Parliamentary pensions and government stability. Can economic incentives 'transform' MPs' votes?

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Enrico Miglino*

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Abstract

Can economic incentives change policymakers' voting behavior and increase government stability? Using newly collected data on 427 confidence votes in the Italian Parliament between 2001-2022, I study the impact of a minimum tenure requirement of 4.5 years to obtain a parliamentary pension introduced in 2008. Using a difference-in-discontinuities design, I find that the policy increases the probability of voting confidence in the government by 3 percentage points. The reform increases confidence votes by majority MPs, whereas it decreases confidence votes by opposition MPs. These results confirm the predictions of a simple political-agency model in which policymakers have opportunistic motives. Beyond the direct incentive to keep the current government in power, the policy increases party loyalty: it induces opposition (majority) MPs to vote against (for) the government so as to increase the probability of being re-elected and reach the tenure requirement in a second term in case the government falls. A tenure requirement for parliamentary pensions increases government stability but also party polarization, ultimately reducing voters' welfare.

*Enrico Miglino: Department of Economics, University College London (email: enrico.miglino.16@ucl.ac.uk). I would like to thank the *Fondazione Rodolfo Debenedetti* and the *Fondazione Openpolis* for kindly granting access to their data.

1 Introduction

> If a man wants to join our ranks, if he wishes to accept my modest program, to transform himself and become a progressive, how could I reject him?
>
> Agostino Depretis (Italian prime minister, 1882)

The power to unseat a government is one of the checks and balances upon which parliamentary democracies are based. But the policy uncertainty associated with unexpected government crises discourages investment, hiring, lending, and ultimately hinders economic growth [Alesina et al., 1996; Bloom et al., 2007; Bloom, 2014; Baker et al., 2016; Bordo et al., 2016]. The critical decision to topple a government lies in the hands of few members of Parliament, who can either be *vocational* and vote to maximize voters' welfare, or *opportunistic* and vote to extract tangible rents for themselves [Persson and Tabellini, 2000]. Whether legislators follow their vocation 'for politics' or 'off politics' in high-stakes voting decisions is crucial to understand the functioning of modern democracies [Weber, 1965].

This paper asks whether economic incentives can change policymakers' voting behavior and increase government stability. To address this question, I study an unusual change in parliamentary benefits occurred in Italy in 2008 (legislature XVI): the introduction of a minimum parliamentary tenure of 4.5 years required to obtain a parliamentary pension. For this analysis, I have digitized the stenographic records of all 427 confidence votes occurred in the Italian Parliament between 2001 and 2022 (legislatures XIV-XVIII), which contain the list of MPs who voted in favor, against or abstained. I merged this data with personal data on all MPs: demographics, education level, previous job, party affiliation, start and end date of each parliamentary term which can be used to compute the parliamentary tenure. I have also digitized the first tax return submitted by each Deputy and Senator in the parliamentary archives to have a measure of their private income in the year prior to entering Parliament.

To study the effects of the policy, I cannot employ a regression discontinuity design because there is another monetary incentive, the parliamentary severance pay, that increases at the threshold of 4.5 years. I do not use a difference-in-differences design because newly-elected MPs may have a different trend in their voting attitude with respect to MPs with a much longer experience in Parliament. Therefore, I combine two sources of variation, before/after the beginning of Legislature XVI and just below/above 4.5 years parliamentary tenure, and implement a 'difference-in-discontinuities' design as in Grembi et al. [2016]. I take the difference between the pre-treatment and the post-treatment discontinuity at the tenure threshold in order to net out the effect of the severance pay increase. This strategy requires that the effect of confounding factors at the threshold does not vary over time.

I estimate that the introduction of the tenure requirement for a parliamentary pension increases the probability of expressing a vote of confidence in the government by 3 percentage points, within a tenure bandwidth of one year in each side of the threshold. Back-of-the-envelope calculations show that one of the eight governments (Berlusconi IV) in legislatures XVI-XVIII would have lost a vote of confidence and resigned earlier, had the tenure requirement been absent. Interestingly, Italy experienced a severe sovereign debt crisis in the final months of Berlusconi's government, which an earlier loss in a confidence vote could potentially have prevented.

To confirm the validity of the empirical strategy, I perform a series of diagnostic tests. First, the effect is not significantly different from zero in any of the Houses in the two legislatures (XIV and XV) before the introduction of the tenure requirement, but it becomes significantly positive since the first legislature in which the tenure requirement is in place (XVI). Secondly, the diff-in-disc coefficient is significantly positive and remarkably stable when using different bandwidths around the tenure threshold, from two months up to three years on each side. Thirdly, the Frandsen [2017] test for discrete running variables cannot reject the null hypothesis of absence of manipulation in the distribution of the tenure of MPs in confidence votes, and diff-in-disc estimates on pre-determined variables are not significant. Finally, to assess the possibility that this result arises from random chance rather than from a causal relationship, I perform a set of diff-in-disc estimations at placebo thresholds below and above 4 years and 6 months. All the placebo estimates are lower than the true-threshold coefficient for the confidence vote.

In a heterogeneity analysis, I show that the effect of the tenure requirement is stronger in legislatures in which MPs' private income and the probability of being re-elected are lower. Surprisingly, the policy significantly increases the votes of confidence by MPs elected in parties that support the government (*majority MPs*), but it decreases votes of confidence by MPs elected in opposition parties (*opposition MPs*) even if the latter effect is not significant in all specifications. These empirical results can be rationalized in a simple political-agency model in which policymakers are to some extent opportunistic.

First of all, if they were vocational and voted purely in their voters' interest, their voting behavior should not change when their private economic incentives change. Secondly, the model shows that the minimum tenure requirement for a parliamentary pension has two effects on the voting behavior of newly-elected MPs, which affect majority and opposition MPs differently. A 'pivotal' effect for which both majority and opposition newly-elected MPs have an incentive to vote the confidence in case they are the pivotal voter so as to increase the probability of survival for the current government, complete their first legislature and secure a parliamentary pension. A 'polarization' effect for which both majority and opposition newly-elected MPs have an incentive to vote following the party directives so as to have a higher probability of being re-elected (Table A) and reach the tenure requirement in their second term, in case the government loses the con-

fidence vote and there are early elections. The polarization effect increases MPs' loyalty towards their own party, even if this is detrimental to voters' welfare.

Both effects go in the same direction for majority MPs, but they go in opposite directions for opposition MPs because the latter have a party directive to vote against the government. Then, the model predicts that the minimum tenure requirement will have an unambiguously positive impact on the probability to vote confidence for majority MPs, but it will have an ambiguous effect on opposition MPs, depending on which (if any) of the pivotal and polarization effect dominates. These predictions are confirmed by the heterogeneity analysis: the estimated effect is positive and highly significant for majority MPs, whereas it is insignificantly negative for opposition MPs (i.e. the polarization effect seems to dominate). The model shows that if the polarization effect dominates, the minimum tenure requirement is unambiguously distortionary: it induces majority MPs to vote in favor of the government and opposition MPs to vote against the government when it would be in the voters' interest to do otherwise.

My paper contributes to several branches of the political economy literature. First, it sheds light on the relationship between institutions and political stability. Theoretical models of government instability feature legislative bargaining between parliamentary parties and include shocks to economic or electoral prospects that can induce renegotiations and no-confidence votes [Diermeier and Merlo, 2000]. Empirical studies usually rely on strong identifying assumptions. Notable exceptions are the papers by Gagliarducci and Paserman [2012], Acconcia and Ronza [2022] and Carozzi et al. [2022]. They employ RD designs to show that policymakers' gender and political fragmentation can significantly affect local government stability, whereas my analysis shows that monetary incentives based on parliamentary tenure can significantly affect government stability at national level.

Second, my model illustrates the presence of a trade-off between government stability and distortionary party discipline, which speaks to the literature on political polarization. In the last decades political polarization have increased dramatically in the EU [Müller and Schnabl, 2021] and in the US [Canen et al., 2020a], hindering bipartisan cooperation [Hetherington, 2015], increasing the risk of political gridlocks in moments of crisis [Mian et al., 2014], and even inducing discriminatory behaviour toward opposing party supporters [Iyengar and Westwood, 2015]. Partisan differences have widened in congressional voting behavior [McCarty et al., 2008], congressional speeches [Gentzkow et al., 2019], campaign finance data [Bonica, 2014], and candidate ideology based on survey responses [Moskowitz et al., 2022]. According to estimates by Canen et al. [2020b], 65% of political polarization in US legislative voting can be explained by a tightening of party control over congressmen. My paper shows that parliamentary benefits can be an effective tool for parties to increase their control over the legislators. The design of monetary incentives for legislators must be designed carefully to avoid unintended consequences in terms of

political polarization.

Third, it contributes to the literature that tests predictions of political-agency models [Besley and Case, 1995; Besley, 2004; Preece et al., 2004]. Starting from the seminal models by Barro [1973] and Ferejohn [1986], this literature is now quite extensive and hinges on the assumptions that voters are 'principals' with imperfect information about the state of the world and that policymakers are opportunistic 'agents' working for them (see [Besley, 2007] for a review). Recently, the focus has been on how relative salaries in the political and private sectors affect politicians' career decisions and their quality [Diermeier et al., 2005]. Theoretical results are inconclusive: if [Caselli and Morelli, 2004] find that higher salaries improve the quality of politicians assuming they have uni-dimensional ability, more complex models lead to ambiguous predictions due to free-riding effects [Messner and Polborn, 2004], the simultaneous presence of entry and retention effects [Mattozzi and Merlo, 2008] the presence of different types ('skilled' and 'achievers') [Diermeier et al., 2005; Keane and Merlo, 2010]. Most empirical analysis find positive effects of higher pay on politicians' quality, proxied by the level of education [Kotakorpi and Poutvaara, 2011; Gagliarducci and Nannicini, 2013], with the exception of Fisman et al. [2015], who estimate that increasing salaries decreases MEPs' college quality.[1]

Rather than studying changes in relative wages, I analyze the effect of a perquisite attached to holding a parliamentary seat: the right for a parliamentary pension. In this sense, the paper is similar in spirit to the cross-sectional analyses by Hall and Van Houweling [1995] and Groseclose and Krehbiel [1994].[2] They provide suggestive evidence of strategic retirement of US congressmen in 1992, the last year in which House members sworn in before 1980 could keep their campaign war chests for personal use once retired ('the golden parachute' provision in the Federal Election Campaign Act).[3] If these papers show that pension incentives can have substantial effects on politicians' retirement decisions, my paper analyzes how pension incentives can change MPs' behavior in high-stakes votes upon which the life of a government depends.

The paper is organized as follows. Section 2 describes the political-agency model that guides the empirical analysis. Section 3 presents the institutional background of the pension reform.

[1] Other papers have also focused on on how monetary incentives affect politicians' productivity while in office. Fisman et al. [2015] find that higher pay has no significant effect on MEPs' effort or legislation output, whereas Finan and Ferraz [2009] show that higher wages increase legislative productivity, resulting in more legislative bills and public goods provision. [Gagliarducci and Nannicini, 2013] show that better-paid mayors size down the government machinery by improving efficiency.

[2] Preece et al. [2004] wrote an interesting paper studying another unique perquisite enjoyed by US congressmen: the possibility to write checks on nonexistent balances, which ultimately led to the House Bank scandal in 1992. They show that more entrenched congressmen are more likely to be involved in the excessive consumption of this perquisite, confirming a well-known prediction in agency theory.

[3] Their analysis is affected by two potential confounders: the House Bank scandal (congressmen involved in writing checks on nonexistent balances) and redistricting. Using a maximum likelihood model and data on 1992 retirement decisions, Groseclose and Krehbiel [1994] claims that the golden parachute provision caused nearly twice as many retirements as redistricting and nearly four times as many retirements as the House Bank scandal.

Section 4 explains the empirical strategy, whereas Section 5 illustrates the data. Section 6 presents the results, tests the validity of the empirical strategy and reports back-of-the-envelope calculations on the impact on government stability. Section 7 concludes.

2 Theoretical framework

This section makes precise how the minimum tenure requirement for a parliamentary pension should affect MPs' voting behavior in a simple model of political agency. This principal-agent model yields several predictions that will be tested in the subsequent empirical analysis.

Suppose that every politician is elected in period $t = 1$, retires at the end of period T and dies at the end of period $T + 1$. For simplicity, assume the parliamentary career of an MP ends after two parliamentary terms.[4] Politicians elected in party i choose one binary action $e_{it} \in \{0, 1\}$ in each term, namely whether to vote confidence in the government or not. Assume that if a government loses the vote of confidence, the legislature ends before its natural term and there are early elections.[5]

Politicians belong to majority parties M in favor of the government or to opposition parties m against the government: $i \in \{M, m\}$. If they vote following the directives of their party ($e_{Mt} = 1,\ e_{mt} = 0$), they are re-elected with exogenous probabilities π_i. If they vote against the directives of their party ($e_{Mt} = 0,\ e_{mt} = 1$), they are re-elected with lower probability $\underline{\pi_i} < \pi_i$. This assumption is based on the empirical evidence that first-term MPs who vote against their party directives are 10-25% less likely to be re-elected (see Table C1 in Appendix Section A). Without loss of generality assume that $\underline{\pi_i} = 0$. If MPs are not re-elected, they abandon the political career. Since the confidence vote outcome of each MP is disclosed only after all MPs have voted, I assume that MPs do not observe the decisions of the other MPs when they vote.

All politicians receive a payoff Y from holding a parliamentary seat (e.g. parliamentary wage, ego rents). If they leave the political career, in each period till retirement they earn and consume a time-invariant market per-period wage w, which can be heterogeneous across politicians. When they retire, all MPs obtain a private pension proportional to their wage γw. Assume politicians receive a parliamentary pension r only if they complete the first parliamentary term (i.e. the government wins the vote of confidence) or if they are elected for two parliamentary terms (even if incomplete). When in Parliament, politicians observe the state of the world $s_t \in \{0, 1\}$, which is an indicator on the net welfare gain that the government is producing. If $s_t = 0$, it would be in the voters' interest for the Parliament to exercise its control power over the executive and top-

[4] 74% of the MPs in the sample remained in Parliament for no longer than two parliamentary terms.

[5] One could complicate the model and assume that losing the vote of confidence is associated with a positive (less than one) probability that the legislature ends prematurely. Under this assumption all the effects would be dampened, but the model would yield the same qualitative predictions.

ple the government. If $s_t = 1$, it would be in the voters' interest for the Parliament to guarantee government stability and vote confidence in the government. Voters receive a payoff Δ only if the politician they have elected votes according to the state of the world: i.e. if $e_{it} = s_{it}$. If $e_{it} \neq s_{it}$, voters receive 0. Assume voters do not observe the states of the world or the payoffs of period t until period $t + 2$. Politicians care about their voters' welfare up to a certain extent, measured by a parameter α. I abstract away from considerations on the relative wage and assume that politicians always prefer the political career to the private sector career: $\alpha\Delta + Y \geq w$.

Politicians have a time-additive intertemporal utility function, discount future by a factor $\beta < 1$ and the within-period utility function $u(\cdot)$ is increasing and concave. Note that, if re-elected, the second-period utility of an MP is independent of her majority-opposition status and politicians always act in the voters' interest since it is their last term: second-period utility for a re-elected MP is always $u(Y + \alpha\Delta)$.

Now suppose there is no minimum tenure requirement and the MP will get a pension at $T + 1$ independently of the time she spends in Parliament (as long as she is elected once). The utility function for an MP elected in period $t = 1$ in a majority party with a market wage w is:

$$\begin{aligned} U_1(e_1|M, w) &= u(Y + \alpha[s_1 e_1 + (1 - s_1)(1 - e_1)]\Delta) \\ &+ \beta\frac{1 - \beta^{T-1}}{1 - \beta}u(w) + \beta e_1 \pi_M \left[u(Y + \alpha\Delta) - u(w)\right] + \beta^T u(r + \gamma w) \end{aligned} \tag{1}$$

If the government is doing well ($s_1 = 1$), the newly-elected majority MP always votes confidence in the government as:

$$u(Y + \alpha\Delta) + \beta\pi_M[u(Y + \alpha\Delta) - u(w)] \geq u(Y) \tag{2}$$

If the government is not doing well ($s_1 = 0$), the newly-elected majority MP would vote the confidence and go against voters' interest if

$$u(Y) + \beta\pi_M[u(Y + \alpha\Delta) - u(w)] \geq u(Y + \alpha\Delta) \tag{3}$$

Intuitively, the MP would follow the party directives and vote against the voters' interest only if her net utility of being re-elected is higher than the utility she gets from benefiting the voters in the first term.

