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Old MacEurope Had a Farm

Establishing determinants for the allocation of Common Agricultural Policy funds

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Abstract

This thesis is an attempt to refresh the research done on the indicators for the allocation of Common Agricultural Policy funds. The European Union has changed its formation, structure and institutions over the past decades but the research on CAP hasn't been updated along with it. This thesis borrows from the multi-level governance theory and molds the idea of the "winners-" and "losers of EU integration" debate into expectations for the predictive powers of various variables. These variables simulate two theories which have been predominant in research which has been previously done for the Common Agricultural Policy: the theory of need and the compensatory theory. The total area used for agriculture, the number of farms and GDP per Capita will represent the theory of need whilst the compensatory mechanism is simulated through a public opinion form of euroscepticism and a variable which calculates the net contribution to the EU budget to the EU budget. Key results for the thesis and improvements to the existing literature are the establishment for the net contribution to the EU budget variable, agricultural employment and GDP per Capita as predictors of CAP allocations and establishing the strength of the EU's official allocation criteria for the CAP. Furthermore, for the first time the NUTS 2 regions have been included in research concerning CAP funding as a unity of analysis, leading to more statistically sound conclusions than what would otherwise be the case.

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Introduction

The Common Agricultural Policy (or CAP) commands almost half of the European Union budget[1], a hefty sum. Its purpose is straightforward: to enable European farmers to increase productivity of high-quality foodstuffs at decent prices and to ensure European food security[2]. The CAP is one of two redistributive funds in the European Union budget and is negotiated for a seven-year framework but the exact settlements are determined per year. For this reason the allocation of funds is able to vary per member state significantly every year. The EU publishes its official criteria on its websites and contends that any funding is in accordance with these guidelines. The purpose of this thesis is to test the official CAP criteria and to find out if there is a variation in the allocation of funds which cannot be attributed to these criteria.

There are scholars which have researched the effects of certain variables on the allocation of CAP funds before but their data is quite old and circumstances in the European Union have changed. Olper (1998) concerned himself with factors which could explain that varying agricultural protection levels make it more likely for member states to receive more CAP funding than others. Downside to his contributions to the current CAP debate is that it is data from 1975 to 1989: its conclusions might not be outdated, but the data is. Likewise, Carruba 1997) has (attempted to capture financial side-payments (CAP can be classified as such) as a method for smoothing over the EU integration process. Members which are least satisfied with further integration are more likely to be appeased with financial transfers than more satisfied member states. However, as with Olper's work, Carruba's article focuses on data from the 70's until 1991. Again, his conclusions may still be relevant, his data is not.

This thesis refreshes the research on existing determinants and introduces new factors in order to explain the variance in CAP funding. Since the 1990's several new financial frameworks, EU reforms and treaties have been introduced whilst many new members have joined the European Union. Since many of the conclusions on "proven" determinants of CAP allocations have been published agriculture-heavy countries such as Greece, the Czech Republic and Poland have joined. Another large change as a result of the addition of the EU-15 (the latest member state additions in 2004) is the gap in welfare in the EU, leading to new tensions in EU funding as a whole. It is not only the new states which have caused a change in the EU, a reason to refresh existing research is also that the economies and agricultural sectors of the European member states alter per year, let alone over a period of twenty years.

[1] http://ec.europa.eu/budget/figures/interactive/index_en.cfm
[2] http://ec.europa.eu/agriculture/cap-overview/2012_en.pdf

The thesis revolves around two theories which have previously been applied to the European Union's redistributive policies. These state that EU funds are often used to compensate members for political loss or these funds can be used as a way to distribute wealth: the former being the "compensatory mechanism-theory" and the latter being the "theory of need". These theories are a result of the perception of being a "loser" or "winner" of European Union integration, a perception strengthened by the emergence of multi-level governance in which new levels of governance have emerged which have begun to undermine central domestic governments. "Losers" of EU integration are generally correlated with relatively poor areas in Europe and perceive the EU as a main contributor to this poverty. A contention of this thesis is whether the CAP is used purely to serve agricultural needs or if it is also used as a manner of rectification to the "Losers": a form of compensation.

"Need" is a theory which has been previously used to capture the variance in Regional Policy. There are member states and regions which simply need the agricultural funds to support their farmers and domestic agricultural economy. The "need" theory is simulated through three variables: number of farms, agricultural employment as a percentage of member state/ regional employment and GDP per Capita, and can be split into two dimensions, the need for finance and the need for agricultural support. The reason this split is made is because member states which receive more CAP funds than other member states may not receive these funds because they might have more farms, but because they are just simply poorer than other member states. Adding another dimension to the "need" theory controls for this eventuality.

Alternatively, European Union funding has been classified by some as a compensatory mechanism (Carruba 1997; Olper 1998). The member states which feel disgruntled and are upset with the influence which the EU is having on domestic policies are seen to be pacified by EU funding, or rebates in the case of Denmark and the UK.[3] The CAP could be an ideal method of redistribution to this end, and in this thesis I will attempt to simulate the compensatory mechanism in the form of two variables: euroscepticism and net-budget contribution to the EU. The former is a political reason for compensation in that the EU could attempt to pacify public opinion in member states which are generally opposed to the idea of EU integration, whilst the latter is a form of financial compensation. These variables will be discussed more extensively in the section which outlines the research design.

[3] http://news.bbc.co.uk/2/hi/europe/4721307.stm#howbig

This thesis commences with a literature review in which an overview of previous research on this topic is presented. Beyond the literature review is the theoretical framework in which the background theory of multi-level governance is described. Additionally, this theory is then argued to be related to the idea of "winners" and "losers" of EU integration. Resulting from this examination is the proposition that a debate between theories of "need" and the "compensatory mechanism" dictate the allocation of CAP fund. Hypotheses are subsequently drawn from these theories and are proposed for each of the tested predictors of CAP funds allocation. Following the hypotheses is the research design in which the theories discussed in the theoretical background are transmuted into variables which can be tested for causal effects. Additionally, the general framework of the data collection and processing will be describes. In the data analysis the findings for the regression analyses, the relationships between CAP allocations and predictor variables, are established and discussed. Concluding my thesis will be a short summary of what was intended in this thesis and highlights of the key findings. A part of these findings will be the limitations of this thesis, how it could have been improved, its implications and the effects on the potential for future research.

Explaining the Variance in the CAP

In this review an analysis is given of how other authors have tackled the task of explaining the variance in CAP funding and an analysis is done for the explanations offered by academics for the variance in the other large redistributive policy of the EU, the Regional Policy. It is important to not get too caught up with the CAP itself, but instead one must step take a step back and examine what some of the motivations are behind the EU's financial policies are as a whole. The predominant explanations offered stem from two theories: the theory of need and the compensation theory, with both theories constantly seeming to revert back to the idea that CAP allocations have to do with "losers" of EU integrations.

The official explanation offered by the European Union is that CAP funds are allocated to beneficiaries based on need: the member states which have the most land used for agricultural will generally receive the most CAP funds. Because of their apparent sincerity it is curious that this variable has not previously been used as a control variable for CAP allocation. This thesis distinguishes between two types of "need": the first is the agricultural need, which the EU's official criteria fulfills. However, there are many other variables which have to do with agriculture such as the amount of farms in a member state, or the number of employees in the agricultural sector.

The number of farms in a member state or region seems like a perfectly normal explanation for the allocation of CAP funds. It seems logical that the more farms there are in a certain area, the more total utilized area for agriculture there will be which in turn should correlate highly with the allocation of CAP funds. Olper (1998) rejects this reasoning, and has determined that the relationship is actually negative. According to his results the number of farms in a member state actually decreases the amount of CAP funds each member state receives. However, his data denies the entrance of farms under one hectare into the sample size. Olper does not give a direct explanation for this, but claims that the number of farms is used as a proxy variable for the national farm lobby and the political cost of protection (Olper, 1998: 473). Perhaps a proxy for the national farm lobby simply excludes very small farms. In this thesis farms under one hectare will not be denied for my sample size for the simple reason that many farms would be excluded and a great deal of the explanatory power of the "number of farms" variable may be lost. Jonsson (2007) supports the results attained by Olper, in that the number of farms has a very small negative effect on the allocation of CAP funds.

