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**Decreasing Financial Imbalances or Distorting Competition? –
Examining the Effects of the 50plus1-Rule in German Football**

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Decreasing Financial Imbalances or Distorting Competition? – Examining the Effects of the 50plus1-Rule in German Football

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Abstract: The so-called 50plus1-rule in German football is a controversially discussed institution that regulates the investment behavior of professional football teams. This paper provides an empirical analysis of its effects. We gathered panel data on 47 teams in the German Major League Football (“Erste Bundesliga”) from the seasons 1989/90 until 2018/2019. This paper applies a Difference-in-Differences approach to examine investment behavior in budgets, as well as sporting success between impacted competitors and those exempted from the rule. Our results do not suggest any equalizing properties of the regulation. By contrast, we find anticompetitive effects and distorting properties of the current regulation.

Keywords: 50plus1-rule, football, sports economics, financial regulation, investment, sport finance, soccer, competition economics, sports antitrust

JEL-Codes: Z23, Z21, Z2, J83, L11, L50

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1. Introduction

Organizers of professional sports leagues and championships (either sports associations like UEFA, IOC, FIFA, etc., or specific companies like the Football Association Premier League Ltd (FAPL)) implement and change market-internal rules that govern the sporting and commercial behavior of the participants, thus acting as market-internal regulators..¹ One example of such an institution is the 50plus1-rule in German Football². It regulates investment behavior of clubs in the major league (“Erste Bundesliga”) as well as the lower league (“Zweite Bundesliga”)³ by limiting the amount of external capital investment a team can acquire through selling voting rights. Somewhat simplified, the original non-profit club must keep a minimum of 50 per cent of the voting rights plus one vote of the commercial/professional team playing in the league (see Section 2 for more detailed explanation). The objective of this regulation is to “to maintain the club character of the sport and ensure a certain even balance in sports competition“ (Bundeskartellamt, 2023). Meanwhile, not all teams in the competition are affected by the 50plus1-rule, as exemptions exist. By the time of this writing, three exceptions to the rule have been allowed by the league. This makes the regulation controversially discussed among fans and clubs, as an official survey by DFL shows (DFL, 2018b). Some competitors feel at a financial and sporting disadvantage. Moreover, the process of granting exemptions is controversial as well. For example, the league repeatedly denied Martin Kind’s request to acquire a majority stake in Hannover 96 in 2017-2019 in a controversy of how to interpret the conditions for exemptions (see section 2). Other league participants favor a deregulation on financial investments, as “the market would profit from liberalization”, as an official of FC Bayern München stated.⁴ The rule may distort competition to the extent that the Federal

¹ Even ostensibly sporting rules of the game may include a commercial dimension. For instance, the world football association (FIFA) introduced a new specification of the playing ball (making it harder to defend goals) for the 2010 football world championship in South Africa in order to make the games commercially more attractive through a higher number of goals. Furthermore, many sports regulators consider the effects on the television-attractiveness of their sports when adapting or changing sporting rules.

² Throughout this paper, we refer to football as the European-style football game, which is sometimes (mis-) labeled soccer.

³ These two leagues are part of the Deutsche Fußball Liga, where their official members agreement (“Satzung”) stipulates the rule in §16c No.3. Our data focuses solely on these. Lower leagues have implemented versions of the rule in their charter, e.g., the third national league (Dritte Bundesliga) as well as regional leagues like the Bavarian regional league and the south-west regional league (DFB-Statut für die 3. Liga und die Regionalliga). Since members of leagues that are ranked below these two are regularly aiming for promotion to the higher leagues, the rule would *de facto* apply to all lower leagues as well.

⁴ Karl-Heinz Rummenigge in Deutsche Wirtschaftsnachrichten (2019), (translated by the authors).

Cartel Office of Germany is currently investigating the case (Reuters, 2018; Bundeskartellamt, 2021). Their preliminary statement considers rules of such a type to be potentially in line with cartel laws, yet in its current form it is probably distortive to competition. As of September 2023, the DFL has offered commitments that include (i) no further exceptions to be granted in the future, (ii) conditions on the governance of the exempted clubs, and (iii) compensation payments by the currently exempted clubs to counteract their structural and financial advantages. At the time of writing, the German competition authority is assessing these commitments (Bundeskartellamt, 2023). In a 2024 update, the German cartel office emphasizes the need for a uniform, consistent, and non-discriminatory application of the 50plus1-rule, which it principally views to stand in line with competition (Bundeskartellamt, 2024). The authority announced to review the application practice and the related licensing practices more in detail.

Setting and changing rules that govern the financial behavior of clubs (in a broad meaning) is a common activity of market-internal regulators in sports and related institutional change and the effects of such institutions is frequently analyzed in sports economics (see section 3). This is done, for instance, in the context of luxury taxes and mandated revenue sharing arrangements especially in North-American commercial sports leagues as well as prominently in the recent financial fair play regulations in European football. The results of theoretical and empirical analyses of such institutional change are mixed (see section 3). To the best of our knowledge, the very specific German 50plus1-rule has not received much attention from the sports economics literature so far. In this paper, we add to the sports economics literature by assessing the effectiveness of the 50plus1-rule to prevent financial and subsequent competitive imbalances by empirically analyzing investment behavior of football clubs in the Bundesliga. More precisely, we address the research question: did the exemptions distort competition in favor of the exempted competitors? Using a sample of 30 seasons of the German Bundesliga (before and after the introduction of the rule), we find no evidence of equalizing properties on budgets. However, we do find indications of distortive effects on competition. We conclude that the 50plus1-rule in its current form has anticompetitive effects. This analysis allows us to draw conclusions about the effectiveness of financial regulation in the specific context of the German league and therefore adds to the literature on institutional change in sports leagues and league design in general.