Suppose now that a minimum tenure requirement is imposed. The utility function for an MP

elected in period $t = 1$ in a majority party with a market wage w is:

$$U_1(e_1|M,w) = u(Y + \alpha[s_1e_1 + (1-s_1)(1-e_1)]\Delta) + \beta e_1 \pi_M[u(Y+\alpha\Delta) - u(w)] \\ + \beta\frac{1-\beta^{T-1}}{1-\beta}u(w) + \beta^T\{Pr(e_1) + [1-Pr(e_1)]e_1\pi_M\}[u(r+\gamma w) - u(\gamma w)] + \beta^T u(\gamma w) \tag{4}$$

where $Pr(e_1)$ is the probability the government wins the confidence vote and it is increasing in e_1. Again, if the government is doing well ($s_1 = 1$), the newly-elected majority MP always votes confidence in the government as:

$$u(Y+\alpha\Delta) + \beta\pi_M[u(Y+\alpha\Delta) - u(w)] \\ + \beta^T\{[Pr(e_1=1) - Pr(e_1=0)] + [1-Pr(e_1=1)]\pi_M\}[u(r+\gamma w) - u(\gamma w)] \geq u(Y) \tag{5}$$

If the government is not doing well ($s_1 = 0$), the newly-elected majority MP would vote the confidence and go against the voters' interest if

$$u(Y) + \beta\pi_M[u(Y+\alpha\Delta) - u(w)] \\ + \beta^T\{[Pr(e_1=1) - Pr(e_1=0)] + [1-Pr(e_1=1)]\pi_M\}[u(r+\gamma w) - u(\gamma w)] \geq u(Y+\alpha\Delta) \tag{6}$$

Comparing inequalities 3 and 6, the minimum tenure requirement for the parliamentary pension increases the utility of newly-elected majority MPs for voting confidence in the government against voters' interest by $\beta^T\{[Pr(e_1=1) - Pr(e_1=0)] + [1-Pr(e_1=1)]\pi_M\}[u(r+\gamma w) - u(\gamma w)]$. This is composed by two effects. The first term in the curly brackets is a *pivotal effect*: the incentive to vote confidence in case they are the pivotal voter so as to increase the probability of survival for the current government, complete their first legislature and secure a parliamentary pension. The second term in the curly brackets is a *polarization effect*: the incentive to vote following the party directives so as to have a higher probability of being re-elected and reach the tenure requirement in the second legislature, in case the government loses the confidence vote and there are early elections. Both the pivotal and the polarization effect decrease when the government has a larger majority margin, as each voter is less likely to be pivotal and the probability of a government fall is lower. The sum of the effects increases in age (lower T) and decreases in market wage w because of diminishing marginal utility.

Note that if they are uninterested in voters' welfare ($\alpha = 0$) MPs always vote confidence following the party directives, whereas if they are sufficiently interested in voters' welfare ($\alpha \to \infty$) MPs always vote in the voters' interests. In these extreme cases (fully 'opportunistic' or fully 'vocational' politicians), the minimum pension requirement should have no effect on their voting behavior.

Prediction 1: *The minimum tenure requirement for the parliamentary pension increases votes of confidence by newly-elected majority MPs if they are sufficiently, but not fully opportunistic. This effect increases in the MPs' age and in the probability of being re-elected, whereas it decreases in MPs' market wage and in the government majority margin.*

Note that the minimum tenure requirement is a distortionary incentive for majority MPs because it induces them to vote in favor of the government, when it would be in the voters' interest to vote against.

In absence of a minimum tenure requirement, the utility function for an MP elected in period $t = 1$ in an opposition party with a market wage w is:

$$\begin{aligned} &U_1(e_1|m,w) = u(Y + \alpha[s_1e_1 + (1-s_1)(1-e_1)]\Delta) \\ &+ \beta(1-e_1)\pi_m[u(Y+\alpha\Delta) - u(w)] + \beta\frac{1-\beta^{T-1}}{1-\beta}u(w) + \beta^T u(r+\gamma w) \end{aligned} \tag{7}$$

If the government is not doing well ($s_1 = 0$), the newly-elected opposition MP never votes confidence in the government as:

$$u(Y+\alpha\Delta) + \beta\pi_m[u(\alpha\Delta + Y) - u(w)] \geq u(Y) \tag{8}$$

If the government is doing well ($s_1 = 1$), the newly-elected opposition MP would vote the confidence (and satisfies voters' interest) if

$$u(Y+\alpha\Delta) \geq u(Y) + \beta\pi_m[u(\alpha\Delta + Y) - u(w)] \tag{9}$$

Intuitively, the MP would follow the party directives and vote against the voters' interest only if her net utility of being re-elected is higher than the net utility of benefiting the voters in the first term.

Suppose now that a minimum tenure requirement is imposed. The utility function for an MP elected in period $t = 1$ in an opposition party with a market wage w is:

$$\begin{aligned} &U_1(e_1|m,w) = u(Y + \alpha[s_1e_1 + (1-s_1)(1-e_1)]\Delta) + \beta(1-e_1)\pi_m[u(Y+\alpha\Delta) - u(w)] \\ &+ \beta\frac{1-\beta^{T-1}}{1-\beta}u(w) + \beta^T\{Pr(e_1) + [1-Pr(e_1)](1-e_1)\pi_m\}[u(r+\gamma w) - u(\gamma w)] + \beta^T u(\gamma w) \end{aligned} \tag{10}$$

The change in behavior for newly-elected opposition MP is ambiguous as it depends on the sign of $\{[Pr(e_1 = 1) - Pr(e_1 = 0)] - [1 - Pr(e_1 = 0)]\pi_M\}$. Now the pivotal and polarization effects

have opposite signs. On one hand, opposition MPs would like to vote the confidence because if the government wins they would obtain the pension. On the other hand, opposition MPs are afraid to vote the confidence because if the government loses, they would be less likely to be re-elected and to secure the pension in a second term.

With the minimum tenure requirement, the newly-elected opposition MP might vote the confidence even if the government is not doing well ($s_1 = 0$). This occurs when

$$\begin{aligned} &u(Y) + \beta^T\{[Pr(e_1 = 1) - Pr(e_1 = 0)] - [1 - Pr(e_1 = 0)]\pi_m\}[u(r + \gamma w) - u(\gamma w)] \\ &\geq u(Y + \alpha\Delta) + \beta\pi_m[u(\alpha\Delta + Y) - u(w)] \end{aligned} \tag{11}$$

A necessary condition for this to occur is that the pivotal effect dominates the polarization effect.

If the government is doing well ($s_1 = 1$), the newly-elected opposition MP would vote the confidence in the voters' interest if

$$\begin{aligned} &u(Y + \alpha\Delta) + \beta^T\{[Pr(e_1 = 1) - Pr(e_1 = 0)] - [1 - Pr(e_1 = 0)]\pi_m\}[u(r + \gamma w) - u(\gamma w)] \\ &\geq u(Y) + \beta\pi_m[u(\alpha\Delta + Y) - u(w)] \end{aligned} \tag{12}$$

Comparing inequalities 9 and 12, the minimum tenure requirement for the parliamentary pension has an ambiguous effect on the utility of newly-elected opposition MPs for voting confidence. If the incentive to increase the chances of a government victory to immediately obtain the pension right (*pivotal effect*) is lower than the fear of losing the possibility of being re-elected and obtain the pension later in case of government defeat (*polarization effect*) ($\{Pr(e_1 = 1) - Pr(e_1 = 0) < [1 - Pr(e_1 = 0)]\pi_M\}$), then the minimum tenure requirement incentives newly-elected opposition MPs to vote *against* the confidence, even if this is against the voters' interest. If the government has a larger majority margin, both the positive pivotal effect and the negative polarization effect are weaker.

Prediction 2: *The minimum tenure requirement for the parliamentary pension has an ambiguous effect on the votes of confidence by newly-elected opposition MPs. This effect decreases in the probability of being re-elected for the same party. Age increases the absolute value of the effect, whereas market wage decreases the absolute value of the effect. A larger government majority margin weakens both the pivotal and the polarization effects.*

Note that if the polarization effect dominates the pivotal effect (i.e. the tenure requirement reduces the number of opposition MPs voting confidence in the government), the tenure requirement incentive is distortionary. It incentivizes opposition MPs to vote against the government, even

though it would be in the voters' interest to vote in favor. The expected social surplus produced by majority MPs is $\Delta\{Pr(s_1 = 1) + Pr(s_1 = 0)[(1 - Pr(e_1 = 1)) + Pr(e_1 = 1)\beta\gamma_M]\}$ which decreases in $Pr(e_1 = 1)$. Since the tenure requirement increases $Pr(e_1 = 1)$ for majority MPs, it decreases the expected social surplus produced by majority MPs. The expected social surplus produced by opposition MPs is $\Delta\{Pr(s_1 = 0) + Pr(s_1 = 1)[Pr(e_1 = 1) + (1 - Pr(e_1 = 1))\beta\gamma_M]\}$ which increases in $Pr(e_1 = 1)$. Since the tenure requirement decreases $Pr(e_1 = 1)$ for opposition MPs when the polarization effect dominates, it also decreases the expected social surplus produced by opposition MPs. According to the definition by Besley [2007], if the polarization effect dominates, the minimum tenure requirement is a political failure as it produces a negative ex-ante social surplus. The model shows an examples in which political survival considerations can be a source of real inefficiencies, as summarized by Besley and Coate [1998].

3 Institutional background

3.1 The Parliament and the votes of confidence

Italy is a parliamentary democracy with a bicameral structure: the Chamber of Deputies, composed by 630 elected Deputies, and the Senate, composed by 315 elected Senators, have the same legislative power. All Members of Parliament (MPs) are elected simultaneously during general political elections, except for Senators with a life tenure ('Senatori a vita') who are former presidents of the Republic or directly appointed by the president of the Republic 'for outstanding patriotic merits in the social, scientific, artistic or literary field'.[6] Elected Deputies and Senators have to be at least 25 years old and 40 years old, respectively. Regardless of the party or electoral district, MPs have the legal duty to represent the interests of all Italian citizens. Their electoral-affiliation party has no formal control over their voting behaviour while they are in Parliament.[7]

A majority in each House is required to pass a bill before it becomes a new law.[8] Beyond the legislative power, the Parliament exercises control over the executive power of the Council of Ministers, primarily by means of a vote of confidence. There are several instances in which a vote of confidence can occur. First, before being officially in power, every Government must obtain the majority in each House through a vote of confidence (the investiture vote). In addition, each

[6] There may be up to five appointed Senators for life at the same time.

[7] However, the parties have an institutional role within Parliament: they form parliamentary groups whose heads jointly form a body called Conferenza dei Capigruppo, which determines the calendar of Parliament and the issues to be discussed during each parliamentary session [Merlo et al., 2010].

[8] Generally, laws are drafted within the government or by MPs. The first draft is then assigned to a parliamentary committee that can make changes. After majority approval by the committee, each house has to approve the text. If one House amends the text originally approved by the other, the amended text has to be approved again by the latter House [Merlo et al., 2010]

House can cast a vote of no confidence at any moment during a parliamentary term (legislature) as long as the no-confidence motion is signed by at least one tenth of the House members [Senato della Repubblica, 2022a]. Furthermore, the Government may call a vote of confidence in order to compel the House to reconfirm its support in relation to a specific text being considered by the House and speed up the legislative procedure. If the government loses a vote of confidence (or no confidence) in any of the two Houses, the government falls and the President of the Council of Ministers and his/her Cabinet have to resign [Camera dei Deputati, 2022]. No-confidence votes are not 'constructive' as in Spain and Germany: MPs do not propose an alternative candidate President of the Council who has to have a parliamentary majority and takes charge if the incumbent loses the vote. In this sense, the Italian confidence vote is similar to the confidence vote in the majority of parliamentary and semi-presidential democracies.[9]

The constitutionally mandated duration of a legislature is five years. The President of the Republic can dissolve the Parliament before the natural end of a legislature and call for early elections if the Parliament is unable to form a stable majority in each House in support of a government. This occurs generally after a loss in a vote of confidence (as for Romano Prodi's second government in January 2008) or after a win in a vote of confidence by an excessively narrow margin (as for Giuseppe Conte's second government in August 2019). Early elections have been relatively frequent in Italy. There have been eighteen legislatures between 1948 and 2022 and nine of them ended before the natural term. The high degree of political instability in Italy resulted in high executive turnover: there have been 69 governments in the last 75 years, with an average duration of 1.1 years.

As we can see in Table 1, there were 223 votes of confidence/no confidence in the Chamber of Deputies and 204 votes of confidence/no confidence in the Senate from 2001 to 2022 in the legislatures XIV-XVIII. Votes of confidence are quite frequent: the average distance between two votes of confidence is 38 days for the Senate and 35 for the Chamber, the maximum distance is 364 days for the Senate and 306 for the Chamber. Motions of no-confidence votes are not frequent: there were only five in the Senate and only one in the Chamber in the analyzed period. Each legislature had between one and three different governments. Among the five legislatures under study, only legislature XV and legislature XVIII ended before their natural end. The last vote of legislature XV was one year and nine months after its beginning, whereas the last vote of legislature XVIII was four years and four months after its beginning.

[9]The constructive vote of no-confidence is currently present in seven countries: Germany, Spain, Hungary, Poland, Slovenia, Belgium and Israel. The vast majority adopts a regular vote of no-confidence as in Italy: Australia, Austria, Bulgaria, Canada, Czech Republic, Croatia, Denmark, Estonia, Finland, Iceland, India, Ireland, Latvia, Lithuania, Netherlands, New Zealand, Norway, Portugal, Romania, Slovakia, Sweden and the United Kingdom [Rubabshi-Shitrit and Hasson, 2022].

Table 1: Number of votes of confidence in legislatures XIV-XVIII

Government	Legislature	Chamber votes	Senate votes	Date first vote	Date last vote
Berlusconi II	14	19	10	21/06/2001	28/12/2004
Berlusconi III	14	12	9	28/04/2005	09/02/2006
Prodi II	15	17	16	23/05/2006	24/01/2008
Berlusconi IV	16	32	22	15/05/2008	14/10/2011
Monti I	16	34	19	18/11/2011	21/12/2012
Letta I	17	10	6	30/04/2013	04/02/2014
Renzi I	17	31	43	25/02/2014	07/12/2016
Gentiloni I	17	14	20	14/12/2016	23/12/2017
Conte I	18	10	6	06/06/2018	05/08/2019
Conte II	18	21	23	10/09/2019	19/01/2021
Draghi I	18	23	30	18/02/2021	21/07/2022

Notes: Number of votes of confidence and motions of no confidence for each government in legislatures XIV-XVIII from 2001 to 2022. Each government is identified by the President of the Council and its ordinal number.

3.2 The parliamentary pension reforms

Before 1997, MPs received a parliamentary pension at the age of 60, after paying pension contributions for at least a five-year term in Parliament. The pension scheme was quite favorable: the pension amount corresponded to a share of the final salary (up to 85.5%), only in small part financed by the pension contributions. An MP that did not complete a five-year term could also obtain a pension by simply paying the missing monthly pension contributions. The facility to qualify for a parliamentary pension led to distortionary practices such as 'rotating resignations', which allowed multiple MPs to obtain a pension even after spending only few days in Parliament. The parliamentary pension is cumulative with respect to any non-parliamentary pension the MP will receive from another job [Rizzo, 2018].

Since 1997, only MPs with more than 2.5 years of parliamentary tenure were allowed to pay the missing monthly pension contributions to obtain a pension [De Santis, 2020]. The minimum pension age was raised to 65 and decreased by one year for each year of parliamentary tenure after the first five years, down to a minimum of 60 years of age. The pension contribution was 8.6% of the gross parliamentary wage and the pension varied between 25% and 80% of the parliamentary monthly wage, increasing in tenure (from 5 to 15 years of tenure). In 2006 the gross parliamentary wage was €$12,434$ and therefore, the minimum pension was €$3,108$ with only 5 years of paid contributions.

In 2007, the right to pay the missing pension contributions to obtain a parliamentary pension was suppressed. The MPs elected for the first time since 2008 (from legislature XVI onwards) would receive a parliamentary pension only if they had more than 4.5 years of parliamentary tenure

over their lifetime [Camera dei Deputati, 2007; Senato della Repubblica, 2022b].[10] The suppression of the pension redemption scheme for MPs followed a surge of an anti-politics sentiment in the Italian public opinion targeting MPs' privileges and has attracted considerable attention from the media [Fusani, 2007; Sesto, 2021]. If this reform was aimed at cutting the high costs of the Italian Parliament, several commentators warned about its distortionary incentive of voting in favor of a government to avoid the end of a parliamentary term before 4.5 years of tenure [De Santis, 2020; Osservatorio sui Conti Pubblici Italiani, 2021].

In addition, the monthly pension amount was changed, ranging between 20% and 60% of the final gross parliamentary monthly wage, increasing in tenure (from 5 to 15 years of tenure) [Camera dei Deputati, 2007]. The gross parliamentary monthly wage in legislature XVI was €$10,435$ and the pension contribution was 8.8% of the gross parliamentary wage. If the parliamentary term ended just before the MP could reach 4.5 years of tenure, the MP would lose a monthly pension of €$2,087$ from age 65 to the rest of his life as well as €$49,587$ in already paid pension contributions [Camera dei Deputati, 2013]. The minimum parliamentary pension was 57% higher than the average gross monthly pension in Italy in 2011 [ISTAT, 2013].

Finally, for MPs elected after January 1, 2012, the pension scheme changed from a final-salary pension scheme to a fully contributory pension scheme, in which the pension amount depends on the pension contributions. This resulted in a substantial pension cut from legislature XVI to legislatures XVII and XVIII. An MP reaching the minimum tenure threshold in legislature XVIII will earn only €970 when reaching 65 years of age [Daconto, 2022].[11]

Another potential confounder is that, at the end of a parliamentary term an MP receives a severance pay. At 4.5 years, the parliamentary tenure sharply increases from 4 to 5 years, thus increasing the severance pay by 80% of the monthly wage of the MP [Camera dei Deputati, 2001, 2022]. Over the analyzed period (2001-2022) the severance pay has remain fixed at 80% of the monthly wage of the MP, multiplied by the number of years of parliamentary tenure.

Electoral rules did not change over the period of interest. However, following a constitutional referendum, in 2019 the Parliament approved a reform which reduced the number of Deputies from 630 to 400 Deputies and from 315 to 200 Senators starting from the next legislature (XIX) [Dipartimento per le Riforme Istituzionali, 2022]. This reform reduced the probability that an MP will be re-elected and this might affect the impact of the minimum tenure requirement for a pension in legislature XVIII.

[10] Officially the minimum tenure is 5 years (i.e. one complete parliamentary term), but the eligibility threshold is actually 4 years, 6 months and 1 day as the tenure calculation approximates to the next semester [Osservatorio sui Conti Pubblici Italiani, 2021].