Besides a "need" for agricultural subsidies due to the high amount of farms or the total area for agriculture, there is also a financial "need" due to a region just simply being relatively poorer than other regions which can be expressed in the form of welfare variables. Munk (2004) utilizes a variation of welfare economic theory, the public economic theory, to express the allocation of CAP funds in terms of such a financial need. According to Munk, the extent of agricultural support is a function of net-agricultural trade (exporters would receive more than importers, due to their dependence on the agricultural sector) and the level of difference between the income of a farmer and a non-farmer in the same country (Munk, 2004: 1). Olper (1998) finds similar results, showing that intra-EU trade is a very good predictor of CAP protection by the EU, and furthering the argument that smaller member states, in terms of its agricultural sector, are more likely to receive CAP funds than larger smaller member states (1998: 480). Mikko Mattilla broadens Olper's argument and argues that smaller member states indeed receive more funds than larger states due to overrepresentation in EU institutions (Matilla, 2006: 1). Peter Nedergaard (2005) rejects the arguments by Munk and Olper that functions of need play a role in determining fund allocations. He claims that if the income of a farmer was relevant to CAP allocations, the top 20% of the richest farmers wouldn't receive 80% of the funding (Nedergaard, 2005: 7; Jonsson, 2007: 1).

Instead Nedergaard looks to the logic of collective action and the strong agricultural lobby to explain how agricultural subsidies are extracted from the EU. Unfortunately, Nedergaard does not test this argument (2006: 401). Jonsson (2007), however, does test for collective lobby initiatives by farmer interest groups. He claims that the so called "Euro-groups", which are lobbying groups with an EU-wide member base, solve the collective action problem which exists in EU agriculture in that lobbying for higher prices for beef in France will also lead to higher prices for beef in Greece, resulting in free riding. He denotes that the number of firms and the size-heterogeneity of commodities producers will increase the motivation to lobby for agricultural funds (2007: 5-6). Jonsson argues that the more firms there are, the less clear it is to what extent an individual lobby firm is having an effect on the lobbying effort, increasing the likelihood of freeriding and transaction costs. With greater heterogeneity for the size of lobbying firms, Jonsson argues, the lobbying effort will also improve, because then at least the larger firms will lobby (2007: 6)

One of the most common explanations amongst scholars for the allocations of CAP, Structural Funds and the EU budget in general is the "compensatory mechanism". This explanation suggests that the redistributive funds of the EU exist partially to compensate perceived "losers" of EU integration. Olper (1998) explored the effects of countercyclicity and how it incurs compensation to these "losers". Countercyclicity is a phenomenon which describes a situation when agricultural protection, CAP funding, increases when national market conditions are actually against agriculture. Markets with a comparative disadvantage generally receive more funds than markets with a comparative advantage in agriculture (Olper, 1998: 481). As a result, Olper suggests that allocation of CAP funds is a compensatory mechanism which benefits the "losers" of European Union integration (Olper, 1998: 1). How Olper's theory fits in with the official EU criteria for allocating CAP funds is somewhat confusing as market conditions against agriculture would imply less total area used for agriculture, leading to less CAP funds.

Another feature of this compensatory mechanism is that the CAP is utilized for side-payments to "smooth over the integration process" of the European Union (Carruba, 1997: 1). Carruba claims that politics plays a larger role in explaining CAP funds than the traditional claim of need (Carruba, 1997: 1). He describes a process in which national elites are faced with the dilemma of further European integration. This dilemma is generated by the risks of short- and long-term economic difficulties due to the economic climate not being harmonized with that of the EU on one side and the potential gains of a tariff-free zone on the other. Carruba suggests that "financial transfers can be used to overcome such government recalcitrance by

providing an avenue through which those countries desiring further integration can make side-payments to those opposed to it" (Carruba, 1997: 470). Carruba explains that this avenue consists of the two redistributive policies of the EU and asserts that the side-payments are not a result of economic need, but indeed to smooth over the EU's short-term integration process.

Kemmerling and Bodenstein (2006) further the discussion on the compensatory mechanism by introducing a combination of Carruba's and Olpert's arguments when suggesting that euroscepticism, the political offspring of the "losers" of EU integration, is a cause of varying funds allocation. They assume that eurosceptic parties are generally parties which represent the people who feel like they are "losers" of economic integration (Kemmerling & Bodenstein, 2006: 377). Due to this, it is reasonable to think that these parties play a role in acquiring compensation in return for an easing of their eurosceptic voice. Chalmers (2013) and Bouvet and Dall'erba (2010) reject Kemmerling and Bodenstein's (2006) work, as they found no convincing evidence that "losers" of integration are structurally compensated for their "losses". Instead, they offered the principle of additionality and party ideology at the regional level as significant variables in explaining the variance in Structural Funds. The principle of additionality is insisted upon by benefactors, requiring that a certain value of the structural funds are matched by the receiving region. The CAP does not have the principle of additionality, so this theory cannot be attributed to the varying value in CAP funds allocation.

An explanation which has garnered increasing support is the role of member state representation in the EU institutions. Rodden (2002) suggests that overrepresented member states in the European Union are advantaged in the allocation of Regional Policy and CAP funds. He reveals that there is a strong relationship between the voting power each member state has, and transfers per capita during the 1977-1999 period (Rodden, 2002: 171). Larger states that stand to gain much by further European integration are generally willing to cede portions of their voting power to the smaller member states in the process of policy negotiations. Kandogan (2000) agrees with Olper that relatively smaller nations will receive more EU funding than larger nations, this being for a different reason than the one Olper offers above. Kandogan, like Rodden, claims the distribution of voting power to be a determinant of EU fund allocations, which stems from the days when voting powers were based without budgetary concerns in mind (2000: 701).

Kauppi (2006) expands on this research and zooms in on the voting distribution in the Council of Ministers, the key decision maker concerning spending, to explain allocations of the total EU budget. In his research Kauppi examines the impact of voting rules before and after the EU-15 enlargement. The theory of need is tossed aside as Kauppi assumes that member

states in the Council of Ministers will do as much as they can to send funds "back home", suggesting as a result that *power politics*, in the form of voting power should have a larger effect on the allocation of funds than the need for those funds. Mattila (2006) agrees with these conclusions and manages to pinpoint more accurately what it is about the voting power that manages to direct fund allocations. He argues that the effect of this overrepresentation by smaller states (due to voting procedures in the past) are only discernable on the revenue side of the budget, and not on the expenditure side (Mattila, 2006: 1). Essentially, the conclusions reached for voting power as a determinant of EU funds allocation is that EU member states may not be able to negotiate cost-cuts very easily, but instead manage to influence where the money *does* go. This certainly gives way to the idea that the official CAP criteria certainly isn't the only determinant of CAP funds allocation.

Multi-Level Governance and "Losers" of EU Integration

Multi-level governance is a theory which attempts to explain the process of European integration as the result of the combination of sub-national, national and supranational decision making (Hooghe & Marks, 2001: 1). While proponents of multi-level governance do not deny that national governments play a large role in the international relations, they do argue that the extent to which supranational organizations are able to function autonomously is extensive (Hooghe & Marks, 2001: 2) and growing as evidenced by research on the spillover effect (Jensen, 2010: 75). The alternative approach to multi-level governance, the state-centric model, argues that supranational organizations are functional institutions: the EU exists to serve the needs of the national governments. These "intergovernmentalists" do not claim that every detail in the negotiation process is steered by national governments, but the general direction of the supranational organization is (Hooghe & Marks, 2001: 2).

