FACULTY OF ECONOMICS AND BUSINESS

State Aid in the EU

An Analysis of Discrepancies in the Allocated Aid

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Thesis submitted to obtain the degree of

MASTER OF BUSINESS ECONOMICS
Major International Business, Strategy and Innovation

Promoter: Prof. Dr. Christophe Crombez
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This thesis provides an overview of past research on the topic of state aid and summarizes the main findings as to the reasons explaining the differences in the amount of state aid allocated by EU members. Numerous factors seem to have an impact. Government size, membership date, country size, number of inhabitants, the objectives of state aid and the kind of instruments used to allocate aid are investigated as to their effect on the amount of state aid as percentage of Gross Domestic Product (GDP). This thesis found that although country size, number of citizens and date of membership plays a role in the total amount of state aid, these variables were not significant for the state aid to GDP ratio. State aid objectives, such as closure aid, agricultural aid, regional development and rescue and restructure seem to be explanatory for the state aid to GDP ratio. Also, governments using tax exemptions as an instrument of aid allocation showed a comparative larger state aid to GDP ratio for the period 2009-2014, in general. This thesis claims that there is a negative effect of large governments (in terms of government revenue and expenditure) on the state aid to GDP ratio, which contrasts with previous findings that large governments tend to have a higher ratio of subsidies to GDP.

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Karel De Corte is responsible for the Flemish state aid for economic objectives. He provided some important insights.

Furthermore, I would like to thank Sophie De Vinck & Wouter Dutillieux, who are contact persons from the Directorate General for Competition for state aid. They answered questions I had during my research via mail and interview. They also provided manuals for state aid, helping me to get more familiar with the topic.

Also, a word of thanks to Hilde Decleer, who is alderman of local economy in Bruges. She was the first person I interviewed. Although she did not add a lot of insight on this thesis topic, she named Ellen Cardoen as a possible contact person.

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List of abbreviations

COMP	Directorate-General for Competition
ERO	Europees Fonds voor Regionale Ontwikkeling (European Fund for Regional Development)
EU	European Union
GBER	General Block Exemption Regulation
GDP	Gross Domestic Product
SA/GDP	State aid as percentage of GDP
SGEI	Services of General Economic Interest
SME	Small and Medium Enterprise
TFEU	Treaty on the Functioning of the European Union

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General introduction

In 1957 with the Treaty of Rome, the EU members of that time decided that regulations on state aid were necessary to avoid a disruption of the internal market, as Cini (2001) pointed out. Therefore, the European Commission implemented laws on state aid, that can be found in articles 107-109 of the Treaty on the Functioning of the European Union (TFEU). The foundations of this law were shaped in the Treaty of Rome and state aid became an important priority for the European Commission as of the mid-1980s. The law on state aid will briefly be discussed in the literature review (chapter one).

State aid seems to be a sensitive topic in the EU. For this thesis four interviews took place. A first interview was with Hilde Decleer, alderman of local economy of Bruges. The second interview was with Ellen Cardoen, who works at EFRO. Then Sophie De Vinck and Wouter Dutillieux, who are contact persons from the Directorate General for Competition for state aid, gave their insights. Finally, Karel De Corte, who is responsible for the evaluation of the economic objectives of Flemish state aid, provided information. He is also the person who provides the Belgian data for the State Aid Scoreboard of the European Commission, which is used in the analysis of this thesis. Their thoughts and experience were put together and helped to shape the hypotheses and information in this thesis.

The interviewees for this thesis indicated that the European Commission would rather not have any state aid. However, state aid can be used to solve certain market imperfections (Friederiszick et al. (2006)). Whether state aid is justified to solve market imperfections or not is said to be interpreted differently within the EU. Some countries argue that an activity needs aid to solve the market imperfection, while others believe that there is a market for the activity and thus do not allocate aid. In the latter case, countries assume that the market will resolve the market imperfection itself.

Steyger (2010) discussed whether state aid to infrastructure is justifiable or not. With infrastructure, he meant the necessities for the functioning of economic activities. He pointed out that infrastructure should not necessarily be financed with public means. Since, this can also be financed via private investment in many cases. However, for some projects government intervention is essential because private investors would exclude other players or there is no market. Suppose only private investors are present in the market for sports centres and there is no government intervention. In this case, only by payment people can perform sports and others are excluded. When the government invests in public sports centres, everybody can use these sport facilities without payment. Therefore, the government feels obliged to grant state aid in situations like this.

In the case of a public good (e.g. goods that are non-exclusive and non-rival, like for example street lighting and national security) the government needs to intervene or there would be no market, as Meiklejohn (1999) discussed. Steyger (2010) also indicates that sometimes the government wants to interfere into the market to resolve the market imperfection but is refused by the Commission to do so. This happens when the government intervention could lead to unfair competition, which is prohibited by the EU state aid law. In conclusion, there are projects where state aid is justified, while for others it is more questionable. However, not all projects that are justified do receive aid and some projects that are not justified do. The latter will be further elaborated in the literature review.