[11] MPs who were already in parliament before 2012, a pro-rata system is applied: a final-salary pension scheme up to January 1, 2012 and a contributory pension scheme thereafter [Senato della Repubblica, 2022b].

4 Empirical strategy

4.1 Identification

In this section I closely follow the identification strategy by Grembi et al. [2016]. Given the institutional background described above, there are three different treatments: the severance pay that increases at the threshold, the pension eligibility that changes at the threshold only after 2008 and the pension amount that changes in 2008 but does not vary between the two sides of the threshold. Define: D_{it} as the first treatment for MP i at time t, equal to one if the severance pay is lower and zero otherwise; R_{it} as the second treatment, equal to one if the MP does not obtain the parliamentary pension and zero otherwise; A_{it} as the third treatment, equal to 1 if the monthly pension amount is 20% of the final gross parliamentary monthly wage and 0 if it is 25%. The additional confounding treatment A_{it} differentiates this setting from the one in Grembi et al. [2016].

MPs with parliamentary tenure P_{it} at or below the threshold $P_c = 4.5$ *years* have a lower severance pay, while the pension eligibility requirement is introduced at time t_0 (year 2008) for MPs with tenure at or below the same threshold. Finally, the monthly pension amount decreased from 25% to 20% of the final gross parliamentary monthly wage at time t_0 on both sides of the threshold. The assignment mechanism for the three treatments can be formalized as below:

$$D_{it} = \begin{cases} 1 & \text{if } P_{it} \leq P_c \\ 0 & \text{otherwise,} \end{cases}$$

$$R_{it} = \begin{cases} 1 & \text{if } P_{it} \leq P_c \text{ and } t \geq t_0 \\ 0 & \text{otherwise,} \end{cases}$$

$$A_{it} = \begin{cases} 1 & \text{if } t \geq t_0 \\ 0 & \text{otherwise.} \end{cases}$$

Define $Y_{it}(d, r, a)$ as the potential policy outcomes if $D_{it} = d$, $R_{it} = r$, and $A_{it} = a$ with $d, r, a \in \{0, 1\}$. The observed outcome is equal to $Y_{it} = D_{it}R_{it}A_{it}Y_{it}(1,1,1) + D_{it}R_{it}(1 - A_{it})Y_{it}(1,1,0)+D_{it}(1-R_{it})A_{it}Y_{it}(1,0,1)+D_{it}(1-R_{it})(1-A_{it})Y_{it}(1,0,0)+(1-D_{it})R_{it}A_{it}Y_{it}(0,1,1)+(1 - D_{it})R_{it}(1 - A_{it})Y_{it}(0,1,0) + (1 - D_{it})(1 - R_{it})A_{it}Y_{it}(0,0,1) + (1 - D_{it})(1 - R_{it})(1 - A_{it})Y_{it}(0,0,0)$.

The objective is to identify the causal effect of R_{it} on Y_{it}. For ease of notation, let $Z^- \equiv \lim_{p \to P_c^-} E[Z_{it}|P_{it} = p, t \geq t_0]$ and $Z^+ \equiv \lim_{p \to P_c^+} E[Z_{it}|P_{it} = p, t \geq t_0]$ with $Z \in \{Y, Y(1,1,1), Y(1,1,0), Y(1,0,1), Y(0,1,1), Y(1,0,0), Y(0,1,0), Y(0,0,1), Y(0,0,0)\}$.

In this setting standard continuity conditions are not sufficient for identification because of the confounding treatment D_{it}. Even assuming that all potential outcomes $E[Y_{it}(d,r,a)|P_{it}=p, t \geq t_0]$ with $w,r,a \in \{0,1\}$ are continuous in p at P_c, we have that the cross-sectional RD estimator after t_0, $\hat{\tau}_{RD} \equiv Y^- - Y^+$, does not identify an average treatment effect of R_{it} at the threshold:

$$\begin{aligned}\hat{\tau}_{RD} &\equiv Y^- - Y^+ = Y(1,1,1)^- - Y(0,0,1)^+ \\ &= [Y(1,1,1)^- - Y(1,0,1)^-] - [Y(1,0,1)^+ - Y(0,0,1)^+] \\ &= E[Y(1,1,1)_{it} - Y(1,0,1)_{it}|P_{it}=P_c, t \geq t_0] - [Y(1,0,1)_{it} - Y(0,0,1)_{it}|P_{it}=P_c, t \geq t_0]\end{aligned}$$

where the first term in the right-hand-side captures one of the potential causal effects of interest (namely, the average treatment effect of establishing a minimum tenure requirement for a parliamentary pension for MPs in 2008 with a severance pay equal to $4 \cdot 80\%$ of the final wage and a monthly parliamentary pension that is 20% of the final wage) and the second term captures the 'bias' (namely, the average treatment effect of increasing the severance pay from $4 \cdot 80\%$ to $5 \cdot 80\%$ of the final wage for MPs with a monthly parliamentary pension that is 20% of the final wage). Accordingly, the cross-sectional RD estimate is biased because the effects of the two treatments D and R cannot be disentangled from each other.

Information on the pre-treatment period ($t < t_0$) allows to remove the selection bias under local assumptions. Similarly to the post-treatment period, for the pre-treatment period let $\tilde{Z}^- \equiv \lim_{p \to P_c^-} E[Z_{it}|P_{it}=p, t<t_0]$ and $\tilde{Z}^+ \equiv \lim_{p \to P_c^+} E[Z_{it}|P_{it}=p, t<t_0]$ with $\tilde{Z} \in \{Y, Y(1,1,1), Y(1,1,0), Y(1,0,1), Y(0,1,1), Y(1,0,0), Y(0,1,0), Y(0,0,1), Y(0,0,0)\}$.

To identify the causal effect of eliminating the parliamentary pension under a certain parliamentary tenure, I exploit both the discontinuous variation at P_c and the time variation after t_0 using a 'difference-in-discontinuities' estimator $\hat{\tau}_{DD}$:

$$\hat{\tau}_{DD} \equiv (Y^- - Y^+) - (\tilde{Y}^- - \tilde{Y}^+) \tag{13}$$

The identification assumptions for the 'difference-in-discontinuities' design are:

Assumption 1 *All potential outcomes $E[Y_{it}(d,r,a)|P_{it}=p, t \geq t_0]$ and $E[Y_{it}(d,r,a)|P_{it}=p, t<t_0]$ with $d,r,a \in \{0,1\}$ are continuous in p at P_c*

Assumption 2 *The effect of the confounding policy D_{it} at P_c in the case of no treatment ($R_{it}=0$) is constant over time and does not depend on the pension amount: $Y(1,0,1) - Y(0,0,1) = \tilde{Y}(1,0,0) - \tilde{Y}(0,0,0)$.*

Assumption 2 requires that the effect of the severance pay discontinuity D_{it} at the threshold P_c does not vary with time nor with the pension amount. This is similar to the standard identifying

assumption for diff-in-diff: it requires observations just below and just above P_c to be on a (local) parallel trend in the absence of the policy of interest R_{it}. To indirectly test for this assumption, I estimate the pattern of the discontinuities in Y_{it} before t_0 and show that observations just below and just above P_c were not on differential trends before the adoption of the minimum tenure requirement.

Under these two assumptions, the diff-in-disc estimator identifies the (local) causal effect of eliminating the parliamentary pension in a neighborhood of the tenure threshold ($P_{it} = P_c$), for MPs with a severance pay that is $4 \cdot 80\%$ of the final wage ($D_{it} = 1$) and with a monthly parliamentary pension equal to 20% of the final wage ($A_{it} = 1$):

$$\begin{aligned}
\hat{\tau}_{DD} &\equiv (Y^- - Y^+) - (\tilde{Y}^- - \tilde{Y}^+) \\
&= [Y(1,1,1)^- - Y(0,0,1)^+] - [\tilde{Y}(1,0,0)^- - \tilde{Y}(0,0,0)^+] \\
&= [Y(1,1,1) - Y(0,0,1)] - [\tilde{Y}(1,0,0) - \tilde{Y}(0,0,0)] \\
&= [Y(1,1,1) - Y(1,0,1)] \\
&= E[Y(1,1,1)_{it} - Y(1,0,1)_{it} | P_{it} = P_c]
\end{aligned}$$

Proposition 1 *Under Assumption 1 and Assumption 2, the diff-in-disc estimator $\hat{\tau_{DD}}$ identifies the average treatment effect at P_c: $E[Y_{it}(1,1,1) - Y_{it}(1,0,1) | P_{it} = P_c]$.*

This result allows to identify a causal effect of the treatment of interest under plausible conditions. Yet, the estimand only refers to MPs with a severance pay equal to $4 \cdot 80\%$ of the final parliamentary wage. To identify a more general estimand with the diff-in-disc estimator, I make an additional assumption.

Assumption 3 *The effect of the treatment R_{it} at P_c does not depend on the confounding policy D_{it}: $Y(1,1,1) - Y(1,0,1) = Y(0,1,1) - Y(0,0,1) \equiv E[Y_{it}(1) - Y_{it}(0) | P = P_c, A_{it} = 1]$*

Assumption 3 states that there must be no interaction between the effect of the severance pay policy and the effect of the parliamentary pension policy. In my institutional setting, this assumption would be violated if MPs just below and just above P_c, who receives a different severance pay, reacted to the minimum tenure requirement for the pension in different ways. In Section 6.3 I indirectly test this assumption by showing that the confounding policy (the severance pay) has no meaningful impact on the voting behavior of MPs. There is no significant discontinuity in the MPs' voting behavior at the 4.5 year threshold before the introduction of the minimum tenure requirement for a parliamentary pension.

4.2 Estimation

Let t_0 be the time in which the reform came into force (May 14, 2008). First, I can restrict the panel to the confidence votes occurred after (before) the reform $t \geq t_0$ ($t < t_0$) and implement a local linear regression:

$$Y_{ipgt} = \delta_0 + \delta_1 \tilde{P}_{it} + D_{it}(\pi_0 + \pi_1 \tilde{P}_{it}) + \eta_{pg} + \phi_i + \varepsilon_{ipgt} \tag{14}$$

where D_{it}, is an indicator for tenure of MP i at time t less than or equal to 4.5 years capturing treatment status, $\tilde{P}_{it} = P_{it} - P_c$ is the parliamentary tenure of the MP centered at the threshold, η_{pg} are party-by-government fixed effects, which control for the average support that the party p in which the MP was elected gives to the government g, and ϕ_i are MP fixed effects. The coefficient π_0 is the RD estimator and identifies the local treatment effect of risking to lose the parliamentary pension. These separate regressions allow to test whether the severance pay had a significant impact on the MPs' voting behavior before t_0 or whether the change in voting behavior is driven by the introduction of the tenure requirement for a parliamentary pension after t_0.

To disentangle the two effects more accurately, I implement a difference-in-discontinuities following Grembi et al. [2016]. The method consists in fitting linear regression functions to the votes distributed within a tenure window h on either side of the tenure threshold P_c, both before and after t_0. Formally, we restrict the sample to votes in the tenure interval $P_{it} \in [P_c - h, P_c + h]$ and estimate the model:

$$Y_{ipgt} = \zeta_0 + \zeta_1 \tilde{P}_{it} + D_{it}(\theta_0 + \theta_1 \tilde{P}_{it}) + Post_t[\alpha_0 + \alpha_1 \tilde{P}_{it} + D_{it}(\beta_0 + \beta_1 \tilde{P}_{it})] + \eta_{pg} + \phi_i + \varepsilon_{ipgt} \tag{15}$$

where $Post_t$ is an indicator for being elected in the post-treatment period $t \geq t_0$.[12] The coefficient β_0 is the diff-in-disc estimator and identifies the treatment effect of risking to lose the parliamentary pension, as the treatment is $D_i \cdot Post_t$. In all the tables, I show the results without fixed effects, with party-by-government fixed effects only, and with all fixed effects. My preferred specification is the latter, because it does not depend on the variation in the composition of the Parliament: it can control for all time-invariant unobserved heterogeneity across MPs, taking care of any potential unobserved imbalance. This specification captures the change in voting behavior within each MP voting for the same government at the tenure threshold, which is the aim of the empirical analysis.[13]

[12] I cannot use the 2.5 year threshold because of data limitations: my dataset does not contain votes of confidence before 1997 (before this threshold was introduced. I hence focus on the 4.5 year threshold.). Therefore, I could not disentangle the minimum tenure requirement effect from the severance pay effect at the 2.5 year threshold.

[13] To identify and estimate the coefficient of interest the specification with all fixed effects exploits the variation of

As recommended by Kolesár and Rothe [2018], I do not cluster standard errors by the running variable as this results in confidence intervals with poor coverage property. Following their suggestion, I use conventional Eicker-Huber-White heteroskedasticity-robust standard errors. I also show that significance of the main estimates does not change if standard errors are clustered at MP level to account for within-MP serial correlation in the data. Each regression uses uniform kernels. Because there is no clear way to determine the optimal bandwidth in the case of a discrete running variable, I present the robustness of the results to multiple bandwidths from two months up to three years on each side of the cutoff [Iizuka et al., 2021]. Following Lee and Lemieux [2010]; Gelman and Imbens [2019], my preferred estimation method is local linear regression, with different linear terms on the running variable estimated at either side of the threshold, but the main results are qualitatively unchanged when using local quadratic regressions.[14]

5 Data

Each of the two Houses provide information on demographics and other characteristics of all members elected in each legislature since the inception of the Italian Republic in 1948. This data includes the name, surname, gender, date and town of birth, level of education and previous job (only for Deputies), start date and end date of each parliamentary term, the parliamentary group (party) to which each MP is affiliated and the start-date and end-date of the party affiliation during a legislature. To compute the parliamentary tenure of an MP, the days spent in both Houses are cumulated. Therefore, I have merged the Deputies' and Senators' datasets using the name and surname of the MPs as the linking variable in order to construct an accurate measure of the parliamentary tenure of each MP, by summing the duration of all their parliamentary terms in both Houses.

In addition, the two Houses kept the stenographic record of each parliamentary session in all the legislatures from XIV to XVIII. I have systemically searched for each vote of confidence and motion of no confidence occurred during these legislatures. If she decides to participate in a vote of confidence, an MP has to publicly state her vote. Therefore, the stenographic records contain a list of all the MPs who voted in favor, against or abstained for each vote of confidence. The non-listed MPs decided not to vote. I have digitized these votes from the original stenographic records and created a dataset that contains the voting behavior of all Deputies and Senators during the 427

votes within MPs that participated in at least one confidence vote in each side of the threshold within the bandwidth. These constitute 82% of the observations in the regression sample. If I keep only these MPs in the sample, the estimates are virtually unchanged.

[14] Gelman and Imbens [2019] show that controlling for high-order polynomials in regression discontinuity analysis leads to noisy estimates, sensitivity to the degree of the polynomial, and poor coverage of confidence intervals. They recommend instead to use estimators based on local linear or quadratic polynomials.

votes of confidence in the Houses of Parliament from 2001 to 2022, during legislatures XIV-XVIII. Stenographic record data also provide information on the voting intention of each party, which can be used to construct an indicator variable for whether the MP was elected in a party that supports the government (majority party) or is against the government (opposition party). To determine the party in which the MP was elected, I use the first parliamentary group in the legislature to which they belong. I exclude Senators with a life tenure from the analysis as they continue to receive the wage of a Senator till the end of their life and they never receive a parliamentary pension.[15]

Finally, I have collected data on the annual before-tax income of all Deputies and Senators from 1981 to 2022. Since 1982, Italian elected officials are required to publicly disclose their annual tax returns [Merlo et al., 2010].[16] As tax returns refer to the previous fiscal year, I have information on each Deputy's and Senator's income in the year prior to entering Parliament. I consider this variable as the data analogue of the private 'market wage' w in the model discussed in Section 2. Data from 1981 to 2005 and in 2013-2014 was kindly provided by the Fondazione Rodolfo Debenedetti [2009] and by the Fondazione Openpolis [2017], respectively. For the remaining years, I have digitized the copies of the tax returns of each Deputy and Senator contained in the archive at the 'Servizio Prerogative e Immunità' of the Chamber and the Senate. Only 17 out of 3,032 MPs (0.56%) in the analyzed five legislatures have a missing tax return in their first year of parliament, mostly because they started their parliamentary career before 1982 or because their parliamentary career lasted only few months.

The Italian parliament is by no means an outlier with respect to age, gender and education with respect to the parliaments of other European countries (see Merlo et al. [2010] for a comparison with the US congress). Table 2 contains basic descriptive statistics for the outcome variables and predetermined covariates for confidence-votes by MP with parliamentary tenure in a window of one year below and above 4.5 years. There were 41,189 potential confidence votes at the MP level in the 2001-2022 period from legislature XIV to the first four years of legislature XVIII. Among these, 33,330 were votes of confidence in favor or against the government (the rest being abstentions or MPs not voting). Mechanically, the average number of parliamentary terms below 4.5 years of tenure (1.511) is lower than the number of terms above (2.092). Likewise, age mechanically differs by approximately 1.5 years. The education level and geographic origin of the MPs do not vary substantially around the threshold, whereas the number of female MPs decreases by around 6 percentage points. This is because newly-elected MPs are more likely to be female than

[15] A parliamentary group has to have at least 10 members in the Senate or 20 members in the Chamber of Deputies [Camera dei Deputati, 1997; Senato della Repubblica, 2017]. MPs belonging to very small parties are categorized as belonging to the same parliamentary group 'Mixed'. The main results of the analysis are robust to the exclusion of these MPs.

[16] MPs' tax returns can be consulted in accordance with the Italian Law n. 441, 5 July 1982, which established the publicity of the tax returns of all elected representatives.

re-elected MPs. The annual before-tax income in the year prior to entering parliament is almost €$10,000$ lower below 4.5 years of tenure. This is arguably because in the last legislatures there was a large influx of newly elected MPs with very low income (see Figure 3 in Section 6.2). Interestingly, the raw percentage of MPs voting confidence in the government is substantially higher (10.4 percentage points) in the year before reaching the tenure threshold than in the year after.