2. The 50plus1-Rule, Its Exceptions, and Its Enforcement

Traditionally, football teams in Germany are run by non-profit clubs, which organize themselves based upon membership, in sports clubs usually consisting of active athletes and supporters. With increasing professionalism and commercialization of the major football leagues, this structure was often viewed to be outdated and incapable of managing a multimillion-dollar business. Therefore, more and more clubs sought to outsource their football teams into incorporated (commercial) subsidiaries of the club. Within the traditional club structure, voting rights are segregated and decision-making power considerably decentralized. On the one hand, this is not necessarily an efficient structure when it comes to running professional sports teams (H. M. Dietl & Franck, 2007; Rohde & Breuer, 2017), which is why 14 out of the current 18 Bundesliga clubs have organized their professional football department in some type of corporation outside but as a subsidiary to the (umbrella) nonprofit association (“the club”). “External” investors may now buy shares of this corporations. On the other hand, preserving the decentralized ownership structures in the shape of the nonprofit membership clubs may represent a legitimate regulatory objective. The league’s notion behind the rule was the limitation of external investments in the league in order to “keep the amount of outside capital in the system reasonably low” and “ensure a close connection to the grassroots level of the sport (amateur level), which is an essential value of the sport” (DFL, 2018). It is supposedly making the German Bundesliga “the most beautiful and thrilling league in Europe because of its existence” (DFL, 2018a). These goals should be achieved while protecting competition and avoiding distortive effects; the effects of the rule should actually be “as neutral to competition as possible” (DFL, 2018). Hence, for the 1998/99 season, the market-internal regulator shaped regulations for teams becoming “real” corporate enterprises and, thus, for equity/venture capital investors, acquiring shares in the teams’ ownership (“Öffnung des Spielbetriebs der Lizenzligen für Kapitalgesellschaften”; (DFL, 2018a)).

The non-profit club historically running the team must keep owning at least 50 per cent of voting rights plus one additional vote (hence the name 50plus1) in the corporation now running the team (DFL, 2018a). Consequently, investors can only acquire minority stakes (in terms of voting rights) in football

teams of the two major German football leagues. The incorporation of teams appears in different variations in German law (GmbH, AG, KGaA)⁵ but the different types can be treated similarly for our economic analysis.

Note that the 50plus1-rule does not limit actual capital investments *per se* but regulates voting rights. Nevertheless, shares without voting rights differ in terms of investment motivation as they offer less control over the invested capital, so *de facto* it limits equity capital investment as well (Brüggemann, 2018). Since the overwhelming majority of football clubs in the German Erste and Zweite Bundesliga are organized in a corporate form by now (Bundeskartellamt, 2021), it *de facto* limits investment behavior by extension. For limited partnerships, the club must own 100 per cent of the general partner (“Komplementär”) of the partnership and be empowered by law to behave as if they had the majority. This explains how capital investments and voting shares diverge in several cases (FC Augsburg, FC Ingolstadt, Hannover 96, RB Leipzig, TSV 1860 München; Bauers et al., 2015). The rule also prohibits multi-club ownership by limiting the number of corporations that a club can hold shares in to one. It is part of the constitution of the German Football League (Satzung des DFL e.V.; §16c), as well as the charter of the German Football Association (Satzung des DFB; §8), therefore it prevents clubs from participating in competition if they do not comply with this institution.

The rule does not apply to every team in the competition as there are some legal exceptions. If the investment by a non-club (i.e., by an investor) into a team has been “continuous and substantial” for more than 20 years⁶, the league allows this investor to acquire a majority share of the voting rights. Originally, this exemption related to two teams that, at the time of the introduction of the rule in the season 1998/99, were already owned by investors: Bayer 04 Leverkusen and VfL Wolfsburg, both historically financially supported by corporations outside of the sport as external investors (chemistry company Bayer AG and car-maker Volkswagen AG, respectively). In 2005, TSG 1899 Hoffenheim gained

⁵ *GmbH* is the German version of a limited liability company without stock market access, whereas *AG* is a public limited company (with stock market access). *KGaA* is a limited joint-stock partnership.

⁶ In the beginning of the regulation, the support was required to be previous to 1999. This extensional condition was abolished after a legal complaint by Martin Kind.

an exemption from the rule and was able to include its private investor Dietmar Hopp (co-founder of software giant SAP) as a majority stakeholder in its football operations corporation.

From 2017 on, Hannover 96 and its president Martin Kind (owner of a hearing aid device company) was in a sustained dispute with the league, after filing an application to be exempted from the rule. Finally, in 2019 Martin Kind and Hannover 96 withdrew their application after various legal proceedings (Spiegel Online, 2019). Other investors, like Hasan Ismaik (TSV 1860 München) are still legally fighting against the regulation. RB Leipzig represents a special case in question. Beverage manufacturer Red Bull bought the Leipzig-based football club SSV Makranstädt, who was playing on amateur level outside the professional leagues and turned it into “RasenBallsport Leipzig”. On paper, it follows the rulebook by having this membership-based club running the team, however, the voting rights members of the club originally consisted solely of affiliates of Red Bull (there are currently still only 14 club members with voting rights, which however are said to be independent of Red Bull). Furthermore, the Bundesliga team is run by a limited liability company, in which the club has 1 per cent of the shares and Red Bull 99 per cent. However, Red Bull waives a sufficient number of voting rights, so that the club keeps the majority of voting rights in the corporation running the team. Thus, it is controversial whether RB Leipzig is plainly circumventing the 50plus1-rule and *de facto* represents an exception as well.

3. Related Literature

Institutional change in the context of regulating the financial behavior of clubs (expenditures, investments, revenues, etc.) has been analyzed in the sports economics literature with a view to the effects of sports league outcomes like financial imbalances among league participants and the (related) competitive balance of a league. However, to keep this literature review compact, we do not discuss the vast literature on revenue-sharing arrangements and revenue-re-allocation mechanisms here (recent overview: Budzinski, 2018).

Closer to our research is the analysis of budget caps, especially the effects of introducing budget cap regulations as an institutional change. A long list of papers studying salary caps in the American commercial top leagues leads to the insights that the profits of owners generally increase (but ambiguous for

large market team owners in models with cross-subsidization), while player salaries and total revenues generally decrease; effects on competitive balance are ambiguous⁷ (inter alia, Fort & Quirk, 1995; Késenne, 2000; Endo et al., 2003; Sanderson & Siegfried, 2003; Larsen et al., 2006; Vrooman, 2009; H. M. Dietl et al., 2011; Totty & Owens, 2011; H. M. Dietl et al., 2012). Luxury taxes as a type of soft salary caps are analyzed, inter alia, by Dietl et al. (2010). Thorpe (2010) analyzes breaches of the salary cap in the Australian National Rugby League.

