



DEPARTMENT OF POLITICAL SCIENCE
CENTRE FOR EUROPEAN STUDIES (CES)

IS THE GRASS ALWAYS GREENER? THE POLISH FARMERS' FIGHT BETWEEN POLITICS AND SUSTAINABILITY IN CAP

A Case Study Linking European Partisanship and
CAP Eco-scheme Subsidy Uptake

Alexandra A. Żubrowicz

| | |
|------------------|--|
| Master's thesis: | 30 credits |
| Programme: | Master's Programme in European Studies |
| Level: | Second Cycle |
| Semester year: | Spring 2025 |
| Supervisor: | Olof Larsson |

Abstract

This thesis investigates whether political partisanship toward the European Union influences Polish farmers' uptake of CAP eco-schemes and green payments. Is it due to the distrust after 2014-2020 green payments? While the CAP has increasingly emphasized sustainability through eco-schemes, adoption rates remain low and uneven across Member States. Focusing on Poland, a key agricultural actor in the EU, this study uses a quantitative, region-level case study across 16 voivodeships from 2014 to 2024. It also employs path dependence theory, understanding how and why CAP reforms may take years to see change; in the case of this thesis, how long does it take for policymakers to account the negative feedback from farmers. This thesis also uses GAL-TAN cleavage theory and rent-seeking theory, to evaluate which best explains low environmental subsidy uptake. To complete this analysis, it employs OLS regressions and correlation analysis to test the relationship between EU parliamentary voting patterns (2014, 2019, 2024) and subsidy uptake, controlling for structural variables such as farm size and education. Results show that farm size is the strongest predictor of eco-scheme participation, suggesting that structural capacity outweighs partisanship in determining engagement. However, 2024 data shows a moderate correlation between pro-European partisanship and eco-scheme uptake, indicating that political belief may gain a larger role in dictating CAP subsidy engagement. These findings uncover a new perspective, EU partisanship, viewing what factors play into CAP involvement, challenging the assumptions about the politicization of sustainability.

Key words: Common Agricultural Policy, Green Payments, Eco-Schemes, Partisanship, Farm Size, Path Dependence, GAL-TAN Divide, Rent-Seeking

| | |
|------------------|--|
| Master's thesis: | 30 credits |
| Programme: | Master's Programme in European Studies |
| Level: | Second Cycle |
| Semester year: | Spring 2025 |
| Supervisor: | Olof Larsson |
| Word count: | 14 858 |

Contents

- 1. Introduction..... 1
- 2. The Illusionment of CAP- A Literature Review 3
 - 2.1 Comparison between 2014-2020 and 2023-2027 Reforms 3
 - 2.2 Eco-Scheme Implementation and Member State Differences..... 6
- 3. Theoretical Background 8
 - 3.1 Path Dependence 8
 - 3.2 Cleavage Theory- The GAL-TAN Divide 9
 - 3.3 Rent-Seeking Theory..... 10
- 4. EU Farmer Responses and Administrative Burden..... 12
 - 4.1 EU Response to Farmers 12
- 5. Case Study- Poland and its 16 Regions..... 14
 - 5.1 Polish Agriculture 14
 - 5.2 Polish Politics..... 16
 - 5.3 Poland and Green Payments 20
 - 5.4 Poland and Eco-schemes..... 21
- 6. Hypothesis..... 24
- 7. Data 25
- 8. Methodology..... 26
 - 8.1 Variables..... 26
- 9. Results and Analysis 28
 - 9.1 Descriptive findings..... 28
 - 9.2 Voting Behavior Correlation 30
 - 9.3 Pooled OLS Regression 34
 - 9.4 Yearly Regressions..... 35
- 10. Discussion 41
 - 10.1 Policy Improvements 43
 - 10.2 Limitations 44
- 11. Conclusion..... 46
- Reference list..... 48
- Appendices 59

List of Figures

- Figure 1: The CAP environmental instruments in 2014-2020 and 2023-2027
- Figure 2: Poland in 1988 and 1996, showing differences in Agricultural land, and number and share of farms
- Figure 3: Polish Parliamentary Party Positions
- Figure 4: Pro-EU Vote Share Among Voivodeships Across the 3 Election Years
- Figure 5: Green Payment Budget Allocation in Poland 2014-2020 Reform
- Figure 6: Map of the Proportion of Polish Farms Adopting Eco-schemes
- Figure 7: CAP 2014-2020 Difference Between Farmers who applied for green payment subsidies versus those who did not, varied by farm size (ha)
- Figure 8: Singular Powiat Example of Subsidy change per farmer number and area
- Figure 9: 2014 Individual Regressions
- Figure 10: 2019 Individual Regressions
- Figure 11: 2024 Individual Regressions
- Figure 12: Simple Regression between Partisanship and Subsidy Uptake Across 3 Years
- Figure 13: Delays in Payments for Priorities 4 and 5 under CAP 2014-2020

List of Tables

- Table 1: The GAL-TAN Division of Polish Political Parties Actively in the EU Parliament
- Table 2: Area (ha) covered by agri-environmental (green payments) support, years 2014-2-2018
- Table 3: Correlation Index Across Election Years
- Table 4: Pooled OLS Regression Across 2014, 2019, 2024 Measuring Subsidy Uptake
- Table 5: Summary of Regressions Across the Election Years

List of Abbreviations

| | |
|---------|--|
| ARiMR | Agency for Restructuring and Modernisation of Agriculture |
| CAP | Common Agricultural Policy |
| CSP | CAP Strategy Plan |
| EAFRD | European Agricultural Fund for Rural Development |
| GAL-TAN | Green Alternative Liberal – Traditional Authoritarian Nationalist |
| MRIW | Ministry of Agriculture and Rural Development |
| PKW | Państwowa Komisja Wyborcza |
| RDP | Rural Development Programme (PROW- Program Rozwoju Obszarów Wiejskich) |
| UAA | Utilized Agricultural Area |

1. Introduction

The Common Agricultural Policy (CAP) represents the European Union for agricultural and rural development. As the most significant component of the EU budget, it has been portrayed as a working and living policy since the early 1960s (European Council, 2021). To this end, the Commission provides consistent reforms to address concerns and new threats, improve the effectiveness of programs, and set more ambitious environmental goals. Simultaneously, the CAP is an imperative source of long-term support for the agricultural and food production sector. Farmers in the EU depend on this aid from the budget to compete in the global market and stay in business each year. The newest CAP 2023–2027 reform heavily focuses on environmental progress, introducing initiatives such as eco-schemes—voluntary, incentive-based payments designed to encourage climate-friendly farming practices (European Commission, 2023).

Therefore, I aim to answer the question: *Does partisanship towards the European Union influence the uptake of the CAP eco-schemes and green payments in Poland?*

I argue that it does not; structural factors like farm size play a far greater role in determining subsidy uptake. Member states like Poland argue that green payments positively impact the environment and recommend continuing payments (Ministerstwo Rolnictwa i Rozwoju Wsi, 2025). However, multiple studies suggest that these new schemes have produced mixed results. Nearly one-third of the eco-schemes have been evaluated as ‘poor quality’ by the European Environmental Bureau (Nyssens, Ruiz, and Nemcová, 2021, p. 10), raising concerns over the administration of approximately 25% of the CAP’s €386.6 billion budget (EU Commission).

In addition to academic studies, widespread farmer protests from 2022 to 2024 offer evidence of the uneven reception of the eco-schemes among CAP recipients, showing the complex relationship between the EU Commission and farmers as beneficiaries. Yet criticism, high expectations, and scrutiny are to be expected with such an enormous EU budget spending. Therefore, in this thesis, I explore what may be causing some farmers to be dissatisfied with the new CAP programs. I look in particular at the adoption rate of eco-schemes by different kinds of farms. Moreover, I compare these findings to the adoption rate and, more generally, the effectiveness of the green payments program that was part of the previous CAP period (2014–2020).

I use a quantitative, time-comparative case study to examine eco-scheme adoption and green payment distribution across Poland, analyzing the influence of pro-European political sentiment and structural barriers to uptake under the current CAP (2023–2027) compared to the earlier 2014–2020 reform. The timeline spans the years 2014 to 2024. Voting patterns in three EU parliamentary elections (2014, 2019, 2024) are used to contextualize farmer attitudes and regional variation in uptake. Poland is used as the case not just because of its agricultural weight in the EU, but also because of its evolving political climate over the past decade, particularly

the rise of Eurosceptic sentiment in rural areas. Theories of path dependence, the GAL-TAN cleavage, and rent-seeking help ground the analysis, especially when considering how partisanship narratives may shape farmers' views of green reforms (Hooghe and Marks, 2021; Greener, 2005). At its core, this paper attempts to open a conversation around why eco-schemes are still struggling—why, despite their promise, EU-wide adoption remains low at just 19% (Mezzacapo, 2024, p. 274)—and how Poland might help explain that outcome.

Previous literature on CAP and eco-schemes sheds light on the imperfections of the policy's implementation, whether it be administrative burden or subsidy allocation disparities (Röder et.al., 2024; Grohmann and Feindt, 2022). However, a notable gap remains in understanding the relationship between farm-level engagement with green subsidies and voting behavior in European Parliament elections. Much of the current research approaches the CAP either from an economic or policy analysis perspective (Czyżewski and Matuszczak, 2018), with limited attention to the political economy dimension. Therefore, I bridge this gap by arguing that these fields are not exclusive to one another in terms of green subsidy uptake.

This thesis serves as a quantitative contribution to this field of research, as there is an abundance of qualitative studies already available, with surveys targeted towards individual farmers and policymakers (Bartkowski et al., 2023; European Commission, 2024a). Therefore, applying a regional-level analysis brings a statistical perspective to understanding the general attitude of an occupation.

I divide the rest of this thesis into four parts. In the first part, I bring a thorough understanding of previous literature and the theoretical background that shapes the analysis, while also illustrating what CAP and eco-schemes are. In the second part, I dive into the case study, Poland, and its background, explaining how Polish agriculture and politics are essential in the context of this thesis. In the third part, I bring in my data and methodology, while the fourth and last part explains results and analyzes further steps for CAP in the name of environmental subsidies.

2. The Illusionment of CAP- A Literature Review

This section focuses on previous literature that analyzes the efficacy of green payments in the CAP 2014-2020 reform and continues to discuss how the eco-schemes of CAP 2023-2027 are starting to reflect the policy downfalls.

In light of the ever-advancing Climate Change, the European Union has named itself a sustainable policy forerunner (European Commission, 2025). Environmental disasters and pressures have taken a toll on the continent and individual Member States. New threats such as floods (ex, southern Germany 2024), droughts and forest fires south of Europe (ex, Spain, and Greece 2024), and mild winters all contribute to the forced adaptation of producers across the continent, especially in the agricultural sector. These events are due to Europe being the fastest-warming continent, according to the European Environment Agency (2024).

As a result, the European Union has increasingly prioritized environmental policies and reforms over the past decade. Some examples include the Green Deal, the Farm to Fork Strategy, the Just Transition Fund, and the last two reforms (2014-2020 and 2023-2027) of the Common Agricultural Policy (CAP). All these policies or programs aim to contribute to the EU's goal of becoming the first neutral-carbon continent by 2050 (European Commission, 2025b).

The CAP itself has heavily evolved in the past 60 years to reflect this changing landscape, and the reforms 2014-2020 and 2023-2027 mirror this ongoing evolution. Authors generally agree that green conditions (i.e., conditionality, green payments, eco-schemes) are promising for environmental policy on the EU level (Grohmann and Feindt, 2022, p.6; Wraszcz, 2018, p.94). For example, Zieliński et.al. state that the current CAP aims to create sustainable food systems by balancing farmers' income needs with the provision of public goods. In this framework, eco-schemes serve as a fundamental institutional tool to achieve these objectives (2024, p. 6).

2.1 Comparison between 2014-2020 and 2023-2027 Reforms

The Common Agricultural Policy was established in 1962 by the European Economic Community (EEC) (European Commission, 2022) and is known as one of the first unifying policies for the European Union and continues to be the EU's only agricultural policy. Its magnitude can be shown by its large percentage in the EU's budget, ranging from ~73% in 1980 to ~25% in 2023 (European Commission, n.d.). This decrease can be explained by heightened attention towards other policies, booming sectors, and the expanding (agricultural) trade agreements with other countries over the course of the past twenty years that the EU has been experiencing. Nonetheless, the CAP holds a decided authority over many rules and regulations that Member States follow in the name of agriculture, sustainability, and biodiversity.

The policy has historically undergone numerous reforms over the decades, showing continuous progress and changing the static position with exogenous shocks such as climate policy (Kay, 2003, p. 405). Garzon (2006) gives an apt breakdown of these reforms over time:

- a. The initial period of market-price support (1962–1992);
- b. The period of the introduction of production-coupled direct support (1992–2003);
- c. The period of (predominantly) historical decoupled payments (2003–2013);
- d. The period introducing the ‘new’ societal CAP objectives (2014–2020). (Erjavec and Lovec, 2017, p. 737; Garzon, 2006)

In recent years, agricultural policy has increasingly incorporated environmental and climate objectives. This is notably evident in the change from the 2014-2020 reform to the 2023-2027 reform. Röder et.al. analyze the differences and note that the most significant distinctions lie in the ‘greening payments’ through Pillars 1 and 2, which are more explicitly tied to climate goals (2024, p. 7). These direct payments are intended to support Member States in reaching the EU’s goal of long-term sustainable agriculture. In the example of Poland, these payments were mainly represented in the fourth and fifth priorities of: Restoring, protecting, and enhancing ecosystems dependent on agriculture and forestry, and supporting resource efficiency and the transition towards a low-emission and climate-resilient economy in the agriculture, food and forestry sectors (Ministerstwo Rolnictwa i Rozwoju Wsi, 2020a). These priorities, administered through the European Rural Development Program, were allocated under a budget of €13,612,211,428, which was meant to be fully distributed to farmers within the period of the reform (Ministerstwo Rolnictwa i Rozwoju Wsi, 2020a).

However, studies found that the greening measures had a minimal effect on the practices at the time, besides a few exceptions in some states (i.e., the monitoring of ecological fertilization of crops in Spain) (Hart, 2019, pp. 3-4). They also found that environmental priorities were not a driving factor in implementing these state measures (Hart, 2019, p. 4). Nevertheless, while the greening payments had limited influence on farming behavior, they established a baseline of ecological standards that all Member States were required to follow. This institutionalization of environmental criteria marked a foundational shift in CAP policy, laying the groundwork for more ambitious reforms in subsequent cycles (Hart, 2019, p. 4).

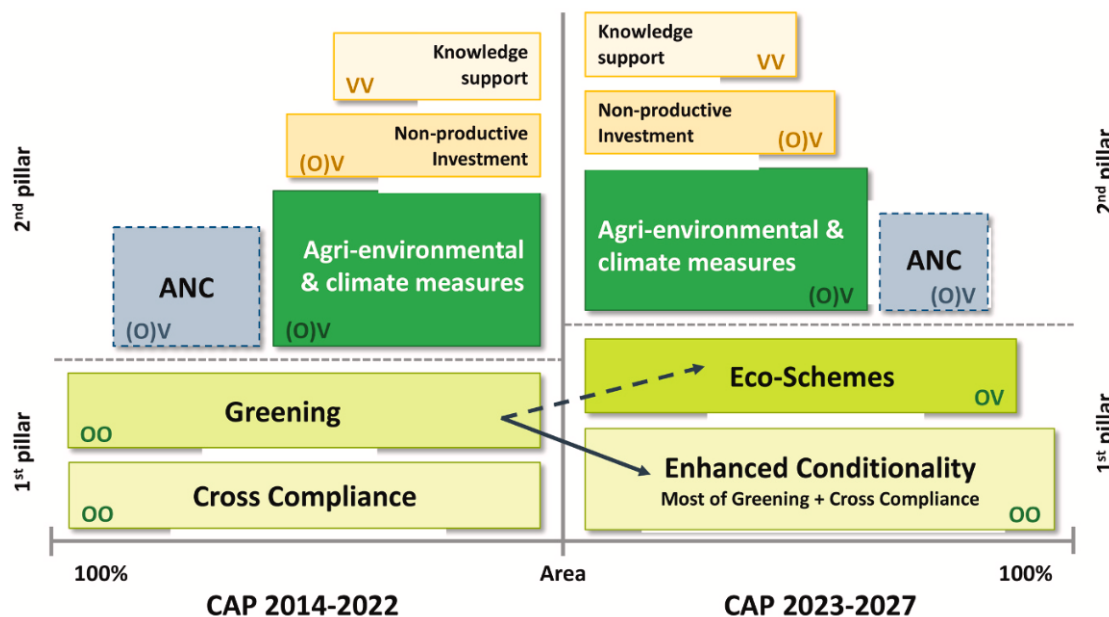
An EU Court of Auditors report found that half of the EU's reported climate spending during the previous CAP reform came from agriculture, as opposed to climate spending. Yet, European farm emissions have remained steady since 2010 (European Court of Auditors, 2022, p. 16). The report also explains the uncertainty of rural development (green payments within this) and the impact on climate mitigation. A Commission study in the report estimates it could reduce EU agricultural GHG emissions by 1.6% by 2030, though increases outside the EU may offset this. Another evaluation attributes a 1.1% reduction to Natura 2000 measures but warns against overestimation (European Court of Auditors, 2022, p. 19). The Court concludes that rural

development funding has rarely supported effective climate mitigation, suggesting that green payments should be revised in future CAP reforms.

In response to these policy shortcomings, the CAP 2023-2027 introduces eco-schemes and the requirements for conditionalities. These changes require close monitoring to determine whether there is environmental progress. A key improvement is the definition of agricultural activity in the EU, which now explicitly includes the provision of public goods and thus also the provision of non-productive land as part of enhanced conditionality (European Union, 2021). Additionally, while handing the responsibility of funding decisions over to the Member States allows for flexibility to align with domestic goals, it also contains risks. Understanding that they must set targets for biodiversity and sustainability, as the EU administers, is a pro; however, loopholes can also be created to use the funding for their agendas (Röder et.al., 2024, p. 9).

Figure 1 below shows this change from one reform to another, where the green payments from 2014 developed into the 2023 eco-schemes and enhanced conditionality.

Figure 1- The CAP environmental instruments in 2014-2020 and 2023-2027 (Röder et.al., 2024, p. 6, fig. 3)



An additional worry is the overcompensation of green funds and the accidental result of greenwashing of funds, which means the false or insincere claims in the name of sustainability (Röder et.al., 2024, p. 9). As Figure 1 indicates, the addition of the eco-schemes to the CAP budget has redirected funds away from traditional direct (green) payments, requiring farmers to fulfill environmental obligations to qualify for support they previously received without such conditions (Röder et.al., 2024, p. 8).

With this background, the analysis aims to possibly understand the policy's mishaps and how it can improve, or if it has.

2.2 Eco-Scheme Implementation and Member State Differences

Over the last two decades, the idea of ‘green architecture’— the rules and instruments for improving the environmental and climate performance of farming, food production, land management, and rural areas (EU CAP Network, 2024)— has become a prevalent priority at the EU level to advance in policy framework. For instance, the EU has introduced several mechanisms to promote sustainable agriculture while maintaining cooperation with Member States. One such mechanism is the eco-scheme, a policy tool incentivizing environmentally beneficial practices through voluntary participation under the CAP (European Commission, 2023).

The European Union defines eco-schemes as annual payments provided by the European Commission to farmers who voluntarily adopt agricultural practices that benefit the climate. These payments are implemented through each Member State’s CAP Strategic Plan and distributed to individual farms (Grohmann and Feindt, 2022, p. 6). They aim to enhance long-term food security and agricultural diversity, contribute to climate change mitigation and adaptation, foster sustainable development, and heal biodiversity (Grohmann and Feindt, 2022, p. 6 fig.1). Article 31(4) of Regulation (EU) 2021/2115 requires that each eco-scheme must address at least two environmental or climate-related objectives (Regulation (EU) 2021/2115, 2021), such as water or soil management, animal welfare, and antimicrobial resistance, with the addition of the aforementioned (Troussi, 2024, p. 5).

Farmers can receive these 'new' subsidy payments IF they show proof that they can follow through with the requirements. In layman's terms, they can be considered bait for farmers. However, each Member State can choose how to allocate this funding and how many they want to create (Röder et al., 2024, p. 8). These eco-schemes and initiatives require farmers to implement more sustainable practices, including reducing pesticide and fertilizer use, optimizing irrigation efficiency, promoting organic farming to reach the EU’s 25% organic production target by 2030, and adopting energy-efficient techniques through precision agriculture (European Commission, 2023).

In total, the 27 EU Member States designed 158 eco-schemes, some of which are further divided into smaller measures (Meister et al., 2024, p. 1). It is up to the discretion of MS and their priorities for their CAP strategic plans for this reform on how many eco-schemes they plan to implement (Röder et al., 2024, p. 8); however, eco-schemes must make up 25% of the Member State’s direct payments budget (EU CAP Network, 2023). During the one-year commitment period, the schemes provide farmers a fixed premium per hectare (Meister, 2024, p. 2). The premium depends on the different measures between Member States, such as budget, and support is provided per hectare (Meister, 2024, p. 2).

Additionally, conditionality under the CAP includes a set of mandatory requirements that all farmers must follow, regardless of farm size. These include Good Agricultural and Environmental Conditions (GAECs), which set specific standards for environmental protection, public and animal health, and land management (European Commission, 2024b). Farmers who fail to comply with these rules risk reductions in CAP payments and may face additional penalties (European Commission, 2024b).

These stricter requirements have placed additional financial and administrative burdens on smaller-scale farmers.¹ They also hint at disparities in budget allotments per Member State, as they vary widely. For example, Czechia and Slovakia committed over 90% of their eco-scheme budgets to this approach. In comparison, many other Member States dedicated less than ~10% of their total eco-scheme budget to these incentive payments (Meister, 2024, p. 9).

Mezzacapo (2024) notes that only 19% of eco-schemes were deemed likely to deliver on sustainability goals, while 32% were rated as poor quality. This inconsistency across Member States reflects administrative disparities and varying levels of farmer engagement and trust in the system (p. 274). Mezzacapo argues that Member States struggle with effective implementation due to domestic political and economic constraints. However, his analysis does not list why ~1/3 of these schemes were rated so low, in which only personal interviews with eco-schemes benefactors might provide more insight. Having a general audience on this topic also broadens the scope, where these details can be missed.

The BirdLife/NABU (Meister et al., 2024) report further adds to the discussion of eco-scheme uptake by analyzing the first-year rollout of eco-schemes in 12 EU countries. While many Member States met their planned eco-scheme area targets, biodiversity-focused measures saw poor uptake due to unattractive payment rates, high bureaucratic burdens, and inadequate promotion (p. 33). In comparison, countries like Spain and the Netherlands, which adopted flexible, regionally specific eco-schemes, experienced higher engagement, though often with less ambitious environmental targets. On an EU level, tailored plans for each Member State are effective, recognizing their individual goals. However, the differences in budgets and comprehension of the plans can also make it all the more difficult for overall EU meaningful environmental outcomes, which risk being undermined by the broadly encompassing CAP reforms (Meister et al., 2024, p. 33).

¹ In Germany, the double standard of continuing significant funding for high-emitting agricultural practices raises concerns. Grohmann and Feindt (2022) allude to this issue in Germany, as while direct payments account for 31% of agricultural factor income in Germany, above the EU average of 24% (European Commission, 2022b), the introduction of eco-schemes has complicated administrative procedures, increasing the bureaucratic burden on farmers.

3. Theoretical Background

The evolution of CAP can be understood through several theoretical frameworks. Erjavec and Lovec (2017) argue that Public Choice Theory explains how lobbying and interest group politics have historically influenced CAP's financial allocations, often leading to inefficient subsidy distributions. Path Dependency highlights the institutional 'inertia' that makes reform difficult, particularly transitioning from income support to sustainability incentives (Erjavec and Lovec, 2017, p. 745; Kay, 2003).

This institutional inertia is evident in CAP's historical prioritization of livestock subsidies despite their environmental impact. Kortleve et al. note that 82% of CAP's budget historically supported animal-based agriculture, contributing significantly to greenhouse gas emissions (Kortleve et al., 2024, p. 288). Even under the 2023–2027 reform, over 70% of coupled payments support livestock farming, contradicting the EU's sustainability goals. This reflects the structural lock-in of agricultural subsidies, making shifting resources toward environmentally friendly practices difficult.

Neofunctionalism can offer another lens, suggesting that CAP reforms are part of a broader European integration process. If Kassim's approach is applied, it could be inferred that the policy is part of the supranational power that Member States must comply with to keep the structure in EU agriculture (Kassim, 2022). Additionally, introducing eco-schemes represents a spillover from EU climate policies into agriculture, intensifying tensions between supranational goals and national agricultural interests. However, this is a less-used approach when discussing this policy (Lovec, Rac, and Erjavec, 2024, p. 437).

This thesis recognizes that all of these theories have a role in CAP and eco-schemes; however, I only focus on path dependence as a main theoretical framework to explain how the policy works.

3.1 Path Dependence

To understand the ever-changing policy and compare now and then, it is best to use path dependence. The theory "often attempts to locate institutions in a causal chain that gives a substantial role to the development of ideas" (Greener, 2005, p. 64). Kay (2003, p. 406) also describes path dependence as "A system is path dependent if initial moves in one direction elicit further moves in that same direction; in other words, there are self-reinforcing mechanisms or positive feedbacks". Greener (2005, p. 64) further elaborates that increasing returns in both structural and cultural systems contribute to the persistence of policy choices over time.

However, these scholars differ on the extent to which path dependency hinders or enables reforms. Kay (2003) generally argues that path dependency has blocked significant CAP overhauls, as policy changes tend to be incremental and slow rather than transformative. In turn,

Greener (2005) suggests that these incremental adjustments can accumulate over time, producing substantial shifts in policy direction. The slow changes revolve around the role of the feedback mechanism in CAP's evolution, a key part of this thesis. Positive and negative feedback loops influence the behavior of policymakers, farmers, and agricultural interest groups (Kay, 2003, p. 416; Greener, 2005, p. 64). On one hand, positive feedback mechanisms reinforce existing policies, making them difficult to dismantle. For example, direct payments became entrenched in CAP because farmers structured their long-term investments around them. On the other hand, negative feedback mechanisms such as budgetary constraints or public dissatisfaction can pressure policymakers to introduce reforms.

Among these differing perspectives, there is consensus that CAP remains path-dependent. Some argue that path dependency limits CAP's ability to evolve in response to new challenges (Kay, 2003), while others see it as a useful explanatory tool that helps trace CAP's gradual evolution over time (Greener, 2005). Kay (2003, p. 410) highlights that CAP consists of multiple interconnected frameworks, each reinforcing its institutional inertia. However, he also acknowledges that negative feedback mechanisms, such as rising environmental concerns, farmer dissatisfaction, and budgetary constraints, could eventually erode CAP's current structure and open space for more transformative reforms. This theory effectively illustrates how CAP, initially designed as a price support mechanism, has evolved into a complex system of direct payments and sustainability incentives, constrained by its historical trajectory.

The following theories explain the reactions to CAP subsidy allocation, how divides, whether societal or structural, can impact how effective the policy is.

3.2 Cleavage Theory- The GAL-TAN Divide

Building on this, Hooghe and Marks's interpretation of Lipset and Rokkan's cleavage theory offers a valuable lens for understanding how societal and structural divides can function as feedback mechanisms within a path-dependent policy environment. The GAL-TAN scale, as coined by Hooghe and Marks in 2004, describes the divide of parties in a socio-cultural transnational essence rather than the simple left-right discourse. GAL, Green Alternative Liberal, parties represent the general left of the scale that support more socially and environmentally driven causes (Hooghe and Marks, 2021, pp.178-179). On the Polish level, this is supported by parties such as Wiosna and Lewica Razem, which are more popular in cities. TAN, Traditional Authoritarian Nationalist parties, like Prawo i Sprawiedliwość (PiS), on the other hand, represent the more conservative values, often anti-immigration, which are favored in more rural areas (Hooghe and Marks, 2021, pp.178-179).

In the study context, CAP's redistributive measures, such as eco-schemes, can face resistance in areas dominated by TAN preferences. Farmers in these regions may perceive these measures as misguided rather than beneficial, leading to a cycle where CAP reforms cater to TAN preferences, pushing the reforms into a path-dependent feedback loop where the negative

dissatisfaction encourages change but the policy's subsidy allocations, reinforced by positive feedback, are challenging to dismantle (Zieliński et.al., 2024, p. 13). Therefore, using this theory to understand the political climate in Poland and the voivodeships' feelings towards the EU helps answer the question of how path dependence has a say in CAP's evolution. Additionally, when looking at other variables for the pure aspect of voting for a pro-EU or Eurosceptic party, such as education levels, urban vs rural divide, or even income, it is crucial to recognize that the GAL–TAN dimension of cleavage theory plays an integral role.