Table 2: Summary statistics

	Tenure below 4.5 years	Tenure above 4.5 years
All		
Abstains/no vote	.18	.21
Confidence if voting	.74	.64
Number of terms	1.51	2.09
Tenure(years)	4.00	4.82
Age(years)	51.17	52.71
Female	.30	.24
Pre-parliament income (€)	94384	104054
High school	.98	.98
University degree	.71	.70
Born in southern Italy	.37	.36
Born in central Italy	.22	.24
Born in northern Italy	.39	.38
Born outside Italy	.02	.02
Observations	28084	13105
Chamber		
Abstains/no vote	.17	.20
Confidence if voting	.74	.64
Number of terms	1.59	2.16
Tenure(years)	4.01	4.82
Age(years)	48.87	51.05
Female	.30	.24
Pre-parliament income (€)	91048	104684
High school	.98	.98
University degree	.71	.70
Born in southern Italy	.37	.36
Born in central Italy	.23	.24
Born in northern Italy	.38	.38
Born outside Italy	.02	.02
Observations	18649	9251
Senate		
Abstains/no vote	.21	.24
Confidence if voting	.72	.64
Number of terms	1.35	1.92
Tenure(years)	3.98	4.82
Age(years)	55.71	56.7
Female	.31	.23
Pre-parliament income (€)	100973	102537
Born in southern Italy	.38	.36
Born in central Italy	.21	.23
Born in northern Italy	.40	.40
Born outside Italy	.02	.02
Observations	9435	3854

Notes: The sample is restricted to tenure between 3.5 and 5.5 years for votes of confidence between 2001 and 2022 (legislatures XIV-XVIII).

6 Empirical results

In the main regressions the dependent variable is defined as:

$$\textit{Confidence}_{ipgt} = \begin{cases} 1 & \text{if MP i elected in party p votes confidence in government g at time t,} \\ 0 & \text{if MP i elected in party p votes for no confidence in government g at time t.} \end{cases}$$

Up to the end of legislature XVII, an abstention vote in the Senate counted as a vote against the proposed motion, so I set $Y_{ipgt} = 0$ for these particular cases. In all other cases (abstentions in the Chamber, abstentions in the Senate in legislature XVIII and no vote), I set Y_{ipgt} to missing. Tables C5 and C6 show that the decision to abstain or to not vote appear to be negatively affected by the minimum tenure requirement, but the decrease is not significant in most specifications.

6.1 Effect of a tenure requirement for a pension on votes of confidence

Table 3 shows the diff-in-disc estimates of a minimum tenure requirement for a parliamentary pension on the probability of voting confidence in the government. In Columns (1)-(3), we see that the effect is positive and significant for the entire sample of Deputies and Senators. As expected, the estimates become more precise when we add party-by-government fixed effects and individual MP fixed effects. Exploiting the variation in votes for the same government by the same MP, we can see that the tenure requirement significantly increases the probability of voting confidence in the government by 3 percentage points. When we add all fixed effects, the estimates are significantly positive and very similar for the Chamber of Deputies and for the Senate. Tables C3 and C4 show that these results are robust to using clustered standard errors at MP level and local quadratic regressions, respectively.[17]

[17]The effect is insignificant in the local quadratic regression without any fixed effect, but it becomes significantly positive when adding the fixed effects.

Table 3: Diff-in-disc estimates of minimum tenure requirement on confidence.

	All			Chamber of Deputies			Senate		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post*Tenure under 4.5 years	0.060*** (0.023)	0.019** (0.009)	0.030*** (0.004)	0.085*** (0.028)	0.031*** (0.010)	0.031*** (0.004)	0.029 (0.042)	-0.000 (0.019)	0.033*** (0.008)
N	33,330	33,330	33,330	22,931	22,931	22,931	10,399	10,399	10,399
R-squared	0.02	0.76	0.95	0.03	0.80	0.96	0.03	0.70	0.94
Average outcome	0.72	0.72	0.72	0.73	0.73	0.73	0.70	0.70	0.70
MP FE	NO	NO	YES	NO	NO	YES	NO	NO	YES
Party-by-gov. FE	NO	YES	YES	NO	YES	YES	NO	YES	YES

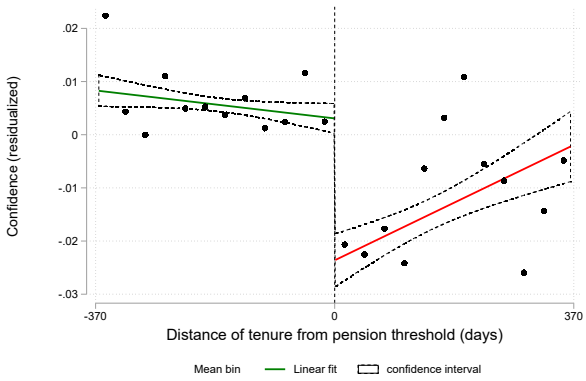
Notes: The regression sample is restricted to a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. Average outcome is the average of the outcome variable after reaching the tenure threshold.

Given that the regressions include MPs' and party-by-government fixed effects, Figure 1 plots the residuals from a regression of the outcome of interest (vote of confidence) on party-by-government fixed effects and individual MP fixed effects in order to net out these fixed effects, as suggested by Lee and Lemieux [2010].[18]

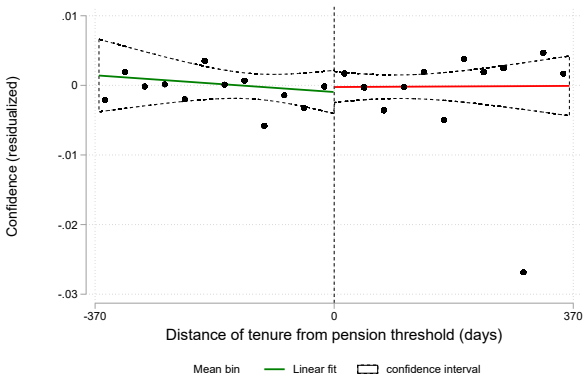
The residualized outcomes are averaged in monthly bins and plotted on the distance (in days) to the 4.5 year-tenure threshold. The figures include the predicted values of a local linear regression of the residualized outcomes on (normalized) tenure, separately for each side of the cutoff. Confidence intervals are constructed on the linear fit, with errors clustered at the MP level. The fitted lines best illustrate the trends in the data and the size of the jump, whereas the binned averages provide a sense of the underlying variability in the data. This exercise is performed for the entire sample (both Houses) and separately for each House, in the period before and after the introduction of the minimum tenure requirement for a parliamentary pension. Figure 1 confirms the qualitative results of columns (3), (6) and (9) of Table 3. Reassuringly, the positive effect on confidence is large and significant only after the introduction of the minimum tenure requirement whereas it is very close to zero and insignificant in the pre-treatment period.

[18]Controlling for covariates or residualizing the outcome yields the same consistent estimate of the RD parameter of interest as long as the order of the polynomial of the running variable is correctly specified and the covariates are not discontinuous at the threshold Lee and Lemieux [2010]. In this case, the estimates are robust to linear and quadratic specifications and all pre-determined observables are balanced. Reassuringly, Table 3 and Figure 1 produce the same qualitative results.

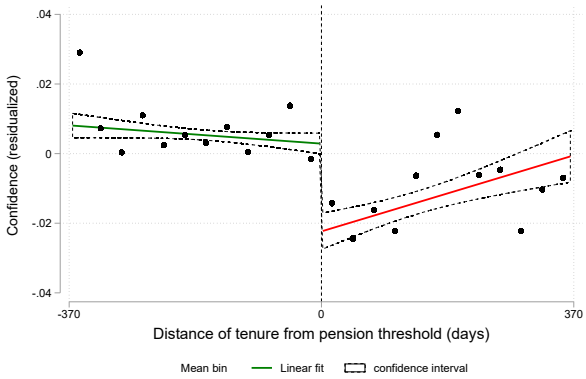
Figure 1: Regression discontinuities, post-treatment and pre-treatment



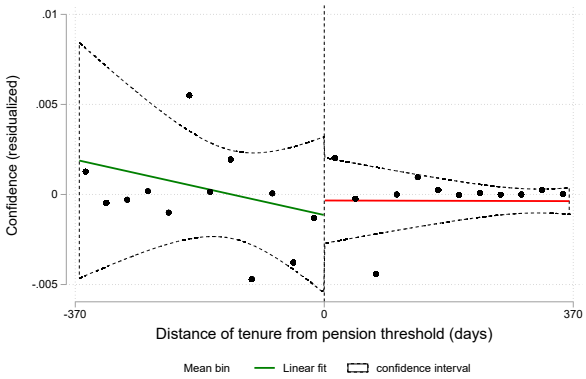
(a) Both Houses, post-treatment



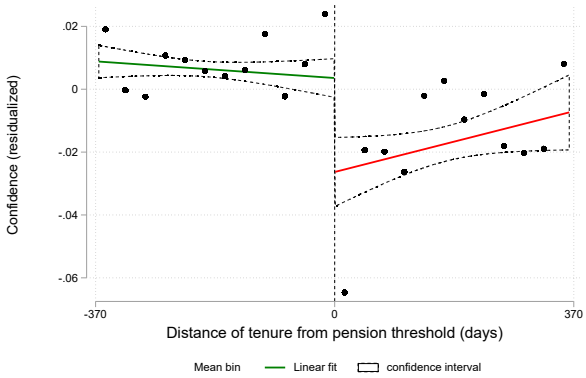
(b) Both Houses, pre-treatment



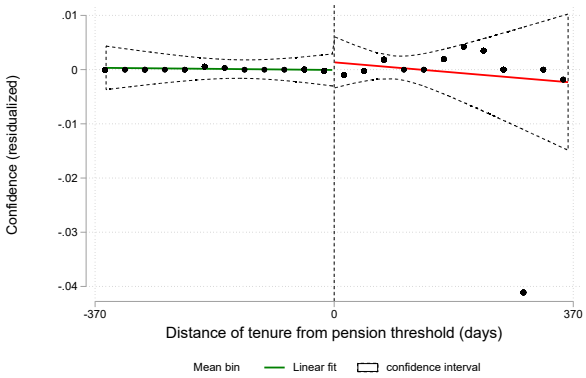
(c) Chamber of Deputies, post-treatment



(d) Chamber of Deputies, pre-treatment



(e) Senate, post-treatment



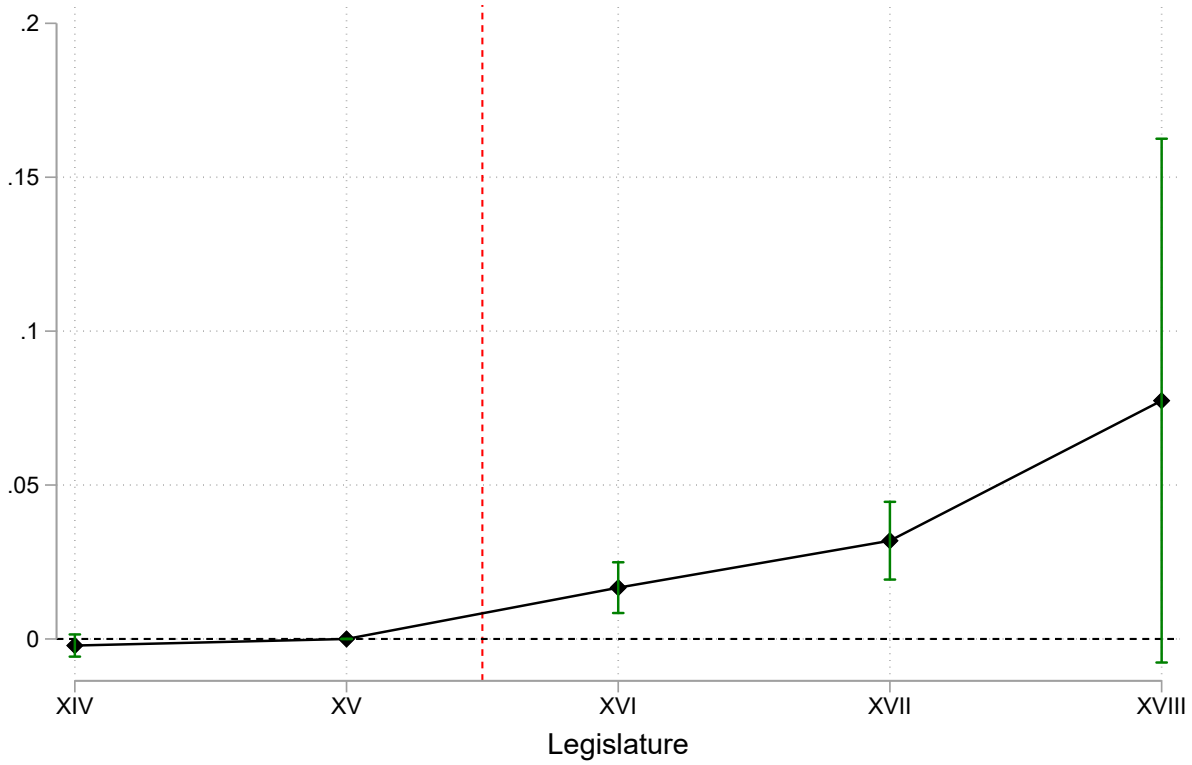
(f) Senate, pre-treatment

Notes: These figures show the effect of the parliamentary tenure distance from the 4.5 year-cutoff on the MP's probability of voting confidence in the government. The circles are averages across monthly bins on either side of the threshold, while the solid and dashed lines represent the predicted values and confidence intervals of a local linear regression of the outcome on (days of tenure, normalized) and the fixed effects, separately for each side of the cutoff. The bandwidth includes observations within one year from the 4.5 year-cutoff.

6.2 Effects over time

Figure 2 shows the timing of the effect performing the RD regression (Equation (14)), separately for each of the five legislatures in the analyzed period. Reassuringly, the effect is not significantly different from zero before legislature XVI and it becomes significantly positive when the minimum tenure requirement is introduced.[19]

Figure 2: RD coefficients, by legislature (both Houses)

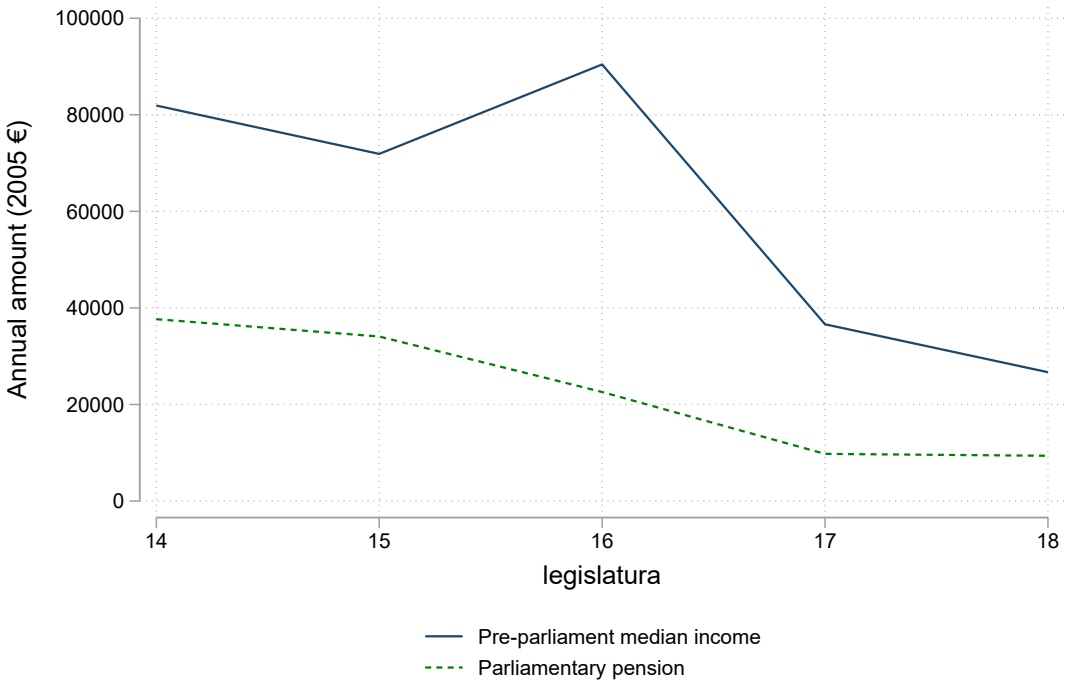


Notes: These figures show the RD coefficient and its 95% confidence interval estimating regression Equation (14) for both Houses, separately for each legislature (XIV-XVIII). The red dashed line indicates the introduction of the minimum pension requirement at 4.5 years.

The effect appears to increase over time, despite the pension amount decreases in the last two legislatures (Figure 3). The confidence interval is larger in the last legislature because it ended prematurely and there are less observations in the window around the 4.5 year threshold. Two reasons can explain the increase in the point-estimates over the legislatures: a negative shift in the distribution of newly-elected MPs' private income and a decrease in the probability of being elected.

