distress, mayors can choose to bail out a distressed bank using taxpayers' money, resolving the crisis without involving the state association. Since the savings bank is owned by the county, this is akin to an equity injection by the bank's owners. We find that mayors often use this option—in more than one-third of distress cases—raising the question: *why do mayors intervene when state-level associations are created to manage distress?*

To investigate this question, we use a unique contract-level dataset covering 429 German savings banks. During our 1995–2010 sample period, we identified 148 distress events, defined as instances requiring an external capital injection. We document systematic differences between mayor-led and association-led bailouts. Association-led bailouts are more common in severe or complex cases—those with lower returns on assets, higher non-performing loan ratios, or larger bailout requirements. Mayor-led bailouts occur more frequently in fiscally stronger counties, where lower public debt provides the fiscal capacity to fund direct intervention.

Political factors matter alongside economic ones. The likelihood of mayoral intervention falls significantly when the bank chairman is affiliated with the conservative party, consistent with that party's preference for limited government involvement. Electoral accountability also plays a role: mayors in more competitive political environments are less likely to deploy taxpayer funds to support troubled banks. Strikingly, while the frequency of distress events shows no relationship to the electoral cycle, the choice of bailout institution does. Mayors are approximately 30% less likely to inject capital in the twelve months before an election than in the twelve months afterward.

The electoral cycle in mayoral bailouts is revealing. It reflects a divergence in views between voters and politicians.[2] The fact that mayors avoid bailing out banks before elections suggests this action is unpopular with voters, who might prefer to see taxpayers' funds deployed differently. Indeed, we find that voters tend to punish mayors involved in a bailout—re-election probabilities are lower for mayors who intervene. The pre-election restraint is therefore best understood as evidence that mayors strategically time politically costly decisions to periods of lower electoral scrutiny. This is consistent with limited voter attention: voters appear less alert to actions taken after an election than to those taken in the run-up to one (Rogoff and Sibert, 1988).

[2]If both voters and politicians viewed the bailout similarly, one would not witness a cycle at all.

The electoral cycle lends itself to two interpretations: (1) mayoral bailouts are costly for the county but generate private gains for the mayor, or (2) bailouts enhance welfare, but voters wrongly perceive them negatively. While the electoral cycle alone cannot distinguish between these channels, it generates plausibly exogenous variation across bailout regimes (mayor vs. association), allowing us to investigate the motives behind these interventions.

More specifically, we compare the outcomes of mayor-led bailouts with those of association-led bailouts. This analysis requires us to compare the same bank across both scenarios. However, as noted above, banks bailed out by mayors may systematically differ from those managed by the association. To address this selection issue, we exploit the timing of banks' distress events within the electoral cycle to generate plausibly exogenous variation in the likelihood of a mayor-led versus an association-led bailout. This instrument identifies out of "switchers"—distressed banks that would have been bailed out by the mayor after the election but are instead bailed out by the association (Imbens and Angrist, 1994).

The identifying assumptions require that (1) mayors cannot influence the timing of distress events and (2) the electoral cycle affects outcome variables only through the bailout decision. A potential concern is that mayors pressure banks to evergreen loans and delay write-offs that might trigger distress, effectively controlling the timing of distress events. Empirically, we find no correlation between the timing of distress events and the electoral cycle, and no evidence of evergreening around distress events. We further test whether banks entering distress before elections differ systematically from those entering distress afterward. Across an extensive set of bank characteristics and macroeconomic variables, we find no significant relationship between the timing of distress and the electoral cycle.

We begin by examining the post-bailout performance of distressed banks. Five years after intervention, banks bailed out by the association exhibit higher profitability, lower loan-loss provisions, fewer non-performing loans, and stronger capitalization than banks rescued by politicians. However, association-bailed-out banks are also smaller and extend less credit to firms in their counties. Thus, while association interventions appear to improve bank health along several key dimensions, the resulting contraction in lending may adversely affect local economic growth. To further assess the impact of the mayor-involved bailout on credit availability in a county, we examine the overall credit provided in the economy. Interestingly, while the savings banks provide less credit under association-led bailout, private banks expand lending to fill the gap left by shrinking state-owned banks, leaving overall credit availability in the country largely unchanged.

We also find that credit allocation in areas exposed to association-led bailouts is more sensitive to firm productivity, consistent with the Q-theory of investment. This result holds not only at the county level but also within savings banks, implying that it is not driven by differences in the objective functions of state vs. private banks. We also find that mayor-led bailouts preserve existing lending ties and create fewer new ties, thereby reducing economic dynamism and promoting the inefficient continuation of old ties—suggesting that the mayor faces a soft-budget-constraint problem that constrains the reallocation of capital in the local economy. Finally, we find that banks bailed out by associations cut back on preferential loans to connected firms that typically underperform (Khwaja and Mian, 2005; Haselmann et al., 2018). This result on preferential lending suggests that local politicians derive private benefits from controlling the savings bank.

Having documented that mayors' private incentives distort local lending practices, we next analyze the broader effects of these distortions on the real economy. We find that counties exposed to post-election distress events, which are more likely to be resolved by mayors, experience significantly lower growth in income per capita and employment. They also underperform in employment rate and new firm creation. In addition, government debt increases in the post-bailout years for these counties. To the extent that fiscal indebtedness constrains counties from making other value-enhancing investments, this potentially entails welfare costs for these counties. In summary, our results suggest that decentralization imposes both fiscal and real costs on the county. To this end, our findings highlight the benefits of centralized decision-making and uncover the political economy of decentralization.

Finally, a quantitative model of firm dynamics predicts a 2.09% decline in local output per capita under mayor-led bailouts relative to association-led bailouts, with misallocation within public banks the dominant channel. The costs of local discretion are not merely distributional—they are large, real, and borne by the broader economy.

One must exercise caution when interpreting these numbers, as they are based on a model that likely misses other costs and benefits. For example, a larger savings bank might create additional advantages, such as more employment and less volatility in growth. Although our empirical results indicate the opposite—mayor-led counties tend to have lower employment levels—we acknowledge that there may be other benefits we haven't considered. Furthermore, ex-post efficiency does not necessarily imply ex-ante efficiency. It is now well understood that while a tougher resolution regime can curb ex-ante moral hazard (a positive outcome), it may also make banks more reluctant to fund risky ventures or innovative firms. Given this, a better interpretation of this figure is that hidden welfare gains must be large enough to outweigh the losses from

misallocation.

Literature Review. Our paper contributes to the debate on political decentralization, building on the rich theoretical literature on federalism (Oates, 1972; Besley and Coate, 1997; Lockwood, 2002; Alesina and Spolaore, 2003; Harstad, 2007; Boffa et al., 2016). While cross-country studies are informative (Fisman and Gatti, 2002), our paper joins the growing literature that leverages disaggregated data to establish causality (Rodden, 2003; Bardhan and Mookherjee, 2006b; Alatas et al., 2012; Brollo et al., 2013; Acemoglu et al., 2014; Anderson et al., 2015; Narasimhan and Weaver, 2024).[3] Relative to this literature, we provide direct causal evidence that private incentives—rather than information advantages—primarily drive local politicians' decisions, i.e., bank bailouts in our context. Leveraging the central role of the banking sector in the economy, we quantify the social cost of these distortions and show that decentralization can be costly without robust checks and balances—consistent with predictions of the second-generation theories of fiscal federalism.[4]

Our paper adds to the literature on the politics of bank lending and bailouts. Brown and Dinç (2005) and Liu and Ngo (2014) examine how electoral cycles affect bailout interventions,[5] while Dinç (2005); Vins (2008); Cole (2009), and Englmaier and Stowasser (2017) focus on how political considerations affect bank lending.[6] All these studies suggest that politicians extract private rents from controlling banks. While our paper similarly examines how political variables affect bailout decisions, we advance the literature by providing direct evidence of the underlying motivation—that bailout decisions are driven by private gains rather than social welfare considerations. Using comprehensive datasets spanning bank, firm, and regional outcomes, we trace the whole transmission chain of how political distortions in the banking sector influence the real economy, misallocate credit, and impair local development.

[3] See Mookherjee (2015) and Mansuri (2012) for reviews.

[4] Our paper also aligns with theoretical and empirical work arguing that corruption harms firm activity, often acting like a tax that restricts entry, distorts investment, and hampers growth. See Murphy et al. (1991); Shleifer and Vishny (1993, 1994); Romer (1994); Olken (2007); Colonnelli and Prem (2022); Akcigit et al. (2023) and Colonnelli et al. (2022).

[5] See Duchin and Sosyura (2012), Pana and Wilson (2012), Puente (2012). The influence of political incentives on bailout decisions is not constrained to the banking sector. Faccio et al. (2006) find that firms in 35 countries are more likely to be bailed out by the government if one of their top officers or a large shareholder is a member of the national government or parliament.

[6] Englmaier and Stowasser (2017) find that German savings banks increase lending around elections to induce favorable economic outcomes for politicians. This result does not threaten our identification strategy. First, we show that in distress years, banks lack the capacity to expand credit in this way. Second, when these election-prompted loans are granted in non-distress periods, their uncertain default horizon makes it unlikely that they systematically influence the subsequent timing of bank distress within the electoral cycle, which generates our identifying variation.

We document that mayor-led bailouts prolong inefficient lending relationships and favor connected firms. This pattern aligns with the literature on soft budget constraints, which shows that politicians' private incentives to bail out inefficient institutions erode financial discipline and perpetuate inefficiency (Kornai, 1986; Dewatripont and Maskin, 1995; Robinson and Torvik, 2009).

More broadly, this paper relates to the literature on banking supervision. Our results are largely in line with the findings in the US banking sector. Agarwal et al. (2014) compare federal and state regulator supervisory ratings for a sample of US banks and find that federal regulators are systematically tougher than local supervisors. Granja and Leuz (2019) study how regulatory strictness shapes the local economy through banks' lending activities. Merton (1977); Keeley (1990); Demirguc-Kunt and Detragiache (2002); Gropp et al. (2011) and Dam and Koetter (2012) examine how safety nets shape bank risk-taking and financial stability.[7] We focus on another important aspect of banking supervision—bailout institutional design. Our findings show that when mayors control bailout decisions, their private incentives lead to more generous bailouts that generate inferior bank performance and worse economic outcomes.

Finally, this paper relates to the growing literature on resource misallocation; see Restuccia and Rogerson (2008), Hsieh and Klenow (2009), Gopinath et al. (2017), Baqaee and Farhi (2020), and Sraer and Thesmar (2023).[8] In contrast to these studies, our framework allows for heterogeneous banks that may exert market power over firms. We utilize this framework—together with causal identification—to evaluate the economic cost of credit misallocation, driven by publicly owned banks under the influence of mayors.

The rest of the paper is structured as follows. Section 2 provides details on the institutional background. Section 3 introduces the data and variable construction. Section 4 analyzes the determinants of different bailout regimes. Section 5 evaluates bailout performance and presents the identification strategy. Section 6 examines aggregate effects, and Section 7 concludes.

2 Institutional Background

Savings banks (Sparkassen) are one of three pillars of the German banking system, alongside private banks and cooperative banks. They play a significant role, originating about a quarter of all corporate and consumer loans (Sparkassen-Finanzgruppe, 2010). In 2010, the sector comprised 429 banks with assets totaling 1,084 billion euros, operating approximately 15,600 branches and employing 250,000 people.

[7] Beck et al. (2010) discuss state-supported schemes for financial institutions in detail.

[8] See also Buera et al. (2011), Midrigan and Xu (2014), Moll (2014), Bau and Matray (2023) and Cavalcanti et al. (2024).

Three institutional features of the savings bank sector are central to our analysis. First, each county (*Landkreis*) or county-level city (*kreisfreie Stadt*) is typically served by one savings bank, which is owned by the local government.[9] Second, savings banks are subject to a regional demarcation principle—a legal restriction that confines each bank's operations to its designated geographic area. A savings bank may not solicit or serve customers outside its county boundaries. This rule eliminates competition among savings banks, though they compete with cooperative banks, private banks, and other financial institutions within their territory. Third, the local politician heading the county or city government—typically a directly elected mayor—serves as chairman of the savings bank's supervisory board. In this capacity, the mayor exerts significant influence over the bank's operations, including management appointments, strategic direction, and the allocation of earnings.

Savings banks are organized into state-level associations responsible for overseeing the financial stability of their member banks.[10] Each association operates a guarantee fund, financed by contributions from all member banks. Associations collect solvency and liquidity data from their members and report to federal supervisory authorities (BaFin and Deutsche Bundesbank). Figure B1 illustrates this institutional setup.

A critical feature of this system is that the association functions as a lender of last resort for its member banks. When a savings bank experiences financial distress, the association stands ready to intervene and resolve the situation. In our institutional knowledge and data, there are no cases in which an association refused to resolve a distress event of a member savings bank. Therefore, associations are designed to resolve every distress event by default.

The board of each association consists of representatives from all member banks. These include the chairmen of member banks' supervisory boards, i.e., local politicians representing each county. Representatives are elected at general meetings and serve four- or five-year terms.[11] The associations are designed so that no single politician can unilaterally influence the association's decisions regarding their own bank.[12] Decisions

[9] Savings banks were historically established by different public entities: cities founded Stadtsparkassen, while counties founded Kreissparkassen. As a result, some counties may host more than one savings bank, a mapping further complicated by territorial reforms in the 1970s.

[10] There are 12 state-level associations, which do not map one-to-one to Germany's 16 states. Notably, four former East German states are grouped into a single association. The associations are themselves connected through the "Deutscher Sparkassen- und Giroverband" at the federal level.

[11] General meetings of the association are attended by the chairmen of the individual banks, the directors, and one additional board member per bank. Among themselves, the attendees elect the members of the board of the association (see, e.g., Rheinischer Sparkassen- und Giroverband (2009)).

[12] Voting rules within savings bank associations are governed by state-level Sparkassengesetze and vary across German states. Routine decisions require a simple majority, while more significant decisions require

follow a prescribed set of rules, effectively diluting individual political influence.

Importantly, association interventions are designed not to alter the savings bank's public mandate to serve its local community. The association can restructure lending practices and impose stricter risk management, but it cannot redirect the bank away from its obligation to provide credit to local municipalities, businesses, and public institutions. In other words, *the association cannot alter the objective function of the savings bank*.

2.1 Implementation of Bailouts

In all cases, the distressed bank notifies its state-level association. The default resolution mechanism is for the association to intervene (which we denote BLA, for bailout by association). However, since the savings bank is owned by the county, the mayor can choose to resolve the distress herself by injecting municipal resources into the bank (which we denote BLP, for bailout by politician). This is akin to an equity injection. If the mayor injects sufficient capital to resolve the bank's shortfall, the association has no grounds to intervene. Crucially, the mayor acts as the gatekeeper: she decides whether to intervene herself or to let the association step in. We now describe each type in detail, drawing on extensive interviews we conducted with the Federal Savings Bank Association.

2.1.1 Association-led Bailouts (BLA)

As part of the design, the bank must notify its state-level association about distress events. The association extensively monitors the savings banks, which makes concealment unlikely, and managers who fail to report face severe personal consequences, including loss of pension rights. Once notified, the association follows a structured resolution process. The specific intervention depends on the severity of the distress.

Less severe cases are addressed through a restructuring and reorganization plan, typically spanning 5 to 10 years. This is akin to Chapter 11 reorganization in the US bankruptcy proceedings. The plan includes: (a) short-term support measures, (b) a timetable for implementation, and (c) an assessment of the bank's future development. Implementation typically involves dismissing the existing management team, appointing new board members, enhancing internal audit controls, and implementing more stringent risk management practices. The primary goal is to restructure the bank's lending, particularly regarding problematic loans that pose large risk exposures. To enforce the plan, the association assigns a monitoring team and appoints a trustee with attendance and audit rights at management and supervisory board meetings. If progress is inadequate, the association can suspend or withdraw support.

supermajorities or unanimity. For instance, the Saxon Sparkassengesetz stipulates a three-quarters majority for certain decisions and full unanimity for others.

Severe cases may result in a distressed merger with a neighboring savings bank.[13] This is effectively a transfer of ownership: the county that owned the distressed bank loses part of its ownership rights, which are transferred to the neighboring county. The bank continues to operate in the same geographic area, serving the same customers under the same mandate and guidelines—but under a different set of owners and therefore a different governance structure. The association oversees the merger process, including the valuation of assets and liabilities and the determination of shareholdings between the merging entities, and remains involved during the post-merger transition. We therefore group them as association-led bailouts.

Financing of BLA. The association provides support primarily through capital injections and debt guarantees, drawing on the guarantee fund. Crucially, these capital injections are not free: they must be repaid by the distressed bank.[14] Repayment is structured around the bank's financial recovery, with payments beginning only after several years of close supervision and successful restructuring.[15] The guarantee fund thus functions not as an insurance payout—where losses are absorbed by the pool—but as a lender of last resort that provides liquidity during the restructuring period. The cost of the intervention ultimately falls on the distressed bank itself, though the fund bears the risk that repayment may be delayed or, in extreme cases, incomplete.

2.1.2 Mayor-led Bailouts (BLP)

Although the default resolution mechanism is BLA, we observe that in more than one-third of distress cases the mayor chooses to resolve the distress herself by injecting capital into the bank using municipal resources. Under state-level savings bank laws, the municipality, as the bank's owner, can provide financial support through its regular budgetary process.[16] The mayor may use current municipal revenues, reallocate funds from other budget items, or borrow against future revenues to finance the injection.

[13] Distressed mergers tend to occur in the most severe cases of financial distress. On average, banks involved in distressed mergers are about half the size of those receiving capital injections (measured by total assets relative to GDP). They exhibit negative ROA, lower capital ratios, and higher NPL ratios, indicating more severe distress. At the same time, their smaller size makes them more suitable candidates for merger with another institution. Moreover, geographic proximity plays an important role, and the respective bodies decide on the merger under the supervision of the association.

[14] Capital injections can take several forms depending on the financial situation: allocating liable resources, furnishing guarantees or sureties, making interest-bearing commitments to pay debts, or satisfying third-party claims against the member institution in return for an assignment of claims to the Savings Banks Guarantee Fund.

[15] The capital injection is regularly reviewed after 10 years at the latest. Since the revision of supervisory law in 2010/12, no time limit can be set for core capital.

[16] The specific legal provisions vary across states, as savings bank regulation is a state-level competence. In practice, the capital injection typically requires approval by the county council or city parliament as part of the municipal budget process.

By intervening directly, the mayor avoids the association's restructuring process and retains full control over the bank. Based on our interviews with the Federal Savings Bank Association, there is no external monitoring team, no trustee, and no mandatory restructuring plan under BLP. The bank continues to operate under the existing management, preserving the mayor's influence over lending decisions and personnel. In this sense, BLP maintains a "business-as-usual" scenario. The bank remains subject to standard regulatory supervision by BaFin and the association's routine data collection, but does not face the additional restructuring oversight imposed under BLA.

