AGRICULTURAL PRODUCTION COOPERATIVES IN THE E.U.: EXPLAINING VARIATION IN COOPERATIVE DEVELOPMENT

by
Alexander Christian Borst

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Approved by:

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Advisor: Dr. John Green

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Reader: Dr. William Schenck

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Reader: Dr. Michèle Alexandre

ABSTRACT

This thesis examines variations in the development of cooperative businesses across member states in the European Union to identify and explain patterns in cooperative participation. Through a comparative analysis of statistical indicators coupled with regional analyses of historical determinants that may have incentivized cooperative participation, the current state of cooperatives in each region is highlighted and the relevance of each cooperative development indicator is discussed. This thesis uses literature on the early European cooperative movement, the development of the Common Agricultural Policy, and the current state of cooperative agricultural production to present a historically contextualized look at the European model of agricultural production and to highlight the patterns in cooperative development across regional groupings. The findings show that there is a strong association between regional groupings and average members per agricultural producers' cooperative (APC) and a moderate association between average agricultural output and average members per APC. When knowledge of region and average agricultural output is present, there are reductions in error in predicting average members per APC. The findings indicate that cooperative development expectations among the different regional groupings might be changing as regions succeed in unexpected ways.

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ABBREVIATIONS

APC – Agricultural Producers Cooperative

CEECs – Central and Eastern European Countries

CAP – Common Agricultural Policy of the European Union

COGECA – General Confederation of Agricultural Cooperatives in the European Union

CMO – Common Organization of the Markets in Agricultural Products

COPA – Committee of Professional Agricultural Organizations

EAFRD – European Agricultural Fund for Rural Development

EC – The European Commission

EU – The European Union

F&V – Fruit and Vegetable

ICA – International Cooperative Alliance

MS – Member States of the European Union

MSE – Mediterranean and Southern European

NWE – Northern and Western European

PO – Producer Organization

WTO – World Trade Organization

CHAPTER ONE: INTRODUCTION

1.1 What is a Cooperative?

Cooperative organizations are not new inventions in regards to their structure and principles, however their presence amidst the post-industrial landscape of the 21st century can be seen as a quiet protest against conventional individual and corporate means of ownership and production. Cooperatives provide an alternative business model that has the capacity to compete against traditional and investor-owned businesses through cooperative participation and marketing. The International Co-operative Alliance (ICA) defines a cooperative as "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise" (Fairbairn, 2004, p. 24). Building on this definition, the Canadian Co-operative Association defined cooperatives as "business organizations owned by the members who use their services" (Fairbairn, 2004, p. 25). The definition of what a cooperative is remains contested due to differences in ownership (producer, worker, or consumer) and purpose (credit, housing, grocery, etc.) but these three principles underscore the importance of democracy and autonomy in all cooperative organizations (Bijman et al., 2012):

1. The User-Owner Principle:
    - Those who own and finance the cooperative are those who use the cooperative.
2. The User-Control Principle:
    - Those who control the cooperative are those who use the cooperative.
3. The User-Benefits Principle:

- The cooperative's sole purpose is to provide and distribute benefits to its users on the basis of their use.

The qualifications and requirements that structure how a cooperative is legally defined vary from country to country depending on the specific sector and whether the government wants to incentivize or discourage cooperative participation (Bijman & Iliopoulos, 2014). While cooperatives can be organised for a variety of purposes, this thesis focuses specifically on agricultural producers' cooperatives (APCs). APCs are organizations that unite agricultural producers under a common business which is them used to aggregate, market, and sell the agricultural goods of member farmers. The benefits of participating in an APC include the ability to share risk, achieve economies of scale, lower transaction costs, gain competitive advantage, and more easily access resources (Bijman et al., 2012). When APCs are referenced in this thesis, the term includes not only the legally recognized and financially supported producer organizations (POs) in the European Union (EU) but it also includes the agricultural cooperatives that belong to sectors that are not yet financially supported by the EU.

1.2 The Economic Advantages of Cooperation

According to a landmark study in 2012 meant to garner support for cooperatives in the EU, the economic benefits of APCs are worthy of EU support through pro-APC policies, public support through the purchasing of products produced by APCs, and farmer support through becoming a member of an APC (Bijman et al., 2012). In 2010, dairy APCs in the EU reached a 57% market share while APCs from all agricultural product sectors reached a 40% market share across the EU (Bijman et al., 2012). In some sectors, there is

evidence that APCs can provide increases in profits to both members and nonmember producers and that APCs can achieve a higher market share in relation to investor-owned businesses (Bijman et al., 2012). The Competitive Yardstick Theory claims that the presence of cooperatives in an agricultural sector improves competition which in turn provides benefits such as higher prices to both producers who are members of cooperatives and to producers who are not (Bijman & Iliopoulos, 2014). However, APCs enjoy varying levels of success depending on which agricultural sector they are operating. A study by Hanisch et al. (2013) suggests that in countries where dairy cooperatives have a higher market share than dairy cooperatives in other countries, higher market shares are accompanied by higher prices (Hanisch et al., 2013). This study supports the Competitive Yardstick Theory and lends credence to the ability of APCs in certain sectors to bring both members and nonmembers higher prices for their goods (Hanisch et al., 2013).

The recognition of the economic benefits of APCs by the European Commission (EC) led it to commission a study in 2010 entitled "Support for Farmers' Cooperatives" which provided both policy makers and producers with a resource guide that outlined the benefits, the barriers, and the state of increased cooperative agricultural participation in the EU (Bijman et al., 2012). This study set out to describe the overall state of agricultural cooperatives in the EU and to identify the laws and regulations that help or hinder farmers who produce cooperatively or who would like to produce cooperatively, as well as to "help farmers organise themselves in cooperatives as a means to consolidate their market orientation and so generate a solid market income" (Bijman et al., 2012, p. 7).

However, APCs are less prevalent in many Central and Eastern European countries (CEECs), many of which are considered "transition societies" where socialism and

communism negatively impacted the public image of cooperative participation (Gijselinckx & Bussels, 2014, p. 517). Mediterranean and Southern European countries face challenges to development of cooperative agricultural sectors such as a lack of access to risk capital (Bijman et al., 2012). Barriers to cooperative development call into question whether current EU policies foster cooperative participation and are effective across regions with different historical and socioeconomic legacies.

1.3 Variation of Cooperative Development in the EU

Variation in the development of APCs across the EU has been well studied and documented with some countries facing specific challenges regarding levels of cooperative memberships compared to other countries. Many Northern and Western European countries such as France, Germany, Belgium, Ireland, the United Kingdom, Netherlands, Austria, and Denmark all have a membership intensity, or percentage of producers who are members of APC, of over 50% (Gijselinckx & Bussels, 2014). Mediterranean and Southern European countries have a membership intensity of around 30% to 50%, while CEECs such as Estonia, Latvia, Lithuania, Poland, Czech Republic, Hungary, Slovak Republic, Romania, and Bulgaria all have a membership intensity of below 30% and in some cases below 10% (Gijselinckx & Bussels, 2014). Concerning the market share of agricultural products marketed by way of APCs, the Northern and Western European countries market over 40% and in some cases over 50% of agricultural products through cooperatives (Bijman & Iliopoulos, 2014). Mediterranean and Southern European countries such as Spain, Portugal, Italy, and Greece market around 25% to 50% of agricultural products

through cooperatives, while CEECs fall into the 0% to 25% bracket according to Bijman et al. (2012).

The propensity of some countries to produce cooperatively more than others can be at least partially explained by the political systems and historical legacies that the countries in these regional groupings have experienced. No country in Northern and Western Europe has experienced a communist regime and no Northern and Western European country falls below a membership intensity of 50% or below a 40% market share of cooperatively marketed agricultural products (Bijman et al., 2012). This link between both higher membership intensity and higher market shares of cooperatively produced agricultural goods and countries that have not experienced communism provides insight into the culture of wariness towards cooperative institutions that has developed in post-Soviet and post-Yugoslavic states that does not exist in states without communist legacies. Those countries that have experienced communist regimes typically have the lowest membership intensity percentages and the lowest percentage of agricultural products markets cooperatively in the EU-28. When looking at the literature, CEECs have shown a rapid decline in APC membership after the fall of communism and during the privatization of agricultural sectors (Gijselinckx & Bussels, 2014). CEECs with traditions of cooperative participation before communism have yet to see a full rebound since 1989.