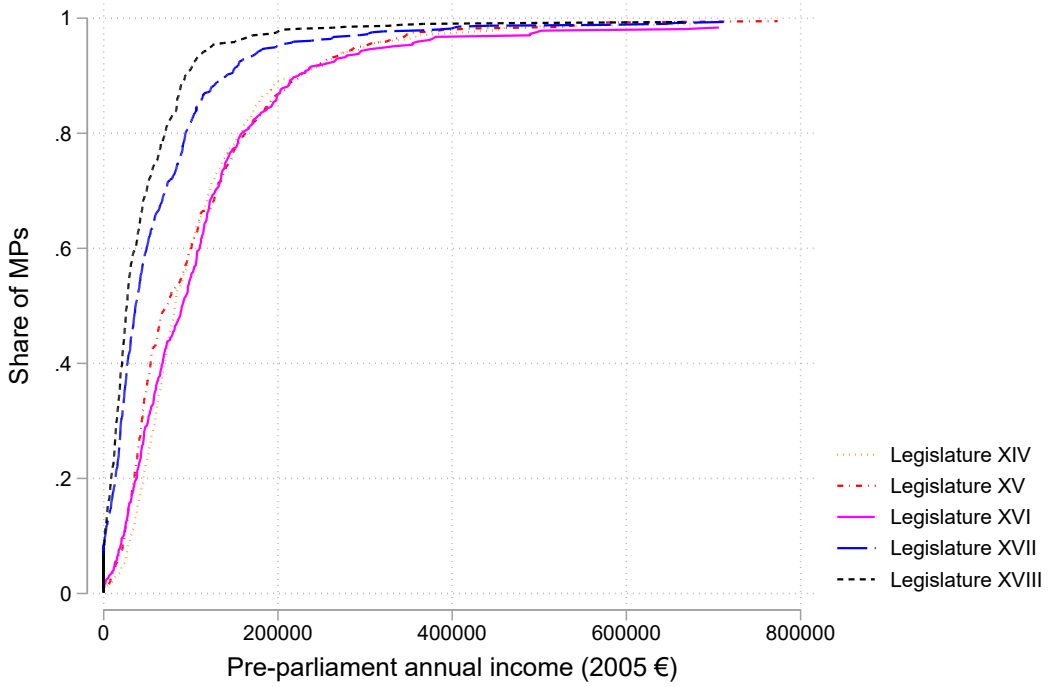
[19] Legislature XV lasted less than two years and does not have a sufficient number of observations around the tenure threshold of 4.5 years to perform the RD estimation.

Figure 3: Parliamentary pension and pre-parliament income, by legislature



The Italian parliament experienced a drastic turnover between legislature XVI and legislatures XVII-XVIII. The anti-establishment '5-star Movement' elected zero MPs in legislature XVI, but became the party with the largest number of MPs in the following two legislatures. Using newly-collected data on MPs' tax returns for the year prior to entering parliament, we can see that the distribution of pre-parliament income changed substantially between legislature XVI and XVII-XVIII. Figure 4 shows that the pre-parliament annual income distribution in legislature XVI first-order stochastically dominates the pre-parliament annual income distributions in legislature XVII and legislature XVIII. Figure 3 shows that the median pre-parliament annual income (in 2005 €) dropped from 90424€ in legislature XVI to 36613€ in legislature XVII and 26690€ in legislature XVIII. The share of MPs earning zero income increased from 0.54% in legislature XVI to 8.48% and 6.62% in legislature XVII-XVIII, respectively. The share of MPs earning income below the poverty line ($11,239$€ in 2005) increased from 3.78% in legislature XVI to 17.78% and 22.68% in legislature XVII-XVIII, respectively. The parliamentary pension became a larger share of the pre-parliament median income in legislature XVII-XVIII (27-35%) relative to legislature XVI (25%). Assuming diminishing marginal utility, the parliamentary pension represented a stronger incentive for MPs with lower private income and lower expected private pension.

Figure 4: Cdfs of annual income in the year before becoming MP, by legislature



An additional reason for the larger increase in legislature XVIII is that the number of MPs in each House was cut by 36.5% starting from legislature XIX, thus reducing the probability that MPs would be re-elected and would obtain a parliamentary pension in the following legislature. According to the model, a fall in the re-election probability should reduce loyalty to the party by both majority and opposition MPs, resulting in a less positive polarization effect for majority MPs and in a less negative polarization effect for minority MPs. Figure D2 is in line with the model predictions, with a drop for the effect on majority MPs and an increase for the effect on minority MPs in legislature XVIII. Overall, the pivotal effect which is unambiguously positive for both majority and opposition MPs becomes predominant with respect to the polarization effect and the point-estimate increases.

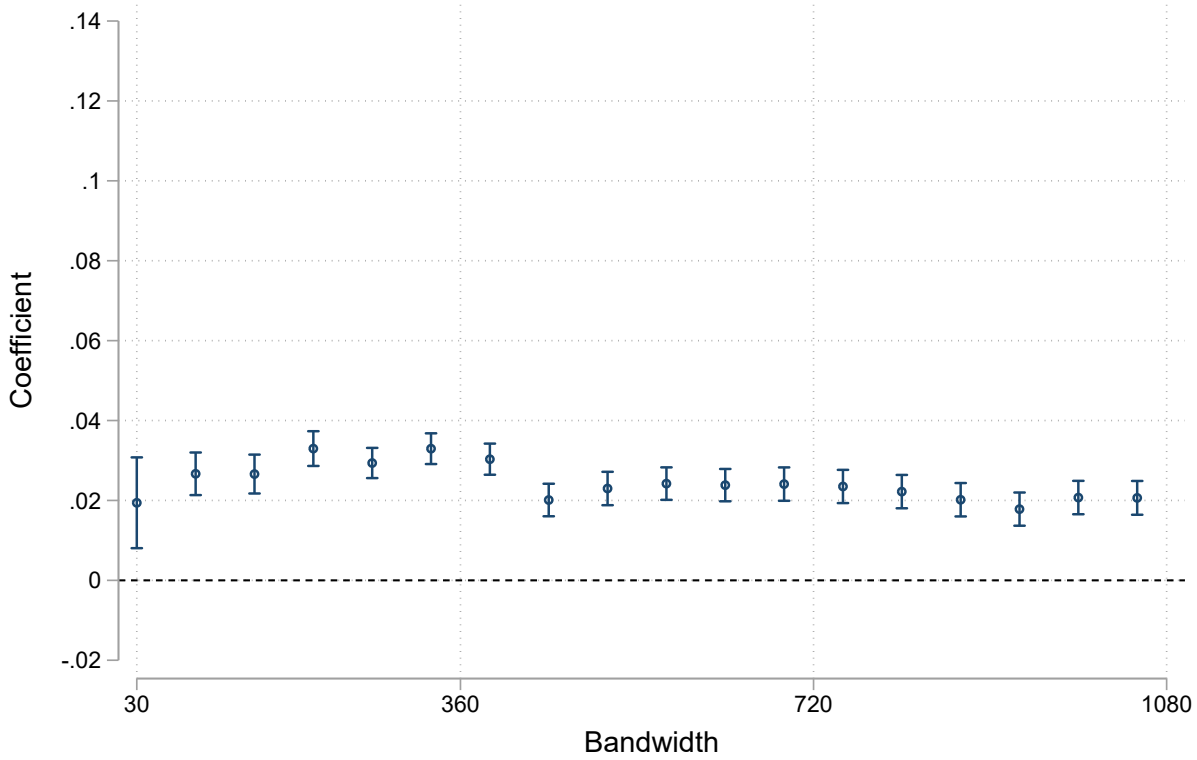
6.3 Validity tests

To confirm the validity of the empirical strategy, I perform a series of diagnostic tests. Assumption 2 requires that the effect of the severance pay discontinuity at the threshold does not vary with time nor with the pension amount. The severance pay increase does not seem to play a relevant role considering that the effect is not significantly different from zero prior to the introduction of the 4.5-year tenure requirement (Figure 2). This is understandable considering that the bonus for

an extra year of tenure consists only in a small increase of the one-off severance payment equal to 80% of the last wage. Reassuringly, the effect becomes significantly positive in the first legislature in which the minimum tenure requirement was introduced.

Secondly, Figure 5 shows that the magnitude of the effect for the entire Parliament is not sensitive to the bandwidth chosen. The diff-in-disc coefficient is significantly positive and remarkably stable when using different bandwidths around the tenure threshold, from two months up to three years on each side. Figure D3 confirms that the effect for the Senate is robust to the choice of bandwidth. The estimates for the Chamber of Deputies are always positive and significant, except when the bandwidth is very small (two months).

Figure 5: Diff-in-disc coefficients: bandwidth sensitivity



Notes: The graph shows the point estimate and the 95% confidence interval of the Diff-in-Disc coefficients on the entire sample (both Houses), estimating the regression specified in Equation (15) using different bandwidths. The horizontal axis shows the number of tenure days from the 4.5-year-cutoff in each side of the bandwidth.

Identification of the treatment effect requires that the MPs or the government do not manipulate the date of the confidence votes to exploit the incentive of the minimum tenure requirement for the parliamentary pension.[20] Manipulation of the timing of confidence votes may occur for two rea-

[20]In a diff-in-disc design, this requirement can be relaxed: it is sufficient that the manipulation of the running

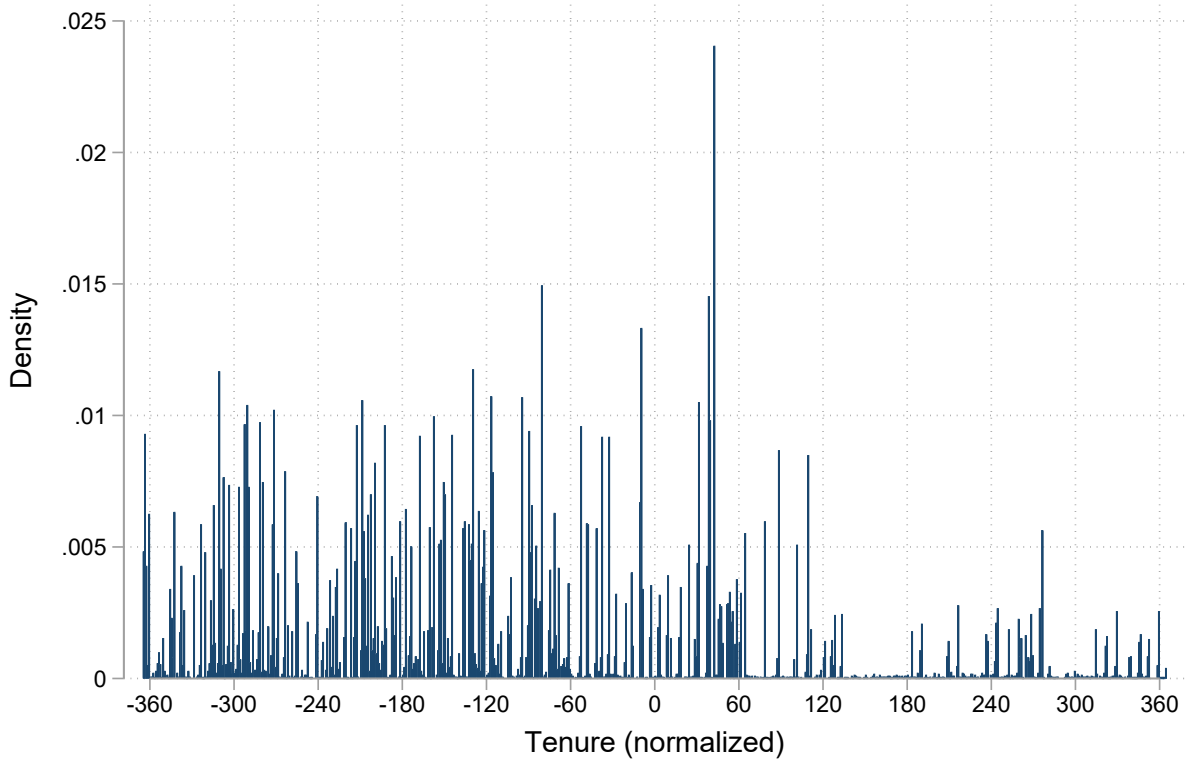
sons. First, motions of no-confidence may be postponed after 4 years and 6 months of a parliament term in order to let newly-elected MP secure a parliamentary pension and be more willing to vote against the government. This is not the case: there are only two motions of no-confidence in the analyzed period (one in 2010 by the Chamber and one in 2014 by the Senate) and they are both before the 4.5-year threshold. Second, the government may anticipate confidence votes to speed up the legislative procedure before the 4.5-year threshold, trying to exploit the economic incentive for MPs to prolong the legislature. This does not seem to be the case. Figure 6 shows that there is no bunching of confidence votes before the tenure cutoff at 0. There is some bunching around 40 days after the cutoff. However, this is only due to the fact that the government called for a vote of confidence on 5 different articles of the same law in the Senate (DDL 2941) in October 25, 2017 and for a vote of confidence on 3 different articles of the same law (Atto Camera 2352) in October 11, 2017. If anything, the government should have anticipated those votes before the threshold to get advantage of the minimum tenure requirement for a parliamentary pension.

When the running variable has a finite number of fixed support points as in this setting (tenure only change in increments of one day and there are several mass points), the standard McCrary [2008] test can falsely reject the null of no manipulation at an excessively high rate or can fail to detect actual anomalies in the running variable's density [Frandsen, 2017]. Therefore, I test for the presence of manipulation around the 4.5 years cut-off using the test proposed by Frandsen [2017] in the context of regression discontinuity designs with a discrete running variable. This test relies only on support points at and immediately adjacent to the RD threshold when the running variable is discrete. The test cannot reject the null hypothesis (p-value$= 0.342$) of absence of manipulation in the distribution of the tenure of MPs in confidence votes, using a value for the test parameter as low as $k = 10^{-8}$ (p-value=0.342).[21]

variable does not increase over time. However, the absence of any effect in the pre-treatment period allows us to concentrate in the post-period as in a standard RD.

[21] I implement the test using the Stata command *rddisttestk* [Frandsen, 2017]. The parameter k determines the maximal degree of nonlinearity in the probability mass function that is considered to be compatible with absence of manipulation. A high k allows the mass at the cutoff to deviate substantially from linearity before the test can reject with high probability, whereas a low k means that even with small deviations from linearity the test will reject with high probability. A higher k implies a lower power of the test to detect manipulation.

Figure 6: Density of confidence votes



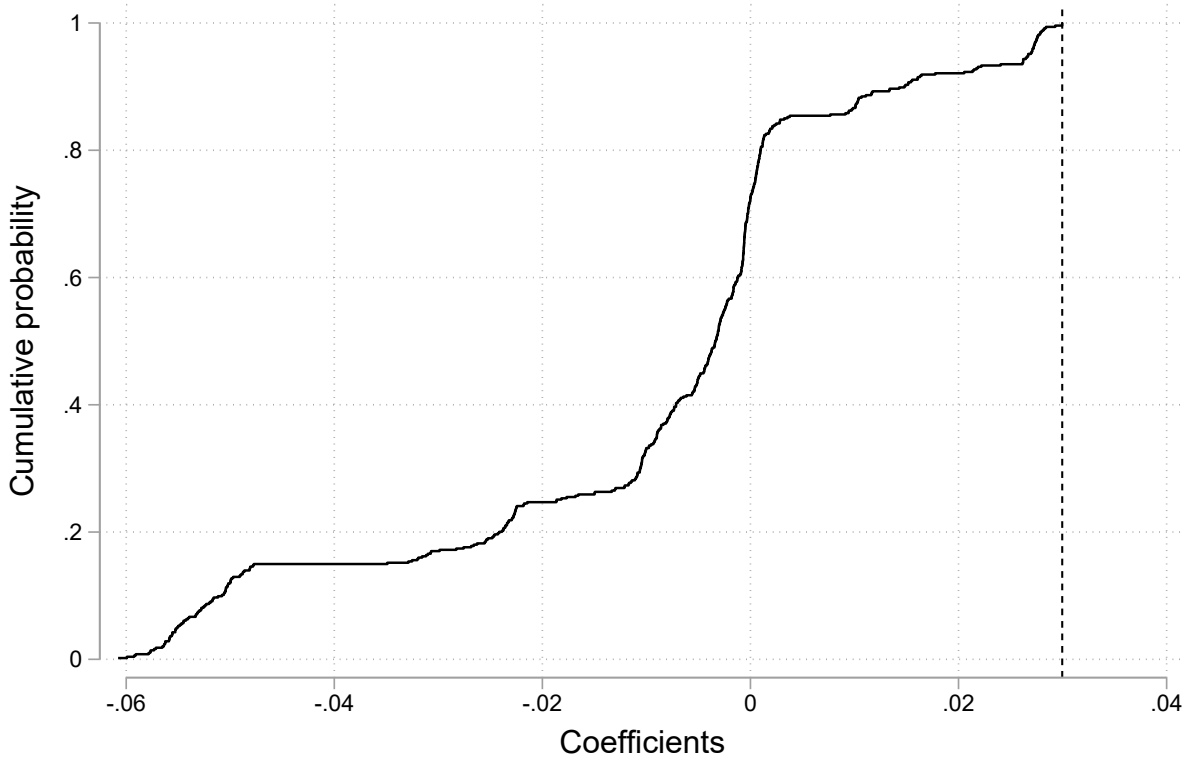
Notes: This figure plots the density of confidence votes in daily bins for both Houses over the number of days of tenure from the 4.5-year threshold.

Tables C2 and C10 further evaluate the absence of manipulation. I implement diff-in-disc estimations with pre-determined variables characteristics (gender, education, birth place, foreign, pre-parliament income) as outcome variables without adding any fixed effects. No pre-determined characteristics show a statistically significant jump at the threshold for the entire sample and for the sample of Deputies. Only one pre-determined characteristic (gender) shows a marginally significant decrease at the threshold for Senators.

To assess the possibility that the main result arises from random chance rather than from a causal relationship, I perform a set of diff-in-disc estimations at placebo thresholds below and above 4 years and 6 months. I place the placebo thresholds at every day from 3 years and 8 months to 4 years and 4 months and at every day from 4 years and 8 months to 5 years and 4 months, in order to stay sufficiently away from the policy thresholds of 3.5, 4.5 and 5.5 years at which the severance payment, the pension age and the pension payment change discontinuously. At these false thresholds, we should not find treatment effects similar to the estimate at the true threshold.