The fiscal cost of BLP falls directly and immediately on local taxpayers. In our data, mayor-led capital injections average about 3.2% of the county's annual revenue and roughly 30% of its investment budget, representing a substantial diversion of public resources from other uses such as schools, infrastructure, or public services.[17] This fiscal burden is the source of political cost: press coverage often frames bailouts as mismanagement or misuse of taxpayer money, especially near elections.

A key feature of the institutional environment is that this fiscal burden is avoidable. Under BLA, capital injections are financed through the association's guarantee fund and repaid over time by the distressed bank, leaving little immediate impact on the county budget. Under BLP, the county budget bears the full cost upfront. This asymmetry deepens the puzzle at the heart of our paper: why would the mayor choose to impose a direct fiscal cost on their constituents when the association stands ready to resolve the distress at no immediate cost to the local budget? Our empirical analysis investigates whether private benefits from retaining bank control can explain the mayor's decision to intervene.[18]

2.2 The German Electoral System

Germany is organized as a parliamentary democracy with three layers of government: the federal republic, 16 states ("Bundesländer"), and 402 county districts consisting of 295 rural counties and 107 urban cities, each headed by a directly elected mayor. Rural counties are formally headed by a county administrator (*Landrat*) and urban cities by a mayor (*Bürgermeister*). Both serve as chairman of the local savings bank's supervisory board. Throughout this paper, *we refer to both as the mayor or the local politician*. Separate elections on each layer take place at regular intervals. The focus of our paper is on elections in rural counties and urban cities, for which the laws are enacted at the state level.

[17] Figure B2 in the appendix provides examples from newspaper articles illustrating public concern over these fiscal trade-offs.

[18] While joint intervention by both the mayor and the association could occur in principle, we do not observe evidence of it in the data. One possible explanation is that these forms of intervention are mutually exclusive. When the mayor intervenes, there is little scope for the association to do so, as political authorities may prefer to retain control. Conversely, when the association intervenes and assumes control of the bank, the incentives for political intervention are significantly reduced.

The local politicians are directly elected by citizens in all German states. The electoral cycle is five years in almost all German states, with the exception of Bavaria and Bremen, which have a six-year and a four-year cycle, respectively.

3 Data and Summary Statistics

Our analysis covers the period from 1993 to 2015, focusing on distress events that occurred between 1995 and 2010. We construct a unique dataset by merging several proprietary sources from the Bundesbank's supervisory and statistical departments, allowing us to identify distress events among savings banks.

3.1 Data Sources and Variable Construction

Distress Events. We define distress events as instances in which a savings bank receives external support—such as capital injections or guarantees—in response to a capital shortfall. To construct the data on distress events, we combine four sources from Deutsche Bundesbank's supervisory data: the Bundesbank's prudential database for banking supervision (BAKIS), the monthly balance sheet statistics (BISTA), the borrowers' statistics, and the Bundesbank's database on distress events. Additionally, we consult local media coverage on distress events obtained from the GENIOS database to verify our event dates. Appendix A provides a detailed description of these datasets and the procedure to identify distress cases, while Table A1 provides variable definitions.

We identify 148 distress events of German savings banks from 1995 to 2010. Some banks experience distress more than once—notably, banks that received mayor-led bailouts are more likely to re-enter distress, which we discuss in Appendix A.4. Table 1 shows summary statistics of these banks at the time of distress. On average, a distressed bank (an average bank, see Table B1) has a capital ratio of 4.04% (4.55%) and a non-performing loan (NPL) ratio of 6.09% (3.79%). The average return on assets (ROA) in distressed banks (non-distressed banks) is low at 0.24% (0.75%). Capital support is typically about €17.4 million.

Political Variables. We hand-collect information on the identity and party membership of each distressed savings bank's chairman from bank annual reports published in the Bundesanzeiger.[19] Results and dates of local elections are obtained from the 16 German State Statistical Offices. We match counties and cities with owners of savings banks, linking election data to individual banks. In cases where several cities or counties jointly own a savings bank, we match the bank to the county in which its headquarters are located.

We construct three political variables. First, $ElectoralCycle_{kt}$ captures the timing of distress within the electoral cycle. Second, *Cons. Bank Chairman* is a dummy equal to

[19] This information is available online from 2006 onwards (www.bundesanzeiger.de). For earlier observations, we consult microfiche versions provided by university and public libraries in Germany.

one if the chairman is a member of the conservative party (CDU/CSU). About 41% of distressed banks have a conservative chairman (Table 1). Third, *Competitive County* is a dummy based on the vote share margin between the winner and runner-up in the previous election, equal to one if the margin is below the median.

Outcome Variables. To evaluate the consequences of different bailout regimes, we study both bank-level and locality-level outcomes. Annual bank balance sheets and income statements are provided by the BAKIS database. County-level macroeconomic variables, such as the government debt to GDP ratio, are obtained from the 16 German State Statistical Offices. Moreover, we rely on the German credit register at Deutsche Bundesbank to study credit allocation at the micro level. The credit register offers detailed contract-level information between all German firms and the banks extending credit to them, as long as total outstanding loans between a borrower-lender pair in a given quarter exceed 1.5 million euros. Although savings banks are organized at the county level, their exact coverage can be pinned down to the more granular municipality level.[20] To improve accuracy, we hand-collect detailed information on the service areas of distressed banks to identify the municipalities affected by each distress event and the firms located within them.

3.2 Timing of the Distress Event

A natural question is whether politicians can influence when bank distress becomes formally recognized. Figure 1a shows that distress events are spread across calendar years, with multiple events typically occurring each year. Figure 1b illustrates their distribution across the five-year local electoral cycle. The number of events appears relatively stable from year to year, with probabilities hovering around 20%.

We formally test this using an exponential hazard model following Brown and Dinç (2005). Table 2 confirms that politicians are not able to endogenously affect the timing of distress events. In column (1), a single indicator for whether distress occurs in the pre-election year yields a small and insignificant coefficient.[21] In column (2), separate indicators for each year within the electoral cycle are all insignificant. These results are robust to excluding banks without distress events from the sample (columns (3) and (4)).[22]

This finding contrasts with evidence from emerging economies (Brown and Dinç, 2005) and the US (Liu and Ngo, 2014), where politicians can influence the timing of

[20] The municipality is the most granular administrative unit in Germany, identified by an eight-digit AGS code. The first five digits represent the county, and the last three identify the municipality within it. With over 8,000 municipalities, our analysis is at a geographic level comparable to that of U.S. ZIP codes.

[21] The coefficient indicates an insignificant decrease in the hazard rate of about 5 percent ($1 - \exp(-0.057)$) in the year before elections.

[22] Consistent with the lack of relationship between distress timing and the electoral cycle, we find that voters do not punish distress events in upcoming elections, even when they occur immediately before the election. See columns (1) and (2) of Table B4.

bank failures. We attribute this difference to the institutional context in Germany, where mandatory audits and strong managerial liability effectively prevent concealment of losses or manipulation of distress timing. We discuss this in more detail in Section 5.2.

4 Determinants of Mayor-led Bailouts

Given that distress timing is exogenous to the electoral cycle (Section 3.2), we turn to the mayor's bailout decision conditional on distress. These decisions are shaped by an interplay of economic constraints and political incentives.

We first present summary statistics by bailout type (Table 3) and then estimate a linear probability model to jointly assess the determinants of mayor-led bailouts (Table 4). Among all 148 distress events, more than one-third (55 cases) were resolved by the mayor (BLP). The remaining 93 events were dealt with by the association (BLA). Of these 93 cases, 44 banks experienced a distressed merger facilitated by the association, while the remaining banks received capital injections from the association.

What determines the likelihood of mayor-led bailouts? We estimate the following linear probability model using all 148 bank distress cases:

$$BLP_{kt} = \alpha_t + \delta X_{kt-1} + \nu POL_{kt} + \beta ElectoralCycle_{kt} + \epsilon_{kt} \tag{1}$$

where k denotes the individual bank and the county of the bank, and t denotes year. The dependent variable BLP equals one (zero) if the bank distress is resolved by the mayor (association). Bank-level and macro variables X_{kt-1} and political variables POL_{kt} are defined in Section 3. We include time fixed effects to absorb aggregate shocks common to all banks within a given electoral cycle.[23]

4.1 Economic Determinants

Panel A of Table 3 and column (1) of Table 4 reveal a clear pattern: banks receiving bailouts from the association tend to be in worse financial condition. They have lower returns on assets, lower capital ratios, lower market shares, higher non-performing loan ratios, and require larger capital injections. For example, a one standard deviation increase in non-performing loans is associated with a roughly 10.4% (0.025×4.17) decrease in the probability of a mayor-led bailout. This evidence suggests selection on severity: associations step in for more complex and severe cases of distress that politicians either cannot or prefer not to handle with municipal resources.

Fiscal capacity also plays a role. Distressed banks bailed out by politicians are located in less indebted counties on average than those supported by associations. These coun-

[23] Since the cycles of the local elections are to a large extent synchronized, year-fixed effects would absorb $ElectoralCycle_{kt}$. Therefore, we define time fixed effects that equal to 1 during one of the entire cycles (begin of sample-1998, 1999-2003, 2004-2008 and 2009-end of sample) and 0 otherwise.

ties likely face less binding budget constraints, giving the mayor sufficient fiscal space to finance a bailout. This pattern is consistent with the institutional description in Section 2: BLP requires an upfront diversion of municipal resources, so it is feasible primarily in counties that can absorb the fiscal cost.

4.2 Political Determinants

Beyond economic fundamentals, political variables significantly shape bailout decisions, as shown in Panel B of Table 3 and columns (2)–(6) of Table 4.

Party affiliation. When the bank chairman is affiliated with the conservative party, the likelihood of a mayor-led bailout is 25%, compared to 45% when the chairman is not. In the regression, column (2), BLP is 24.6% less likely when the mayor is affiliated with the conservative party, consistent with the party's stated position on limited government intervention.

Political competition. Mayors are less likely to bail out banks in counties with intense political competition—proxied by close elections—suggesting that greater electoral accountability raises the political cost of intervention. Together, party affiliation and political competition jointly explain 12.7% of the variation in bailout type (column (2)).

Electoral cycle. Most strikingly, we find that the type of bailout conditional on distress varies sharply over the electoral cycle. In the 12 months before an election, the share of bailouts by mayors is considerably *lower* than in the 12 months following the election (15.4% vs. 50.0%, Panel B of Table 3). Figure 2a illustrates this pre-election dip. Moreover, only one out of 55 cases of capital support by the mayor occurs in the six months directly preceding an election (Figure 2b). In the regression, column (3), mayor-led bailouts are 30% less likely when distress occurs in the 12 months before an election. This single variable explains over 10% of the variation in bailout type, nearly as much as the two other political variables combined.

The result is robust to including separate year-of-cycle indicators, column (4), a horse race with all political variables, column (5), the full set of bank-level and macroeconomic controls, column (6), and a nonlinear logit specification (Table B2). Including separate indicators for each non-pre-election year does not improve explanatory power (R-squared remains around 10%), confirming that the key variation is binary—between the pre-election year and all other years—rather than gradual across the electoral cycle.

Why do mayors avoid BLP before elections? The evidence points to voter disapproval. Media reports consistently frame savings bank bailouts as mismanagement or misuse of taxpayer money, diverting municipal resources from visible local projects such as schools or infrastructure. An article from *shz.de* titled "The sold city" mentions that "due to finan-

cial mismanagement in the city's former municipal savings bank, Flensburg faces severe budget cuts. The victims of these austerity measures are infrastructure projects, cultural initiatives and social services".[24] Our empirical evidence in Table B4 confirms that voters act on this disapproval: distress events *per se*, regardless of their timing, do not affect voter behavior (columns (1)–(2)), but mayor-led bailouts occurring before an election are associated with significantly lower reelection probabilities (columns (3)–(4)). Crucially, bailouts occurring *after* an election carry no such penalty—consistent with voter myopia. Mayors, anticipating this asymmetry, pursue BLP after elections when electoral accountability is weak, and avoid it before elections when voters are paying attention.

Since association boards include local politicians, one might worry that BLA decisions are also politically influenced. We test this using measures of board ideology and whether the distressed bank's mayor is on the board or shares its ideology, and find no evidence of such effects (Table B3), consistent with centralized decision-making at the association being rule-based rather than politically motivated.

In summary, both economic and political factors shape the bailout decision, with the electoral cycle emerging as one of the most significant determinants. The natural next question is whether the two bailout regimes produce different outcomes, and if so, which regime is better.

5 Consequences of Mayor-led Bailouts

What happens after a mayor-led bailout? Figure B3 provides a first look. It plots the share of loans from savings banks (panel a) and the savings bank loans-to-GDP ratio (panel b) around the bailout event, separately for BLP and BLA areas. Before the bailout, the two groups follow similar trends. Afterwards, the paths diverge sharply: under BLP, the savings bank retains—and even expands—its market presence, while under BLA, the savings bank shrinks as the association restructures or merges it. These aggregate patterns are consistent with a simple story: under BLP, the mayor preserves the bank's operations to retain control, while under BLA, the association restructures aggressively. But preservation need not mean inefficiency—a mayor may simply have better information about the bank's true condition. To disentangle these competing interpretations, we examine outcomes across multiple levels of analysis, ranging from banks to firms.

We first compare post-bailout financial trajectories for banks receiving capital injections from either the mayor or the association.[25] Panel A of Table 6 examines five-year

[24] Another example is *Wirtschaftskurier.de* reports that asset write-downs in savings banks erode municipal revenues, reducing public infrastructure funding.

[25] Merged banks no longer report individual financial statements, so we restrict this comparison to capital injection cases. To mitigate the potential selection bias that merged banks tend to be the most severe distress cases, we restrict the sample to savings banks that do not have a potential merger partner. See

changes in assets, loans, employees, and branches, relative to pre-bailout levels. Association bailed-out banks experience significantly greater declines in both total assets and total loans. In line with the implementation of a tight restructuring plan, the number of employees and, to a lesser extent, the number of branches, also decline more for banks bailed out by the association.

Does this greater restructuring translate into better financial health? Panel B shows that it does. Association-supported banks reduce non-performing loans and provisions by about 2.86 and 0.46 percentage points more than mayor-supported banks (columns (1)–(2)). They also see larger gains in ROA (+0.34) and ROE (+6.66) (columns (3)–(4)), and greater increases in capital ratios (columns (5)–(6)). Under BLP, banks maintain a "business-as-usual" approach—preserving existing management, lending relationships, and organizational structures—at the cost of weaker financial recovery.

However, the selection on severity documented in Section 4.1 means that naïve comparisons of post-bailout outcomes across bailout types may be misleading. Association-handled banks start from a worse financial position, making their superior recovery striking, but also raising the possibility that unobserved differences drive the results. To make a fair comparison, one needs to hold bank characteristics constant across the two bailout regimes. We turn to identification strategy next.

5.1 Identification Strategy

We exploit a feature of the institutional environment that creates plausibly random variation in who conducts the bailout. The previous section established that mayors are roughly 30 percentage points less likely to bail out a distressed bank in the year before an election, not because those banks are different, but because the political cost of intervention is temporarily elevated. This reluctance means that a bank that happens to fall into distress just before an election is disproportionately likely to be handled by the association, while an otherwise identical bank that falls into distress just after the election is likely to be handled by the mayor. We use this variation—the timing of distress within the electoral cycle—as an instrument for the bailout decision.

To fix ideas, consider the following example: suppose mayors bail out no banks in the pre-election year (so all are handled by the association) and bail out all distressed banks in the post-election year. If the banks entering distress before and after the election are comparable, in their financial condition, size, and the macroeconomic environment they face, then any difference in outcomes can be attributed to the bailout regime rather than to selection. The real-world version is softer: the mayor is about 30 percentage points less likely to intervene pre-election, not zero. But the logic is the same.

Appendix A.4 for a detailed analysis of mergers.

Our strategy to use the timing of distress in the electoral cycle as an instrument for the bailout decision is similar to the approach in Levitt (1997), and we estimate the causal effect via two-stage least squares. The first-stage specification mirrors Equation 1 with results in Table 4, but is estimated jointly with the corresponding second-stage regression. While the unit of observation in the second stage varies across specifications, the instrument continues to exploit the variation in electoral timing. The specific second-stage regressions are presented alongside the results below.

The instrument identifies out of "switchers"—distressed banks that would have been treated by the mayor had distress occurred after the election, but are instead treated by the association because distress happened to fall in the pre-election window. Banks that are always too large or complex for the mayor to handle ("never takers") and banks where the mayor always intervenes regardless of electoral timing ("always takers") do not contribute to identification. The estimated effect is therefore a local average treatment effect for the marginal cases—banks of moderate severity where the mayor's decision is sensitive to electoral incentives. We discuss the external validity of this LATE—and argue that it provides a conservative estimate of the average cost of mayor-led bailouts in Appendix C.

5.2 Exclusion Restriction

The instrument requires that electoral timing affects outcomes only through the bailout decision, not through any other channel. This assumption is ultimately untestable, but we provide extensive evidence consistent with its validity. The assumption has two components: (1) the occurrence of distress does not depend on the electoral cycle, and (2) electoral timing does not independently affect bank or local economic outcomes conditional on distress.

Distress events are not timed by politicians. Section 3.2 showed that distress timing is unrelated to the electoral cycle. We go one step further and investigate the underlying causes of all 148 distress cases using Bundesbank's supervisory database and local media reports (GENIOS). In almost all cases, distress was triggered by the bankruptcy of one or two large borrowers; the remaining cases stem from losses on US subprime investments and fraud-related write-offs. These causes are usually outside mayoral control, but one might still worry that mayors manipulate the timing of distress recognition by pressuring bank managers to evergreen loans to distressed borrowers, delaying the write-offs that would trigger a formal distress event. We find no evidence of this. Using Bundesbank's credit register, we check whether the borrowers whose bankruptcy ultimately triggered each distress event received new loans or credit lines from the same savings bank in the year before the election. In none of the cases do we find this to be true. This reflects

the high personal cost of evergreening: all distress events are subject to a careful audit by the association, and managers who fail to timely write off non-performing loans face personal liability and loss of pension rights.

Pre- and post-election distressed banks are similar. We regress bank characteristics in the year before the distress event on the electoral cycle indicator. Results are shown in Panel A of Table 5. Banks that experience distress before the election do not differ systematically in their absolute and relative size when compared with banks that experience distress after the election. The same is true for the customer loans to total assets ratio, deposit ratio, capital ratio, profitability, and non-performing loans ratio. We then check the size of the bailout, and hence the severity of distress. For example, mayors may find it easier to hide and delay the failure of a relatively healthier bank, which would make post-election distress cases less severe. Using capital support over equity as the dependent variable, we find no such correlation. These results suggest that the composition of distressed banks does not vary systematically with electoral timing, supporting the validity of our instrument.