The paper by Bruszt and Langbein (2014) supports the hypothesis that educational and economic divides hinder the adoption rates of CAP. The authors state the importance of capacity building and the challenges faced in ensuring compliance and effective implementation of policies. They generally argue that the EU's strategy during the Eastern enlargement involved creating capacities for rule-takers to manage compliance and interdependencies. Having the same idea for all Member States and the exact expectations can backfire on the Commission. They say this with “while planning is a key aspect of doing business in the common market, there are no universal models for doing so” (Bruszt and Langbein, 2024, p. 18). This approach proves the need for adequate educational and institutional capacities to effectively adopt and implement complex policies like CAP.

The political divide between pro-EU and Eurosceptic regions can be a barrier to building the administrative and institutional capacities needed for effective CAP implementation. In Voivodeships where trust in the European Union is low, farmers may struggle to trust the new environmental policies or comply with complex CAP regulations. This lack of engagement contributes to uneven adoption rates of eco-schemes and undermines the overall effectiveness of the policy. Hence, this relationship is used as the causal mechanism in the paper, aiding in understanding additional reasons behind the farmer dissatisfaction with general EU policies, but especially with environmental initiatives such as what this current reform is ‘suggesting’.

3.3 Rent-Seeking Theory

Lastly, as a recurring issue with CAP subsidies, rent-seeking theory is defined as the cyclical pursuit of financial gain by the same beneficiaries without repaying society (Majaski, 2021). In CAP, this translates to large farms allocating as many subsidies as possible to make a bigger return, allowing them to invest in themselves as the volume of production increases and unit price decreases (Staniszewski and Borychowski, 2020, p. 378). This behavior restricts funding opportunities, reinforcing structural and financial disparities (Majaski, 2021).

In the past, CAP reforms have enabled rent-seeking by tying subsidy allocations to ‘historical payments’, which favored beneficiaries who had records of high levels of support (Viegas, Wolf, and Cordovil, 2023, p. 13). This issue led to the notable drop of small farms from ~14.4 million in 2005 to 9.1 million in 2020 in the EU, ultimately leading to rural depopulation and a smaller competitive market (Eurostat, 2023). Additionally, it coincides with one of the farmers’

grievances with CAP of inequitable allocation of payments (Czyżewski and Matuszczak, 2018, p.72). The thesis adds this theory only to verify whether the control variable, farm size, is a reason behind subsidy uptake, which then points to the case of continuous rent-seeking.

With this, the question that ties these three theories together is whether the partisanship alignment on the GAL-TAN or structural advantages held by rent-seeking large farms influence the path that eco-scheme initiatives are on in this CAP reform. In short, will eco-schemes follow the same path that green payments were with uneven uptake, as shown in this paper's analysis, or will they beat the curve? Therefore, no matter the result, these frameworks allow for a well-tested quantitative analysis of how CAP's current policy objectives are working for the progress of sustainability that the EU Commission has been advocating for.

4. EU Farmer Responses and Administrative Burden

Confirming that there is a bureaucratic burden on farmers through CAP, Bartkowski et. al. explain what farmers' hesitations and grievances with agri-environmental schemes, synonymous with eco-schemes, throughout small regions in Europe are (2023). Their findings show that the respondents are most worried about the risks being greater than the rewards promised (Bartkowski et.al., 2023, p. 1618), such as the investment for new equipment can often be more than the financial incentives given by the schemes (p. 1617). The study also highlighted that large farms are more susceptible to handling the large amounts of paperwork that the schemes generate (p.1615), giving way to a divide between small and large farms. If farmers can respond to this on a localized level in the UK, Czechia, Serbia, Germany, and Spain, then there is a high chance, as shown by the EU Commission (2024b), of successfully conducting a survey on the matter. However, this could indicate a sentiment of distrust from farmers towards the government.

Farmers on an individual level have felt the tightening of requirements for green rules or schemes since the 2010s, meaning that tension started to arise during the 2014-2020 reform (Bourget, 2020). However, the announcement of new and 'voluntary' eco-schemes and conditions set by Member States for the new reform catapulted disagreements among the farmers. The European Union has agreed that farmers, on average, receive 40% less salary than workers in a non-agricultural industry (European Council and Council of the European Union, 2024). This study gives a good comparison overview of often-overlooked regions in the EU and their perspectives. However, focusing on an individual case study of one of these regions could also provide additional insight.

4.1 EU Response to Farmers

In February 2024, the EU Commission announced that it would launch an online survey for farmers to fill out to understand what they need to improve with CAP, including bureaucratic burden (European Commission, 2024a). This was a policy response to the protests, with an interest in 'knowing how to simplify CAP.' In early October 2024, the preliminary results, including 26,886 replies in every official EU language, showed that a large majority experienced difficulties applying CAP aid and complying with the policy's procedures. 71% of the respondents answered that compliance with CAP funding conditions for additional environmental improvements (i.e., eco-schemes) was highly complex (European Commission, 2024a, p. 6; Appendix 2).

However, even the EU agrees that there are gaps in this data. Despite the high volume of replies, there is doubt whether every type of farmer answered. For example, did far-right farmers also answer this survey, did individuals worry about the study's implications (worry of non-anonymity), and what level of education did these respondents have for comprehension purposes? Essentially, the survey did not explore farmers' beliefs about climate change, their

trust in CAP governance, or their willingness to adapt agricultural practices beyond subsidy incentives.

With these limitations and concerns expressed through the survey in mind, the European Commission released a statement in February 2025, explaining that the current reform will undergo revisions to reflect the responses they received. These changes include more flexibility for farmers and compatibility with realities, such as proposing the reduction of on-site administration visits by 50% — a concern many farmers had that limited their time to work (European Commission, 2025a). This is part of the plan to simplify the CAP reform and allow for a more straightforward system for farmers to adhere to, including initiatives like eco-schemes.

Therefore, this survey is only here to serve as a qualitative element to this thesis, clarifying whether the EU understands its respondents. It also opens the discussion of whether this may change farmers' attitudes towards the EU, alluding to the variable of partisanship used in this quantitative study.

5. Case Study- Poland and its 16 Regions

Poland is a unique case regarding the most recent reforms of the CAP and its subsidies. As noted by the Polish government and the European Union, the Member State showed a ~13% decrease in number of farms from 2010 to 2020, but an approximately equivalent increase in average agricultural area per farm (GUS-Statistics Poland, 2021b, pp. 1-2), which is uncharacteristic compared to other Member States. Additionally, Poland's political landscape over the past decade adds another layer of complexity, making it a particularly compelling case to examine against CAP's subsidies.

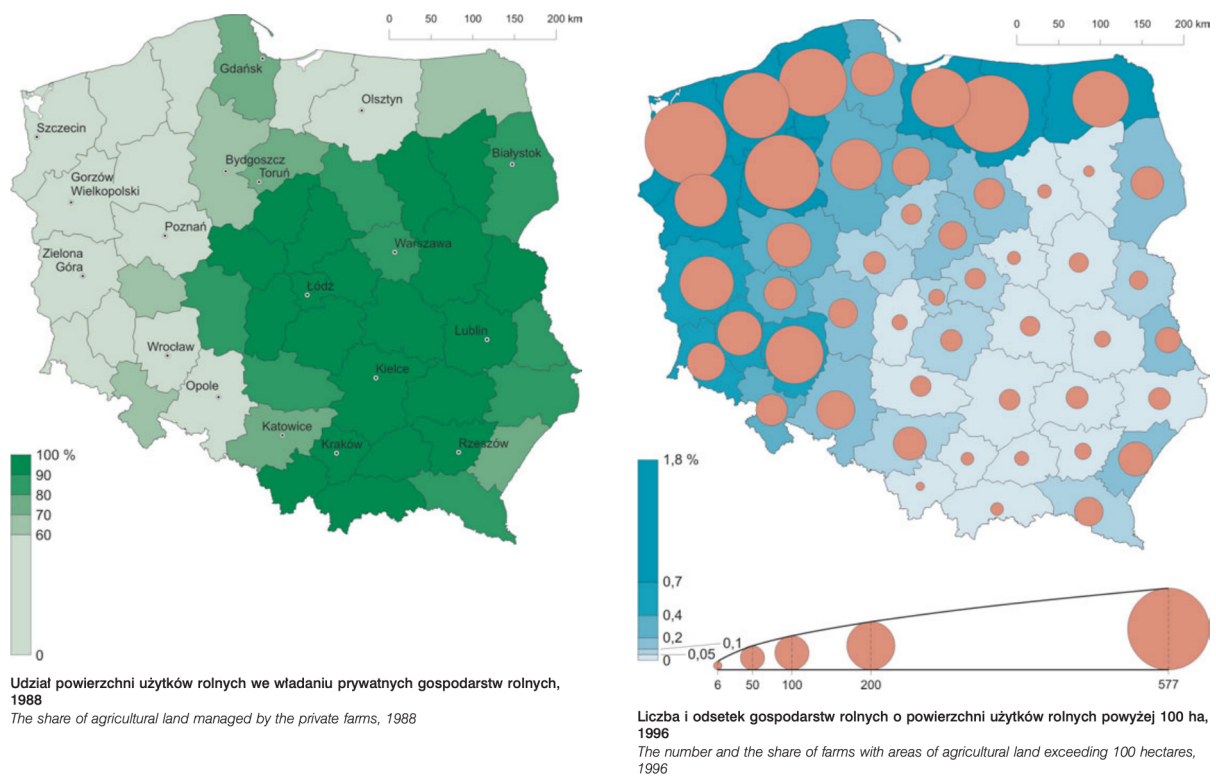
5.1 Polish Agriculture

Poland has a long-standing history with agriculture, dating back to the country's beginnings. Today, it is the second-largest agricultural Member State in the EU, with 1.3 million farms in the country (the equivalent of 14.4 % of the EU total) in 2020 (Eurostat, 2022b, p.1). With an adjustment to the Annual Working Unit, 1427.7 thousand Poles are employed in the agricultural sector, whether involved in large-scale production or practicing hobbyist and part-time farming (GUS-Statistics Poland, 2021a, p.3). Additionally, over 46% of the country's land is arable, making objectives from greening payments, such as the monitoring of fertilizers from the 2014-2020 reform or the eco-scheme objective on grasslands, critical and widely used (Food and Agriculture Organization, 2025; GUS-Statistics Poland, 2024, p. 18).

Historically, agricultural policy has always been a significant point of debate for Poland. During the Soviet dependence period (1952-1989), large state agricultural farms (Polish: Państwowe Gospodarstwa Rolne) were created on mostly 'reclaimed' western former-Prussian Germany territories post-Potsdam Agreement (The Editors of Encyclopedia Britannica, 2023). This marked Poland's resistance against complete agricultural collectivization, which involved nationalized industrial farms recognized as Soviet-style collective property. Poland was unique in the Eastern Bloc because it could withstand its full potential, with only 22% of agricultural land being nationalized compared to other countries (Bański, 2017, p.123). As a result, it was less industrialized than most of Europe post-communism (i.e., 1992). However, the policies implemented to withstand collectivization were not ideal, leading many private farmers to financial destitution. Despite these issues, at the end of the 1980s, this newly privatized agriculture owned ~75% of the total agricultural area in Poland (Bański, 2010, p. 13).

Today, they still exist as Poland's large farms (>100ha), primarily located in western Voivodeships; as the 2020 Agricultural Census notes, the voivodeships in the southeast are known for having a high number of small-scale agricultural farms, whereas the northwestern voivodeships contain the largest farms in terms of area (GUS-Statistics Poland, 2020, p. 27). Figure 2 below shows the change between the before and after communism ended in the size and number of farms in Poland, suggesting the geographical divide of where more farms are located is historically linked.

Figure 2- Poland in 1988 and 1996, showing differences in Agricultural land, and number and share of farms (Bański, 2010, p. 37)



As with the creation of the WTO and the Uruguay Round (Kay, 2003), Poland was given a similar experience to the CAP regarding path dependency.² From the fall of the Berlin Wall in 1989 to the 2014 EU reform, Poland gradually emerged from an agricultural recession, with its 2004 EU accession marking a major turning point (Adamowicz and Rytko, 2006, pp. 7–8). Across the board, academics consider this time for Poland to be an economic miracle, withstanding a massive hyperinflation in the 1990s as part of the ‘economic shock’ stabilization program to transition the country to capitalism (Ouanes and Thakur, 1997). Today, Poland’s production of cereals and oilseeds, i.e., wheat and rapeseed, places the country in a permanent position of authority on both the European and international stage (Portal Statystyczny, 2023).

Regardless of its integral position in European agriculture, Poland is not one of the largest producers in the EU, as it holds less than 10% of the total EU production. Despite this statistic, it has the second-most farms after Romania (Eurostat, 2022).

The Polish sector has seen many improvements and changes in the last 20 years. Some include an increase in the average economic size of an agricultural holding from €12.6 thousand in 2010

² Uruguay Round (1986-1994) was the largest trade negotiation in the world that ultimately led to the creation of the World Trade Organization (WTO), and an example of how path dependent policy framework requires both positive and negative feedback results in a slow, but rewarding, process. (World Trade Organization, 2024)

to €20.3 thousand in 2020 (GUS-Statistics Poland, 2020, p. 30), which proves an increase in investment and land value. With this, it is evident that Member States such as Romania and Poland hold a substantial percentage of employment in EU agriculture, meaning that although their standard output is not on par with most Western Member States, their presence is still integral in the CAP's eyes. Therefore, issues that occur in Poland most likely are also frequent in other states, and it can serve as a study for the general EU agricultural community.

5.2 Polish Politics

In order to understand the full scope of Polish agriculture, it is crucial to comprehend the political landscape, both historically and today. The dynamic between EU and Polish political leadership and policy implementation significantly shapes agricultural priorities, subsidy uptake, and rural development strategies.

In addition to its history and presence in the EU agricultural economy, the academic community has thoroughly discussed Poland's recent political presence on the EU and international stage. The ruling government responsible from 2015 to 2023, Law and Order (Polish: Prawo i Sprawiedliwość), has created promises and delivered policies that support traditional social values but also economically left welfare policies that take the form of 'patriotism', such as initiatives like "500+" financial aid for families with children (Vachudova, 2021, p.482; Ministerstwo Rodziny, Pracy i Polityki Społecznej, 2016). It is considered to be extremely TAN and ethnopopulist.

Historically, however, the coalition that represented rural and agrarian interests was the Polish People's Party (PSL), which started in the 1989-1990 and standing for agricultural subsidies, EU integration, and protecting smallholders (Deloy, Foundation Robert Schuman, and Levy, 2024; Szczerbiak, 2002, p.2). However, in the early 2000s, its interests became more liberally ideologically driven. This led to the Samoobrona Leader by Andrzej Lepper, an agrarian populist, taking over in polls in 2001 with more socially conservative views, which appealed to PSL voters (Szczerbiak, 2002, p.2). From then on, PSL's influence diminished, with many of its voters also going with the 'new' at the time PiS party. Since then, PiS has held most of the rural vote, including in the agricultural sector (Wanat, 2019). Today, it still exists as part of the Civic Platform coalition, but it does not hold the same power in the agrarian community as it once did (Szczerbiak, 2020).

The Polish party system includes several opposition parties that hold diverse positions on both the economic left-right spectrum and the cultural GAL-TAN dimensions. These parties have actively challenged the power of PiS despite its eradication and alterations of democratic liberal institutions, such as the Polish Tribunal System (Vachudova, 2021, p.482). Today, ten parties and/or coalitions are on the EU parliamentary ballot in Poland.

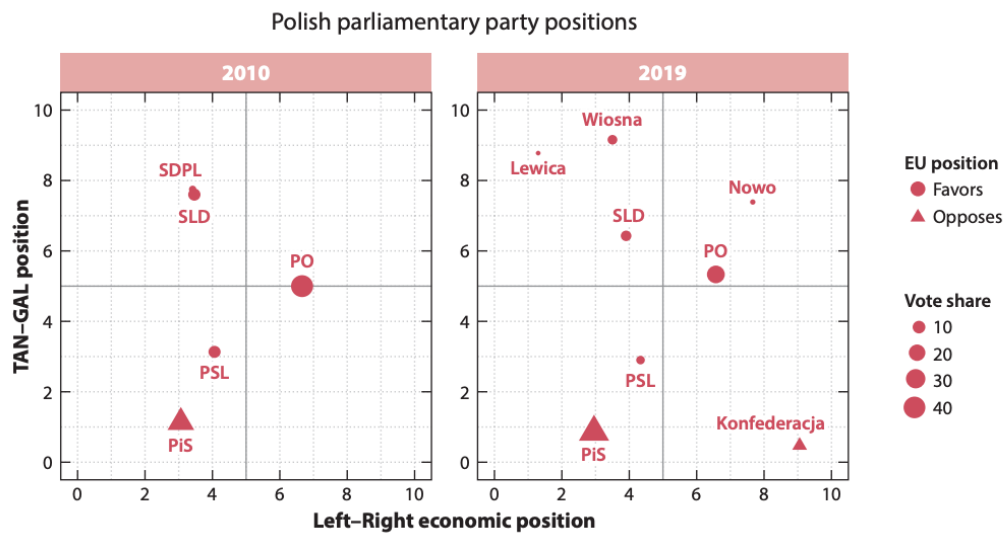
Table 1 below categorizes the parties based on the GAL-TAN classification, derived from the Chapel Hill Expert Survey Data, which offers insights into the ideology, policy, populism, and European integration of European political parties, among other factors (Jolly et al., 2022, p.12).

Table 1- The GAL-TAN Division of Polish Political Parties Actively in the EU Parliament (Jolly et al., 2022, p.12; European Parliament, 2024)

| GAL (pro-European) | TAN (Eurosceptic) |
|---|--|
| Civic Coalition (Koalicja Obywatelska) - (Platforma Obywatelska, Nowoczesna, Inicjatywa Polska, Partia Zieloni) | Law and Order, PiS (Prawo i Sprawiedliwość) |
| Together Party (Partia Razem; Lewica Razem) (Nowa Lewica, Lewica Razem, Unia Pracy) | Confederation Liberty and Independence (Koalicja Konfederacja Wolność i Niepodległość) - (Konfederacja Korony Polskiej, Ruch Narodowy, Nowa Nadzieja, Polska Jest Jedna, Wolnościowcy) |
| Third Way (Koalicja Trzecia Droga) (Polskie Stronnictwo Ludowe, Polska2050, Unia Europejskich Demokratów, Wolnościowcy) | Polexit Party |
| Liberal Poland Entrepreneurs' Strike (Polska Liberalna Strajk Przedsiębiorców) | Voice of Strong Poland Electoral Alliance(Komitet Wyborczy Głos Silnej Polski) |
| Nonpartisan Local Government Activists' (Bezpartyjni Samorządowcy-Normalna Polska w Normalnej Europie) | Normal Country (Normalny Kraj) |
| | Repair Poland Movement (Ruch Naprawy Polski) |

Figure 3 below plots these parties along the GAL-TAN social dimension and left-right economic position, illustrating the ideological fragmentation within Poland's electorate (Vachudova, 2019, p.484).

Figure 3- Polish Parliamentary Party Positions



Using this information, this thesis applies the theory of GAL-TAN and the partisanship divide to group these parties into binary “Pro-Europe” and “Nationalist” categories to create simple linear regressions and correlations. While using the original continuous variables (i.e., GAL-TAN scores), this approach was chosen to simplify the analysis and allow the focus to remain on macro-level political dynamics rather than individual party platforms, making it visually more straightforward to understand the political discrepancies of the 16 voivodeships.

Figure 4- Pro-EU Vote Share Among Voivodeships Across the 3 Election Years (Appendix 4)

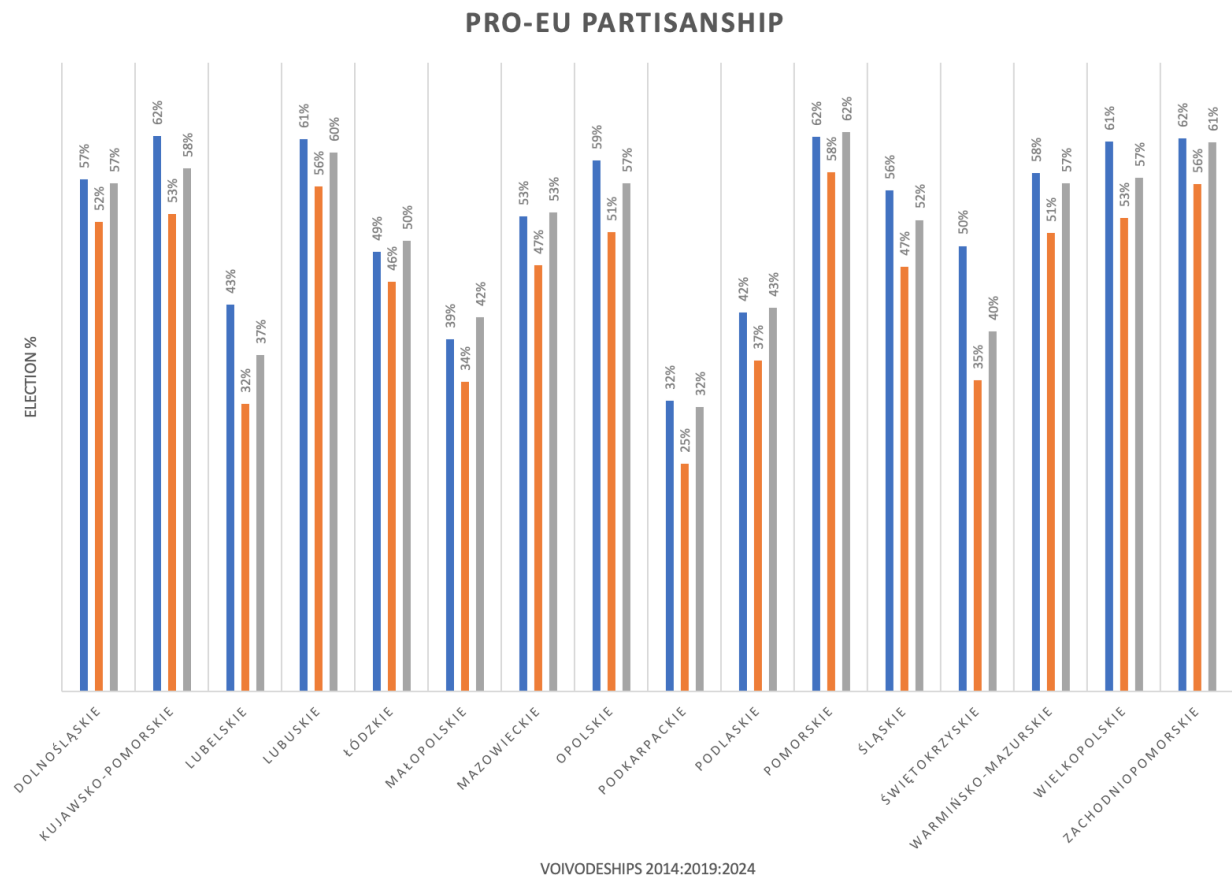


Figure 4 also suggests that regional polarization is constant. There have been very few upward or downward shifts at the national level; however, support for both pro-European parties and TAN parties has mainly remained regional. Voivodeships like Podkarpackie and Lubelskie are known to vote a majority for parties like PiS, while Pomorskie and Zachodniopomorskie historically have voted for more socially left parties and coalitions like PO (Musiał-Karg and Bértoa, 2025, pp.12-13). This polarization is even more pronounced at lower administrative levels, like powiats or gminas.

This solidifies Vachudova and others' claims that polarization through social issues has separated the country's stance on politics, which the geographical divide through voivodeships further helps argue for political backsliding (Vachudova, 2019, p. 490).

This polarization coincides with a starker geographical contrast: Poland is now divided into a West/North liberal Poland "A" and South/East conservative Poland "B". This divide stems from the historical aspect of where Partitioned Prussian Germany and Russia prioritized their industries (Bański, 2010, pp.31-32). This divide also coincides with where large farms are mainly located compared to their smaller counterparts, as mentioned in the previous section.

5.3 Poland and Green Payments

As previously stated, green payments were mandatory direct payments designed to help Member States reach environmental and climate objectives, aligning with the EU's commitment to promoting long-term sustainable agriculture. As with eco-schemes, each Member State had the opportunity to create priorities that reflected CAP's 2014-2020 general objectives and allocate a budget for them. Poland mirrored this and created six priorities in the name of sustainability.

These priorities include (European Commission, 2014):

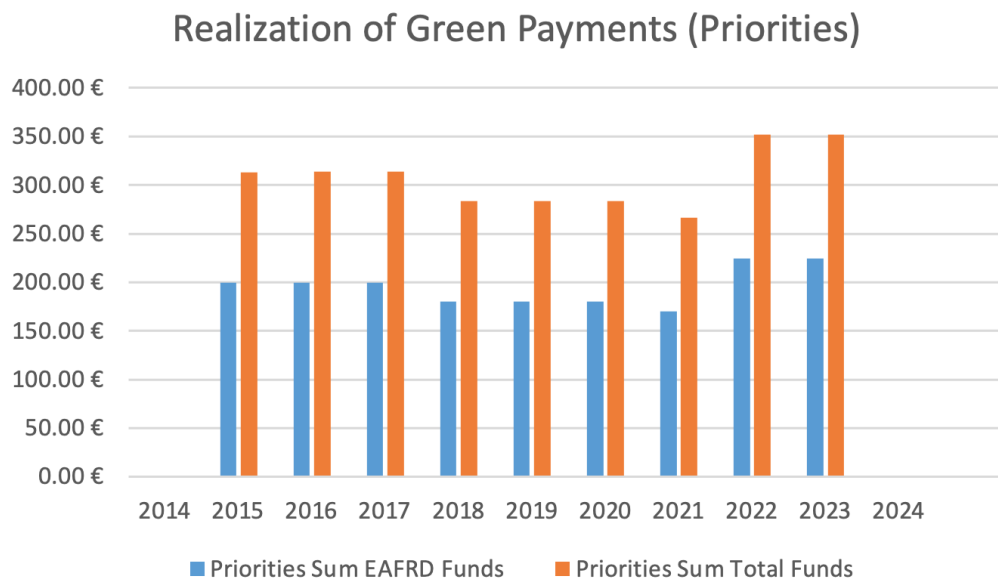
1. Knowledge transfer and innovation in agriculture, forestry, and rural areas
2. Farm viability, competitiveness, and sustainable forest management
3. Promoting food chain organization, including processing and marketing of agricultural products, animal welfare, and risk management
4. Restoring, preserving, and enhancing ecosystems related to agriculture and forestry
5. Promoting resource efficiency and supporting the shift towards a low-carbon and climate-resilient economy in agriculture, food, and forestry sectors
6. Promoting social inclusion, poverty reduction, and economic development in rural areas

However, only the fourth and fifth priorities are the main objectives of the Rural Development Programme (RDP) in Poland, which this thesis uses for analysis; however, 2, 3, and 6 still have components that acknowledge green payments in agriculture; therefore, it is integral to pay attention to all priorities.

Poland's total RDP budget for the 2014–2020 period was approximately €13.6 billion, as previously mentioned, composed of €8.7 billion from the European Agricultural Fund for Rural Development (EAFRD) and €4.9 billion in Polish national contributions (Ministerstwo Rolnictwa i Rozwoju Wsi, 2020a). In addition to the original budget allocation, Poland received supplementary funding for 2021 and 2022 under the terms of the transitional period introduced by Regulation (EU) 2020/2220 (Ministerstwo Rolnictwa i Rozwoju Wsi, 2020a). As a result, the budget was increased by nearly €4.6 billion, including an additional €3.6 billion in public funds and €944.7 million from the European Recovery Instrument, which was part of the NextGenerationEU (Ministerstwo Rolnictwa i Rozwoju Wsi, 2020a).

These funds were to be distributed across the six priorities throughout the program. However, as the results section (9) will show, actual disbursement and program implementation did not fully match this planned distribution. Figure 5 visualizes the proportion of funding from the EAFRD and national sources dedicated to the priorities under Poland's CAP Strategy Plan.

Figure 5- Green Payment Budget Allocation in Poland 2014-2020 Reform (Appendix 3)



However, green payments in Poland provided mixed results overall. While the general agricultural environment was not harmed, the payments proved insufficient to achieve CAP's progress objectives (Wrzaszcz, 2018, p. 88). Farmers deemed the administrative requirements complex and demanding, resulting in minimal change in management, unlike what was anticipated by CAP 2014-2020 (Wrzaszcz, 2018, p. 93). Therefore, this mirrors the general EU 'failure' that section 2.1 touches upon, making Poland a typical example. However, the results prove that Poland is also a unique case.

5.4 Poland and Eco-schemes

As one of the 25 Member States that have administered eco-schemes into their CAP strategic plans since 2023, Poland has a total of 5 schemes and 13 practices that farmers can choose to abide by (Zieliński et.al, 2024, p. 4). The various objectives make it one of the more extensive CAP strategy plans. Additionally, the budget allocated for eco schemes occupies at least 25% of annual direct payments (Ministerstwo Rolnictwa i Rozwoju Wsi, 2024, p. 8).

