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Salient to Whom? The Positioning of German Political Parties on Agricultural Pollutants in Water Bodies

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Abstract: Scholars have increasingly argued for an integration of policies on agriculture and water due to their strong interlinkage. The entry of agricultural pollutants into water represents one of the main pressures on Europe's ground and surface waters. This not only poses a risk to the environment and human health but also jeopardizes meeting the targets set by the EU Water Framework Directive. Research on the political agenda setting has shown that issue salience is key for triggering policy change. Nevertheless, Germany has repeatedly failed to adopt adequate policy measures despite the salience of the issue among the German public and increasing pressure by the EU. In this study, I shed light on the positioning of political parties in Germany on agricultural pollutants to explain the absence of policy change. More specifically, I ask whether there is an ideological division between political parties that hampers the adoption of effective, integrated policy measures. A qualitative content analysis of election manifestos published between 1998 and 2018 finds that political parties' policy positions are predominantly influenced by their placement on an environmental and an economic ideological dimension. As a result, political parties in Germany advocate conflictive policy approaches, which is detrimental to the adoption of effective policy measures.

Keywords: Germany; water pollution; political parties; integrated water resource management; policy proposals; salience; surface water; agriculture

1. Introduction

Agriculture and water are strongly interlinked, functionally and politically. Not only is the agricultural sector heavily dependent on the availability of water, agricultural activities also have an impact on water quality [1–5]. In fact, intensive agriculture represents one of the main pressures on ground and surface waters [6–8]. Pollution of water bodies by nitrate represents one of the biggest water quality issues in Germany [9]. Increasing nitrate concentrations in water bodies, which result from the intensive use of manure as organic fertilizer, are not only harmful to the aquatic ecosystem but also pose a risk to human health [10,11].

Levels of nitrate concentration in groundwater in Germany have been exceeding legal thresholds set by the European Union (EU) for almost two decades. The European Commission sent an official warning letter to the German ministry of environment in July 2019, requesting a proposal for adequate mitigating policy measures within eight weeks. Failure in compliance would entail a second proceeding before the European Court of Justice, which could result in fines of up to 850,000 € per day [12]. A first ruling by the court in 2018 found implemented measures and Germany's revision efforts insufficient. Germany has repeatedly breached the EU's nitrate directive (Council Directive

91/676/EEC), which forms a central part of the EU Water Framework Directive (WFD) and represents one of the key instruments in the protection of water bodies against agricultural pollutants [13]. The warning letter in July 2019 thus represents a further step by the European Commission in an ongoing dispute, which potentially now entails costly consequences for Germany.

The case at hand represents an empirical puzzle for several reasons. Environmental policy in the European Union has been strongly influenced by a few member states. Among others, Germany was one of the 'green' environmental leader states who shaped EU environmental policy in the 1980s and early 1990s based on their comparatively stringent domestic legislation [14–17]. In addition, Germany was the driving force behind the application of the precautionary principle as a binding principle for dealing with uncertain risks, including risks posed by chemicals or other substances to the environment or human health [18,19]. In other cases, such as brominated flame retardants (BFRs), polychlorinated biphenyls (PCBs), or genetically modified organisms (GMOs), Germany was among the first EU member states to take precautionary measures and issue application bans [16,18,20,21].

Consequently, one would expect Germany to be one of the leading EU member states in adopting policy measures against nitrate pollution, considering the uncertain risks to human health and the environment. However, this is not the case. For many years, Germany largely ignored the threshold for nitrate concentrations in groundwaters. Only when the EU Commission sent a first letter of formal notice in 2013, urging the German government to implement adequate policy measures, did the German federal government begin revising the German regulation of fertilizers application [12,13]. Nevertheless, the revision process has been strongly influenced by Germany's influential agricultural lobby [22,23]. After its adoption in 2017, the new regulation was largely criticized by environmental organizations and the Greens, Germany's green party, for not being strict enough [24,25]. More importantly, the revision did not satisfy the European Commission, who then took the case to the European Court of Justice, resulting in a first ruling against Germany followed by the warning letter in July 2019 [13].

Evidently, the absence of adequate policy outputs has resulted in increasing pressure on Germany to react. Furthermore, the pollution of groundwater by nitrate is not the only issue with regard to agricultural pollutants. Germany not only fails to follow the nitrate directive but also risks failing to achieve the overall objectives of the EU Water Framework Directive. In 2015, only 7% of German water bodies were in a good or very good ecological condition, as demanded by the directive. Agricultural pollutants represent one of the main causes for the sub-par ecological conditions of the other water bodies. This is not only due to the entry of nitrate but also due to increasing levels of other agricultural pollutants, among them pesticides, artificial fertilizers, and pharmaceutical residues from veterinary medicine [26–28].

Furthermore, the level of media attention and public opinion polls point towards an existing salience of the issue in the last couple of years. Comparative politics literature on public opinion has repeatedly shown that the salience of issues to voters has an impact on the policy positions of political parties and ultimately on policy outputs [29]. Results of the eurobarometer, a survey continuously carried out by the European Commission among European citizens, show an existing awareness of the issue. Asked in 2012 on what the main focus should be for safeguarding water resources, 43% of German respondents chose pollution from agriculture as the second most important water quality issue after pollution by the industrial sector [30]. Another eurobarometer carried out in 2014 asked respondents to choose the 5 environmental issues they considered most important from a choice of 10. In Germany, 54% of respondents picked pollution of rivers, lakes, and groundwater and 35% chose agricultural pollution by pesticides and fertilizers [31]. In 2017, 35% of respondents chose pollution of rivers, lakes, and groundwater and 40% chose agricultural pollution by pesticides and fertilizers when asked to pick the four most important issues [32]. Although these numbers cannot directly be compared, due to the slightly different designs of the survey questions, they nonetheless show that the German public has continuously assigned a certain level of attention and priority to the issue of water quality and agricultural pollution. Nevertheless, it seems as if this attention did not have a strong impact on decision-making.