According to Gijselinckx and Bussels (2014) in "Social and Historical Determinants of Cooperative Membership in Agriculture," although membership rates might be low in post-communist CEECs, this could be accounted for by the "propaganda of individual success" that national governments used to promote privatization and entrepreneurship. Additionally, post-communist CEECs such as Poland and Czech

Republic which implemented more liberal forms of communism have levels of membership intensity and cooperative marketing of agricultural product ratios that are higher than other CEECs (Gijselinckx & Bussels, 2014). Over 80% of Polish farmers resisted the collectivization of their farms under communism (De Master, 2012). While there were repercussions to resisting collectivization such as severely restricted access to petrochemical fertilizers, the ability of a significant percentage of Polish farms to resist collectivization without more severe repercussions signals the relative liberality of its communist regime (De Master, 2012). This suggests that stricter forms of communism had more negative effects on cooperative development than less strict forms. The effects of inefficient state-mandated collectivism have made APC membership unappealing to producers who lived through the old regimes as well as the transition periods that followed.

Lissowska's study "The deficit of cooperative attitudes and trust in post-transition economies" (2012) adds to the "propaganda of individual success" argument by suggesting that countries which were making the transition from communism to market economies based their transitions off the idea that "self-interested individuals competing in the market would provide the best economic results" (Lissowska, 2012, p. 2). Lissowska argues that trust and cooperation were not part of the original transition plans 20 years ago and because of this, the current state increased trust and cooperation found across the EU is largely absent in post-transition countries. Through qualitative research, Lissowska's study indicates that "post-transition societies still constitute a relatively homogenous group and are different from the others from the point of view of level of trust and type of social engagement," a conclusion which helps to explain the lesser degree of cooperative

development seen in many Central and Eastern European post-Soviet and post-Yugoslavic countries (Lissowska, 2012, p. 2).

In Mediterranean and Southern European countries, the literature linking historical and socioeconomic determinants to different measures of cooperative development are sparse. However, studies have identified key problems that explain why Mediterranean and Southern European countries produce less efficiently through APCs. In the case of Greece, government interference in the affairs of cooperatives has made Greek APCs into some of the least productive in the EU, with Greek APCs producing less value per APC than in any other country (Iliopoulos & Valentinov, 2012). In the 1980s and 1990s, APCs in Greece were courted by major political parties to try and gain the support of their leaders and members. During this same period, farmers began joining APCs not because of the benefits that they provided economically, but because being a member of a cooperative helped farmers gain access to politicians. APCs became more effective as political tools than as businesses because farmers represented around 20% of the electorate. When global competition was increasing and commodity prices began to decrease in the 1990s and 2000s at the same time as the EU halted its use of direct subsidies to support farms, leaders of APCs became increasingly unable to protect the incomes of farmers, a problem which was never fully remedied (Iliopoulos & Valentinov, 2012).

In the case of Spain, Italy, and Portugal in the olive oil sector which have achieved national APC market shares of 70%, 5%, and 35% respectively, all three have gradually seen their share of the market diminish (Bijman et al., 2012). This could be due to a general lack of integration between producers and downstream processing activities such as bottling. The federated structure of two-tier cooperative systems used in Spain where “first-

tier" olive APCs send their olives to "second-tier" APCs which then extract, bottle, and brand the oil seems to be more inefficient than other more integrated approaches, though Spanish olive oil APCs probably make up for some efficiency by being larger than the average APC in other Mediterranean and Southern European countries (Bijman et al., 2012). The CMO for fruit and vegetables, which provides financial incentives for fruit and vegetable POs, has been effective in some Mediterranean and Southern European member states, with both Spanish and Italian APCs maintaining around 50% of the fruit and vegetable market (Bijman et al., 2012). While some agricultural sectors have seen positive growth for APCs, other sectors face difficulties, making it hard to point to specific issues that member states collectively face across the board.

1.4 Research Question and Data

This thesis adds to the literature on variations in cooperative development across agricultural sectors by using quantitative indicators of cooperative development to identify contemporary patterns in cooperative development between distinct regional groups. This thesis focuses specifically on APCs within the EU and the variability of their prevalence across different cultural, economic, historical, and political landscapes. While the EU is guided by its Common Agricultural Policy (CAP) and its guidance on producer organizations, the CAP gives each of the 28 member states of the EU a level of autonomy in how they individually define and support APCs and whether they incentivize or discourage cooperative participation. This thesis does not seek to undeservingly glorify or idealize APCs, but rather it seeks to build on the literature on the past and present state of

APCs to understand why farmers some member states produce cooperatively more than other member states.

National policies regarding APCs reflect the unique histories and socioeconomic characteristics of each member state. I posit here that the differences and similarities in the legacies of regional groupings of member states can help us to better understand variations in cooperative participation by contextualizing the current state of participation within the legacies of these regional groups. This study is different from others present in the literature because of the indicators used to measure levels of cooperative participation. By using recent data available for all four cooperative development indicators and analyzing regional differences within the context of the historical regional characteristics, this thesis provides a path for further studies of cooperative participation in the EU. The overarching research question is: What patterns exist regarding the level of participation in agricultural producers' cooperatives across groups of historically and politically contrasting countries within the European Union, and how does each group's economic, historical, and political background play into levels of cooperative participation?

One way to approach the topic of varying levels of cooperative participation in the EU would be to look at the evolution of agricultural producer cooperatives over time and to link historical statistics to national and EU-level policy decisions which have affected cooperative agricultural enterprises and their members. However, the absence of complete and comparable historical data on agricultural producer cooperatives makes this kind of analysis difficult. Instead, I have utilized a dataset produced by COGECA in 2015 as a part of their annual "Development of Agricultural Cooperatives in the EU." This source provides some of the key statistics on agricultural cooperatives for each member state such

as number of cooperatives, number of cooperative members, and annual turnover (COGECA, 2015). This report provided both EU institutions and member state governments with an overview of the state of the EU and the different cooperative agricultural sectors in each of its member states. A report by Cooperatives Europe in 2015 entitled "The Power of Cooperation" was also used to fill in missing data from the COGECA report (Cocolina, 2016). The report provides key statistics such as member and employee numbers for member states.

In this thesis, I identify the relevant indicators that provide insight into the current state of APCs and their members across three regional groupings of member states with similar historical and socioeconomic legacies. These groups are: Austria, Belgium, Denmark, France, Finland, Germany, Ireland, Luxembourg, Netherlands, Sweden, and United Kingdom as a "Northern and Western European" group; Bulgaria, Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia as a "Central and Eastern European" group; and Spain, Portugal, Italy and Greece as a "Mediterranean and Southern European" group. The reasons behind these groupings stem from the varying prevalence and institutional structure of cooperatives in different parts of the EU as was previously discussed. Cyprus and Malta were not included in country the country groupings because neither country was consistently examined in the literature as part of any of the three regional groupings. This lack of a regional association could be due to the fact that Cyprus and Malta are both island countries and are not geographically connected to continental Europe.

Many Western and Northern European countries have cooperative traditions that reach back over 150 years. These countries face challenges concerning the internal

governance of large, increasingly international APCs which have been so successful that they are outgrowing their legal and structural boundaries (Hagedorn, 2014). In Central and Eastern European Countries, the memory of state farms and nationalized lands and the "communist legacy" with which they are associated has made farmers skeptical of "forced cooperation" and hence more prone to organizing traditional family farm businesses that were not members of APCs (Hagedorn, 2014, 557). In Mediterranean European countries, while countries such as Spain and Greece have achieved high rates of cooperative membership and participation, the problem lies in difficulties with internal governance and the level of "trust in political institutions" by producers (Bijman et al., 2012, 89). The great success of APCs and POs in Northern and Western Europe is contrasted against the difficulties that many CEECs and Mediterranean and Southern European member states have had when developing cooperative enterprises.