The European Commission state aid manual of procedures (2013) remarks that the European Commission does not control the state aid for all countries in the EU but it has an evaluating and decision-making role. In other words, the country governments determine the amount and the objectives of the aid themselves but the European Commission can prohibit the aid allocation when it does not comply with the EU law on state aid. Only when the European Commission is notified and has approved the application for state aid, the member state can allocate the aid. The European Commission can reject or recall a government decision to grant aid. The evaluation procedure that the member states use for state aid will be explained in the literature review.

The European Commission is not able to evaluate all state aid and thus some illegal aid is not discovered. However, there are cases where the European Commission discovers a case of illegal state aid and the aid needs to be recovered. An example of this was the Belgian excess profit tax scheme, which existed since 2005 (European Commission Press Release 2016). In 2015, the European Commission opened an investigation and decided that this state aid was illegal. The reason for this was because it benefited the multinational companies but not the small and medium enterprises. Consequently, the European Commission found the tax scheme to be illegal as it disrupted competition. The aid, amounting to an estimated 700 million euros, needs to be recovered from the companies, that received the aid, by Belgium.

There is a difference as to the level of state aid across EU member states, measured in total amount of state aid as well as in state aid to GDP ratio. There are many reasons for this difference as will be discussed in the literature review. This thesis provides the most important reasons for the differences. Some of these reasons are further investigated to their relevance in chapter three.

This thesis is partly quantitative research and partly qualitative. For the research of this paper a dataset was made with figures of the European Commission 2015 State Aid Scoreboard and data of Eurostat (GDP, government revenue and government expenditure) and the World Bank (number of citizens and country size).

In the first chapter (the literature review), relevant research is being discussed to understand and find reasons for the discrepancies in the amount of state aid within the EU. It provides a definition of state aid and discusses the most important objectives for state aid. Furthermore, the law on state aid and the evaluation procedure for state aid are mentioned. For the evaluation procedure, all information is based on the interviews done for this thesis. Then, there is a short reflection on the impact of statement and, most importantly, the possible reasons for discrepancies in the level of state aid between countries in the EU.

The literature review and the interviews provided the knowledge on the topic of state aid to create hypotheses. The second chapter discusses the hypotheses that will be investigated in this thesis. Furthermore, other reasons for differences in the amount of state aid between countries in the EU are given.

The third chapter analyses the 2015 State Aid Scoreboard and data of Eurostat and the World Bank to support or reject the hypotheses formulated in chapter two. It also refers to the literature review to strengthen or question previous investigation. More precise the impact of country size, number of citizens, membership date and government size on the amount of state aid are measured. Then the objectives of state aid and instruments are investigated to their influence on the amount of state aid.

Finally, there is a conclusion that summarizes the most important findings of this thesis.

1 Literature review

This chapter gives an overview of previous research and some general information about state aid. The chapter is divided into six sections. The first section describes the definition of EU state aid. Second, the EU state aid law and the evaluation procedure for state aid are being discussed. The third section covers the differences in the amount of state aid in the EU and the objectives of state aid. Fourth, problems with state aid and the impact of it are mentioned. The fifth part gives possible reasons for the different amount of state aid within the EU. Finally, there is a summary of the previous research and a discussion of this thesis, which aims to investigate some of the reasons for discrepancies in the amount of state aid.

1.1 Definition and objectives of state aid

State aid is difficult to define in a simple way. It can be seen as the grant of a subsidy by the government to support a certain (economic) activity or solve a market imperfection. However, not all subsidies a government allocates are defined as state aid. In this section the concept of state aid is further elaborated to give an impression on what state aid is.

1.1.1 Definition of state aid

The rules on state aid date from The Treaty of Rome in 1957 and have not changed very much since then. The law articles 107-109 of the Treaty on the Functioning of the European Union (TFEU) describe the law on state aid in the EU. Art. 107 (1) TFEU provides a legal definition on state aid, namely:

"Save as otherwise provided in this Treaty, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, insofar as it affects trade between Member States, be incompatible with the common market."

In other words, state aid can only be allocated by a member state if it does not distort the internal market or in certain exceptions that are mentioned in article 108 TFEU. This internal market is defined as *"an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of the Treaties"* in art 26 TFEU. The recipient of state is an undertaking, which could be defined as an organization performing an economic activity, thus not necessarily a company. An undertaking is every institution influencing the market, this can also be a government institution.

As mentioned above, article 107 (1) indicates that state aid can be banned if it distorts competition in the internal market. Article 107 (2 and 3) TFEU have a further discussion on what is or may be compatible with the internal market and can thus be seen as lawful aid. These articles are included in appendix 1 but it is not the scope of this thesis to discuss all the exceptions.

There are different forms of state aid as can be deducted out of the 2015 State Aid Scoreboard, namely grants, tax exemptions, guarantees, soft loans, tax deferral, equity participations etc. All these forms are a kind of subsidy or advantage for the undertaking receiving it. The use of the term ‘state aid’ in this thesis refers to all forms of it. However, a distinction will be made in the next chapters.

1.2 EU state aid law and the evaluation procedure

This section first discusses the EU state aid law and then gives an overview of the evaluation procedure for state aid. With the evaluation procedure governments need to assess whether their subsidies are state aid or not.