In a nutshell, Germany has repeatedly failed to adopt adequate policy measures to mitigate pollution by nitrate [13], pesticides, and other agricultural pollutants, despite the originally leading role it played in EU environmental policy, increasing pressure by the European Union, as well as the salience of the issue among the German public. Since none of these factors correspond with the absence of policy change, other factors need to be considered.

In the following, I will argue that the answer lies in deeper ideological divisions between the German political parties. The first ideological difference refers to the so-called ‘new politics’ cleavage that added an environmental dimension to agricultural policy [33,34]. The second division concerns political parties’ basic idea of the state’s role in the economy. Both help to explain why political parties in Germany have different positions on how to deal with agricultural pollutants in water bodies and why they struggle to agree on integrated policy measures or other adequate policy instruments requested by the European Commission and the European Court of Justice.

Political parties represent crucial actors within democratic political systems and strongly influence policy formulation [35–37]. Through the introduction of the Common Agricultural Policy (CAP), EU member states gained greater control over agricultural policy. State governments’ competencies also increased in federal political systems [38,39]. In Germany, the German states have a significant influence on policies, including water quality protection and agriculture [40,41]. Consequently, political parties at both the federal and state levels embody influential actors when dealing with the issue of agricultural pollutants in Germany.

To further investigate the argument posed above, I will analyze political parties’ positions on agricultural pollutants in water bodies in Germany. The basis for this investigation will be party manifestos published during federal and state elections between 1998 and 2018.

The empirical analysis is guided by the following research questions: Do political parties in Germany address the issue of agricultural pollutants in water bodies? When addressing the issue, do parties refer to the interlinkage between water quality protection and agricultural policy? To what degree can ideological divisions between parties explain different positionings on the issue?

Literature on agricultural pollutants in water bodies within the social sciences is still limited. Studies addressing the interlinkage between water quality protection and agriculture mainly take two perspectives. The first strand of literature approaches the issue from a governance perspective. Most of these studies shed light on the role of public participation [42–49]. The second strand analyzes agricultural pollution from a nexus perspective, paying special attention to coordination challenges between different policy fields [50–52]. The role of political parties in dealing with agricultural pollutants in water bodies has not yet been addressed.

This study proceeds by discussing the integrated water management (IWRM) as an approach to mitigate pollution. Subsequently, theoretical expectations of political parties’ positions on agricultural pollutants are derived. This part is followed by a short section on the data and methods used. Afterwards, the empirical findings of a qualitative analysis of political parties’ positioning on agricultural pollutants are presented. The paper ends with a discussion of the empirical findings.

2. Integrating Water and Agricultural Policy

The literature has increasingly argued for an integration of policies when dealing with environmental protection issues [53–57]. With regard to water quality protection, the integrated water resource management principle has become one of the guiding principles of water management. The principle can be defined as “a process which promotes the coordinated development and management of water, land and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems” [58]. The overarching aim is the sustainable preservation of multiple functionalities of the resource water. Water issues typically stem from activities exogenous to the water sector, necessitating an integration between water protection and other policy fields. This tends to be termed ‘horizontal integration’ [54–57,59–61].

Water pollutants typically originate from different economic sectors. An issue with the increasing attention is the entry of micropollutants into water bodies. Micropollutants occur at very

small concentrations, with a maximum of around one microgram per liter, which differentiates them from other pollutants [62]. They can be traced back to a diverse set of entry points from many different sectors, including agriculture, energy (mainly heavy metals from coal energy [63–66]), or the pharmaceutical industry (through communal wastewater [67–73]). When designing policies to ensure water protection and improve water quality, these sectors must be addressed as well in order to find effective and sustainable solutions.

This article focuses on the intersection between water quality protection and the agricultural sector. In particular, it sheds light on agricultural pollutants in water bodies, which represents one of the most severe issues for water protection in Europe [5,6,74,75]. The discharge of nitrate into ground and surface waters is one of the biggest water quality issues in Germany. In addition, water bodies are increasingly being polluted by agricultural micropollutants, such as pesticides or artificial fertilizers, which has potentially detrimental effects on the aquatic ecosystem. The pollution of ground and surface waters by these substances can be traced back directly to agricultural activities, especially to intensive industrial agriculture. Agricultural pollutants represent a complex problem that is especially difficult to address due to interactions, uncertainty, and interdependencies among diverse and competing interests [46,76]. The main interests in agriculture are food security and the protection of farmers' livelihoods. However, the promotion of these interests often conflicts with the interests of environment and water resource protection [77–79].

When formalizing the IWRM, and recently, when developing the 'nexus' approach, scholars as well as policy makers with an interest in environmental protection and sustainability have argued for the integration of agriculture and water quality protection [52,77,80].

3. Theoretical Considerations

Currently, there is insufficient empirical research on the positioning of political parties on pollutants that stem from agricultural activities, such as pesticides, artificial fertilizers, or nitrate. It remains open whether these actors address agricultural pollution, whether they refer to both water quality protection and agriculture in an integrative way, and what positions on policy measures they take in case the issue is addressed.

In order to derive theoretical expectations of political parties' positions on agricultural pollutants, it is conducive to refer to existing research on agricultural paradigms and the positioning of political parties on agricultural policy [81–85].