Figure 7 shows the cumulative density function of these 488 placebo point estimates obtained using local linear regressions. All these placebo estimates are lower than the true-threshold coefficient for the confidence vote and the cumulative distribution function is much steeper around 0. This placebo test provides evidence that the main result is not driven by mere random noise in the data.

Figure 7: Placebo estimates



Notes: This graph shows the cumulative distribution of Diff-in-Disc estimates on votes of confidence for both Houses, from placebo local linear regressions in which the cutoff is set in different parts of the tenure distribution. Estimates are computed using the regression in Equation (15) within a 1-year bandwidth. Cut-offs are located at every day from 4 years and 8 months to 5 years and 4 months, in order to stay sufficiently away from the policy thresholds of 3.5, 4.5 and 5.5 years at which the severance payment, the pension age and the pension payment change discontinuously. The vertical dashed line shows the coefficient estimated using the true 4.5-year tenure threshold.

6.4 Heterogeneity analysis

An analysis of the heterogeneous effects of the policy provides further tests on the predictions of the political-agency model presented in Section 2. In particular, according to Prediction 1, we expect the minimum tenure requirement to have an unambiguously positive impact on the probability to vote confidence for majority MPs, whereas, according to Prediction 2, the effect on opposition

MPs is ambiguous, depending on which (if any) of the pivotal and polarization effect dominates. As we can see in Table 4, the model predictions hold. The effect of the tenure requirement is positive and highly significant for majority MPs, whereas it is negative for opposition MPs. The polarization effect appears to dominate the pivotal effect, even though the significance of the negative effect disappears when we control for party-by-government and MPs' fixed effects (column 6), as confirmed by Figure 8.[22] Note that according to the model presented in Section 2, these empirical results imply that the minimum tenure requirement is unambiguously distortionary because it reduces voters' welfare.

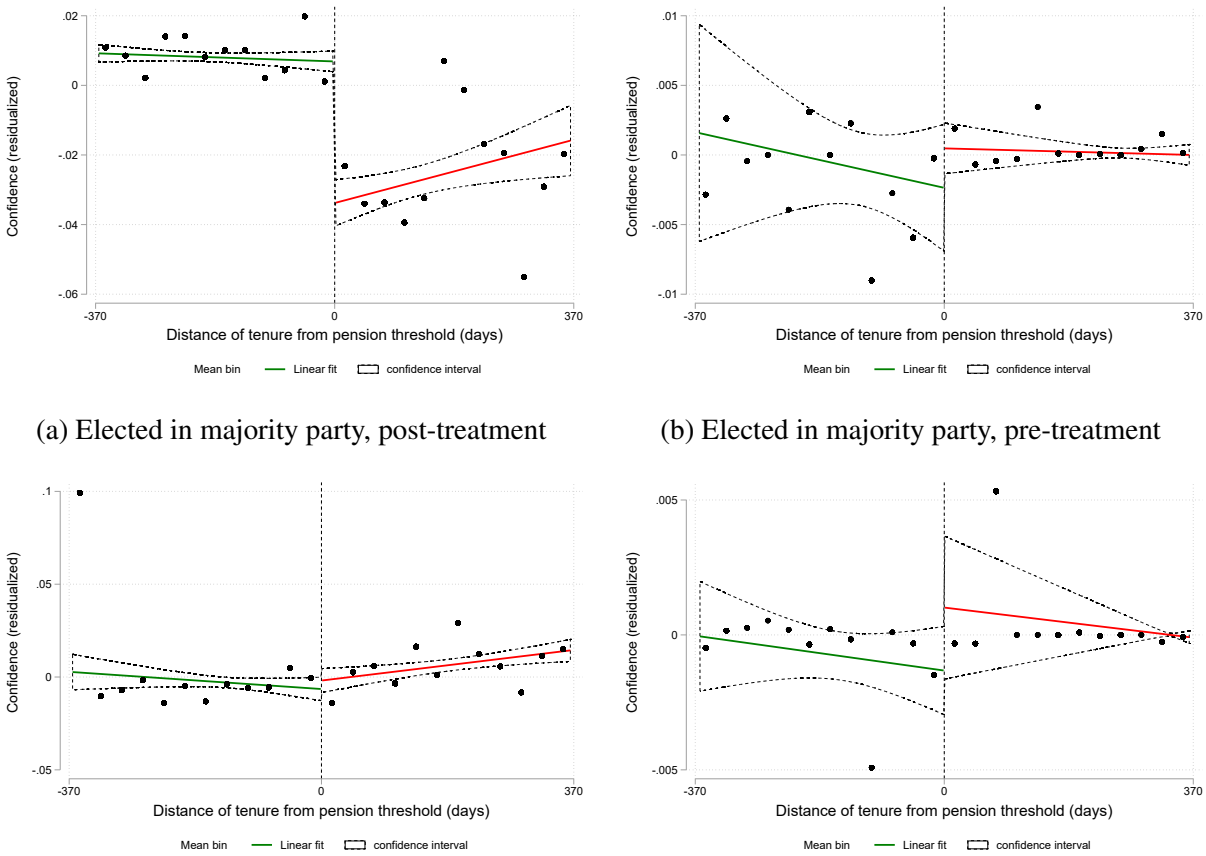
Table 4: Diff-in-disc estimates of minimum tenure requirement on confidence, by type of party.

	Majority party			Opposition party		
	(1)	(2)	(3)	(4)	(5)	(6)
Post*Tenure under 4.5 years	0.049***	0.046***	0.041***	-0.088***	-0.056***	-0.002
	(0.009)	(0.009)	(0.005)	(0.018)	(0.015)	(0.006)
N	23,064	23,064	23,064	9,226	9,226	9,226
R-squared	0.01	0.06	0.79	0.03	0.22	0.90
Average outcome	0.95	0.95	0.95	0.11	0.11	0.11
MP FE	NO	NO	YES	NO	NO	YES
Party-by-gov. FE	NO	YES	YES	NO	YES	YES

Notes: The regression sample is restricted to a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. Average outcome is the average of the outcome variable after reaching the tenure threshold.

[22] As we can see in Figure D4, the significantly positive treatment effect on majority members is robust to the choice of different bandwidths, whereas the effect on opposition parties appears to be sensitive to the choice of the bandwidth.

Figure 8: Regression discontinuities, by party's stance with respect to the current government.



(a) Elected in majority party, post-treatment

(b) Elected in majority party, pre-treatment

(c) Elected in opposition party, post-treatment

(d) Elected in opposition party, pre-treatment

Notes: These figures show the effect of the parliamentary tenure distance from the 4.5 year-cutoff on the MP's probability of voting confidence in the government. The circles are averages across monthly bins on either side of the threshold, while the solid and dashed lines represent the predicted values and confidence intervals of a local linear regression of the outcome on (days of tenure, normalized) and the fixed effects, separately for each side of the cutoff. The bandwidth includes observations within one year from the 4.5 year-cutoff.

According to Prediction 1 and 2, if the polarization effect dominates, a larger government majority should weaken the pension incentive. This is because the probability to secure the pension in a first parliamentary term is higher and MPs are less induced to be loyal to their own party, reducing the polarization effect. In addition, when the government has a larger majority, MPs are less likely to be pivotal voters. To test this prediction, I define the government 'majority margin' in each house as the difference between the number of MPs voting confidence in the first vote of confidence (government confirmation) and the minimum number of MPs to obtain a majority (315 in the Chamber and 158 in the Senate). I restrict the sample to the period after the introduction of the minimum tenure requirement and perform the estimation interacting all

the regressors in (16) with the majority margin, separately for majority and opposition MPs.[23] Table C9 shows the estimates of the relevant interaction: $D_i \cdot Margin_{it}$. These estimations rely on the conditional independence assumption that the interaction is not capturing the effects of correlated unobservables. According to Prediction 1, a larger majority margin should dampen the positive effect for majority MPs and the negative effect for opposition MPs. The empirical estimates in Table C9 validate the model predictions: the estimates of the interaction coefficient are significantly negative for majority MPs and positive for opposition MPs. Controlling for MP and party fixed effects, I find that one hundred additional MPs sustaining the government dampens the effect of the pension by 2.7 percentage points on majority MPs and by 0.5 percentage points on opposition MPs, even though the latter effect is not significant.

According to Prediction 1 and 2, we also expect MPs' age to amplify the effect of the minimum tenure requirement.[24] In Table C8, I perform the same exercise as above using age as the interaction variable. According to Prediction 1, age should increase the positive effect for majority MPs and amplify the negative effect for opposition MPs. The model predictions appear in line with the empirical estimates in Table C8. as the estimates of the interaction are significantly positive for majority MPs and significantly negative for opposition MPs. Ten additional years of age amplify the effects on majority MPs by 1 percentage point and on opposition MPs by 3 percentage points.

6.5 Back-of-the-envelope calculations on government stability

To have a sense of the magnitude of these results, we can perform a back-of-the-envelope calculation on the percentage of confidence votes Italian governments would have lost in the absence of the minimum tenure requirement. Based on column (3) in Table 4, I assume that the effect of the policy was a homogeneous increase of 4.1 percentage points in the confidence votes by majority MPs with a tenure below 4.5 years over the entire post-treatment period. Based on column (6) in Table 4, I assume that the policy did not have any effect on opposition MPs. This exercise hinges on the strong assumptions that the effect is homogeneous across majority MPs (under 4.5 years of tenure) and across opposition MPs and that we can extrapolate the treatment effect far from the tenure threshold, while in fact it is identified only locally.

[23] Let $Margin_{ig}$ be the majority margin of government g in the first confidence vote in the parliamentary house of MP i. I estimate

$$Y_{ipgt} = \psi_0 + \psi_1 \tilde{P}_{it} + D_{it}(\omega_0 + \omega_1 \tilde{P}_{it}) + Margin_{ig}[\psi_2 + \psi_3 \tilde{P}_{it} + D_{it}(\omega_2 + \omega_3 \tilde{P}_{it})] + \nu_{ipgt} \tag{16}$$

Table C9 reports the coefficient of interest ω_2, as well as the baseline coefficient ω_0.

[24] Another interesting heterogeneity analysis is the effect by gender. In Table C7 we see that the effect on women appears to be positive but lower than the effect on men, even if the difference is not significant in all specifications. Estimates for women are more noisy, as the share of female MPs was very low in legislature XIV (11%) and only gradually increased up to 36% in legislature XVIII.

Since the introduction of the minimum tenure requirement (legislatures XVI-XVIII), there have been 344 confidence votes. According to these calculations, in eight of them (2.3%) the government would have lost a vote of confidence had the tenure requirement for a parliamentary pension been absent. Seven of them occurred during the government 'Berlusconi IV' in legislature XVI and one of them during the government 'Conte II' in legislature XVI. Taking these calculations at face value, the government 'Berlusconi IV' would have fallen on December 10, 2010 instead of resigning on November 17, 2011.[25] It is interesting to note that Italy experienced a severe sovereign debt crisis in the final months of Berlusconi's government, which an earlier loss in a confidence vote could potentially have prevented. The spread between the ten-year Italian Treasury Bonds and the Bund rose sharply from 1.6% in June 2011 to 5.5% in November 2011, starting to decline only when Berlusconi resigned and was replaced by Mario Monti [Manasse et al., 2013].

7 Conclusions

This paper employed a difference-in-discontinuities design to test a political agency model of MPs' opportunistic behavior in predicting the impact of the introduction of a minimum tenure requirement to obtain a parliamentary pension in the Italian Parliament. The change in the parliamentary perquisite increases the probability of voting confidence in the government by 3 percentage points. The pension incentive increased confidence votes by MPs elected in parties that support the government, whereas it decreased confidence votes by MPs' elected in opposition parties. These empirical estimates are consistent with the predictions of a political-agency model in which voters have imperfect information about government performance and MPs are opportunistically interested in reaching the tenure requirement to obtain a parliamentary pension. Beyond the direct incentive to keep the current government in power, the policy increases party polarization: it induces opposition (majority) MPs to vote against (for) the government so as to increase the probability of being re-elected and reach the tenure requirement in a second term in case the government falls.

A caveat on these estimates is that the internal validity of the diff-in-disc empirical strategy comes at the price of lower external validity, as is always the case in local econometric designs based on policy discontinuities. A theoretical and empirical analysis to understand how tenure requirements for parliamentary perquisites can affect the quality of the elected policymakers and their decisions to enter/exit the political career is an interesting avenue for further research.

An important policy implication of this paper is that parliamentary benefits should be designed very carefully. Monetary incentives for legislators to remain in power entail a trade-off between political stability and party polarization. They can reduce the policy uncertainty associated with

[25]The government 'Conte II' resigned after that vote of confidence, so the tenure requirement would have been inconsequential in this case.

unexpected government crises but they can also become a hidden tool for parties to enhance their control over legislators, inducing them to vote following party directives rather than voters' interest.

References

Acconcia, A. and C. Ronza (2022, May). Women's Representation in Politics and Government Stability. CSEF Working Papers 611, Centre for Studies in Economics and Finance (CSEF), University of Naples, Italy. 3

Alesina, A., S. Özler, N. Roubini, and P. Swagel (1996). Political instability and economic growth. *Journal of economic growth (Boston, Mass.) 1*(2), 189–211. 1

Baker, S. R., N. Bloom, and S. J. Davis (2016, 07). Measuring Economic Policy Uncertainty*. *The Quarterly Journal of Economics 131*(4), 1593–1636. 1

Barro, R. J. (1973). The control of politicians: An economic model. *Public choice 14*(1), 19–42. 4

Besley, T. (2004). Paying politicians: Theory and evidence. *Journal of the European Economic Association 2*(2-3), 193–215. 4

Besley, T. (2007). *Principled Agents?: The Political Economy of Good Government*. The Lindahl Lectures. Oxford: Oxford University Press. 4, 10

Besley, T. and A. Case (1995). Does electoral accountability affect economic policy choices? evidence from gubernatorial term limits. *The Quarterly journal of economics 110*(3), 769–798. 4

Besley, T. and S. Coate (1998). Sources of inefficiency in a representative democracy: A dynamic analysis. *The American economic review 88*(1), 139–156. 10

Bloom, N. (2014, May). Fluctuations in uncertainty. *Journal of Economic Perspectives 28*(2), 153–76. 1

Bloom, N., S. Bond, and J. Van Reenen (2007). Uncertainty and Investment Dynamics. *The Review of Economic Studies 74*(2), 391–415. 1

Bonica, A. (2014). Mapping the ideological marketplace. *American journal of political science 58*(2), 367–386. 3

Bordo, M. D., J. V. Duca, and C. Koch (2016). Economic policy uncertainty and the credit channel: Aggregate and bank level u.s. evidence over several decades. *Journal of Financial Stability 26*, 90–106. 1

Camera dei Deputati (1997). Regolamento della Camera. Parte I. Capo III. Dei Gruppi parlamentari. http://leg14.camera.it/cost_reg_funz/663/912/928/listaArticoli.asp. [Online; accessed 29-May-2022]. 19

Camera dei Deputati (2001). XIV legislatura. Deputati. Trattamento economico. https://leg14.camera.it/deputatism/4385/documentotesto.asp. [Online; accessed 29-May-2022]. 13

Camera dei Deputati (2007). XV legislatura. Deputati. Trattamento economico. http://leg15.camera.it/deputatism/4385/documentotesto.asp. [Online; accessed 29-May-2022]. 13

Camera dei Deputati (2013). XVI legislatura. Deputati. Trattamento economico. https://leg16.camera.it/383?conoscerelacamera=4. [Online; accessed 29-May-2022]. 13

Camera dei Deputati (2022). Parliamentary confidence in the government. https://en.camera.it/4?scheda_informazioni=27. [Online; accessed 29-May-2022]. 11, 13

Canen, N., C. Kendall, and F. Trebbi (2020a). Unbundling polarization. *Econometrica 88*(3), 1197–1233. 3

Canen, N. J., C. Kendall, and F. Trebbi (2020b, December). Political parties as drivers of u.s. polarization: 1927-2018. Working Paper 28296, National Bureau of Economic Research. 3

Carozzi, F., D. Cipullo, and L. Repetto (2022). Political fragmentation and government stability: Evidence from local governments in spain. *American economic journal. Applied economics 14*(2), 23–. 3

Caselli, F. and M. Morelli (2004). Bad politicians. *Journal of Public Economics 88*, 759–782. 4

Daconto, C. (2022). Pensioni e vitalizi dei parlamentari: come funzionano. Panorama. 13

De Santis, V. (2020). *Indennità e vitalizi: per uno studio dell'art. 69 della Costituzione.* Studi di Diritto Pubblico. Franco Angeli. 12, 13

Diermeier, D., M. Keane, and A. Merlo (2005). A political economy model of congressional careers. *The American economic review 95*(1), 347–373. 4

Diermeier, D. and A. Merlo (2000). Government turnover in parliamentary democracies. *Journal of economic theory 94*(1), 46–79. 3

Dipartimento per le Riforme Istituzionali (2022). La riduzione del numero dei parlamentari. https://www.riformeistituzionali.gov.it/it/la-riduzione-del-numero-dei-parlamentari. [Online; accessed 29-May-2022]. 13

Ferejohn, J. (1986). Incumbent performance and electoral control. *Public choice 50*(1/3), 5–25. 4

Finan, F. and C. Ferraz (2009). Motivating politicians: The impacts of monetary incentives on quality and performance. National Bureau of Economic Research. 4

Fisman, R., N. A. Harmon, E. Kamenica, and I. Munk (2015). Labor supply of politicians. *Journal of the European Economic Association 13*(5), 871–905. 4

Fondazione Openpolis (2017). Patrimoni trasparenti. Open data. http://patrimoni.openpolis.it/. [Online; accessed 29-May-2022]. 19