Regardless, the relevance of the regions can be simply expressed in terms of presence: subnational regions have increasingly set-up offices in Brussels (Huysseune & Jans, 2008: 1; Hooghe & Marks, 1996: 1). It is no secret that integration into the EU is simultaneously allowing for more autonomous regions in that they are given an avenue to bypass their central governments (Tatham, 2010: 1; Tatham, 2008: 511). Claiming that regional representation is already on par with the national and supranational level in the field of decision making is far-fetched, but regions are undoubtedly becoming more relevant at the expense of their central governments. Scholars are increasingly aware of sub-national interests becoming more important for supranational legislation (Neshkova, 2010: 1208). Marks (1993) classifies neo-

functionalists and intergovernmentalists as short-sighted because of their inability to grasp the emergence of subnational governments as actors at the supranational level. He suggests that multilevel governance, and the EU's insistence on the subsidiarity principle, is enabling regions to have a relevant say in the day to day financing and politics of the European Union (Marks, 1993: 407). For this reason it can be stated that while the member state remains the predominant force in directing CAP negotiations, it can be expected that the region's influence exists and will continue to grow in the future.

It is exactly this influence which can easily allow various parties to reach the CAP negotiation table. Clark & Jones (1998) suggest it is the nature of multi-level governance to allow lobbyists, regions and member states to exert influence on EU institutions. By enabling different levels of governance, the EU has also enabled those levels the opportunity to compete politically and financially. Marks points out that through "dispersed competencies, contending but interlocked institutions, and shifting agendas, multi-level governances opens multiple points of access for interests" (2001: 26). The EU itself has made its niche as a supranational institution, in which legislative spillover is in effect and further integration is ongoing. The idea of integration has laid at the heart of the European Union since its inception, its goal being to unite the European states in wedlock. As a result, the domestic policies have started to be challenged "from above through new forms of international cooperation and a process of supranational integration" (Kriesi et al., 2008). Obvious examples are the 3.0% budget deficit mark which all EU member states must adhere to, which have been met with fierce resistance from the public and parliament as of late. This budget criterion is a direct result of the economic and legislative interconnectedness caused by EU integration, a process which is increasingly dividing national and sub-national politics.

This division is more commonly referred to as the divide between "winners" and "losers" of globalization, or in this case EU integration (Kriesi et al., 2008: 4). The "losers" of EU integration generally feel as if the quality of life has lessened due to the emergence and harmonization of EU states, whilst the "winners" generally experience the benefits of such integration. Are the theories offered previously, of "need" and "compensatory mechanism" not simply outcomes of further integration? The idea of a financial need for CAP funds is the financial competition which Kriesi assumes increases with increasing globalization (2001:5). It stands to reason that poorer regions will be more likely to depend on the agricultural sector than richer regions which are more likely to focus on the car industry, high-tech manufacture or services. If this is the case, then we should see the agricultural and welfare variables playing a role in explaining some effect for the allocation of CAP funds.

The "total utilized area for agriculture" variable mirrors the objective criteria[4] setup by the European Union for the distribution of CAP funds to the member state. In order to simulate the objective criteria by the European Union this thesis includes the total utilized land for agriculture as a variable, because the Single Payment Scheme and Single Area Payment Scheme both utilize this data to establish the distribution of funds to the EU member state. The aforementioned schemes are the names of the guidelines used to allocate funds, according to the European Union. One expects that the more land that is utilized for agriculture, the more CAP funds the region/member state receives. In other words, the more a region/member states adheres to the CAP criteria, the more CAP funds it receives.

H1: Regions / member states with more total utilized land for agriculture will receive more CAP funds than regions / member states with less total utilized land for agriculture.

The variable which quantifies the "financial need" of regions and member states is the Gross Domestic Product per Capita. To what extent does the necessity for CAP funds explain the variance in the actual allocation of CAP funds? One would expect that the regions with lower levels of GDP per capita will need the funding more than regions with higher levels of GDP per capita because they are simply poorer. Furthermore, countries which have lower GDP per Capita are also usually the countries which depend the most on its agriculture. Essentially, this variable should be somewhat similar to the previous variable.

H2: Regions with a higher GDP per capita will receive less CAP funds than regions with a lower GDP per capita.

An alternative "need" variable is the amount of farms regions and member states have. Like with the previous variables it stands to reason that the more a region or member state is focused on agriculture, the more CAP funds it receives. Despite what Olper (1998) suggests about agricultural markets being counter-productive towards receiving CAP funds, it seems logical that the amount of farms is to some extent correlated with how many hectares of farmland a member state/region has, which is the guiding criteria for receiving CAP funds. Furthermore, Olper's data for number of farms is, firstly, quite old meaning that his conclusions might be outdated and secondly, that the data he used excludes farms under hectare. According to a census provided by Eurostat the number of farms under two hectares are staggering. Nearly, 11.3 million farms in 2010 and 12.9 million farms in 2007 were under the two hectare cut-off

[4] http://ec.europa.eu/agriculture/direct-support/pdf/factsheet-single-area-payment-scheme_en.pdf (SAPS)

point: that is quite a large number of farms. Even if only third of these farms are under one hectare, the results for this variable can be much different than the conclusions reached by Olper. By denying small farms entry to the sample size one diminishes the normal distribution, leading to lower generalizability and possible forego predictive power. It might be that the effect of smaller farms on the explanatory power is quite large.

H3: Regions and member states with more farms will receive more CAP funds than regions and member states with less farms.

The last variable to simulate the theory of an agricultural "need" is the percentage of agricultural employment of a region or member state's total employment. As with the last two variables, the more a region or member state focusses on agriculture the more likely it seems that the regions or member states receive agricultural funds. The difference between the other variables is that this variable focuses on employment, instead of purely finances (GDP per Capita) or purely agricultural needs (number of farms). Despite Olper's suggestion that small agricultural markets are supported by CAP more often than large agricultural markets, the theory that the more farmers work in a region relative to other employees, the more CAP subsidies that region will receive. Brussels steadily acknowledges that farmer's salaries have increased and farms have become more efficient, leading to the obvious conclusion that CAP is generally a positive policy for farmers[5]. If farmers are indeed "winners" of CAP, we should expect to find that the presence of farmers has a significant effect on the allocation of CAP funds.

H4: The regions or member states with a higher percentage of agricultural employment as total employment will receive more CAP funds than regions or member states with a lower percentage of agricultural employment as total employment.

The discussion on the relationship between Kriesi's theory of "winners" and "losers" is not solely applicable to the theory of "need" as a result of financial competition, but is also applicable to its political counterpart. The compensatory mechanism is largely the fruit of increasing supranational, national and sub-national political competition (Kriesi, 2001: 3). Increasing socio-economic and socio-cultural tensions "at home" are projected onto the supranational stage by citizens and domestic politicians. A possible response by the EU is to subdue this unrest by giving in to public opinion. In any case, if a member state is perceiving

[5] http://ec.europa.eu/agriculture/cap-overview/2012_en.pdf

itself to be a "loser" of EU integration it will probably seek compensation for this loss, such as rebates[6].

The Common Agricultural Policy as a compensatory mechanism has gained momentum amongst European Union academics. The idea behind the euroscepticism variable is that member states which are unhappy with EU policies are compensated for their grief. Kemmerling and Bodenstein (2006) qualified euroscepticism as a significant influence for the allocation of Regional Policy funds, whilst Bouvet and Dall'erba (2010) and Chalmers (2013) rejected this proposition instead opting for party ideology and additionality as relevant factors for the allocation of Regional Policy funds. This thesis will however not rule out the possible effect of euroscepticism because it hasn't been proven for the Regional Policy. Euroscepticism is bound to be more relevant to the Common Agricultural Policy than Regional Policy because it has been shown by the EU itself that citizens of the EU are more negative about the CAP than of Regional Policy (ECa, 2010; ECb, 2010). Whilst more people are aware of CAP (41%) than Regional Policy (36%), a very large majority (47%) is not convinced that the EU should be securing their food supply, whilst 76% of the people who are aware of the Regional Policy also find the policy to be a positive aspect of the EU. What would any institution do to convince politicians and citizens that the institution is good for them? Perhaps allocating them more resources is a factor.

H5: Member states with higher values for euroscepticism will receive more CAP funds than member states with lower values for euroscepticism.