Agriculture in Europe has been treated as an exceptional sector, mainly due to two reasons: The sectors' vulnerability and food security. Both lead to a state-supported, subsidy-based agricultural policy primarily aimed at maximizing yield. Farmers played an important role, their interests were mostly prioritized, and policies predominantly served their needs [81,82,84]. The paradigm of agricultural 'exceptionalism' not only led to higher yields and increased food security, it also increased industrialization of the agricultural sector and intensified livestock production, which in turn led to an increased use of pesticides, fertilizers, and manure. As a result, the entry of these substances into ground and surface waters also increased, detrimentally affecting water quality and the functioning of the aquatic ecosystem [86–92].

Post-exceptionalism emerged as a new agricultural paradigm out of the increasing awareness for climate, environmental protection, and sustainability. Food security remained central, but further aspects, including climate, environmental protection, and biodiversity, were included as reasons for the agricultural sector's exceptional state support. Farmers remained of special importance for food production but now also for mitigating climate change, preserving biodiversity, and protecting the environment [82,84,93]. In addition, new actors relevant to achieving these aims within agricultural policy were included, including processors, wholesalers, environmental organizations, and water associations [83,85,94].

With regard to water, it was not only the pollution of ground and surface waters that increased in connection with 'exceptionalism'. The protection of water resources had no priority in agricultural policy and was rather neglected. This changed with 'post-exceptionalism'. Although the intensification of agricultural activities continued, water became relevant as an issue to biodiversity,

climate and environmental protection, and sustainability. New actors, namely environmental organizations, water associations, and green political parties, entered agricultural politics and demanded that the protection of water resources be included within agricultural policy.

Following cleavage theory, party systems in Western democracies evolved along social cleavages—among others along an economic left–right ‘capital vs. worker’ cleavage [95]. These cleavages not only lead to distinct party families but also to relatively stable policy ideas that are advocated by political parties [85]. Socio-cultural changes in the second half of the 20th century resulted in a ‘new politics’ cleavage that also included an environmental dimension, with green parties divided from most other parties [33,34,96,97].

In light of ‘post-exceptionalism’ and ‘new politics’, agricultural policy became relevant not only for agrarian and conservative parties but also for green parties [85]. Based on these considerations, political parties can be expected to differ in their positions on agricultural policy with regard to whether they have strong ties to farmers’ interests and whether they prioritize environmental protection. Especially, green parties characterized by a strong emphasis on environmental protection should favor an integrated policy approach to water protection and agriculture and support corresponding policy measures.

In Germany, the Christian Democratic Union (CDU) and the Christian Social Union (CSU) represent strong supporters of the agricultural sector and are both associated with the idea of ‘exceptionalism’. Conventional farmers represent an important part of their constituency and both parties have prioritized their interests. Furthermore, Germany’s conventional farmers associations are powerful and have strongly influenced both parties [93]. In government, CDU or CSU also typically lead the ministry of agriculture, which also indicates that farmers represent a high priority to both parties [85,98]. Representing conventional farmers’ interests and protecting their livelihoods, therefore, is of high priority for both German Christian democratic parties. Adopting policy measures within agricultural policy that aim at protecting the environment typically entails costs for conventional farmers. Therefore, I expect both parties to neglect environmental aspects when taking positions on agricultural policy.

Expectation 1a: The CDU/CSU do not address the issue of agricultural pollutants and do not refer to an integration of water protection and agricultural policy.

Germany’s green party, Alliance’90/The Greens, is expected to take a contrary position on the issue. Environmental protection is the party’s most central topic. The party generally favors policy approaches that aim at sustainable outcomes and, therefore, is more inclined towards the paradigm of ‘post-exceptionalism’ [85]. Furthermore, the party tends to prioritize consumer interests over the interest of farmers [99]. Links to conventional farmers are comparatively weak. Instead, the party has strong ties to environmental protection organizations. In general, the Greens favor a fundamental paradigm shift in agricultural policy towards organic agriculture [85,93].

Expectation 1b: Alliance’90/The Greens do not address the issue of agricultural pollutants and do not refer to an integration of water protection and agricultural policy.

Apart from the ‘new politics’ cleavage, the more traditional economic left–right dimension is relevant to the positioning of political parties on the issue of agricultural pollutants as well. This dimension refers to parties’ positions on the economy and whether they support state intervention or market liberalism. Center and right-wing parties typically oppose strong state intervention. Instead, these parties believe in the viability of the free market [85]. In Germany, CDU/CSU, the liberal Free Democratic Party (FDP) as well as the right-wing party Alternative for Germany (AfD) can be located on this side of the divide [100]. Even when these parties advocate for environmental protection or sustainability, they oppose hard regulations and instead promote technological progress as a means to achieve more efficient and sustainable solutions. Therefore, these parties can be expected to oppose any policy measures that intervene strongly in the economy (such as prohibitions or taxes) and instead advocate measures promoting technological progress.

Expectation 2a: The CDU/CSU, FDP, and the AfD oppose any policy measures aimed at reducing the entry of agricultural pollutants into water bodies that involve strong state intervention in the agricultural sector.

In contrast, center-left and left-wing parties believe in the necessity of intervention in the economy due to negative externalities and, therefore, generally favor strong state intervention [85]. Alliance'90/The Greens can be classified as a center-left party due to their origin and the positions they take on various policies. In terms of agricultural policy, the party's demand for a forced paradigm shift to organic agriculture involving strong state intervention further indicates their position on the divide. Therefore, Alliance'90/The Greens can be expected to be in favor of policy measures that include strong state intervention in the economy.