1.2.1 EU state aid law

Friederiszick, Röller and Verouden (2006) pointed out that state aid can be used to solve market imperfections. The European Commission State Aid Action Plan (2005) also indicates that state aid is an important measure to solve market imperfections but that state aid control is crucial to realise and retain a level playing field in EU's internal market. Therefore, the law on state aid is important for the control of it.

As mentioned in the first section, articles 107-109 of the TFEU define the state aid law for the EU. One of the intentions of the state aid law is to avoid that member states would go into a harmful subsidy war. Dewatripont and Seabright (2006) discussed this concept. A subsidy war is a situation in which member states continue to offer subsidies to attract companies. If one country would give a certain number of subsidies, another country would give a little more. This would go on until the amounts are so high that only the richest countries are competing against each other. The less wealthy countries would not be able to attract or retain companies because they do not have enough resources to be an attractive location. In other words, subsidy wars are very destructive for the internal market.

The European Commission aims to further lower the amount of applications for state aid. The European Commission Directorate-General for Competition gave two more reasons why state aid should be followed up and if possible limited in their Vademecum: Community Law on State Aid of 2008.

First, it mentions that the Commission wants to encourage member states to set priorities for strengthening their competitiveness. In other words, they want member states to avoid an overuse of state aid by focusing on promoting actions that support the Lisbon strategy. The goal of this strategy is making the EU *"the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion"* (Lisbon European Council 23 and 24 March 2000: Presidency Conclusions). The Lisbon strategy involves supporting R&D, renewable energy and education, instead of funding culture projects for example.

The second reason to limit the amount of state aid is that the aid is not always well located and is sometimes wasted because it does not change any behaviour or projects do not kick-off. Eventually the aid is being paid by the tax payers, who are the victims of this. In which case, a reduction of state aid would imply a lower tax burden for the citizens of that country.

Merola and Donzelli (2014) zoom in on the latest changes in the EU law of state aid for the years 2014-2020. They argue that with the new set of rules the Commission can do a better general assessment on the necessity of state aid. Hence, the European Commission is more capable of recognizing the dispensable state aid and provided with a clearer view on what state aid to banish. Therefore, the aid is better distributed and thus the new rules have an influence on the amount of state aid approved by the Commission.

The present regulations aim to reduce the amount of state aid, as specified by the European Commission itself. The European Commission wants *“less and better targeted state aid”* as can be found in the Commission’s State Aid Action Plan of 2005. Blauberger (2009) remarked the main reason for this plan is because the European Commission had an overflow of applications, making it impossible to make a good evaluation on state aid. The so-called ‘less and better targeted state aid’-plan is thus particularly intended to reduce the workload.

Friederiszick, Röller and Verouden (2006) created an economic framework that should help to provide a solution for the ‘less and better targeted state aid’-plan of the European Commission by using an economic analysis. The framework provides a better assessment of the positive and negative effects of state aid. Therefore, giving the government a better tool to decide what aid will be most effective and consequently help them in reduction of wasted resources. Their economic effect-based approach gives the possibility to *“improve the effectiveness of state aid at national levels”* (Friederiszick et al. 2006: 54). If governments can better estimate what aid is needed, they will consequently apply for less aid and therefore lower the workload of the European Commission.

1.2.2 The evaluation procedure

This entire section was developed with information from the interviewees Ellen Cardoen, Sophie De Vinck and Wouter Dutillieux on the evaluation procedure for state aid that they use in practice. The procedure was also given in the paper of the Directorate-General for Competition (COMP) of 2015 (Analytical Grids on the application of State aid rules to the financing of infrastructure projects).

Foremost, it is the government that decides whether to allocate aid or not to a certain project or objective. There is a general guideline in the EU where 4 to 6 questions (depending on different approaches) should decide whether the aid should be state aid or not. Only if all 6 questions are answered with yes, it is state aid. Figure 1 shows the questions to analyse whether something is state aid or not.

Figure 1: State aid or not? The six questions.
Source: Author's creation with the information provided by Ellen Cardoen

The analysis on state aid is done on the national level. Consequently, the analysis could differ from one country to another. Some countries might be stricter in answering these questions than others. Therefore, not all aid is justified. In other words, some of the aid should not have been allocated because it distorts the internal market. If no complaints arise, the Commission will probably never know.

The interview with Sophie De Vinck and Wouter Dutillieux, two workers at the COMP, pointed out that the European Commission closely monitors the member states. If countries would just do whatever they want, this would soon be discovered. The European Commission looks at the application and evaluates whether it does not distort the internal market. Sometimes, the press brings up distortions of the market due to government financing. As was the case for the Belgian excess profit tax scheme (as mentioned in the introduction). The Commission then investigates whether it distorts with the internal market or not and can decide the aid was 'illegal', in which case, measures will be taken to resolve the problem.

The COMP keeps an eye on grants of state aid from all member countries in the EU. The application of state aid starts with a government applying for state aid by informing the European Commission on the planned aid before granting it. In other words, the countries have a reporting obligation. As of receipt of the application documents, the Commission has a period of two months to prohibit the allocation of state aid. The period of two months is often referred to as the standstill period. Member states cannot grant aid unless they inform the European Commission and receive an approval for it. If the two conditions are not met, the state aid will be unlawful aid. As defined by article 108 (2-3) TFEU the Commission can also declare state aid as unlawful when it distorts the internal market.