Through an analysis of each group of countries and the different cooperative development indicators of APC members per capita, APCs per capita, average members per APC, and total agricultural output, this thesis seeks to identify patterns in cooperative development for each group of countries and outline arguments for how these patterns fit into the political and historical legacies of each group. For all instances where "per capita" is used in the context of these cooperative development indicators, the measure is per 100,000 people. APC members per capita was used as a cooperative development indicator because it provides information on how many producers per 100,000 people are in each member state or region. This knowledge is useful for comparing the number of APC members and non-members between regional groupings and member states. By that same logic, the APCs per capita and average membership per APC indicators are useful for

comparing densities of APCs and densities of members per APC between regional groupings and member states. Lastly, the total agricultural output cooperative development indicator shows how agriculturally productive different countries and regions are overall.

CHAPTER TWO: LITERATURE REVIEW

2.1 Early Cooperatives in Europe:

While agricultural cooperatives are seen today as another form of business enterprise that farmers across the globe use to aggregate and sell their goods, the ethos of agricultural cooperatives is found in the early history of the larger cooperative movement. To understand the role and varying levels of prevalence of agricultural cooperatives in the modern context of the European Union, it is important to examine the history and evolution of cooperatives in Europe. Cooperative organizations arose in direct opposition to the development of industrial capitalism and modernism in the eighteenth century (Fairbairn, 2004). Advances in mechanized technology that were developed during England's Industrial Revolution (1750-1850) brought an end to the widespread home-based business movement that existed before the Industrial Revolution. This was due to the inability of home-based producers to compete with the low-cost consumer goods that factories could provide (Center for Cooperatives, 2015).

Workers who were displaced from these home-based operations moved into overcrowded cities where jobs were scarce and labor standards and wages were low while increased efficiency in agriculture sent more workers out of the field and into the city. As the working class and their allies looked for ways to fight socio-economic stratification during the latter half of the nineteenth century and the beginning of the twentieth century, cooperatives were conduits for organising the average worker in opposition to the factory owner. The advent of cooperatives allowed factory workers to gain a new level of autonomy by providing a practical way for them to compete against those with much more money by pooling resources and participating in a cooperatively owned enterprise.

"Friendly Society" organizations in England were some of the earliest iterations of civil society organizations that functioned similarly to cooperatives. They promoted mutual benefits for workers of the same trade who participated in what would be now considered insurance programs where each worker paid into a fund which was used to assist workers who were injured on the job or who fell ill and were unable to work for a period. In 1702, a definition for Friendly Society organizations was provided by author Daniel Defoe in his *An Essay on Projects*. Defoe explains how these friendly societies could provide a social safety net to help keep workers from falling into ruin due to accidents or illness. Defoe characterized Friendly Society organizations as, "a number of people entering into a mutual compact to help one another in case any disaster or distress fall upon them" (Defoe, 1702, p. 118). This kind of community-based insurance program is an early example of a self-help organization that originated when business and government failed to adequately compensate or provide assistance to workers when they encountered hardship.

Over 100 years later, Defoe's vision was developed further through the work of William King, a doctor and educator who saw the difficulties that workers were facing at finding decent paying jobs in Brighton, England. In 1827, Dr. King helped to create the first cooperative in the history of England: The Brighton Co-operative Society, which used member dues of one penny per week to publish *The Co-operator* magazine (Simkin, 1993). *The Co-operator* was used to explain to the working class the importance of mutually beneficial cooperative organizations over capitalist establishments. *The Co-operator* eventually sold 12,000 copies a month and could pay fair wages to its employees as well as finance the work of the Brighton Co-operative Society. It did so well that the Brighton

Co-operative Society invested into several Brighton businesses that paid their workers more than the going wage of non-cooperatively managed businesses.

In 1922, The British Co-operative Union chronicled the life and work of Dr. King in *Dr. William King and the Co-operator*, a book comprised of an introduction by William Mercer followed by all issues of *The Co-operator* that were published between 1828-1830. Included within the introduction is a description of the mutual-aid society founded by students of Dr. King called the Brighton Co-operative Benevolent Fund Association. Its objectives were, "first, to raise by a small weekly contribution a fund for the purpose of enabling proper persons (who have not themselves the means) to join Co-operative Communities, by giving the whole or part of the capital, as the circumstances of the individual may require; and, secondly, to spread a knowledge of the co-operative system" (King & Mercer, 1922, p. XX). The introduction notes that the main reason why Dr. King began self-publishing *The Co-operator* was to raise awareness of the associations and societies of his students, a goal which he indeed accomplished.

The work of King along with early cooperative pioneers such as Robert Owen stand as early examples of collective action around cooperative participation in the industrial age. Robert Owen, often called the "Father of Socialism", pioneered an experiment of mutually beneficial participation in Lanarkshire, Scotland called New Lanark which he owned from 1800-1825 (Williams & Thompson, 2011, p. 56). Owen provided his workers with free health care and free education on top of their pay, benefits which were not offered other industrialists in England during that time. Owen himself described the project as "the most important experiment for the happiness of the human race that had yet been instituted at any time in any part of the world" (Kumar, 1990, p. 14). The form of Utopian Socialism

that Owen promoted became a model for industrial production that kept in mind the needs of workers and provided them with amenities and benefits that were not yet the norm in Western industrial countries and which went against the business practices of the day (Dowd, 2012). The principles that pioneers such as Defoe, King, and Owen developed still help to inform how organizations such as the International Co-operative Alliance define and assist cooperatives even as they evolve into iterations that look much different than they did in the 18th and 19th centuries (Fairbairn, 2004).

While cooperatives were being used in the 18th and 19th in British industrial sectors to protect workers against rampant capitalism, early cooperative movements in Denmark and Poland provided workers with the same protection against exploitation in the agricultural sector. The Danish cooperative agriculture movement, also called the *Andelsbevaegelsen* in Danish, became a formidable force as cooperative dairies began to form in 1882 (Choloupkova, Svendsen, & Svendsen, 2003, p. 248). Over the next several decades, cooperative movements formed in other sectors including the fodder, slaughterhouses, and banks, eventually becoming the de facto way to organize businesses in rural Denmark. These cooperative business ventures were formed by peasants who, before 1882, had been producing their own agricultural goods and selling them to traders, a process which was expensive and unpredictable. When dairies began to organize cooperatively in 1882, members saw immediate results in the quality, quantity, and price of butter that was produced cooperatively (Choloupkova et al., 2003). The social capital that developed in rural communities in the latter half of the 19th century remains strong today in the Danish cooperative dairy sector as well as in other sectors.

While the Danish cooperative agricultural sector remained strong throughout the 20th century like those of its Western European neighbors, the Polish cooperative agricultural sector paints a dismal picture of the rise and fall of cooperative agricultural sectors in the CEECs. Between 1918 to 1939, the cooperative dairy sector in Poland flourished and plentiful cooperative banks were able to provide credit to Polish farmers (Choloupkova et al., 2003). By 1939, there were over 14,000 cooperative organizations in Poland. However, the post-World War II communist regime decimated the industrial, financial, and agricultural cooperative sectors in Poland and the road to recovery after 1989 bas been littered with many challenges. According to Chloupkova et al. (2003), "private farms were in advance obliged to sign contracts specifying the volumes of produce they would sell to the state and accept the prices set by the state" (Choloupkova et al., 2003, p. 248). This and other policies restricted voluntary cooperation, and forced cooperation made many farmers reluctant to work with the government during the communist regime and suspicious of cooperative policies after 1989. This suspicion of the state and of cooperation is a central theme in the cooperative agricultural legacy of other CEECs and will be highlighted throughout this thesis.