Expectation 2b: Alliance'90/The Greens emphasize the need for strong state intervention in the agricultural sector in order to reduce the entry of agricultural pollutants into water bodies and demand equivalent policy measures.

The Left, Germany's strongest left-wing party, and the Social Democratic Party (SPD) typically are located along the workers-vs.-employer cleavage. Environmental policy is only of minor importance to both parties. Consequently, these parties will probably not address the issue of agricultural pollutants. However, in cases where other factors might lead these parties to take a position on the topic, they can be expected to support policy measures that promote a strong state.

Expectation 2c: The Left and the SPD will support policy measures that include strong state intervention when dealing with the issue of agricultural pollutants.

To sum up, differences between political parties are expected regarding the salience of the issue of agricultural pollutants, the addressal of water protection and agricultural policy together in an integrative way, and the positioning towards specific policy measures. I expect these differences to be due to party ideology and the location of political parties along the 'new politics' cleavage and the 'left-right' economic dimension.

4. Materials and Methods

In order to investigate political parties' positioning on agricultural pollutants and empirically examine the theoretical expectations postulated above, this study analyzed party manifestos published between 1998 and 2018. These included federal as well as state elections. The data were retrieved by using 'polidoc.net', a collection of party manifestos [101,102].

Analyzing party manifestos for this purpose assumes that these documents adequately reflect political parties' policy positions and the prioritization of policy issues. This appears to be a credible assumption as parties select and articulate policy positions within these documents in order to gain voter support and secure power [85,103,104].

There are different approaches to determining party positions from party manifestos. The 'Manifesto Project' represents the leading source for data on political party positioning [105]. The project provides a dataset on parties' positioning on a variety of policy issues based on the coding of quasi-sentences within manifestos. The salience of an issue or a party's position on a topic can then be determined by the frequency of respectively coded quasi-sentences within manifestos [106]. A more quantitative approach is to code party positions based on the frequency of specific words used within party manifestos [107–109]. An alternative means of measuring policy positions within party manifestos is to conduct expert surveys [110].

This study used a combination of descriptive statistics and qualitative content analysis based on political manifestos. In order to determine the salience of the issue of agricultural pollutants, the frequency of manifestos containing at least one section or paragraph on the interlinkage between agricultural policy and water quality was determined. Policy approaches to address the issue and positions on specific policy measures were then determined qualitatively by text interpretation.

5. Results

In this chapter, I proceed in three analytical steps. First, I shed light on the salience of agricultural pollutants in Germany. This first part of the analysis provides insights into the attention political parties pay to the issue over time and the differences between party types. Second, I examine the first set of theoretical expectations by investigating whether parties mentioning the issue in their party manifestos also refer to the integration of water protection and agricultural policy. Third, I examine the second set of expectations and analyze political parties' positioning on types of policy measures in more detail guided by the expectation that political parties will position themselves along an economic dimension.

5.1. Attention towards Pollutants in Water Bodies

Political parties in Germany address the issue of agricultural pollutants repeatedly in their party manifestos. Both the overload of organic fertilizers, such as nitrates, and the entry of pesticides and artificial fertilizers into water bodies were discussed in most of the manifestos dealing with agricultural pollutants. Figure 1 provides insights into the level of attention that German parties have paid to the issue between 1998 and 2018. The graph reports the percentage of party manifestos mentioning agricultural pollutants per year. In 1998, about 10% of party manifestos dealt with the issue. Party attention peaked for the first time in 2000, with nearly 38% of manifestos dealing with agricultural pollutants during election campaigns in North Rhine-Westphalia and Schleswig-Holstein. Since then, levels of attention varied between 0% and 35% in 2013. Since 2017, an upward trend can be observed, peaking in 2018, with 57% of party manifestos discussing agricultural pollutants. It is important to be aware that these numbers are very likely influenced by regional differences between German states as different state elections took place each year.