According to the Rural and Agricultural Agency (APRIS), the eco-schemes were designed to promote practices that translate into agricultural income by increasing soil fertility, rational fertilization, and improving crop quality (Zieliński, 2024, p. 2). This is primarily achieved by the Carbon Farming and Nutrient Management eco-scheme, within which farmers can choose from eight available practices that best meet their farm's needs (Ministerstwo Rolnictwa i Rozwoju Wsi, 2024).

The government instituted the following schemes:

1. Carbon farming and nutrient management
 - 1.1. Extensive permanent grasslands with livestock
 - 1.2. Winter catch crops/intercrops
 - 1.3. Fertilization plans (basic variant)
 - 1.4. Fertilization plans (liming variant)
 - 1.5. Diversified sowing structure
 - 1.6. Mixing solid manure on arable land within 12 hours of its application
 - 1.7. Using liquid manure with methods other than splashing
 - 1.8. Reduced tillage systems**
 - 1.9. Mixing straw with soil**
2. Areas with melliferous plants
3. Water retention on permanent grassland
4. Integrated plant production
5. Biological protection of plants (Zieliński et.al., 2024, p.4, Table 1)

With these many options for eco-schemes, it was reported that 428,300 farms applied for the initiatives in 2023, accounting for only 34.5% of the total number of farms in Poland. According to Zieliński et.al. (2024, p.5), the most common practice was “mixing straw with soil, while the practice covering the largest area was reduced tillage systems.”, which would follow eco-scheme 1.9 from the list above (Zieliński et.al., 2024, p.5). This means that two-thirds of the agricultural population did not meet the requirements or attempt to meet them for the financial initiative. Figure 6 below, depicting Polish farms with 1-4 practices, shows the eco-scheme adoption rates for 2023. These results are the most recent statistics released by the European Union and the Member State itself.

Figure 6- Map of the Proportion of Polish Farms Adopting Eco-schemes (Zieliński et al., 2024, p.9, Figures 4-7)

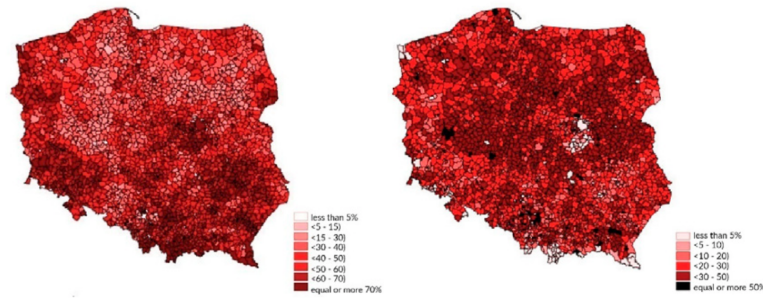


Figure 4. Share of farms with 1 practice in the total number of farms which adopted eco-schemes by communes in 2023

Figure 5. Share of farms with 2 practices in the total number of farms which adopted eco-schemes by communes in 2023

Source: authors' work based on the Agency for Restructuring and Modernization of Agriculture (data for 2023).

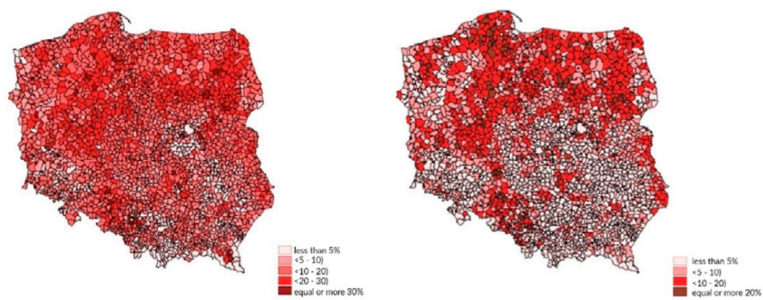


Figure 6. Share of farms with 3 practices in the total number of farms adopted eco-schemes by communes in 2023

Figure 7. Share of farms with 4 practices in the total number of farms adopted eco-schemes by communes in 2023

Despite Poland's introduction of eco-schemes within its CAP Strategic Plan, concerns remain regarding their overall effectiveness in addressing the country's environmental and climate challenges. A significant portion of CAP funding is still aimed toward basic income support payments and coupled support, often with conditional sustainability requirements. Additionally, the transfer of over 1.5 billion euros from Pillar II (rural development) to Pillar I (direct payments) and the small budgets allocated to interventions with potential environmental benefits suggest that sustainability has not been prioritized. Therefore, as some measures could contribute to environmental and climate goals, their impact is likely constrained by budget limitations and unclear implementation strategies (Midler et al., 2022, p. 2).

6. Hypothesis

This research evaluates two main hypotheses based on the theoretical framework established in Section 3. These hypotheses stem from the proposed causal relationship connecting political partisanship to farmers' involvement in CAP eco-schemes. In particular, it is expected that partisan alignment will impact farmers' trust in EU policy legitimacy, which will influence their participation in these voluntary agri-environmental initiatives. Furthermore, other demographic factors like farm size and wealth are anticipated to moderate the advantages of these policies.

H1: Regions with higher Eurosceptic voting tendencies adopt eco-scheme incentives at lower rates than pro-EU.

Regions with higher levels of Eurosceptic voting will display lower levels of eco-scheme adoption compared to regions with lower levels of Eurosceptic voting.

H2: Regions with owners with higher education and larger farms benefit more from eco-schemes and green payments

This hypothesis examines distributional inequalities, testing whether structural conditions mediate access and benefit levels from eco-schemes. This also tests whether the 2023-2027 reform amended the 2014-2020 reform subsidy issues.

Null hypothesis: There is no correlation between EU partisanship and uptake of eco-schemes throughout the 16 Polish regions.

This provides the falsifiability condition for H1 and establishes the baseline for statistical testing.

7. Data

This thesis employed a quantitative document analysis to explore whether support for pro-European political parties' political beliefs influenced voivodeship (state) participation in green payments (2014-2020) and eco-schemes (2023-2027) under the CAP in Poland. Rather than relying solely on qualitative measures of surveys and interviews, this method focused on extracting statistics from data reports and evaluations from the Ministry of Agriculture and Rural Development (MRIW), the Agency for Restructuring and Modernisation of Agriculture (ARiMR), the Statistics Poland (Główny Urząd Statystyczny) databases, and the Państwowa Komisja Wyborcza (PKW).

Specific extractions included:

- Annual agricultural output and financial reports from 2014 to 2020 (MRIW)
- 2010 and 2020 Census data, including employment, agricultural holdings, average farm size, farmer education levels, and the number of farms per region (Spis Rolny, 2010; Spis Rolny, 2020)
- Voting results per Voivodeship from 2014, 2019, 2024 (PKW)

The Ministry of Agriculture and Rural Development's annual reports provide a detailed assessment of the agricultural sector within the CAP framework. These reports contain key indicators such as eco-scheme adoption rates, financial distributions, and policy impact metrics, making them essential for evaluating the effectiveness of CAP reforms and worth the manual extraction. Additionally, monthly monitoring reports from ARiMR offer more immediate insights into short-term fluctuations in participation and funding, complementing the broader trends observed in the annual evaluations.

These sources offered longitudinal data (2014-2024) and regional differentiation, making it possible for a cross-comparative analysis. However, not all data was uniformly available, as information from eco-schemes is still primary and limited. As a result, proxy variables (percentage of farms for 2023 and 2024 rather than the number of hectares covered) were constructed. I performed robustness checks to ensure consistency across regional and federal databases. With Excel, consistent statistics were found among various tables from GUS-Statistics Poland and the Ministry of Agriculture and Rural Development. This check tested the years of the 2014-2020 reform.

8. Methodology

By using these statistical materials, this study quantifies the extent of policy adoption, regional variations, and financial allocations, which also addresses the quantitative gap in research. While qualitative interviews and studies could be helpful, they do not sufficiently distinguish the analysis, given the already abundant qualitative research exploring this topic through interviews with farmers and policymakers. Therefore, it is essential to approach this thesis from a purely quantitative perspective.

First, I analyze data presented in MRIW reports, examining trends from 2014 to 2020 and assessing subsidy uptake at a general farm level. Additionally, I employ a pooled OLS regression analysis to identify key relationships within the data and divide the years to see individual key differences in their regressions (Sayrs, 1989). I assess the robustness of the OLS regression for heteroskedasticity (standard errors) and multicollinearity, correcting constant variances using Breusch-Pagan and variance inflation factor tests to obtain precise results (Sayrs, 1989, p.11).

8.1 Variables

I focus on the correlation and regression index between the above-mentioned components to explore whether partisanship affects eco scheme adoption per voivodeship. Therefore, European parliamentary voting share is the primary independent variable at play, dividing parties and coalitions of that election cycle into two groups: anti- and pro-EU.

The primary dependent variable is the proportion of agricultural area per voivodeship that received green payments (2014–2020) or eco-scheme subsidies (2023–2024), which is used as a proxy for subsidy uptake. Ideally, uptake would be measured using farm-level participation data; however, due to limitations from the 2023-2027 reform, this thesis uses the proxy of the total area (ha) granted subsidies, divided by the total utilized agricultural area (UAA) in each voivodeship. This standardized comparison accounts for differences in farm size and agricultural land use. For example, the Mazowsze voivodeship has a high percentage of its population working in agriculture (162153); however, over 60% of the farms are smaller than 14 ha, meaning that the majority are either family-owned or hobbyist farming (GUS-Statistics Poland, 2024c, p.107). The Warmia-Mazury, on the other hand, have substantially fewer farmers (41609) (GUS-Statistics Poland, 2024c, p. 107), but significantly larger farms, resulting in nearly twice the agricultural land area compared to Mazowsze (GUS-Statistics Poland, 2020, table 19).

The key independent variable was political partisanship, applied through EU Parliamentary voting share, differentiated by party into Pro-Europe and Eurosceptic, which is annotated in the study's databases as Nationalist. It is key to remember that these elections reflect attitudes about European integration, but are simultaneously influenced by Polish domestic politics, making

them reliable in the overarching idea for testing policy support or skepticism toward CAP. Additionally, when this partisanship divide is used as a variable in the study, it represents regional alignment with EU norms and environmental priorities by being measured as the EU Parliament vote share for GAL vs TAN parties. As CAP eco-schemes increasingly reflect neo-functional supranational climate goals, regions that support GAL-aligned parties are expected to implement these reforms more actively, as path dependence suggests, with positive feedback.

However, this study considers voivodeship voting, meaning it does not track the behavior of individual occupancies or farms. The voting statistics are derived from aggregated electoral outcomes per region, which urban areas can more heavily influence. Examples include Warsaw in the Mazowsze Voivodeship, Gdańsk in Pomorskie Voivodeship, and Kraków in Małopolska (Państwowa Komisja Wyborcza, 2024). As such, the thesis does not claim to measure farmer voting behavior directly, nor does it assume that all agricultural stakeholders in a region vote the same way. In fact, within a single farm household, voting preferences may vary. Given the available data and scope of the project, this regional-level approach is necessary, but it inherently limits causal claims about individual-level motivations.

Other variables used in the study were applied as controls. These include average Voivodeship farm size (hectares) and the percentage of farmers with tertiary education per region. These variables test the other potential reasons behind farmer distrust in eco-schemes and the EU policy itself, as otherwise, it would be a minimal perspective. With these specific variables, it is crucial to remember that farm income dependency varies across these regions, with some Voivodeships whose high subsidy uptake is partially due to agriculture being a primary occupation, whereas in other regions it may present as a hobby. In this sense, larger farms (control variable: farm size) are more likely to streamline their entire income from agriculture, while smaller farms often supplement with other incomes (GUS-Statistics Poland, 2022).

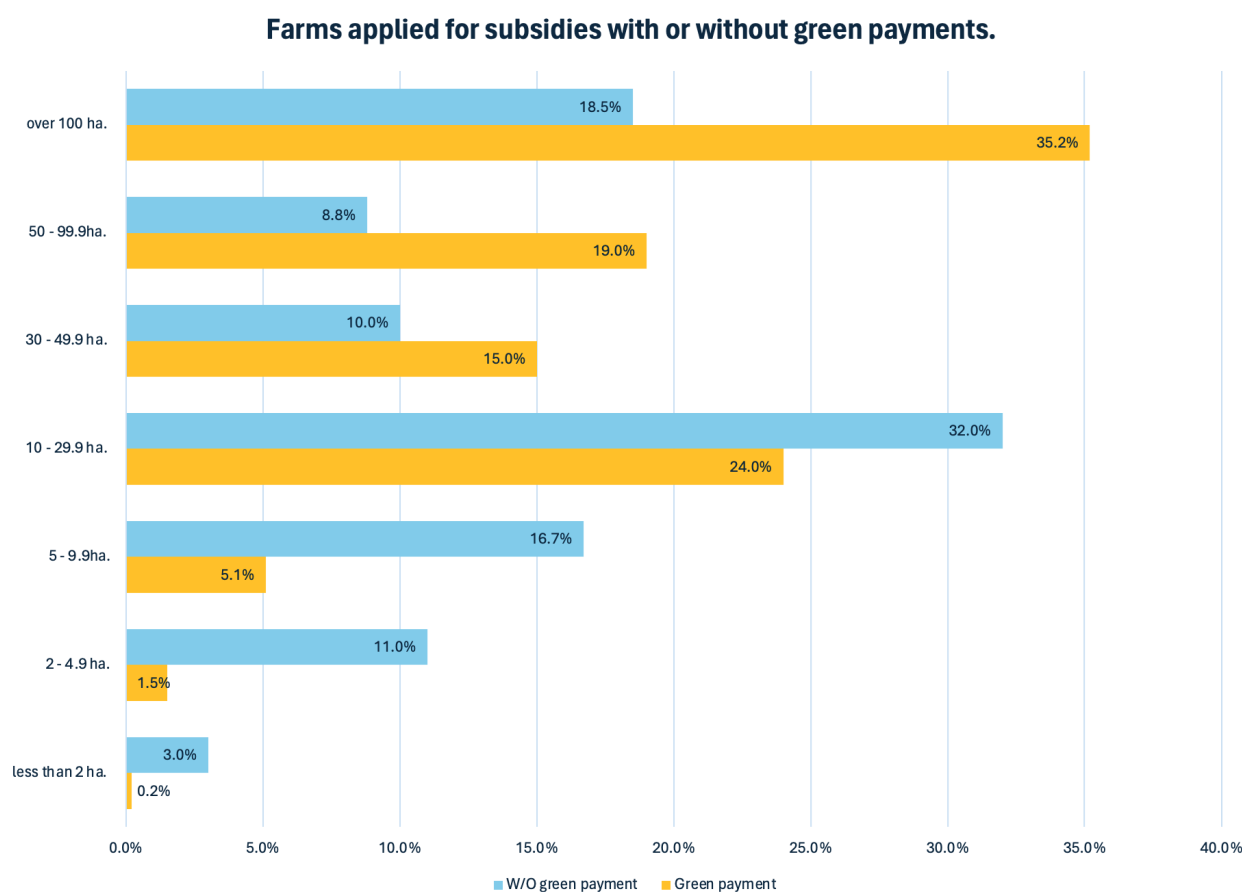
9. Results and Analysis

The analysis was divided into four parts: a descriptive analysis of the 2014-2020 reform, observations in the first two available years of eco-schemes, and finally, the time comparison between payments among the years and election results (2014, 2019, 2024) with correlations and regressions. This allows for a robust analysis that brings more findings than needed to answer the research question of whether partisanship affects eco-scheme uptake or not.

9.1 Descriptive findings

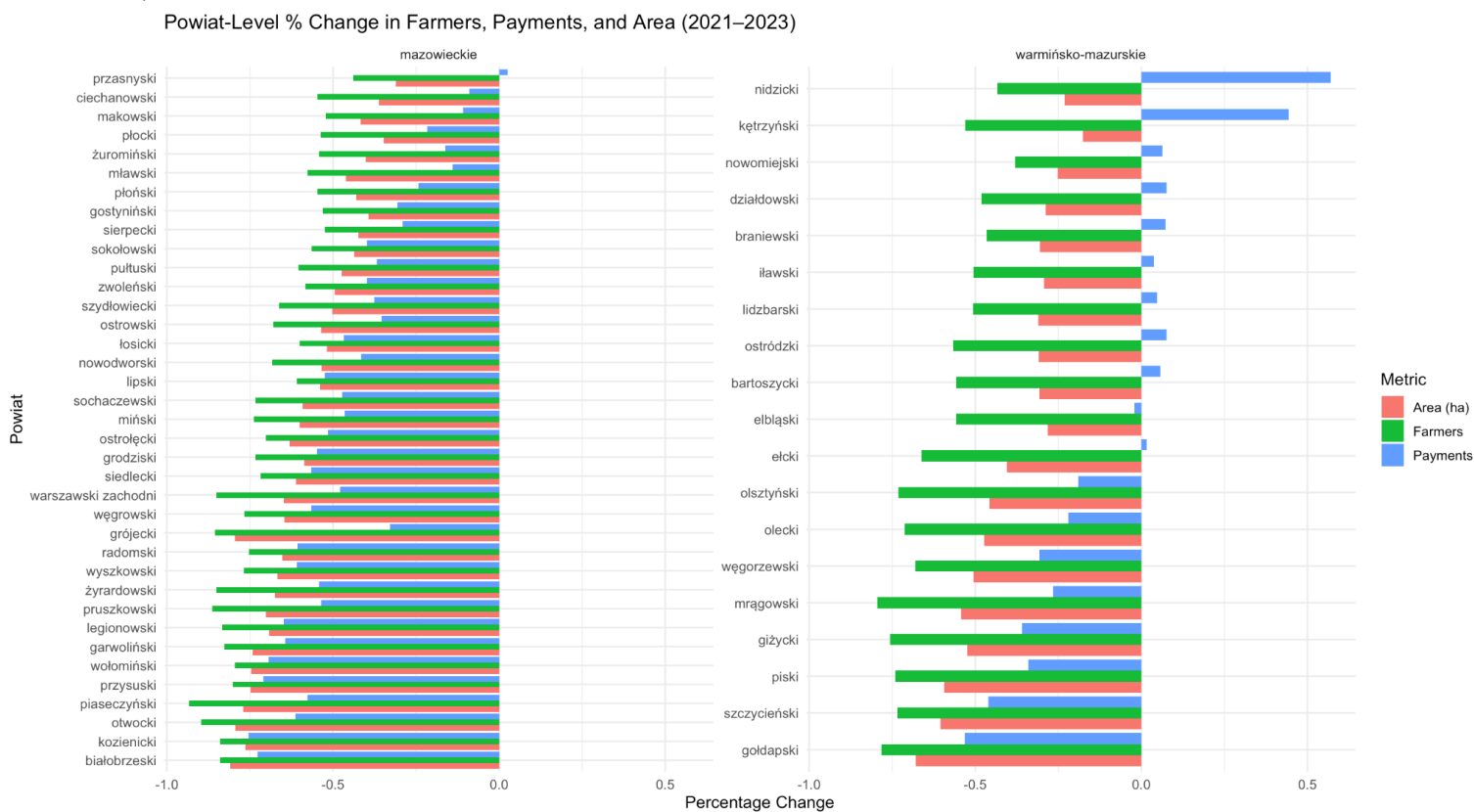
When reading tables from the RDP 2014-2020 reform reports (Appendix 6), the first notable pattern that emerged from the data was that large farms receiving green payments were over twice the size of the average farm. Figure 7 presents this phenomenon by showing the disparity between farms that applied for green payments and those that have not; farms over 100 ha that have green payments amount to 35%, while those that have not amount to only 18.5%.

Figure 7- CAP 2014-2020 Difference Between Farmers who applied for green payment subsidies versus those who did not, varied by farm size (ha)



A similar pattern transpired when comparing the size of the farms that adopted eco-schemes in 2023 and 2024. For example, Figure 8 presents this finding in the Mazowsze and Warmia i Mazury Voivodeships (2021 and 2023 comparison) by showing that despite the majority of area (ha) and amount of farmers decreased by over ~50%, the payments only decreased slightly, showing an increase of large farms in the regions.³ For example, the Mazowieckie Przasnyski Powiat had a ~55% decrease in farmers and a ~30% decrease in area (ha), but an increase of ~4% in subsidy payments. In the Warmia-Mazury Nidzicki Powiat, the increase in subsidy payments was over ~55%, while there was a decrease of almost ~50% in the number of farmers. This observation is inconclusive with the potential hypothesis that large farms are more ecological. However, they simply use more of the available funds and can meet EU requirements. As a result, the early implementation of the 2023–2024 reform appears to copy the distributional patterns of the previous CAP reform, with larger farms continuing to receive a disproportionate share of subsidies (Krzymkowski, 2025).

Figure 8- Singular Powiat Example of Subsidy change per farmer number and area (Appendix 7)



Both findings, as shown by Figures 7 and 8, support Hypothesis 2 by demonstrating that larger farms are likely to adopt eco-schemes and receive a greater share of subsidies than smaller farms. Although the CAP 2023–2027 promised for a ‘redistribution of income support’— the

³ This Powiat comparison is simply used as an example, as information for a cross-powiat study was extremely limited for 2023–2024 eco-schemes. Therefore, I only use this available data as specific supplementary evidence for my hypothesis.

plan to dedicate at least 10% of Member States' direct payments to redistribute to smaller and medium-sized farms (European Commission, 2021; European Commission, 2022) — a surprise finding here further proves previous economic literature on CAP subsidies that rent-seeking in subsidy payments still exists.

Although this further solidifies existing literature, my analysis challenged this idea from the angle of voivodeships and agricultural areas benefiting from eco-schemes divided by total agricultural area (UAA). At the same time, studies done by academics such as Matuszczak and Czyżewski tackled it from the perspective of the EU Member States and specific farm sizes (2018, p.76). Hence, while farm size remains the strongest predictor, the data also suggests that other factors, such as administrative capacity, regional policy implementation, or farmer trust in institutions, may influence uptake. However, this is more difficult to quantify with the available data.

9.2 Voting Behavior Correlation

The study used linear regressions and correlations to test the first hypothesis of whether political orientation affects eco-scheme participation. Additionally, when dividing the parties into pro and anti-European Union sentiment, the GAL-TAN ideology was applied, seeing what rhetoric these coalitions and parties use. In this first subsection, looking at the multivariable correlations allows understanding the strength of the tested relationships and seeing which is the strongest.

2014 Correlations

First, 2014 was the first election cycle of the CAP 2014-2020 reform, beginning the trend on which the study is dependent. Therefore, its results give a foundation for what is expected in the timeline if path dependence were to be the correct theory for this analysis.

The 2014 correlation analysis for pro-European partisanship and green payment subsidy uptake resulted in $r = 0.39$, $t(14) = 1.58$, $p = 0.136$ (Appendix 8.2).

This shows a positive relationship; however, it has weak statistical significance, suggesting that the relationship may be coincidental and should be interpreted cautiously. A similar moderate correlation occurs between tertiary education and green payment subsidy uptake ($r = 0.47$, $p > 0.05$), indicating that regions with more highly educated farm managers may have slightly higher adoption rates of green subsidies. Still, again, this result was not statistically significant. However, the strongest predictor of green payment subsidy uptake in 2014 was average farm size, with a correlation of $r = 0.66$, with $p < 0.01$, indicating strong statistical significance. This helps argue that Voivodeships with larger farms took considerably more green payments than small ones.

Regarding the other multivariable correlations, pro-European support was also strongly correlated with average farm size ($r = 0.72$, $p < 0.01$). However, the trend with tertiary education

is moderate but not statistically significant ($r = 0.43$, $p = 0.10$). Meanwhile, tertiary education was also strongly correlated with average farm size ($r = 0.73$, $p < 0.01$).

Overall, the trend suggests that in 2014, structural factors like farm size and education levels were more strongly associated with eco-scheme adoption than EU partisanship alone. This reinforces the idea that larger farms were better positioned to utilize the green payments' potential fully. Specifically, large pro-European farms with higher education are more likely to use those subsidies, suggesting that a combination of all variables produces the best correlation; however, this is not a strong enough case of causation. Thus, the null hypothesis that there is no correlation between pro-EU support and subsidy uptake cannot be rejected based on the 2014 data.

2019 Correlations

The year 2019 showed a decline on all fronts in this paper. With that, the targeted correlation analysis for 2019 pro-European partisanship and green payment subsidy uptake produced the following results:

$r = 0.24$, $t(14) = 0.93$, $p = 0.370$. (Appendix 9.2)

This indicates a weak, non-significant trend toward positive association (e.g., $p < 0.05$). The 95% confidence interval ranges from approximately -0.29 to 0.66 , suggesting that this correlation estimate is shaky and thus not statistically usable for the analysis. In practical terms, we cannot reliably conclude that higher pro-European voting is associated with higher adoption of eco-schemes in 2019. Once again, the 2019 data cannot reject the null hypothesis.

However, there were stronger positive correlations when testing the correlation between other variables. For instance, the correlation between ProEuropa and average farm size is strong and positive ($r = 0.77$), suggesting that regions with larger farms are more likely to support pro-European parties. Similarly, ProEuropa shows a moderate positive correlation with the share of tertiary education ($r = 0.49$), indicating that farmers' education level possibly plays a role in political orientation. Additionally, when analyzing farm size and tertiary education ($r = 0.73$), a high positive correlation exists, implying that larger farms are more likely to be run by individuals with higher education.

Subsidy uptake, on the other hand, had the weakest correlations with different variables. Its correlation with ProEuropa is only $r = 0.16$, suggesting minimal association. Moderate correlations are observed with average farm size ($r = 0.48$) and tertiary education ($r = 0.39$), possibly indicating that green payment subsidy uptake is more prominent in voivodeships with larger farms with higher education.

However, once again, combining the strongest correlations (Pro-Europa~Farm size~Tertiary Education) mirrors 2014, proving that Pro-European large farms with higher educated farm owners most likely take the most advantage of green payments.

Looking at 2019, one can infer that its results make the year an outlier. Findings regarding the simple correlation of EU-partisanship and the uptake of green payments show a decrease compared to the two other election years. This dual decline suggests that political and institutional trust in CAP mechanisms was weakening at this point in the policy cycle. This can be a result of the rise of Euroscepticism coming almost to its peak during that time, and the structural delays of the green payments also hurt the perception of the policy, which is inherently European. Therefore, rather than seeing 2019 as an outlier, it can be perceived as a result of the farmer and EU fatigue, a potential part of a larger trend that can only be analyzed with a longer timeline.

Table 2- Area (ha) covered by Green Payment support, years 2014-2018 (Appendix 5)

| Voivodeships | 2015 | 2016 | 2017 | 2018 | Reduction |
|---------------------|-------------|-------------|-------------|-------------|------------------|
| Dolnośląskie | 104940 | 97620 | 75687 | 70671 | 33% |
| Kujawsko-pomorskie | 203146 | 176468 | 138035 | 90255 | 56% |
| Lubelskie | 167552 | 140265 | 114722 | 107089 | 36% |
| Lubuskie | 85131 | 79456 | 70459 | 70607 | 17% |
| Łódzkie | 41083 | 34738 | 21548 | 16953 | 59% |
| Małopolskie | 23996 | 23297 | 19993 | 16095 | 33% |
| Mazowieckie | 91947 | 76868 | 60684 | 46170 | 50% |
| Opolskie | 70349 | 52238 | 26462 | 20252 | 71% |
| Podkarpackie | 79073 | 76940 | 66837 | 63174 | 20% |
| Podlaskie | 97627 | 92214 | 72654 | 61371 | 37% |
| Pomorskie | 146674 | 139043 | 124209 | 110152 | 25% |
| Śląskie | 18867 | 16076 | 10890 | 8545 | 55% |
| Świętokrzyskie | 48035 | 40231 | 29503 | 23338 | 51% |
| Warmińsko-mazurskie | 153734 | 146869 | 126331 | 114546 | 25% |
| Wielkopolskie | 169329 | 155203 | 110494 | 76141 | 55% |
| Zachodniopomorskie | 135984 | 143096 | 119046 | 117842 | 13% |

For example, Table 2 shows the average Polish agricultural area supported by green payments showed high percentages of decrease from 2015 to 2018 (Ministerstwo Rolnictwa i Rozwoju Wsi, 2025, p.165), proving that 2019 is not an outside statistic but an aggregation of the previous years that did not have election cycles to show in this study. This can be tied to the idea that path dependency is not always a consistent trend within a policy.

2024 Correlation (Appendix 10)

In 2024, the Pro-Europa partisanship variable showed the strongest correlation with the dependent variable of subsidy applicants compared with 2014 and 2019. Although the dependent variable is slightly different from the two previous election years due to the lack of public evaluation data for the first several years of the reform, it is still the best comparison.