2.2 History of Agricultural Cooperatives in the EU

The global agricultural status quo of the post-World War II era has been oriented towards maintaining a stable supply of food and agricultural goods in the face of rising levels of consumption and increasing populations. The leaders of this new era of agriculture were countries such as the United States, Australia, and New Zealand which all developed national subsidy programs to incentivize farmers to produce as much of specific kinds of

agricultural goods as possible (Almas & Campbell, 2012). Technological advances in the agricultural sciences helped to boost yields while a free trade regime that included countries in the developing world provided the competition and subsequent increases in productivity necessary to provide consumers with historically inexpensive food (Almas & Campbell, 2012). One of the goals of this new era of globalized agricultural production and trade was to effectively end world hunger by providing an excess of cheap agri-food products to rapidly expanding populations in both developed and developing countries. The European model took the opportunity to implement a system that would work with World Trade Organization (WTO) guidelines on subsidies and tariffs while the U.S. system continued to utilize productivist policies that often clashed with WTO rules.

Many European countries participated in this era of cheap food by developing the same kind of direct-subsidy regimes found in the United States and Australia. It was not until the late 1980s that the supply and demand problem of under-production moved to a problem of over-production (Almas & Campbell, 2012). During this time, the debate over agricultural production practices in Europe moved from focusing solely on hunger to focusing also on the environmental effects of agricultural production, animal welfare, and human health. In 1992, European governments began to respond to the outcry against direct-subsidy regimes and took steps to decouple the link between production and subsidies while also promoting alternative income-generating practices such as “organic farming, farm tourism, on- and off-farm diversification, and environmental and cultural landscape management” (Almas & Campbell, 2012, p. 4). In making these changes to the subsidy regime in the EU, policymakers were responding not only to public discourse but also to changes in WTO rules that sought to end direct payment and price support. These

neoliberal changes to the agri-food system were founded in “market competitiveness, comparative advantage, and improved market share”, shunning traditional models of “market protection, state assistance, and export promotion” (Potter & Tilzey, 2007, p. 1293).

The paradigm of agricultural production in the EU that formed after the WTO policy reforms of the early 1990s is known as “multifunctional agriculture”. Multifunctional agriculture incorporates a strong moral grounding in sustainable production that elevates maintaining environmentally and economically stable rural communities over potentially disruptive intensive production practices (Almas & Campbell, 2012). Multifunctionalism argues that agriculture has multiple functions in both the economic and traditionally noneconomic realms. One of the aims of the EU’s multifunctional model is to use agriculture to maintain “rural landscapes, protect biodiversity, generate employment, and contribute to the viability of rural areas” in addition to food production (De Master, 2012, p. 93). However, multifunctionality has been highly contested within international discourses on global agricultural policy with critics arguing that it is “an exeptionalist excuse for continued agricultural protectionism” due to its continued use of certain forms of subsidies (Potter & Tilzey, 2007, p. 1291).

For others, multifunctionality is a form of resistance to continued trade liberalization and an important step towards incentivizing more sustainable forms of agricultural production and trade. In its Agenda 2000 report, the European Commission explained why CAP subsidies are aimed towards promoting a successful multifunctional agricultural model. The report said that “the fundamental difference between the European model and that of our main competitors lies in the multifunctional nature of agriculture in

Europe and the role it plays in the economy and the environment, in society, and in the conservation of the countryside" (De Master, 2012, p. 93). Proponents view the principle of multifunctionality as a novel approach to developing a more holistic agricultural system that incorporates social and environmental concerns into agricultural policies. Farmers are envisioned as stewards of public goods, acting as custodians of rural landscapes and the environment. According to Van Huylenbroeck et al. (2007), the multiple functions that are served through multifunctional production exist in several different groups (Huylenbroeck, 2007, p. 6). These groups include:

- "Green functions: landscape management and the upkeep of landscape amenities, wildlife management, the creation of wildlife habitat and animal welfare, the maintenance of biodiversity, improvement of nutrient recycling and limitation of carbon sinks;
- Blue services: water management, improvement of water quality, flood control, water harvesting and creation of (wind-) energy;
- Yellow services: the role of farming for rural cohesion and vitality, ambience and development, exploiting cultural and historical heritages, creating a regional identity and offering hunting, agro-tourism and agro-entertainment; and
- White functions: food security and safety".

The movement of many of the countries in the European Union towards multifunctional agriculture also corresponds with the European tradition of cooperation, even as the definition of cooperation differs depending on the cultural, economic, historical, and political legacies of each member state. As Europe recovered from the devastation of World War II, cooperation was key to ensuring a peaceful and prosperous

future for the continent. APCs became a centerpiece in the Common Agricultural Policy (CAP) of the European Community because the Community wanted more integration and cooperation between member states concerning their individual agricultural policies (COGECA, 2010). The Treaty of Rome, which was signed in 1957 and established the CAP, gave rise to the possibility for representation and influence of farmers and farming experts on CAP provisions. With the support of the European Commission, the Committee of Professional Agricultural Organizations (COPA) and the General Committee for Agricultural Cooperation in the European Union (COGECA) were formed in 1958 and 1959 as representative organizations aimed at supporting the interests of APCs and farm workers at the EC level (COGECA, 2010). Today, COPA and COGECA remain the two largest agri-cooperative and farmer lobbying organizations in the EU.

The inclination towards cooperative participation in Europe remained strong as the European Community morphed into the set of supranational and intergovernmental institutions that presently make up the European Union. The current macro view of how APCs are faring in the EU today can be observed by looking at the market share that APCs hold in a specific agricultural sector or across all sectors (Brusselaers, Poppe, & Azcarate, 2014). In 2010, the average market share of APCs in the EU was around 40% across all agricultural sectors, with APCs in some countries achieving over 50% market share across all agricultural sectors (Bijman & Iliopoulos, 2014). According to the 2015 COGECA document, COPA and COGECA currently represent 70 national farming and cooperative organizations at the EU level and 22,000 farmers' cooperative organizations across the continent (COGECA, 2015). In 2015, Cooperatives Europe reported that the European Union contained over 51,392 APCs with over 9,592,704 members, 675,566 employees,

and over 347 € billion in annual turnover in the cooperative agricultural sector. The turnover in the cooperative agricultural sector was 39.34% of the total turnover from all sectors cooperative enterprises (Cocolino, 2016). The Cooperatives Europe document also notes that from 2011 – 2012, the turnover of the top 100 performing APCs represented by COGECA increased by 4% and by 14% from 2012–2013.

Although these macro statistics paint a positive picture of APCs in the EU, and while some member states have cooperative agricultural sectors with high shares of the market, the cooperative agricultural sectors of other member states are sometimes much less developed (Brusselaers, Poppe, & Azcarate, 2014). In 2010, while Finland, Denmark, Sweden, Ireland, the Netherlands, France, and Austria all had cooperative agricultural sectors with market shares of over 50% over eight distinct sectors, other countries had much lower market shares across the same sectors or only had strong percentages in a few sectors (Brusselaers, Poppe, & Azcarate, 2014). Based on these data, the tendency of many Northern and Western states to produce cooperatively is clear. However, how can we explain the lower market shares present is other countries, many of which are in Central and Eastern European member states? To tackle this question, it is important to look at the scholarship surrounding the Common Agricultural Policy to understand how its policy tools are used to support APCs.

2.3 The Structure and Organization of the Common Agricultural Policy

The Common Agricultural Policy is itself a test of European cooperation after WTO rules threatened an era of unfettered trade liberalization. Since 1992 when the EU began to move away from market interventionist policies towards policies to foster rural

development and environmental sustainability, the CAP has undergone a series of policy reforms and adapted the tools that it uses to monitor and regulate the agricultural sector (Matthews, 2011). During the past twenty years, reforms to build a financial safety net for producers, develop environmental requirements for farmers, and foster rural development have changed the way in which the CAP intervenes within the agricultural sector. While 90% of the CAP budget in 1992 was allocated towards market management by way of export refunds and intervention purchases of member state products, in 2013 market intervention had dropped to only 5% of the CAP budget, showing a clear transition away from an interventionist subsidy regime towards allowing the decisions of consumers to allow the market to set its own unsubsidized prices (European Commission, 2013).