The "net contribution to the EU budgets", the net result of a member state's payments to and income from the European Union minus the agricultural subsidies is a variable based on finances and thus is a more tangible variable than "euroscepticism" for testing the compensation theory. Carruba (1997) has pointed out that the redistributive policies of the European Union are avenues through which financial net-losers of further EU integration are compensated. This thesis assumes that member states are indeed self-interested in that they are primarily interested in maximizing their benefits from the EU budget and minimizing their costs, an assumption which is not unusual (Ackrill & Kay, 2006: 116). Whether or not the effects of "net contribution to the EU budgets" on CAP allocations is based on eurosceptic feelings or plain financial correctness is not very important because the fact remains that if it is found that net-losers

[6] http://news.bbc.co.uk/2/hi/europe/4721307.stm

generally do receive more CAP funds than net-winners, we can suggest that the CAP is indeed used as a compensatory policy of sorts.

H6: Member states which pay more to than receive from the EU budget will receive more CAP funds than member states with more income from than payments to the EU budget.

Research Design

In this section the key concepts and theories will be transformed into variables. Part of this transformation involves explaining how the newly created variables are to be operationalized and tested. Additionally, in this section the data collection, case selection and method of analysis will be examined and justified. Concluding each variable is a description of the scale for the variable. Understanding the scale of a variable is essential for understanding the implications of the regression coefficients which are read as "a unit increase in <Independent variable> causes an increase/decrease in the allocation of CAP funds", because the magnitude of the unit's effect depends on the scale of the variable itself. The framework of the EU's agricultural policy is negotiated every seven years as part of its financial framework as a whole. Currently negotiations are ongoing concerning the new financial framework for 2014-2020. As a result, this thesis will be utilizing the financial framework for 2007-2013 instead. The figures which are negotiated are considered "ceilings", and are used as guiding figures for each year. Whilst the framework is negotiated for an extend period, the funding for each year is negotiable allowing for a certain manner of flexibility in the allocation of CAP funds. For this reason this thesis has divided the financial framework into five years spanning from 2007 to 2011. The data for 2012 and 2013 are not yet available to the public, so they could not be included in the analyses. Primarily the funds are allocated to the member states but ultimately, these CAP funds are allocated to the NUTS 2 regional level.

In this thesis multiple regression analyses are performed in order to be able to assess the relationships between the various independent variables and the allocation of CAP funds. Regression analyses offer results on the direction of the relationship (linear or inverse), they offer a measurement of the independent variable's role in the explained variance of the dependent variable's values (R^2) and also presents the strength of the relationship in the form of "an increase in the dependent variable leads to an increase in the allocation of CAP funds" (Beta-coefficient). As stated previously, this thesis focuses on the years 2007-2013 for which the regression analysis is done for every variable for every year, if possible. Special relationships between variables are tested further with a simple correlation test in order to perform a double check for regression results. Correlations can be useful if interpreted correctly,

but generally are avoided because they do not display causal relationships. However, as stated previously, correlation analyses can aid in explaining relationships between variables which seemed strange in the regression analyses.

The variables in this thesis were not only tested and analyzed for the member states but *also* for the NUTS 2 regional level. The NUTS categories are a denomination used by the EU to divide the territories of the member states[7]. NUTS 0 are the member states, NUTS 1 are the major socio-economic regions such as west Netherlands or France Est and NUTS 2 are the regions, such as Groningen or Lorraine, which are relevant for regional policies. Member states are an aggregate of NUTS 2 regions, so why bother with its regions? The results of this thesis show that some variables for member states are statistically non-significant. With the information for NUTS 2 regions the variables become statistically significant, meaning this obstacle is overcome. Why then aren't only the NUTS 2 regions used as the unit of analysis? Not every variable has data available at the NUTS 2 level. An additional reason for utilizing both units of analysis instead of just member states is that the more cases available for testing, the better it is for the generalizability of the results. One of the aims of this thesis is to add a degree of thoroughness to the existing research by adding the NUTS 2 regions as a unit of analysis.

Total utilized area for agriculture

There are two models of officially allocating CAP funds. For the members which joined before 2004 these criteria are "historic": how much farmers receive depends on the direct aid they received in the 2000-2002 period and the amount of land used for agricultural purposes. For the countries which joined the European Union after 2004 the criteria is the amount of hectares of farmland[8]. Eurostat provides data on this variable per NUTS 2 region and member state. Total utilized land for agriculture is used as a control variable in this thesis. Data for this variable was gathered for the years 2007 and 2010, for both member states and the NUTS 2 regions. The data for this variable is subject to a multi-annual census done by the European Union, so unfortunately not every year is available. The mean value for this variable for the member states in 2007 is 6.38 million hectares while the standard deviation from this mean is 7.7 million hectares, with the largest total for utilized area for agriculture being 27.4 million hectares. The scale for 2010 is roughly the same with a mean of 6.35 million hectares and a standard deviation of 7.5 million. For the NUTS 2 regional level the mean total area for

[7] http://epp.eurostat.ec.europa.eu/portal/page/portal/nuts_nomenclature/introduction
[8] http://ec.europa.eu/agriculture/faq/index_en.htm

agriculture is 925 thousand hectares with a standard deviation of 1.04 million whilst the maximum value for the total area being 5.4 million.

Gross Domestic Product per Capita

The data for Gross Domestic Product per Capita attempts to mimic the "financial need" theory in order to explain the allocation of CAP funds. The data for this variable was gathered from 2007 to 2010, as the data for 2011-13 was not available. The GDP per Capita data was gathered for both NUTS 2 regions and member states, which can be found via Eurostat[9]. For member states and NUTS 2 regions alike the mean value was constantly around €23,000 euros, the maximum for each year encompassing exactly €78,000. The standard deviation floated between €16,000 and €11,000 for the years 2007 to 2011 indicating quite a good distribution of cases throughout.

Number of Farms

The number of farms has proven to be a predictor of CAP funds received (Jonsson, 2007: 12; Olper, 1998: 1). The data for this variable can be collected via the European Union statistics office, Eurostat[10], for the NUTS 2 regions and member states. Data is only gathered roughly per three years, 2007 and 2010. The census is not done by the EU every year, so the data for 2011-2013 is not available yet. Additionally, the "number of farms" does not have a normally distributed sample size. In order to be able to conclude anything about the ability for the number of farms to determine the allocation of CAP funds, its sample size should be normally distributed. This was done using SPSS, using the Log function. What this function does is automatically add or subtract a certain number to/from the existing values for "Number of Farms". For some reason, the values for this variable caused skewing on one side of the data which can be observed primarily through histograms. Any time an S-shaped histogram exists it should be fixed using the Log function in order to achieve an upside down U curve signifying a normal distribution of the population sample. This was done for the number of farms in order to be able to generalize its results. The mean number of farms in 2007 and 2010 is 504 and 435 thousand, whilst the member state with the largest amount of farms has over 3.9 million farms in 2007 and 3.7 million in 2010, whilst the standard deviations are 881 thousand and 785 thousand, respectively. These figures are much lower for the NUTS 2 regions, obviously, for which the mean is 34,512 for 2007 and 30,521 for 2010. The standard deviations for both years

[9] http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tgs00005&plugin=1
[10] http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home

are 47,220 and 42,044 which indicates that the distribution of the data for this variable isn't very good. It is for this reason that I have Logged the variable into a normal distribution.

Percent of Agricultural Employment of Total Employment

The percent of total employment as agriculture simulates the "agricultural need" principle, discussed in the previous sections of this thesis. Whilst the GDP per Capita simulates the financial need, this variable attempts to show the effect of agricultural employment on the allocation of CAP funds. The data for total national employment and employment in the agricultural sector can be found in Eurostat which are ultimately presented as percentages of total national employment in the data set. A result of 3.5% would mean that 35 per 1000 workers in Poland, for example, work in the agricultural sector. Data was gathered for both the regional and member state level for the years 2008-2011. Using SPSS this variable was found, like the "number of farms" variable, to be not distributed normally. This was accounted for and adjusted using the Log function in SPSS. The scale for the agricultural employment as a percentage of total employment consists of a mean of 0.05 (5%) for all years except for 2011 in which the mean is 0.06, with the standard deviations mirroring these scores for every year. The average score and standard deviations for the NUTS 2 regions float between 0.02 and 0.04, with a maximum score of between 0.11 and 0.14 per year.