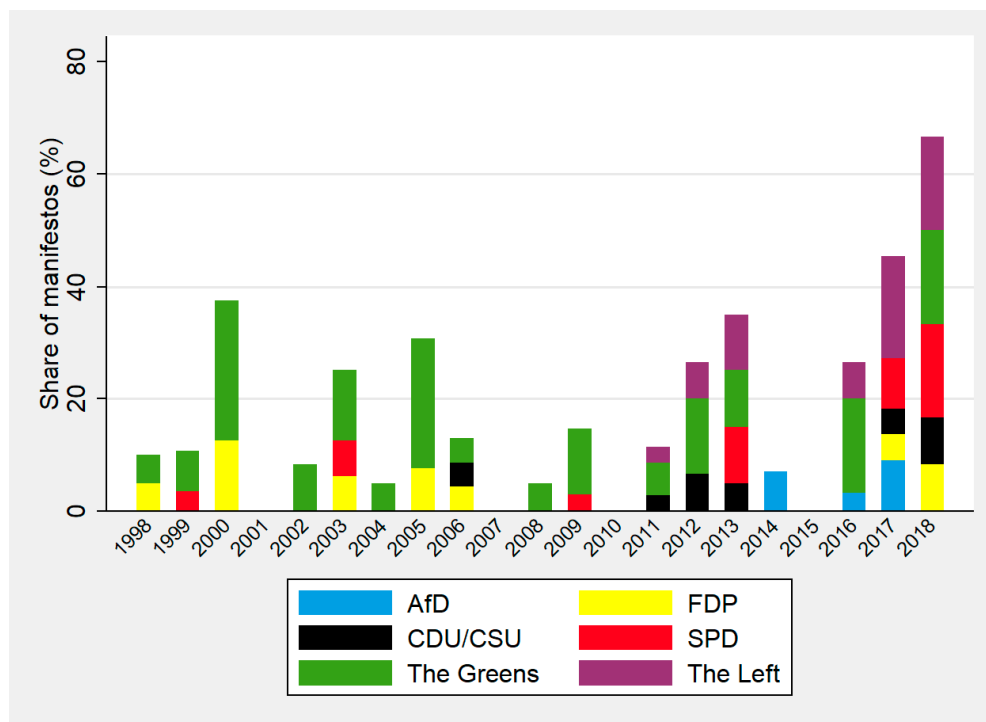


Figure 1. Share of manifestos mentioning agricultural pollutants in water bodies by parties. Note: Due to the varying numbers of elections per year, this graph reports the percentage of manifestos mentioning agricultural pollutants per year instead of reporting total numbers. Years without numbers indicate that elections took place, but agricultural pollutants were not mentioned.

Figure 1 further elucidates the level that each of the German parties pays to the entry of agricultural pollutants into water bodies. As expected, Alliance'90/The Greens addresses the issue

continuously. However, all other parties pay attention to some degree as well. The liberal party mentions the issue mainly in the first half of the observation period whereas the Left turns to the topic in the second half. CDU/CSU and SPD refer to the issue at various points in time and the AfD since 2014, one year after the party's foundation in 2013.

Therefore, German political parties pay attention to agricultural pollutants in water bodies. Attention varies in time and between parties. An upward trend in salience can be observed since 2017.

5.2. Integration of Water Protection and Agricultural Policy?

In a further step, I analyzed whether political parties in Germany refer to agricultural policy when dealing with the issue of agricultural pollutants in water bodies and, in this regard, integrate water quality protection and agricultural policy.

Table 1 gives an overview of the total number of manifestos under analysis and the number of manifestos that refer to agricultural pollutants per political party. In total, the analysis includes 366 party manifestos, most of them published by CDU/CSU and SPD. The column on the far right reports the percentage of manifestos dealing with agricultural pollutants per party. The numbers fit the theoretical expectations very well. Alliance 90/the Greens pay the most attention to the issue by mentioning agricultural pollutants in around 45% of their party manifestos. On the other hand, CDU/CSU mention the issue in only around 8% of their manifestos, even though agricultural policy plays a central role in the party union's manifestos.

Table 1. Agricultural pollutants mentioned in party manifestos.

Party	Manifestos total (number)	Agricultural pollutants (number)	Agricultural pollutants (row percentage)
AfD	16	4	25.00
CDU/CSU	78	6	7.69
FDP	79	7	8.86
The Greens	69	31	44.93
The Left	45	12	26.67
SPD	79	9	11.39
Sum	366	69	

To further evaluate the first set of theoretical expectations, a qualitative content analysis was conducted in order to investigate whether political parties refer to an integration of water protection and agricultural policy when dealing with agricultural pollutants in their manifestos. Manifestos were classified as comprising an integrated approach if the respective political party not only mentions pollution of water bodies by fertilizers, pesticides, or nitrates but also explicitly points towards agricultural policy and policy measures to be taken in this sector in order to reduce the entry of agricultural pollutants.

CDU and CSU refer to agricultural pollutants rarely. The party union also mostly does not mention mitigating policy measures within the agricultural sector when pointing towards the entry of these substances into water bodies. Instead, the union stresses the importance of protecting economic interests if any mitigating measures were to be taken. A text passage within the manifesto of the CDU in Saxony-Anhalt in 2006 serves as a good example. Although the party states, “the EU Water Framework Directive’s objectives are to be met through sustainable agriculture”, it does not mention any agricultural policy measures to be taken in order to achieve sustainability and meet the directive’s targets. Instead, the party affirms, “implementation has to incorporate economic and regional conditions.”

The CDU Hessen's manifesto in 2018 represents the only significant exception from this pattern. In fact, the CDU's position on water pollution by agriculture is very similar to the Greens' position in Hessen. This might be because both parties formed a coalition government in Hessen from 2014 until 2018. Therefore, the CDU's position in 2018 might be influenced by the Greens through previous collaboration.

Overall, the Christian Democratic Union's manifestos mostly do not address the issue of agricultural pollutants and, even if, do not refer to an integration of water protection and agricultural policy. This observation supports theoretical expectation 1a.

In contrast, Alliance'90/The Greens not only addresses agricultural pollutants in nearly half of their manifestos but also mostly approaches the issue in an integrative way by explicitly referring to agricultural policy and the connection between the agricultural sector and water quality protection.

The Greens convey a clear vision of how to shape the agricultural sector in order to mitigate water pollution and secure water quality protection. This is apparent in most manifestos where the party demands a shift towards organic agriculture. Alliance'90/The Greens in Saxony-Anhalt in 2006, for example, states, "organic agriculture represents [the party's] guiding principle, because it preserves our natural basis of life by not using chemical plant protection as well as mineral fertilizers and protects soil and groundwater instead through closed nutrient circulation." The Bavarian Green party in 2008 is even more specific in describing the linkage between organic agriculture and water quality protection. The party stated, "only permanent organic agriculture characterized by small family farms will be able to preserve the basis of life for future generations, ... including fertile soil and clean water as our top priority resource. These are considerably influenced by the type of agriculture. Misguided agricultural policy forced many farmers to refrain from sustainable agriculture in recent decades. ... A water-protection-offensive is needed in order to protect riverbanks and wetlands and improve the ecological condition of water bodies. For this purpose, 'extensifying' agriculture as well as renaturation measures are necessary. ... We need to reduce the entry of plant protection products and nitrate significantly."