Local macroeconomic conditions do not differ. A separate concern is that mayors could use their influence over the bank to manipulate local economic conditions around elections (for example, by expanding lending to induce favorable outcomes, as documented by Englmaier and Stowasser (2017) for non-distress periods). If such manipulation occurred during distress years, electoral timing could affect outcomes through a channel other than the bailout decision. Panel B of Table 5 tests this directly: there are no significant differences between pre- and post-election distress counties across GDP per capita, GDP growth, employment rate, employment growth, local government indebtedness, credit market growth, or the share of loans extended by state banks in the year before distress. These results indicate that, during bank distress years, mayors lack the ability to expand lending or manipulate regional economic outcomes in ways that would improve their reelection prospects.

Having established our identification strategy, we next turn to more granular units of analysis—municipalities and firms—to study the consequences of bailout regimes.[26] Moving to finer units serves two purposes. First, it sharpens the measurement of exposure. While bailout decisions are made at the county level, the mapping between counties and savings banks is not always one-to-one due to historical institutional structures,

[26]Savings banks were historically established by different public entities—cities (Stadtsparkassen) and counties (Kreissparkassen)—and territorial reforms in the 1970s left multiple savings banks operating within a single county. As a result, the relevant lending relationship and exposure to a given bailout decision can be ambiguous at the county level. In contrast, each municipality maps cleanly to a single savings bank.

which can blur treatment assignment. More granular units allow us to better capture the relevant local exposure to a given bailout. Second, it addresses a limitation of the bank-level analysis in the presence of mergers. In distressed merger cases, treated banks cease to exist as separate entities, preventing us from observing post-bailout outcomes. By focusing on municipalities and firms, we can continue to track local credit conditions and real activity—even when the original bank disappears—using granular loan-level data from the German credit register.

5.3 Changes in Local Financing Structure

We first examine how the composition of the local credit market changes following each type of bailout. The unit of observation is a municipality, and all dependent variables measure the change in average post-bailout values (five years after the bailout) relative to pre-bailout levels (three years before). We estimate the effect of BLP using the timing of distress in the electoral cycle as an instrument. The second-stage regression is:

$$Y_{it} = \alpha_t + \theta \widehat{BLP}_{it} + \delta X_{i,t-1} + \epsilon_{it} \tag{2}$$

where i indexes municipalities and t denotes the year of distress. $\widehat{BLP}_{it}$ is the fitted value from the first stage and captures the predicted probability that a municipality is exposed to a mayor-led bailout through the distressed bank serving it.

Columns (1) and (2) of Table 7 report the OLS and 2SLS estimates, respectively, where the dependent variable is the change in the share of loans extended by state-owned savings banks in total lending around bailouts. The OLS estimate in column (1) shows that, in the five years following the bailout, BLP is associated with a 4.85 percentage point higher savings bank loan share relative to BLA cases. The IV estimate in column (2) is slightly larger, at 6.88 percentage points. The F-statistic for the excluded instrument exceeds the rule-of-thumb critical value of 10 (Stock et al., 2002), supporting the relevance of the instrument. Our finding is consistent with the politician preserving the distressed bank's operations and market position, while association-led resolutions—which often involve downsizing or merging the bank—reduce the public bank's footprint.

The mirror image appears in columns (3) and (4): the share of loans from private banks falls significantly in BLP areas relative to BLA areas. Under BLA, private banks expand to fill the gap left by the shrinking savings bank; under BLP, the savings bank retains its market position and crowds out private lenders. The small difference between columns (2) and (4) is accounted for by cooperatives (columns (5) and (6)), whose share is largely unaffected.

Columns (7) and (8) examine the growth of total loans at the municipality level. Despite the large divergence in market structure, total credit growth is only modestly

affected—the difference between BLP and BLA is positive but not statistically significant in the IV specification. This suggests that in BLA areas, private banks largely replace the credit previously supplied by the savings bank, maintaining overall credit availability. The key difference is not the *quantity* of credit but its *composition*: under BLP, a larger share flows through the politically controlled bank.

5.4 Changes in Credit Allocation Decisions

Despite significant changes in local banking market structure, it remains unclear whether affected banks improve their lending practices following the bailout. We proceed by studying how credit allocation decisions change across the two bailout regimes. Our analysis starts with the extensive margin, tracking the formation and termination of lending relationships following bailouts. We then turn to the intensive margin, focusing on the sensitivity in credit allocation in response to firm productivity. Finally, we assess the extent of preferential lending under each bailout regime, which allows us to directly attribute any observed distortions to the private benefits of politicians.

5.4.1 Extensive Margin: Dynamics in Lending Relationships

Institutional accounts in Section 2 suggest that BLA involve substantial organizational restructuring, often accompanied by changes in lending practices aimed at reducing future risk. This implies greater dynamism in credit markets, with existing relationships being terminated and new ones formed. In contrast, BLP are more likely to follow a business-as-usual approach, preserving incumbent relationships.

Table 8 provides evidence supporting this view. Banks under BLP initiate significantly fewer new lending relationships (columns (1) and (2)) and are less likely to terminate existing ones (columns (3) and (4)). This pattern indicates limited reallocation under political control, with savings banks maintaining their existing client base rather than actively restructuring their loan portfolios. The magnitudes are economically large: under BLP, the rate of new relationship formation is about 8.5 percentage points lower.

Reduced dynamism at the extensive margin has broader implications for firm dynamics. In particular, new entrants—often key drivers of job creation and innovation—may face greater difficulty obtaining credit in BLP areas. More broadly, these patterns suggest that mayor-led bailouts shape how credit is reallocated across firms. We therefore turn to the intensive margin and examine whether lending under each regime is directed toward more productive firms.

5.4.2 Intensive Margin: Credit Allocation and Firm Productivity

The classic Tobin's Q framework links a firm's investment to the marginal product of capital: in an efficient economy, capital flows to its most productive uses. Empirically, the literature typically proxies marginal Q with average Tobin's Q—the ratio of market value

to book value. However, our sample consists predominantly of privately held firms for which stock market valuations are unavailable, making average Q infeasible. We therefore follow Hsieh and Klenow (2009) and Cong et al. (2018) and use the average product of capital, $APK = \text{Sales}/\text{Capital}$, as an alternative proxy for firm productivity. We assume that the firms finance investment through bank loans, so we proxy the investment rate by loan growth. The efficiency prediction is that high-APK firms should receive more credit than low-APK firms.

The question is whether the bailout regime distorts this relationship. To test this, we estimate a regression that allows the sensitivity of credit to productivity to differ across bailout regimes, instrumenting both BLP and its interaction with $logAPK$ using electoral timing and electoral timing interacted with productivity as excluded instruments:

$$Y_{j(i)t} = \alpha_{n,t} + \beta_1 \widehat{BLP}_i + \beta_2 \log APK_{j,t-1} + \beta_3 BLP_i \widehat{\times \log} APK_{j,t-1} + X'_{j,t-1}\gamma + \varepsilon_{j(i)t} \quad (3)$$

where $Y_{j(i)t}$ is a credit outcome for firm j in municipality i at time t, and the sample includes only post-event years. The coefficients have the following interpretation: β_1 captures the average effect of BLP on credit, holding firm productivity constant—this is the level shift in lending for all firms in BLP areas relative to BLA; β_2 captures the baseline sensitivity of credit to firm productivity under BLA—the Tobin's Q relationship; and β_3 captures how BLP changes this sensitivity, so that the credit-productivity link under BLP is $\beta_2 + \beta_3$.

Since the bailout shock varies at the county level, firm fixed effects would absorb BLP_k (as firms are nested within counties and do not switch across them). We therefore cannot include firm fixed effects; they are subsumed into the error term. Instead, we control for industry $\times$ time fixed effects (α_{nt}), which absorb sector-specific shocks—for example, a credit crunch affecting all manufacturing firms in a given year—without absorbing the cross-county variation that identifies β_1 and β_3.

The share specification. One limitation of the loan growth specification is that it cannot distinguish a genuine loss of credit from a reallocation across bank types. If a productive firm loses credit from the savings bank but fully substitutes to a private bank, loan growth from the affected bank falls while total credit is unchanged—the loan growth regression would flag a distortion that has no real consequence. Moreover, our goal is to identify supply-side effects, but in this specification firm-level credit demand remains a confounding factor. To address this, we additionally examine the savings bank's share of each firm's total borrowing, $Share_{jt} = L^s_{jt}/(L^s_{jt} + L^p_{jt})$, where L^s and L^p denote loans from savings and private banks, respectively.

The share specification offers two additional advantages over the loan growth regres-

sion: (i) it removes firm-level demand factors by mechanically differencing out demand shocks, and (ii) it locates the source of the distortion at the savings bank specifically.

The intuition is straightforward. Each firm borrows from two bank types simultaneously, the affected savings bank and private banks. This means that for any given firm and time period, we observe two lending relationships rather than one. Differencing across bank types within a firm cancels demand mechanically: any shock that scales borrowing from both banks proportionally leaves the share unchanged. We therefore achieve the same demand control as adding $firm \times time$ fixed effects.

A negative β_3 when examining the share of loans therefore tells us that productive firms are losing credit specifically from the savings bank under BLP—net of demand and net of any common shift across bank types—confirming that the distortion originates from the politically controlled bank.

Results. Table 9 presents IV 2SLS results across three dependent variables. The dependent variable is the growth of loans from the distressed savings bank to firm j in columns (1)-(2). We find that $\beta_2 > 0$: irrespective of the bailout type, higher initial productivity corresponds to more new loans, consistent with the Tobin's Q prediction. More importantly, β_3—the coefficient on the interaction term—is significantly negative, with or without firm-level controls. The magnitude is economically large: firms with one standard deviation higher APK would experience a 6.8% lower growth rate in loans from affected banks under BLP than under BLA. The credit-productivity relationship is flatter under BLP. As discussed above, the share specification addresses both the substitution concern and the demand concern. In columns (3)-(4), we find that $\beta_3 < 0$: high-productivity firms experience a significant decline in their savings bank share under BLP. This confirms that the distortion originates from the politically controlled bank.

A key question is whether productive firms can substitute toward private banks and offset the distortion. To address this, we examine total loan growth irrespective of the source of credit in columns (5) and (6). The estimate of β_3 remains significantly negative, indicating that overall bank credit allocated to productive firms is lower in BLP areas than in BLA areas. This reflects an aggregate Tobin's Q effect: total credit becomes less responsive to productivity under BLP, not just lending from the affected savings bank. Moreover, the effects in column (6) are slightly larger than those in column (2), suggesting that the higher market share of public banks under BLP amplifies the aggregate distortion—productive firms are unable to replace the lost credit from politically controlled savings banks by borrowing from private banks.[27]

[27]Our baseline groups both association-led capital injections and distressed mergers into a single BLA category. We also restrict the sample to savings banks without a nearby potential merger partner, where

5.4.3 Preferential Lending

The previous section established that credit is misallocated away from productive firms under BLP. But who are the unproductive firms that benefit? Two mechanisms could generate the observed pattern. First, the savings bank may preserve lending to economically important but unproductive firms (e.g., large local employers) out of a genuine concern for the local economy. Second, the mayor may direct credit toward politically connected firms, extracting private benefits. While both mechanisms weaken the productivity-credit link, their normative implications differ sharply: the former may be socially desirable despite its inefficiency, whereas the latter represents a pure welfare loss.

To distinguish between these mechanisms, we examine preferential lending within the social networks of bank directors. Following Haselmann et al. (2018), we define a lending relationship as "in-group" if the director of the local bank and the CEO of the borrower firm belong to the same local service club branch. Members of the same branch interact regularly, fostering repeated social contact and trust. Importantly, Haselmann et al. (2018) show that such in-group lending is inefficient, suggesting that these connections reflect preferential treatment rather than informational advantages.

Table 10 reports the results. In columns (1) and (2), the dependent variable is the share of in-group loans from affected banks relative to the firm's total borrowing. We find that this share is significantly higher under BLP than under BLA: the fraction of loans originating from connected banks is about 10 percentage points higher in BLP areas. In columns (3) and (4), the dependent variable is the share of in-group loans from affected banks relative to all in-group loans received by the firm. The positive coefficient on BLP indicates that, among all relationship-based lending, a larger share is supplied by affected banks under BLP than under BLA following distress resolution.

Taken together, these results point to preferential lending within social networks under BLP. Such patterns are consistent with increased rent-seeking behavior by politically controlled banks and run counter to the view that political involvement in bailouts serves to advance broader social objectives.

6 Aggregate Effects

Our reduced-form estimates establish that BLP distorts credit allocation, but they are silent on two questions of first-order interest: the aggregate cost of these distortions, and which margins drive it. Table B7 shows the stakes are high at the macro level– counties experiencing post-election distress, managed by local politicians, exhibit significantly lower income-per-capita growth, employment rate and firm creation than those

mergers are exogenously unavailable and the only BLA option is a capital injection. The results remain qualitatively similar, see Appendix A.3.

with pre-election distress. To answer both questions, we calibrate a quantitative firm-dynamics model to our estimated elasticities. The model lets us (i) quantify the aggregate output loss from credit misallocation and (ii) attribute it across two distinct margins: the real margin–distortions among incumbent firms versus effects on entry and selection–and the credit margin–distortions within public banks versus crowding out of private lenders.

6.1 Model

The corporate sector consists of a representative final good producer that aggregates the output of heterogeneous intermediate good producers. There is a representative household that inelastically supplies a fixed amount of labor.

Final Good Producer. The final good producer is perfectly competitive. Aggregate output, price index, and the corresponding demand curve for intermediate goods are:

$$Y = \left(\int_{\Omega} y(\omega)^{\frac{\sigma-1}{\sigma}} d\omega \right)^{\frac{\sigma}{\sigma-1}}, \quad P = \left(\int_{\Omega} p(\omega)^{1-\sigma} d\omega \right)^{\frac{1}{1-\sigma}}, \quad y(\omega) = \left(\frac{p(\omega)}{P} \right)^{-\sigma} Y, \quad (4)$$

where σ is the elasticity of substitution across intermediate goods, Ω is the endogenous set of goods, $y(\omega)$ is the output of good ω, where P is the price index and $p(\omega)$ is the price charged by an individual firm.

Intermediate Good Producers. A potential entrant can pay a sunk cost of entry c_e and draw a productivity z and wedge τ from an exogenous joint distribution $f(z, \tau)$, where $z \in (0, \infty)$ and $\tau \in (0, \infty)$. The τ distorts the cost of borrowing of firms from public bank. It is a reduced form way of capturing how political influence over banks may distort or improve credit allocation across firms. The distortion may be a result of—but not limited to—rent-seeking by politicians or favoritism.[28] Incumbent firms incur a fixed cost c_f. To produce, a firm i needs to accomplish a continuum of tasks indexed by $\phi \in [0, 1]$ that require same amount of labor input $l_i(\phi)$ that is paid a wage W. Total labor required by firm i is $\frac{l_i}{z_i} + c_f$.

Financial Structure. The variable labor cost needs to be paid before the production takes place. Thus, firms finance all wage payments through banks. The total cost of a task ϕ is $\Xi(\phi) = R_i(\phi) W l_i(\phi)$, where $R_i(\phi)$ is the interest rate that firms need to pay to finance task ϕ. Firms can choose between different banks as in Herreño (2020); specifically government-owned public banks (g) and private banks (p) in our case.

We assume that there is a single public-sector bank that inelastically supplies the credit at a firm-specific interest rate $R_{ig}(\tau) = R_g \tau$, where τ is the wedge that in our context

[28] The τ distribution may depend on firm primitives. However, our quantitative analyses primarily emphasize the effects of exogenously changing τ; i.e., transitioning the economy from BLP to BLA.

captures the subsidy ($\tau < 1$) or tax ($\tau > 1$) received by each firm, and R_g is the part of interest rate that is common across all firms. There is a single private bank that is perfectly competitive and it charges the same interest rate to all firms, R_p.[29] In Appendix D.3, we relax the assumption of perfect competition, allowing private banks to exert market power and charge firm-specific interest rates.

The perceived effective cost to the firm when considering a financing option equals the cost of funds associated with that option, R, adjusted by a factor ξ that encompasses all unique reasons why a particular option might be more favorable for certain tasks than others.[30] The firms choose the sources that minimize the costs; $R_i(\phi) = \min\left[\frac{R_{ig}(\tau)}{\xi_{ig}(\phi)}, \frac{R_p}{\xi_{ip}(\phi)}\right]$. We assume the vector of cost shifters $\boldsymbol{\xi} = \{\xi_{ig}, \xi_{ip}\}$ is drawn from a joint Frechet Distribution $F(\boldsymbol{\xi}) = \exp\left\{-\sum_{s\in(g,p)} \phi_s \xi_s^{-\theta}\right\}$, where θ is the elasticity of substitution across banks and ϕ_s captures the relative strength of the relationship between bank s and firm i. This allows for an analytical solution for the cost of bank credit R_i and the share of credit borrowed from public banks ν_{ig} used by a firm with

$$R_i = \widetilde{\phi}\left(\sum_{s\in(g,p)} \phi_s R_{is}^{-\theta}\right)^{-1/\theta}, \quad \textbf{and} \quad \nu_{ig} = \frac{\phi_g R_{ig}(\tau)^{-\theta}}{\sum_{s\in(g,p)} \phi_s R_{is}^{-\theta}}, \tag{5}$$

where $\widetilde{\phi} = \Gamma(1 + 1/\theta)\bar{\phi}^{-1/\theta}$ is a constant (see proof in Appendix D). As there is a continuum of tasks that need to be financed, firms' financing cost does not depend on the realization of the cost of one particular task, but rather on the structural parameters. A firm that gets a subsidy would have a bigger share of credit coming from public bank while a firm that is taxed would prefer private bank credit. The menu of financing options helps firms cushion the costs of taxes imposed by public banks. Given the financing choice and downward sloping demand as in Equation 4, firm set price $p_i = \frac{\sigma}{\sigma-1}\frac{WR_i}{z_i}$ to maximize profits and thus revenue productivity is $TFPR = \frac{p_i y_i}{l_i + c_f}$.[31] $TFPR$ also varies across firms due to the presence of fixed costs.[32]

[29] We refrain from explicitly outlining the bank's optimization problem. We assume that banks' cost of funds is constant; and it is R_b^g for government bank and R_b^p for private banks with $R_b^g \leq R_b^p$. Our focus lies solely on net transfers from the banking sector to the households, which we discipline by aligning them with the changes in revenue productivity of firms in the model.

[30] Firms find certain banks to be more cost-effective in funding certain tasks relative to others, for instance, firms that need to finance research and development of new patents may benefit from the know-how of a specialized bank.

[31] In the data, we observe total inputs and not variable and fixed costs separately and our measure of $TFPR$ is slightly different from Hsieh and Klenow (2009).

[32] The model can be easily extended to have capital, where firms need to finance both capital and labor and production technology is; $k_i^{\alpha} l_i^{1-\alpha}$. The marginal cost would be $\alpha^{-\alpha}(1-\alpha)^{\alpha-1} R_i^{\alpha}(R_i W)^{1-\alpha}$. When computing dispersion in revenue productivity in the data, we include both factors.