Euroscepticism

The first variable to capture the CAP as compensatory mechanism is the extent of euroscepticism in each member state. Whilst the net-budget variable simulates the financial causes for compensation, the euroscepticism variable seeks to simulate the political cause for compensation. The data for this variable is based on the Eurobarometer from 2007 to 2011. In the Eurobarometer EU citizens of each member state were asked to what extent they perceived the EU membership of their country to be "a good thing", "a bad thing", "neither good nor bad", whilst also leaving a possibility for "do not know"- answers. The percentages for "a bad thing" have been indicative for the extent of euroscepticism in previous research (Bouvet and Dall'erba 2010; Chalmers 2013) and is also used as such in this thesis. This data has only been gathered for the member state level, for which the mean score per year from 2007 to 2011 is 13.25(%), 12.92, 13.07, 16.37 and 17.66. The standard deviation for this variable does not drop below 6.50 and does not exceed 6.76 for any of the years.

Net contribution to the EU budget to the EU budget

The net contribution to the EU budget to the EU budget is the second variable attempting to explain the allocation of CAP funds in terms of the compensatory theory. This variable attempts to capture what Carruba (1997) found in his research concerning the use of net-transfers as payments to smooth over the EU integration process. His research is conducted for 12 member states over a period of 13 years. Carruba uses his results to claim that financial compensation surely exists within the EU to stimulate political inclusiveness. This "net contribution to the EU budget" variable is the total contribution of each member state to the EU, minus the income received from the EU and minus the total agricultural subsidies. The resulting amount is how much money the EU is costing or benefiting each member state, if the agricultural subsidies did not exist. By doing this, the allocation of CAP funds can essentially be seen as a financial transfer to the member states. Whilst "euroscepticism" attempts to capture the political aspect of the EU, the "net contribution to the EU budget" to the EU budget attempts to imitate the financial aspect of compensation. The data for this variable was found by downloading the .csv data from the European Commission website[11]. Data for this variable was gathered for the years 2007-2011. A negative value means that the member state is contributing more to the EU budget than it is receiving, a positive value means that the member state is receiving more from the EU budget than it is contributing. The means for 2007 through 2011 are extremely constant floating between €-2.15 million and €-2.35 million. The maximum values for each year range from € -16.132 million to € -18.886 million, whilst the minimum values range from 1.864 million to 6.568 million.

Allocation of Common Agricultural Policy Funds

The dependent variable in this thesis, the allocation of Common Agricultural Policy funds per region is relatively straightforward. In order to operationalize this concept I have acquired data on how much funds each region has received via the CAP. This involves contacting the ministries of Agriculture of every EU member state and inquiring about their CAP income from 2007 to 2013. A majority of the member states which responded had the data for the NUTS3 regions (usually the equivalent of a district or *gemeente*) and some even had the data for LAU1 (a sub-region, usually a town, of a NUTS3 region). In order to get the data for the NUTS 2 regions, I kept adding LAU1 regions up to NUTS3 regions, and subsequently adding the NUTS 3 regions up to NUTS 2 regions. I have as a result collected data for both the

[11] http://ec.europa.eu/budget/figures/interactive/index_en.cfm

NUTS 2 regions and the member state level. Unfortunately, due to lack of response the number of cases collected for the NUT 2 regions never exceeds the high 70's, but never drops below a total of 63 cases.

Frequency Table 1: Member State Level

Member State	2007			2008			2009		
	Mean	Std. Dev	Min Max	Mean	Std. Dev.	Min Max	Mean	Std. Dev.	Min Max
Utilized Agricultural Area (ha)	6,385,100	7,714,117	10,330 27,476,930						
GDP per Capita (€)	23,874	15,940	4,000 78,00	24,262	15,281	4,600 76,400	22,681	14,526	4,600 72,300
# of Farms	504,912	881,119	2,290 3,923,150						
% Agricultural Employment				0.05	0.05	0.01 0.29	0.05	0.05	0.01 0.29
Euroscepticism	13.25	6.76	5 30	12.92	6.68	6 32	13.07	6.57	3 32
Budget Net contribution to the EU budget (millions €)	-2.168	4.666	-16.132 1.864	-2.159	4.894	-17.628 2.742	-2.100	4.976	-16.211 3.261

Member State	2010			2011		
	Mean	Std. Dev.	Min Max	Mean	Std. Dev.	Min Max
Utilized Agricultural Area (ha)	6,355,715	7,544,622	11450 27837290			
GDP per Capita (€)	23,662	15,592	4,800 78,600			
# of Farms	435,415	785,829	2,180 3,724,330			
% Agricultural Employment	0.05	0.06	0.01 0.30	0.06	0.06	0.01 0.29
Euroscepticism	16.37	6.73	7 33	17.66	6.50	9 33
Budget Net contribution to the EU budget (millions €)	-2.357	5.652	-18.886 4.475	-2.167	5.723	-17.831 6.568

Frequency table 2: NUTS 2 Regional Level

NUTS 2	2007				2008				2009			
	N	Mean	Std. Dev	Min Max	N	Mean	Std. Dev.	Min-Max	N	Mean	Std. Dev.	Min-Max
Utilized Agricultural Area (ha)	76	925,468	1,044,287	10,330 5,471,310								
GDP per Capita (€)	78	23,071	11,810	2,700 78,000	78	23,793	11,808	3,00 76,400	78	22,747	11,329	2,900 72,300
# of Farms	76	34,512	47,220	270 254,290								
% Agricultural Employment					79	.03	.02	0 - 0.12	79	.04	.02	0 0.11

NUTS 2	2010				2011			
	N	Mean	Std. Dev.	Min Max	N	Mean	Std. Dev.	Min-Max
Utilized Agricultural Area (ha)	76	934,247	1,015,019	11,100 5,362,470				
GDP per Capita (€)	78	23,075	11,782	2,900 78,600				
# of Farms	76	30,521	42,044	60 242,020				
% Agricultural Employment	79	.04	.03	0 0.13	79	.04	.03	0 0.14

Determinants of CAP allocation in the EU

The following analyses are in the form of a regression analysis, which have been done to test for predictors of Common Agricultural Policy allocations. Firstly, a regression analysis has been done for the European Union member states, which follows all of the research that has been done on CAP allocations before. The problem with the previous research done for CAP determinants is the small sample size. The EU consists of 27 member states and has certainly grown in size since its creation, but is not growing fast enough in order to supply academics with a large enough sample size for accurate statistical research with regression analyses. One of my goals, as stated previously in the research design, is to test theories which have been attributed towards determining the allocation of CAP funds to member state. Attempting to improve existing research, a regression analysis has been done for the NUTS 2 regions in addition to the member state level. As stated previously, various variables for the member state level have been proven to be statistically non-significant but by utilizing the NUTS 2 regional level the sample size has been increased. A larger sample size means better generalizability possibly leading to more useful conclusions and implications. As stated in the research design in the previous section, two variables in the analysis were too skewed for the cases to be considered normally distributed. Having a sample size which is not normally distributed generally violates the statistical principle of realistic representativeness of a population. By no means are all the other variables perfectly distributed, but the data sets for the "percent of agricultural employment of total employment"-variable and the "number of farms"- variable needed to be adjusted.