Results show a moderate to strong correlation ($r = 0.61$, $p = 0.012$) between ProEuropa and eco-scheme participation, marking the strongest observed association between partisanship and subsidy uptake over the three years studied. This suggests that 2024 political orientation may align more with institutional engagement, possibly due to outside factors such as domestic shifts in politics or salience in climate change. However, once again, the average farm size shows a strong positive correlation with eco-scheme participation ($r = 0.74$), consistent with previous years (2014: 0.66; 2019: 0.48).

Aligning with the 2024 EU Farmers' Survey (European Commission, 2024b), larger farms are perceived to be better positioned to adopt complex, conditional EU payments due to factors such as higher education, economies of scale, or administrative resources, which means having people on board for this duty.

The share of farm owners with tertiary education moderately correlates with eco-scheme participation ($r = 0.42$) and average farm size ($r = 0.73$), which may suggest that education supports uptake by reducing administrative burden in bigger farms.

Thus, the 2024 data shows a clear positive association between regional political orientation (pro-Europeanism) and eco-scheme engagement. While structural variables like farm size and education remain strong explanatory factors, political belief appears more visible in the 2023-2027 CAP reform than in 2014-2020. This can explain a renewed broader trust in a new reform or legitimacy dynamics as eco-schemes become more prominent and politicized.

This year aligns with hypothesis 1, which states that regions with higher Eurosceptic voting tendencies adopt eco-scheme incentives at lower rates than pro-EU regions. However, it does not work with the second hypothesis.

Summary of All Correlations

Table 3 shows a summary of the correlations of the primary independent variable and control variables with the dependent variable of green subsidy uptake (Appendix 8.2):

Table 3: Correlation Index Across Election Years

| Year | Pro-EU Correlation | Average Farm Size Correlation | Tertiary Education Correlation |
|------|--------------------|-------------------------------|--------------------------------|
| 2014 | 0.39 | 0.66 | 0.47 |
| 2019 | 0.24 | 0.48 | 0.39 |
| 2024 | 0.61 | 0.74 | 0.42 |

With these statistics, the highest correlation with subsidy uptake is average farm size, indicating that larger farms take more advantage of subsidies than others. Additionally, while partisanship holds weight, it is minimal on its own. The combined effect of larger farm size and higher education appears to be a more significant predictor of subsidy uptake than partisanship alone or in combination with other variables.

However, the strongest correlation for partisanship proves that regions that vote pro-EU have larger farms and higher education, with income mainly from farming. I reiterate that Voivodeships with large farms are where owners' income primarily comes from agriculture. In areas with small farms, owners operate farms as a hobby, support the family business, or supplement seasonal income (GUS-Statistics Poland, 2022). As such, this can suggest that small farmers do not have time or the finances to apply for eco-schemes or, in the past, to manage green payments effectively.

9.3 Pooled OLS Regression

While correlation analysis offers a view of whether the variables at hand have strong relationships, it does not consider how much they are under the control of the other effect. For instance, pro-European Voivodeships may also have larger farms and/or more educated farmers, which complicates the ability to separate the impact of individual variables in a correlation. To separate this, I employ a pooled time regression analysis, which allows for the simultaneous control of the numerous predicting variables and determines the relative importance of the different factors for deciding subsidy uptake (Sayrs, 1989).

Table 4: Pooled OLS Regression Across 2014, 2019, 2024 Measuring Subsidy Uptake (Appendix 11)

| Predictor | Coefficient | Robust SE | P-value | Signif. |
|---------------------|-------------|-----------|---------|---------|
| (Intercept) | 0.062 | 0.065 | 0.343 | |
| Avg. Farm Size (ha) | 0.0074 | 0.0019 | 0.0004 | *** |
| Tertiary Education | -0.314 | 0.553 | 0.574 | |
| Pro-EU Vote Share | 0.0002 | 0.0013 | 0.881 | |
| Year 2019 | -0.0395 | 0.0317 | 0.221 | |
| Year 2024 | 0.3155 | 0.0328 | <0.001 | *** |

Residual standard error = 0.068

$R^2 = 0.874$, Adjusted $R^2 = 0.859$

F-statistic = 58.34 (df = 5, 42), $p < 0.001$

Standard errors are robust (HC1)

Reference year: 2014 N = 48

Before interpreting the results, it is important to account for standard errors. The Breusch-Pagan test was used to identify the presence of heteroskedasticity (BP = 13.39, $p = 0.02$), which violates the assumption of constant variance. As a result, heteroskedasticity-robust standard errors were applied to all coefficient estimates. Additionally, Generalized Variance Inflation Factors were calculated to evaluate multicollinearity, which proved that all predictors had scores well below the critical threshold of 5, with the highest (Tertiary Education) at 1.88. This denotes there is no multicollinearity, and coefficient estimates can be interpreted.

The regression results, shown in Table 4, confirm previous findings that average farm size is the strongest and most consistent predictor of subsidy uptake ($\beta = 0.0074$, $p < 0.001$). To compare, tertiary education and pro-EU sentiment show no significant effect. The year 2024 shows a statistically significant increase in uptake compared to 2014, indicating the change from green payments to eco-schemes and suggesting renewed trust in the new 2023-2027 reform. The model explains approximately 86% of the variance in uptake (Adjusted $R^2 = 0.859$), with a highly significant F-statistic ($p < 0.001$).

9.4 Yearly Regressions

To see specific changes per election year, the following graphs illustrate the changes in regressions, using Pro-Europa as the independent variable alongside control variables: average farm size, tertiary education, and the dependent variable, green subsidy uptake.

2014 Regressions

Once again, 2014 is the start of the 2014-2020 Reform, meaning that its findings shape how the rest of the results for the following election years are analyzed.

Figure 9- 2014 Individual Regressions (Appendix 8.2)

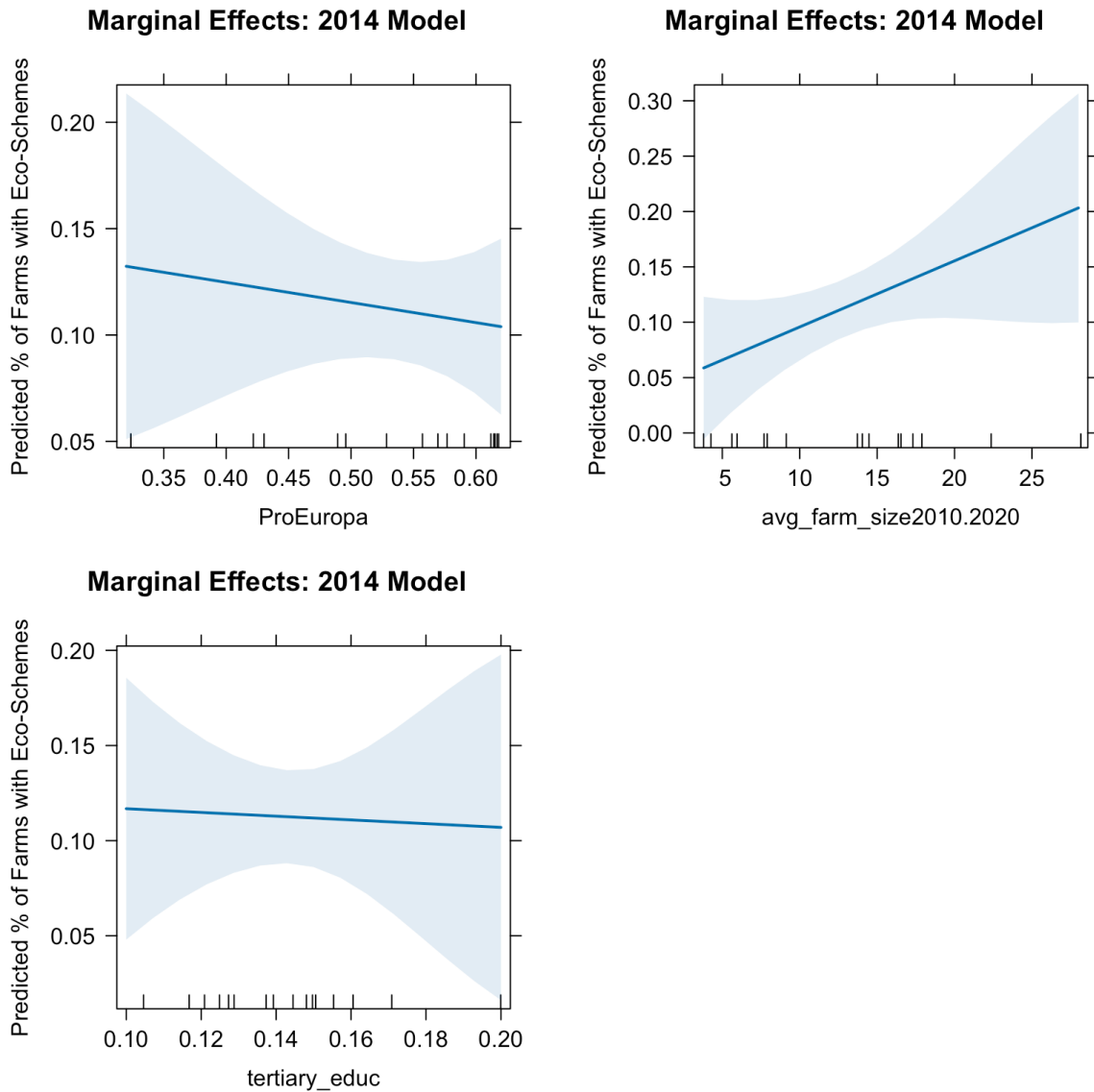


Figure 9 shows that the strongest relationship is with farm size. In contrast, tertiary education shows a less-than-significant decrease, and pro-European partisanship shows a steeper negative relationship with green payment subsidy areas. When the actual regression numbers are added, it can be seen that pro-European support showed no significant effect ($\beta = -0.095$, $p = 0.592$), and its negative sign suggests no directional alignment with subsidy uptake.

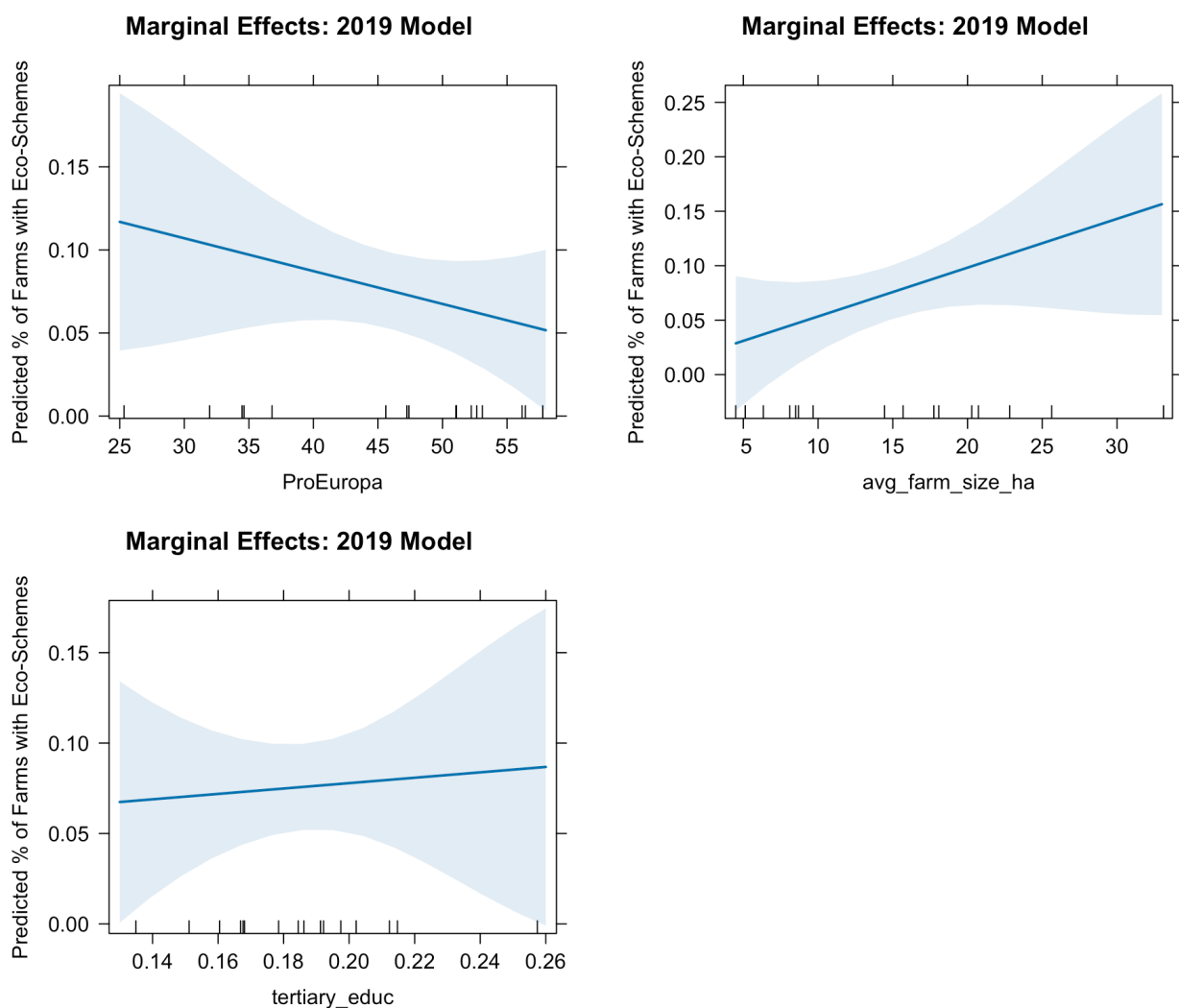
Average farm size had a marginally significant and positive effect ($\beta = 0.0060$, $p = 0.074$), implying that larger farms were more likely to benefit from green payment schemes even at this early phase of CAP reform. Tertiary education had no meaningful impact ($\beta = -0.098$, $p =$

0.891), proving that despite having three different measuring variables, only one resonated in a positive result.

2019 Regressions

As stated in the 2019 correlation section, this election year showed a downturn in results, stemming from the suggested farmer fatigue at the end of the 2014-2020 reform. With that, the regression analysis mirrored this finding.

Figure 10- 2019 Individual Regressions (Appendix 9.2)



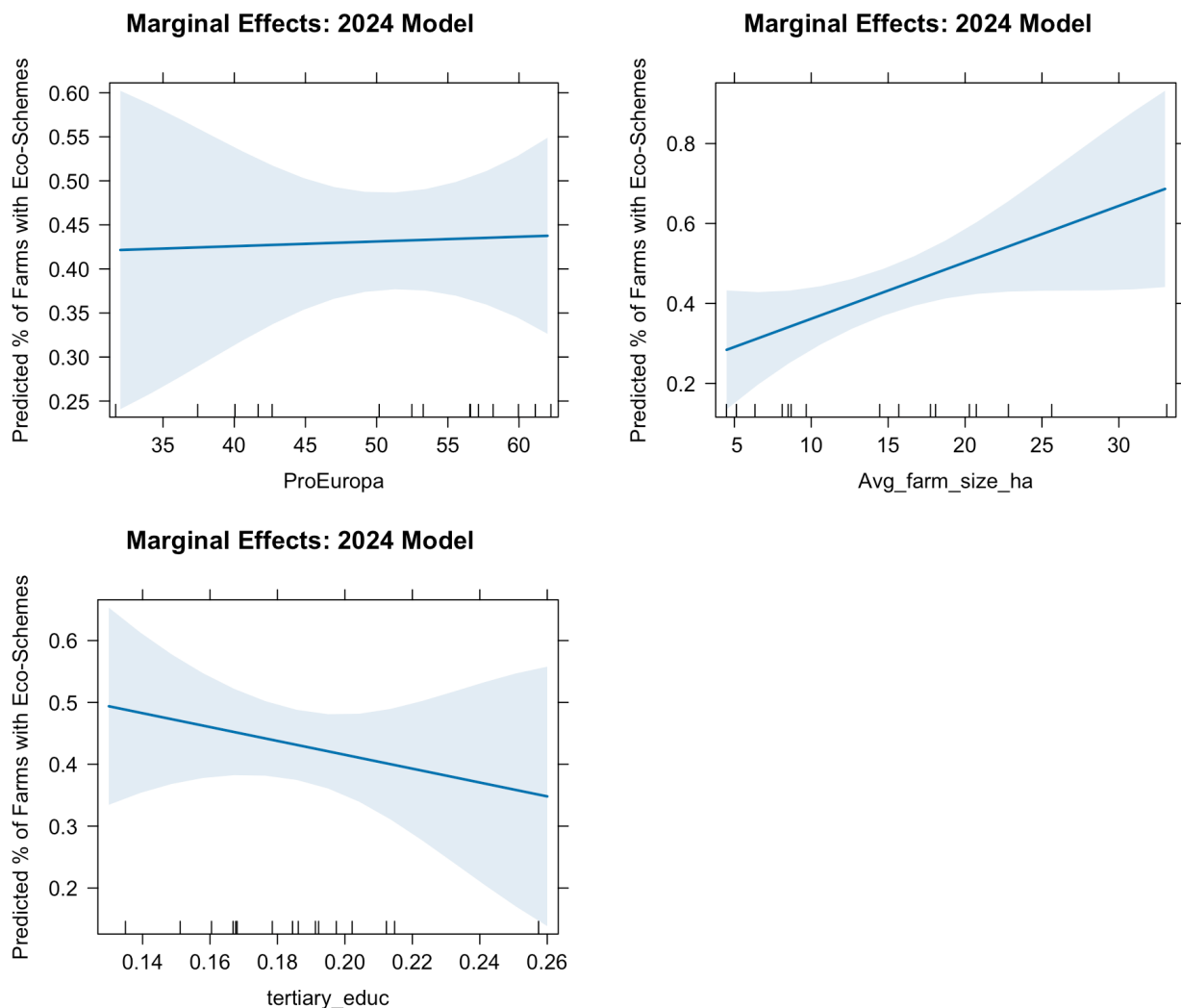
As shown by Figure 10, the overall model is not statistically significant at the 0.05 level ($p = 0.106$), suggesting that the predictors collectively explain a modest but statistically uncertain portion of the variation in green payment coverage across regions. Pro-European support showed a negative but statistically insignificant effect ($\beta = -0.0020$, $p = 0.250$), again suggesting that political ideology does not predict subsidy uptake in 2019. Average farm size was marginally significant ($\beta = 0.0045$, $p = 0.102$), suggesting that larger farms may be more

likely to participate in subsidy schemes, but the effect falls just short of conventional significance. Tertiary education had a small and statistically insignificant effect ($\beta = 0.1491$, $p = 0.780$), indicating no substantial role in determining green payment uptake that year.

2024 Regressions

Once again, 2024 is the first election year of the current reform, meaning that even if its results suggest a positive correlation between partisanship and eco-schemes, this does not prove that it will be the same for subsequent election years.

Figure 11- 2024 Individual Regressions (Appendix 10.2)



The overall model, Figure 11, is statistically significant ($p < 0.05$), indicating that the combination of the three predictors explains a moderate proportion of the variation in eco-scheme participation across regions ($R^2 = 0.58$).

The pro-European voting share had a negligible effect ($\beta = 0.0005$, $p = 0.899$) and was neither statistically nor practically significant. This result reinforces previous years' findings that partisanship does not meaningfully predict subsidy uptake. Similarly to last year, tertiary education had a substantial negative coefficient ($\beta = -1.12$) but was statistically insignificant ($p = 0.387$).

Average farm size was the only statistically significant predictor ($\beta = 0.0141$, $p = 0.039$). This suggests that for every additional hectare in average farm size, the proportion of farms participating in eco-schemes increases by approximately 1.41 percentage points, holding other variables constant.

Multi-Year Regression

Table 5: Summary of Regressions Across the Election Years (Appendix 10.2)

| Predictor | 2014 Coef. (SE) | 2019 Coef. (SE) | 2024 Coef. (SE) |
|---------------------------|-----------------|-----------------|-----------------|
| Intercept | 0.100 (0.117) | 0.072 (0.102) | 0.401 (0.270) |
| Pro-European Support | -0.095 (0.172) | -0.002 (0.002) | 0.001 (0.004) |
| Avg. Farm Size (ha) | 0.006 (0.003) † | 0.004 (0.003) † | 0.014 (0.006) * |
| Tertiary Education | -0.098 (0.701) | 0.149 (0.523) | -1.121 (1.250) |
| R² | 0.45 | 0.39 | 0.58 |
| Adj. R² | 0.31 | 0.23 | 0.48 |
| N | 16 | 16 | 16 |

† $p < 0.10$. * $p < 0.05$.

As illustrated in Table 5 above, throughout all three years, pro-European support was not a significant predictor of green, whether green payments or eco-schemes, subsidy uptake, with coefficients remaining close to zero and statistically insignificant. For instance, in 2019, the coefficient was $\beta = -0.002$, $SE = 0.002$, which holds no measurable effect. Furthermore, the impact of tertiary education among farm managers displayed inconsistency and was non-significant across all years. This results in understanding that neither partisanship nor education level makes a difference for eco-scheme uptake in Poland.

In contrast, the control variable, average farm size, consistently exhibited a positive relationship with the eco-scheme area. This relationship was marginally significant in 2014 and 2019 ($\beta = 0.006$, $SE = 0.003$; $\beta = 0.004$, $SE = 0.003$, respectively; † $p < 0.10$) and gained statistical significance in 2024 ($\beta = 0.014$, $SE = 0.006$; $p < 0.05$).

As indicated by the adjusted R^2 , the model fit ranged from 0.23 in 2019 to 0.48 in 2024, suggesting a modest explanatory power that improved in the most recent year.

Figure 12- Simple Regression between Partisanship and Subsidy Uptake Across 3 Years (Appendix 10.2)

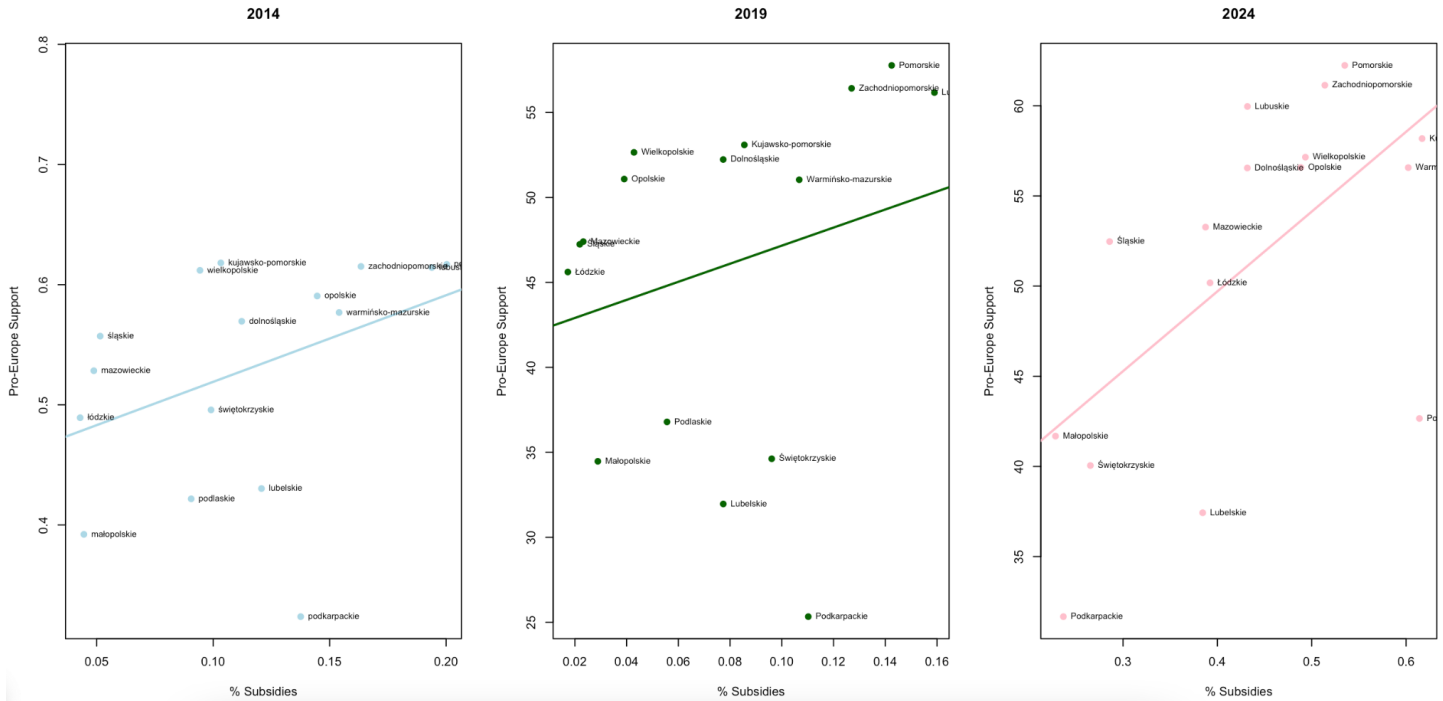


Figure 12 presents a visual of the simple linear regression of $\ln(\text{ProEuropa} \sim \text{pct_ha_with_subsidies})$. This means that partisanship (IV) is being compared to the percentage of subsidies dependent on average farm area per region (DV). The time-comparative graph for 2014, 2019, and 2024 aligns with Table 5, demonstrating that while partisanship does not influence subsidy uptake, the starting position in 2024 is better than in 2014.

Across all models, both in correlations and regressions, average farm size is the best consistent predictor of subsidy uptake at hand. While pro-European partisanship correlates with eco-scheme adoption in 2024, it does not appear in the regression; this suggests that partisanship is second to structural conditions, i.e., farm size.

10. Discussion

In the results section, partisanship does not strongly correlate with the uptake of green payments or eco-schemes when looking at the time-comparative analysis. Education, another variable, and a previously hopeful explanation for the uptake, was similar to partisanship, as it did not have a strong relationship. However, the average farm size was the control variable that proved the most interesting findings. For each year (2014, 2019, 2024), it had the strongest correlation with all other variables at play, and in the regressions, it was the only variable with true statistical significance. This finding suggests that variation in eco-scheme uptake is driven more by structural factors, such as farm size, than by shifts in European political trust.

Hence, hypothesis 1 is rejected; predicting that Eurosceptic regions will have less uptake is not decided based on weak correlations in 2014 and 2019, with the latter being, perhaps, ‘outside of the normal means’ when considering domestic politics. However, hypotheses 2 and the null are correct in some parts. The second hypothesis anticipates that larger and higher-educated farms will have a greater green subsidy uptake. However, the null hypothesis is that partisanship does not have a concrete relationship with subsidy uptake.

Another structural issue that emerged during the analysis, but falls outside the core hypothesis testing, is the delayed payout of green payments under the 2014–2020 CAP reform. The period it took for the full-promised budget to be paid to farmers varied; however, none of the priorities were paid out on time. On average, the payout took twice as long as the expected payment plan in the original strategy plan, meaning it is still in action in 2025.

According to the 2019 Polish CAP report summary, "By the end of 2019, only 60% of the environmental budget (Priority 4) under RDP had been disbursed in Poland, despite 72% being contracted. This gap illustrates systemic delays in implementing green measures and supports concerns about administrative bottlenecks affecting eco-scheme participation in later reforms." (2019, pp. 35-36).