Equilibrium. The equilibrium features a constant mass of entrants M_e and producers M, along with an ex-post distribution of productivity and distortion among operational firms $g(z,\tau) = f(z,\tau)/\int\int_{z^*(\tau)}^{\infty} f(z,\tau)dzd\tau$ if $z \geq z^*(\tau)$; and $g(z,\tau) = 0$ otherwise, where $z^*(\tau)$ is the cutoff productivity above which firms produce. The probability of successful entry is $\omega_e = \int\int_{z^*(\tau)}^{\infty} f(z,\tau)dzd\tau$. In equilibrium, the measure of active producers equals the product of the measure of entrants and the probability of successful entering: $\omega_e M_e = \delta M$, where δ is the exit rate. All intermediation income is transferred back to the household.

The total transfer is

$$T \equiv T_g + T_p = M \int\int_{z^*(\tau)}^{\infty} Wl(z,\tau)\left(R(\tau) - 1\right) g(z,\tau)dzd\tau, \tag{6}$$

where T_g and T_p are intermediation income from public and private banks. Here, $R(\tau)$ is the firm's effective composite borrowing cost, which embeds the optimal borrowing shares allocated to public and private banks (the exact decomposition into T_g and T_p is detailed in Appendix D). The nominal output is $PY = WL + \Pi + T$, where WL is the total wage bill, both wages W and L are normalized to one and remain constant across BLP and BLA, T is the total financial sector transfers as defined in equation 6, and Π are total aggregate firm profits. Under free entry, the expected operating profit of taking a draw equals the sunk entry cost c_e (i.e., $\int\int_{z^*(\tau)}^{\infty} \pi(z,\tau)f(z,\tau)dzd\tau = c_e$), which drives aggregate net profits Π to zero.

Output With Political Distortions. Real output per capita $\overline{W} = (PY/L)(1/P)$, where revenue-based aggregate total factor productivity is $\overline{TFPR} = PY/L$. In equilibrium, $\overline{TFPR} = WL + T$. Under BLP, we can express $\overline{W}$ as

$$\overline{W}_{BLP} \equiv \frac{1 + T_{BLP}}{P_{BLP}} = \frac{\sigma - 1}{\sigma}\left[M_{BLP}\int\int_{z^*_{BLP}(\tau)}^{\infty}\left(z\frac{\overline{TFPR}_{BLP}}{WR_i}\right)^{\sigma-1} g_{BLP}(z,\tau)dzd\tau\right]^{\frac{1}{\sigma-1}}$$

This expression is similar to Hsieh and Klenow (2009), adjusted to endogenous entry margin. The term in the brackets $\overline{TFPR}/R_i$ captures the standard misallocation effect. If R_i is constant, the marginal revenue productivity equalizes across firms and there is no misallocation. In BLP, there is dispersion in R_i, thus misallocation is positive. Further, the $\overline{W}$ is increasing in mass of firms M and aggregate revenue productivity $\overline{TFPR}$, which depends on T. In particular, T_{BLA} is positive. In BLP, the overall transfers T_{BLP} can be positive or negative. In fact, under our main calibrations, the T is negative, implying an overall subsidy to firms.

The $\overline{W}_{BLA} = \frac{\sigma-1}{\sigma}\frac{\overline{TFPR}_{BLA}}{WR}\left[M_{BLA}\int\int_{z^*_{BLA}(\tau)}^{\infty}(z)^{\sigma-1}g_{BLA}(z,\tau)dzd\tau\right]^{\frac{1}{\sigma-1}}$. As $R_i = R$ in BLA, there is no misallocation effect and M_{BLA} is determined endogenously. Lastly, we define real output per capita under BLA but using the mass and distribution of firms from BLP, $\overline{W}^{Int}_{BLA}$. The net change in output per capita when transitioning from BLA to BLP can be defined as

$$\Delta\overline{W}_{BLA\to BLP} = \underbrace{\overline{W}_{BLP} - \overline{W}^{Int}_{BLA}}_{\textbf{Misallocation}} + \underbrace{\overline{W}^{Int}_{BLA} - \overline{W}_{BLA}}_{\textbf{Entry and Selection}}. \tag{7}$$

In our economy, the misallocation can also be dissected by banks. In our benchmark model, private banks behave optimally, while public banks tend to misallocate credit. Firms can substitute loan demand across banks, thus alleviating the constraints imposed by the public to a certain extent. In an extension of the model, we allow private banks to have market power over firms. Here, the misallocation exists within both types of banks. The private banks charge a higher markup to taxed firms as they have limited outside options relative to subsidized firms. Thus, our framework helps us evaluate the extent of within-bank misallocation relative to the previous literature.

6.2 Quantitative Analysis

Calibration. The model requires us to provide values for eleven parameters, and we divide them into two major groups: *Fixed* and *Fitted*. The values for fixed parameters are taken from the literature. Meanwhile, the fitted parameters are calibrated by matching certain moments in the data to their counterpart in the model.

Fixed Parameters. The elasticity of substitution $\sigma = 4$ is the mean value from Broda and Weinstein (2006). The fixed cost of entry is normalized to one following Restuccia and Rogerson (2008). We assume that $\phi_s = \overline{\phi}$ and the sum is normalized to one. Further, the interest rate charged by the public, $R_g = 1.04$ and private banks, $R_p = R_g + NIRM$, where $NIRM = 0.01$ is the bank's Net Interest Rate Margin, and the probability of firm death is 9%, taken from Eurostat, see Panel B in Table 11.[33] We use elasticity of substitution across banks $\theta = 6.5$, that is the higher end of the values used in Herreño (2020). We also provide results with lower θ.

Fitted Parameters. We internally calibrate four parameters: (i) dispersion in wedge σ_τ, (ii) covariance between productivity and wedge $\rho_{z,\tau}$, (iii) dispersion in productivity σ_z, and (iv) fixed cost of operation c_f. We accumulate these parameters in vector $\Theta = \{\sigma_\tau, \rho_{z,\tau}, c_f, \sigma_z\}$. All values are listed in Table 11.

[33] We use risk-free rate proxied by 10-Year Government Bond Yield and Bank's Net Interest Rate Margin for Germany averaged between 2000-2010 (source: FRED).

Targeted Moments. To assess the degree of political distortion, we rely on causally identified elasticities, specifically examining the change in the dispersion $\sigma(TFPR)$ and the shift in the loan share of public banks during the transition from the BLA to BLP. The initial elasticity pins down the value of σ_τ. This is pivotal because an increase in dispersion in τ gives rise to dispersion in revenue productivity, thus generating misallocation across firms. A strong positive correlation exists between the dispersion in σ_τ and σ_{TFPR}, depicted in Figure D1a. To highlight this relationship, we solve the model for a random combination of all parameters in vector Θ. Empirically, we find that $\sigma(TFPR)$ is higher in BLP counties relative to BLA counties and this difference is $\Delta\sigma(TFPR)_{BLA\to BLP} = 0.0728$.

The IV estimates, specifically those related to the shift in the loan share of public banks during the BLA to BLP transition, pin down the covariance between firm productivity and distortion denoted as $\rho_{z,\tau}$. A higher $\rho_{z,\tau}$ means large productive firms are more distorted (high τ). This implies that more productive firms reduce, while less productive firms increase, their reliance on public banks. Aggregately, the impact of more productive firms prevails, as they are the significant borrowers. Also, due to endogenous selection, smaller firms are less likely to be active in the economy. Figure D1b visually portrays a monotonic relationship between $\rho_{z,\tau}$ and the changes in the loan share of public banks.

Furthermore, we establish a relationship between the share of employment among large firms (250+ employees) and average firm size to identify the dispersion in productivity σ_z and the fixed cost c_f. Higher dispersion leads to an increased concentration of employees among large firms, while elevated fixed costs enhance selection, thereby increasing the average firm size. These correlations exist firmly in our model as shown in Figure D1c and D1d.

6.3 Results

Estimated Distortions. Our analysis reveals a significant level of distortions in the BLP, as detailed in Table 11. We estimate σ_τ to be 0.062 and identify a positive covariance between productivity and distortions, denoted as $\rho_{z,\tau} = 0.029$. Despite its modest magnitude, it implies that the BLP heightens borrowing costs for productive firms while favoring unproductive ones. Empirical evidence supports these findings, with observed loan growth being more pronounced for low productivity firms in the BLP compared to the BLA. Both these outcomes are crucial for understanding the aggregate consequences of political distortions. Additionally, we determine the dispersion in productivity, σ_z, to be 1.86, and fixed costs, c_f, to be 0.1863.

Firm Entry and Exit. Under the BLA, entry only depends on productivity. However, in BLP, entry is influenced by both productivity and distortions, causing the threshold productivity for entry to increase with τ. This alters the composition of firms, as illustrated

in Appendix Figure D2. The firms benefiting from subsidized loans are more likely to produce. Within this group, the subsidy allows less productive firms to enter, which are unprofitable and inactive in the BLA economy. Conversely, some firms facing an upswing in borrowing costs may exit the market. The net effect on entry can be positive or negative, contingent upon the distribution of firms in BLA. In our calibration, we find that the BLP has 2.8% fewer firms relative to the BLA. This result is partially related to our empirical findings indicating a reduced likelihood of banks establishing new lending relationships in the BLP.

Output. In a range of calibrations, we find the output loss lies between 2.09-4.50%. Two margins drive this loss in output: on average, the misallocation margins (dispersion in borrowing costs) contribute up to 56% to the total loss in output. Meanwhile, the changes at the extensive margin, i.e., changes in the selection of firms and the mass of producers, are responsible for the 44% of the losses. This highlights that a model without entry would substantially underestimate the aggregate cost of distortions. Finally, we conduct the following thought experiment: In mayor-led bailout regimes, how would output per capita change if we imposed the size and allocation of public credit seen in association-led bailouts while keeping the size of private banks constant? Our model estimates a 3.5% gain in output per capita, accounting for three-fourths of the overall output per capita differences between the two regimes (see Appendix D.2).[34]

Additionally, we find that output losses are smaller when the elasticity of substitution across banks, denoted as θ, is low. This is likely because subsidized firms have a limited ability to switch completely to credit from public banks. Finally, we recalibrate the model to match the lower bound of $\sigma(TFPR_{BLA\to BLP}) = 0.04$. This results in lower output losses, as the degree of misallocation under BLP is relatively smaller. Overall, our results indicate that there are substantial output losses under BLP compared to BLA.

Public Banks. In the BLP, the public banks change the allocation of credit. With endogenous selection, highly taxed firms exit, thus the bank income does not increase much, however, highly subsidized incumbents expand, and this reduces public banks' income. We find that the overall transfer from public banks decreases considerably, such that $T_g^{BLP} < 0$. This result is in line with the empirical finding that public banks' ROE deteriorates in the BLP.

[34]This is broadly consistent with our reduced form results in Table 9 – the effect through affected banks accounts for the majority of the overall effect (column (2) vs. column (6)).

6.4 Robustness and Supporting Evidence

We have shown that decentralization in the context of public banks in Germany bears substantial costs in terms of output per capita in the corporate sector. We provide results from the extended models that have: a) imperfect competition in the banking sector (Appendix D.3), b) endogenous labor supply (Appendix D.4), and c) firm-level risk. The aggregate output losses lie between 2.09%-4.50% (Appendix D.5).

7 Concluding Remarks

This paper studies the political economy of decentralization in the context of bank bailouts and asks the following question: why do local politicians sometimes bypass an existing centralized resolution mechanism and use taxpayers' money to rescue distressed banks? Using German savings banks as our setting, we show that bailout decisions are shaped not only by concerns about local economic conditions, but also by politicians' private incentives to retain control over local banks.

Our finding reveals a striking electoral cycle in bailout decisions that exposes the underlying political motivations. Local politicians systematically avoid taxpayer-funded bank bailouts before elections, instead allowing centralized associations to handle distress. This strategic timing, combined with evidence of preferential lending to connected firms and greater misallocation of credit, demonstrates that private benefit extraction, rather than superior local information or voter preferences, drives mayor-led bailouts.

We caution against interpreting our findings as support for unconditional centralization. Decentralization can offer important advantages, including superior local information and responsiveness to local needs, which may dominate in other settings (Skrastins and Vig, 2019). Our results instead highlight a specific force that can tilt this balance: when local politicians have discretion over valuable public resources, decentralization can create opportunities for private benefit extraction that distort decision-making. In this sense, the paper speaks to the political economy of decentralization as much as to bank bailouts.

A final caveat is that, while the results suggest that the ex-post association-led bailouts perform better in our setting, the paper is silent about the exact mechanism behind their superiority. It may reflect collective decision-making that dilutes individual political incentives, stronger commitment to restructuring, or other features of the association-based resolution process. We find little evidence that the result is driven simply by better information or expertise, especially because local politicians are themselves represented in the association and have access to the same institutional environment. But even if centralized associations do possess some additional advantages, that would only strengthen the puzzle of why mayors bypass them.

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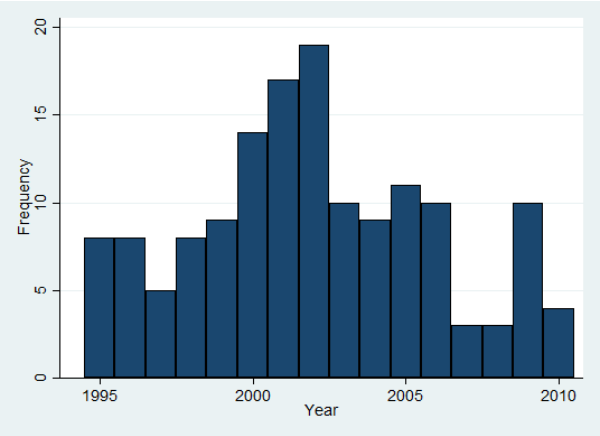
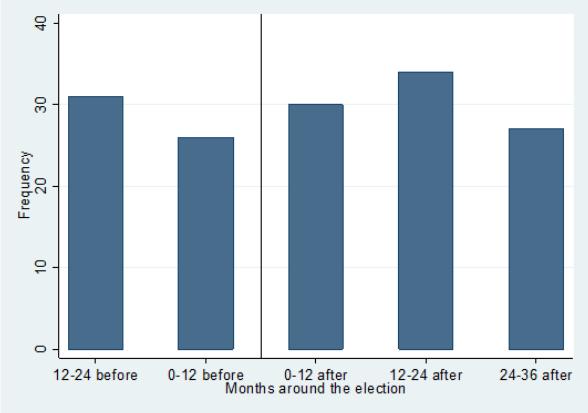


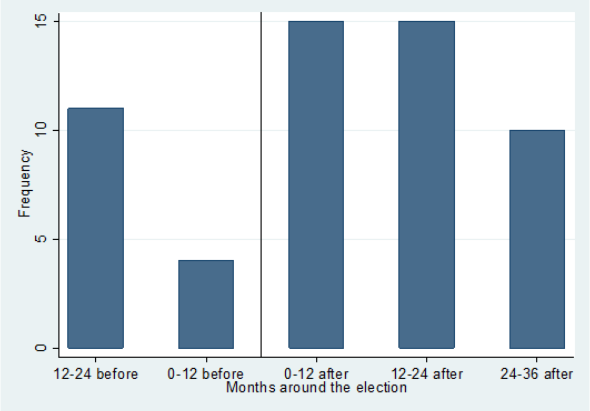
(a) Per Calendar Year



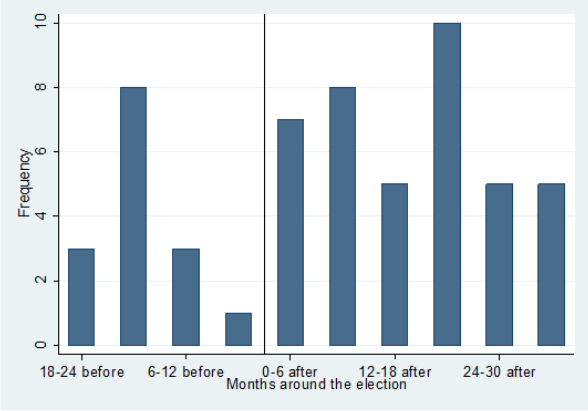
(b) Around Elections

Figure 1: Frequency of Distress Events per Calendar Year and around Elections

Figure 1a illustrates how the number of distress events varies per calendar year. Figure 1b illustrates how the number of distress events varies over the electoral cycle, where the vertical line indicates the election date.



(a) 1-year Intervals



(b) 6-month Intervals

Figure 2: Frequency of Mayor-led Bailouts around Elections

Figure 2a illustrates how the number of banks that receive capital injections from the mayor varies every year within the electoral cycle, where the vertical black line indicates the election date. Figure 2b uses more granular 6-month intervals.

Table 1: Summary Statistics of Distressed Banks

Variable	N	Mean	S.D.	Median	p1	p25	p75	p99
Log (Total assets)	148	21.00	1.01	20.80	18.90	20.30	21.70	23.40
Total assets to GDP	148	48.20	54.20	29.50	2.86	12.30	57.60	248.00
Capital ratio	148	4.04	0.92	3.92	2.19	3.45	4.55	6.25
ROA (Return on assets)	148	0.24	0.60	0.29	-1.56	-0.04	0.66	1.36
NPL (Non-performing loans) ratio	148	6.09	4.17	4.78	0.79	2.99	8.59	17.20
Market share	148	17.30	16.20	9.80	0.33	2.04	30.00	51.40
Capital injection to equity	148	14.10	30.90	0.30	0.00	0.06	10.40	151.00
Capital injection to assets	148	0.59	1.42	0.01	0.00	0.00	0.32	7.96
Government debt to GDP	148	4.07	2.19	3.55	0.15	2.51	4.87	10.50
GDP per capita growth	148	1.64	4.51	1.50	-8.61	-0.37	3.64	14.70
Log (GDP per capita)	148	10.10	0.32	10.10	9.39	9.91	10.40	10.70
Conservative chairman	148	0.41	0.49	0	0	0	1	1
Competitive county	148	0.51	0.50	1	0	0	1	1
D (0-12 months before)	148	0.18	0.38	0	0	0	0	1

This table shows summary statistics for bank and county-level variables upon distress. All ratio variables are in percentage terms. Conservative chairman is a dummy equal to one if the chairman of the savings bank's supervisory board is affiliated with a conservative party (i.e., CDU or CSU). Competitive county is a dummy equal to one if the vote margin between the top two parties in the previous election is below the median, and zero otherwise. $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. All other variables are self-explanatory. Appendix Table A1 contains details of variable construction.