Table 2: Regression Analysis	2007		2008		2009		2010		2011	
Member States										
Variables	**Regression coefficient**	**R^2 change**	**Regression coefficient**	**R^2 change**	**Regression coefficient**	**R^2 change**	**Regression coefficient**	**R^2 change**	**Regression coefficient**	**R^2 change**
Utilized Agricultural Area (ha)	154 (47)**	0.325**					186 (38) **	0.201**		
GDP per Capita (€)	21,263 (15,720)	0.012	3,878 (20,095)	0.008	-8,035 (18,503)	0.030	8,390 (12,909)	0.002		
# of Farms	533,677,483 (440,500,581)	0.444**					581,872,764 (474,396,099)	0.007		
% Agricultural Employment			1,796,038,184 (1,035,432,798)	0.038	1,375,833,784 (814,412,793)	0.010	-377,297,157) (884,829,605)	0.040	2,263,240,288 (942,497,669)*	0.098*
Euroscepticism	-5,973,441 (3,138,2344)	0.004	3,827,714 (40,200,180)	0.010	-26,801,867 (34,455,436)	0.060	-4,495,374 (26,229,378)	0.047	-26,312,593 (47,558,538)	0.004
Budget Net contribution to the EU budget	-0.206 (0.064)**	0.068**	-0.427 (0.058)**	0.664**	-0.448 (0.047)**	0.788**	-0.125 (0.051)*	0.650**	-0.355 (0.059) **	0.509**
Constant	-2,754,364,507		3,251,529,645 (1,181,202,063)		3,344,839,120 (961,942,605)		-3,198,472,526 (3,289,791,531)		4872410931 (1,613,873,114)	
Log likelihood										
Adjusted R2	0.829		0.669		0.772		0.884		0.560	
N	27		27		27		27		27	
NUTS 2 Regions										
Utilized Agricultural Area (ha)	251 (23)**	0.431**					345 (244)	0.001		
GDP per Capita (€)	-2,326 (1,898)	-0.018	-52,896 (17,117)**	0.191**	-22,756 (10,912)*	0.153**	-62,874 (19,381)**	0.232**		
# of Farms	13,882,669 (46,520,683)	0.384**					1,128,192,447 (497,963,902)*	0.052*		
% Agricultural Employment			-147,507,499 (567,312,295)	0.001	780,467,440 (334,865,629)*	0.063**	3,039,417,883 (9,232,886,744)**	0.010	1,507,091,299 (458,318,696)**	0.127**
Constant	-103,035,858 (191,901,720)		1,710,963,062 (705,633,945)		2,153,112,324 (455,541,596)		-2,175,030,474 (2,696,254,292)		2,965,220,636 (714,782,889)	
Log likelihood										
Adjusted R2	0.805		0.162		0.193		0.255		0.116	
N	57		63		71		74		76	

$*$ $p < 0.05$; $**p < 0.01$, values in parentheses represent the standard error of the coefficient; R^2 values do not add up to "Adjusted R^2"

First let us consider the results for the control variable for this regression analysis: the total utilized area for agriculture. This is the predominant criterion used by the European Union to allocate Common Agricultural Policy funds. One would expect to find significant and useful results for this variable and this is exactly the case. The regression coefficients for the member states are significant for 2007 and 2010 at the 0.01 level. A unit increase in the utilized area for agriculture leads to an increase of CAP allocations to that member state by €154,- for 2007, and an increase by €186 for 2010. The coefficients for the NUTS 2 regions are also significant in 2007 at the 0.01 level, but not for 2010. A unit increase in utilized area for agriculture leads to €251,- extra CAP allocations in 2007. Additionally, the models in 2007 and 2010 consistently show higher explained variances than the models without this variable. For the member states the models with the total utilized area for agriculture have 10% higher explained variance than the models without. For the NUTS 2 regions this is much higher, in which the 2007 model has an explained variance of 82.9% whilst the second largest explained variance is 25.5% in 2010 when total utilized area for agriculture is not a significant determinant of the dependent variable. For the member state level in 2007 the total area for agriculture is able to explain 32.5% of the variation for the CAP allocation values, whilst this same coefficient for 2010 is 20.1%. For the NUTS 2 regional level the total area for agriculture is able to explain 43.1% of the variation in the allocation of CAP funds, significantly, but is not able to do so for 2010. Is total area for agriculture an effective control variable for the allocation of CAP funds? Further analysis for this variable shows that there is a strong correlation between this variable and the EU's "official criteria" for the allocation of CAP funds:

Table 3 : Correlation for Utilized Area for Agriculture and CAP allocations		**Member States**	**NUTS 2 Regions**
		CAP allocations	CAP allocations
2007	Utilized Area for Agriculture	0.871**	0.902**
2010	Utilized Area for Agriculture	0.922**	0.084

$* p < 0.05$; $**p < 0.01$

The value for 2010 at the NUTS 2 regional level is not significant, so the result should be taken with a grain of salt. Instead, the results for the relationship between CAP allocations and utilized area for agriculture for NUTS 2 Regions in 2010 and the results for the same relationship in 2007 and 2010 for member states offers decisive evidence. Utilized area for agriculture is a very good predictor of CAP allocations and can genuinely be accepted as the leading factor in the official allocation criteria provided by the EU. However, the regression analyses shown previously proves that there is definitely more to the allocation of CAP funds than just the total utilized area for agriculture.

The literature on the EU budget as a redistributive mechanism gives way to the suspicion that there is quite a bit of leeway in determining allocations of EU funds in general. Miko Mittala proved as much when claiming that although the negotiations for the contributions to the EU are quite static and rigid, the negotiations for the allocations of funds to member states is generally quite flexible and are very allowing of external influences (Mittala, 2006: 49). The results for the member states' contributions to the European Union budget backs these suspicions and support the findings by Carruba (1997) which classify the EU as an avenue through which side payments occur. The member states that receive more from the EU budget than it contributes tend to receive less CAP funds than member states that contribute more than it receives. The data is significant, save for once, at the 0.01 level and have similar regression coefficients for 2007 and 2010 for both the member state and regional level. At its most powerful, the "net contribution to the EU budget" variable is able to predict that for every unit increase in the "net contribution to the EU budget" variable, the EU allocates €0.448 less to that member state. What this means in terms of finances is that the net-receiving member states receive less CAP funds than net-payers. Inverting this statement would mean that decreasing the contribution, paying more to the EU or receiving less, means receiving more CAP funds.

To ensure this data has value a correlation analysis was performed for the relationship between "net contribution to the EU budget" and CAP allocations:

Table 4 : Correlation between Net contribution to the EU budget and CAP allocations		**Member States**
		CAP allocations
2007	Net contribution to the EU budget	-0.806**
2008	Net contribution to the EU budget	-0.819**
2009	Net contribution to the EU budget	-0.865**
2010	Net contribution to the EU budget	-0.790**
2011	Net contribution to the EU budget	-0.715**

$* p < 0.05$; $**p < 0.01$

All of the coefficients have extremely strong negative relationships, the minimum being -0.715 for 2011 whilst the maximum is -0.865 in 2009. These results give way to the suggestion that the CAP is indeed being used, to some extent, as a financial compensation to the member states that generally stand to "lose" from the EU budget. Member states that are net-payers may demand at the negotiation table increasing CAP funding to compensate for losses in the other two EU budget pillars, Sustainable Growth and Citizenship, Freedom, Security.

Common examples of such decisions at the negotiation tables are the rebates acquired by the United Kingdom in 1984 and more recently the Danish rebate for the 2014-2020 budget. The British case is especially interesting when looking at EU redistributive policies as a whole. The reasoning behind the rebate is up for debate: Cuthbert & Cuthbert (2006) on the one hand describe how Prime Minister Thatcher argued that Britain was paying so much for the CAP yet benefiting minimally from it. This suggests that the Common Agricultural Policy is something a member state "should" benefit from. Whilst Britain argued they should be compensated for having no agricultural sector, the alternative can also be argued: member states must be compensated for the fact that they have a large agricultural sector, implying some sort of agricultural need. It stands to reason to suggest that if the UK had benefited from CAP, they would have not asked for the rebate, supporting the idea that negotiations such as the rebate are based on agricultural needs and not based on compensation for domestic political strife as a result of EU integration. Nevertheless, a second popular argument for the British rebate was that the UK was simply one of the poorer nations in the EU at the time and really needed the finances which plays into the idea that EU payments such as CAP can indeed be influenced by need (Cuthbert & Cuthbert, 2006: 11).