The CAP is organizationally comprised of a two-pillar structure, each pillar maintaining specific foci and competencies regarding agriculture and rural development in the European Union. The first pillar, or the "common organization of the markets in agricultural products" (CMO), is concerned with maintaining a stable market and ensuring high levels of productivity across the different agricultural sectors in the EU (Ragonnaud, 2016a). Prior to 2003, there were 21 different CMO programs that each covered specific agricultural products and the direct payments to farmers that were linked to production. The Luxembourg reform of 2003 began the process of decoupling payments from production and moving towards a single payment scheme that allowed farmers to produce what the market wanted instead of what the subsidy programs incentivized (Ragonnaud, 2016a). After 2007, the 21 different CMO programs were combined into one singular CMO that supports all forms of agricultural products. These changes to the first pillar of the CAP moved price support intervention measures from the CAPs main form of agricultural

support into a safety net option used only in times of market disruption (Ragonnaud, 2016a). Since the reforms made to the CAP in 2013, the CMO plays a much different role than it did prior to 2003. The current structure of the CMO has both an internal and external focus regarding production and trade in the EU. Internally, the CMO maintains its role in market intervention while also managing the rules on marketing and producer organizations. Externally, the CMO manages the rules regarding import and export duties, tariff quotas, and export refunds.

The direct payments paid to farmers by the CMO target specific objectives that are outlined as followed: 1) a payment per hectare based off of national or regional criteria; 2) payments for "greening", or the specific environmental public good provided by farms that are not accounted for in market transactions; 3) payments for five years to young farmers; 4) "redistributive payments"; 5) income support for farmers producing in environments with "natural constraints"; 6) some coupled to production support based off of economic or social goals; 7) payments to "small farmers" (Massot, 2017). The first three of these objectives are mandatorily funded while the following four are optionally or partially funded based on the needs of each member state. The funding to pay for these direct payments under the first pillar of the CAP is paid out to member states who then appropriate the money based off their own needs. Thirty percent of funding is required to go towards the "greening" component while the other 70% is earmarked to fund the optional components (Massot, 2017). This system provides member states with flexibility in how they individually allocate dollars towards national and regional agricultural goals and objectives while providing an overall direction for agriculture in the EU with a heavy focus on incentivizing environmentally friendly production practices.

The second pillar of the CAP is known as the rural development policy. Implemented in 2000, the rural development policy is funded by the European Agricultural Fund for Rural Development (EAFRD) which is aimed at promoting growth and employment through sustainable rural development that is conscious of maintaining a healthy environment (Ragonnaud, 2016b). Member states work with the EAFRD on rural development projects based on an extensive "menu" of approved measures provided by the EAFRD. Rural development projects are co-developed and co-financed by member states and the EAFRD after a project is ascertained to support the priorities of the EAFRD and target a specific measure on the menu and then approved by the EC (Ragonnaud, 2016b). Similar to the approach that the CMO uses to allocate funding in pillar one, the process of deciding upon rural development projects is based on the specific needs of each member state. The priorities laid out by the new rural development policy are outlined on the website of the European Parliament as (Ragonnaud, 2016b):

- To promote knowledge transfer and innovation in agriculture and forestry;
- To increase the viability and competitiveness of all types of agriculture, promote innovative agricultural technologies and support sustainable forest management;
- To promote the organization of the food production chain, animal welfare and risk management in farming;
- To restore, preserve and enhance agricultural and forest ecosystems;
- To promote the efficient use of resources and support the transition to a low-carbon economy; and
- To promote social inclusion, poverty reduction and economic development.

2.4 Producer Organizations

The details of the Common Agricultural Policy require not only a knowledge of its current configuration but also a knowledge of the CAP reforms over the past two decades to fully understand its impact and trajectory. Understanding the way that CAP is organized and the ever-changing policy instruments at its disposal is necessary to build an informed understanding of how the policy defines and affects APCs. In the context of the CAP, agricultural cooperatives are legally codified as "voluntary agricultural producer organizations" (POs) which the European Commission has committed to support through the development of a policy environment that promotes POs (Brusselaers, Poppe, & Azcarate, 2014). A common definition of a PO is: "a rural business, owned and controlled by producers, and engaged in collective marketing activities… Thus, in a broad sense, POs are, like cooperatives, user-owned, user-controlled, and user–benefit organizations" (Bijman et al., 2012, p. 18). The term "producer organization" is the way in which APCs are defined and codified in EU law, although there are distinct differences in how POs function in practice. POs deal much less with the processing of members' products but instead engage in the joint marketing and sale of members' products (Bijman et al., 2012). POs in the fruit and vegetable (F&V) sector are the only POs financially supported by CAP. EU legislation was passed to support POs in the dairy sector in 2012 and in other sectors in 2014, signaling that growth in the F&V sector has led to increased EU support of POs in other sectors (Bijman & Iliopoulos, 2014).

Prior to 2007, the prevalence of small F&V farms that lacked the capacity to consolidate and realize a larger production capacity was observed and noted by EU officials. Since the 2007 CAP reforms to the Common Market Order (CMO) which aimed

to support farmers who were members of POs in the F&V sector, new provisions focusing on supporting them yielded increases in cooperative development and participation (Brusselaers, Poppe, & Azcarate, 2014). Financial support of F&V POs has largely been a test to see if increased cooperative participation could be fostered through incentivizing production in specific sectors.

One example of increased cooperative participation was in the case of Italian F&V POs. POs in this sector utilized a new CAP co-financing scheme that allowed the POs to co-finance investments with CAP funds, especially investments aimed at product marketing support (Brusselaers, Poppe, & Azcarate, 2014). These F&V POs performed much better than APCs in other sectors that were only supported by national law without EU financial support. In Italy, they reached a 33% market share of the overall F&V sector while POs in other sectors only made up 4% of the market. Additionally, reforms of CAP in 1996 to the F&V CMO created new subsidies which helped to spur the development of new POs. These reforms broadened the definition of POs which allowed POs that existed in various other legal forms before 1996 to access these subsidies (Brusselaers, Poppe, & Azcarate, 2014).

EU legislation in 2007 that allowed EU-recognized POs to expand into the hops, olive oil, table olives, and silkworm sectors legally recognized farmers in these sectors with the express directive that these organizations should focus on: “(i) concentrating supply and marketing the produce of the members; (ii) adapting production jointly to the requirements of the market and improving the product; (iii) promoting the rationalisation and mechanisation of production” (Bijman et al., 2012, p. 20). Additionally, legislation in 2012 opened the dairy sector to the concept of POs, allowing farmers to use POs to

collectively negotiate contract terms such as the price of raw milk. However, neither of these legislative changes mandate mutual ownership or democratic governance of POs as is outlined in EU law for POs in the F&V sector, meaning that the only POs currently recognized by the EU that can be classified as true APCs are those in the F&V sector (Bijman et al., 2012). The variation in cooperative development across the EU signals that while both POs and APCs flourish in some parts of the EU based on current CAP programs, if the EU seeks a more evenly distributed development of POs and APCs, its policies towards POs and APCs must take into account the varying cultural, economic, historical, and political legacies that exist in different member states (Bijman & Iliopoulos, 2014). The success of the F&V PO program indicates that expanding financial support into sectors that presently have less membership density and lower percentages of market shares of cooperatively produced goods would be beneficial to bolster sectoral cooperative participation.

2.5 Philosophical Underpinnings and the Social Economy

The economic advantages of risk sharing, collective bargaining, and aggregation realized through cooperative participation have been expounded upon already, but a strong philosophical argument can be made for how APCs promote rural development and agriculture as public goods. Karl Polanyi pioneered the idea that economic interests are not the only forces pushing a person to act, but instead social relationships surround a person's economic interests, and these relationships drive one's economic performance (Polanyi, Arensberg, & Pearson, 1957). He considers both economic and nonmarket goods as important, meaning that society benefits overall when nonmarket goods, goods such as

environmental sustainability and rural development, are invested in and protected. Nonmarket goods are often undervalued because these goods are characterized as abundant and ubiquitous. However, when there is a chance that nonmarket goods could be lost or harmed, production practices and market transactions evolve in ways that elevate the protection of nonmarket goods that are of value to society (Polanyi, Arensberg, & Pearson, 1957). The socially embedded economy helps us to understand variations in cooperative participation by providing a framework for how different member states might or might not value specific nonmarket goods or how they might have differing mechanisms for protecting nonmarket goods.