Figure 13- Delays in Payments for Priorities 4 and 5 under CAP 2014-2020 (Appendix 12)

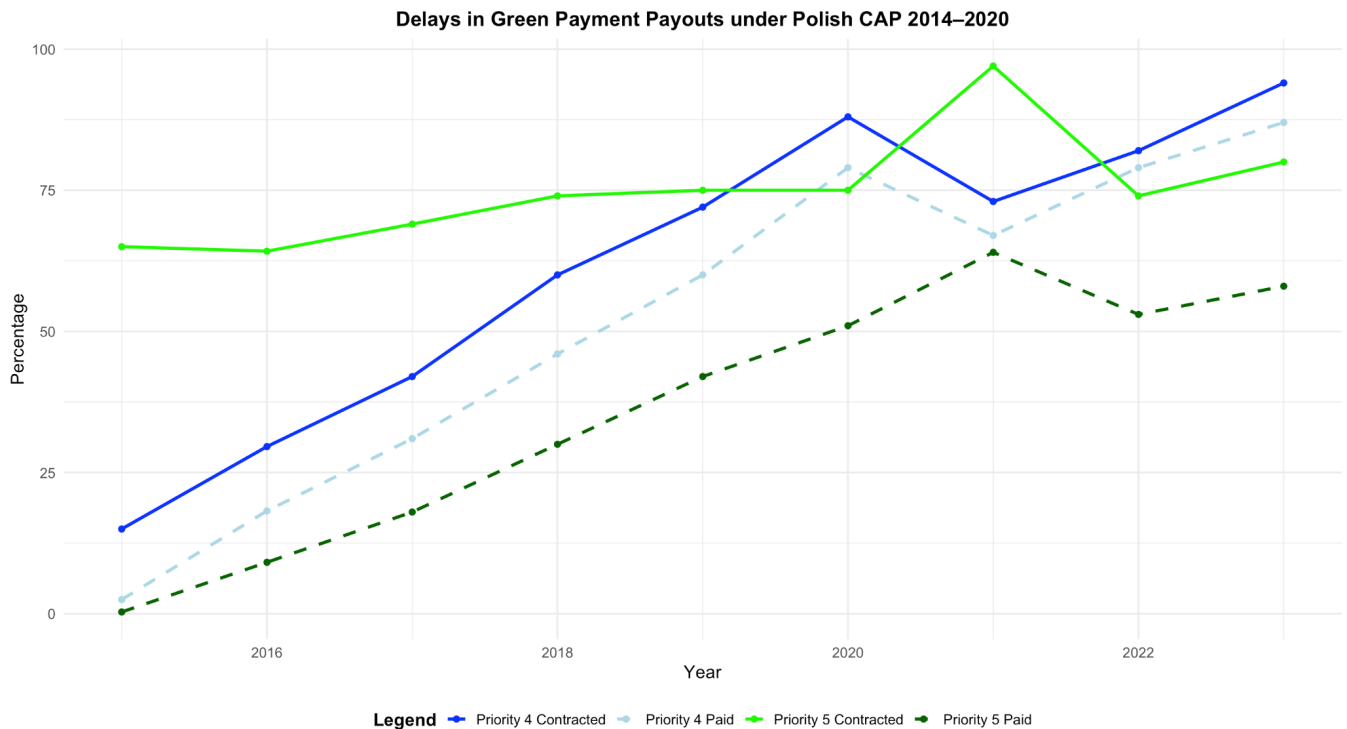


Figure 13 above is a descriptive statistic I aggregated to highlight this trend. It shows the difference between what was promised in the bold lines and what was paid out in the dotted lines for the entirety of the reform until 2023 for priorities 4 (in blue) and 5 (in green). Neither 2014 nor 2024 was included in this figure due to incomplete information in reports. It shows that neither priority reached the full budget potential, although priority 4 was close to achieving 80% in 2023. Yet, the beginnings from 2015 to 2018 showed a very slow start to payouts, which can predict why 2019 had lower subsidy uptake.

Therefore, the persistent issue that becomes relevant in my findings and the current 2023-2027 CAP reform is the rent-seeking of large farms. These entities continue to grab the highest amount of eco-scheme initiatives compared to their smaller farm counterparts. What is the reasoning for this, however? Why would the EU replace green payments with eco-schemes that replicate the failures of the former? The EU Commission's 2024 survey analysis and new amendments for the forthcoming years partially answer and resolve this question; however, they do not answer from the original reform policy standpoint. Yet, they answer why 2019 was a lower statistical year compared to 2014 and 2024, with exposure to the previous reform resounding with disappointment.

The continuous advantageous rent-seeking ties back to additional previous literature and their worries about this current reform and eco-schemes. As mentioned in section 2.1, Röder et.al. state how the overcompensation of green funds and the accidental result of greenwashing of funds is a concern (Röder et.al., 2024, p. 9). Unfortunately, large farms taking advantage of eco-schemes do not mean they are passionate about sustainable agriculture; instead, they are taking advantage of available funds. This can cause future issues with subsidy allocations to

organic farms, smaller farms whose development is dependent on these payments, and the Commission's CAP policy aims for income support (European Commission, n.d).

Path dependence remains consistent throughout this analysis, demonstrating that the previous reforms' feedback mechanism restrains CAP and is thus slow to change. When considering both positive and negative feedback from the 2014-2020 reform for the 2023-2027, the EU realizes that the issue of exploitation of green subsidies, or subsidies overall, needs to be amended; however, the effects of the change will take years to become visible. The GAL-TAN divide within the cleavage theory, while a prominent explanation for pro-European partisanship in Poland, is not supported by the empirical results. Instead, when farm size is framed as a structural cleavage, it illustrates a significant divide within Polish agriculture and the CAP. Therefore, rent-seeking serves as a stronger explanatory theoretical framework that better accounts for the disparities in subsidy uptake. However, this thesis does not entirely disprove the GAL-TAN cleavage theory; instead, it merely argues that the available data does not make partisanship a strong enough indicator of uptake.

Therefore, as an opener for discussion, I bring the answer that the continuous result of large farms taking advantage of subsidies is still an issue, despite the attempts to solve it by the EU Commission. As mentioned in section 2.4 of Farmer responses, the EU commission made significant changes to "Simplifying the policy and providing more flexibility to farmers" after analyzing survey results. They created an amendment to the reform that reduces 50% of farm visits by national administrations, which will positively impact farmers with an area of less than 10ha (EU Commission, 2023).

Additionally, to restrain large farms from getting the lion's share of the eco-schemes, the Commission applied the degressivity of payments, where when there is an increase in the size of the declared area, the payment is adjusted and granted in a prorated amount (Ministerstwo Rolnictwa i Rozwoju Wsi, 2019, pp.12-13). For land areas spanning from 0.1 ha to 50 ha, 100% of the payment is granted. For 50 ha to 100 ha, 75% of the payment is given, and for land above 100 ha, only 60% is granted (Ministerstwo Rolnictwa i Rozwoju Wsi, 2019, pp.12-13). This new policy is in its early stages; hence, it is difficult to quantify its effectiveness. However, this shows initiative from CAP policymakers and creates promise for breaking the structural inequity in agriculture.

10.1 Policy Improvements

Following my initial discussion, there are a few other policy improvements to note and recommend for future CAP reforms and amendments in addition to what the Commission has already promised (EU Commission, 2023; European Commission, 2025a).

First and foremost, recognizing farm size and income dependency in farms can further address discrepancies among farms and subsidy allocations. Using data from the Member States'

Agricultural Censuses and administering annual demographics surveys can aid in income support within the CAP. Additionally, having a cost-benefit analysis to support small, self-supporting rental farms aligns with the EU's goals of being more efficient and sustainable long-term from a purely economic perspective.

Additionally, although this has not presented itself in the 2023-2027 reform, as it is too early to dissect, taking accountability for subsidy payout timing is crucial. The 2014-2020 Polish Green Payment payouts still have not been paid out to completion by 2025, which sparked disappointment across farmers and is evident by the 2019 dip. Therefore, creating a more realistic payout timeline can keep a level understanding between Voivodeships, the EU, and the Polish government.

Tying this in, further simplifying the applications for subsidies, especially eco-schemes, will yield overall results; farms of all sizes will be more capable of using them, and CAP's goals will be closer to the finish line.

Lastly, conducting and administering annual studies of the environmental impacts of each eco-scheme in Poland and other Member States will allow for a more thorough evaluation of the program and solidify whether there is an impact. Additionally, adding the layer of analyzing farm sizes, which is already in place to some extent, can aid in the subsidy budget allocation later on, which, once again, is another preventative measure of rent-seeking.

10.2 Limitations

While there were many limitations to the master's thesis process, they serve as opportunities for further potential research.

First and foremost, data available on eco-schemes for Member States, whether on adaptability or effects, are minimal, especially for 2024. This is due to Member States being required to submit their Annual Performance Reports (APRs) to the EU Commission by February 15 of each year, which include information about the implementation of CAP Strategy Plans (CSPs), such as the enrollment in eco-schemes (European Commission Directorate-General for Agriculture and Rural Development, 2024), but public access to this data is delayed and inconsistent (European Commission Directorate-General for Agriculture and Rural Development, 2024). Given the current data availability, this thesis provides a timely foundation for future, more granular analyses as additional data becomes accessible.

Poland is a specific case and may not reflect the rest of the EU; as stated before, the uptake of subsidies decreased in the 2014-2020 reform, making it an interesting case study to understand exceptions to CAP trends. It also provides insight into how domestic contexts shape policy outcomes, reinforcing the importance of regionally localized analysis in EU-wide frameworks.

The second, qualitatively discussion-driven, question is necessarily speculative. This is to recognize the limitations of quantitative approaches in capturing the motivations behind policy design and subsidy uptake. While financial data can show what farmers in certain regions do and decide, it cannot fully explain why CAP policymakers continue to promote specific initiatives, in which qualitative reasoning adds this depth.

It is also integral to note that parliamentary election data presents challenges. Voting choice is based on multiple matters; hence, it is difficult to justify whether these votes are simply due to the voter's stance on the EU, whether pro-EU or Euroscepticism. In the same vein, when using the data for any elections, it is virtually impossible to single out the occupancy of a voter. As such, the data used here cannot state that voting percentages per voivodeship satisfy the general farmers' opinions in that area. Thus, it must be inferred that it is by proxy. Many large farm growers who use EU funds are likely voting for Eurosceptic parties, just as some small farmers are likely voting for pro-European parties. We often see that votes may be split even in the same household. This limitation is particularly significant when urban political preferences may distort signals from agricultural regions, such as Warsaw in the Mazowieckie Voivodeship. Voting maps from the PKW (Państwowa Komisja Wyborcza, 2024) illustrate this point, revealing that while urban areas within the same voivodeship strongly favor pro-European positions, rural areas just 20 kilometers away tend to vote overwhelmingly conservative or nationalist.

Using this data limitation, the ideal data for the thesis would have been on the level of the individual farmer, with data on their uptake, political opinions, and education; however, I leave this for future research.

While the analysis does not assess the eco-scheme objectives' technical or environmental effectiveness, this was a conscious effort. Such an evaluation would require an alternative methodological framework and scope beyond a master's thesis.

Lastly, while this thesis supports previous quantitative literature (Czyżewski and Matuszczak, 2018) analyzing Poland, it also highlights a crucial nuance—eco-schemes participating farms are not necessarily indicative of a commitment to sustainable farming; they just have the resources to apply for it, as seen with the example of large farms. Therefore, it is essential to examine policy uptake, its motivations, and capacities, and whether rent-seeking farms are taking these subsidies due to their stance on environmental progress or economic gain.

11. Conclusion

This thesis sought the socio-political and structural roots behind adopting eco-schemes in Poland, comparing the 2014-2020 reform green payments with the 2023-2027 eco-schemes. This analysis aimed to analyze whether the Voivodeship-level capacity of farms and EU sentiment political partisanship correlate with CAP engagement.

To reiterate the research question that framed this analysis, I asked whether partisanship towards the European Union influences the uptake of the CAP eco-schemes and green payments in Poland. I discovered that political ideology had little effect, disproving my first hypothesis, but farm size had a much bigger impact, which confirms hypothesis 2. This can result from many reasons, yet one extensive explanation emerged. The findings reflect well-documented rent-seeking behavior within CAP reforms, reinforcing path dependence in CAP implementation and challenging the assumption that political beliefs would drive subsidy, both green payments and eco-schemes, behavior.

Hence, three main theories were presented to support this thesis: path dependence, GAL-TAN cleavage theory, and rent-seeking. While all are valid in explaining subsidy uptake, two were most concurrent. Path dependence explained uptake from a policy timeline perspective, understanding that it may take more than one reform to repair the errors from the previous one. Rent-seeking theory solidified the reasoning behind why large farms were taking advantage of green subsidies. At the same time, despite explaining a divide among Voivodeships, GAL-TAN was not a resounding factor for subsidy uptake. However, this does not mean it is entirely discarded for the future.

When conducting this analysis, a hypothetical question emerged that only serves as a prelude for future research. The question is, “Why would the EU replace green payments with eco-schemes that replicate the failures of the former?” As stated at the start, approximately a third of the 2023-2027 eco-schemes in Poland initiated have been proven to be faulty, echoing the failures of the previous 2014-2020 green payments. With this statistic in mind, I found that eco-schemes repeat the same structural inefficiencies as green payments, possibly due to their rigid design and administrative structure, and it is difficult to break that pattern, despite continuous policy improvements from the EU Commission.

The study contributes to the literature on CAP reform by providing one of the first fully quantitative regional analyses of eco-scheme uptake in Poland, linking it to political partisanship through the GAL-TAN lens. While other studies have solely focused on farm size, farm type, or institutional design, this paper integrates electoral behavior with subsidy outcomes. These findings argue for the need for CAP policymakers to better target small and medium-sized farms through payout simplification and income-based eligibility criteria.

Thus, while this thesis examined how structural capacity and political ideology relate to eco-scheme adoption in Poland, it also questions the CAP's policy authority. While the data did not support the hypothesis that Euroscepticism reduces subsidy uptake, it consistently revealed farm size as a significant factor. Structural inequality in farm size remains the central barrier to equitable CAP participation, an issue that has withstood multiple reforms. The question remains, why? Is it due to the slow feedback process that CAP reforms withstand, or is it due to other unseen factors? Nonetheless, policymakers should more deliberately address access disparities through income-targeted support, continued application simplification, and ongoing evaluation of reform outcomes. While this study is limited to the unique case study of Poland, future cross-Member State comparisons could test whether these patterns hold across the EU, offering findings for a more equitable and effective CAP.

Reference list

- Adamowicz, M. and Rytko, A. (2006). Polish agro-food Trade with European Countries before and after Joining EU. *European Association of Agricultural Economists*, [online] pp.1–15. doi:<https://doi.org/10.22004/ag.econ.10080> 98th Seminar, June 29-July 2, 2006, Chania, Crete, Greece.
- Ait Sidhoum, A., Mennig, P. and Frick, F. (2024). Assessing the Impact Agri-Environmental Payments on Green Productivity in Germany. *Ecological Economics*, 219, pp.108150–108150. doi:<https://doi.org/10.1016/j.ecolecon.2024.108150>.
- Bański, J. (2010). *Atlas of Polish Agriculture - Development of Agriculture in Poland*. [online] Iqipz.pan.pl. Available at: <https://www.iqipz.pan.pl/atlas-polish-agriculture-zgwirl.html> [Accessed 2025].
- Bański, J. (2017). The Consequences of Changes of Ownership for Agricultural Land Use in Central European Countries following the Collapse of the Eastern Bloc. *Land Use Policy*, 66, pp.120–130. doi:<https://doi.org/10.1016/j.landusepol.2017.04.045>.
- Bartkowski, B., Beckmann, M., Bednář, M., Biffi, S., Domingo-Marimon, C., Mesaroš, M., Schübler, C., Šarapatka, B., Tarčak, S., Václavík, T., Ziv, G. and Wittstock, F. (2023). Adoption and Potential of Agri-environmental Schemes in Europe: Cross-regional Evidence from Interviews with Farmers. *People and Nature*, 5(5), pp.1610–1621. doi:<https://doi.org/10.1002/pan3.10526>.
- Bourget, B. (2020). Challenges Facing the CAP over the Next Decade. [online] www.robert-schuman.eu. Available at: <https://www.robert-schuman.eu/en/european-issues/547-challenges-facing-the-cap-over-the-next-decade>.
- Bruszt, Laszlo and Langbein, Julia, Anticipatory Integration and Orchestration: The Evolving EU Governance of Economic and Regulatory Integration During the Eastern Enlargement (2014). APSA 2014 Annual Meeting Paper, Available at SSRN: <https://ssrn.com/abstract=2451961>
- Czyżewski, B. and Matuszczak, A. (2018). Rent-seeking in Agricultural Policy revisited: a New Look at the Common Agricultural Policy Consensus. *Studies in Agricultural Economics*, 120(2), pp.69–79. doi:<https://doi.org/10.7896/j.1801>.
- Deloy, C., Foundation Robert Schuman and Levy, H. (2024). *Referendum on UE Membership 2003 Poland*. [online] [Robert-schuman.eu](http://www.robert-schuman.eu). Available at: <https://www.robert-schuman.eu/en/monitor/203-referendum-on-the-european-union-in-poland-7th-8th-june-2003> [Accessed 8 Jun. 2003].

- Encyklopedia Internautica (n.d.). Polska- Podział Terytorialny. [online] encyklopedia.interia.pl. Available at: <https://encyklopedia.interia.pl/geografia-nauki-pokrewne/krainy-geograficzne/news-polska-podzial-terytorialny,nId,2025206>.
- Erjavec, E. and Lovec, M. (2017). Research of European Union's Common Agricultural Policy: Disciplinary Boundaries and beyond. *European Review of Agricultural Economics*, 44(4), pp.732–754. doi:<https://doi.org/10.1093/erae/jbx008>.
- EU CAP Network (2024). *Thematic Group on Green Architecture: Designing Green Strategies*. [online] Europa.eu. Available at: https://eu-cap-network.ec.europa.eu/thematic-group-green-architecture-designing-green-strategies_en.
- EU Commission (2025a). *EU Actions to Address Farmers' Concerns*. [online] Agriculture and Rural Development. Available at: https://agriculture.ec.europa.eu/overview-vision-agriculture-food/eu-actions-address-farmers-concerns_en.
- European Commission (2025b). *2050 long-term Strategy*. [online] climate.ec.europa.eu. Available at: https://climate.ec.europa.eu/eu-action/climate-strategies-targets/2050-long-term-strategy_en.
- European Commission (n.d.). *CAP Expenditure*. [online] agriculture.ec.europa.eu. Available at: https://agriculture.ec.europa.eu/data-and-analysis/financing/cap-expenditure_en.
- European Commission (n.d.). *CAP Funds*. [online] agriculture.ec.europa.eu. Available at: https://agriculture.ec.europa.eu/common-agricultural-policy/financing-cap/cap-funds_en.
- European Commission (2014). *Factsheet on 2014-2020 Rural Development Programme for Poland*. [online] European Commission, pp.1–7. Available at: https://agriculture.ec.europa.eu/system/files/2019-11/rdp-factsheet-poland_en_0.pdf.
- European Commission (2024a). *Farmers' Consultation on Simplification*. [online] Agriculture and Rural Development. Available at: https://agriculture.ec.europa.eu/consultations-eu-initiatives-agriculture-and-rural-development/farmers-consultation-simplification_en.
- European Commission (n.d.). *Income Support Explained*. [online] agriculture.ec.europa.eu. Available at: https://agriculture.ec.europa.eu/common-agricultural-policy/income-support/income-support-explained_en.
- European Commission (2021). *The Common Agricultural Policy: 2023-27*. [online] agriculture.ec.europa.eu. Available at: https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-2023-27_en.

- European Commission (2022). *Common Agricultural Policy for 2023-2027 28 CAP Strategic Plans at a Glance*. [online] European Commission, pp.1–13. Available at: https://agriculture.ec.europa.eu/system/files/2022-12/csp-at-a-glance-eu-countries_en.pdf.
- European Commission (2023). *Eco-schemes*. [online] agriculture.ec.europa.eu. Available at: https://agriculture.ec.europa.eu/common-agricultural-policy/income-support/eco-schemes_en.
- European Commission (2024b). *Conditionality*. [online] agriculture.ec.europa.eu. Available at: https://agriculture.ec.europa.eu/common-agricultural-policy/income-support/conditionality_en.
- European Commission Directorate-General For Agriculture And Rural Development (2024). *Guidelines on the Annual Performance Report on the Implementation of the CAP Strategic Plan (CAP SP)*. [online] European Commission, pp.1–2. Available at: <https://sfc.ec.europa.eu/system/files/documents/documents/apr-guidelines-ms-version-41.pdf> [Accessed 2 May 2025].
- European Council (2021). *Timeline - History of the CAP*. [online] Consilium. Available at: <https://www.consilium.europa.eu/en/policies/the-common-agricultural-policy-explained/timeline-history-of-cap/>.
- European Court of Auditors (2022). *Special Report- Climate Spending in the 2014-2020 EU Budget*. [online] European Court of Auditors. Available at: https://www.eca.europa.eu/lists/ecadocuments/sr22_09/sr_climate-mainstreaming_en.pdf [Accessed 11 Mar. 2025].
- European Environment Agency (2024). *Climate Change Impacts, Risks, and Adaptation*. [online] www.eea.europa.eu. Available at: <https://www.eea.europa.eu/en/topics/in-depth/climate-change-impacts-risks-and-adaptation>.
- European Parliament (2024). *European Elections 2024- Poland*. [online] 2024 European Election Results. Available at: <https://results.elections.europa.eu/en/national-results/poland/2024-2029/>.
- Eurostat (2022a). *Farmers and the Agricultural Labour Force - Statistics*. [online] ec.europa.eu. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Farmers_and_the_agricultural_labour_force_-_statistics.
- Eurostat (2022b). *Farms and Farmland in the European Union -Statistics Explained*. [online] European Union. Available at: <https://ec.europa.eu/eurostat/statistics-explained/SEPDF/cache/73319.pdf>.

- Eurostat (2023). EU farms: 5.3 Million Fewer in 2020 than in 2005 - Products Eurostat News - Eurostat. [online] ec.europa.eu. Available at: <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20230403-2>.
- European Union (2021) Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021 establishing rules on support for strategic plans to be drawn up by Member States under the Common Agricultural Policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulations (EU) No 1305/2013 and (EU) No 1307/2013. Official Journal of the European Union, L 435, 6 December, pp. 1–186. Available at: <http://data.europa.eu/eli/reg/2021/2115/oj> (Accessed: [insert date]).
- Food and Agriculture Organization (2025). Agricultural Land (% of Land area) - Poland. [online] World Bank Open Data. Available at: https://data.worldbank.org/indicator/AG.LND.AGRI.ZS?name_desc=false&locations=PL [Accessed 17 May 2025].
- Greener, I. (2005). The Potential of Path Dependence in Political Studies. *Politics*, 25(1), pp.62–72. doi:<https://doi.org/10.1111/j.1467-9256.2005.00230.x>.
- Grohmann, P. and Feindt, P.H. (2024). Realigning state-farmer Relations in Agricultural post-exceptionalism: Direct Payment Implementation in the Common Agricultural Policy post-2022 in Germany. *Journal of Rural Studies*, 110, pp.103363–103363. doi:<https://doi.org/10.1016/j.jrurstud.2024.103363>.
- GUS- Statistics Poland (2019). *Statistical Yearbook of Agriculture 2018*. [online] stat.gov.pl. Available at: <https://stat.gov.pl/en/topics/statistical-yearbooks/statistical-yearbooks/statistical-yearbook-of-agriculture-2018,6,13.html>.
- GUS- Statistics Poland (2011). *Powszechny Spis Rolny 2010*. [online] Stat.gov.pl. Available at: <https://stat.gov.pl/spisy-powszechne/powszechny-spis-rolny-2010/> [Accessed 12 May 2025].
- GUS-Statistics Poland (2013). *Rural Areas in Poland - National Agricultural Census 2010*. [online] stat.gov.pl. Available at: <https://stat.gov.pl/en/topics/agriculture-forestry/national-agricultural-census-2010/rural-areas-in-poland-national-agricultural-census-2010,1,1.html>.
- GUS-Statistics Poland (2015). *Statistical Yearbook of Agriculture 2014*. [online] stat.gov.pl. Available at: <https://stat.gov.pl/en/topics/statistical-yearbooks/statistical-yearbooks/statistical-yearbook-of-agriculture-2014,6,9.html>.

- GUS-Statistics Poland (2020). *Powszechny Spis Rolny 2020*. [online] Stat.gov.pl. Available at: <https://stat.gov.pl/spisy-powszechne/powszechny-spis-rolny-2020/> [Accessed 20 Apr. 2025].
- GUS-Statistics Poland (2021a). *Pracujący i Nakłady Pracy w Gospodarstwach Rolnych w Okresie 12 Miesięcy – Wyniki Wstępne PSR 2020*. [online] stat.gov.pl. Available at: <https://stat.gov.pl/obszary-tematyczne/rolnictwo-lesnictwo/psr-2020/pracujacy-i-naklady-pracy-w-gospodarstwach-rolnych-w-okresie-12-miesiecy-wyniki-wstepne-psr-2020,5,1.html>.
- GUS-Statistics Poland (2021b). *Wyniki Wstępne Powszechnego Spisu Rolnego 2020*. [online] Spisrolny.gov.pl. Available at: <https://spisrolny.gov.pl/aktualnosci/wyniki-wstepne-powszechnego-spisu-rolnego-2020> [Accessed 29 Apr. 2025].
- GUS-Statistics Poland (2022). *Powszechny Spis Rolny 2020. Charakterystyka Gospodarstw Rolnych w 2020 Roku*. [online] stat.gov.pl. Available at: <https://stat.gov.pl/obszary-tematyczne/rolnictwo-lesnictwo/psr-2020/powszechny-spis-rolny-2020-charakterystyka-gospodarstw-rolnych-w-2020-r,6,1.html>.
- GUS-Statistics Poland (2024a). *Agriculture in 2023*. [online] stat.gov.pl. Available at: https://stat.gov.pl/files/gfx/portalinformacyjny/en/defaultaktualnosci/3321/4/20/1/agriculture_in_2023.pdf [Accessed 11 Mar. 2025].
- GUS-Statistics Poland (2024b). *Provisional Estimates of Gross Domestic Product in Regional Breakdown in 2023*. [online] stat.gov.pl. Available at: <https://stat.gov.pl/en/topics/national-accounts/regional-accounts/provisional-estimates-of-gross-domestic-product-in-regional-breakdown-in-2023,3,7.html>.
- GUS-Statistics Poland (2024c). *Statistical Yearbook of Agriculture 2024*. [online] stat.gov.pl. Available at: <https://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-statystyczny-rolnictwa-2024,6,18.html>.
- Hart, K. (2019). *Evaluation of the CAP Greening Measures*. [online] Alliance Environment. European Commission. Available at: https://agriculture.ec.europa.eu/system/files/2019-12/ext-eval-payment-practices-climate-leaflet_2017_en_0.pdf.
- Jolly, S., Bakker, R., Hooghe, L., Marks, G., Polk, J., Rovny, J., Steenbergen, M. and Vachudova, M.A. (2022). Chapel Hill Expert Survey Trend file, 1999–2019. *Electoral Studies*, 75, p.102420. doi:<https://doi.org/10.1016/j.electstud.2021.102420>.
- Kassim, H. (2022). The European Commission and the COVID-19 pandemic: a pluri-institutional Approach. *Journal of European Public Policy*, 30(4), pp.1–23. doi:<https://doi.org/10.1080/13501763.2022.2140821>.

- Kay, A. (2003). Path Dependency and the CAP. *Journal of European Public Policy*, 10(3), pp.405–420. doi:<https://doi.org/10.1080/1350176032000085379>.
- Kortleve, A.J., Mogollón, J.M., Harwatt, H. and Behrens, P. (2024). Over 80% of the European Union’s Common Agricultural Policy supports emissions-intensive animal products. *Nature Food*, 5(4), pp.288–292. doi:<https://doi.org/10.1038/s43016-024-00949-4>.
- Krzymkowski, M. (2025). The Agency for Restructuring and Modernisation of Agriculture Email Correspondence to Alexandra Zubrowicz, March 20.
- Lampkin N, Stolze M, Meredith S, de Porrás M, Haller L, Mészáros D (2020) Using Eco-schemes in the new CAP: a guide for managing authorities. *IFOAM EU, FIBL and IEEP*, Brussels
- Lovec, M., Rac, I. and Erjavec, E. (2024). External shocks, Policy spillovers, and Veto players: (post)exceptionalist Common Agricultural Policy and the Case of the 2023-2027 Reform. *Revue d’intégration Européenne*, 46(4), pp.1–21. doi:<https://doi.org/10.1080/07036337.2023.2300366>.
- Majaski, C. (2021). Understanding Rent Seeking and How It Works. [online] Investopedia. Available at: <https://www.investopedia.com/terms/r/rentseeking.asp>.
- Marks, G., Attewell, D., Rovny, J. and Hooghe, L. (2020). Cleavage Theory. *The Palgrave Handbook of EU Crises*, pp.173–193. doi:https://doi.org/10.1007/978-3-030-51791-5_9.
- Meister, M. (2024). *Analysis of eco-schemes across the EU- Implementation and Design of eco-schemes in Comparison with the National Strategic Plans (NSP) of the Common Agricultural Policy (CAP)*. [online] *nabu.de*. Available at: <http://imperia.verbandsnetz.nabu.de/imperia/md/content/nabude/landwirtschaft/240328-nabu-analysis-on-eco-schemes-across-eu.pdf>.
- Meister, M., Nemcová, T., Blažič, B., Denac, K., de Jong, B., Ferriz, M., Henningson, L., Hološková, A., Pełkowska-Król, A., Kurucz, Z., Luoni, F., Mateeva, I., Seny, G., Todorov, E. and Zámečník, V. (2024). *The Untapped Potential of eco-scheme An Analysis of the Use of eco-schemes across 12 Countries and Their Impact on Biodiversity Partnership for Nature and People*. [online] *birdlife.org*. Bird Life International. Available at: https://www.birdlife.org/wp-content/uploads/2025/02/The-untapped-potential-of-eco-schemes-BirdLife_Nabu.pdf [Accessed 20 Feb. 2025].
- Mezzacapo, E. (2024). Mind the Gap: Assessing Member States’ Implementation of Farm to Farm-to-Fork Targets within the 2023–2027 Common Agricultural Policy. *European Journal of Risk Regulation*, [online] 15(2), pp.1–15. doi:<https://doi.org/10.1017/err.2024.44>.