In European football, the UEFA Financial Fair Play (FFP) regulation represents a recent institutional change.⁸ Introduced step-by-step between 2011 and 2015, it represents a unique example of an asymmetric and relative budget cap. The individual budget cap differs from club to club based on their individual history of revenues and their individual distribution of revenue types (for more details see, inter alia, Budzinski, 2014; Franck, 2014; Maxcy, 2014; Peeters & Szymanski, 2014; Szymanski, 2014; Peeters & Szymanski, 2015; Franck, 2016; Schubert & Hamil, 2018). Very recently, first empirical analyses of the effects of FFP surfaced, confirming several of the theoretically derived (see literature quoted above) expectations about effects. According to them, FFP comparatively increased the profitability of clubs falling under the regulation (Ahtiainen & Jarva, 2022; Alabi & Urquhart, 2023; Caglio et al., 2023; Garcia-del-Barrio & Agnese, 2023) but decreased competitive balance on the European level (Caglio et al., 2023), and increased audit fees (Mareque et al., 2018). Interestingly, these studies do not find a significant decrease of financial imbalances, which represents a relevant driving-force of competitive imbalance. Higher budgets more often than not go along with more midterm sporting success (Forrest & Simmons, 2002; Quitzau, 2003; Frick, 2005; Drut & Raballand, 2012; Wilkesmann, 2014) – notwithstanding some prominent (mostly short-run) exceptions. Moreover, there is a self-reinforcing positive feedback loop at work: more sporting success usually implies higher revenues and enhances the chances to become popular with the fans, so that more attendance follows as well as better sponsorship deals and higher merchandising revenues (Wilkesmann, 2014; Rohde & Breuer, 2016; Acero et al., 2017).

⁷ Whether and under which conditions more competitive balance increases demand from live and/or television audiences is controversial in the sports economics literature (recent overview: Pawlowski & Nalbantis, 2019).

⁸ See Késenne (2003) on an earlier proposal from within the European football ecosystem.

Every financial regulation has its unique features and results from one type of regulation on the underlying market cannot trivially be transferred to the effects of another type of regulation. However, all these (market-internal) regulations may also distort and restrict competition and generate anticompetitive effects themselves (Budzinski, 2018). Thus, our analysis is twofold: we look at the effects on financial imbalances as well as on competition-distorting effects. Thus, we contribute to the existing literature on institutional change in financial regulation in sports that often neglects the possible anticompetitive dimension. We further add to the literature by providing insights into the effects of another special type of financial regulation – the 50plus1-rule.

Specific economic literature on the 50plus1-rule itself is sparse, which is why this paper sets out to add to the economic knowledge around it. Bauers, Lammert, and Hovemann (2020) conducted a survey of stakeholders in clubs on their opinion on the 50plus1-rule. They found strong support in the stated preferences of stakeholders (79 per cent supporting the regulation). Pilz (2011) argues for a justification of the rule via negative fan welfare arguments: the rule allegedly protects the social integration of fans, prevents alienation from their (home-) teams, and an possible increase in ticket prices if it was to be repealed.

4. Economic Effects of the 50plus1-Rule

4.1 Data and Descriptive Statistics

In order to approach our research question with causal inference methods, we gathered data on teams of the Bundesliga. Specifically, we collected a unique longitudinal data set on 47 football teams in the first (major) football league of Germany (Erste Bundesliga) from the season 1989/90 to the season 2018/19. Along with our research purpose, we focus on players' budget of the teams and points achieved in a season. All variables represent seasonal data.

Table 1, Descriptive overview of the dataset

Variable	Obs	Min.	Max.	Median	Mean	Std. Dev.
Budget (infl)	414	€6.1m	€262.2m	€33.4m	€38.7m	€26.2m
Points (season)	432	18	91	44	46.66	13.4

We track budget numbers from statements by clubs and official press releases by the league. These statements may contain estimations; however, the pre-season numbers do seem to match quite reliably with actual numbers *ex post*⁹. Where no such official data were available, we gathered professional estimates by experts in the field and sports journalists. We are aware of the limitations of these estimates. However, the DFL (German Football League) itself has corroborated the validity of these estimates (Wilkesmann, 2014). Seasons 1989/99 through 2013/14 are based on data from the major German football magazine “kicker Sportmagazin” (Olympia Verlag). Values for the seasons 2013/14 until 2018/19 were compiled from various journalistic sources.¹⁰

For the purpose of our analysis, we proxy a team’s budget by the monetary resources allocated to the player’s section of the team (“Lizenzspieleretat”). Premium payments and special bonuses are included in our budget numbers, but do not appear in player’s salary lists, hence do not stipulate the salary payments made to players (Randerath, 2018). Our budgets are an approximation of what clubs were planning in their internal cost calculations (as far as the limitations of our data go) and do not capture alterations during the season. These budgets are directed to players on the squad. They therefore exclude payments to trainers and other staff as well as investments in youth development programs. In addition, other streams of income for players, for example, individual advertisement deals are not included. We reference gross payments.

We are missing some data points on budgets of at least some of the teams in 8 of 30 seasons.¹¹ However, we observe steady and therefore predictable trends in budget development in the panel entities of teams where we have uninterrupted longitudinal data. Budgets do not vary erratically across seasons and medians of budgets are largely consistent (see Figure 1). We adjusted these values for inflation to make budgets more comparable across time. Even when adjusted for inflation, there is an upward and diverging trend in budgets over the seasons, with few top clubs pulling away, notably Bayern München and