There are some general exceptions on the reporting duty of state aid. There are the GBER (General Block Exemption Regulation) and minimis, which are state aid and should also be reported. However, these are not further investigated by the Commission. The GBER and minimis are only investigated via samples or when complaints arise. The European Commission simply does not have the time or workforce to examine all these cases. Thus, they only examine the rare and very large amounts of state aid. In the following paragraphs, the GBER and minimis are further discussed.

The GBER is a list of state aid exceptions that are very common and were well investigated in the past. Cini (2001) mentioned the main reason for the GBER, namely to reduce the workload of the European Commission. Under certain amounts of money (also called a barrier), there needs to be no detailed report to the European Commission. The barriers are set up by the European Commission and are equal for all EU member states. The European Commission received an enormous amount of applications for state aid and then decided to implement these GBER to reduce the applications. The ‘less and better targeted state aid’-plan was launched to increase the amount of GBER and thus further reduce the administrative workload of the Commission. Blauberger (2009) noted that more than 90% of a member state’s aid to non-agricultural objectives are following the General Block Exemption Regulations. The non-agricultural objectives will be discussed in the next section.

The minimis are amounts lower than 200,000 euros for companies during three consecutive years. These amounts, are also not investigated by the European Commission because it is unlikely that these small amounts would distort competition.

Next to the minimis and GBER, there are SGEI, which are legally not state aid. They are mentioned in article 106 TFEU. SGEI stands for Services of General Economic Interest. The SGEI are activities that consist of an economic activity and thus have a market. The compensation for SGEI should cover the costs. However, in case of an overcompensation, the SGEI are considered state aid. However, this thesis will not go into detail on this matter.

In conclusion, all member states need to do the first analysis on state aid. However, as soon as there are complaints, the European Commission can interact. If the analysis decides something is state aid and does not answer to the definition of SGEI, GBER or minimis, it will be further investigated by the Commission.

Interviewee Karel De Corte said that some countries like Denmark and the Netherlands have one department covering all the state aid evaluations, while other countries have a department for each state aid objective (sports, economics, culture etc). Thus, the analysis whether something is state aid differs between and within countries. It could for example be that one minister grants aid more easily than another. It could also be that a minister decides to grant aid, even though the state aid analysis showed that the aid is not justified. The latter could be because the minister thinks about being re-elected and therefore uses, sometimes illegal, state aid to win or retain votes. In conclusion, the evaluation procedure can be very different between EU member states and therefore also be a reason for the differences in the amount of state aid. This thesis will further discuss this in the next chapter.

1.3 State aid in the EU

In this section, the differences in the amount of state aid between the EU member states are discussed. Not all EU members allocate an equal amount of state aid. In fact, there are large differences between the countries in the EU, as will be mentioned below. The second part of this section covers the different objectives of state aid.

1.3.1 Differences in the amount of state aid between EU member states

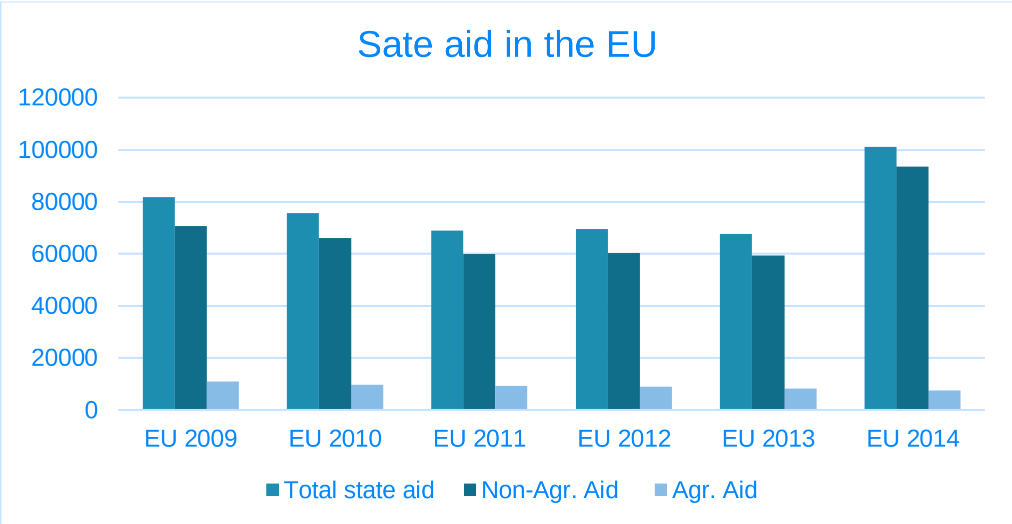

Figure 2: State aid in the EU (in million euros)
Source: Author's creation with data from Commission Services (2015 State Aid Scoreboard)

Figure 2 shows the evolution in the amount of state aid for the entire EU over the period 2009-2014. The amount of state aid was clearly lower in the years 2010-2013 but this downfall seems to be over. In 2014, the highest amount was allocated over the period. Furthermore, this graph makes a division between agricultural aid (Agr. Aid) and non-agricultural aid (Non-Agr. Aid). Non-agricultural aid is clearly the most important element of state aid. The amount for agricultural aid seems to be lower every year. Yet, agricultural aid remains a very important objective for state aid.