Contrary to CDU/CSU, the Greens not only mention the problem of agricultural pollutants but are also very specific regarding how to react to the issue, demanding specific mitigating policy measures. For example, Alliance'90/The Greens in Schleswig-Holstein declares in 2012 that "one hundred percent of drinking water is extracted from groundwater in this state. More than half of the groundwater bodies are contaminated so heavily that immediate action is required. Pollution mainly stems from nitrate and phosphate due to the use of artificial fertilizers and dung as well as pesticides. ... We demand the implementation of good agricultural practice in order to protect groundwater bodies. It means extensifying agriculture nationwide and in turn intensifying organic agriculture. This includes better cattle distribution, including a size limit for stalls, reducing the use of agrochemicals, as well as changing cultivation conditions and land conversion. We aim at significantly increasing the earmarked share of the groundwater fee."

The Greens in Bavaria are even more explicit in linking agricultural policy ideas, issues in water quality protection, and specific policy measures. In 2018, the party not only advocated for organic agriculture but also for the preservation of small-scale family farming in order to achieve better water quality: "Industrialized agriculture relying on increasing exports, increasing stall size, and more and more agrochemicals, is not a sustainable strategy. ... We need agriculture that treats animals and nature in a responsible way. We advocate for reforming agricultural aid, so that public money is provided only for public services. It is about preserving small-scale family farming as only this kind of farming can serve as a basis for a healthy agricultural structure. ... Increasing use of agrochemicals wipes out animal and plant species, pollutes groundwater bodies and threatens human health. ... Organic farming is the silver bullet." The party then is very explicit in how it intends to achieve this shift towards organic agriculture: "We aim at organic cultivation on 30 percent of Bavarian agricultural land. ... To this end, we will raise financial incentives and promote research. We will integrate organic farming as a full-fledged alternative to conventional farming into training programs. Furthermore, we will improve counseling by agricultural government agencies and

establish state marketing for organic agriculture.” Finally, the party clearly links the issue of water quality protection with agriculture and demands specific policy measures related to both: “Water is the basis of life. Therefore, protecting groundwater bodies and surface waters has top priority. We need to ensure today that our water is free from contaminants like microplastics, pharmaceuticals, nitrate, glyphosate and multi-resistant germs in the future. To this end, action is required primarily in agriculture. We will establish mandatory buffer strips along water courses to prevent the entry of nitrate into creeks and rivers, we will create large water protection areas and more severely penalize violation against fertilization legislation. The Greens promote area-based livestock farming. In principle, we want animal feed to be produced locally.”

Overall, Alliance’90/The Greens addresses agricultural pollutants not only most often compared to other parties but also refer to the issue in an integrative way, linking water protection and agricultural policy. These insights support expectation 1b.

5.3. Positions and Policy Measures to Mitigate Agricultural Pollutants in Water Bodies

Empirical analysis further supports the expectation that the second ideological dimension, parties’ notion of the role of the state in economic affairs, explains differences in the positioning of political parties on policy solutions for mitigating agricultural pollutants.

As expected, CDU/CSU and the FDP oppose any policy solutions involving strong interference of the state in the agricultural sector. Instead, these parties mostly support the notion of the free market and proclaim technological progress within the sector as the best approach to mitigating pollutants.

The CDU in Niedersachsen, for example, conveys the clear message that ensuring food security and farmers’ competitiveness is of the highest priority and that the party opposes any interference from the state in these goals. This is demonstrated by the parties’ positioning on the implementation of new EU regulation. The regulation includes so-called ‘greening’-requirements, which farmers must comply with in order to receive financial support from the EU. These include crop diversification, maintaining permanent grassland, and keeping a share of arable land as an ecological focus area [111]. In 2013, the party first stated that it supported the protection of biodiversity as well as water quality protection when addressing the ‘greening’ requirements. However, the party then advocated a “practice-oriented implementation of greening-requirements that pays tribute to local conditions in order not to deteriorate agricultural production inappropriately. ... We do not tolerate significant impacts on production due to the [obligatory] provision of seven percent priority land under organic cultivation in light of increasing demand for agricultural products and renewable raw materials. ... Agricultural policy needs to ensure farmers’ competitiveness and may not weaken their position within the international market through special requirements and unnecessary red tape.” Reading between the lines, the party clearly expresses its resentment towards the interference of EU regulations in the agricultural market. The party’s belief in the functioning of the market is then further expressed by emphasizing the implementation of a ‘manure exchange’, whereby farmers can buy and sell their dung.

The FDP’s opposition towards regulatory interference in the agricultural sector is even more explicit. In 1998, the FDP in Bavaria stated, “too much state regulation, permanent misguided state control, and a massive misuse and waste of billions of Deutsche Mark have discredited the agricultural sector. The FDP does not punt on bureaucrats’ ‘wisdom’ or the ‘cleverness’ of quotas, regulations, and forms. The FDP punts on Bavarian farmers’ entrepreneurial capability. These do not only produce food but also preserve the cultural landscape and take care of drinking water reservoirs. ... Provided that the agricultural system provides support and does not force them to behave unnaturally.” In 2018, the FDP in Hessen declared its opposition towards state support for organic agriculture by stating, “organic agriculture gains access to the market if the customer is convinced by the quality of its products. We, the liberal party, intend to reestablish fairness between conventional and organic agriculture and end the biased paternalism of a small part of the agricultural sector.” Instead, the party advocates for “practice-oriented and non-bureaucratic implementation of legislation on manure use” and “efficient use of nutrients” by “primarily providing counseling,

promotion of efficiency-raising measures and voluntary cooperation with water suppliers.” The FDP in Schleswig-Holstein is even more explicit in its opposition towards regulation on water quality protection. In 2017, the party clarified that the “use of restrictions adversarial to property and production, such as the buffer-strips-bureaucracy, has to be eased.”