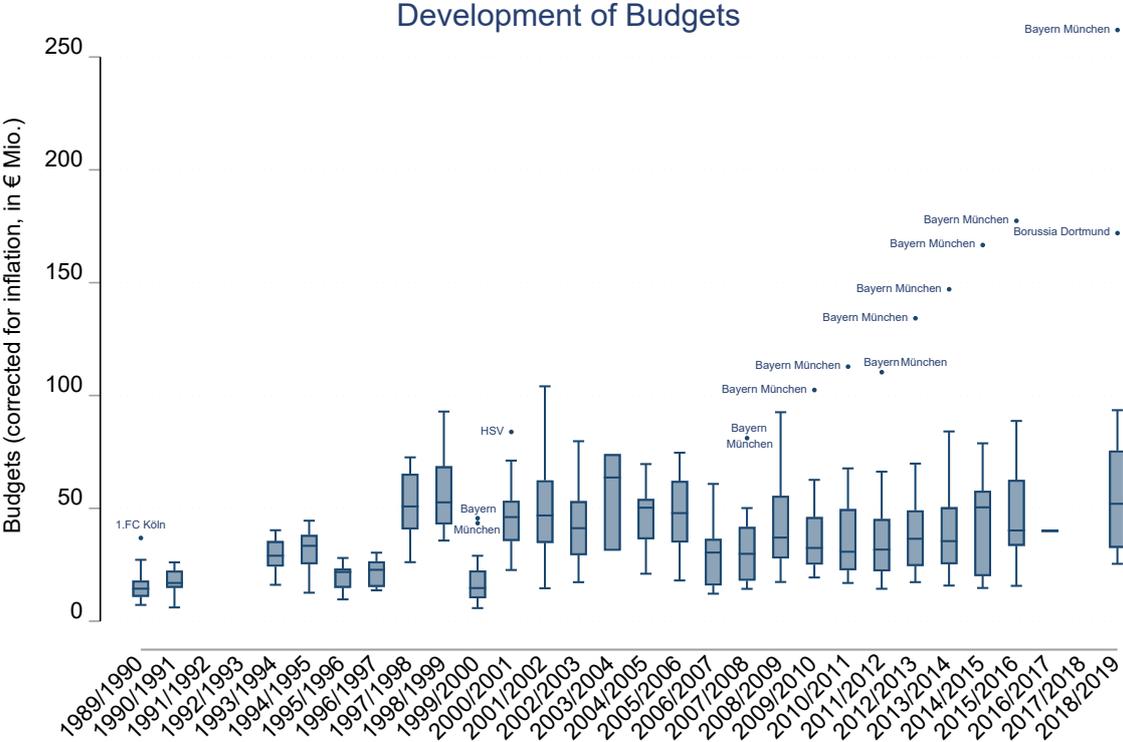
⁹ This was confirmed by the league itself as quoted in Wilkesmann (2014).

¹⁰ Rother (2018), Rheinische Post (2011), Rheinische Post (2018).

¹¹ We excluded data for the 1999/00 season completely, as this data’s source does not seem reliable and estimated values erratically differ from all other seasons.

Borussia Dortmund. With increasing inequality in budgets, there is no clear indication of equalizing properties of the institution, so a counterfactual analysis is warranted.

Figure 1, Development of budgets¹²



Sporting success is measured by points achieved by a team in a season. We have comprehensive data without any missing values for all seasons of our panel, starting in 1994. We only use teams of the first German Bundesliga in our dataset because there is a large discontinuity in revenues between the first Bundesliga and lower leagues.¹³ Revenues from TV broadcasting rights, ticket and merchandise sales drop off noticeably.

4.2 Distortive Effects on Competition?

Our research question, whether the exemptions distort competition in favor of the exempted competitors, requires differentiating between the performance of the “ordinary” teams, subject to the regulation, and

¹² Upper and lower limits of boxes represent the 25%/75%-quartile, the median is plotted as a line within the box. Dots represent outliers according to a standard Tukey outlier definition of 1.5IQR (Tukey, 1997).

¹³ For a discussion of the repercussions of inequality between first and second division, see H. M. Dietl et al. (2008)

the “exemption teams” with more scope for external investors. From this, we derive the following hypothesis:

H1: Teams, which have an exception from the 50plus1-rule, differ systematically in their development by having higher budgets and sporting success over time from clubs that fall under the rule.

We use a generalized Difference-in-Difference (DiD) approach to estimate the effect of the intervention on team’s players’ budgets (Y_{it}) and sporting success measured in points in the season (P_{it}). A Difference-in-Differences approach is especially useful when randomization on the individual level is not possible (natural experiment). While we cannot designate ourselves which entities get the treatment, the data, however, does clearly define the subpopulation that was exposed to the intervention. We estimate an OLS regression model with fixed-effects and the empirical model takes the following form.

$$Y_{it} = \beta_0 + A_t + F_i + \beta_1(C_{it} \cdot T_{it}) + \beta_2P_{it-1} + \epsilon_{it} \quad (1)$$

Here, A_t denotes season-fixed effects, and F_i stand for the included team-fixed effects. We assume that ϵ_{ijt} is a mean zero, constant variance random variable, while β_i are parameters to be estimated. β_1 is the parameter of interest in our DiD-specification, an interaction term of the dummy variables of the treatment vs. control group status of team i in period t , $C_{it} \cdot T_{it}$ (making it subject to the treatment) and the team i being subjected to the intervention of the 50plus1-rule¹⁴. It is the average estimated effect of the treatment of an exception from the rule. We use points in the previous season as a proxy of past sporting success. Lagging success in the championship by a whole season alleviates concerns of reverse causality in the model.

Our model includes multiple pre- and post-treatment periods because the intervention of the 50plus1-rule does not affect all entities at the same time. Therefore, we employ a generalized version of the Difference-in-Differences method. Not all exceptions were immediately granted with the introduction of the 50plus1-rule (varying pre-/post-treatment phases). For instance, TSG 1899 Hoffenheim switched from the Pre-Period to the Post-Period by gaining an exemption from the 50plus1-rule after not being

¹⁴ Implementation of all estimations was done in STATA v16 using factor variable notation.

subject to the intervention from 1999 until 2015. For this specific analysis, we compare exemption clubs to all other clubs (which are subject to the rule).¹⁵ Clubs that obey the 50plus1-rule are in the control group, clubs that have an exception constitute the treatment group (see Table 2). With regards to budgets, this leaves us with 30 clubs; 27 in the control group of being affected by the rule at some point of the panel and 3 with the treatment receiving an exception from the rule. Considering points, we observe 33 clubs respectively 30 with the treatment.