Table 2: Occurrence of Bank Distress Events – Hazard Model

Sample	All Banks		Distress Banks	
	(1)	(2)	(3)	(4)
D (0-12 months before)	-0.057		-0.036	
	(0.443)		(0.332)	
D (0-12 months after)		0.052		0.360
		(0.615)		(0.500)
D (12-24 months after)		-0.321		-0.111
		(0.596)		(0.403)
D (24-36 months after)		-0.139		-0.329
		(0.450)		(0.376)
D (12-24 months before)		0.490		0.355
		(0.542)		(0.444)
Market share	-0.027***	-0.026***	-0.017***	-0.020***
	(0.008)	(0.009)	(0.004)	(0.006)
Capital ratio	-0.351**	-0.405**	-0.131	-0.168
	(0.146)	(0.158)	(0.103)	(0.104)
ROA	-0.436***	-0.400***	-0.204	-0.195
	(0.129)	(0.134)	(0.134)	(0.146)
NPL ratio	-0.001**	-0.001***	-0.016	-0.014
	(0.000)	(0.000)	(0.021)	(0.023)
Total assets to GDP	-0.000	0.000	-0.000	-0.000
	(0.002)	(0.002)	(0.001)	(0.001)
Government debt to GDP	-0.055	-0.057	0.010	-0.007
	(0.056)	(0.058)	(0.037)	(0.041)
Time FE	YES	YES	YES	YES
Observations	8135	8135	1169	1169

The table shows results from estimating an exponential hazard model to test whether the occurrence of distress events depends on the electoral cycle. The sample in columns (1) and (2) includes all bank-year observations. Columns (3) and (4) are restricted to bank-year observations for the 148 banks that have experienced distress. Columns (1) and (3) include one dummy variable, $D(0-12\ months\ before)$, which equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. Columns (2) and (4) include four dummy variables indicating four periods in a five-year electoral cycle, and the omitted group is *0-12 months before*. All columns include time dummies for the four election cycles in our sample (begin of sample-1998, 1999-2003, 2004-2008, 2009-end of sample). All ratio variables are in percentage terms. The coefficient represents the approximate percentage change in the hazard rate from a one-unit change in the explanatory variable, calculated as $1-exp(coefficient)$. For example, a 1 percentage point increase in market share reduces the hazard rate of bank distress by about 2.7% or $1-exp(-0.027)$. Standard errors are denoted in parentheses and clustered at bank level. * indicates statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level. Table A1 contains details of variable construction.

Table 3: Descriptive Statistics by Bailout Types

Panel A: Bank and Macroeconomic Variables

	Bailout by Politician (BLP)			Bailout by Association (BLA)			BLP-BLA
	Mean	Median	S.D.	Mean	Median	S.D.	Difference
Log (Total assets)	21.10	21.00	1.05	20.90	20.70	0.98	0.20
Total assets to GDP	58.50	43.10	58.50	42.20	25.70	50.80	16.30***
Capital ratio	4.09	4.18	0.92	4.02	3.89	0.92	0.07
ROA	0.39	0.48	0.57	0.15	0.18	0.60	0.24*
NPL ratio	4.19	3.45	2.85	7.22	6.35	4.42	-3.03***
Market share	22.90	25.20	17.20	14.00	6.61	14.60	8.90***
Capital injection to equity	0.58	0.18	1.84	22.00	3.79	36.80	-21.42***
Government debt to GDP	3.59	1.86	1.86	4.34	3.89	2.33	-0.75**

Panel B: Political Variables

	All distress events	Bailout by Politician (BLP)		Bailout by Association (BLA)	
	Count	Count	Probability	Count	Probability
Total	148	55		93	
No conservative chairman	88	40	0.45	48	0.55
Conservative chairman	60	15	0.25	45	0.75
No competitive county	73	32	0.44	41	0.56
Competitive county	75	23	0.31	52	0.69
12-24 months before election	31	11	0.35	20	0.65
0-12 months before election	26	4	0.15	22	0.85
0-12 months after election	30	15	0.50	15	0.50
12-24 months after election	34	15	0.44	19	0.56
24-36 months after election	27	10	0.37	17	0.63

The table shows descriptive statistics by the type of bailout. Panel A studies political and macroeconomic variables. All ratio variables are in percentage terms. Panel B shows how the distribution of bailouts by the mayor versus the association depends on political variables. Conservative chairman corresponds to distress events where the chairman of the savings bank's supervisory board is affiliated with a conservative party (i.e., CDU or CSU). No conservative chairman refers to the rest. Competitive county corresponds to distress events where the vote margin between the top two parties in the previous election is below the median. No competitive county refers to the rest. 0-12 months before election corresponds to distress events occurring 0 to 12 months before the election. Table A1 contains details of variable construction.

Table 4: Economic and Political Determinants of Bailout Type

Dep. Var.	Bailout Type (=1 if BLP; =0 if BLA)					
	(1)	(2)	(3)	(4)	(5)	(6)
NPL ratio	-0.025**					-0.026**
	(0.011)					(0.011)
Capital ratio	-0.017					-0.025
	(0.032)					(0.035)
ROA	0.000					-0.013
	(0.083)					(0.070)
Market share	0.008***					0.007***
	(0.003)					(0.002)
Total assets to GDP	-0.002***					-0.002***
	(0.001)					(0.001)
Size of bailout	-0.008***					-0.006***
	(0.002)					(0.002)
Government debt to GDP	-0.038**					-0.021
	(0.017)					(0.021)
Cons. bank chairman		-0.246***			-0.259***	-0.185**
		(0.051)			(0.055)	(0.071)
Competitive county		-0.205***			-0.180***	-0.086
		(0.061)			(0.056)	(0.066)
D (0-12 months before)			-0.292***		-0.291***	-0.272***
			(0.077)		(0.070)	(0.078)
D (0-12 months after)				0.327***		
				(0.108)		
D (12-24 months after)				0.310***		
				(0.071)		
D (24-36 months after)				0.248**		
				(0.102)		
D (12-24 months before)				0.271*		
				(0.137)		
Time FE	YES	YES	YES	YES	YES	YES
R-squared	0.260	0.127	0.101	0.104	0.178	0.330
Observations	148	148	148	148	148	148

The table presents how economic and political factors influence the type of bank bailout following a distress event. The sample includes all 148 cases of bank distress and bailout. The dependent variable is a dummy that equals one if the bank receives capital injections from the mayor (BLP) and zero if the bank receives support measures from the association (BLA). Column (1) examines bank-level characteristics one year prior to the distress, the size of the bailout as measured by the ratio of capital injection to equity, and the government debt to GDP ratio. All ratio variables are in percentage terms. Column (2) examines two political variables, the ideology of the politician and the political competition within the county. Column (3) examines the timing of distress in the electoral cycle where $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. Column (4) examines four dummy variables indicating four periods in a five-year electoral cycle, and the omitted group is *0-12 months before*. Column (5) includes all political variables jointly, while Column (6) includes all variables. All columns include time dummies for the four election cycles in our sample (begin of sample-1998, 1999-2003, 2004-2008, 2009-end of sample). Robust standard errors are denoted in parentheses. * indicates statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level. Table A1 contains details of variable construction.

Table 5: Are Pre-election and Post-election Cases Different?

	D (0-12 months before)	R-squared
Panel A: Bank Characteristics		
Log (Total assets)	0.136	0.003
	(0.229)	
Log (Number of employees)	0.091	0.002
	(0.193)	
Number of branches	-1.424	0.000
	(8.749)	
Market share	-0.843	0.000
	(3.529)	
Customer loans to Total assets	-1.996	0.003
	(3.321)	
Deposit ratio	-0.043	0.000
	(2.544)	
Capital ratio	-0.194	0.007
	(0.197)	
ROA	-0.045	0.000
	(0.131)	
NPL ratio	0.312	0.000
	(0.920)	
LLP ratio CL	0.060	0.000
	(0.164)	
Local banking sector HHI (0-10000)	13.848	0.000
	(164.310)	
ln (Capital injection)	-0.909	0.003
	(1.488)	
Capital injection to total equity	2.326	0.001
	(7.847)	
Panel B: Local Macro Variables		
Log (GDPPC)	-0.020	0.000
	(0.689)	
GDPPC growth	-0.573	0.002
	(0.785)	
Employment rate	-3.082	0.009
	(2.642)	
Employment growth	0.000	0.000
	(0.289)	
Government debt to GDP	0.310	0.003
	(0.487)	
Government debt to revenue	3.801	0.004
	(5.689)	
Total loan growth	0.032	0.000
	(2.321)	
State loan share	0.846	0.000
	(2.885)	

This table tests whether there is a significant difference in the type of banks that experience pre-election and post-election distress events. Each row of this table represents a univariate regression of the variable in the first column on a dummy that indicates the timing of distress in the electoral cycle. $D(0-12\,months\,before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. Panel A examines various bank characteristics, including the size of the bailout. Panel B examines local macroeconomic and loan-related variables. These variables are measured one year prior to the distress. All ratio variables are in percentage terms. Robust standard errors are denoted in parentheses. * indicates statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level. Table A1 contains details of variable construction.

Table 6: Restructuring and Future Financial Performance of Affected Banks

Panel A: Restructuring

Change in growth rate	(1) Total assets	(2) Total loans	(3) Number of employees	(4) Number of branches
BLA	-0.748	-0.117	-1.672	-4.128
	(2.571)	(3.507)	(2.469)	(6.342)
BLP	0.748	2.311	0.056	-2.966
	(2.407)	(3.775)	(3.493)	(5.766)
Diff (BLP - BLA)	1.496***	2.429***	1.728***	1.162
	(0.493)	(0.727)	(0.608)	(1.199)

Panel B: Future Financial Performance

Change in ratio	(1) NPL Ratio	(2) LLP Ratio CL	(3) ROA	(4) ROE	(5) Capital Ratio	(6) Tier I + II
BLA	-2.079	-0.458	0.209	2.964	0.403	1.812
	(3.239)	(0.757)	(1.097)	(17.290)	(0.520)	(2.121)
BLP	0.785	0.004	-0.131	-3.693	0.215	0.659
	(2.387)	(0.512)	(0.587)	(13.401)	(0.393)	(1.471)
Diff (BLP - BLA)	2.864***	0.462***	-0.340*	- 6.657*	-0.188*	-1.153***
	(0.642)	(0.146)	(0.198)	(3.492)	(0.103)	(0.413)

This table compares the future financial performance of banks under bailouts by association (BLA) and bailouts by politician (BLP). Panel A examines changes in the growth rate of variables related to bank restructuring while Panel B examines changes in key accounting ratios for banks that experienced a distress event. We calculate the average values of growth/accounting ratios in the five years after the bailout, and subtract the values averaged over three years before the bailout to yield the changes around the bailout event. Standard deviations are in parentheses. Row BLA includes banks bailed-out by the association while row BLP includes banks bailed-out by the politician. Row *Diff (BLP-BLA)* shows the difference in the mean value between the two groups of banks, with standard errors in parentheses. *, **, and *** indicate statistical differences in the mean at the 10% level, 5% level, and 1% level, respectively. In Panel A, the variables of interest from columns (1) to (4) are changes in the growth of total assets, total loans, number of employees and number of branches. In Panel B, the variables of interest from columns (1) to (6) are non-performing loans ratio, the ratio of loan loss provisions to customer loans, ROA, ROE, Capital Ratio (equity/total assets), and Tier I plus Tier II capital ratio. All variables are in percentage terms. Table A1 contains details of variable construction.

Table 7: Changes in Local Financing Structure

Dep. Var.	$\frac{loans\ by\ state\ banks}{total\ loans}$		$\frac{loans\ by\ private\ banks}{total\ loans}$		$\frac{loans\ by\ cooperatives}{total\ loans}$		$growth\ of\ total\ loans$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BLP	4.848***	6.881***	-4.788**	-9.626***	-0.004	2.738	2.135*	2.278
	(1.554)	(2.467)	(2.096)	(3.154)	(1.188)	(1.915)	(1.242)	(2.024)
Model	OLS	IV 2SLS	OLS	IV 2SLS	OLS	IV 2SLS	OLS	IV 2SLS
1st Stage F-stat		28.63		28.63		28.63		28.63
Time FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,078	1,078	1,078	1,078	1,078	1,078	1,078	1,078

This table shows how the local presence of state-owned savings banks depends on the type of bailout following a distress event. Both results from OLS and two-stage least squares regressions are displayed. The unit of observation is a municipality (the most granular administration level). BLP is a dummy that equals 1 if the distress is resolved by the politician and zero otherwise. This dummy variable is instrumented by the timing of the distress event in the electoral cycle, or $D(0-12\ months\ before)$ in even columns. $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. Columns (1) and (2) examine the share of loans extended by state-owned banks in total loans. Columns (3) and (4) ((5) and (6)) examine the share of loans extended by private banks (cooperatives) in total loans. Columns (7) to (8) examine total loans. All the dependent variables are in percentage terms and measure the change or growth in average post-bailout value (five years after the bailout) from the pre-bailout value (three years before the bailout). The F-stat in even columns is for the excluded instrument in the first stage. Standard errors are reported in parentheses and clustered at the county level. *,**,*** indicates significance at the 10%, 5%, and 1%, respectively.

Table 8: Formation and Termination of Lending Relationships of Affected Banks

Dep. Var.	$\frac{\#\ new\ rel\ by\ affected\ banks}{\#\ all\ rel\ by\ affected\ banks}$		$\frac{\#\ ended\ rel\ by\ affected\ banks}{\#\ all\ rel\ by\ affected\ banks}$	
	(1)	(2)	(3)	(4)
BLP	-4.301**	-8.542**	-4.304**	-10.308***
	(1.783)	(3.709)	(1.673)	(3.401)
Model	OLS	IV 2SLS	OLS	IV 2SLS
1st Stage F-stat		28.63		28.63
Time FE	YES	YES	YES	YES
Observations	1,078	1,078	1,078	1,078

This table shows how the lending relationships (formation and termination) of affected banks depend on the type of bailout following a distress event. Both results from OLS and two-stage least squares regressions are displayed. The unit of observation is a municipality (the most granular administration level). BLP is a dummy that equals 1 if the distress is resolved by the politician and zero otherwise. This dummy variable is instrumented by the timing of the distress event in the electoral cycle, or $D(0-12\ months\ before)$ in even columns. $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. Columns (1) to (2) examine the share of newly initiated lending relationships by affected banks out of all lending relationships by them. Columns (3) and (4) examine the share of newly terminated lending relationships by affected banks out of all lending relationships by them. All the dependent variables are in percentage terms and measure the change in average post-bailout value (five years after the bailout) from the pre-bailout value (three years before the bailout). The F-stat in even columns is for the excluded instrument in the first stage. Standard errors are reported in parentheses and clustered at county level. *,**,*** indicates significance at the 10%, 5%, and 1%, respectively.

Table 9: Credit Allocation of Affected Banks

Dep. Var.	growth of loans from affected banks		share of loans from affected banks		growth of loans from all banks	
	(1)	(2)	(3)	(4)	(5)	(6)
BLP×L1.logAPK	-3.104*	-3.427**	-6.622***	-6.315**	-4.701*	-5.101**
	(1.698)	(1.700)	(2.497)	(2.492)	(2.492)	(2.484)
BLP	7.653**	10.296***	11.102**	9.089*	5.846	7.866*
	(3.334)	(3.345)	(5.417)	(5.431)	(4.298)	(4.279)
L1.logAPK	4.130***	4.962***	4.102**	3.464*	6.978***	7.713***
	(1.341)	(1.353)	(1.812)	(1.823)	(1.849)	(1.859)
Model	IV 2SLS	IV 2SLS	IV 2SLS	IV 2SLS	IV 2SLS	IV 2SLS
1st Stage F-stat	96.11	98.75	88.38	87.38	88.38	87.38
Firm Controls	NO	YES	NO	YES	NO	YES
Industry×Time FE	YES	YES	YES	YES	YES	YES
Observations	6,352	6,352	10,514	10,514	10,514	10,514

The table shows how the credit allocative efficiency – sensitivity of credit allocation to firm level productivity – of affected banks depends on the type of bailout following a distress event. Results from two-stage least squares regressions are displayed. The unit of observation is a firm-year and only post-event years are included in the regression. BLP is a dummy that equals 1 if the distress is resolved by the politician and zero otherwise. This dummy variable is instrumented by the timing of the distress event in the electoral cycle, or $D(0-12\ months\ before)$. $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. $L1.logAPK$ is the natural log of sales divided by total fixed assets, lagged by one year. The dependent variable from columns (1) to (2) is the growth of loans from affected banks. In columns (3) and (4), the dependent variable is the share of loans from affected banks out of all loans received by the firm. Columns (5) to (6) examine the growth of total loans from all banks. All dependent variables are in percentage terms. The F-stat is for the excluded instruments in the first stage. All regressions include industry-time fixed effects. Firm controls include lagged size and profitability. *,**,*** indicates significance at the 10%, 5%, and 1%, respectively.

Table 10: Preferential Lending of Affected Banks

Dep. Var.	$\frac{in-group\ loans\ from\ affected\ banks}{total\ loans}$		$\frac{in-group\ loans\ from\ affected\ banks}{total\ in-group\ loans}$	
	(1)	(2)	(3)	(4)
BLP	9.775***	9.092**	19.691**	17.290**
	(3.657)	(3.499)	(8.122)	(7.210)
Model	IV 2SLS	IV 2SLS	IV 2SLS	IV 2SLS
1st Stage F-stat	33.550	33.170	33.550	33.170
Firm Controls	NO	YES	NO	YES
Industry×Time FE	YES	YES	YES	YES
Observations	1,926	1,926	1,926	1,926

The table shows how preferential lending of affected banks depends on the type of bailout following a distress event. Results from two-stage least squares regressions are displayed. The unit of observation is a firm-year and only post-event years are included in the regression. BLP is a dummy that equals 1 if the distress is resolved by the politician and zero otherwise. This dummy variable is instrumented by the timing of the distress event in the electoral cycle, or $D(0-12\ months\ before)$. $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. The dependent variable in columns (1) to (2) is the share of in-group loans from affected banks out of total loans received by the firm. In columns (3) and (4), the dependent variable is the share of in-group loans from affected banks out of total in-group loans from all the connected banks. A loan is defined as in-group if the firm and the bank are connected through membership of the same service club branch as in Haselmann et al. (2018). All dependent variables are in percentage terms. The F-stat is for the excluded instrument in the first stage. All regressions include industry-time fixed effects. Firm controls include lagged size and profitability. *,**,*** indicates significance at the 10%, 5%, and 1%, respectively.

Table 11: Parameters and Targeted Moments

Parameter	Value	Description	Moment	Model	Data
Panel A. Fitted Parameters					
σ_τ	0.062	Std. distortion	$\Delta\sigma(TFPR)_{BLA\to BLP}$	0.070	0.070
$\rho_{z,\tau}$	0.029	Cov(productivity, distortion)	Δ (Public bank loan share)$_{BLA\to BLP}$	6.910	6.881
σ_z	1.863	Std. Productivity	Emp share: employees 250+ (%)	36.93	37.46
c_f	0.186	Fixed operating cost	Average Firm Size	12.45	12.06
Panel B. Fixed Parameters			Source		
R_g	1.040	Interest Rate: Government Banks	FRED		
R_p	1.050	Interest Rate: Private Banks	FRED		
δ	0.090	Probability of firm exit	EUROSTAT		
θ	6.500	Elasticity of substitution across banks	Herreño (2020)		
σ	4.000	Elasticity of substitution across firms	Broda and Weinstein (2006)		

Panel A lists the internally calibrated parameters and corresponding targeted moments. We use "Emp share: employees 250+" as the share of employment among firms with more than 250 employees provided by EUROSTAT and average firm size. The interest rate charged by government banks in BLA Regime is equal to the risk-free rate that is proxied by 10-Year Government Bond Yield averaged between 2000-2010 (Source: FRED), and the private bank's interest rate is risk free rate plus net interest rate margin also averaged between 2000-2010 (Source: FRED). We use elasticity of substitution as 4, that is the mean value from Broda and Weinstein (2006).