The positioning of the AfD towards state intervention is similar. When dealing with the issue, the party emphasizes the need to reduce the entry of pollutants into water bodies. However, the party opposes state intervention as it disapproves of “biased restrictions, unnecessary bureaucracy, as well as EU-regulations that impede effective cultivation”. Instead, the party promotes “voluntary cooperation between farmers and water suppliers”, as stated by the AfD in North Rhine-Westphalia in 2017. The party also opposes a forced shift towards organic agriculture as stated by the AfD in Baden-Württemberg in 2016: “We dislike the general disparagement of our farmers through the slogan of ‘green agricultural turnaround’. Organic and conventional agriculture must not be played off against each other.” Therefore, the party promotes improved training and counseling in order to help farmers to reduce the use of fertilizers, though it also supports the systematic control of fertilizer use.

These parties’ belief in technological progress as a means to mitigate agricultural pollution is also striking. Among the technological advancements they promote in order to reduce the use of pesticides and fertilizers are green biotechnology and ‘digital agriculture’. The CDU in Schleswig-Holstein stated in 2017, “research and progress represent our engine for a sustainable agriculture. ... We will advocate for the use of fertilizers and plant protection that safeguard groundwater as well as soil fertility. Thus, we trust in modern, innovative technology to solve these problems.” The FDP in particular promotes the potential of digital agriculture to enhance agricultural production and also mitigate the entry of substances into water bodies. In 2017, the FDP in Hessen stated, “modern plant protection is indispensable to ensure high quality products. We want to enhance good practice in the use of modern substances and promote precise spreading technology in order to reduce discharge. ... We see great potential in the use of digital data for precision farming. The application of sensors, drones, satellites, and linkage of yield maps, weather forecasts and soil analysis can increase efficiency in plant cultivation to a large degree.”

Overall, CDU/CSU, FDP, and the AfD mostly oppose mitigating policy measures involving strong state intervention in the agricultural sector, such as regulations, prohibitions, or taxes, which is in line with theoretical expectation 2a. Instead, CDU/CSU and the FDP promote technological progress as a means for solving the issue of agricultural pollution and advocate investment in research and the application of new agricultural technologies.

Alliance’90/The Greens takes a contrary position. The party advocates strong state intervention in order to mitigate agricultural pollution. Proposed policy measures include financial incentives, mostly to support a transition from conventional to organic agriculture, stricter restrictions, and prohibitions of certain pesticides.

The Greens in Schleswig-Holstein, for example, stated in 2012, “organic agriculture represents our guiding principle. We want to protect its promotion and, therefore, reintroduce financial support for transition to and perpetuation of organic cultivation as well as cut subsidies for conventional farmers.” As political parties’ leeway is limited at the state level, state-level parties try to influence decision-making at the federal and European level. The Greens in Saxony-Anhalt, for example, stated in 2016, “we work towards an increased ecological premium at the federal level. In Baden-Württemberg, the Greens demand *“a shift in agricultural subsidies from the first to second pillar* (Support for farmers through the European Union is based on two pillars within the European Common Agricultural Policy (CAP). The first pillar includes direct payments to farmers, whereas the second pillar is more flexible and aims at supporting rural development, quality of life as well as environmental protection [112])—*for example from a flat-rate premium to a performance-related, environmental premium—and an alignment of all funding programs with ecological criteria. Farmers must receive an economic incentive for organic and sustainable cultivation.*” The party not only asks for

environmentally beneficial behavior to be rewarded but also for the sanctioning of farmers who do not meet certain environmental standards.

In order to deal with the issue of water pollution by pesticides and nitrate on the short-term, the Greens demand restrictions for conventional agriculture, including a ban of certain pesticides, such as glyphosate, shorelines for water protection, or seasonal prohibitions of pesticide use. With specific regard to nitrate pollution, the party advocates a further restriction that entails land-related crop cultivation and livestock production (regarding land-related livestock production, livestock size is coupled with farm size, which allows the amount of manure produced in a certain area to be controlled).

Overall, Alliance'90/The Greens predominantly propose policy measures involving strong state intervention in the agricultural sector in order to reduce the entry of agricultural pollutants into water bodies and demand equivalent policy measures. This supports theoretical expectation 2b.

Finally, the analysis sheds some light on the positions the Left as well as the SPD take on policy measures when dealing with agricultural pollution. As expected, both parties propose policy measures involving strong state intervention. In fact, the Left's position is very similar to the Greens', whereas the SPD's is characterized by a more diverse mixture of policy measures and is, therefore, less polarized.

The Left in Hessen in 2018, for instance, demanded "a change in direction for agricultural policy. ... Food must be produced more socially and environmentally friendly. Thus, society needs to reward all ecological services such as groundwater, biodiversity and climate protection." The Left in Schleswig-Holstein in 2017 more specifically demanded "a fee on the use of plant protection products as well as nitrogen and phosphate fertilizer due to the critical condition of water bodies. ... These financial resources will then be used to expand organic agriculture." The Left in Bavaria in 2018 added, "an immediate prohibition of pesticides evidently causing decline in insects ... and substitution of conventional plant protection by ecological crop protection [is necessary]."