- Midler, E., Hobeika, M., Riedel, A., and J. Pagnon (2022). Environment and climate assessment of Poland's CAP Strategic Plan, Policy report, *Institute for European Environmental Policy and Ecologic Institute*
- Ministerstwo Rodziny, Pracy i Polityki Społecznej (2016). „Rodzina 500 plus”: Start Programu 1 Kwietnia - Ministerstwo Rodziny, Pracy I Polityki Społecznej - Portal Gov.pl. [online] Ministerstwo Rodziny, Pracy i Polityki Społecznej. Available at: <https://www.gov.pl/web/rodzina/rodzina-500-plus-start-programu-1-kwietnia> [Accessed 6 May 2025].
- Ministerstwo Rolnictwa i Rozwoju Wsi (2019). *Przewodnik Po Działaniu Rolno-Środowiskowo-Klimatycznym PROW 2014-2020*. [online] gov.pl. Available at: <https://www.gov.pl/web/rolnictwo/dzialanie-rolno-srodowiskowo-klimatyczne3>.
- Ministerstwo Rolnictwa i Rozwoju Wsi (2020a). *Program Rozwoju Obszarów Wiejskich 2014-2020 (PROW 2014-2020) - Ministerstwo Rolnictwa I Rozwoju Wsi - Portal Gov.pl*. [online] Ministerstwo Rolnictwa I Rozwoju Wsi. Available at: <https://www.gov.pl/web/rolnictwo/-program-rozwoju-obszarow-wiejskich-2014-2020-prow-2014-2020> [Accessed 1 May 2025].
- Ministerstwo Rolnictwa i Rozwoju Wsi (2020b). *Roczne Sprawozdanie Z Wdrażania Program Rozwoju Obszarów Wiejskich Na Lata 2014-2020 Za Rok 2014 I 2015 - Ministerstwo Rolnictwa I Rozwoju Wsi - Portal Gov.pl*. [online] Ministerstwo Rolnictwa I Rozwoju Wsi. Available at: <https://www.gov.pl/web/rolnictwo/roczne-sprawozdanie-z-wdrazania-program-rozwoju-obszarow-wiejskich-na-lata-2014-2020-za-rok-2014-i-2015> [Accessed 19 Apr. 2025].
- Ministerstwo Rolnictwa i Rozwoju Wsi (2020c). *Roczne Sprawozdanie Z Wdrażania Program Rozwoju Obszarów Wiejskich Na Lata 2014-2020 Za Rok 2016 - Ministerstwo Rolnictwa I Rozwoju Wsi - Portal Gov.pl*. [online] Ministerstwo Rolnictwa I Rozwoju Wsi. Available at: <https://www.gov.pl/web/rolnictwo/roczne-sprawozdanie-z-wdrazania-program-rozwoju-obszarow-wiejskich-na-lata-2014-2020-za-rok-2016> [Accessed 19 Apr. 2025].
- Ministerstwo Rolnictwa i Rozwoju Wsi (2020d). *Roczne Sprawozdanie Z Wdrażania Program Rozwoju Obszarów Wiejskich Na Lata 2014-2020 Za Rok 2017 - Ministerstwo Rolnictwa I Rozwoju Wsi - Portal Gov.pl*. [online] Ministerstwo Rolnictwa i Rozwoju Wsi. Available at: <https://www.gov.pl/web/rolnictwo/roczne-sprawozdanie-z-wdrazania-program-rozwoju-obszarow-wiejskich-na-lata-2014-2020-za-rok-2017> [Accessed 19 Apr. 2025].
- Ministerstwo Rolnictwa i Rozwoju Wsi (2020e). *Roczne Sprawozdanie Z Wdrażania Program Rozwoju Obszarów Wiejskich Na Lata 2014-2020 Za Rok 2018 - Ministerstwo Rolnictwa I Rozwoju Wsi - Portal Gov.pl*. [online] Ministerstwo

Rolnictwa I Rozwoju Wsi. Available at: <https://www.gov.pl/web/rolnictwo/roczne-sprawozdanie-z-wdrazania-program-rozwoju-obszarow-wiejskich-na-lata-2014-2020-za-rok-2018> [Accessed 19 Apr. 2025].

Ministerstwo Rolnictwa i Rozwoju Wsi (2020f). *Roczne Sprawozdanie Z Wdrażania Program Rozwoju Obszarów Wiejskich Na Lata 2014-2020 Za Rok 2019 - Ministerstwo Rolnictwa I Rozwoju Wsi - Portal Gov.pl*. [online] Ministerstwo Rolnictwa I Rozwoju Wsi. Available at: <https://www.gov.pl/web/rolnictwo/roczne-sprawozdanie-z-wdrazania-program-rozwoju-obszarow-wiejskich-na-lata-2014-2020-za-rok-2019> [Accessed 19 Apr. 2025].

Ministerstwo Rolnictwa i Rozwoju Wsi (2020g). *Roczne Sprawozdanie Z Wdrażania Program Rozwoju Obszarów Wiejskich Na Lata 2014-2020 Za Rok 2020 - Ministerstwo Rolnictwa I Rozwoju Wsi - Portal Gov.pl*. [online] Ministerstwo Rolnictwa i Rozwoju Wsi. Available at: <https://www.gov.pl/web/rolnictwo/roczne-sprawozdanie-z-wdrazania-program-rozwoju-obszarow-wiejskich-na-lata-2014-2020-za-rok-2020> [Accessed 19 Apr. 2025].

Ministerstwo Rolnictwa i Rozwoju Wsi (2020h). *Sprawozdania Roczne z Realizacji PROW 2014-2020*. [online] gov.pl. Available at: <https://www.gov.pl/web/rolnictwo/sprawozdania-roczne-z-realizacji-prow-2014-2020> [Accessed 17 May 2025]. 2014- 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024.

Ministerstwo Rolnictwa i Rozwoju Wsi (2024a). *Ekoschematy Obszarowe*. [online] Ministerstwo Rolnictwa I Rozwoju Wsi. Available at: <https://www.gov.pl/web/rolnictwo/ekoschematy3> [Accessed 20 Apr. 2025].

Ministerstwo Rolnictwa i Rozwoju Wsi (2024b). *Plan Ewaluacji Planu Strategicznego dla Wspólnej Polityki Rolnej na Lata 2023-2027*. [online] gov.pl. Available at: <https://www.gov.pl/web/rolnictwo/ewaluacja4>.

Ministerstwo Rolnictwa i Rozwoju Wsi (2025). „*Ocena Rezultatów Wdrażania Programu Rozwoju Obszarów Wiejskich Na Lata 2014-2020 W Latach 2014-2018*”, *Zadanie II – Środowisko Klimat*. [online] *Ministerstwo Rolnictwa I Rozwoju Wsi*, pp.140–200. Available at: <https://www.gov.pl/web/rolnictwo/ocena-rezultatow-wdrazania-i-oddzialywania-programu-rozwoju-obszarow-wiejskich-na-lata-2014-2020-w-latach-2014-2018> [Accessed 19 Apr. 2025].

Ministerstwo Rolnictwa i Rozwoju Wsi (2024). *Ekoschematy Obszarowe- PS WPR 2023-2027*. [online] Ministerstwo Rolnictwa i Rozwoju Wsi, pp.1–38. Available at: <https://www.gov.pl/web/rolnictwo/ekoschematy3#:~:text=P%C5%82atno%C5%9Bci%20bezpo%C5%9Brednie%2C%20w%20tym%20ekoschematy%20oraz%20interwen>

- cje%20%C5%9Brodowiskowe%20PS%20WPR%202023%2D2027 [Accessed 24 Feb. 2025].
- Musiał-Karg, M. and Bértoa, F.C. (2025). The Ball That Failed to Curve: the 2023 ‘Populist Polarizing’ Referendum in Poland. *Politics and Governance*, 13, pp.1–20. doi:<https://doi.org/10.17645/pag.9206>.
- Nyssens, C., Ruiz, J. and Nemcová, T. (2021). *An Assessment of Draft eco-schemes Proposed by Member States Will CAP eco-schemes Be Worth Their Name?* [online] Available at: https://wwfeu.awsassets.panda.org/downloads/eco_schemes_assessment__november_2021__final_1.pdf.
- Ouanes, A. and Thakur, S.M. (1997). *Macroeconomic Accounting and Analysis in Transition Economies- Poland’s Transition to the Market: an Overview*. [online] www.elibrary.imf.org. Available at: <https://www.elibrary.imf.org/display/book/9781557756282/C01.xml>.
- Państwowa Komisja Wyborcza (2014). *Wyniki Głosowania Na Listy Kandydatów Według Województw*. [online] [Pkw.gov.pl](http://pkw.gov.pl). Available at: <https://pe2014.pkw.gov.pl/pl/pliki.html> [Accessed 29 Apr. 2025].
- Państwowa Komisja Wyborcza (2019). *Wybory Do Parlamentu Europejskiego 2019- Wyniki Głosowania Na Listy Po Województwach*. [online] [Pkw.gov.pl](http://pkw.gov.pl). Available at: https://pe2019.pkw.gov.pl/pe2019/pl/dane_w_arkuszach [Accessed 19 Apr. 2025]. Database CSV.
- Państwowa Komisja Wyborcza (2024a). *Wybory Do Parlamentu Europejskiego 2024- Wyniki głosowania na listy procentowo po województwach*. [online] [Pkw.gov.pl](http://pkw.gov.pl). Available at: https://pe2024.pkw.gov.pl/pe2024/pl/dane_w_arkuszach [Accessed 19 Apr. 2025]. Database CSV.
- Państwowa Komisja Wyborcza (2024b). *Wybory Do Parlamentu Europejskiego 2024-Wyniki Głosowania Na Listy Procentowo Po Powiatach*. [online] [Pkw.gov.pl](http://pkw.gov.pl). Available at: https://pe2024.pkw.gov.pl/pe2024/pl/dane_w_arkuszach [Accessed 19 Apr. 2025]. Database CSV.
- Państwowa Komisja Wyborcza (2024). *Wybory do Parlamentu Europejskiego 2024*. [online] [Pkw.gov.pl](http://pkw.gov.pl). Available at: <https://pe2024.pkw.gov.pl/pe2024/pl/wynik/okr/4> [Accessed 10 May 2025].
- Portal Statystyczny (2023). *Polskie Rolnictwo i Wieś w Liczbach [Wykresy, Mapy]*. [online] Portal Statystyczny. Available at: <https://portalstatystyczny.pl/polskie-rolnictwo-i-wies-w-liczbach-wykresy-mapy/> [Accessed 8 Apr. 2025].

- Röder, N., Krämer, C., Grajewski, R., Lakner, S. and Matthews, A. (2024). What is the Environmental Potential of the Post-2022 Common Agricultural Policy? *Land Use Policy*, [online] 144, pp.107219–107219. doi:<https://doi.org/10.1016/j.landusepol.2024.107219>.
- Runge, T., Latacz-Lohmann, U., Schaller, L., Todorova, K., Daugbjerg, C., Termansen, M., Liira, J., Le Gloux, F., Dupraz, P., Leppanen, J., Fogarasi, J., Vigh, E.Z., Bradfield, T., Hennessy, T., Targetti, S., Viaggi, D., Berzina, I., Schulp, C., Majewski, E. and Bouriaud, L. (2022). Implementation of Eco-schemes in Fifteen European Union Member States. *EuroChoices*, 21(2), pp.19–27. doi:<https://doi.org/10.1111/1746-692x.12352>.
- Sayrs, L. (1989). Pooled Time Series Analysis. [online] SAGE Publications, Inc. eBooks. SAGE Publishing. doi:<https://doi.org/10.4135/9781412985420>.
- Staniszewski, J. and Borychowski, M. (2020). The Impact of the Subsidies on Efficiency of Different Sized Farms. Case Study of the Common Agricultural Policy of the European Union. *Agricultural Economics (Zemědělská ekonomika)*, 66(No. 8), pp.373–380. doi:<https://doi.org/10.17221/151/2020-agricecon>.
- Szczerbiak, A. (2002). *The Political Context of EU Accession in Poland- Briefing Paper*. [online] The Royal Institute of International Affairs, pp.1–12. Available at: <https://www.chathamhouse.org/sites/default/files/public/Research/Europe/polish.pdf>.
- Szczerbiak, A. (2020). *What Are the Prospects for the Polish Peasant Party?* [online] notesfrompoland.com. Available at: <https://notesfrompoland.com/2020/02/07/what-are-the-prospects-for-the-polish-peasant-party/>.
- The Editors of Encyclopaedia Britannica (2023). *collectivization- Agricultural Policy*. [online] www.britannica.com. Available at: <https://www.britannica.com/money/collectivization>.
- Troussi, L. (2024). *Key Factors Influencing EU CAP Eco-Schemes Uptake in Wallonia*. [online] Available at: https://matheo.uliege.be/bitstream/2268.2/21489/6/TFE_Lilas_Troussi.pdf.
- Vachudova, M.A. (2021). Populism, Democracy, and Party System Change in Europe. *Annual Review of Political Science*, 24(1), pp.471–498. doi:<https://doi.org/10.1146/annurev-polisci-041719-102711>.
- Viegas, M., Wolf, J. and Cordovil, F. (2023). Assessment of Inequality in the Common Agricultural Policy in Portugal. *Agricultural and Food Economics*, 11(1). doi:<https://doi.org/10.1186/s40100-023-00255-w>.

- Wanat, Z. (2019). *Poland's Farmers Switch Loyalties to Boost Ruling Party*. [online] POLITICO. Available at: <https://www.politico.eu/article/polands-farmers-switch-loyalties-to-boost-ruling-party-pis-law-and-justice/> [Accessed 7 May 2025].
- World Trade Organization (2024). Understanding the WTO - the Uruguay Round. [online] Wto.org. Available at: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact5_e.htm.
- Wrzaszcz, W. (2018). Effectiveness of Greening in Poland. *Studies.hu*, [online] 120(2), pp.87–96. doi:<https://doi.org/10.7896/j.1810>.
- Zieliński, M., Gołębiewska, B., Adamski, M., Sobierajewska, J. and Tyburski, J. (2024). Adaptation of eco-schemes to Polish Agriculture in the First Year of the EU CAP 2023-2027. *Economics and Environment*, [online] 89(2), pp.1-13. doi:<https://doi.org/10.34659/eis.2024.89.2.817>.

Appendices

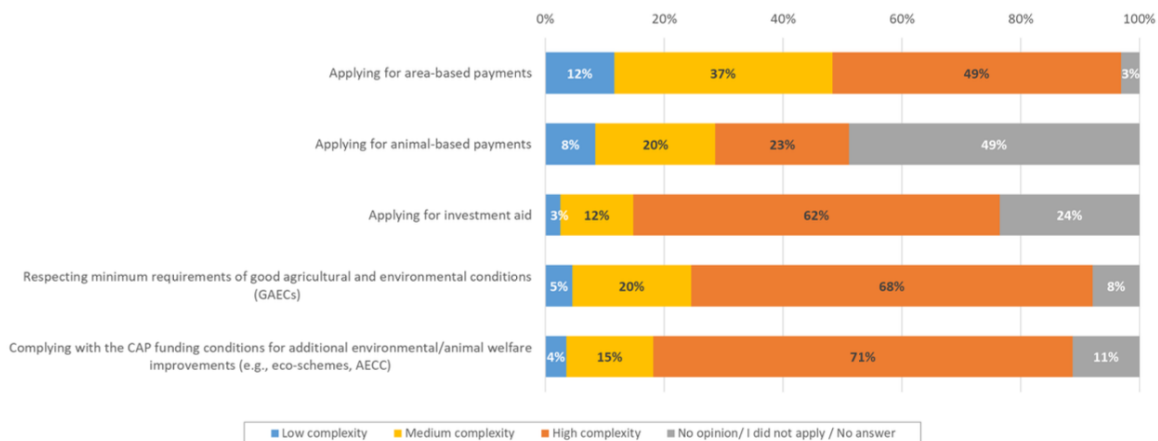
Appendix 1: Map of Poland- Voivodeships (Encyklopedia Internautica, n.d.)



Appendix 2: EU Simplification Survey insights linked with administrative burden (European Commission, 2024b)

First insights: Perceptions of complexity linked to CAP procedures and rules and to other requirements (1)

Perceptions of complexity* linked to aid applications and CAP related requirements and conditions
% of farmers applying for CAP support



6 * Complexity may be linked to understanding, clarity of rules, length of the process/operation, technical difficulties...



Appendix 3: Green Payment Budget Allocation in Poland 2014-2020 Reform (Ministerstwo Rolnictwa i Rozwoju Wsi, 2020h)

| | Priorities Sum | |
|------|----------------|-------------|
| Year | EAFRD Funds | Total Funds |
| 2014 | | |
| 2015 | 199.43 € | 313.44 € |
| 2016 | 199.52 € | 313.53 € |
| 2017 | 199.52 € | 313.55 € |
| 2018 | 180.52 € | 283.70 € |
| 2019 | 180.55 € | 283.76 € |
| 2020 | 180.52 € | 283.72 € |
| 2021 | 169.92 € | 266.38 € |
| 2022 | 224.26 € | 351.80 € |
| 2023 | 224.26 € | 351.80 € |
| 2024 | | |

Appendix 4: Pro-EU Vote Share Among Voivodeships Across the 3 Election Years (Państwowa Komisja Wyborcza, 2014; 2019; 2024)

| Województwo | ProEuropa | | |
|---------------------|-----------|------|------|
| | 2014 | 2019 | 2024 |
| dolnośląskie | 57% | 52% | 57% |
| kujawsko-pomorskie | 62% | 53% | 58% |
| lubelskie | 43% | 32% | 37% |
| lubuskie | 61% | 56% | 60% |
| łódzkie | 49% | 46% | 50% |
| małopolskie | 39% | 34% | 42% |
| mazowieckie | 53% | 47% | 53% |
| opolskie | 59% | 51% | 57% |
| podkarpackie | 32% | 25% | 32% |
| podlaskie | 42% | 37% | 43% |
| pomorskie | 62% | 58% | 62% |
| śląskie | 56% | 47% | 52% |
| świętokrzyskie | 50% | 35% | 40% |
| warmińsko-mazurskie | 58% | 51% | 57% |
| wielkopolskie | 61% | 53% | 57% |
| zachodniopomorskie | 62% | 56% | 61% |
| | 53% | 46% | 51% |

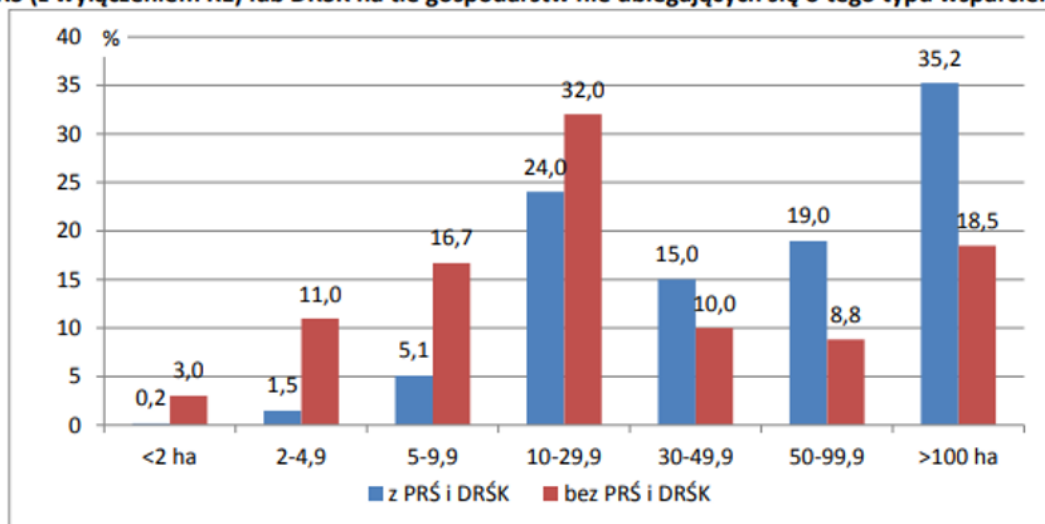
Appendix 5: Area (ha) covered by agri-environmental (green payments) support, years 2014-2018 (Ministerstwo Rolnictwa i Rozwoju Wsi, 2025, p. 165)

Tabela. 4.7.1 Powierzchnia (ha) objęta wsparciem PRŚ/DRŚK w latach 2015 - 2018

| Województwo | 2015 | 2016 | 2017 | 2018 | Spadek powierzchni 2015-2018 (%) |
|---------------------|------------------|------------------|------------------|------------------|----------------------------------|
| dolnośląskie | 104 940 | 97 620 | 75 687 | 70 671 | 33 |
| kujawsko-pomorskie | 203 146 | 176 468 | 138 035 | 90 255 | 56 |
| lubelskie | 167 552 | 140 265 | 114 722 | 107 089 | 36 |
| lubuskie | 85 131 | 79 456 | 70 459 | 70 607 | 17 |
| łódzkie | 41 083 | 34 738 | 21 548 | 16 953 | 59 |
| małopolskie | 23 996 | 23 297 | 19 993 | 16 095 | 33 |
| mazowieckie | 91 947 | 76 868 | 60 681 | 46 170 | 50 |
| opolskie | 70 349 | 52 238 | 26 462 | 20 252 | 71 |
| podkarpackie | 79 073 | 76 940 | 66 837 | 63 174 | 20 |
| podlaskie | 97 627 | 92 214 | 72 654 | 61 371 | 37 |
| pomorskie | 146 674 | 139 043 | 124 209 | 110 152 | 25 |
| śląskie | 18 867 | 16 076 | 10 890 | 8 545 | 55 |
| świętokrzyskie | 48 035 | 40 231 | 29 503 | 23 338 | 51 |
| warmińsko-mazurskie | 153 734 | 146 869 | 126 331 | 114 546 | 25 |
| wielkopolskie | 169 329 | 155 203 | 110 494 | 76 141 | 55 |
| zachodniopomorskie | 135 984 | 143 096 | 119 046 | 117 842 | 13 |
| Polska | 1 637 468 | 1 490 622 | 1 187 550 | 1 013 202 | 38 |

Appendix 6: CAP 2014-2020 Difference Between Farmers who applied for green payment subsidies versus those who did not, varied by farm size (ha) (Ministerstwo Rolnictwa i Rozwoju Wsi, 2025, p. 144)

Rysunek 4.5.2. Struktura [%] użytków rolnych* wg. grup obszarowych gospodarstw realizujących PRŚ (z wyłączeniem RE) lub DRŚK na tle gospodarstw nie ubiegających się o tego typu wsparcie.



* dane dla lat 2015-2017, wartości dla kampanii

Appendix 7: Mazowsze and Warmia i Mazury Voivodeships 2021- 2023 Comparison of Green Payment and Eco-Scheme Uptake (Krzymkowski, 2025)