The "net contribution to the EU budget" variable's ability to explain large portions of variance in the allocation of CAP funds further proves that it is an effective predictor of CAP funding. The result for 2007, in which "net contribution to the EU budget" explains only 6.8% of the variance of the dependent variable, is an outlier which is proven by the consistently high R^2 change values for the years 2008, 2009 and 2011. Subsequent years see "net contribution to the EU budget" explaining 66.4%, 78.8%, 65% and 50.9% of CAP allocation's variance. That the CAP exists as a side-payment of sorts has been shown, but whether this is in order to smooth over the short-term integration, which is argued by Carruba (1997:489) or is simply a function of economic need cannot be solely drawn from this variable.

GDP per Capita, however, *was* included in this thesis to mimic a "financial need" for CAP funds. The variable was found to be a statistically significant determinant of CAP allocations for the NUTS 2 regional level for the years 2008, 2009 and 2010, but not for any of the years for the member state level. Interestingly, the regression coefficient is negative meaning that the lower the GDP per Capita, the higher the allocation of CAP funds to the region. For the member state level GDP per Capita is not able to explain variance at a significant level, but at the NUTS 2 regional level it can. The R^2 change value for 2008 shows that the values for GDP per Capita can explain 19.1% of the variation in CAP allocations, which decreases slightly for 2009 at 15.3% before increasing to 23.2% for the model in 2010. These results are convincing but don't actually show the real strength of this variable's predictive power. Further inspection of the data shows that for every unit increase in GDP per Capita in a NUTS 2 region for the year 2008 the amount of CAP funds sent to that region decreases by €52,896. Similar results are found for 2009 and 2010, with each unit increase the GDP per Capita in a NUTS 2 region causing a decrease in the allocation of funds by €22,756 and €62,874, respectively. This implies that there is some truth to the idea that economic need plays a role in the allocation of CAP funds which supports the hypothesis for this variable. The richer the region, the less CAP funds the region seems to receive.

However, the conclusions reached for GDP per Capita's ability to predict levels of CAP allocations must not be too hasty. A correlation analysis shows that lower levels of GDP per Capita correlate highly with higher rates for "number of farms" and level of "agricultural employment" (but not utilized area for agriculture) indicating multicollinearity. If two or more independent variables correlate highly with each other in this thesis, it is an indication that they are possibly capturing each other's predictive power for the dependent variable. Essentially, this means that some variables are showing artificially high regression coefficients in predicting

the allocation of CAP funds. In order to test for multicollinearity a simple correlation analysis suffices:

Table 5: Correlations for GDP per Capita		**Member States**	**Regions**
		GDP per Capita	GDP per Capita
2007	Number of Farms	-0.481**	-0.363**
	Total Utilized Area for Agriculture	-0.034**	-0.089
2008	Agricultural Employment	-0.560**	-0.526**
2009	Agricultural Employment	-0.581*	-0.437**
2010	Number of Farms	-0.462**	-0.351**
	Agricultural Employment	-0.622**	-0.523
	Total Utilized Area for Agriculture	-0.059***	-0.145

$* p < 0.05$; $**p < 0.01$

GDP per Capita correlates highest with agricultural employment in 2010 at -0.622, and correlates as much as 46.2% with the number of farms for the Member State data. The NUTS 2 regional results are less convincing, but convincing nevertheless indicating that for both number of farms and agricultural employment a medium correlation is present at the 0.01 significance level. This means that whatever is explained by GDP per Capita could actually (partially) be explained by the magnitude of a region's agricultural presence. This suggestion stands to reason as poorer regions will be more likely to depend on the agricultural sector than richer regions which will instead focus on services or manufacturing. For this reason it's hard to say if support was found for the hypothesis posed for GDP per Capita, which stated that regions with lower GDP per Capita would be more likely to receive CAP funding than richer regions. The data taken at face value would indeed support this claim, but looks may be deceiving. It is certainly the case that richer regions are less likely to receive CAP funds than poor regions, but whether this is cause by actual poverty or the fact that poorer regions themselves happen to have more agricultural holdings and area is up for debate. Perhaps future research covering several other welfare or level of development variables such as exports, social indicators or environmental indicators could shed light on the relationship with CAP allocations. Whilst the results for GDP per Capita appear to not be quite discernable from the "agricultural need" variables, this thesis does prove to some extent that GDP per Capita is a predictor of CAP allocations.

The data for the "number of farms"- variable is significant for the NUTS 2 regions in 2010, but not for 2007 or either of the years for the member state level. For the significant value in 2010 it also shown that it is able to explain 5.2% of the variance in the allocation of CAP funds: a very small amount. These initial findings are different than the results achieved by Olper (1998). In the article it is reported that although the significance for this variable is not optimal, Olper still claims that the "number of farms" is able to capture some negative effect on the allocation of CAP funds. In his research, an increase in the number of farms actually decreases the levels of agricultural protection. Perhaps the difference is that this thesis includes farms under 1 hectare, whilst Olper's work does not. Nevertheless, with the emergence of new member states from Eastern Europe which tend to depend more on its agriculture, it felt as if a lot of the explanatory power would be taken away from this variable if the "number of farms" were limited to farms above 1 hectare. Jonsson supports Olper and also suggests that the "number of farms" variable can be shown to actually decrease CAP support (Jonsson, 2007: 11). Gardner (1987) suggests *another* general relationship between "number of farms" and CAP allocation, claiming that it is usually an inverted-U relationship.

The relationship between the number of farms and allocation of CAP funds makes logical sense, but the regression analysis simply doesn't seem very convincing. One would expect, as the theory suggests, that more farms would automatically equal more utilized land for agriculture (the official criteria for CAP allocations), but this claim cannot be supported with conviction. A simple correlation analysis points out that theory is correct to some extent, higher values for number of farms correlate highly with higher values for utilized area for agriculture:

Table 6 : Correlation for Utilized Area for Agriculture and Number of Farms		**Member States**	**NUTS 2 Regions**
		Number of Farms	Number of Farms
2007	Utilized Area for Agriculture	0.648**	0.599**
2010	Utilized Area for Agriculture	0.648**	0.621**

Nevertheless, this thesis has not been able to establish a constant causal relationship between the number of farms and the allocation of Common Agricultural Policy funds. What is surprising, however, is that the results for number of farms show that they are consistently positive. This would suggest a linear relationship between CAP fund allocation and the number of farms, a result which places doubt in the results attained by Olper (1998) and Jonsson (2007) for this variable.

Previous research by Olper (1998) claims that markets which lean away from the agricultural sector tend to profit the most from Common Agricultural Policy. The data provided for the agricultural employment as a percentage of total employment does not support this statement, and instead supports the claim that regions/member states with higher share of employees in the agricultural sector are more likely to receive CAP funds than regions/member states with a lesser share of employees in the agricultural sector. The regression coefficient was flagged as significant at the 0.05 level for the member state level in 2011. For the NUTS 2 regional level the variable was significant at 0.05 for 2009 and at 0.01 for 2010 and 2011. This variable was indeed Logged into a normal distribution but the regression coefficients must be interpreted with some caution as they appear to be quite volatile. A unit increase in agriculture as a percentage of total employment in 2009 by one implies an increase of €780,467,440 CAP funding to the region. The same implies an increase of € 3,039,417,883 in 2010 and € 1,507,091,299. Comparing the regression coefficients for the various years show that there is quite a large difference. However, this is not that strange considering how cluttered the sample for this variable is. The maximum value is 0.30 (30%) and the lowest is 0.01 with a standard deviation of 0.05, so a unit increase in agriculture as a percentage of total employment covers quite a bit of distance (5%) in the variable's range. As a variable in the model for 2009, the agricultural employment as a percentage of total employment was able to explain 6.3% of the variation in CAP allocations. This value increased to as much as 12.7% of the variance in CAP allocations in 2011. Essentially, the data provided suggests that agricultural employment as a percentage of total employment joins the "total utilized area for agriculture" as a positive predictor for the allocation of CAP funds.