Some EU member states grant a higher ratio of state aid to GDP than others, which can be deducted by looking at the 2015 State Aid Scoreboard (provided by the European Commission). The national expenditure reports for 2014 state that all 28 EU member states spent on average 0.72% of the total EU GDP on state aid. In 2014, Belgium granted state aid for an amount of 0.43% of GDP while Germany was well above the average with 1.36% of their GDP. Latvia was the highest with 2.08% while Spain was lowest with 0.31% of GDP. Figure 3 provides an overview of the state aid to GDP ratio (SA/GDP) for the 28 EU members in 2014.The figure clearly shows that the SA/GDP ratio is very different amongst EU members, as was mentioned above.

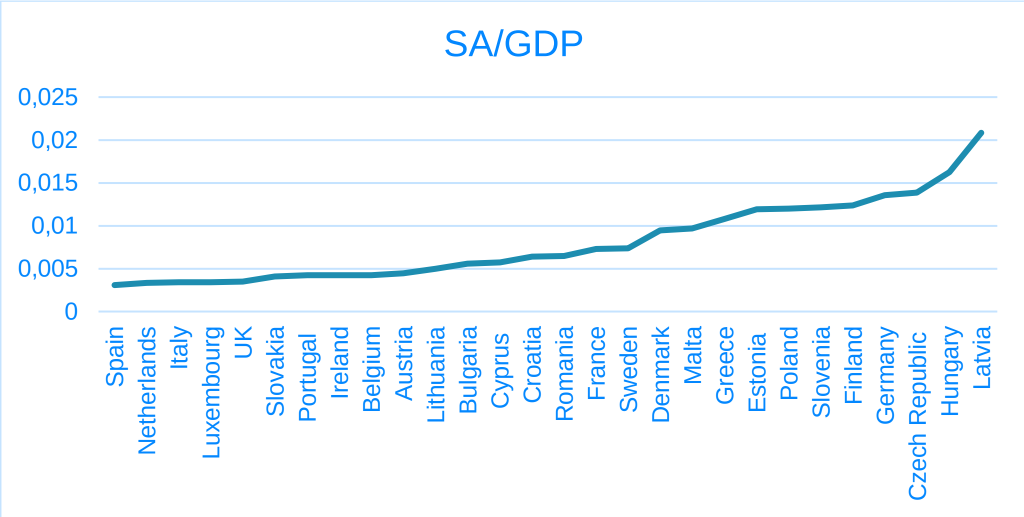

Figure 3: SA/GDP ratio for all 28 EU members in 2014.
Source: Author's creation with data from Commission Services (2015 State Aid Scoreboard)

The total amount of state aid for the EU members for 2014 is depicted in figure 4. Compared to figure 3, it is obvious that the total amount of state aid and the SA/GDP ratio are not highly correlated. The correlation for 2014 was only 17.40%. This means that the SA/GDP ratio does not indicate the total amount of state aid and vice versa. Appendix 2 contains the table with the exact figures of SA/GDP and total amount of state aid for the EU members in 2014. Again, it is obvious that not all countries use a same amount of state aid.

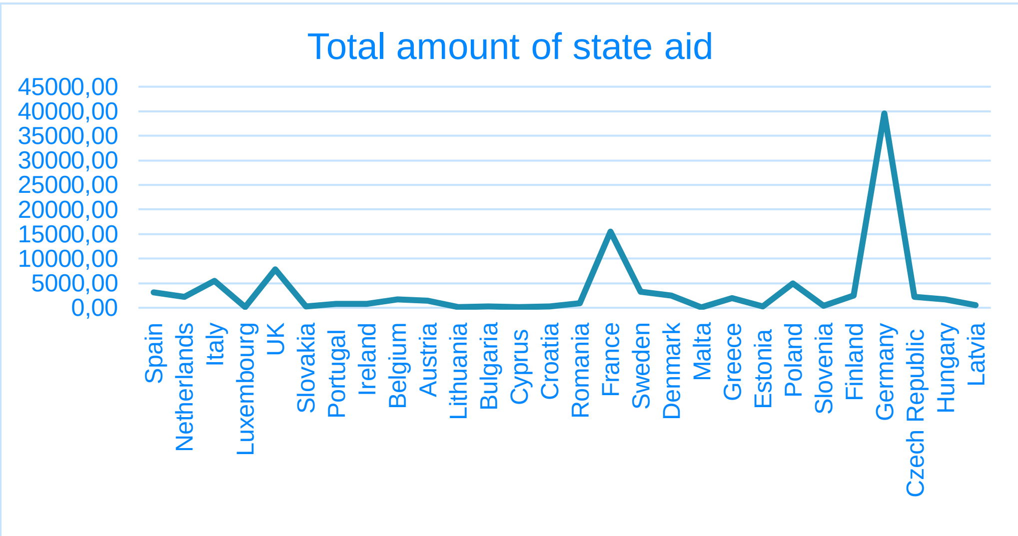

Figure 4: Total amount of state aid for all 28 EU members in 2014 (in million euros).
Source: Author's creation with data from Commission Services (2015 State Aid Scoreboard)