Appendix 7.1: Excel Datasheet

| | | Greening Payments | | | | | | Eco-Schemes | | | | | | 2023 vs 2021 | | | Average ha/ farmer | | payment/ha | | |
|-------------|----------------|-------------------|--------------------------------|----------------|-------------------|--------------------------------|----------------|-------------------|--------------------------------|----------------|-------------------|--------------------------------|----------------|---------------------------|----------------------------|---------------------|---------------------|-----------------|-----------------|-----|-------|
| Voivodeship | Powiat | Rok 2021 | | Rok 2022 | | Rok 2023 | | Rok 2021 | | Rok 2022 | | Rok 2023 | | 2023 vs 2021 | | Avg. ha/farmer 2021 | Avg. ha/farmer 2023 | payment/ha 2021 | payment/ha 2023 | | |
| | | Number of farmers | Amount of payment granted 2021 | Area [ha] 2021 | Number of farmers | Amount of payment granted 2022 | Area [ha] 2022 | Number of farmers | Amount of payment granted 2023 | Area [ha] 2023 | Number of farmers | Amount of payment granted 2024 | Area [ha] 2024 | Number of farms 2021/2023 | percentage of eco2023/2021 | Avg. ha/farmer 2021 | Avg. ha/farmer 2023 | payment/ha 2021 | payment/ha 2023 | | |
| mazowiecka | białoborski | 3,915 | 8,769,757.53 | 27,028.81 | 3,958 | 9,363,033.84 | 27,038.25 | 629 | 2,889,025.40 | 5,158.11 | 624 | 1,733,916.89 | 5,629.77 | -84% | -73% | 8.9 | 8.2 | 19% | 324 | 663 | |
| mazowiecka | obornicki | 4,788 | 23,836,862.63 | 72,840.21 | 4,730 | 25,205,134.19 | 72,893.89 | 2,171 | 21,837,464.20 | 46,499.29 | 2,162 | 19,159,234.36 | 48,799.05 | -55% | -9% | 15.2 | 17.4 | 41% | 322 | 659 | |
| mazowiecka | gostyniński | 8,822 | 18,232,218.55 | 56,078.17 | 8,800 | 19,280,861.89 | 55,552.62 | 1,521 | 5,924,325.54 | 14,515.01 | 1,481 | 4,008,828.35 | 13,401.36 | -83% | -64% | -74% | 8.4 | 9.5 | 50% | 325 | 448 |
| mazowiecka | grzeszowski | 2,938 | 10,254,009.68 | 31,708.46 | 2,872 | 10,958,689.04 | 31,645.55 | 1,734 | 7,037,247.13 | 19,220.90 | 1,311 | 5,616,087.78 | 19,988.34 | -53% | -31% | -39% | 10.8 | 14.0 | 29% | 323 | 370 |
| mazowiecka | grudziński | 1,711 | 4,741,400.68 | 14,701.25 | 1,717 | 5,145,455.05 | 14,902.48 | 461 | 2,140,524.55 | 6,086.08 | 456 | 2,296,517.88 | 6,779.14 | -73% | -65% | -59% | 8.5 | 13.2 | 55% | 322 | 352 |
| mazowiecka | grzycki | 10,723 | 24,831,995.13 | 76,373.49 | 10,613 | 26,327,746.83 | 75,992.02 | 1,542 | 15,880,940.93 | 15,617.02 | 1,580 | 12,713,133.31 | 18,849.80 | -86% | -33% | -60% | 7.1 | 10.1 | 42% | 325 | 1,048 |
| mazowiecka | hajnrowski | 4,790 | 18,142,806.07 | 51,232.96 | 4,774 | 19,626,087.42 | 50,730.26 | 767 | 2,485,375.56 | 7,395.54 | 766 | 2,558,266.17 | 7,916.42 | -84% | -70% | -76% | 6.5 | 9.6 | 48% | 325 | 336 |
| mazowiecka | hrubieszowski | 1,309 | 3,419,440.38 | 10,531.26 | 1,348 | 3,664,395.93 | 10,583.66 | 224 | 1,956,299.41 | 3,237.87 | 213 | 875,361.66 | 3,402.43 | -83% | -65% | -69% | 7.7 | 14.3 | 85% | 325 | 372 |
| mazowiecka | lipki | 5,194 | 12,765,281.07 | 39,287.55 | 5,172 | 13,717,281.97 | 39,950.07 | 2,026 | 5,699,946.59 | 18,097.78 | 1,941 | 4,688,827.04 | 14,567.62 | -61% | -63% | -64% | 7.6 | 8.9 | 18% | 325 | 333 |
| mazowiecka | łaski | 4,748 | 18,142,806.07 | 51,232.96 | 4,690 | 18,449,082.20 | 47,285.08 | 1,888 | 8,193,447.00 | 22,835.33 | 1,972 | 7,909,320.17 | 24,138.07 | -60% | -47% | -52% | 10.0 | 12.0 | 21% | 325 | 359 |
| mazowiecka | mińsk | 4,813 | 18,694,369.93 | 60,970.99 | 4,745 | 21,186,283.03 | 61,027.74 | 2,302 | 17,951,782.25 | 35,677.29 | 2,302 | 16,587,808.03 | 39,402.74 | -52% | -11% | -42% | 12.6 | 15.4 | 22% | 324 | 695 |
| mazowiecka | międzyrzecz | 5,888 | 13,993,148.24 | 43,209.69 | 5,881 | 14,832,405.76 | 43,182.12 | 1,541 | 7,485,812.76 | 17,237.05 | 1,500 | 6,730,647.82 | 18,430.09 | -74% | -47% | -60% | 7.3 | 11.2 | 92% | 324 | 434 |
| mazowiecka | miłki | 4,517 | 24,170,289.65 | 74,777.00 | 4,488 | 25,703,500.03 | 74,729.73 | 2,079 | 25,787,840.14 | 48,313.20 | 2,041 | 15,714,387.71 | 46,596.39 | -58% | -14% | -46% | 15.2 | 19.4 | 28% | 323 | 516 |
| mazowiecka | nowonaki | 8,413 | 18,779,371.38 | 55,204.01 | 7,788 | 18,681,755.44 | 55,040.12 | 889 | 4,780,858.27 | 11,731.74 | 855 | 3,877,161.34 | 12,187.52 | -68% | -42% | -53% | 8.9 | 13.0 | 47% | 324 | 408 |
| mazowiecka | ostrołęcki | 10,374 | 37,108,066.23 | 114,541.24 | 10,318 | 39,495,838.13 | 113,883.60 | 3,087 | 17,865,351.30 | 42,349.10 | 3,087 | 16,604,604.47 | 47,672.12 | -70% | -62% | -63% | 11.0 | 13.7 | 24% | 324 | 424 |
| mazowiecka | ostrowiecki | 6,255 | 28,612,000.63 | 83,582.44 | 6,131 | 21,796,925.23 | 65,111.02 | 2,023 | 13,908,898.53 | 29,515.99 | 2,068 | 11,938,007.12 | 32,742.53 | -68% | -35% | -64% | 10.2 | 14.7 | 45% | 324 | 451 |
| mazowiecka | pawłowski | 2,848 | 5,841,400.68 | 17,721.00 | 2,787 | 5,816,587.56 | 18,028.22 | 292 | 2,202,244.66 | 5,698.85 | 285 | 1,677,085.28 | 4,713.56 | -90% | -61% | -79% | 6.2 | 12.5 | 101% | 324 | 607 |
| mazowiecka | piaseczyński | 3,256 | 7,689,426.81 | 23,827.60 | 3,147 | 8,048,087.53 | 23,277.21 | 217 | 3,220,242.87 | 5,464.86 | 216 | 1,454,571.32 | 5,618.20 | -83% | -58% | -77% | 7.3 | 12.5 | 244% | 323 | 594 |
| mazowiecka | piłki | 9,097 | 37,982,837.58 | 116,841.41 | 9,051 | 40,470,575.10 | 116,670.28 | 4,204 | 29,787,740.43 | 74,228.00 | 4,127 | 25,920,629.43 | 79,259.69 | -54% | -22% | -35% | 12.8 | 18.1 | 41% | 323 | 388 |
| mazowiecka | puławy | 7,479 | 18,291,889.28 | 55,204.01 | 7,461 | 30,385,546.62 | 87,631.84 | 3,348 | 14,615,536.96 | 49,851.84 | 3,302 | 11,938,007.83 | 55,769.26 | -56% | -24% | -43% | 11.7 | 14.7 | 56% | 323 | 450 |
| mazowiecka | pułtuski | 1,571 | 4,177,021.02 | 12,894.46 | 1,531 | 4,387,950.32 | 12,878.12 | 211 | 1,837,058.17 | 3,848.36 | 210 | 1,636,384.05 | 4,822.09 | -88% | -64% | -70% | 8.2 | 17.9 | 118% | 324 | 503 |
| mazowiecka | przasnyski | 4,755 | 19,322,821.02 | 57,148.00 | 4,717 | 24,834,693.22 | 71,040.15 | 2,669 | 25,938,735.44 | 49,727.45 | 2,654 | 21,938,007.83 | 55,689.63 | -44% | -3% | -31% | 15.2 | 18.6 | 33% | 323 | 481 |
| mazowiecka | przyski | 4,366 | 7,848,545.56 | 24,091.58 | 4,270 | 8,290,107.06 | 23,772.50 | 889 | 2,970,549.69 | 6,077.00 | 874 | 1,522,286.10 | 5,683.85 | -80% | -71% | -76% | 5.5 | 7.0 | 27% | 325 | 374 |
| mazowiecka | radomski | 4,645 | 16,041,020.67 | 49,698.86 | 4,612 | 17,084,893.62 | 49,262.60 | 1,762 | 12,578,717.16 | 36,466.00 | 1,697 | 4,792,741.44 | 17,429.09 | -60% | -40% | -47% | 11.1 | 14.8 | 33% | 324 | 389 |
| mazowiecka | radziejowski | 11,514 | 22,486,734.04 | 69,320.20 | 11,332 | 23,723,293.58 | 69,434.35 | 2,815 | 8,827,088.71 | 24,800.24 | 2,848 | 7,361,483.19 | 25,520.48 | -75% | -61% | -65% | 8.0 | 8.4 | 40% | 325 | 368 |
| mazowiecka | radziwiłłowski | 10,914 | 28,929,538.05 | 89,160.28 | 10,798 | 30,745,461.13 | 89,718.94 | 3,079 | 12,551,031.38 | 34,563.28 | 3,002 | 12,711,738.34 | 40,279.66 | -72% | -67% | -61% | 8.2 | 11.2 | 40% | 324 | 363 |
| mazowiecka | radziwiłłowski | 3,822 | 17,835,016.03 | 55,163.46 | 3,788 | 19,021,288.05 | 54,954.27 | 1,814 | 12,464,643.06 | 31,786.64 | 1,839 | 10,808,794.43 | 34,642.09 | -53% | -29% | -42% | 14.4 | 17.5 | 21% | 323 | 398 |
| mazowiecka | radziwiłłowski | 4,870 | 12,745,420.55 | 39,361.54 | 4,814 | 13,935,124.30 | 39,354.31 | 1,300 | 5,971,185.46 | 16,116.76 | 1,286 | 4,778,027.34 | 17,248.11 | -73% | -47% | -60% | 8.1 | 12.4 | 53% | 324 | 418 |
| mazowiecka | radziwiłłowski | 6,280 | 12,745,420.55 | 39,361.54 | 6,211 | 22,908,925.87 | 66,346.88 | 2,731 | 12,937,872.54 | 37,386.11 | 2,813 | 12,398,007.83 | 40,048.43 | -56% | -40% | -44% | 10.6 | 13.7 | 54% | 323 | 340 |
| mazowiecka | radziwiłłowski | 1,704 | 3,265,518.48 | 10,028.66 | 1,647 | 3,389,618.54 | 9,804.86 | 574 | 2,095,541.54 | 4,892.58 | 570 | 1,533,013.13 | 5,238.05 | -64% | -38% | -50% | 5.9 | 8.7 | 47% | 325 | 408 |
| mazowiecka | radziwiłłowski | 8,118 | 31,709,647.63 | 99,639.65 | 8,115 | 33,367,305.03 | 96,342.70 | 1,235 | 16,548,293.89 | 35,080.83 | 1,181 | 12,970,910.89 | 43,461.42 | -85% | -48% | -65% | 12.3 | 28.8 | 135% | 324 | 472 |
| mazowiecka | radziwiłłowski | 6,612 | 18,199,365.42 | 56,079.17 | 6,589 | 19,324,043.62 | 55,742.62 | 1,541 | 7,901,444.29 | 19,829.11 | 1,535 | 7,769,379.27 | 22,211.48 | -77% | -67% | -65% | 8.5 | 12.9 | 52% | 325 | 398 |
| mazowiecka | radziwiłłowski | 4,739 | 8,824,253.37 | 30,206.47 | 4,762 | 10,349,987.62 | 29,829.52 | 968 | 3,821,284.63 | 7,672.86 | 862 | 2,207,832.64 | 7,976.46 | -80% | -69% | -70% | 6.4 | 7.9 | 25% | 325 | 393 |
| mazowiecka | radziwiłłowski | 4,888 | 11,600,154.70 | 35,712.48 | 4,779 | 12,348,123.86 | 35,554.25 | 1,121 | 4,536,182.60 | 11,881.99 | 1,097 | 3,568,807.30 | 12,281.34 | -77% | -61% | -67% | 7.4 | 10.6 | 44% | 325 | 382 |
| mazowiecka | radziwiłłowski | 4,361 | 10,571,445.70 | 32,604.10 | 4,341 | 11,342,162.70 | 32,718.16 | 1,809 | 5,568,153.48 | 16,466.00 | 1,687 | 4,792,741.44 | 17,429.09 | -58% | -40% | -49% | 7.5 | 9.1 | 21% | 324 | 367 |
| mazowiecka | radziwiłłowski | 4,202 | 16,034,103.17 | 52,284.47 | 4,174 | 18,033,478.79 | 52,155.13 | 1,243 | 14,177,987.93 | 31,275.09 | 1,217 | 12,726,732.48 | 36,683.44 | -54% | -16% | -40% | 12.4 | 16.3 | 31% | 324 | 413 |
| mazowiecka | radziwiłłowski | 2,630 | 6,236,614.81 | 19,215.75 | 2,577 | 6,485,487.34 | 19,818.84 | 394 | 2,447,163.08 | 6,250.73 | 350 | 2,503,517.19 | 7,093.12 | -85% | -64% | -62% | 7.3 | 15.9 | 117% | 323 | 455 |
| mazowiecka | radziwiłłowski | 196,509 | 998,388,950.58 | 3,464,963.60 | 194,782 | 696,146,487.97 | 3,436,146.00 | 58,479 | 361,963,869.89 | 838,513.65 | 60,560 | 301,487,099.13 | 910,082.31 | -79% | -49% | -52% | 9.4 | 14.0 | 49% | 324 | 434 |
| mazowiecka | radziwiłłowski | 2,065 | 23,074,207.81 | 71,583.60 | 2,035 | 23,742,856.04 | 68,364.50 | 916 | 3,388,286.94 | 45,936.00 | 913 | 19,947,539.39 | 54,256.42 | -56% | -6% | -31% | 34.7 | 54.1 | 156% | 322 | 492 |
| mazowiecka | radziwiłłowski | 1,735 | 16,772,020.30 | 52,046.61 | 1,726 | 17,724,175.43 | 51,255.03 | 928 | 18,002,140.46 | 36,119.19 | 910 | 12,440,576.09 | 38,539.99 | -47% | -7% | -31% | 30.0 | 38.9 | 130% | 322 | 498 |
| mazowiecka | radziwiłłowski | 2,279 | 15,033,444.22 | 46,639.81 | 2,231 | 16,304,003.97 | 46,982.73 | 1,183 | 15,179,041.62 | 33,194.58 | 1,107 | 16,495,952.47 | 35,113.60 | -46% | -8% | -29% | 20.5 | 28.1 | 137% | 322 | 487 |
| mazowiecka | radziwiłłowski | 3,024 | 23,050,055.08 | 71,680.26 | 3,023 | 24,835,413.93 | 73,718.86 | 1,343 | 22,656,148.02 | 51,440.00 | 1,406 | 18,908,026.05 | 55,893.64 | -66% | -2% | -28% | 23.6 | 38.3 | 162% | 322 | 440 |
| mazowiecka | radziwiłłowski | 2,266 | 15,736,083.00 | 48,792.61 | 2,243 | 16,484,071.32 | 48,168.79 | 763 | 15,976,896. | | | | | | | | | | | | |

Appendix 7.2: R Script

```

#makign graph of the larger farms 2021-2023 difference for eco-schemes
library(readxl)
data2123 <- read_excel("2021-2024 payments analysis.xlsx")
View(data2123)

#cleaning data
colnames(data2123) <- data2123[2, ]
data_clean2123 <- data2123[-c(1:2), ]
colnames(data_clean2123)
cleandata2123 <- data_clean2123[, !is.na(colnames(data_clean2123)) &
colnames(data_clean2123) != "" & colnames(data_clean2123) != "NA"]
colnames(cleandata2123)
view(cleandata2123)
cleandata2123 <- cleandata2123[-c(58:62), ]
cleandata2123 <- cleandata2123[-c(38), ]
#creating graph and filtering
library(tidyverse)

# Reshape to long format
long_df <- cleandata2123 %>%
  dplyr::select(
    Voivodeship, Powiat,
    `NumberofFarmers2021/2023`,
    `paymentgranted2021/2023`,
    `Area_ha2021/2023`
  ) %>%
  pivot_longer(
    cols = c(`NumberofFarmers2021/2023`, `paymentgranted2021/2023`, `Area_ha2021/2023`),
    names_to = "Metric",
    values_to = "PercentChange"
  ) %>%
  mutate(
    Metric = recode(Metric,
                    "NumberofFarmers2021/2023" = "Farmers",
                    "paymentgranted2021/2023" = "Payments",
                    "Area_ha2021/2023" = "Area (ha)")
  )

# Preview
head(long_df)
long_df %>% filter(Voivodeship == "mazowieckie") %>% view()
unique(long_df$Voivodeship)

# Bar Plot (too busy)
ggplot(long_df, aes(x = reorder(Powiat, PercentChange), y = PercentChange, fill = Metric))
+
  geom_bar(stat = "identity", position = "dodge") +
  coord_flip() +
  facet_wrap(~Voivodeship, scales = "free_y") +
  labs(
    title = "Powiat-Level % Change in Farmers, Payments, and Area (2021-2023)",
    x = "Powiat",
    y = "Percentage Change",
    fill = "Metric"
  ) +
  theme_minimal(base_size = 12)

```

Appendix 8: 2014 Correlations and Regressions

Appendix 8.1: Excel Datasheet (Panstowa Komisja Wyborcza, 2014; GUS-Statistics Poland, 2015; GUS- Statistics Poland, 2011; GUS- Statistics Poland, 2020)

| Województwo | Solidarna Polska | Ruch Narodowy | Unia Pracy | PIS | Plus Twój Ruch | Polska Razem | Nowa Prawica | Civic Platform | PSL | Demokracja Bezpośrednia | Samobrona | Zieloni | ProEuropa | Nationalists | avg_ag_holdings | Agr_land_2014 | avg_farm_size_2010.2020 | tertiary_educ | farm_income | ag_holdings | Kwota przyznanej płatności | eco_area | avg_area_2 | Spadek powie | pct_ha_w | rozmiat |
|---------------------|------------------|---------------|------------|-----|----------------|--------------|--------------|----------------|-----|-------------------------|-----------|---------|-----------|--------------|-----------------|---------------|-------------------------|---------------|-------------|-------------|----------------------------|------------|---------------|--------------|----------|----------|
| | | | | | | | | | | | | | | | | | | | | | | | 2015-2018 (%) | dies | gospod | stawa vs |
| dołnośląskie | 4% | 1% | 12% | 28% | 3% | 2% | 7% | 38% | 4% | 0% | 0% | 0% | 57% | 43.05% | 62,364.0 | 934,909.0 | 14.5 | 16% | 25% | 2,337.2 | | 104,940.00 | 44.9 | 33% | 11.2% | 310% |
| kujawsko-pomorskie | 3% | 1% | 21% | 27% | 4% | 2% | 6% | 28% | 9% | 0% | 0% | 0% | 62% | 38.18% | 36,339.0 | 1,966,599.0 | 16.5 | 13% | 52% | 7,608.5 | | 203,146.00 | 26.7 | 56% | 10.3% | 161% |
| lubelskie | 3% | 2% | 5% | 41% | 4% | 3% | 7% | 16% | 18% | 1% | 0% | 0% | 43% | 56.97% | 189,131.0 | 1,387,794.0 | 7.7 | 15% | 31% | 9,360.4 | | 167,552.00 | 17.9 | 36% | 12.1% | 233% |
| lubuskie | 2% | 2% | 17% | 26% | 3% | 2% | 7% | 35% | 6% | 0% | 0% | 1% | 61% | 38.57% | 23,612.0 | 439,149.0 | 17.3 | 16% | 24% | 1,556.3 | | 85,131.00 | 54.7 | 17% | 19.4% | 316% |
| łódzkie | 2% | 1% | 8% | 38% | 2% | 2% | 6% | 32% | 6% | 1% | 0% | 1% | 49% | 51.07% | 125,455.5 | 957,662.0 | 7.9 | 13% | 32% | 2,551.7 | | 41,083.00 | 16.1 | 59% | 4.3% | 204% |
| małopolskie | 9% | 1% | 6% | 34% | 3% | 7% | 8% | 26% | 4% | 1% | 0% | 0% | 39% | 60.78% | 163,549.5 | 539,229.0 | 3.8 | 10% | 15% | 2,181.5 | | 23,996.00 | 11.0 | 33% | 4.5% | 290% |
| mazowieckie | 2% | 2% | 7% | 33% | 5% | 4% | 7% | 33% | 7% | 0% | 0% | 1% | 53% | 47.16% | 217,676.0 | 1,885,544.0 | 9.1 | 15% | 36% | 5,224.3 | | 91,947.00 | 17.6 | 50% | 4.9% | 193% |
| opolskie | 6% | 1% | 10% | 23% | 3% | 3% | 8% | 40% | 6% | 0% | 0% | 0% | 59% | 40.93% | 29,453.0 | 486,368.0 | 16.4 | 12% | 33% | 1,350.3 | | 70,349.00 | 52.1 | 71% | 14.5% | 318% |
| podkarpackie | 6% | 2% | 5% | 49% | 2% | 3% | 7% | 18% | 7% | 0% | 0% | 0% | 32% | 67.62% | 154,495.0 | 574,807.0 | 4.3 | 12% | 10% | 5,857.3 | | 79,073.00 | 13.5 | 20% | 13.8% | 317% |
| podlaskie | 2% | 2% | 9% | 43% | 3% | 3% | 7% | 21% | 10% | 0% | 0% | 0% | 42% | 57.82% | 79,983.0 | 1,078,017.0 | 13.7 | 15% | 47% | 4,981.0 | | 97,627.00 | 19.6 | 37% | 9.1% | 143% |
| pomorskie | 2% | 1% | 8% | 26% | 2% | 2% | 7% | 48% | 3% | 0% | 0% | 1% | 62% | 38.31% | 40,717.0 | 732,383.0 | 17.9 | 14% | 44% | 3,068.5 | | 146,674.00 | 47.8 | 25% | 20.0% | 267% |
| śląskie | 4% | 1% | 9% | 28% | 4% | 3% | 9% | 40% | 2% | 0% | 0% | 1% | 56% | 44.28% | 62,535.5 | 366,263.0 | 6.0 | 14% | 14% | 745.7 | | 18,867.00 | 25.3 | 55% | 5.2% | 425% |
| świętokrzyskie | 7% | 2% | 10% | 31% | 3% | 3% | 7% | 22% | 15% | 0% | 0% | 0% | 50% | 50.42% | 94,626.5 | 484,753.0 | 5.6 | 14% | 26% | 4,036.6 | | 48,035.00 | 11.9 | 51% | 9.9% | 212% |
| warmińsko-mazurskie | 3% | 1% | 12% | 28% | 4% | 2% | 7% | 33% | 9% | 0% | 0% | 0% | 58% | 42.30% | 46,175.5 | 997,902.0 | 22.4 | 17% | 45% | 3,494.0 | | 153,734.00 | 44.0 | 25% | 15.4% | 197% |
| wielkopolskie | 4% | 1% | 13% | 24% | 5% | 3% | 7% | 33% | 10% | 0% | 0% | 0% | 61% | 38.81% | 123,549.5 | 1,795,064.0 | 14.0 | 12% | 42% | 4,527.5 | | 169,329.00 | 37.4 | 55% | 9.4% | 266% |
| zachodniopomorskie | 2% | 1% | 14% | 25% | 3% | 3% | 7% | 39% | 4% | 0% | 0% | 1% | 62% | 38.48% | 30,543.5 | 831,946.0 | 28.2 | 20% | 33% | 2,415.3 | | 135,984.00 | 56.3 | 13% | 16.3% | 200% |

Appendix 8.2: R script

```

#2014 correlations and regressions

library(readxl)
data2014<- read_excel("~/Desktop/thesis/2014 elections and payments.xlsx")
View(data2014)

#looking at database
colnames(data2014)

#correlation
proeucorr2014<- cor.test(data2014$pct_ha_with_subsidies, data2014$ProEuropa)
print(proeucorr2014)

anticorr2014<- cor.test(data2014$pct_ha_with_subsidies, data2014$Nationalists)
print(anticorr2014)

farmsizecorr <- cor.test(data2014$pct_ha_with_subsidies, data2014$avg_farm_size2010.2020)
print(farmsizecorr)

rufarmcorr2014 <- cor.test(data2014$ProEuropa, data2014$avg_farm_size2010.2020)
print(rufarmcorr2014)

eueducorr2014<- cor.test(data2014$ProEuropa, data2014$tertiary_educ)
print(eueducorr2014)

educfarmcorr2014<- cor.test(data2014$tertiary_educ, data2014$avg_farm_size2010.2020)
print(educfarmcorr2014)

#plotting
model <- lm(pct_ha_with_subsidies ~ ProEuropa, data = data2014)
summary(model)

plot(data2014$ProEuropa, data2014$pct_ha_with_subsidies,
      xlab = "Pro-Europe Support",
      ylab = "% Area with Subsidies",
      main = "Subsidies vs Pro-Europe Support 2014",
      pch = 19)

# Add regression line
abline(model, col = "blue", lwd = 2)

##correlation table for all 3 years (pg. 33)
print(correlation_table)
summary(correlation_table)
educorr2014<- cor.test(data2014$ProEuropa, data2014$tertiary_educ) # Correlation
subsidieseducorr14 <-cor.test(data2014$pct_ha_with_subsidies, data2014$tertiary_educ)
print(educorr2014)
print(subsidieseducorr14)
lmeduc14 <- lm(tertiary_educ ~ ProEuropa, data = data2014) # Linear regression
summary(lmeduc14)
plot(lmeduc14)

#multiple regression for ProEuropa being the DV
model2014 <- lm(ProEuropa ~ pct_ha_with_subsidies + tertiary_educ +
`avg_farm_size2010.2020`, data = data2014)
summary(model2014)
plot(model2014)
plot(allEffects(model2014), multiline = TRUE, ci.style = "bands")

#multiple regression for pct of subsidies being the DV
model_subsidy2014 <- lm(pct_ha_with_subsidies ~ ProEuropa + avg_farm_size2010.2020 +
tertiary_educ, data = data2014)

summary(model_subsidy2014)
plot(allEffects(model_subsidy2014), multiline = TRUE, ci.style = "bands")

```

Appendix 9: Excel Datasheet R script for 2019 Correlations and Regressions

Appendix 9.1: Excel Datasheet (GUS-Statistics Poland, 2020; Panstowa Komisja Wyborcza, 2019)

| Voivodships | KOALICJA OPEISKA | LEWICARAZEM | POLEKITY | JEDNOŚĆ NARODU | PIS | RUCH PRAWDZIWIACH EUROPA | WIOSNA | KONFEDERACJA | KUKIZ'15 | FAIRPLAY | ProEuropa | Nationalists | ratio Europa vs No Europa | AGRICULTURAL HOLDINGS 2020 | Agricultural land ha | avg_fam_size_ha | tertiary_educ | Households where over 50% of total income accounted for the income from Farm | AGRICULTURAL HOLDINGS2 | Kwota przyznanej płatności | Powierzchnia | Average farm size ha 2 | Spadek powierzchni 2015-2018 (%) | % ha objętych dotacjami | rozmiar gospodarstwa vs sredna wojewoctwa |
|---------------------|------------------|-------------|----------|----------------|-------|--------------------------|--------|--------------|----------|----------|-----------|--------------|---------------------------|----------------------------|----------------------|-----------------|---------------|--|------------------------|----------------------------|--------------|------------------------|----------------------------------|-------------------------|---|
| Dolnośląskie | 43.61 | 1.38 | 0 | 0 | 38.69 | 0 | 7.24 | 5.1 | 3.99 | 0 | 52.2 | 43.8 | 1.2 | 52,586.0 | 913,623.0 | 17.8 | 20.2% | 26.4% | 1,574.0 | | 70,671.00 | 44.9 | 33% | 7.7% | 253% |
| Kujawsko-pomorskie | 46.01 | 1.14 | 0 | 0 | 39.24 | 0 | 5.94 | 3.8 | 3.87 | 0 | 53.1 | 43.0 | 1.2 | 59,601.0 | 1,055,432.0 | 18.1 | 16.8% | 50.7% | 3,380 | | 90,255.00 | 26.7 | 56% | 8.6% | 148% |
| Lubelskie | 28.17 | 0.72 | 0 | 0 | 58.95 | 0 | 3.07 | 4.42 | 4 | 0.69 | 32.0 | 63.4 | 0.5 | 161,391.0 | 1,384,106.0 | 8.7 | 19.2% | 31.0% | 5,983 | | 107,089.00 | 17.9 | 36% | 7.7% | 206% |
| Lubuskie | 47.79 | 1.17 | 0 | 0 | 36.76 | 0 | 7.21 | 3.89 | 3.19 | 0 | 56.2 | 40.7 | 1.4 | 19,981.0 | 444,053.0 | 22.8 | 21.2% | 27.2% | 1,291 | | 70,607.00 | 54.7 | 17% | 15.9% | 240% |
| Łódzkie | 38.09 | 1.96 | 0 | 0 | 46.69 | 0 | 5.56 | 4.15 | 3.56 | 0 | 45.6 | 50.8 | 0.9 | 116,952.0 | 981,260.0 | 8.5 | 16.8% | 29.5% | 1,053.0 | | 16,953.00 | 16.1 | 59% | 1.7% | 189% |
| Małopolskie | 28.47 | 1.07 | 0.34 | 0 | 55.81 | 0 | 4.93 | 4.38 | 4.14 | 0.86 | 34.5 | 60.5 | 0.6 | 126,703.0 | 557,374.0 | 4.5 | 13.5% | 15.6% | 1,463 | | 16,095.00 | 11.0 | 33% | 2.9% | 245% |
| Mazowieckie | 38.14 | 1.4 | 0 | 0.1 | 42.93 | 0 | 7.86 | 4.77 | 3.47 | 1.33 | 47.4 | 47.8 | 1.0 | 208,101.0 | 1,984,920.0 | 9.7 | 19.7% | 33.5% | 2,623.3 | | 46,170.00 | 17.6 | 50% | 2.3% | 182% |
| Opolskie | 44.77 | 1.18 | 0 | 0 | 38.8 | 0 | 5.13 | 4.58 | 5.54 | 0 | 51.1 | 43.4 | 1.2 | 25,479.0 | 518,316.0 | 20.7 | 16.7% | 34.7% | 388.7 | | 20,252.00 | 52.1 | 71% | 3.9% | 251% |
| Podkarpackie | 21.56 | 0.71 | 0.32 | 0 | 65.07 | 0 | 3.06 | 5.89 | 3.38 | 0 | 25.3 | 71.3 | 0.4 | 113,873.0 | 573,055.0 | 5.1 | 15.1% | 11.7% | 4,680 | | 63,174.00 | 13.5 | 20% | 11.0% | 263% |
| Podlaskie | 31.47 | 1.31 | 0 | 0 | 54.43 | 0 | 4.01 | 5.26 | 3.52 | 0 | 36.8 | 59.7 | 0.6 | 76,719.0 | 1,099,888.0 | 14.5 | 19.1% | 44.8% | 3,121 | | 61,174.00 | 19.6 | 37% | 5.6% | 136% |
| Pomorskie | 50.66 | 0.96 | 0 | 0 | 34.53 | 0 | 6.15 | 4.01 | 2.67 | 1.02 | 57.8 | 38.5 | 1.5 | 38,928.0 | 773,172.0 | 20.3 | 18.4% | 38.7% | 2,304 | | 110,152.00 | 47.8 | 25% | 14.2% | 236% |
| Śląskie | 40.24 | 1.18 | 0 | 0 | 43.25 | 0 | 5.82 | 4.61 | 3.8 | 1.1 | 47.2 | 47.9 | 1.0 | 49,647.0 | 390,214.0 | 8.1 | 18.6% | 16.1% | 338 | | 8,545.00 | 25.3 | 55% | 2.2% | 312% |
| Świętokrzyskie | 30.66 | 0.65 | 0.24 | 0 | 57.85 | 0 | 3.31 | 3.77 | 3.07 | 0.44 | 34.6 | 61.9 | 0.6 | 79,894.0 | 499,349.0 | 6.3 | 17.8% | 25.0% | 1,961 | | 23,338.00 | 11.9 | 51% | 9.6% | 188% |
| Warmińsko-mazurskie | 42.15 | 1.58 | 0 | 0 | 40.72 | 0 | 7.31 | 4.57 | 3.67 | 0 | 51.0 | 45.3 | 1.1 | 42,606.0 | 1,073,150.0 | 25.6 | 21.5% | 44.7% | 2,603.3 | | 114,546.00 | 44.0 | 25% | 10.7% | 172% |
| Wielkopolskie | 43.25 | 1.6 | 0 | 0 | 38.39 | 0 | 7.8 | 4.67 | 4.29 | 0 | 52.7 | 43.1 | 1.2 | 116,418.0 | 1,776,906.0 | 15.7 | 16.0% | 41.0% | 2,036 | | 76,141.00 | 37.4 | 55% | 4.3% | 238% |
| Zachodniopomorskie | 47.74 | 1.08 | 0 | 0 | 36.9 | 0 | 7.6 | 3.87 | 2.82 | 0 | 56.4 | 40.8 | 1.4 | 28,521.0 | 928,067.0 | 33.1 | 25.7% | 35.7% | 2,093 | | 117,842.00 | 56.3 | 13% | 12.7% | 170% |