For Online Publication:

Internet Appendix to "The Political Economy of Decentralization: Evidence from Bank Bailouts"

This appendix has four sections. Section A contains detailed information on data sources and sample construction. Section B provides additional results, including figures and tables. Section C discusses the internal validity of our estimated local average treatment effect. Section D presents results from extensions of the model.

A Data Sources and Sample Construction

A.1 Data Sources

The Bundesbank's prudential database (BAKIS). This database contains micro data on German banks which is available from the 1990s on and used for both supervisory monitoring of financial institutions and research purposes. These data contain sensitive and confidential supervisory information and, therefore, can only be used at the Bundesbank premises and the results may be published only after a thorough anonymization of the data.[35] From the BAKIS database we obtain bank balance sheet data to construct control variables for our regression analyses. More importantly, we also get access to the "Sonderdatenkatalog 1" which is a special dataset containing confidential information which banks are legally bound to report to Bundesbank and BaFin and, amongst others, allow us to identify capital support measures savings banks received from the association.

The monthly balance sheet statistics (BISTA). This database gives a comprehensive overview on German financial institutions' business activities. Hereby, banks are legally bound to report their balance sheet data on a monthly and highly disaggregated basis. For our project a major challenge was to access historical BISTA data which allows us to identify the size of the capital injection as well as the particular month this event occurred. Moreover, the BISTA database also provides us with information on each bank's lending to the local governments (which is used to identify further motives behind bank bailouts).

The quarterly borrowers' statistics. This database contains domestic loan portfolio exposures and write-off data on the bank-portfolio level (i.e., lending to the German real sector can be identified for 24 corporate and 3 retail portfolios per bank). Loan exposure data is available from the early 1990s on while data on write-offs can be accessed from

[35] For a detailed description of the BAKIS database see, for example, Memmel, C. and I. Stein (2008), "The Deutsche Bundesbank's Prudential Database (BAKIS)", in: Schmollers Jahrbuch 128, Duncker & Humblot, Berlin, pages 321-328.

2002-2010. In our empirical study data from the borrowers' statistics is used to double-check the information on the timing of bailout events, in particular by the savings bank association, for roughly half of the time-period of our dataset. For the period before 2002 we have to rely on the evolution of the capital adequacy ratio in order to identify the timing of the distress event within a year.

The Bundesbank's distress database. This database contains information on distress events which occurred at German financial institutions from the early 1990s on. For our analyses we rely on the information on so-called "distressed mergers"; that is, we need to distinguish distressed (or restructuring) mergers from pure "economy of scale mergers". As the distress database is only available until 2006, we define a distressed merger in the years 2007-2010 as a passive merger where the bank that was taken over experienced a severe distress event (i.e., a moratorium, a capital support measure, or a very low capital ratio) in the three year before the merger.

A.2 Identification of Distress Events

First, we identify capital support measures by the local politicians by exploiting a peculiarity in savings banks' balance sheets. For historical reasons, the equity of these banks usually consists solely of contingency funds (so-called "Sicherheitsrücklage"). These funds were originally provided by the owner of the bank in the year of foundation and then accumulated over the years out of the bank's retained earnings. However, if the savings bank – besides its equity in the contingency funds – also has subscribed capital unequal to zero, then this usually indicates an undisclosed participation of the bank owner (so-called "stille Einlage"). We therefore define an increase in subscribed capital subsequent to the bank's losses as capital injections from the mayor, who acts as chairman of the bank's supervisory board.[36] By using historical data of subscribed capital from the monthly balance sheet data (BISTA) we are able to identify the size of the capital injection as well as the particular month in which the event occurred.

Second, we code capital support measures by the savings bank association. Whenever one of the associations provides support to a savings bank – most often in the form of guarantees – this event is recorded in the so-called "Sonderdatenkatalog 1" of the BAKIS database.[37] The data source is, however, only available at annual frequency. To determine the month of these events within a given year, we consult two further databases:

[36] We rule out increases in subscribed capital that can be explained by takeovers or restructuring of equity positions. In some German states, the savings bank law allows undisclosed participation not only from the owner of the bank but also from the savings bank association. However, this is the rare exception and we rule out these cases using the BAKIS database as described in the subsequent paragraph.

[37] Banks are legally bound to report this information to Bundesbank and BaFin. In contrast to pure balance sheet information, this dataset contains confidential supervisory information.

First, we obtain data on capital adequacy ratios from the monthly balance sheet database BISTA;[38] and second, we identify large write-offs from the borrowers' loan statistics that are available on a quarterly basis. We are therefore able to verify our identified events from two distinct Bundesbank data sources. In those cases in which we can only identify the respective quarter, we always assign the mid-month of the respective quarter as the event month. We cross-check our event dates with media coverage on local distress events obtained from the GENIOS database and find that the dates are broadly consistent with the coverage in the local press.

Third, we obtain information on distressed mergers from the Bundesbank database on distress events. A takeover of a distressed savings bank is organized by the savings bank association which identifies another savings bank in close geographic proximity to acquire the bank in distress. While capital injections as well as provisions of guarantees occur right after the bank falls short of regulatory capital (the distress event), there is generally a time gap between the actual distress event and the merger. In order to identify the actual date of the distress event we once more rely on large write-offs from the borrowers' loan statistics (as described above). For the savings bank that had a distressed merger before 2002 (the year when the borrowers' statistics database was initiated) we consult local media coverage from the GENIOS database. For the remaining cases we consult the responsible local supervisors responsible for the respective savings bank to learn about the date of the distress event.

A.3 Dissecting Association-led Interventions

So far, we have bundled both capital injections by the association and distressed mergers into a single BLA category. One might wonder whether these two interventions differ and, if so, whether one is superior. Under distressed mergers, the local politician of the acquired county loses their position to the politician of the acquiring county, increasing the distance between the politician and the banking operations. This greater distance may lead to a significant loss of soft informational advantages compared to scenarios where the distressed bank receives capital support from the association while retaining the local politician. At the same time, this increased distance also reduces political distortions.

The empirical challenge is that the choice between these two interventions may be endogenous; simply comparing one type of intervention with BLP may generate bias. To overcome this, we exploit another institutional feature unique to our setting: mergers are possible only if a nearby, financially robust "potential merger partner" exists. We restrict the sample to savings banks that do not have a potential merger partner, which allows us

[38] Large increases in the capital adequacy ratio in a certain month indicate that the savings bank received capital support at this time.

to assess the effect of capital support by association relative to BLP, as distressed mergers are no longer a viable option in these cases due to exogenous factors.

Table B6 provides suggestive evidence that capital injections by associations can be as effective as distressed mergers in improving credit allocation relative to BLP, as indicated by the similar coefficients on $\widehat{BLP} \times \log APK_{jk,t-1}$ compared to the baseline results. This finding highlights the role of information: unlike mergers, capital support retains some informational advantages by preserving the involvement of the local politician, yet achieves comparable improvements in allocative efficiency through the association's restructuring and oversight.

A.4 Additional Evidence

The fiscal toll is heavy, with government debt surging over 30% in BLP areas compared to stable levels in BLA areas (Figure B4). This is in line with our quantitative finding that in BLP districts, the government needs to tax households to fund the subsidies to the firms. Moreover, banks rescued after elections (i.e., cases more likely to be handled by the mayor) face higher re-default probabilities, reaching over 40% for distress events immediately following an election by twelve months, as shown in Figure B5.

Table A1: Variable Definitions

Panel A: Distress and Bailout Events

Bailout from politician (BLP)	Capital injections from the politician are identified by an increase in a bank's subscribed capital that cannot be explained by takeovers or restructuring of equity positions (so called "stille Einlage"). Note that for historical reasons, the equity capital of savings banks usually consists solely of contingency funds (so called "Sicherheitsrücklage"). These funds were originally provided by the politician of the bank in the year of foundation and then cumulated over the years out of the bank's retained earnings. However, if the savings bank – besides its equity in the contingency funds – also has subscribed capital unequal to zero, then this usually indicates an undisclosed participation of the bank owner.
Bailout from association (BLA)	
... capital support	Capital injections or guarantees from the association, obtained from "Sonderdatenkatalog 1" of the Bundesbank BAKIS database
... distressed merger	Information on distressed mergers is taken from the Bundesbank distress database. As this database is only available until 2006, we define a distressed merger in the years 2007-2010 as a passive merger where the bank that was taken over experienced a severe distress event in the three years before the merger (i.e., a moratorium, a capital support measure, or a very low capital ratio).

Panel B: Bank Variables

Bank Balance Sheet Variables	
Total Bank Assets	Total assets (in Million EUR)
Log Bank Assets	Logarithm (ln) of total assets
Total Assets / GDP	Total assets to GDP ratio (county level, in %)
Market Share (in %)	Share of bank branches in the respective county where very small branches (e.g., branches from the Deutsche Postbank) are excluded. Note that until 2004 banks are legally bound to report the exact location of each of their branches to the Deutsche Bundesbank; from 2005 on the share of branches can be proxied from banks' voluntary reporting and from cross-sectional information.
Capital Ratio	Equity capital to total assets ratio (in %)
Tier I + II	Equity capital plus tier 2 capital to total assets ratio (in %)
ROA	Return (operative result) on total assets (in %)
NPL Ratio	Non-performing loans to customer loans ratio (in %)
Loan Loss Provisions/Customer Loans	Loan loss provisions to customer loans (in %)
Restructuring Variables	
Growth Rate (Total assets)	Year-on-year change of total assets (growth rate) (in %)
Growth Rate (Total loans)	Year-on-year change of total loans (growth rate) (in %)
Growth Rate (Employees)	Year-on-year change of number of bank employees (growth rate) (in %)
Growth Rate (Number of Branches)	Year-on-year change of number of bank branches (growth rate) (in %)

Table A1: continued...

Panel C: Macro & Other Variables

GDPPC Growth	Year-on-year change of real GDP per capita (county level, in %)
Log(GDPPC)	Logarithm (ln) of real GDP per capita (county level)
Govt Debt/GDP	Government debt to GDP (county level, in %)
Employment growth	Year-on-year change of total employment (county level, in %)
Employment rate	Share of Employees in Population (county level, in %)
New estab growth	Year-on-year change of new establishments (county level, in %)
New estab employment growth	Year-on-year change of new establishments' employment (county level, in %)
Loans to GDP	Loans in credit register aggregated at the county level and divided by GDP (county level, in %)
Total loan growth	Year-on-year change of total loans in credit register (county/municipality level, in %)
State Loan Share	Share of loans in credit register that is granted by state banks (county/municipality level, in %)

Panel D: Political Variables

D(12–24 months before)	Dummy = 1 if the distress event occurs 12–24 months before the election.
D(0–12 months before)	Dummy = 1 if the distress event occurs 0–12 months before the election.
D(0–12 months after)	Dummy = 1 if the distress event occurs 0–12 months after the election.
D(12–24 months after)	Dummy = 1 if the distress event occurs 12–24 months after the election.
D(24–36 months after)	Dummy = 1 if the distress event occurs 24–36 months after the election.
Competitive County	Dummy = 1 for competitive counties. Hereby, the vote share margin between the first and the second party within the county from the previous state election is calculated. Then the dummy is defined as equal to one if the vote share margin is smaller than the median and zero otherwise. This taken as a proxy for political competition within the county: The smaller the vote share margin between the first and the second party, the more intense the political competition and the more effective the disciplining role voters can exert on politicians.
No Competitive County	Dummy = 0 for a non-competitive county.
Conservative Bank Chairman	Dummy = 1 if the chairman of the savings bank's supervisory board is a member of a conservative party (i.e., "CDU" or "CSU").
No Conservative Bank Chairman	Dummy = 0 for a non-conservative chairman.

The table shows a description of the variables we use in the empirical analysis.

B Additional Figures and Tables

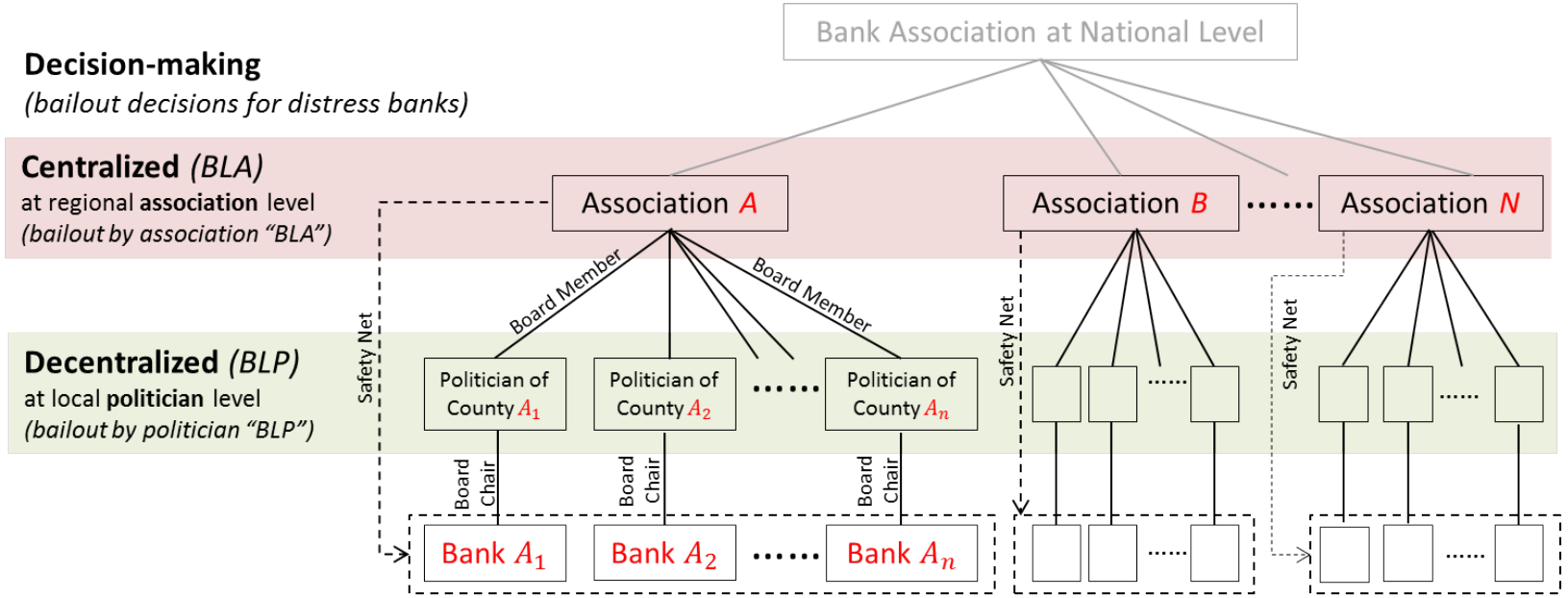


Figure B1: Institutional Setup

Figure B1 illustrates the institutional setup for our analysis. The main institutions are the savings bank associations that operate the savings bank guarantee funds, the local counties or cities that own and back the individual banks, and the savings banks themselves. The figure shows the personal and institutional connections within this system. Centralized decision-making at the association level and decentralized decision-making at the mayor level are illustrated graphically in this figure. Upon bank distress events, a bailout organized by the association is abbreviated by BLA, while a bailout organized by the mayor is abbreviated by BLP.

(Bild: Shutterstock)

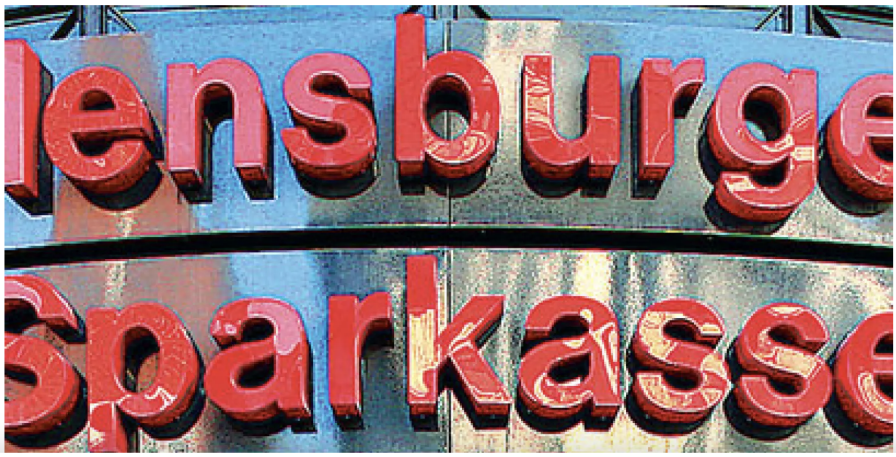
Bundebank warnt: Sparkassen und Volksbanken stehen vor großen Verlusten

Ausgerechnet bei den die kleineren Banken verbergen sich die größten Risiken, rechnet die Bundesbank in ihrem Stabilitätsbericht vor. Schon jetzt gebe es massenhafte Wertberichtigungen bei Sparkassen und Volksbanken. Inzwischen seien die dafür eingerichtete Reserven aufgebraucht. Rote Zahlen bei den Sparkassen sind aber schlecht für jene Gemeinden, die von deren Gewinnen leben.

Die Bundesbank warnt vor erheblichen Verlusten, die Sparkassen und Volksbanken in den nächsten Monaten einfahren könnten. Der Grund ist der Zinsanstieg, der langlaufende günstig ausgegebene Kredite unwirtschaftlicher macht, sowie Bewertungsverluste in den Wertpapierbeständen der Banken. „Die Zinsänderungsrisiken liegen damit im Finanzsystem und machen die Banken verwundbarer gegenüber einem Zinsanstieg", sagte Bundesbank Vizepräsidentin Claudia Buch.