1.3.2 Objectives of state aid

Governments use state aid for multiple objectives. There is a distinction between agricultural and non-agricultural state aid objectives in this paper. The agricultural objective of state aid is not divided in different objectives. The non-agricultural objectives are heritage conservation, natural disaster, export, rescue and restructure, closure aid, training, culture, social support, aid for small and medium enterprises (SME), regional development, research and development and environmental protection. There are four widely used objectives, namely environmental protection, regional development, research and development and agricultural aid. This can be concluded out of the figures in the State Aid Scoreboard 2015 and is depicted in figure 5.

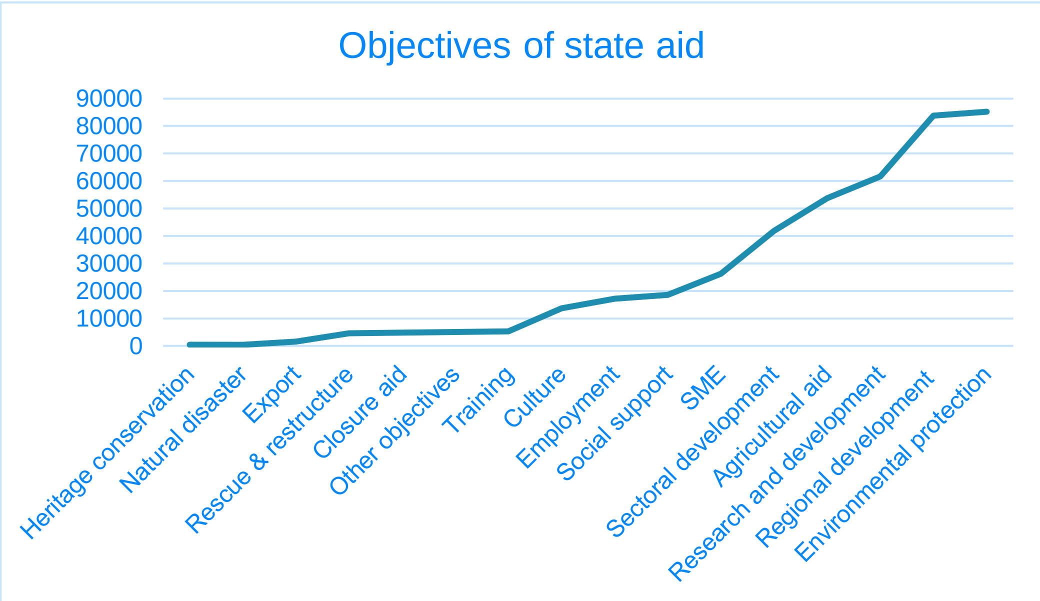

Figure 5: objectives of state aid from least to most used over the period 2009-2014 (in million euros)
Source: Author's own creation with data from Commission Services (2015 State Aid Scoreboard)

The highest amount of state aid in the EU went to environmental protection in the period 2009-2014. Secondly, state aid is used for regional development. Environmental protection and regional development were almost equally important over the entire period 2009-2014. Thirdly, state aid is intended to increase the R&D investment, with as main component innovation. The fourth important objective is agricultural aid.

Figure 6 shows the division of the mean expenditure rate of the four most important objectives for all 28 EU members over the period 2009-2014. Clearly, the different objectives are not valued as equally important by each country since they are not proportionally subsidized in an equal way. For example, Latvia and Cyprus have a high ratio of culture expenditure of respectively 32% and 36% of their total amount of state aid.

Croatia spent on average 25% on rescue and restructure and Poland allocated 44% to sectoral development over the period 2009-2014. In other words, countries seem to value the objectives differently which could have an influence on the amount of state aid of a country.