Table 2, Difference-in-Differences setup

50plus1(Intervention)

↓

	<i>Pre-Periods</i>	<i>Post-Periods</i>
Treatment	All clubs	Clubs with exceptions (3#)
Control	(including clubs with investors, 30#)	Clubs subjected to the rule (27#)

↕ *DiD-Estimator*

Moreover, we apply a similar approach to seasonal points of teams. Here, the budget variable (B_{it}) is log-transformed to account for the strong positive right skewedness of the distribution, which is common for almost all wealth distributions.

$$P_{it} = \beta_0 + A_t + F_i + \beta_1 \text{Log}B_{it} + \beta_1 (C_{it} \cdot T_{it}) + \epsilon_{it} \quad (2)$$

In a third and fourth model, we interact the effect of the treatment with the budget of the team (Y_{it}) and the lagged sporting success (P_{it-1}) respectively, and use budgets/sporting success as a dependent variable.

$$B_{it} = \beta_0 + A_t + F_i + \beta_1 C_{it} \cdot T_{it} + \beta_2 P_{it-1} \cdot (C_{it} \cdot T_{it}) + \epsilon_{it} \quad (3)$$

$$P_{it} = \beta_0 + A_t + F_i + \beta_1 C_{it} \cdot T_{it} + \beta_2 B_{it} + \beta_3 B_{it} \cdot (C_{it} \cdot T_{it}) + \epsilon_{it} \quad (4)$$

To adjust for a possible deviation from the parallel paths assumption, we use covariates in our Difference-in-Differences approach. We regress the effect of the covariates including the treatment on the budget of Team i in Season t (B_{it}). We proxy past success by using the end-of-season points from the

¹⁵ Clubs that run their teams without an intermediate corporation formally do not fall under the 50plus1-rule. However, due to their non-profit membership club character, they cannot take in equity investors at all. As such they are economically more similar to the intervention group than to the exemptions.

previous season (P_{it-1}). Decisions on next season's budget occur near the end of the previous season, therefore, a causal yet exogenous relationship is in place. We employ a time fixed-effects and team fixed-effects model. Our two-way fixed-effects model eliminates bias from unobservable variables that change over time but are constant over teams, and controls for factors, which differ across teams but are constant across seasons. The constant variables for entities, which correlate with the independent variable, are dropped. A fixed-effects model seems applicable to our case because we suspect many of the omitted variables to be time-invariant. The location of a football team does not change over time (there is not a single re-location in our sample), as re-locations are not as frequent as in American sports leagues (Depken, 2016). The effect that a team's home city has on the team is invariant across time and cities/regions develop rather slowly. The effect that management has on the team is rather constant and management of football teams tend to change rather slowly compared to individual talent (players on the team), or seasonal budgets. The financial resources of a team determine the ability to pay for talented players, therefore we assume that this also correlates with the ability to pay for talented coaches and athletic staff. Contrary to other Difference-in-Differences models, we use team fixed-effects F_i instead of group fixed-effects because teams are not specific to their group and change status over time.

We acknowledge the limitations of the Difference-in-Differences approach. However, we support the parallel paths assumption for our data as we observe reasonably similar trends (note: not similar outcomes) among the control group and the treatment group (see Table 2) before the intervention (see Figure 2). Figure 2 plots the means of the control group versus the treatment group and shows parallel movement among both groups.

The panel regression interacting the time-variant variable with the group dummy gives us the following marginal effects (Marcus & Sant'Anna 2021):

Table 3, marginal effect of control vs treatment group

	Marginal effect (dy/dx)	Std.Err.	z	P>z	[95%Conf. Interval]
Season					
ControlvsTreatmentGroup					
0	3644880	515390	7.070	0.000	2634734 4655026
1	3376559	548361	6.160	0.000	2301791 4451327

The coefficients show no significant differences from one another at the 95%-CI. This examination leads us to conclude that the parallel paths assumption is reasonably adequate. The deviation from the parallel path (e.g. by FC Bayern München) occurs only after the intervention and is therefore included in the estimation of the Diff-in-Diff estimator.

Serial correlation of dependent variables is a standard limitation in Difference-in-Differences estimations (Bertrand et al. 2004). Our inference draws from a considerably long time series (30 years), which raises the likelihood of serial correlation. Cameron et al (2008) showed that clustering standard errors that allow for heteroscedasticity under within group dependence leads to standard asymptotic tests over-rejecting. However, this is only true with very few clusters (5-30) and our dataset, therefore, fulfills the requirement for the sensible use of robust standard error to account for serial correlation.

Considering the Stable Unit Treatment Value Assumption (SUTVA; Rubin, 1986), there might be spillover effects of the treatment from the treatment group to the control group. If treatment clubs raise their budgets, control clubs likely try to keep up by also elevating their budget as they compete for the same end-of-season positions and players' talent. For our analysis, we assume that this spillover effect affects all entities at the same intensity. It is possible that clubs at the lower end of the budget hierarchy are more affected by this spillover effect because lower revenue clubs are more likely to have maintained the non-corporate legal status and therefore not be eligible for an exception from the rule. Non-corporate clubs achieve an average (mean) of 41.8 points in a season with an average budget of €28.8 million, where corporate clubs achieve 49.1 points with an average €45 million in 13 out of 17 seasons¹⁶, more than half of the non-profit membership clubs had a budget below that seasons' average.¹⁷ If anything, the effect of the non-treatment is overestimated by this identification strategy, making the intervention of the 50plus1-rule more efficacious than its truly is.

¹⁶ Due to limitations of our data, only 17 seasons allowed for such a statement.

¹⁷ Relative spending is of higher importance than absolute spending, given an efficient player's market (Leach & Szymanski, 2015).

5. Results and Discussion

Table 4, Results

VARIABLES	(1) Budgets	(2) Points in Season	(3) Budgets	(4) Points in Season
Exception = 1	-13.80 (0.116) -31.23 - 3.617 (8.518)	5.974*** (0.0004) 2.844 - 9.104 (1.542)	-10.63 (19.74) -51.00 - 29.74 (0.594)	-2.196 (0.561) -9.801 - 5.409 (3.746)
Budget in Season (log)		0.157*** (0.000) 0.0880 - 0.227 (0.0342)		0.152*** (0.000) 0.0868 - 0.217 (0.0320)
Points in previous Season	0.566** (0.0301) 0.0583 - 1.074 (0.248)		0.575* (0.305) -0.0492 - 1.199 (0.0696)	
Exception#Budget				0.163** (0.0306) 0.0162 - 0.311 (0.0725)
Exception#Points in Previous Season			-0.0549 (0.431) -0.937 - 0.827 (0.900)	
<i>Team-Fixed Effects</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Season-Fixed Effects</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Constant	-3.775 (15.91)	45.20*** (0)	13.27 (7.966)	45.31*** (0)
Observations	268	329	268	329
R-squared	0.373	0.345	0.399	0.127
Number of Teams	30	36	36	36