Fondazione Rodolfo Debenedetti (2009). Membri del Parlamento Italiano. Dataset su Deputati italiani (1948-2008). https://www.frdb.org/dati/membri-del-parlamento-italiano/. [Online; accessed 29-May-2022]. 19

Frandsen, B. R. (2017). Party bias in union representation elections: Testing for manipulation in the regression discontinuity design when the running variable is discrete. In *Advances in econometrics*, Volume 38, pp. 281–315. Emerald Publishing Limited. 2, 29

Fusani, C. (2007). Stretta su vitalizi e viaggi. Via ai tagli di Camera e Senato. La Repubblica. 13

Gagliarducci, S. and T. Nannicini (2013). Do better paid politicians perform better? disentangling incentives from selection. *Journal of the European Economic Association 11*(2), 369–398. 4

Gagliarducci, S. and M. D. Paserman (2012). Gender interactions within hierarchies: Evidence from the political arena. *The Review of economic studies 79*(3), 1021–1052. 3

Gelman, A. and G. Imbens (2019). Why high-order polynomials should not be used in regression discontinuity designs. *Journal of business economic statistics 37*(3), 447–456. 18

Gentzkow, M., J. M. Shapiro, and M. Taddy (2019). Measuring group differences in high-dimensional choices: Method and application to congressional speech. *Econometrica 87*(4), 1307–1340. 3

Grembi, V., T. Nannicini, and U. Troiano (2016). Do fiscal rules matter? *American economic journal. Applied economics 8*(3), 1–30. 1, 14, 17

Groseclose, T. and K. Krehbiel (1994). Golden parachutes, rubber checks, and strategic retirements from the 102d house. *American journal of political science 38*(1), 75–99. 4

Hall, R. L. and R. P. Van Houweling (1995). Avarice and ambition in congress: Representatives' decisions to run or retire from the u.s. house. *The American political science review 89*(1), 121–136. 4

Hetherington, M. J. (2015). *Why Washington won't work : polarization, political trust, and the governing crisis / Marc J. Hetherington, Thomas J. Rudolph.* Chicago studies in American politics. Chicago: The University of Chicago Press. 3

Iizuka, T., K. Nishiyama, B. Chen, and K. Eggleston (2021). False alarm? estimating the marginal value of health signals. *Journal of public economics 195*, 104368–. 18

ISTAT (2013). Trattamenti pensionistici e beneficiari. https://www.istat.it/it/archivio/87850. [Online; accessed 29-May-2022]. 13

Iyengar, S. and S. J. Westwood (2015). Fear and loathing across party lines: New evidence on group polarization: Fear and loathing across party lines. *American journal of political science 59*(3), 690–707. 3

Keane, M. P. and A. Merlo (2010). Money, political ambition, and the career decisions of politicians. *American economic journal. Microeconomics 2*(3), 186–215. 4

Kolesár, M. and C. Rothe (2018). Inference in regression discontinuity designs with a discrete running variable. *The American economic review 108*(8), 2277–2304. 18

Kotakorpi, K. and P. Poutvaara (2011). Pay for politicians and candidate selection: An empirical analysis. *Journal of public economics 95*(7), 877–885. 4

Lee, D. S. and T. Lemieux (2010). Regression discontinuity designs in economics. *Journal of economic literature 48*(2), 281–355. 18, 23

Manasse, P., G. Trigilia, and L. Zavalloni (2013). Professor Monti and the bubble. https://voxeu.org/article/professor-monti-and-bubble. [Online; accessed 29-May-2022]. 35

Mattozzi, A. and A. Merlo (2008). Political careers or career politicians? *Journal of public economics 92*(3), 597–608. 4

McCarty, N. M., K. T. Poole, and H. Rosenthal (2008). *Polarized America: The Dance of Ideology and Unequal Riches* (1 ed.), Volume 1 of *MIT Press Books*. Cambridge: The MIT Press. 3

McCrary, J. (2008). Manipulation of the running variable in the regression discontinuity design: A density test. *Journal of Econometrics 142*(2), 698–714. 29

Merlo, A. M., V. Galasso, M. Landi, and A. Mattozzi (2010). Part 1. The Labour Market of Italian Politicians. In T. Boeri, A. Merlo, and A. Prat (Eds.), *The Ruling Class: Management and Politics in Modern Italy*. Oxford University Press. 10, 19

Messner, M. and M. K. Polborn (2004). Paying politicians. *Journal of public economics 88*(12), 2423–2445. 4

Mian, A., A. Sufi, and F. Trebbi (2014). Resolving debt overhang: Political constraints in the aftermath of financial crises. *American economic journal. Macroeconomics 6*(2), 1–28. 3

Moskowitz, D. J., J. C. Rogowski, and J. James M. Snyder (2022). Parsing party polarization in congress. 3

Müller, S. and G. Schnabl (2021). A database and index for political polarization in the eu. *Economics Bulletin 41*(4), 2232–2248. 3

Osservatorio sui Conti Pubblici Italiani (2021). Il sistema pensionistico dei parlamentari: possibili implicazioni per la durata della legislatura. https://osservatoriocpi.unicatt.it/ocpi-pubblicazioni-il-sistema-pensionistico-dei-parlamentari-possibili-implicazioni-per-la-durata-della. [Online; accessed 29-May-2022]. 13

Persson, T. and G. Tabellini (2000). *Political economics : explaining economic policy*. Zeuthen lecture book series. Cambridge, Mass.: MIT Press. 1

Preece, D. C., D. J. Mullineaux, G. Filbeck, and S. A. Dennis (2004). Agency theory and the house bank affair. *Review of financial economics 13*(3), 259–267. 4

Rizzo, S. (2018). Vitalizi d'oro: il vero privilegio sono le doppie pensionio. La Repubblica. 12

Rubabshi-Shitrit, A. and S. Hasson (2022). The effect of the constructive vote of no-confidence on government termination and government durability. *West European Politics 45*(3), 576–590. 11

Senato della Repubblica (2017). Il Regolamento del Senato.Capo IV. Dei Gruppi parlamentari. https://www.senato.it/istituzione/il-regolamento-del-senato/capo-iv/articolo-14-1. [Online; accessed 29-May-2022]. 19

Senato della Repubblica (2022a). La Costituzione. Articolo 94. https://www.senato.it/istituzione/la-costituzione/parte-ii/titolo-iii/sezione-i/articolo-94. [Online; accessed 29-May-2022]. 11

Senato della Repubblica (2022b). XVIII legislatura. Senatori. Trattamento economico. https://www.senato.it/leg18/1075?voce_sommario=61. [Online; accessed 29-May-2022]. 13

Sesto, M. (2021). Pensioni degli onorevoli, perché il 24 settembre 2022 è il D day della legislatura. Il Sole 24 ore. 13

Weber, M. (1965). *Politics as a vocation*. Social ethics series. Philadelphia: Fortress Press. 1

Appendix A Voting against party directives

In this Section, I show that voting against party directives (i.e. voting confidence when elected in an opposition party and voting against confidence when elected in a majority party) is negatively correlated with the probability of being re-elected. I restrict to the sample of MPs in their first term and regress:

$$Reelected_i = \alpha + \boldsymbol{\beta}\mathbf{x}_i + \delta Deviate_{it} + \eta_{pg} + \varepsilon_{ipgt} \tag{17}$$

where $Reelected_i$ is an indicator variable equal to 1 if the MP is ever re-elected for a second term in Parliament and 0 otherwise, and $Deviate_{it}$ is an indicator variable equal to 1 if the first-term MP voted against party directives at time t and 0 otherwise. η_{pg} are party-by-government fixed effects and $\mathbf{x}_i$ is a vector of individual characteristics: gender, high school diploma, university degree, born in South, born in Center, foreign, pre-parliament income. I repeat this regression with and without controls and fixed effects. As we can see in Table C1, first-term MPs who vote against their party directives are 10-25% less likely to be re-elected, depending on the specification.[26] This significantly negative correlation corroborates the corresponding assumption of the model presented in Section 2.

Table C1: Correlation between voting against party directives and being re-elected in parliament.

	(1)	(2)	(3)
Vote against party directives	-0.242*** (0.005)	-0.252*** (0.008)	-0.097*** (0.009)
N	99,797	64,789	64,789
R-squared	0.01	0.01	0.37
Average outcome	0.65	0.65	0.65
MP FE			
Party-by-gov. FE	NO	NO	YES

Notes: The regression sample is restricted to confidence votes by MPs in the first term. Controls are: gender, high school diploma, university degree, born in South, born in Center, foreign, pre-parliament income. Standard errors are Eicker-Huber-White heteroskedasticity-robust. Average outcome is the average of the outcome variable after reaching the tenure threshold.

[26] Results do not qualitatively change if I use Probit or Logit models instead of a linear probability model

Appendix B Additional Tables

Table C2: Diff-in-disc estimates of minimum tenure requirement on pre-determined variables.

	(1) Female	(2) High school	(3) Degree	(4) South	(5) Center	(6) North	(7) Foreign	(8) Income (€)
Post*Tenure under 4.5 years	-0.021 (0.017)	0.011 (0.010)	0.014 (0.026)	0.025 (0.024)	-0.024 (0.020)	-0.005 (0.024)	0.004 (0.006)	-6978.631 (8820.270)
N	33,330	22,055	22,055	33,330	33,330	33,330	33,330	33,245
R-squared	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Average outcome	0.32	0.98	0.70	0.35	0.24	0.40	0.02	86090.61
MP FE	NO	NO	NO	NO	NO	NO	NO	NO
Party-by-gov. FE	NO	NO	NO	NO	NO	NO	NO	NO

Notes: The regression sample is restricted to votes of confidence in a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. High school and University degree refer to the highest education level achieved. South, Center, North and Foreign refer to the birthplace. Income refers to the private income in the year prior to entering Parliament. Data on education levels is not available for senators. Average outcome is the average of the outcome variable after reaching the tenure threshold.

Table C3: Diff-in-disc estimates of minimum tenure requirement on confidence.

	All			Chamber of Deputies			Senate		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post*Tenure under 4.5 years	0.060*** (0.020)	0.019* (0.010)	0.030*** (0.007)	0.085*** (0.021)	0.031*** (0.011)	0.031*** (0.007)	0.029 (0.035)	-0.000 (0.022)	0.033** (0.017)
N	33,330	33,330	33,330	22,931	22,931	22,931	10,399	10,399	10,399
R-squared	0.02	0.76	0.95	0.03	0.80	0.96	0.03	0.70	0.94
Average outcome	0.72	0.72	0.72	0.73	0.73	0.73	0.70	0.70	0.70
MP FE	NO	NO	YES	NO	NO	YES	NO	NO	YES
Party-by-gov. FE	NO	YES	YES	NO	YES	YES	NO	YES	YES

Notes: The regression sample is restricted to a bandwidth of 12 months on each side of the cutoff. Standard errors are clustered at the MP level. Average outcome is the average of the outcome variable after reaching the tenure threshold.

Table C4: Diff-in-disc estimates of minimum tenure requirement on confidence, local quadratic regressions.

	All			Chamber of Deputies			Senate		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post*Tenure under 4.5 years	-0.015 (0.032)	0.026** (0.013)	0.039*** (0.006)	-0.006 (0.039)	0.035** (0.014)	0.037*** (0.006)	0.109* (0.062)	0.010 (0.028)	0.041*** (0.014)
N	33,330	33,330	33,330	22,931	22,931	22,931	10,399	10,399	10,399
R-squared	0.03	0.76	0.95	0.03	0.80	0.96	0.03	0.70	0.94
Average outcome	0.72	0.72	0.72	0.73	0.73	0.73	0.70	0.70	0.70
MP FE	NO	NO	YES	NO	NO	YES	NO	NO	YES
Party-by-gov. FE	NO	YES	YES	NO	YES	YES	NO	YES	YES

Notes: The regression sample is restricted to a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. is the average of the outcome variable after reaching the tenure threshold.

Table C5: Diff-in-disc estimates of minimum tenure requirement on abstension/no vote.

	All			Chamber of Deputies			Senate		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post*Tenure under 4.5 years	-0.032*	0.001	-0.015	-0.056***	-0.029	-0.042**	0.051	0.055*	-0.013
	(0.017)	(0.017)	(0.016)	(0.019)	(0.019)	(0.019)	(0.036)	(0.032)	(0.031)
N	41,189	41,189	41,189	27,900	27,900	27,900	13,289	13,289	13,289
R-squared	0.01	0.10	0.31	0.02	0.12	0.31	0.02	0.15	0.35
Average outcome	0.19	0.19	0.19	0.19	0.19	0.19	0.21	0.21	0.21
MP FE	NO	NO	YES	NO	NO	YES	NO	NO	YES
Party-by-gov. FE	NO	YES	YES	NO	YES	YES	NO	YES	YES

Notes: The regression sample is restricted to a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. Average outcome is the average of the outcome variable after reaching the tenure threshold.

Table C6: Diff-in-disc estimates of minimum tenure requirement on abstension/no vote.

	All			Chamber of Deputies			Senate		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post*Tenure under 4.5 years	-0.032*	0.001	-0.015	-0.056**	-0.029	-0.042*	0.051	0.055*	-0.013
	(0.019)	(0.019)	(0.019)	(0.023)	(0.023)	(0.024)	(0.035)	(0.033)	(0.036)
N	41,189	41,189	41,189	27,900	27,900	27,900	13,289	13,289	13,289
R-squared	0.01	0.10	0.31	0.02	0.12	0.31	0.02	0.15	0.35
Average outcome	0.19	0.19	0.19	0.19	0.19	0.19	0.21	0.21	0.21
MP FE	NO	NO	YES	NO	NO	YES	NO	NO	YES
Party-by-gov. FE	NO	YES	YES	NO	YES	YES	NO	YES	YES

Notes: The regression sample is restricted to a bandwidth of 12 months on each side of the cutoff. Standard errors are clustered at the MP level. Average outcome is the average of the outcome variable after reaching the tenure threshold.

Table C7: Diff-in-disc estimates of minimum tenure requirement on confidence, by type of party.

	Female			Male		
	(1)	(2)	(3)	(4)	(5)	(6)
Post*Tenure under 4.5 years	0.026	0.017	0.011*	0.071***	0.026***	0.037***
	(0.066)	(0.027)	(0.006)	(0.025)	(0.010)	(0.005)
N	9,419	9,419	9,419	23,911	23,911	23,911
R-squared	0.04	0.74	0.96	0.02	0.77	0.95
Average outcome	0.77	0.77	0.77	0.70	0.70	0.70
MP FE	NO	NO	YES	NO	NO	YES
Party-by-gov. FE	NO	YES	YES	NO	YES	YES

Notes: The regression sample is restricted to a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. Average outcome is the average of the outcome variable after reaching the tenure threshold.

Table C8: Regression discontinuity estimates interacted with age.

	Majority party		Opposition party	
	(1)	(2)	(3)	(4)
Tenure under 4.5	-0.066*	-0.037	0.081	0.092
years	(0.037)	(0.036)	(0.086)	(0.075)
Tenure under 4.5	0.002***	0.001**	-0.003*	-0.003**
years*Age (years)	(0.001)	(0.001)	(0.002)	(0.001)
N	19,218	19,218	7,250	7,250
R-squared	0.01	0.06	0.02	0.20
MP FE	NO	NO	NO	NO
Party-by-gov. FE	NO	YES	NO	YES

Notes: The regression sample is restricted to a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. Average outcome is the average of the outcome variable after reaching the tenure threshold. Age is the age of the MP at the moment of the vote

Table C9: Regression discontinuity estimates interacted with the majority margin.

	Majority party			Opposition party		
	(1)	(2)	(3)	(4)	(5)	(6)
Tenure under 4.5	0.077***	0.089***	0.072***	-0.122***	-0.091***	-0.001
years	(0.013)	(0.013)	(0.007)	(0.023)	(0.020)	(0.008)
Tenure under 4.5	-0.027***	-0.028***	-0.026***	0.055***	0.028**	0.005
years*Majority margin ('00)	(0.006)	(0.006)	(0.004)	(0.013)	(0.013)	(0.007)
N	19,218	19,218	19,218	7,250	7,250	7,250
R-squared	0.01	0.05	0.79	0.04	0.20	0.89
MP FE	NO	NO	YES	NO	NO	YES
Party FE	NO	YES	YES	NO	YES	YES

Notes: The regression sample is restricted to a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. Average outcome is the average of the outcome variable after reaching the tenure threshold. Majority margin indicates the majority margin in the house in which the confidence vote took place measured in hundred MPs.

Table C10: Diff-in-disc estimates of minimum tenure requirement on pre-determined variables, by house.

	(1) Female	(2) High school	(3) Degree	(4) South	(5) Center	(6) North	(7) Foreign	(8) Income (€)
Chamber								
Post*Tenure under	-0.024	0.011	0.014	0.030	-0.039	0.005	0.003	-9042.003
4.5 years	(0.022)	(0.010)	(0.026)	(0.028)	(0.025)	(0.028)	(0.008)	(8718.947)
N	22,931	22,055	22,055	22,931	22,931	22,931	22,931	22,872
R-squared	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average outcome	0.32	0.98	0.70	0.34	0.24	0.40	0.02	88749.14
Senate								
Post*Tenure under	-0.049*			0.024	-0.024	0.006	-0.006	22568.439
4.5 years	(0.029)			(0.047)	(0.038)	(0.047)	(0.006)	(23835.848)
N	10,399			10,399	10,399	10,399	10,399	10,373
R-squared	0.04			0.00	0.00	0.00	0.00	0.02
Average outcome	0.32			0.35	0.23	0.40	0.02	80624.78
MP FE	NO	NO	NO	NO	NO	NO	NO	NO
Party-by-gov. FE	NO	NO	NO	NO	NO	NO	NO	NO

Notes: The regression sample is restricted to votes of confidence in a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. High school and University degree refer to the highest education level achieved. South, Center, North and Foreign refer to the birthplace. Income refers to the private income in the year prior to entering Parliament. Data on education levels is not available for senators. Average outcome is the average of the outcome variable after reaching the tenure threshold.