This idea that the economy should be embedded within society centers around reciprocity and redistribution. Polanyi believed that reciprocal acts in tribal societies maintained a level of social cohesion that are absent in relationships in the industrial market economy (Filip, 2012). Polanyi writes that, "…all social obligations are reciprocal, and their fulfillment serves also the individual's give-and-take interests best. Such a situation must exert a continuous pressure on the individual to eliminate economic self-interest from his consciousness to the point of making him unable… even to comprehend the implications of his own actions in terms of such an interest" (Polanyi, 1945, 46). Polanyi argues here that social interactions depend on reciprocal transactions even if those transactions are not immediately visible to the parties involved. Reciprocity is often complemented by redistribution in Polanyi's socially embedded economy. Redistribution is the spreading of wealth between the rich and the poor to help make society more secure overall and is in Polanyi's view a major function and obligation of the state.

Polanyi believed that the industrial economy creates poverty and economic inequality, problems which must be remedied through redistribution. Institutions such as public education and job training must be protected to give the working class a fair chance. In analyzing Polanyi's motives for supporting redistribution, Filip writes that, "Polanyi aimed to restore a moral and ethical relationship between human beings by establishing an institutional framework that regulates the activities of individuals" (Filip, 2012). Reciprocity and redistribution are integral to understanding variations in cooperative participation across the EU. This is because countries have different historical and socioeconomic legacies that affect how member states view reciprocal transactions and the redistribution of wealth. For instance, the stigmatization of collectivization in CEECs could be a contributing factor to the lower levels of cooperative development present in these countries. Even though the success of the F&V CMO and the success of EU dairy APCs in raising prices paid to farmers show that there are benefits to cooperative participation, perhaps the focus on individual success observed by Gijselinckx and Bussels (2014) provides an explanation for the stigmatization of cooperative participation.

Understanding the differences between the socially embedded and the market-dominated economy also relies on an understanding of what Polanyi calls fictitious commodities. Fictitious commodities are elements not meant to be economically evaluated and traded through market transactions. In *The Great Transformation*, Polanyi writes, "To allow the market mechanism to be sole director of the fate of human beings and their natural environment indeed, even of the amount and use of purchasing power, would result in the demolition of society" (Polanyi, 1945, p. 76). The commodities that Polanyi was referring

to were land, labor, and capital, all things which have over time been commodified to the point that their intrinsic value has been questioned and threatened.

There is a limit to how much a system can commodify land and human labor before the system itself implodes, examples of such times being the Great Depression and the Great Recession in the US context. The website OnTheCommons.org published an article at the beginning of 2009 shortly after the beginning of the Great Recession with title "Why Karl Polanyi Still Matters" offers a glimpse into the arguments that it makes regarding fictitious commodities in the 21st century (Bollier, 2009). An excerpt from the article reads, "The big cultural project of our time is learning to accept the reality that nature has its own needs and limits, that human beings are not fungible units of labor, and that even money is a social creation based on social trust and governance" (Bollier, 2009, 1). Polanyi's work on fictitious commodities is a reminder that humankind and nature both have limits and that treating land and labor as expendable is not the way to organize a sustainable economic system. The democratic and mutually beneficial nature of APCs makes them ideal for utilizing Polanyian reciprocity and redistribution to re-embed markets back into society. Polanyian reciprocity is found in APCs because producers realize greater benefits through cooperation than without cooperation.

Polanyi's concept of "double movement" argues that attempts of self-protection transform societies in very different ways. Double movement is the idea that as self-regulating, free markets continue to dominate, those who feel the negative effects of market failures or of structural economic transitions will resist and form alternative economic models to embed social considerations back into the economy (Maertens, 2008). These counter movements are bred out of protectionist pressure to give national governments

more control over their labor force and economies than is accessible under international free trade regimes. These movements range from fascist totalitarianism (Nazi Germany and Mussolini's Italy) that promote top-down control to bottom-up, socialist leaning movements that promote democracy and social development as alternatives to the disruptive effects of the unfettered free market. It could be argued that the democratic, mutually beneficial nature of APCs represents the latter movement.

2.6 Hypothesis

Drawing on insights from the literature review, the following hypotheses were tested using national-level data and making regional comparisons:

- The different historical and socioeconomic legacies of Northern and Western European, Central and Eastern European, and Southern and Mediterranean European member states have an effect on the level of cooperative participation as measured by cooperative development indicators.
- The degree to which the historical and socioeconomic legacies of each regional grouping affect their level of cooperative participation will be reflected in the density of APC membership, with higher density reflecting higher levels of cooperative participation and lower density reflecting lower levels of cooperative participation.

CHAPTER THREE: METHODS AND ANALYSIS

To discern which indicators are correlated with the level of participation in APCs in the European Union, this thesis largely relies on analyzing patterns of cooperative development across groups of countries. Three groups of member states were identified as having comparable historical and political backgrounds and varying levels of cooperative development. The three groups of member states are: Northern and Western European, Central and Eastern European, and Mediterranean and Southern European. To quantify the level of cooperative development between groups, variables were chosen that reveal how groups or individual countries compares against one another. These cooperative development variables include APCs per capita, average members per APC, APC members per capita, and average agricultural output.

The APCs per capita variable was calculated using David Grace and Associates (2014) population figures for each member state and COGECA (2015) figures on the number of agricultural cooperatives in each member state. Agricultural cooperatives in the COGECA study are treated as synonymous with APCs in this thesis and therefore the number of agricultural cooperatives is treated as the number of APCs. This decision was made because the COGECA study uses a similar definition for cooperatives as the definition for APCs. The COGECA definition reads: “Cooperatives are the extension of the farming activity, as they enable farms to increase their bargaining power, which is essential to reduce cost when supplying inputs and material” (COGECA, 2015, p. 15). Average members per PC was calculated using aggregated membership data for each member state from Cooperatives Europe (2015), David Grace and Associates (2014), and COGECA (2015) figures on the number of agricultural cooperatives in each member state.

APC members per capita was calculated using aggregated membership data for each member state from Cocolina (2016), David Grace and Associates (2014), and COGECA (2015) population figures for each member state. Average agricultural output was calculated using an average of EUROSTAT (2013-2016) data on the total output of the agricultural industry in millions of euros over three years for each member state.

Using SPSS 26 for data management and analysis, each cooperative development indicator was analyzed to find the median, mean, standard deviation, minimum, and maximum for all member states. Additionally, member states were coded as 1, 2, or 3 into one of the three groups: 1 if the member state is Northern and Western European, 2 if the member state is Central and Eastern European, or 3 if the member state is Mediterranean and Southern European. Member states were then coded into a "low", "medium", or "high" categories for each indicator, "low" representing the lowest 33.33%, "medium" representing the middle 33.33%, and "high" representing the highest 33.33%. Once these groups were created, a crosstabulation was conducted to see how many members of each group of countries fall into the "low", "medium", and "high" categories for each of the cooperative development indicators. Comparing column percentages, this analysis was undertaken to see if any specific patterns in cooperative development exist between groups of countries which have specific historical and socioeconomic linkages that were identified in the literature.

This thesis also uses lambda and the uncertainty coefficient to measure the effect, size, or degree of association between indicators. Lambda incorporates the proportional reduction error when considering the independent variable to predict the dependent variables, with 0 indicating that there is no association and 1 indicating that the independent

variable predicts the dependent variable (Loether & McTavish, 1993). The uncertainty coefficient shows "the proportional reduction in error when values of one variable are used to predict values of the other variable" (IBM, 2017). The uncertainty coefficient shows how much knowledge of an indicator reduces the error in predicting another indicator. The p-values for lambda and the uncertainty coefficient show the level of statistical significance for each association, with $p < .10$ indicating a statistically significant association (Loether & McTavish, 1993).