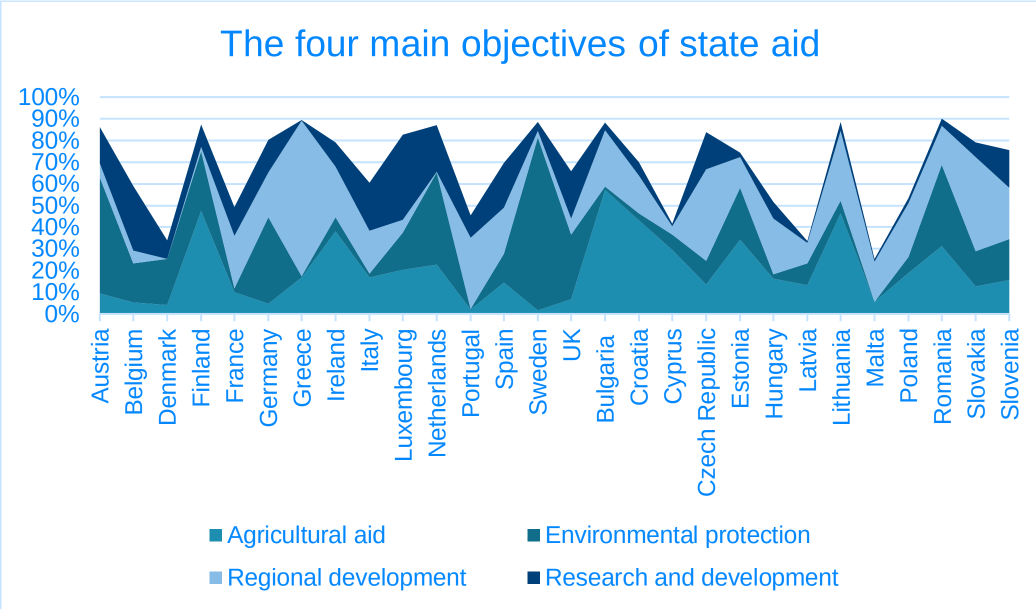

Figure 6 Mean expenditures of the four objectives for EU members over the period 2009-2014 as percentage of total state aid.
Source: Author's creation with data from Commission Services (2015 State Aid Scoreboard)

Figure 6 shows that the four main objectives are not allocated to the same proportion within the EU. Some countries seem to value the objectives differently than others. Therefore, it could be the case that some of the objectives indicate whether the ratio of state aid to GDP is high or low, which will be investigated in chapter three. Environmental protection, regional development and research and development are discussed in the following points.

1.3.2.1 Environmental protection

State aid is mostly used for environmental protection within the EU. Environmental protection became the largest expense of state aid in the period 2012-2014. In the period before, regional development was the largest objective. There are several reasons for this rise in environmental protection. First, Jordan (2012) mentions that the EU is well known for their environmental policy. Therefore, it is somehow logical that this is one of the most important objectives of state aid.

Second, countries like Germany are heavily investing in renewable energy, and consequently allocate a high amount of state aid for environmental protection. The latter is possible because of the European Commission's approval for the German renewable energy law EEG of 2014 (European Commission Press release, 23 July 2014). This law makes it possible to use state aid for the financing of investments for the creation of renewable energy.

Some countries like Portugal spend zero state aid on environmental protection, while others like Germany, Sweden and the UK spend huge amounts. There seems to be a high difference in the allocated amounts. Therefore, it could be possible that environmental protection is explanatory for the state aid to GDP ratio. For example, it could be that countries with a high amount of environmental aid tend to have a higher ratio of state aid to GDP in general.

1.3.2.2 Regional development

Barca et al. (2012) discussed the need for a *place-based intervention* over a *place-neutral intervention* by the government. In other words, governments need to finance projects on a regional level and not on the national level to have a better allocation of state aid. There is a need for regional aid because of the differences within a country. Regions with a high welfare are less important to target than lagging areas. The use of regional aid should help poor regions to catch up with the wealthier regions and thus reduce the inequality within a country. They conclude that state aid sometimes needs to be directed towards a certain region to be effective. With their research, they strengthened the finding of Farole et al. (2011), who claimed that subsidies for lagging areas can increase both the growth of the area and the national growth. This is an incentive to go for regional aid. Furthermore, they conclude: "*Only by making policies that are both place- and people-based will a strong case for regional development intervention be made."* (Barca et al. 2012:149). In other words, there is an important implication for regional development policy. The nature of the aid should be changed to the requirements of the region.

1.3.2.3 Research and development

Davidson and Segerstrom (1998) discussed the effect of R&D subsidies on the economic growth. They mentioned two types of R&D, namely *innovative R&D* and *imitative R&D*. In their model, they used the vision of Schumpeter (1942): the process of creative destruction. Their research concluded that the subsidization of *innovative R&D*, for the development of new products, leads to faster economic growth. However, subsidies for *imitative R&D*, used to remake already existing products, have a negative effect on the economic growth.

The previous is in contrast with Cheng and Tao (1994) who claimed that subsidization of both types of R&D lead to better economic growth. The difference between these two, is that Cheng and Tao assumed that higher R&D in one industry implies lower R&D in another, while Davidson and Segerstrom did not. Some subsidies have a positive effect on economic growth because they create an incentive to invest. Other subsidies might have a negative effect because they are not used in the proper manner or do not have the intended effect. It is therefore important for governments to have a good evaluation of what projects to finance. Not only to reduce the wasted amount of resources but also be wary of the effect their subsidies have. However, it is not easy to estimate whether a project is worth financing or not.

Aerts and Schmidt (2008) showed that firms who are subsidized for their R&D are significantly doing more R&D than firms who are not subsidized. At least this holds up for Flanders and Germany, which are the investigated regions. Following this research there can be said that R&D subsidies are at least partly used in the correct way and thus have a positive impact on the R&D activity of a firm. The exact effect cannot be measured by their research. Finally, they mentioned that their findings strengthen previous research for Flanders, Germany but also other European countries. The possible positive impact on economic growth explains why countries try to increase the amount of R&D in their country and why this is an important objective of state aid.

In figure 6 there were clear differences in the allocation of aid for regional development and R&D. It could be that regional development and R&D indicate a trend in the SA/GDP ratio.