Die verkaufte Stadt

Von **Bernd Ahlert** | 27.10.2010, 10:31 Uhr

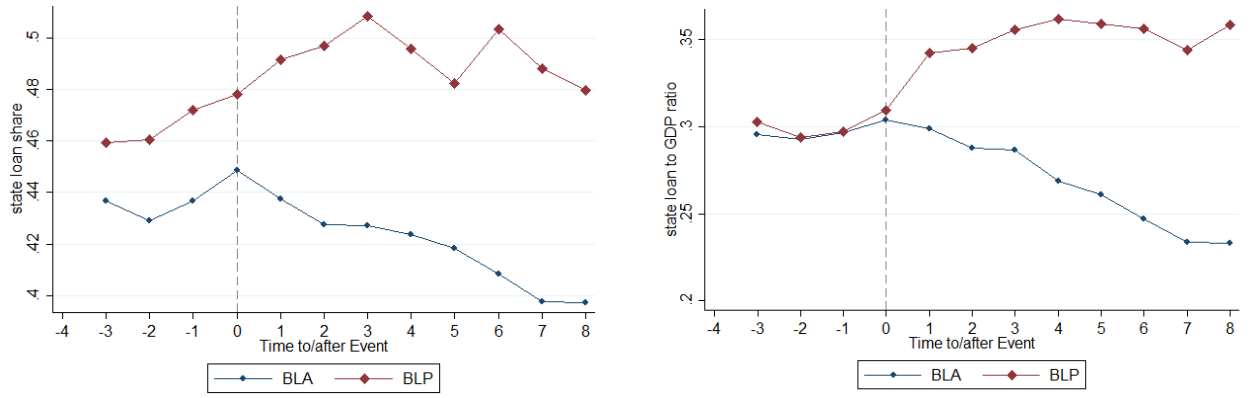


Flensburg Savings Bank

City history † 2008 *(c) sh : z* The Flensburg Savings Bank (bank code 215 500 50) existed for 189 years: from 1819 to 2008. On July 1, 2008, due to its economic situation, the city savings bank became part of the North-Ostsee-Sparkasse (NOSpa), which had already been created in 2003 through the merger of the savings banks of the districts of North Friesland and Schleswig-Flensburg. This " merger" (as it was officially formulated) was the work of the Savings Banks and Giro Association of Schleswig-Holstein (SGVSH) in Kiel, which had been informed about the difficulties of the Flensburg Savings Bank for years. The chairman of the SGVSH from 2000 to 2005 was Flensburg's former mayor, Olaf Cord Dielewicz, who, as mayor, had also been chairman of the administrative board of the Flensburg Savings Bank until 2000.

Figure B2: Coverage of Bailouts in the Local News

This figure illustrates the coverage of bailouts in the news. It generally tends to be negative, citing instances where these bailouts crowd-out infrastructure spending in critical areas. Here we provide examples of two events. The first at the top is from *wirtschaftskurier.de* with article heading "Savings banks and cooperative banks face major losses" which mentions in its full report that "asset write-downs are eroding the core capital of savings banks $\cdots$ this is problematic for municipalities that rely on savings bank profits as a stable income source, as it reduces available funds for public services-ultimately impacting citizens $\cdots$." The second example is from *shz.de* that concerns the savings bank of Flensburg and the article heading means "The sold city" and the full report mentions that "Due to past financial mismanagement in its former municipal savings bank, Flensburg faces severe budget cuts. The victims of these austerity measures are infrastructure projects, cultural initiatives, and social services."



(a) Share of State Loans

(b) State Loans to GDP

Figure B3: Dynamics around Bailouts

Figure B3a illustrates changes in the share of loans extended by savings banks in the years around the bailout event. Figure B3b illustrates changes in loans extended by savings banks to GDP ratio in the years around the bailout event. The x-axis shows the year to/after the bailout event. BLA stands for areas where the association at the centralized layer organizes the bailouts, and BLP stands for areas where the mayor injects capital into the distressed bank.

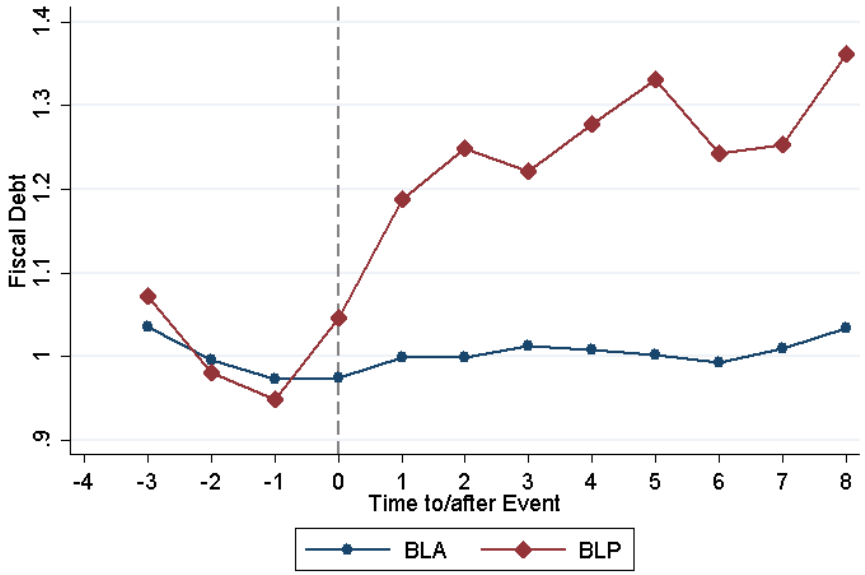


Figure B4: Government Debt around Bailouts

This figure plots the value of local government debt, normalized to have value 1 before the bank distress, in the years around the bailout event, for counties subject to BLP versus BLA. The x-axis shows the year to/after the bailout event. BLA stands for cases where the association at the centralized layer organizes the bailouts, and BLP stands for cases where the mayor injects capital into the distressed bank.

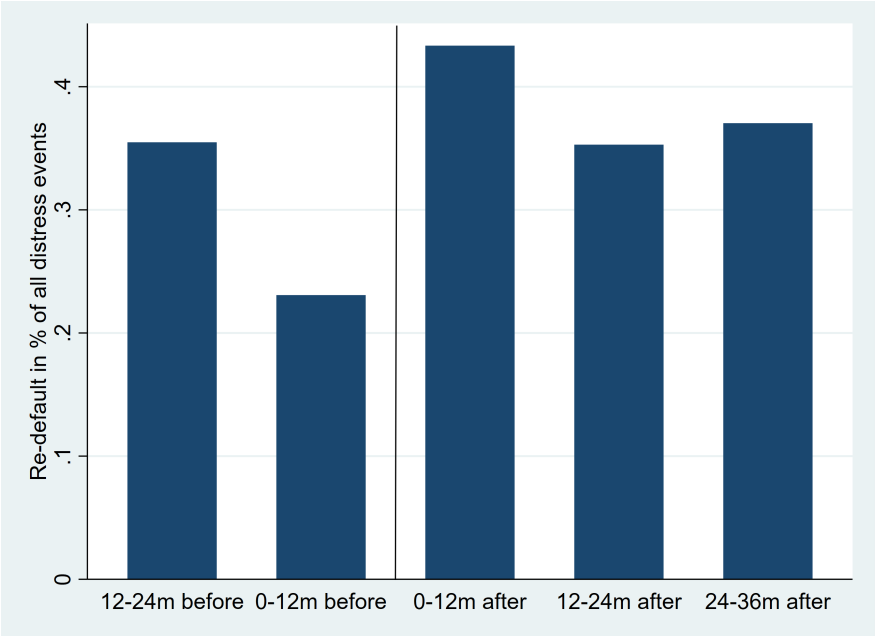


Figure B5: Future Defaults after Bailouts

This figure illustrates how the probability of future defaults (as a fraction of corresponding distress events) varies over the electoral cycle, where the vertical black line indicates the election date.

Table B1: Summary Statistics of All Savings Banks

Variable	N	Mean	S.D.
Log (Total assets)	8,246	20.81	0.95
Total assets to GDP	8,228	37.24	31.90
Capital ratio	8,246	4.55	1.04
ROA (Return on assets)	8,239	0.75	0.50
NPL (Non-performing loans) ratio	8,195	3.79	2.61
Market share	8,219	22.50	16.39
Government debt to GDP	8,246	4.62	1.98
GDP per capita growth	8,246	1.29	3.82
Log (GDP per capita)	8,228	10.02	0.31

This table reports summary statistics for the sample of German savings banks. The unit of observation is a bank-year. The sample contains 8,246 bank-year observations corresponding to 633 unique savings banks. All ratio variables are reported in percentage terms. Appendix Table A1 contains details of variable construction.

Table B2: Economic and Political Determinants of Bailout Type - Logit Models

Dep. Var.	Bailout Type (=1 if BLP; =0 if BLA)					
	(1)	(2)	(3)	(4)	(5)	(6)
Market share	0.039*					0.044***
	(0.021)					(0.014)
Capital ratio	-0.071					-0.278
	(0.215)					(0.203)
ROA	-0.029					0.120
	(0.543)					(0.483)
NPL ratio	-0.209**					-0.193*
	(0.100)					(0.104)
Total assets to GDP	-0.008*					-0.008
	(0.004)					(0.006)
Size of bailout	-0.429*					-0.435**
	(0.231)					(0.189)
Government debt to GDP	-0.217**					-0.097
	(0.104)					(0.141)
Cons. bank chairman		-1.190***			-1.304***	-1.086***
		(0.232)			(0.272)	(0.329)
Competitive county		-0.989***			-0.957***	-0.118
		(0.277)			(0.271)	(0.387)
D (0-12 months before)			-1.636***		-1.752***	-2.701***
			(0.561)		(0.598)	(0.772)
D (0-12 months after)				1.763***		
				(0.672)		
D (12-24 months after)				1.707***		
				(0.490)		
D (24-36 months after)				1.435**		
				(0.639)		
D (12-24 months before)				1.562**		
				(0.791)		
Time FE	YES	YES	YES	YES	YES	YES
Pseudo R-squared	0.303	0.101	0.083	0.085	0.15	0.393
Observations	148	148	148	148	148	148

The table presents how economic and political factors influence the type of bank bailout following a distress event. The sample includes all 148 cases of bank distress and bailout. The dependent variable is a dummy that equals one if the bank receives capital injections from the mayor (BLP) and zero if the bank receives support measures from the association (BLA). Column (1) examines bank-level characteristics one year prior to the distress, the size of the bailout as measured by the ratio of capital injection to equity, and the government debt to GDP ratio. All ratio variables are in percentage terms. Column (2) examines two political variables, the ideology of the politician and the political competition within the county. Column (3) examines the timing of distress in the electoral cycle where $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. Column (4) examines four dummy variables indicating four periods in a five-year electoral cycle, and the omitted group is *0-12 months before*. Column (5) includes all political variables jointly, while Column (6) includes all variables. All columns include time dummies for the four election cycles in our sample (begin of sample-1998, 1999-2003, 2004-2008, 2009-end of sample). Robust standard errors are denoted in parentheses. * indicates statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Table B3: Political Factors Influencing the Association Board

Dep. Var.	Bailout Type (=1 if BLP; =0 if BLA)	
	(1)	(2)
Bank Chairman in Ass. Board	-0.038	-0.060
	(0.099)	(0.098)
Cons. Ass. Board	0.039	-0.005
	(0.076)	(0.087)
Same Party	-0.133	-0.043
	(0.091)	(0.097)
Market share		0.008**
		(0.003)
Capital ratio		-0.018
		(0.035)
ROA		-0.003
		(0.087)
NPL ratio		-0.025**
		(0.011)
Total assets to GDP		-0.002***
		(0.001)
Size of bailout		-0.008***
		(0.002)
Government debt to GDP		-0.039*
		(0.020)
Time FE	YES	YES
R-squared	0.064	0.263
Observations	148	148

The table shows how other political variables related to the association influence the type of bank bailout following a distress event. The dependent variable is a dummy that equals one if the bank receives capital injections from the mayor (BLP) and zero if the bank receives support measures from the association (BLA). *Bank Chairman in Ass. Board* takes the value of one if the chairman of the bank in distress is a member of the board of the savings bank association and zero otherwise. *Conservative Ass. Board* takes the value of one if the majority of the association board members is associated with the conservative party and zero otherwise. *Same Party* takes the value of one if the mayor and the majority of the association board members are from the same party and zero otherwise. Bank and macro variables are the same as in Table 4. All columns include time dummies for the four election cycles in our sample (begin of sample-1998, 1999-2003, 2004-2008, 2009-end of sample). Robust standard errors are denoted in parentheses. * indicates statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Table B4: Distress Timing, Bailout Types, and Electoral Outcomes

Sample	All Elections		Elections Around Distress	
Timing of Distress/Bailout	Before Election	After Election	Before Election	After Election
Dep. Var.	Party turnover (=1 if replaced by opposing party)			
Distress	-0.059			
	[0.069]			
Distress		0.007		
		[0.033]		
BLP			0.222*	
			[0.108]	
BLP				-0.028
				[0.068]
R-squared	0.000	0.000	0.155	0.001
Observations	2,285	2,286	25	117

The table shows the effect of the timing of distress events in the electoral cycle, as well as the type of bailout conditional on distress, on the probability of the incumbent party being replaced by the opposing party. Column (1) compares election results of county-years where a distress event occurs 0-12 months before the election to county-years where no distress event occurs. Column (2) compares election results of county-years where a distress event occurs 0-36 months after the election to county-years where no distress event occurs. Conditional on distress, column (3) compares election results of county-years where BLP occurs 0-12 months before the election to county-years where BLA occurs 0-12 months before the election. Conditional on distress, column (4) compares election results of county-years where BLP occurs 0-36 months after the election to county-years where BLA occurs 0-36 months after the election. Standard errors are denoted in parentheses. * indicates statistical significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Table B5: Credit Allocation of Affected Banks - TFPR and TFPQ

Dep. Var.	growth of loans from affected banks		share of loans from affected banks		growth of loans from all banks	
	(1)	(2)	(3)	(4)	(5)	(6)
BLP×L1.logTFPQ	-5.585*		-3.564		-6.196***	
	(3.379)		(3.831)		(2.260)	
BLP×L1.logTFPR		-5.233		-2.702		-8.281**
		(4.673)		(5.675)		(3.417)
Model	IV 2SLS	IV 2SLS	IV 2SLS	IV 2SLS	IV 2SLS	IV 2SLS
1st Stage F-stat	26.658	25.305	33.306	27.06	33.306	27.06
Industry×Time FE	YES	YES	YES	YES	YES	YES
Observations	5,945	5,945	9,783	9,783	9,783	9,783

The table shows how the credit allocative efficiency – sensitivity of credit allocation to firm level productivity – of affected banks depends on the type of bailout following a distress event. Results from two-stage least squares regressions are displayed. The unit of observation is a firm-year and only post-event years are included in the regression. BLP is a dummy that equals 1 if the distress is resolved by the politician and zero otherwise. This dummy variable is instrumented by the timing of the distress event in the electoral cycle, or $D(0-12\ months\ before)$. $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. $L1.logTFPQ$ is the log of quantity-based total factor productivity, lagged by one year. $L1.logTFPR$ is the log of revenue-based total factor productivity, lagged by one year. The dependent variable from columns (1) to (2) is the growth of loans from affected banks. In columns (3) and (4), the dependent variable is the share of loans from affected banks out of all loans received by the firm. Columns (5) to (6) examine the growth of total loans from all banks. All dependent variables are in percentage terms. The F-stat is for the excluded instruments in the first stage. All regressions include industry-time fixed effects. Firm controls include lagged size and profitability. *,**,*** indicates significance at the 10%, 5%, and 1%, respectively.

Table B6: Credit Allocation of Affected Banks

No distressed merger partners

Dep. Var.	growth of loans from affected banks	share of loans from affected banks	growth of loans from all banks
	(1)	(2)	(3)
BLP×L1.logAPK	-1.931	-5.448**	-4.643*
	(1.678)	(2.692)	(2.712)
BLP	2.438	-9.293	-2.287
	(4.232)	(6.517)	(6.127)
L1.logAPK	3.354**	2.774	7.537***
	(1.471)	(2.057)	(2.113)
Model	IV 2SLS	IV 2SLS	IV 2SLS
1st Stage F-stat	152.871	87.321	87.321
Firm Controls	YES	YES	YES
Industry×Time FE	YES	YES	YES
Observations	4,787	7,699	7,699

The table shows how the credit allocative efficiency – sensitivity of credit allocation to firm level productivity – of affected banks depends on the type of bailout following a distress event. Firms exposed to cases with merger partners are excluded from the analysis. Results from two-stage least squares regressions are displayed. The unit of observation is a firm-year and only post-event years are included in the regression. BLP is a dummy that equals 1 if the distress is resolved by the politician and zero otherwise. This dummy variable is instrumented by the timing of the distress event in the electoral cycle, or $D(0-12\ months\ before)$. $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. $L1.logAPK$ is the natural log of sales divided by total fixed assets, lagged by one year. The dependent variable in column (1) is the growth of loans from affected banks. In column (2), the dependent variable is the share of loans from affected banks out of all loans received by the firm. Column (3) examines the growth of total loans from all banks. All dependent variables are in percentage terms. The F-stat is for the excluded instruments in the first stage. All regressions include industry-time fixed effects. Firm controls include lagged size and profitability. *,**,*** indicates significance at the 10%, 5%, and 1%, respectively.

Table B7: Macroeconomic Developments at County Level

	D (0-12 months before)=1 *(Pre-election: more BLA)*			D (0-12 months before)=0 *(Post-election: more BLP)*			*Post-Pre*	*BLP-BLA*
Change	Mean	Median	S.D.	Mean	Median	S.D.	Difference	Implied annual
Income per capita growth	4.871	5.326	(6.529)	2.918	3.144	(4.752)	-1.954*	-1.34
Employment growth	3.548	4.434	(4.127)	1.938	2.441	(3.332)	-1.611**	-1.10
Employment rate	1.416	1.489	(1.724)	0.789	0.906	(1.511)	-0.627*	-0.43
New estab growth	1.616	0.963	(4.667)	-0.380	-0.431	(3.282)	-1.996**	-1.37
New estab employment growth	12.587	4.874	(24.506)	2.949	2.823	(21.317)	-9.638*	-6.60
Government debt growth	-1.490	-0.628	(17.469)	17.593	0.418	(80.168)	19.083**	13.07

This table reports the cumulative growth rate of county-level macroeconomic variables in the five-year period after the bank bailout, for both pre-election and post-election distress events. $D(0-12\ months\ before)$ equals one if the distress event occurs 0 to 12 months before the election and zero otherwise. The unit of observation is a county-year. Each outcome variable is cumulative growth over the five post-event years relative to the three pre-event years, measured as the ratio of the two period averages minus one, expressed in percentage terms. The final column reports the implied annualized effect of Mayor-led relative to association-led bailouts, obtained by dividing the reduced-form difference by the first-stage estimate linking pre-election distress to bailout type (0.292 in column (3) of Table 4) and annualizing the resulting estimate. *, **, and *** indicate that the difference in means is statistically significant at the 10%, 5%, and 1% level, respectively.

C Additional Discussions on the Instrument

We caveat that our IV strategy identifies out of "switchers", or "compliers", i.e. cases in which the politicians would change their decisions on bank bailouts if the timing of the distress in the electoral cycle were to change. The empirical evidence so far suggests that decentralized decision-making on bank bailouts has negative implications for "switchers". However, to fairly compare the two bailout institutions and inform policy, we need to infer the average effect of decentralized-level bailouts for the entire sample, including "non-compliers". There are two groups of "non-compliers": "never-takers" and "always-takers". The "never-takers" choose to implement bailouts at the centralized association layer regardless of the timing of distress. By revealed preference, decentralization should be more harmful in these cases since BLP is not chosen even when the distress event occurs after the election.