Less powerful are the results for the "euroscepticism" variable. The political expedient of the compensatory mechanism is not significant for the member state level for any of the years despite results found by Carruba (1997) on the CAP as a side-payment as a result of eurosceptic sentiments. Results found for this relationship are similar to the results found by Chalmers

(2013) for the allocation of structural funds, the other distributive fund of the European Union. His research on the effect of public opinion as a dimension of euroscepticism was a result of the research done by Kemmerling and Bodenstein (2005; 2006) which claimed that anti-EU sentiments could predict the allocation of structural funds. The test done for euroscepticism in this thesis is a replica of Chalmers' (2013) and Bouvet and D'allerba's (2011) tests in that an opinion poll was used from the Eurobarometer in which EU citizen asked to what extent they found the membership of their country to the EU being a "good thing". No significant result was found though and the hypothesis that member states with higher values for euroscepticism will receive more CAP funds than member states with lower values for euroscepticism is rejected. The political dimension of the compensatory mechanism is ruled out as a determinant of CAP allocations until further and more in-depth research is done.

Where do the results in this thesis leave us in the debate between the theory of need and the theory of compensation as predictors of EU funding, and CAP fund allocation in particular? The results for the member states is largely disappointing in that only three of the six variables seem to be explaining any of the variance in the allocation of CAP funds. The total area for agriculture and the net contribution to the EU budget variables are both responsible for very high R^2 in the regression analysis for their respective years, whilst the number of farms joins the previous two variables in explaining a large portion of CAP allocation variation in 2007 (but not in 2010). For the member states it is quite clear that the theory of need is predominant. Not only does the official allocation criteria in the form of total utilized area for agriculture guide Common Agricultural Policy allocations but the number of agricultural holdings does as well, two variables which have attempted to simulate the agricultural needs for agricultural subsidies. The results for the NUTS 2 regions, at face value, show that the decision to include them in the analysis is justified: a large majority of the values are significant, which definitely was not the case for the member state level. The prime example of this is Gross Domestic Product per Capita which was not significant for the member state level. Previous researchers would have tossed the results aside, but the data for the NUTS 2 regions show that there is a strong significant effect. GDP per Capita has proven to predict between 15% and 23% of the variance in CAP allocations, a result which would have been missed if the member states would have been the only unit of analysis.

Conclusion

The Common Agricultural Policy as a topic is discussed at length and is studied extensively by scholars around the world, but the actual reasons for receiving funds isn't a popular choice of study amongst academics. Whilst the determinants of structural funds allocated by the EU's Regional Policy has been well documented, research on the determinants of the CAP is slim by comparison. Perhaps one of the reasons is part of a common acceptance that the official criteria provided by the European Union is convincing enough. These criteria seemed solid, but particularly due to the effects of multi-level governance and a continually strengthened perception of being "losers" of EU integration amongst populations, political parties and member states as a whole, this thesis has attempted to test if these criteria were as solid as the EU suggested.

While finding new predictors was certainly the main task, testing and refreshing previous research was a high priority as well. Determinants found in the past such as "number of farms" were based on data from the 1970's to the late 1990's. Countless EU treaties and CAP reforms have been introduced in nearly twenty years' time and most importantly, fifteen new countries have become member states of the European Union. The fifteen new member states are particularly interesting because of their young capitalist economies in which agriculture still play a (compared to the Western-European nations) large role. In short, the research on the determinants of CAP funds allocation was long overdue for updated analyses.

This thesis has tested two dominant explanations for the allocation of CAP funds, the theory of need and the EU as a compensatory mechanism. The first theory is covered by three agricultural variables and one welfare variable: total utilized area for agriculture, number of farms, agricultural employment as a percentage of total employment and GDP per Capita. Research by Olper (1998) suggested that member states that member states which have a comparative disadvantage in agriculture and generally focus less on it are more likely to receive CAP funds than member states which have a comparative advantage in agriculture and whose economies rely relatively more on agriculture.

How would Olper explain the CAP's official allocation criteria, which is based on the total area used for agriculture for EU member states which joined after 2004 (EU-15) and the total area used for agriculture which is weighted for subsidies received in the past for member states which joined the EU before 2004 (EU-12). This thesis utilized total area for agricultures as a control variable because it simulates the official criteria, and regression and correlation

analyses show that was a justified choice. The regression coefficients were consistently significant at the 0.01 level at both the member state- and NUTS 2 regional level. These coefficients were consistent in indicating that a unit increase in the total area used for agriculture would increase CAP allocations roughly between €154,- and €251,-. A correlation analyses provided final proof that the relationship between the total area used for agriculture and CAP allocations is very strong, proving it to be an (obvious) determinant of CAP funds.

The results for the "number of farms"- variable is much less convincing. Whilst Jonsson (2007) and Olper (1998) had at least found the number of farms to be a significant variable in determining CAP funds, only one of the four regression coefficients turned out to be of significant value in explaining CAP allocations. For the NUTS 2 regional level in 2010 the number of farms was able to predict a dismal 5.2% of the variation in CAP allocations which is in line with the small effect Olper found in his studies. The results for agricultural employment as a percentage of total employment were better. The member state level generally experienced no significant values for the regression coefficients, but it did for the NUTS 2 regional level. This thesis has introduced agricultural employment as a predictor of CAP allocation, albeit a predictor with a small effect. Agricultural employment is able to significantly predict between 6% and 12% of the variation in the allocation of CAP funds.

The second theory which was tested by this thesis was the theory of the EU as a compensatory mechanism. Kriesi claims that increased globalization, such as EU integration, leads to fiercer political and economic competition. Countries which perceive themselves to have lost politically or economically due to the EU will demand compensation. These domestic concerns can be observed by measuring public opinion of the EU on a national scale. To simulate the public opinion's effect on the allocation of CAP funds the "euroscepticism" variable was included. Alternatively, a variable was included in the form of "net contribution to the EU budgets" to the EU budget in order to test whether or not financial losses which are quite tangible are also compensated financially.

The key finding of this thesis was that the "net contribution to the EU budget" variable indeed has quite a big effect on the allocation of CAP funds. This variable establishes to what extent a member state is a net-payer or a net-receiver of the total EU budget. Transfers to and from the EU are subtracted from each other, and from that value the total CAP payments to that country is also subtracted. The results are staggering: all of the regression coefficients are significant for at least the 0.05 level. The "net contribution" variable proved to be a very powerful predictor of the variation in the allocation of CAP funding, predicting that for a unit

increase in the net-amount contributed to the EU budget by a member state, at least €125 less to that member state is allocated. At it's most powerful "net-contributon" predicts €448,- increase per unit increase in the net-amount contributed to the EU budget by a member state.

The other variable to simulate the compensatory mechanism showed no predictive power. Bouvet and D'allerba (2011) and Chalmers (2013) had already established this for structural funds, but it is now also been established that there is no causal relationship between eurosceptic public opinion and the allocation of CAP funds. None of the regression coefficients were significant and the predictive power, insofar this can be trusted due to the significance level, never exceeds 6% for any of the years between 2007 and 2011. This thesis, in addition to previous results from other scholars, suggest that euroscepticism in this form can be discarded as a determinant of EU redistributive funds.

With the benefit of hindsight there are many ways this thesis could have been redesigned and retested in a better manner. Primarily, the sample size was statistically acceptable but not nearly optimal. The size for member states is what it is but the response rate for the NUTS 2 regions was quite low as various Ministries of Agriculture simply refused to return queries for information. A larger sample sized could have made the regression analyses more accurate and allowed the result of this thesis to be more generalizable than it is with a sample size of roughly 75. A second large improvement to this thesis would be to add variables which measure the actions of certain EU institutions. Kauppi (2000) researched the effect of voting power in the Council of Ministers and its effect on the distribution of EU funds, whilst Mattila (2006) has also suggested that voting power can influence CAP transfers. Testing the effect for voting power in the Council of Ministers, or perhaps another institution such as the Committee of the Regions, could prove to be an effective determinant of CAP funds but it did not fit into the debate between "need" and "compensation" very well. Thirdly, a better and more complex understanding of Statistics could have improved the data collection, testing and analysis. There are bound to be statistical tests which could have been performed to test the validity or predictive power of my independent variables of which I am not aware.

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