CHAPTER FOUR: FINDINGS

Before considering the findings of how cooperative development indicators varies between country groups, it is useful to explore the descriptive statistics for all EU member states for comparison (Table 1). Complete data are here available for average agricultural output and APCs per capita, however for both APC members per capita and average members per APC, only 23 member states had usable data available. Average agricultural output measures the average total output of the agricultural industry in millions of euros over three years for each member state. Member states range from a minimum of 128 to a maximum of 75,318 with a standard deviation of 19,833.88. The mean for average agricultural output is 14,982.86 and the median is 6,885.50. APCs per capita across member states is at its minimum .32 and at its maximum 17.88 with a standard deviation of 5.15. The mean for APCs per capita is 5.44 and the median is 3.29. APC members per capita across member states is at its minimum 4.98 and at its maximum 4,395.14 with a standard deviation of 1,229.39. The mean for APC members per capita is 1,286.39 and the median is 834.94. Lastly, average members per APC across member states is at its minimum 1 and at its maximum 5,345 with a standard deviation of 1,532.08. The mean for APC members per capita is 1,027.96 and the median is 307.

Table 1: Descriptive Statistics for European Union Member States

	Average Agricultural Output	APCs per Capita	APC Members per Capita	Average Members per APC
Total Countries	28	28	23	23
Mean	14982.86	5.44	1286.39	1027.96
Median	6885.50	3.29	834.94	307.00
Std. Deviation	19833.88	5.15	1229.39	1532.08
Minimum	128.00	.32	4.99	1
Maximum	75318.00	17.88	4395.14	5345
Sources: Cooperatives Europe (2015), David Grace and Associates (2014), EUROSTAT (2013-2016), and COGECA (2015). Additional calculations by author.				

The descriptive statistics in Table 1 demonstrate the wide range of variation present between member states for each cooperative development indicator. This information is useful when comparing a group of member states against the whole of the EU regarding the cooperative development indicators. However, crosstabulations are more useful for the purposes of this thesis because they allow for a comparison of different groups against one another and not only against all EU member states. The crosstabulations below demonstrate for these member state group comparisons within the "low", "medium", and "high" categories for each cooperative development variable as was explained in the "Methods and Analysis" section above.

Although the focus of this study is between region comparisons, it is important to summarize the within region variation that exists between regional groupings. Augmenting Table 1, Table 8 in the appendix demonstrates that across all regional groupings, there is variation in members per APC and APCs per capita, signaling that within each region, member states engage in cooperative participation in the agricultural sector to varying degrees. For instance, while there are 358 members per APC in France, there are 4879 members per APC in Finland. Coupled with the fact that Finland produces only about one-sixteenth of France's average agricultural output, this variation in members per APC could

mean that there is a larger focus on cooperative production in Finland or that members in France are more consolidated with larger levels of production per member. When it comes to APCs per capita, Central and Eastern European member states range from .32 APCs per capita in Romania to 14.37 APCs per capita in Croatia. These data signal that further studies on interregional variation in cooperative participation is the next logical step to understanding cooperative variation in the EU.

Table 2: Agricultural Producers Cooperatives Per Capita in European Union Member States

Category	Northern and Western European	Central and Eastern European	Mediterranean and Southern European	Total
Low	45.5% (5)	27.3% (3)	0.0% (0)	30.8% (8)
Medium	45.5% (5)	18.2% (2)	50.0% (2)	34.6% (9)
High	9.1% (1)	54.5% (6)	50.0% (2)	34.6% (9)
Total (n)	100.0% (11)	100.0% (11)	100.0% (4)	100.0% (26)
Sources: David Grace and Associates (2014) and COGECA (2015). Additional calculations by author.				

In analyzing tables 2 through 4, patterns can be identified between the different regional groups and the cooperative development indicators. For instance, table 2 indicates that 45.5% of Northern and Western European member states are in the “low” category for APCs per capita while 54.5% of the Central and Eastern European member states are in the “high” category for the same cooperative development indicator. Additionally, half of the Mediterranean and Southern European member states are in the “medium” category and half are in the “high” category for APCs per capita. This means that there is a higher density of APCs in CEECs than in Northern and Western member states and that Mediterranean and Southern European member states tend to also have a higher density of

APCs. While historical data on APCs per capita over time is not available, the rise in APCs per capita in CEECs could indicate an increase in cooperative participation within CEECs. However, the size of each APC is important because some APCs could have very low membership, meaning that a high number of APCs per capita is not necessarily linked to a higher average membership per APC.

Table 3: Average Members per Agricultural Producers Cooperative in European Union Member States

Category	Northern and Western European	Central and Eastern European	Mediterranean and Southern European	Total
Low	0.0% (0)	77.8% (7)	33.3% (1)	38.1% (8)
Medium	44.4% (4)	11.1% (1)	66.7% (2)	33.3% (7)
High	55.6% (5)	11.1% (1)	0.0% (0)	28.6% (6)
Total (n)	100.0% (9)	100.0% (9)	100.0% (3)	100.0% (21)

Sources: Cooperatives Europe (2015), David Grace and Associates (2014), and COGECA (2015). Additional calculations by author.

Table 3 helps to fill this knowledge gap by providing information on the average membership density per APC, this being an important cooperative development indicator because it shows how many producers use each APC to aggregate and market their product. Table 3 shows that 44.4% of Northern and Western European member states fall into the "medium" category and 55.6% fall into the "high" category while 77.8% of CEECs fell into the "low" category, indicating that Northern and Western member states tend to have higher density APCs than in CEECs. Table 2 and table 3 together indicate that Northern and Western European Countries have developed APCs that are larger with more membership per APC than in CEECs and in Mediterranean and Southern European countries but which are less numerous per capita than in the other regional groups.

Table 4: Agricultural Producers Cooperative Members per Capita in European Union Member States

Category	Northern and Western European	Central and Eastern European	Mediterranean and Southern European	Total
Low	20.0% (2)	45.5% (5)	50.0% (2)	36.0% (9)
Medium	30.0% (3)	45.5% (5)	0.0% (0)	32.0% (8)
High	50.0% (5)	9.1% (1)	50.0% (2)	32.0% (8)
Total (n)	100.0% (10)	100.0% (11)	100.0% (4)	100.0% (25)

Sources: Cooperatives Europe (2015), David Grace and Associates (2014), and COGECA (2015). Additional calculations by author.

Table 4 demonstrates the APC members per capita which provides insight into how each regional grouping does against one another regarding density of APC members. Half of all Northern and Western European countries fall into the "high" category, but 30% also fall into the "medium" category and 20% fall into the "low" category, showing a wide spread APC membership density across this regional grouping. Ninety-one percent of all CEECs fall into the "low" and "medium" categories, revealing that many CEECs have low-to-medium levels of participation when it comes to cooperative participation. This table indicates that while most Northern and Western European member states are on the medium-to-high end of APC member density, CEECs are on the medium-to-low end.

Table 5: Average Agricultural Output in European Union Member States

Category	Northern and Western European	Central and Eastern European	Mediterranean and Southern European	Total
Low	9.1% (1)	54.5% (6)	0.0% (0)	26.9% (7)
Medium	45.5% (5)	27.3% (3)	50.0% (2)	38.5% (10)
High	45.5% (5)	18.2% (2)	50.0% (2)	34.6% (9)
Total (n)	100.0% (11)	100.0% (11)	100.0% (4)	100.0% (26)
Source: EUROSTAT (2005-2016). Additional calculations by author.				

The average agricultural output table does not necessarily provide insight into how regional groupings compare against one another in regards to cooperative development. However, it does provide context into how different groups compare against one another when it comes to overall agricultural development and production. Greater amounts of total agricultural production could be the result of more highly developed systems of agricultural production than in member states with lower levels of total agricultural production.