P-values, Robust SE in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

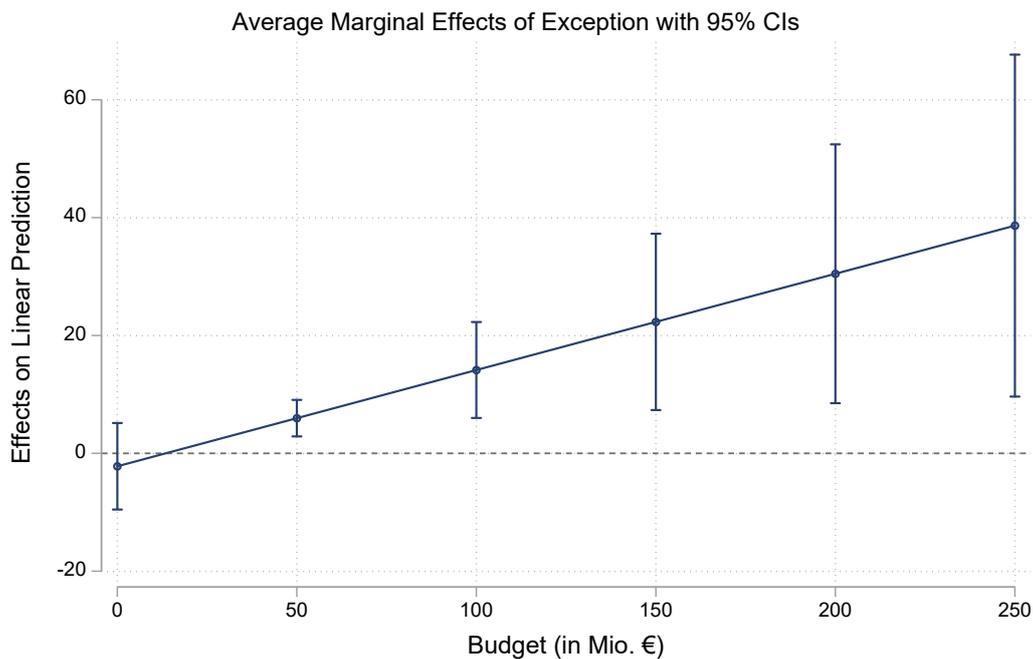
Table 4 shows the overview of the regression results. In model (1), we do not find a significant effect of an exception from the 50plus1-rule on budgets (-13.80 with a 95% CI = $-31.23 ; 3.617$). Since the 95%-Confidence Interval is not significantly different from zero, the coefficient estimating the influence

on budgets is insignificant¹⁸. Having an exception from the 50plus1-rule appears to be, contrary to some parts of literature (see section 2), not a guaranteed way for clubs to gain a financial edge on competitors. According to model (2), however, an exception from the rule does have a significant positive effect on sporting success, measured by points per season. Also, budgets have a positive significant effect on the points in the season (0.157***). Points in the previous season significantly and positively influence budget in the following season (0.566**).¹⁹ In models (3) and (4), the negative coefficient for the effect of budgets on points must be interpreted in context. In order to interpret the interaction term of budgets and having an exemption from the 50plus1-rule, an average marginal effects of the intervention approach is employed. When interacting the treatment dummy with the budget variable, we observe a positive trend of having an exception on budget depending on previous budget (see Figure 6). This effect is statistically significant as all 95%-CI for all values in the sample are above zero. With an increase in the budget of a team, the differences from having an exemption from the rule increase, yet the 95%-CI do not differ therefore from one another significantly. Being subject to the 50plus1-rule or having an exception matters more for higher budget teams (see Figure 7). The average effect of having an exception increases the increase in budget. The higher the budget before intervention, the higher the increase after. Therefore, we can infer a distortion of financing opportunities by the rule as it affects smaller clubs significantly less than bigger clubs. Based on our empirical evidence and theoretical groundwork on the pay-performance relationship, it could be suspected that this influences sporting success as well. Having an exception from the 50plus1-rule does influence sporting success positively. A higher efficiency of budget use/resource spending seems to appear in exempted clubs rather than in non-exempted clubs.

¹⁸ For robustness checks, see Figure 3-6 in the appendix.

¹⁹ Our results support the well-established *pay-performance* relation (Forrest and Simmons (2002); Franck and Nüesch (2011)), where investments into players in previous periods (as well as in the same period) correlate with the placing within the championship race.

Figure 2, Average Marginal Effects of an exception on budgets



In our dataset, we observe a low number of high budget teams with an increasing upward trend and a high number of relatively low to medium budget teams which are persistently stagnating when adjusted for inflation. Both financial imbalance and competitive imbalance have been constantly increasing during the last 20 years with this trend being more relevant for the increasing inequality of budgets than for the inequality of points allocation. In the more recent seasons, this development correlates with sporting dominance by FC Bayern München who enjoys a substantially (multiple times) higher budget than every other club and won all Bundesliga seasons since 2012. We do not find empirical evidence that the 50plus1-rule prevents or reduces financial imbalances. However, the introduction of the investment-limiting rule seems to have effects on the sporting competition. In conclusion, the regulation apparently misses its stipulated goal of preventing financial imbalances. Moreover, it is not neutral to sporting competition, and, therefore, fails its second goal of being neutral to competition.

Furthermore, given the severity of the intervention (effectively restricting the freedom of business), our analysis shows that limiting financial and competitive imbalances must be addressed by other means. An obvious choice could be the allocation scheme of common revenues like television/media money (Budzinski 2018) or the cartel-like structure of selling media rights (Budzinski et al., 2019)). Higher

placement in the league gives teams access to international competitions. These international competitions yield considerable revenues from, inter alia, international broadcasting rights and additional ticket and merchandise sales.²⁰ Access to international competition brings an advantage to high placing teams that other competitors cannot enjoy, further fueling an uneven playing field in the following time periods (Peeters, 2011). In addition, on the international level like in UEFA's Champions League and Europa League, German clubs may experience a loss of competitiveness. The teams may be at a disadvantage through the limitations of their economic investment behavior, imposed on them by their domestic league, since most other European Leagues (except for France's Ligue 1 with the *Direction Nationale du Contrôle de Gestion*; Andreff, 2007) do not limit external investments. Empirical studies support this conjecture (Drut & Raballand, 2012). If international competitiveness matters, either an UEFA-wide solution (without exemptions) or abolishment of the rule represents sound solutions. In summary, the financial imbalances are market-internal and caused by institutions that the league itself enforces on the competition, and not by any investment behavior-related market failure.