Policy measures advocated by the SPD overlap to a large degree. The party also supports the reduction of pesticide use and of manure production by prohibiting the use of certain pesticides, promoting diversified crop rotations, and research on alternative plant protection, land-related livestock production, and buffer strips along shorelines. However, the party's positioning is closer to the position of CDU/CSU as the party advocates for increasing organic cultivation but does not demand a forced transition from conventional to organic agriculture. Furthermore, the party also proposes some of the policy measures typically advocated by CDU/CSU and FDP, such as promoting the application of 'digital agriculture'.

Overall, the Left and the SPD support policy measures that include strong state intervention when dealing with agricultural pollutants. Thus, both parties take a similar position to the Greens with regard to the economic dimension, which supports theoretical expectation 2c.

To conclude, all political parties in Germany address the issue of agricultural pollutants in water to some degree in their election manifestos. Nevertheless, attention varies between parties. The analysis of parties' positioning on the issue largely supports all theoretical expectations. The Greens' overall policy approach for dealing with the issue predominantly represents an integration of water quality protection and agricultural policy. Contrarily, the Christian Democratic Union addresses the issue only rarely and, in these cases, mostly does not follow an integrative approach. Regarding specific policy measures, contrasting conceptions of the state's role in the economy become apparent. The Greens and the Left advocate strong state intervention to support an agricultural paradigm shift to organic cultivation, whereas the approaches of the CDU/CSU, FDP, and AfD are largely characterized by the idea of technological progress and opposition towards interference in the agricultural sector. The SPD can be located in the middle as policy instruments proposed by the party represent a mixture of both positions.

6. Discussion

This study set out to investigate the interlinkage between water quality protection and agricultural policy. More specifically, it examined the issue of agricultural pollution of water bodies by nitrate, pesticides, or artificial fertilizers in Germany. The country has repeatedly breached the EU nitrates directive due to a failure to implement adequate mitigating policy measures, which will potentially lead to costly consequences.

I argue that ideological divisions within the German political party system determine parties' positioning on the issue of agricultural pollutants as well as explain the lack of a policy response to a large degree. Empirical findings of a qualitative content analysis of election manifestos published between 1998 and 2018 supports the argument and corresponding theoretical expectations.

All political parties addressed the issue to some extent and in principle agree on the need to mitigate agricultural pollutants. However, levels of attention and overall approaches of proposed policy measures vary significantly. The way the Greens approach the issue is closest to the integrated water resource management principle and the idea of horizontal policy integration. The party explicitly proposes policy measures within the agricultural sector in order to improve water quality. Contrarily, the Christian Democratic Union pays only limited attention to the issue and lacks an integrated approach.

In general, political parties' positioning on various policy measures occurs along an ideological economic dimension. The Christian Democratic Union, the Free Liberal Party, and the AfD mostly oppose measures involving strong interference from the state in the agricultural sector. In contrast, the Greens and the Left advocate a strong role of the state in the agricultural sector in order to transform conventional agriculture into organic agriculture, which would subsequently reduce pollution.

In general, the impression prevails that CDU/CSU and FDP mostly advocate technical solutions in order to mitigate pollution, whereas the Greens, SPD, and the Left support a more radical paradigm shift in agricultural practice, which, in their perspective, means tackling the issue at its source instead of merely dealing with the symptoms of a deficient agricultural system. The Christian Democratic Union's policy position on agricultural pollutants and the fact that it has been in charge of the federal agricultural ministry since 2005 probably also explains Germany's failure to adopt adequate policy measures to mitigate nitrate pollution to a large degree.

The Greens are gaining momentum in Germany and future coalition governments between the Greens party and the Christian Democrats at the state as well as the federal level are becoming more likely. However, disagreement on these key topics—environmental protection for the Greens and protecting farmers' livelihoods for the Christian Democrats—might impede coalition building. On the other hand, the need to collaborate in order to remain in government might also lead these parties to converge their positions. As can be observed for the CDU in Hessen, whose policy position in 2018 largely resembled the Greens' positioning on water pollution from agriculture.

To put the empirical findings into a broader context, the results suggest that the implementation of policy measures involving the integration of policy fields, as laid down by the IWRM, needs support from key decision-makers, such as political parties. Conflicts of interest due to ideological divisions will very likely hamper the adoption of more stringent policy outputs.

The insights offered by this study face two main limitations. First, the study is based on only one type of data source: Electoral manifestos. Further research could use other sources of data, such as interviews with party officials, to cross-check party positions. Second, the findings are only based on the application of one method. Alternatively, quantitative content analysis or network analysis can be applied to check the robustness of the results.

The study has mostly produced descriptive insights on the positioning of political parties on the issue of agricultural pollution. Further research could build on these initial findings and shed more light on the causal mechanism connecting problem pressure, public opinion, parties' policy positions, and policy outputs. For example, it would be interesting to analyze policies on agricultural pollutants adopted at the federal level and in the different German states and relate them to the governing political parties and their policy positions.

Furthermore, other influential governance actors besides political parties exist in this field, such as farmers' associations and environmental groups. Analyzing how these actors shape policy formulation should lead to interesting findings. Finally, future research could investigate how political parties develop their policy positions and whether their motivation is mainly based on serving the interest of their electorate or on policy seeking. An interesting case study could shed light on the CDU's positioning on agricultural pollutants in Hessen and analyze whether it was influenced by a coalition government with the Greens, thereby contributing to the literature on the 'greening' of party politics. Finally, future research could examine the issue of agricultural pollutants from the perspective of 'post-normal science' and investigate how science is translated into policies [113,114]. More specifically, it would be insightful to gain a better understanding of how political parties deal with the complex and uncertain nature of the risks posed by agricultural pollutants and how this affects their policy positions.

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