Table 6: Association Between Region and Cooperative Development Indicators

Indicators of Cooperative Development	Lambda (p)	U (p)
APCs per Capita	.235 p = .337	.159 p = .060
Average Members per APC	.462 p = .017	.379 p = .002
APC Members per Capita	.188 p = .244	.149 p = .086
Average Agricultural Output	.383 p = .106	.152 p = .073

Table 6 contains two measures of the strength of association, lambda and the uncertainty coefficient, which both measure the degree of association between nominal variables. The lambda coefficient for the association between region and average members

per APC is .462, representing a strong association between region and average members per APC. This association reflects the variation in average membership per APC between regional groupings and suggests that region plays a role in the density of average members per APC. The p-value for the lambda measure of average members per APC is .017 which meets the $p < .10$ bar for statistical significance. The uncertainty coefficient for average members per APC is .379, meaning that knowledge of region helps to reduce errors in the prediction of the values of average members per APC by 38%. The p-value for the uncertainty coefficient measure of the relationship between region and average members per APC is .002, making the test statistically significant and further strengthening the case for region as an indicator of membership density.

The association between region and average agricultural output is strong in the lambda measure and weak to moderate under the uncertainty coefficient measure. The lambda coefficient is .383 for average agricultural output, showing a moderate to strong association between region and average agricultural output. The weak to moderate association between region and average agricultural output signals that region has somewhat of a potential influence on the average agricultural output of member states.

Table 7: Association Between Output and Cooperative Development Indicators

	APCs per Capita		Average Members per APC		APC Members per Capita	
	Lambda (p)	U (p)	Lambda (p)	U (p)	Lambda (p)	U (p)
Average Agricultural Output	.333 p = .092	.108 p = .157	.467 p = .034	.292 p = .005	.222 p = .085	.101 p = .119

Table 7 also uses the lambda and uncertainty coefficient to test the strength of association between variables. It shows the strength of relationship between average agricultural output and the three other cooperative development indicators, APCs per

capita, average members per APC, and APC members per capita. The association between average agricultural output and average members per APC in the lambda test is strong with a coefficient of .467. The p-value for lambda is .034 which also meets the $p < .10$ test for statistical significance. The uncertainty coefficient of .292, meaning that knowledge of average agricultural output helps to reduce errors in predicting the values of average members per APC helps reduce uncertainty in predicting agricultural output by 29%.

CHAPTER FIVE: CONCLUSION AND DISCUSSION

The findings shown in Chapter Four suggest that out of the four cooperative development indicators comparing column percents and using the lambda measure, the association between region and average members per APC is moderate to strong and the association between region and average agricultural output is moderate. This indicates that the variations in membership density between regional groupings can be at least partially attributed to region when it comes to average members per APC and average agricultural output. However, the other two cooperative development indicators show weaker associations with region. The uncertainty coefficient values for table 6 are all statistically significant, however all the associations are weak to moderate besides that association between region and average members per APC where a strong association is present. This reveals not only that region is strongly associated with membership density of APCs in the EU, but also that knowledge of region helps to predict the values of average members per APC. Table 7 indicates that for lambda, a strong association exists between average agricultural output and average members per APC, with the uncertainty coefficient signaling that knowledge of average agricultural output helps to predict the values of average members.

These findings do not support the first hypothesis concerning variation across all cooperative development indicators because the higher numbers of APCs per capita and APC members per capita in CEECs and Mediterranean and Southern European member states indicate that variation in these areas is not consistent with the suspicion of cooperation that has been present in these groupings for generations. However, these findings support the second hypothesis which states that the density of APC membership

affects the level of cooperative participation because patterns in the crosstabulation and the lambda value for the association between region and members per APC indicate a strong relationship. While CEECs and Mediterranean and Southern European member states show higher density than Northern and Western European member states in the realm of APCs per capita, Northern and Western European member states show higher membership density per APC than either of the other groupings. This indicates that APCs in Northern and Western European member states are larger and denser than either of other regional groupings.

This thesis adds to the literature on variations of cooperative development by providing a quantitatively based snapshot of variation in cooperative development to complement existing literature on historically determinant explanations for variation in Chloupkova et al. (2003), Gijselinckx and Bussels (2014), Hagedorn (2014), Bijman et al. (2012), and Lissowska (2012). The associations identified between region and cooperative development indicators and the associations between average agricultural output and the other cooperative development indicators pave the way for more research on associations between cooperative development variables and region. Additionally, this thesis connects the literature of Polanyi and his ideas on the socially embedded economy with contemporary developments in cooperative agricultural participation. By placing Polanyi's ideas on the nature of economic and social transactions into a modern context, this thesis attempts to link widespread use of cooperative organizations in the EU to his theories on reciprocity, redistribution, and fictitious commodities.

Above all else, this thesis revealed that economic cooperation in the agricultural sector looks different depending on national and regional context in the EU. The variations

identified between regional groupings in the areas of average members per APC and average agricultural output signal not only that regional variations exist, but also that inter-regional variations exist. The successful financial incentivization for F&V POs by the CAP makes evident that expanding financially incentivized PO programs to other sectors could be beneficial to increased cooperative participation. However, barriers to cooperative participation in post-Soviet, post-Yugoslavic, and transition member states such as low levels of trust, difficulties protecting farmers' incomes, and the "propaganda of individual success" outlined in Gijselinckx and Bussels (2014), Lissowska (2012), and Iliopoulos and Valentinov (2012) could also stand in the way of further cooperative participation, especially in CEECs.

National data on output per APC would be useful in future studies because the data used in this study do not provide insight into the level of production per APC or the level of production by all APCs in each member state. While the perspective of this study focused on member states in the European Union, the same methodology could be used in other international and global contexts by grouping nations together with similar historical or socioeconomic legacies to examine levels of cooperative development and participation. An analysis between countries in each region would be an interesting start for further research. Additionally, larger numbers of countries per regional grouping would make it easier for the researcher to come to definitive conclusions with more statistical relevance in further studies. Using additional cooperative development indicators alongside those identified and analyzed here would also be prudent, especially if different national or regional contexts necessitated the inclusion of these indicators due to their situation.

APPENDIX

Table 8: Summary of Cooperative Development Variables by Country and Region

Region	Country Name	Members per APC	APC Members per Capita	APCs per Capita	Average Agricultural Output[1]
NWE[2]	Austria	1412	1411.52	2.56	7054
NWE	Belgium	-	-	2.70	8512
NWE	Denmark	1633	817.64	0.50	11270
NWE	Finland	4879	3154.17	0.65	4777
NWE	France	358	1306.00	3.65	75318
NWE	Germany	600	1759.19	2.93	56172
NWE	Ireland	2689	4395.14	1.63	7267
NWE	Luxembourg	-	-	10.35	430
NWE	Netherlands	651	834.94	1.28	27379
NWE	Sweden	5345	1684.95	0.32	6315
NWE	United Kingdom	690	218.29	0.32	30524
CEEC[3]	Bulgaria	170	2099.52	12.32	4373
CEEC	Croatia	18	251.56	14.37	2532
CEEC	Cyprus	1780	2207.01	1.24	693
CEEC	Czech Republic	1	4.98	5.21	4924
CEEC	Estonia	97	152.01	1.57	907
CEEC	Hungary	28	317.22	11.22	7755
CEEC	Latvia	-	-	2.42	1305
CEEC	Lithuania	32	432.09	13.47	2878
CEEC	Malta	101	433.83	4.30	128
CEEC	Poland	2637	930.55	0.35	23301
CEEC	Romania	-	-	0.32	16312
CEEC	Slovakia	9	104.51	11.035	2399
CEEC	Slovenia	45	803.59	17.88	1179
SME[4]	Greece	-	-	4.88	10412
SME	Italy	148	1417.19	9.58	55349
SME	Portugal	13	91.35	6.98	6717
SME	Spain	307	2551.65	8.32	43338

Source: EUROSTAT (2013-2016). Additional calculations by author.

[1] Millions of euros, average of years 2012 – 2014
[2] Northern and Western European
[3] Central and Eastern European
[4] Southern and Mediterranean European

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