Our empirical analysis indicates that the exceptions to the 50plus1-rule distort competition within the league. Thus, the 50plus1-regulation falls short of the goal of the market-internal regulator to establish an investment regulation that is neutral to competition. This result is hardly surprising as putting competitors from the same league under different investment regulation violates the notion of a competitive level-playing field. Thus, one implication of our analysis is to abolish the exemptions from the 50plus1-rule and to withstand the lobbyism of incumbent beneficiaries of investor ownership like Bayer Leverkusen or VfL Wolfsburg. If a restrictive rule on investment can be justified at all, it must be non-discriminatory and must not contain tailormade exceptions. The complex conditions for granting new exemptions may be the same for everyone on paper, but its properties are difficult to interpret in any different context than incumbency protection. Obviously, next to abolishing the exemptions, abandoning 50plus1 as a whole would also erase the distortive effects from the regulation.

²⁰ In the 2003 season, the total amount of payouts to participating clubs in the UEFA Champions League, UEFA Europa League and UEFA Super Cup amounted to €549 million (UEFA (2005). Compare that to the 2019 season, where the officially estimated payouts are four to five-fold (€2.55 billion) (UEFA, 2019).

6. Summary and Conclusion

The 50plus1-rule limits investment into a majority of commercial football teams in Germany by limiting the voting rights for the investors. A number of teams, however, are exempted from the rule due to various reasons. Our analysis casts doubt on whether the 50plus1-rule is an adequate tool to achieve the goals it intends to. Neither financial nor competitive imbalance has been reduced since the implementation of the investment-restricting rule. While other driving forces may be responsible for the increasing inequality, there is no empirical indication that the 50plus1-rule was effective in limiting such a development. Combined with the severity of its intervention into the freedom of business and the theoretical doubts on both its effectiveness and efficiency, we cannot derive a justification for the existence of the 50plus1-rule from our analysis. Quite in contrast, the rule itself is likely to cause distortions to competition. Next to disadvantaging German football teams in international competitions, the exemptions that are inherent to the 50plus1-rule cause anticompetitive concerns. Teams not restricted by the rules should enjoy a competitive advantage over their rule-bound competitors. Our empirical analysis reveals indication of distortive effects within the league. Consequently, the rule, as it is, must be classified to be anticompetitive.

The within-league anticompetitive effects of the 50plus1-rule may be alleviated by discarding the exemptions (as well as by closing loopholes). The current proposal of the German football league, however, would continue the unlevelled playing field. The suggestion of compensation payment acknowledges the competitive advantages of the exempted teams. However, instead of trying to re-install a level-playing field by implementing another complication to the rule (with unclear effects given that the appropriate amount is as difficult to estimate as it is to design an efficient system of how the compensation money is distributed or used), it would be much more straightforward to abolish the exemptions altogether. However, while this would re-create a level-playing field for the teams in terms of investment-intake, even such a general 50plus1-rule without exemptions may exert an undesired anticompetitive effect by conserving and cementing the existing financial imbalances within the league. Differences in budgets are ever-increasing and the distance between few top teams and the rest has become so large

that it cannot be realistically bridged by any team anymore without considerable catching-up investments. Limiting investment-intake, thus, takes away the probably only option for midfield teams to ever compete on equal sporting terms with the top teams. In other words, a sporting level-playing field is destroyed because of the path-dependency of past success and future budgets, a natural phenomenon further fueled by other market-internal institutions like the unequal allocation of common revenues among the teams (Budzinski, 2018).

In summary, if financial and competitive imbalances shall be addressed by the market-internal regulator (the league), then institutions like the 50plus1-rule do not represent an effective and efficient avenue. Instead, institutions like (more equal) revenue distribution schemes represent more promising ways. While the Bundeskartellamt (2024) is still investigating, one of the exemptions – TSG Hoffenheim – has given up on its special status (November 2023) whereas the Volkswagen AG has tightened its grip on another exemption – the VfL Wolfsburg.

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Tables & Figures

Table 5, Descriptive overview of the dataset

Variable	Obs	Min.	Max.	Median	Mean	Std. Dev.
Budget (infl)	414	€6.1m	€262.2m	€33.4m	€38.7m	€26.2m
Points (season)	432	18	91	44	46.66	13.4

Table 6, Difference-in-Differences setup

50plus1(Intervention)

↓

	Pre-Periods	Post-Periods
Treatment	All clubs	Clubs with exceptions (3#)
Control	(including clubs with investors, 30#)	Clubs subjected to the rule (27#)

↕ *DiD-Estimator*

Table 7, marginal effect of control vs treatment group

	Marginal effect (dy/dx)	Std.Err.	z	P>z	[95%Conf. Interval]
Season					
ControlvsTreatmentGroup					
0	3644880	515390	7.070	0.000	2634734 4655026
1	3376559	548361	6.160	0.000	2301791 4451327

Table 8, Results

VARIABLES	(1) Budgets	(2) Points in Season	(3) Budgets	(4) Points in Season
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R-squared	0.373	0.345	0.399	0.127
Number of Teams	30	36	36	36

P-values, Robust SE in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Figure 3, Development of budgets²¹