The "always-takers" always opt for bailouts at the decentralized level. One could argue that BLP is actually optimal in these cases and a centralized-level BLA is instead inferior. If this is true, a centralized bailout regime might not be as desirable as our estimation suggests. To address this concern, we carefully examine all BLP cases in the pre-election period. First, these "always-takers" constitute a small group – only 4 out of 148 distress cases. Second, in all 4 cases we find that the upcoming local elections are irrelevant. The politicians announced well in advance that they would not run in the next election. In the absence of re-election considerations, a politician may choose to bail out the bank so that she can at least keep the private benefits of controlling it during the remaining days in office.[39] Three out of these four banks re-defaulted in less than three years. The evidence is therefore consistent with private benefits driving these pre-election BLP cases rather than BLP being optimal. In other words, had the politician planned to run again, the "always-takers" are likely to turn into "switchers".

Another possible but unlikely circumstance is that the four pre-election BLP cases are in fact "reverse switchers", or "defiers". This would require that a bailout using local taxpayers' money is popular with the voters but costly for the politicians, which is unlikely for three reasons. First, this would suggest very different preferences of voters in these four cases. Second, the fact that these banks are likely to re-default soon, as well as the existence of private benefits from granting preferential loans, are inconsistent with the popularity of BLP among voters. Third, the two requirements are contradictive in nature. If indeed bailing out the bank entails a high personal cost (cost of effort, for example) for

[39] There might be other benefits. For example, if there is a revolving door between the government and private sector, the politician may have additional incentives to bail out the bank and extend favor to connected parties.

the politician, it is likely that the focal bank is heavily in distress, highly complex, and thus a burden for the community. Recognizing this, the voters would not want to reward the politician for keeping such a bank within the community.

Based on the above discussion, our IV estimation does not seem to overestimate the true negative effect of a decentralized decision-making procedure in bank bailouts.

D Model Derivations and Robustness

Optimal Loans and Interest Rate. The joint distribution of cost shifter is given by $F(\boldsymbol{\xi}) = \exp\left\{-\sum_{s\in(g,p)} \phi_s \xi_s^{-\theta}\right\}$, where $\phi_g = \bar{\phi}$ and θ captures the variance within the distribution, a bigger θ implies less variability. The cumulative distribution is $P(\xi < x) = exp(-\bar{\phi}x^{-\theta})$. Let $G_{is}(x)$ be the probability that the cost at which bank s can supply credit to firm i is some fixed x. We have $G_{is}(x) = P[R_{is}/\xi_{is} \leq x] = 1 - exp(-\bar{\phi}R_{is}^{-\theta}x^{\theta})$. Define $G_i(x)$ is the distribution of costs that the firm actually pays and it is defined as

$$P\left(\min\left[\frac{R_{ig}}{\xi_{ig}(\phi)}, \frac{R_p}{\xi_{ip}(\phi)}\right] < x\right) = 1 - P\left(\min\left[\frac{R_{ig}}{\xi_{ig}(\phi)}, \frac{R_p}{\xi_{ip}(\phi)}\right] > x\right) \tag{8}$$

$$= 1 - exp\left(\sum_{s\in(g,p)} -\bar{\phi}R_{is}^{-\theta}x^{\theta}\right). \tag{9}$$

The conditional probability that bank s actually supplies credit to firm i at some fixed cost x is $\nu_{is}(x) = P[x \leq \min_{k\neq s}[R_{ik}/\xi_{ik}]]$. This is equal to $exp(-\sum_{k\neq s} \bar{\phi}R_{ik}^{-\theta}x^{\theta})$. Now, we can define the unconditional probability that government g is supplying credit to firm i as ν_{ig} and it is equal to

$$\nu_{ig} = P\left(\frac{R_{ig}}{\xi_{ig}(\phi)} < \frac{R_p}{\xi_{ip}(\phi)}\right) = \int \nu_{ig}(x)dG_{ig}(x) = \frac{R_{ig}^{-\theta}}{\sum_s R_{is}^{-\theta}} \tag{10}$$

This is the probability that bank g supplies credit to firm i, it is also the proportion of tasks $\phi \in [0,1]$ funded by bank s. The distribution of costs that firms pay $G_i(x)$ does not depend on the source, $G_i(x) = G_i(x|s)$. The average interest rate for firm j is

$$R_i = \int x dG_i(x) = \int x\bar{\phi}\sum_s R_{is}^{-\theta}\theta x^{\theta-1} exp\left(-\sum_{s\in(g,p)} \bar{\phi}R_{is}^{-\theta}x^{\theta}\right)dx = \widetilde{\phi}\left(\sum_s R_{is}^{-\theta}\right)^{-\frac{1}{\theta}}, \tag{11}$$

where $\widetilde{\phi} = \Gamma(1+1/\theta)\bar{\phi}^{-1/\theta}$.

Firm's Profit Maximization. Given the inverse demand function and the cost R_i of financing wage bill, firms maximize profits,

$$\max_{p_i, y_i} \pi_i = p(y_i)y_i - R_i W \frac{y_i}{z_i} - W c_f \tag{12}$$

$$\text{subject to} \quad y_i = p_i^{-\sigma} P^{\sigma-1} X, \tag{13}$$

where X is total nominal output and x_i are firm's revenues. The first-order conditions yield,

$$\frac{x_i}{l_i} = \frac{\sigma}{\sigma-1} W R_i, \quad x_i = \left(\frac{\sigma}{\sigma-1}\right)^{1-\sigma} \left(\frac{R_i W}{z_i}\right)^{1-\sigma} P^{\sigma-1} X, \quad \pi_i = \frac{x_i}{\sigma} - W c_f \tag{14}$$

We can define $TFPR \equiv \frac{x_i}{l_i + c_f} = \frac{x_i}{l_i} \cdot \frac{l_i}{l_i + c_f}$ and using Equation 14, we get $TFPR = \frac{\sigma}{\sigma-1} W R_i \cdot \frac{l_i}{l_i + c_f}$. Thus, the dispersion in $TFPR$ is driven by differences in R_i and firm size due to the presence of fixed costs. In Hsieh and Klenow (2009), there are no fixed costs, thus $TFPR$ is constant over firm size.

Financial Sector. In the financial sector, there are two banks: government and private banks. We assume a county is a small open economy such that the interest rate is exogenously set. The banks can borrow unlimited funds from the household at a constant interest rate r_b. The value of r_b (i.e., pin down exogenously due to our "small open economy" assumption) is inconsequential as all of the interest income is transferred back to the household. In the BLA regime, public banks charge the same interest rate to all firms. In the BLP regime, public banks make subsidies to firms. The bank's intermediation income is transferred to the household. We define net transfers from the government bank as

$$T_g = M \int \int_{z^*(\tau)}^{\infty} \nu_{\tau g} W l(z, \tau) \left(R(\tau) - 1\right) g(z, \tau) dz d\tau, \tag{15}$$

Under BLA, $R(\tau) = R > 1$ for all firms. The net transfer T_g^{BLA} is always positive. Under BLP, the interest rate varies across firms, therefore, both the profits and the net transfers can be positive or negative. In our benchmark calibration, we find that $T_g^{BLP} < 0$, indicating a net tax or negative fiscal externality on the household. We assume there is perfect competition in the private banking sector. The private bank charges the same interest rate to all firms, however, it is higher than public banks on average. This may reflect but is not limited to, the higher cost of funds or high costs of monitoring the firms. Similarly, T_p is the net income of the private banks that is always positive.

D.1 Estimating $TFPR$

Following macro literature, we compute $TFPR = py/(k^{\alpha}l^{1-\alpha})$, where $\alpha = 0.3$, k is the fixed assets and l is the number of employees. We also compute industry-year specific α to take into heterogeneity in production technology across sectors and over time and $\Delta\sigma(TFPR)_{BLA\to BLP}$ remains robust. To do this, we use the cost shares approach that requires a measure of the user cost of capital (see Foster et al., 2008).[40] To this end, we define the user cost of capital as $r_t = i_t - \mathbb{E}_t\pi_{t+1} + \Delta$, where i_t equals the nominal interest rate, $\mathbb{E}_t\pi_{t+1}$ is expected inflation at time t, and Δ is the depreciation rate plus risk premia. We take the annual German Bond Yield as an empirical proxy of the nominal interest rate.[41] We use the inflation in the consumer price index[42] and estimate an AR(1) process on the annual growth rate of the consumer price index and define the contemporaneous expected inflation as $E\pi_{t+1} = \mu + \rho_{\pi}\pi_t$. For an exogenous depreciation rate plus risk premium, we assume 12%. Now, we define industry-specific α as the mean of the firm-level capital cost shares; $\alpha = mean\{Rk_i/(wl_i + Rk_i)\}$.

D.2 Model Extension and Counterfactual Analysis

To disentangle the effects of improvement within public banks from the shift in market share between public and private banks, we solve for the counterfactual scenario, where we impose changes in public banks as observed in the data while keeping private banks the same. We start from the decentralized bailout regime and impose (i) the distortion-induced component of TFPR dispersion is zero and lending by public banks shrinks to the level observed in the centralized equilibrium, while (ii) keeping private lending the same as before. This requires us to solve for separate interest rates for public and private lending that clear the credit market. We find that this counterfactual economy has 3.5% higher output than the decentralized regime.

D.3 Endogenous Lending Rates

In the benchmark BLA economy, we did not specify the problem of the banks and assumed that they charge the same interest rate to all firms. This may be misleading particularly in the case of private banks that have profit-making motives. In an extension of the model, we allow private banks to set firm-specific lending rates.

To make progress on this front, we make a few assumptions. First, public bank set interest rates for firms. Then, private bank take the public bank's interest rate, aggregate prices and quantities as given, but they understand that firms can substitute towards

[40] In our framework, the cost of capital may differ across BLA and BLP regime, thus affecting the measurement of cost shares. We take averages across all firms in all counties to minimize this concern.

[41] The 10-Year government bond yields is taken from FRED series IRLTLT01DEM156N.

[42] The German inflation data is taken from FRED series FPCPITOTLZGDEU.

public banks and that the firm optimal scale is decreasing in its cost of funds. The private bank's profits from its relationship with the firm indexed by i are

$$\pi_{ip} = W l_i \nu_{ip}(R_{ip} - R_b); \tag{16}$$

where firm size l_i and firm's share of loans financed by private banks ν_{ip} are decreasing in R_{ip}. Thus, the first-order condition gives us a unique solution for R_{ip} and is given by

$$R_{ip} = R_b \frac{\phi_{ip}}{\phi_{ip} - 1}; \tag{17}$$

where $\phi_{ip} = \sigma \nu_{ip} - \theta(\nu_{ip} - 1)$. Thus banks charge variable markups. The banks use their market power over firms to extract surplus by adjusting the R_{ip} to the dependence of the firm on the private bank ν_{ip}. In particular, when $\nu_{ip} = 1$, the banks markup is the highest; i.e., $\frac{\sigma}{\sigma-1}$. The Equation 17 is non-linear in R_{ip}, thus to reduce the computational burden, we take first-order expansion around the perfect competition benchmark. We re-estimate the model and found that real output per capita is 3.9 percent lower in BLP regime.

D.4 Endogenous Labor Supply

In the benchmark calibration, we assumed that the total labor supply is fixed across the BLP and BLA regimes. In an extension, we assume the household utility is

$$U = C - \chi \frac{L^{1+\phi_l}}{1+\phi_l}, \tag{18}$$

where L is the aggregate labor supply, and ϕ_l is the inverse Frisch elasticity and χ is the disutility of labor. The household utility maximization gives us $L = (W/\chi P)^{1/\phi_l}$. Following the macro literature, we calibrate $\phi_l = 1$ (Frisch elasticity of one). Without a loss of generality, we fix the value of χ, such that aggregate labor supply in the BLP regime is $L_{BLP} = 1$. We recalibrate the model and estimate a real output per capita loss of 2.09% in the BLP regime relative to the BLA regime.

D.5 Bank Lending Rates and Risk

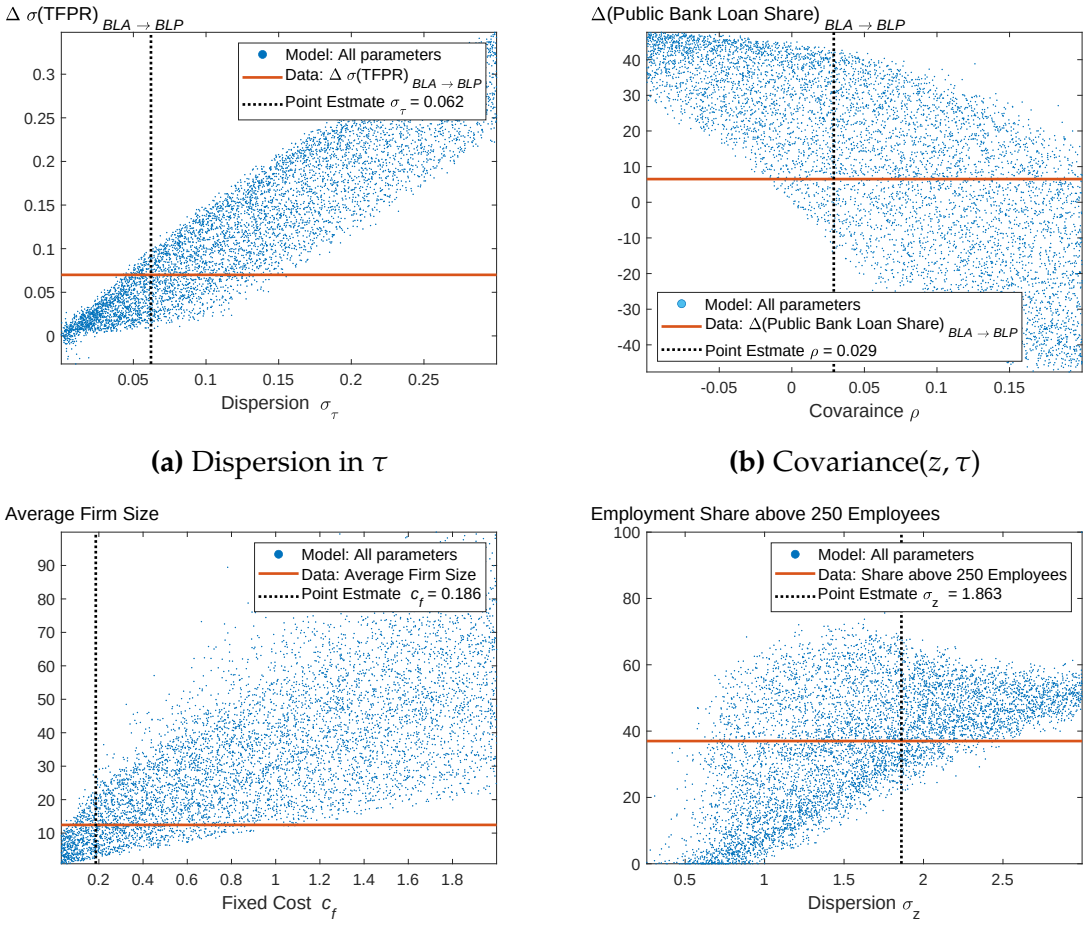
In the baseline model, we assume that there is no default risk for banks. In this extension, we assume that banks need to monitor firms to avoid costly defaults. We allow monitoring cost c_m to be heterogeneous across firms. We assume perfect monitoring such that there are no defaults in equilibrium and that all monitoring costs are passed down to firms. We also assume these monitoring costs are uncorrelated with productivity z and distortion τ. For calibration of monitoring costs, we assume two types of firms: low and high risk and then we match the dispersion in average interest rates. In the absence of

the loan level interest rate, we proxy interest rate by interest payments divided by outstanding loans. The dispersion in average interest rate is about 1.8% in BLA counties. We re-calibrate the model to match the dispersion in interest rate in BLA regime (in the absence of other distortions), and find that the output per capita losses in this economy are equal to 4.25%.

D.6 Selection in the Model

In Figure D2, we show the changes in selection and loan allocation between the BLA and BLP economies. We categorize firms into four groups: "New Entrants," which are firms that were inactive in the BLA but active in the BLP economy; "Net Exiters," which are firms that were active in the BLA but inactive in the BLP economy; firms with positive loan growth; and taxed firms with negative loan growth.

Figure D1: Identification of Model Parameters and Targeted Moments.



(a) Dispersion in τ

(b) Covariance(z, τ)

(c) Fixed Cost

(d) Dispersion in productivity

This figure shows the relationship between parameters and targeted moments. Blue dots represent model simulations sequencing parameter vectors $\Theta = \{\sigma_\tau, \rho_{z,\tau}, c_f, \sigma_z\}$ using a Sobol sequence. The dashed dark blue line presents a moment in the model when only the parameter on the x-axis varies, holding other parameters at their point estimate. The horizontal solid orange line presents a moment in the data. The vertical dashed black line shows the parameter estimate.

Figure D2: Selection and Loan Allocation in BLP & BLA Regime

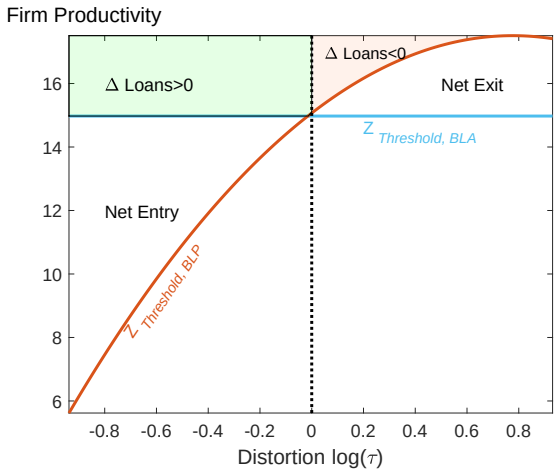


Figure D2 shows the changes in selection and loan allocation when in BLA relative to BLP economy. The X-axis represents the distortion $\log \tau$ that changes the relative cost of loans, where firms with $\log \tau < 0$ are subsidized and firms with $\log \tau > 0$ are taxed in the BLP economy. The Y-axis is firms productivity. The blue line shows the productivity threshold for producers in the BLA economy, and it is independent of $\log \tau$ as distortion is inactive. The red line shows the productivity threshold for producers in the BLP economy, which is increasing in $\log \tau$. The regions between the red and the blue line on the left of the $\log \tau = 0$ marks "Net Entrants", firms that were inactive in the BLA but active in BLP economy. The regions between the red and the blue line on the right of the $\log \tau = 0$ marks "Net Exiters", firms that were active in the BLA but inactive in BLP economy. The green regions represent subsidized firms that have positive loan growth and the red regions represent taxed firms that have negative loan growth.