Appendix 9.2: R Script

```

##analyzing green payments and parliamentary elections
library(readxl)
data2019 <- read_excel("~/Desktop/thesis/voting2019greenpayments2020.xlsx")

data2019$pct_ha_with_subsidies<- data2019$`% ha objetych dotacjami`
data2014$Voivodships <- data2014$Województwo

#correlation
antieucorr2019<- cor.test(data2019$pct_ha_with_subsidies, data2019$Nationalists) #
Correlation
print(antieucorr2019)
lml <- lm(pct_ha_with_subsidies ~ Nationalists, data = data2019) # Linear regression

proeucorr2019<- cor.test(data2019$pct_ha_with_subsidies, data2019$ProEuropa)
print(proeucorr2019)

#plotting
#plotting
model2019 <- lm(pct_ha_with_subsidies ~ ProEuropa, data = data2019)
summary(model2019)

# Create the scatter plot
plot(data2019$ProEuropa, data2019$pct_ha_with_subsidies,
      xlab = "Pro-Europe Support",
      ylab = "% Area with Subsidies",
      main = "Subsidies vs Pro-Europe Support 2019",
      pch = 19,
      col = "blue")

#description of database
nrow(data)
head(data)

#comparing 2014 and 2019
cor2014 <- cor(data2014$ProEuropa, data2014$pct_ha_with_subsidies, use = "complete.obs")
cor2019 <- cor(data2019$ProEuropa, data2019$pct_ha_with_subsidies, use = "complete.obs")
cor_data1419 <- data.frame(
  Year = c("2014", "2019"),
  Correlation = c(cor2014, cor2019)
)

par(mfrow = c(1, 3)) # 1 row, 2 columns layout

# 2014
plot(data2014$ProEuropa, data2014$pct_ha_with_subsidies,
      main = "2014", xlab = "Pro-Europe Support", ylab = "% Subsidies", pch = 19, col =
"blue")
abline(lm(pct_ha_with_subsidies ~ ProEuropa, data = data2014), col = "blue", lwd = 2)
abline(lm(pct_ha_with_subsidies ~ ProEuropa, data = data2019), col = "darkgreen", lwd = 2)
text(data2014$ProEuropa, data2014$pct_ha_with_subsidies,
      labels = data2014$Voivodships, pos = 4, cex = 0.7)
# 2019
plot(data2019$ProEuropa, data2019$pct_ha_with_subsidies,
      main = "2019", xlab = "Pro-Europe Support", ylab = "% Subsidies", pch = 19, col =
"darkgreen")
abline(lm(pct_ha_with_subsidies ~ ProEuropa, data = data2019), col = "darkgreen", lwd = 2)
text(data2019$ProEuropa, data2019$pct_ha_with_subsidies,
      labels = data2019$Voivodships, pos = 4, cex = 0.7)

#education correlation

```

```
educcorr2019<- cor.test(data2019$ProEuropa, data2019$tertiary_educ) # Correlation
subsidieseducorr <-cor.test(data2019$pct_ha_with_subsidies, data2019$tertiary_educ)
print(subsidieseducorr)
lmeduc19 <- lm(tertiary_educ ~ ProEuropa, data = data2019) # Linear regression
summary(lmeduc19)
plot(lmeduc)

#multiple regression ProEuropa DV
model2019 <- lm(ProEuropa ~ pct_ha_with_subsidies + tertiary_educ + avg_farm_size_ha, data
= data2019)
summary(model2019)
plot(model2019)
plot(allEffects(model2019), multiline = TRUE, ci.style = "bands")

#multiple regression pct subsidiies DV
model_subsidy2019 <- lm(pct_ha_with_subsidies ~ ProEuropa + avg_farm_size_ha +
tertiary_educ, data = data2019)
summary(model_subsidy2019)
plot(allEffects(model_subsidy2019), multiline = TRUE, ci.style = "bands")
```

Appendix 10: Excel Datasheet R script for 2024 Correlations and Regressions

Appendix 10.1: Excel Datasheet (GUS-Statistics Poland, 2020; Panstowa Komisja Wyborcza, 2024a)

| Voivodships | KO | LEWICA | KOALICYJNY KOMITET WYBORCZY TRZECIA DROGA POLSKA 2050 SZYMONA HOŁOWNI - POLSKIE STRONNICIWO LUDOWE | KOMITET WYBORCZY KONFEDERACJA WOLNOŚCI NIEPODLEGŁOŚĆ | KOMITET WYBORCZY NORMALNY KRAJ | POLEXIT | KOMITET WYBORCZY POLSKA LIBERALNA STRAJK PRZEDSIĘBIORCÓW | PIS | KOMITET WYBORCZY RUCH NAPRAWY POLSKI | KOMITET WYBORCZY WYBORCÓW BEZPARTYJNY SAMORZĄDOWCY-NORMALNA POLSKA W NORMALNEJ EUROPIE | KOMITET WYBORCZY WYBORCÓW GŁOS SILNEJ POLSKI | Nationalists | ProEuropa | AGRICULTURAL HOLDINGS 2020 | Ag_land_ha | Avg_farm_size_ha | tertiary_educ | farm_income | wnioski | Kwota przyznanej płatności | pct_of_farms |
|---------------------|-------|--------|--|--|--------------------------------|---------|--|-------|--------------------------------------|--|--|--------------|-----------|----------------------------|-------------|------------------|---------------|-------------|----------|----------------------------|--------------|
| Dolnośląskie | 40.77 | 9.67 | 4.88 | 11.7 | 0 | 0.25 | 0 | 31.5 | 0 | 1.23 | - | 43.5 | 56.6 | 52,586.0 | 913,623.0 | 17.8 | 20.2% | 26.4% | 22,703.0 | | 43% |
| Kujawsko-pomorskie | 44.38 | 4.71 | 7.98 | 10.24 | 0 | 0.27 | 0.24 | 31.3 | 0 | 0.87 | 0 | 41.8 | 58.2 | 59,601.0 | 1,055,432.0 | 18.1 | 16.8% | 50.7% | 36,772 | | 62% |
| Lubelskie | 26 | 3.29 | 6.95 | 15.11 | 0 | 0.3 | 0 | 47.16 | 0 | 1.19 | - | 62.6 | 37.4 | 161,391.0 | 1,384,106.0 | 8.7 | 19.2% | 31.0% | 62,045 | | 38% |
| Lubuskie | 43.76 | 9.83 | 5.33 | 9.49 | 0 | 0.26 | 0 | 30.28 | 0 | 1.04 | - | 40.0 | 60.0 | 19,981.0 | 444,053.0 | 22.8 | 21.2% | 27.2% | 8,629 | | 43% |
| Łódzkie | 33.29 | 9.93 | 5.91 | 10.96 | 0 | 0.25 | 0.22 | 38.6 | 0 | 0.83 | - | 49.8 | 50.2 | 116,952.0 | 981,260.0 | 8.5 | 16.8% | 29.5% | 45,875.0 | | 39% |
| Małopolskie | 29.02 | 4.75 | 7.08 | 14.66 | 0.28 | 0.26 | 0.08 | 43.1 | 0 | 0.75 | - | 58.0 | 41.7 | 126,703.0 | 557,374.0 | 4.5 | 13.5% | 15.6% | 28,945 | | 23% |
| Mazowieckie | 36.94 | 7.45 | 7.9 | 12.11 | 0.08 | 0.22 | 0.04 | 34.14 | 0.07 | 0.94 | 0.1 | 46.6 | 53.3 | 208,101.0 | 1,984,920.0 | 9.7 | 19.7% | 33.5% | 80,631.0 | | 39% |
| Opolskie | 44.54 | 5.93 | 4.94 | 11.74 | 0 | 0.28 | 0 | 31.4 | 0 | 1.17 | - | 43.4 | 56.6 | 25,479.0 | 518,316.0 | 20.7 | 16.7% | 34.7% | 12,443.0 | | 49% |
| Podkarpackie | 23.73 | 2.07 | 4.71 | 15.23 | 0 | 0.24 | 0 | 52.87 | 0 | 1.16 | - | 68.3 | 31.7 | 113,873.0 | 573,055.0 | 5.1 | 15.1% | 11.7% | 26,968 | | 24% |
| Podlaskie | 29.35 | 2.88 | 9.57 | 14.59 | 0.41 | 0.25 | 0 | 42.09 | 0 | 0.86 | - | 56.9 | 42.7 | 76,719.0 | 1,099,888.0 | 14.5 | 19.1% | 44.8% | 47,116 | | 61% |
| Pomorskie | 51.06 | 4.65 | 5.4 | 9.37 | 0 | 0.33 | 0 | 28.07 | 0 | 1.13 | - | 37.8 | 62.2 | 38,928.0 | 773,172.0 | 20.3 | 18.4% | 38.7% | 20,826 | | 53% |
| Śląskie | 41.42 | 4.63 | 5.56 | 10.15 | 0.47 | 0.21 | 0.16 | 36.45 | 0.25 | 0.7 | - | 46.8 | 52.5 | 49,647.0 | 390,214.0 | 8.1 | 18.6% | 16.1% | 14,188 | | 29% |
| Świętokrzyskie | 20.45 | 4.65 | 14.24 | 12.5 | 0.21 | 0.21 | 0.09 | 47.02 | 0 | 0.62 | - | 59.7 | 40.1 | 79,894.0 | 499,349.0 | 6.3 | 17.8% | 25.0% | 21,204 | | 27% |
| Warmińsko-mazurskie | 44.86 | 4.28 | 6.28 | 10.95 | 0.47 | 0.26 | 0 | 31.75 | 0 | 1.15 | - | 43.0 | 56.6 | 42,606.0 | 1,073,150.0 | 25.6 | 21.5% | 44.7% | 25,662.0 | | 60% |
| Wielkopolskie | 38.85 | 8.06 | 9.24 | 13.18 | 0.53 | 0.23 | 0.24 | 28.92 | 0 | 0.76 | - | 42.3 | 57.2 | 116,418.0 | 1,776,906.0 | 15.7 | 16.0% | 41.0% | 57,430 | | 49% |
| Zachodniopomorskie | 44.87 | 9.28 | 6.08 | 9.1 | 0 | 0.25 | 0 | 29.5 | 0 | 0.91 | - | 38.9 | 61.1 | 28,521.0 | 928,067.0 | 33.1 | 25.7% | 35.7% | 14,657 | | 51% |

Appendix 10.2: R Script

```

###2024 correlations and regressions and regression plots for everything

#downloading the dataset
library(readxl)
data2024 <- read_excel("Desktop/thesis/2024elections.xlsx")
View(data2024)
colnames(data2024)

#making the correlation in partisanship
antieucorr2024<- cor.test(data2024$pct_of_farms, data2024$Nationalists) # Correlation
print(antieucorr2024)
lm3 <- lm(pct_of_farms ~ ProEuropa, data = data2024) # Linear regression
summary(lm3)
proeucorr2024<- cor.test(data2024$pct_of_farms, data2024$ProEuropa)
print(proeucorr2024)

# scatter plot for ProEuropa
plot(data2024$ProEuropa, data2024$`% of farms`,
      xlab = "Pro-Europe Support",
      ylab = "% Area with Subsidies",
      main = "Subsidies vs Pro-Europe Support 2024",
      pch = 20,
      col = "blue")

# Fit the model
modelpro2024 <- lm(`% of farms` ~ ProEuropa, data = data2024)

# Add the regression line
abline(modelpro2024, col = "blue", lwd = 2)

#multi-year correlation
cor2014 <- cor(data2014$ProEuropa, data2014$pct_ha_with_subsidies, use = "complete.obs")
cor2019 <- cor(data2019$ProEuropa, data2019$pct_ha_with_subsidies, use = "complete.obs")
cor2024 <- cor(data2024$ProEuropa, data2024$`% of farms`, use = "complete.obs")
cor_data141924 <- data.frame(
  Year = c("2014", "2019", "2024"),
  Correlation = c(cor2014, cor2019, cor2024)
)
par(mfrow = c(1, 3)) # 1 row, 3 columns layout
view(cor2014,cor2019,cor2024)
#plots for partisanship comparison over the years
# 2014
plot(data2014$ProEuropa, data2014$pct_ha_with_subsidies,
      main = "2014", xlab = "Pro-Europe Support", ylab = "% Subsidies", pch = 19, col =
"blue")
abline(lm(pct_ha_with_subsidies ~ ProEuropa, data = data2014), col = "blue", lwd = 2)
abline(lm(pct_ha_with_subsidies ~ ProEuropa, data = data2019), col = "darkgreen", lwd = 2)
text(data2014$ProEuropa, data2014$pct_ha_with_subsidies,
      labels = data2014$Voivodships, pos = 4, cex = 0.7)
# 2019
plot(data2019$ProEuropa, data2019$pct_ha_with_subsidies,
      main = "2019", xlab = "Pro-Europe Support", ylab = "% Subsidies", pch = 19, col =
"darkgreen")
abline(lm(pct_ha_with_subsidies ~ ProEuropa, data = data2019), col = "darkgreen", lwd = 2)
text(data2019$ProEuropa, data2019$pct_ha_with_subsidies,
      labels = data2019$Voivodships, pos = 4, cex = 0.7)
#2024
plot(data2024$ProEuropa, data2024$pct_of_farms,
      main = "2024", xlab = "Pro-Europe Support", ylab = "% Subsidies", pch = 19, col =
"pink")
abline(lm(pct_of_farms ~ ProEuropa, data = data2024), col = "pink", lwd = 2)
text(data2024$ProEuropa, data2024$pct_of_farms,

```

```
labels = data2024$Voivodships, pos = 4, cex = 0.7)

#education correlation
educcorr2024<- cor.test(data2024$ProEuropa, data2024$tertiary_educ) # Correlation
print(educcorr2024)
lmeduc <- lm(tertiary_educ ~ ProEuropa, data = data2024) # Linear regression
summary(lmeduc)
plot(lmeduc)

#multiple regression ProEuropa DV
model2024 <- lm(ProEuropa ~ pct_of_farms + tertiary_educ + Avg_farm_size_ha, data =
data2024)
summary(model2024)
plot(model2024)
plot(allEffects(model2024), multiline = TRUE, ci.style = "bands")

#model regression %subsidies DV
model_subsidy2024 <- lm(pct_of_farms ~ ProEuropa + Avg_farm_size_ha + tertiary_educ, data
= data2024)
summary(model_subsidy2024)

library(effects)
plot(allEffects(model_subsidy2024), multiline = TRUE, ci.style = "bands")

#multivariable correlation
#multistep correlation
cordata24 <- data2024[c("pct_of_farms", "ProEuropa", "tertiary_educ", "Avg_farm_size_ha" )]

cor_matrix2024 <- cor(cordata24, use = "complete.obs", method = "pearson")
print(round(cor_matrix2024,2))
table(cor_matrix2024)
```

Appendix 11: Pooled OLS Regression (Państwowa Komisja Wyborcza, 2014; 2019; 2024; GUS- Statistics Poland, 2011; GUS-Statistics Poland, 2020)

Appendix 11.1: Excel Datasheet

| Voivodeship | Year | Subsidy_Uptake | Avg_Farm_Size | Tertiary_Educ | ProEU_Vote |
|---------------------|------|----------------|---------------|---------------|------------|
| dołnośląskie | 2014 | 11.20% | 14.5 | 16% | 57% |
| dołnośląskie | 2019 | 7.70% | 17.8 | 20.20% | 52.20% |
| dołnośląskie | 2024 | 43% | 17.8 | 20.20% | 56.60% |
| kujawsko-pomorskie | 2014 | 10.30% | 16.5 | 13% | 62% |
| kujawsko-pomorskie | 2019 | 8.60% | 18.1 | 16.80% | 53.10% |
| kujawsko-pomorskie | 2024 | 62% | 18.1 | 16.80% | 58.20% |
| lubelskie | 2014 | 12.10% | 7.7 | 15% | 43% |
| lubelskie | 2019 | 7.70% | 8.7 | 19% | 32% |
| lubelskie | 2024 | 38% | 8.7 | 19% | 37.40% |
| lubuskie | 2014 | 19.40% | 17.3 | 16% | 61% |
| lubuskie | 2019 | 15.90% | 22.8 | 21.20% | 56.20% |
| lubuskie | 2024 | 43% | 22.8 | 21.20% | 60% |
| łódzkie | 2014 | 4.30% | 7.9 | 13.00% | 49% |
| łódzkie | 2019 | 1.70% | 8.5 | 16.80% | 46% |
| łódzkie | 2024 | 39% | 8.5 | 16.80% | 50% |
| małopolskie | 2014 | 4.50% | 3.8 | 10% | 39% |
| małopolskie | 2019 | 2.90% | 4.5 | 13.50% | 34.50% |
| małopolskie | 2024 | 23% | 4.5 | 13.50% | 41.70% |
| mazowieckie | 2014 | 4.90% | 9.1 | 15% | 53% |
| mazowieckie | 2019 | 2.30% | 9.7 | 19.70% | 47.40% |
| mazowieckie | 2024 | 39% | 9.7 | 19.70% | 53.30% |
| opolskie | 2014 | 14.50% | 16.4 | 12% | 59% |
| opolskie | 2019 | 3.90% | 20.7 | 16.70% | 51.10% |
| opolskie | 2024 | 49% | 20.7 | 16.70% | 56.6 |
| podkarpackie | 2014 | 13.80% | 4.3 | 12% | 32% |
| podkarpackie | 2019 | 11% | 5.1 | 15.10% | 25.30% |
| podkarpackie | 2024 | 24% | 5.1 | 15.10% | 31.70% |
| podlaskie | 2014 | 9.10% | 13.7 | 15% | 42% |
| podlaskie | 2019 | 5.60% | 14.5 | 19.10% | 36.80% |
| podlaskie | 2024 | 61% | 14.5 | 19.10% | 42.70% |
| pomorskie | 2014 | 20% | 17.9 | 14% | 62% |
| pomorskie | 2019 | 14.20% | 20.3 | 18.40% | 57.80% |
| pomorskie | 2024 | 53% | 20.3 | 18.40% | 62.20% |
| śląskie | 2014 | 5.20% | 6 | 14% | 56% |
| śląskie | 2019 | 2.20% | 8.1 | 18.60% | 47.20% |
| śląskie | 2024 | 29% | 8.1 | 18.60% | 52.50% |
| świętokrzyskie | 2014 | 9.90% | 5.6 | 14% | 50% |
| świętokrzyskie | 2019 | 9.60% | 6.3 | 17.80% | 34.60% |
| świętokrzyskie | 2024 | 27% | 6.3 | 17.80% | 40.10% |
| warmińsko-mazurskie | 2014 | 15.40% | 22.4 | 17% | 58% |
| warmińsko-mazurskie | 2019 | 10.70% | 25.6 | 21.50% | 51% |
| warmińsko-mazurskie | 2024 | 60% | 25.6 | 21.50% | 56.60% |
| wielkopolskie | 2014 | 9.40% | 14 | 12% | 61% |
| wielkopolskie | 2019 | 4.30% | 15.7 | 16% | 52.70% |
| wielkopolskie | 2024 | 49% | 15.7 | 16% | 57.20% |
| zachodniopomorskie | 2014 | 16.30% | 28.2 | 20% | 62% |
| zachodniopomorskie | 2019 | 12.70% | 33.1 | 25.70% | 56.40% |
| zachodniopomorskie | 2024 | 51% | 33.1 | 25.70% | 61.10% |

Appendix 11.2: R Script

```

#pooled time analysis (2014, 2019, 2024)
library(readxl)
pooling_analysis<- read_excel("Desktop/thesis/appendices/pooling analysis.xlsx")
View(pooling_analysis)
colnames(pooling_analysis)

#regression
poolemodel<- lm(Subsidy_Uptake ~ Avg_Farm_Size + Tertiary_Educ + ProEU_Vote +
factor(Year), data = pooling_analysis)
summary(poolemodel)
#results

#Coefficients:
# (Intercept)      Avg_Farm_Size      Tertiary_Educ      ProEU_Vote
#0.0624579         0.0073888         -0.3135622         0.0001973
#factor(Year)2019  factor(Year)2024
#-0.0394571         0.3154664

#testing for Heteroskedasticity and multicollinearity, etc.
library(lmtest)
bptest(poolemodel)
#heteroskedasticity exists here (p-value=0.02)
library(sandwich)
library(lmtest)

# Robust SEs
coefTest(poolemodel, vcov = vcovHC(poolemodel, type = "HC1"))

#multicollinearity
install.packages('car')
library(car)
vif(poolemodel)
#there is none present!

#plotting this regression
library(ggplot2)
library(dplyr)
library(broom)

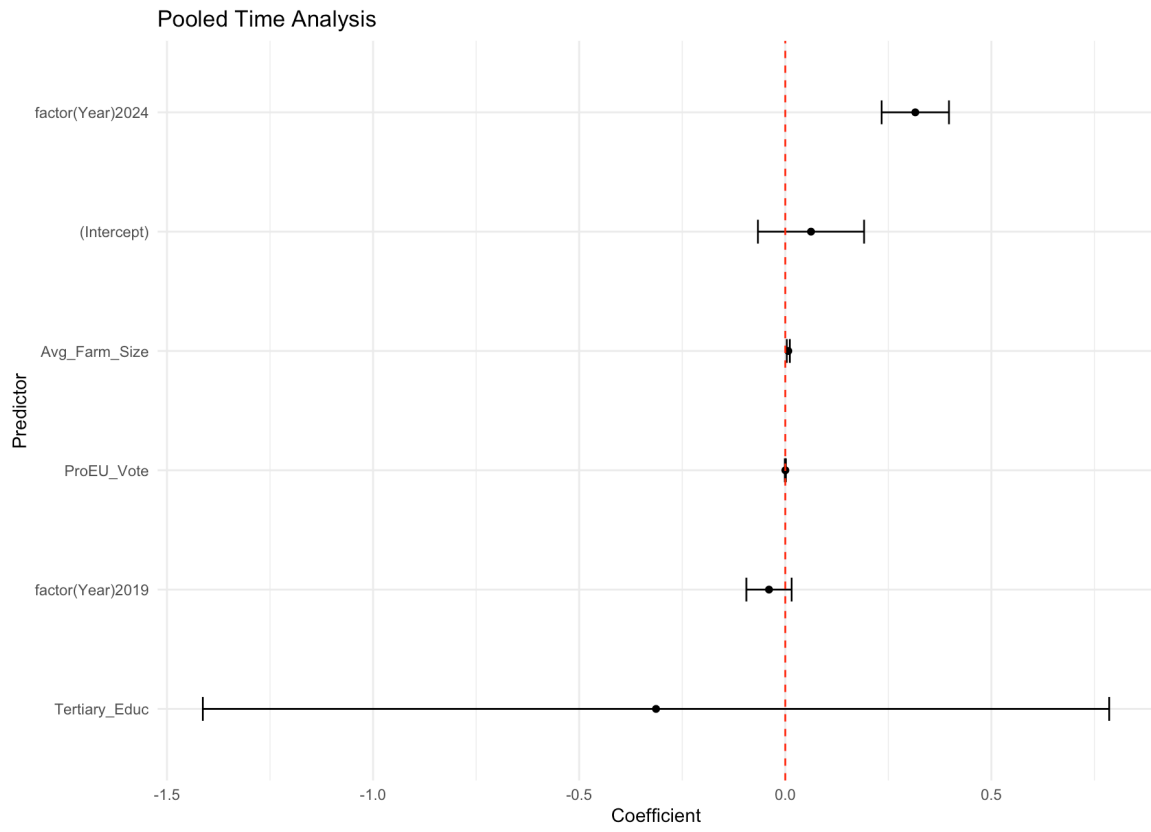
# Get robust standard errors for plotting method
robust_se <- sqrt(diag(vcovHC(poolemodel, type = "HC1")))

# Tidy model with conf intervals
results <- tidy(poolemodel) %>%
  mutate(
    se = robust_se,
    conf.low = estimate - 1.96 * se,
    conf.high = estimate + 1.96 * se
  )

# Plot
ggplot(results, aes(x = estimate, y = reorder(term, estimate))) +
  geom_point() +
  geom_errorbarh(aes(xmin = conf.low, xmax = conf.high), height = 0.2) +
  geom_vline(xintercept = 0, linetype = "dashed", color = "red") +
  theme_minimal() +
  labs(title = "Pooled Time Analysis",
        x = "Coefficient", y = "Predictor")

```

Appendix 11.3: Pooled OLS Regression Graph



Appendix 12: Delays in Payments for Priorities 4 and 5 under CAP RDP 2014-2020
(Ministerstwo Rolnictwa i Rozwoju Wsi, 2020h)

Appendix 12.1: Table

| Year | EAFRD _P4_Bu dget | Total_P 4_fund s | P4_pct_contr acted_funds | P4_pct_ paid_ou t | EAFRD_ P5_Budge t | P5_pct_contr acted_funds | P5_pct_contr acted_funds | P4_pct_ paid_out |
|------|-------------------------|------------------------|-----------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|---------------------|
| 2015 | 2.65 € | 4.16 € | 15.0% | 2.5% | 191.50 € | 301.00 € | 65.0% | 0.3% |
| 2016 | 2.68 € | 4.16 € | 29.6% | 18.2% | 191.50 € | 301.00 € | 64.2% | 9.1% |
| 2017 | 2.68 € | 4.16 € | 42.0% | 31.0% | 191.50 € | 301.00 € | 69.0% | 18.0% |
| 2018 | 2.70 € | 4.19 € | 60.0% | 46.0% | 172.40 € | 271.00 € | 74.0% | 30.0% |
| 2019 | 2.77 € | 4.30 € | 72.0% | 60.0% | 172.40 € | 271.00 € | 75.0% | 42.0% |
| 2020 | 2.77 € | 4.30 € | 88.0% | 79.0% | 172.40 € | 271.00 € | 75.0% | 51.0% |
| 2021 | 3.91 € | 5.90 € | 73.0% | 67.0% | 158.60 € | 249.20 € | 97.0% | 64.0% |
| 2022 | 3.97 € | 5.97 € | 82.0% | 79.0% | 213.00 € | 334.70 € | 74.0% | 53.0% |
| 2023 | 3.94 € | 5.94 € | 94.0% | 87.0% | 213.00 € | 334.70 € | 80.0% | 58.0% |

Appendix 12.2: R Script

```

#mapping out the payout percentages over the years in PROW 2014–2020 for priorities 4 and
5
library(readxl)
library(ggplot2)
library(dplyr)
library(tidyr)

PROWdatatable <- data.frame(
  Year = 2015:2023,
  P4_pct_contracted = c(15.0, 29.6, 42.0, 60.0, 72.0, 88.0, 73.0, 82.0, 94.0),
  P4_pct_paid = c(2.5, 18.2, 31.0, 46.0, 60.0, 79.0, 67.0, 79.0, 87.0),
  P5_pct_contracted = c(65.0, 64.2, 69.0, 74.0, 75.0, 75.0, 97.0, 74.0, 80.0),
  P5_pct_paid = c(0.3, 9.1, 18.0, 30.0, 42.0, 51.0, 64.0, 53.0, 58.0)
)
#making it plottable
PROW_data_long <- PROWdatatable %>%
  pivot_longer(cols = -Year, names_to = "Metric", values_to = "Percentage") %>%
  arrange(Metric, Year)

# renaming metrics to make the legend look understandable
PROW_data_long <- PROWdatatable %>%
  pivot_longer(cols = -Year, names_to = "Metric", values_to = "Percentage") %>%
  mutate(Metric = recode(Metric,
    "P4_pct_contracted" = "Priority 4 Contracted",
    "P4_pct_paid" = "Priority 4 Paid",
    "P5_pct_contracted" = "Priority 5 Contracted",
    "P5_pct_paid" = "Priority 5 Paid")) %>%
  arrange(Metric, Year)

#plotting

# Define your custom colors
custom_colors <- c(
  "Priority 4 Contracted" = "blue",
  "Priority 4 Paid" = "lightblue",
  "Priority 5 Contracted" = "green",
  "Priority 5 Paid" = "dark green"
)

# Define linetypes
custom_linetypes <- c(
  "Priority 4 Contracted" = "solid",
  "Priority 4 Paid" = "dashed",
  "Priority 5 Contracted" = "solid",
  "Priority 5 Paid" = "dashed"
)

# Plot
ggplot(PROW_data_long, aes(x = Year, y = Percentage, group = Metric)) +
  geom_line(aes(color = Metric, linetype = Metric), linewidth = 1.2) +
  geom_point(aes(color = Metric), size = 2) +
  scale_color_manual(values = custom_colors) +
  scale_linetype_manual(values = custom_linetypes) +
  labs(
    title = "Delays in Green Payment Payouts under Polish CAP 2014–2020",
    x = "Year",
    y = "Percentage",
    color = "Legend",
    linetype = "Legend"
  ) +
  theme_minimal(base_size = 14) +

```