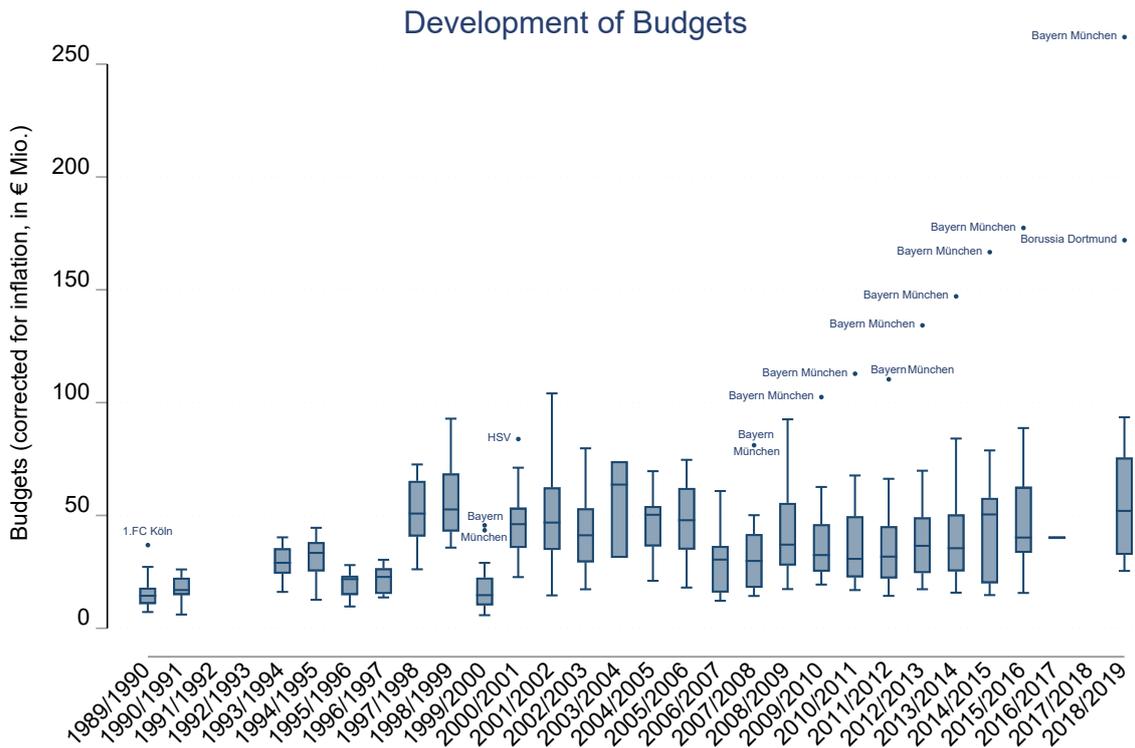
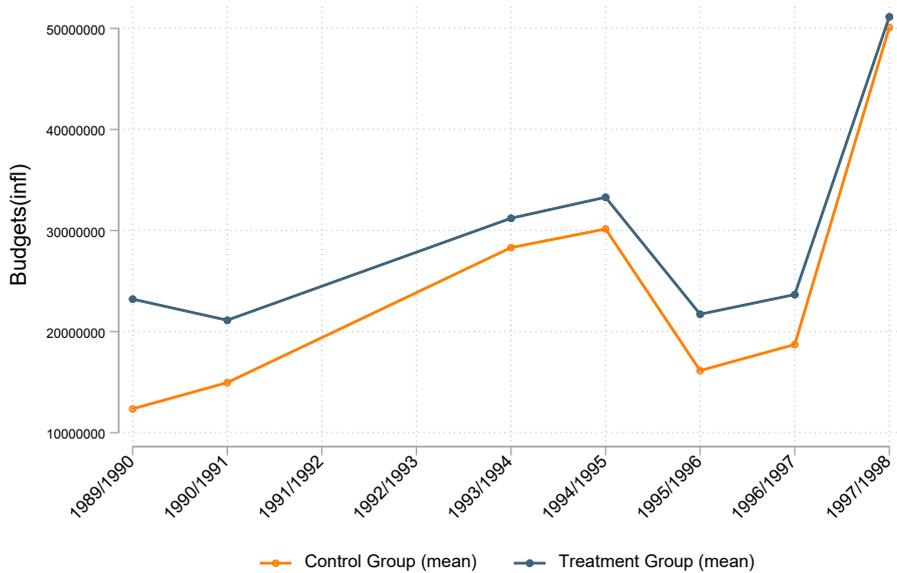


Figure 4, Parallel paths before intervention



²¹ Upper and lower limits of boxes represent the 25%/75%-quartile, the median is plotted as a line within the box. Dots represent outliers according to a standard Tukey outlier definition of 1.5IQR (Tukey, 1997).

Figure 5, Residuals Model (1)

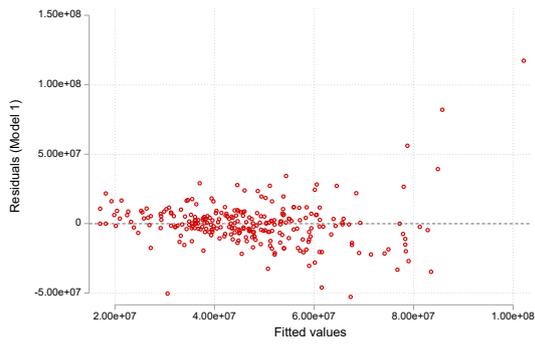


Figure 6, Residuals Model 2

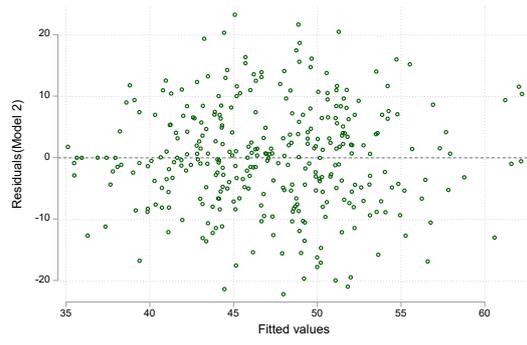


Figure 7, Residuals Model (3)

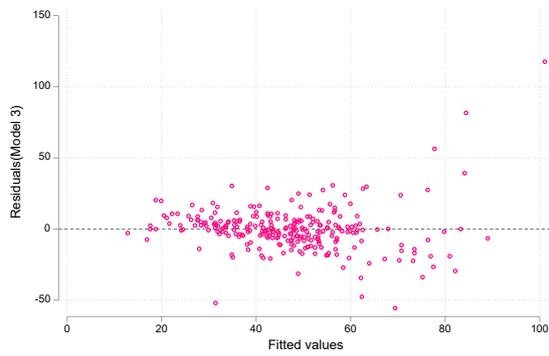


Figure 8, Residuals Model (4)

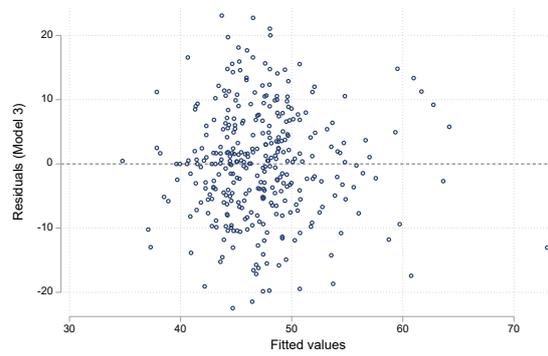


Figure 9, Average Marginal Effects of an exception on budgets