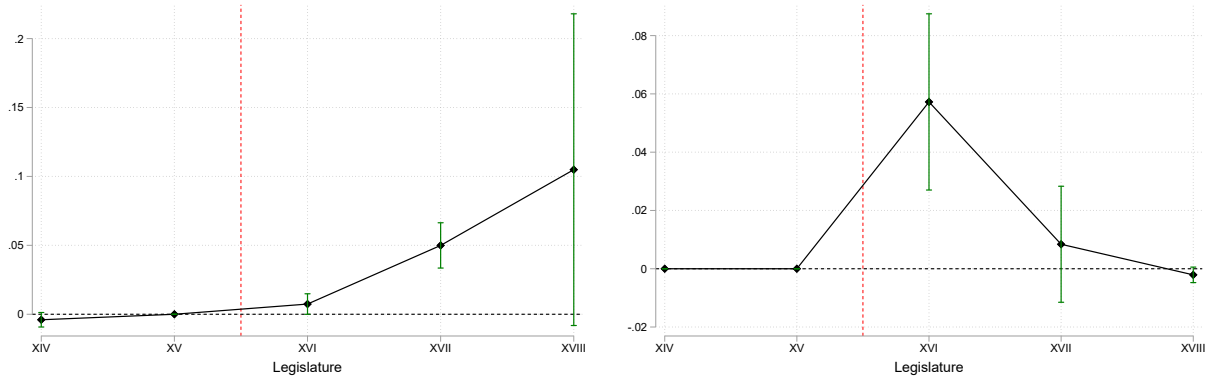
Table C11: Diff-in-disc estimates of minimum tenure requirement on pre-determined variables, by party's stance with respect to the current government.

	(1) Female	(2) High school	(3) Degree	(4) South	(5) Center	(6) North	(7) Foreign	(8) Income (€)
Majority party								
Post*Tenure under	-0.019	0.008*	-0.001	0.054*	-0.050**	-0.007	0.003	-13913.420
4.5 years	(0.020)	(0.005)	(0.031)	(0.030)	(0.023)	(0.030)	(0.008)	(12970.827)
N	23,064	15,386	15,386	23,064	23,064	23,064	23,064	23,007
R-squared	0.04	0.01	0.01	0.01	0.01	0.00	0.00	0.01
Average outcome	0.35	0.99	0.72	0.35	0.26	0.38	0.02	92779.88
Opposition party								
Post*Tenure under	-0.003	-0.001	-0.014	-0.053	0.054	-0.000	-0.001	-7642.876
4.5 years	(0.034)	(0.025)	(0.050)	(0.040)	(0.041)	(0.043)	(0.012)	(6624.275)
N	9,226	5,987	5,987	9,226	9,226	9,226	9,226	9,198
R-squared	0.01	0.01	0.00	0.00	0.03	0.01	0.00	0.03
Average outcome	0.25	0.97	0.66	0.31	0.20	0.47	0.03	67602.94
MP FE	NO	NO	NO	NO	NO	NO	NO	NO
Party-by-gov. FE	NO	NO	NO	NO	NO	NO	NO	NO

Notes: The regression sample is restricted to votes of confidence in a bandwidth of 12 months on each side of the cutoff. Standard errors are Eicker-Huber-White heteroskedasticity-robust. High school and University degree refer to the highest education level achieved. South, Center, North and Foreign refer to the birthplace. Income refers to the private income in the year prior to entering Parliament. Data on education levels is not available for senators. Average outcome is the average of the outcome variable after reaching the tenure threshold.

Appendix C Additional Figures

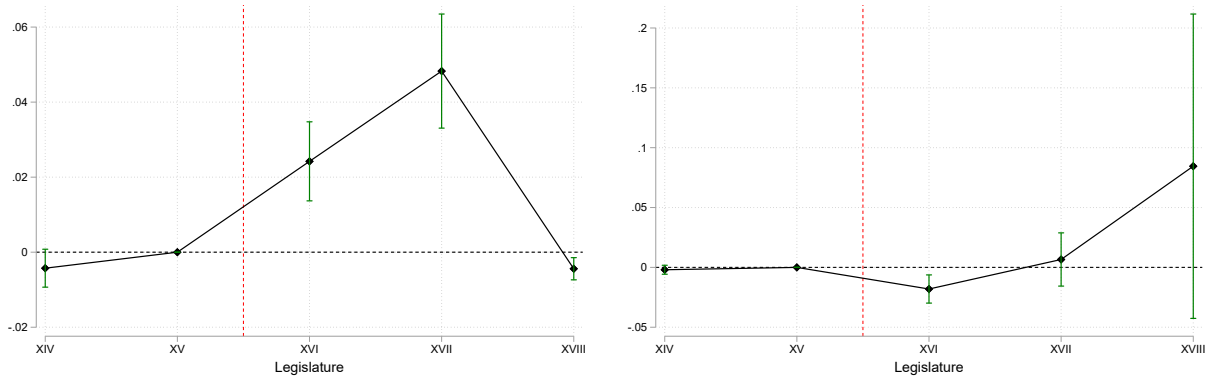
Figure D1: RD coefficients, by legislature and House



(a) Chamber of Deputies (b) Senate

Notes: These figures show the RD coefficient and its 95% confidence interval estimating regression Equation (14), separately for each House and legislature (XIV-XVIII).

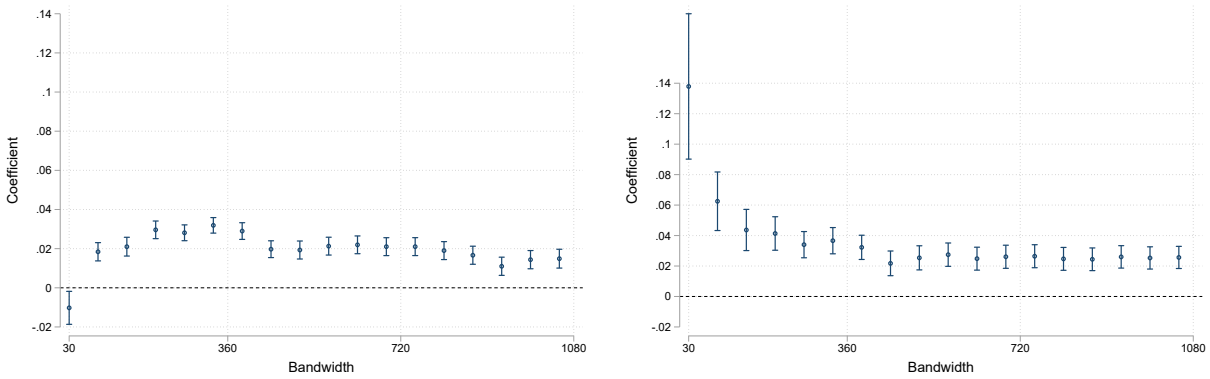
Figure D2: RD coefficients, by party's stance with respect to the current government



(a) Elected in majority party (b) Elected in opposition party

Notes: These figures show the RD coefficient and its 95% confidence interval estimating regression Equation (14), separately for MPs elected in parties supporting the government and MPs elected in parties opposing the government.

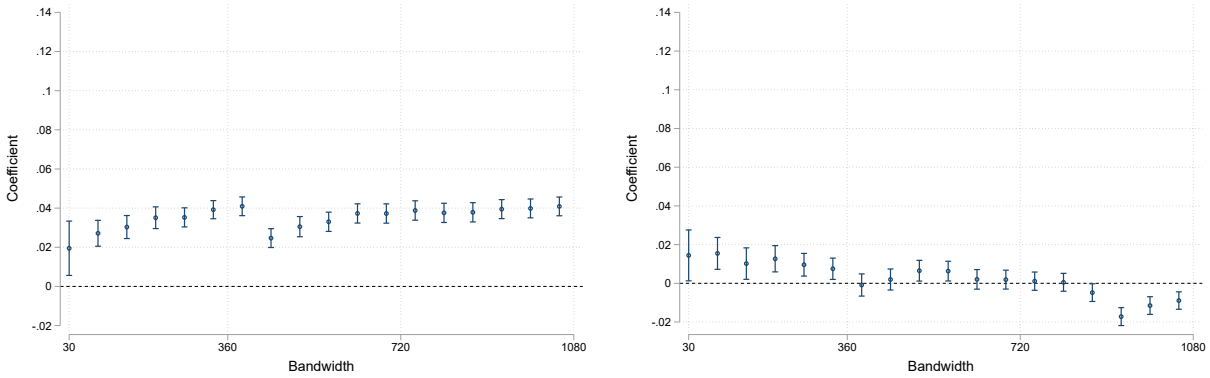
Figure D3: Diff-in-disc coefficients: bandwidth sensitivity, by House



(a) Chamber of Deputies (b) Senate

Notes: The graph shows the point estimate and the 95% confidence interval of the Diff-in-Disc coefficients on the entire sample (separately for each House), estimating the regression specified in Equation (15) using different bandwidths. The horizontal axis shows the number of tenure days from the 4.5-year-cutoff in each side of the bandwidth.

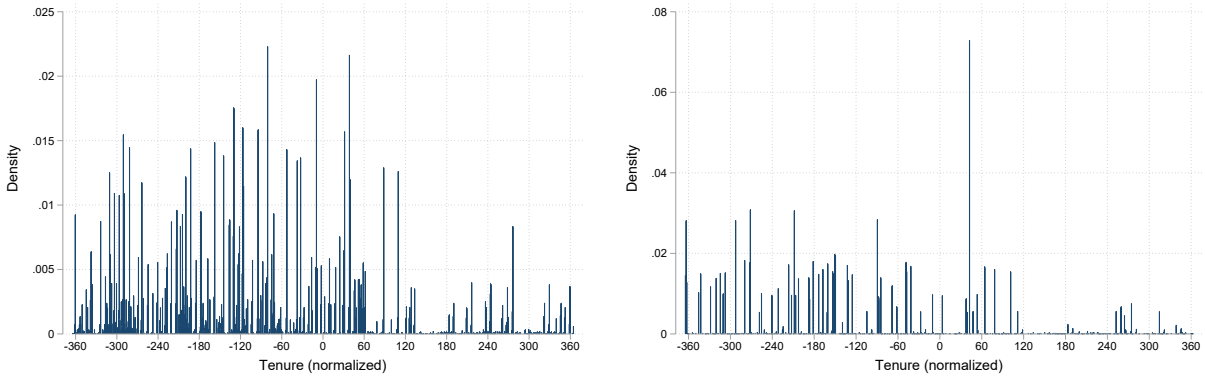
Figure D4: Diff-in-disc coefficients: bandwidth sensitivity, by party's stance with respect to the current government.



(a) Elected in majority party (b) Elected in opposition party

Notes: The graph shows the point estimate and the 95% confidence interval of the Diff-in-Disc coefficients on the entire sample (separately for majority and opposition MPs), estimating the regression specified in Equation (15) using different bandwidths. The horizontal axis shows the number of tenure days from the 4.5-year-cutoff in each side of the bandwidth.

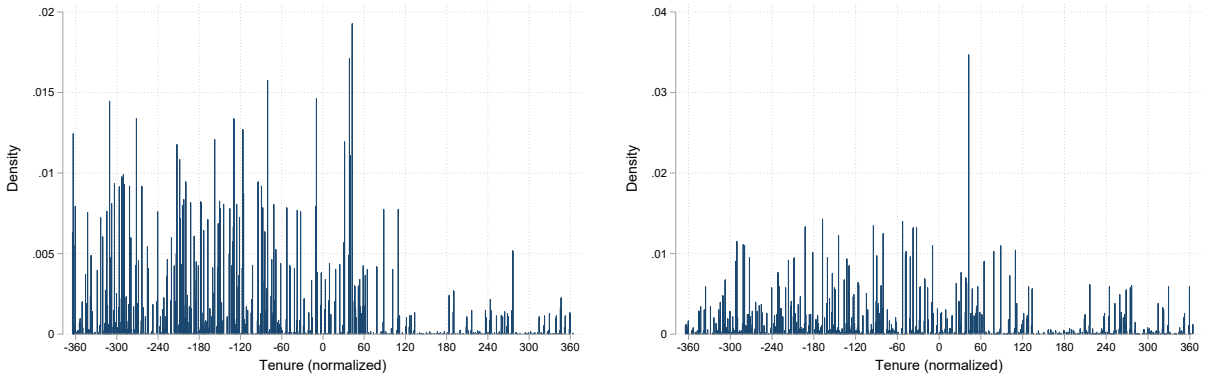
Figure D5: Density of confidence votes, by House



(a) Chamber of Deputies (b) Senate

Notes: This figure plots the density of confidence votes in daily bins over the number of days of tenure from the 4.5-year threshold, separately for each House.

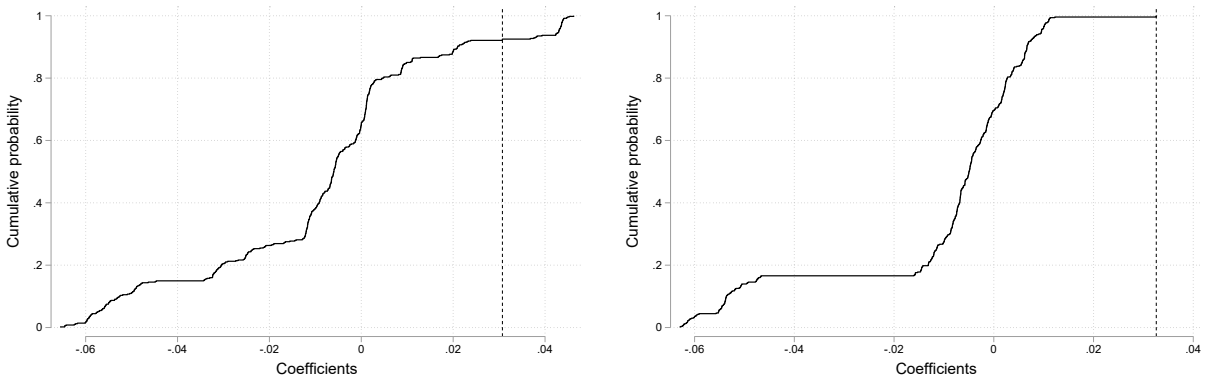
Figure D6: Density of confidence votes, by party's stnace with respect to the current government.



(a) Elected in majority party (b) Elected in opposition party

Notes: This figure plots the density of confidence votes in daily bins over the number of days of tenure from the 4.5-year threshold, separately for majority and opposition MPs.

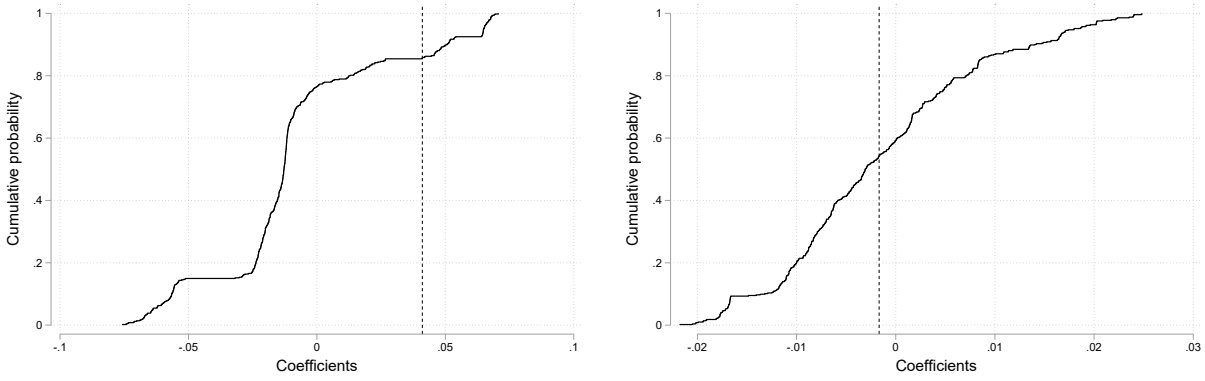
Figure D7: Placebo estimates, by House



(a) Chamber of Deputies (b) Senate

Notes: This graph shows the cumulative distribution of Diff-in-Disc estimates on votes of confidence for each House separately, from placebo local linear regressions in which the cutoff is set in different parts of the tenure distribution. Estimates are computed using the regression in Equation (15) within a 1-year bandwidth. Cut-offs are located at every day from 3 years and 7 months to 4 years and 5 months and at every day from 4 years and 7 months to 5 years and 5 months, in order to stay sufficiently away from the policy thresholds of 3.5, 4.5 and 5.5 years at which the severance payment, the pension age and the pension payment change discontinuously. The vertical dashed line shows the coefficient estimated using the true 4.5-year tenure threshold.

Figure D8: Placebo estimates, by party's stance with respect to the current government.



(a) Elected in majority party (b) Elected in opposition party

Notes: This graph shows the cumulative distribution of Diff-in-Disc estimates on votes of confidence for majority and opposition MPs separately, from placebo local linear regressions in which the cutoff is set in different parts of the tenure distribution. Estimates are computed using the regression in Equation (15) within a 1-year bandwidth. Cut-offs are located at every day from 3 years and 7 months to 4 years and 5 months and at every day from 4 years and 7 months to 5 years and 5 months, in order to stay sufficiently away from the policy thresholds of 3.5, 4.5 and 5.5 years at which the severance payment, the pension age and the pension payment change discontinuously. The vertical dashed line shows the coefficient estimated using the true 4.5-year tenure threshold.