1.4 The impact and problems of state aid

Does state aid disrupt the internal market? What is the impact of state aid and how to measure it? To give an answer to these questions, research has been done on the impact of state aid. Furthermore, state aid brings a few problems along, which are mentioned in the final part of this section.

1.4.1 The impact of state aid

The articles 107 to 109 TFEU mention that state aid should not interfere with the internal market. Tunali and Fidrmuc (2015) conclude that state aid has no significant positive impact on the investment level or creates a higher economic growth. This could mean that there is no implication that differences in the level of state aid imply unfair competition. In other words, as reported by them the internal market of the European Union is not distorted by granting state aid. At least this holds for state aid granted by EU member states over the period of 1992-2011 and in general. Their results suggest that state aid has no significant positive effect on investment. It even has a negative effect on the amount of investment in the industry and services. However, they do not exclude a positive effect on the investment when the political environment is stable but this needs further investigation. Therefore, they conclude that state aid is not an effective tool to enhance economic growth or stimulate investment in the EU member states. Still, they add that state aid is not useless either.

No evidence is found that state aid leads to lower economic growth on a consistent level. Consequently, there seems to be no negative effect on the efficiency. However, the aim of aid is to improve efficiency, which it does not do according to their research. Tunali and Fidrmuc mention that perhaps state aid increases social welfare on levels they did not investigate in their analysis. Tunali and Fidrmuc say *"In as much as it helps alleviate market failures and externalities (as may be the case with state aid on environmental causes) or improves the economic connectedness of remote and underdeveloped areas (regional aid), state aid can deliver good value for money."* (Tunali and Fidrmuc 2015:1161). Future research should address to this. They also mention that the European Commission as well as national governments should be careful where to locate the aid to be most effective and avoid wasting money.

The research of Tunali and Fidrmuc (2015) poses the question whether state aid should be used for stimulating economic growth. Furthermore, it is unclear whether the amount of state aid is influenced by the economic growth of a country. This will be further discussed in chapter two of this thesis.

Ginevičius, Podvezko and Bruzge (2008) discussed three methods to measure the impact of state aid, namely SAW, VS and TOPSIS. With these measure instruments, they found that state aid has been most effective in educational projects, followed by R&D and industry projects. The lowest impact was on the enterprises in the service industry. This gives some thought on which projects to finance but the research is very general and the methods do not give the possibility to estimate the impact of subsidies beforehand.

Buigues and Sekkat (2011) discussed the role of public subsidies on the business environment. They found that *“success or failure of government interventions depends on the objectives (i.e. failure the government seeks to address), the policy instrument used and the way this is implemented”* (Buigues and Sekkat 2011:18). However, they also mention that it is very difficult to estimate what projects are expected to be successful when subsidized and thus which projects should be financed. In the following paragraphs, it becomes clear that governments also have incentives other than fostering economic growth to finance a project.

1.4.2 Five problems with state aid

Kassim and Lyons (2013) mention five problems with state aid (Kassim and Lyons 2013:3-4). First, they mention that “*the control of state aid is politically sensitive”.* In other words, there is a relationship between governments and companies. Some companies receive more benefits to make sure they stay in that country.

Secondly, “*the control of state aid was, at the time that the Treaty of Rome was signed, and largely remains today, a novel aim”.* The problem here is that the impact of state aid is not easy to estimate, since there is no history of a controlling instrument for state aid.

Thirdly, “*the treaty provisions governing state aid are complex”,* which translates in situations where it is unclear whether something should be state aid or not. This was previously mentioned in the evaluation of state aid. The evaluation happens on national level, by which differences between countries can arise.

Fourth, “*the provisions of the treaty do not impose rules at the national level”*. By this, they mean that there is no indication on when and in what way state aid distorts competition. Therefore, it is not easy to estimate the real impact of aid on the competition. Some regions might be disadvantaged on the national level but only the supranational level is measured. Even on the supranational level, it is difficult to measure whether aid distorts competition or not.

Finally, *“member governments were unwilling either to cooperate in operationalizing the provisions of the Rome Treaty or to comply with the obligations it imposed”*. This issue is somewhat resolved because the Commission could set up a policy system for state aid. However, it took long time before it was accepted. This is also the reason why the rules are not very strict. The member states were unable to agree.

It was difficult for the Commission to establish a good control system for state aid because of all the above reasons. Important to note is that these issues still influence the governments to grant aid or not. Thus, resulting in three possible reasons for discrepancies in level of state aid between member states of the EU that can be used for the investigation of this thesis. First, companies have an impact on the government decision to grant aid. Some companies could threaten to leave the country when they do not receive aid.

Second, the evaluation system of what is state aid, is different within the EU. The system is complex and some subsidies are not mentioned to the Commission because of different estimations on the national level of what counts as state aid. This problem is also elaborated in a special report of the European Court of Auditors from 2016, which mentions that there is not enough knowledge on the state aid rules. In other words, member states are not sufficiently aware of the regulations and thus in some cases where state aid would qualify, it is not applied for.

Third, the power of the European Commission is limited since some countries have a stronger negotiation power. The latter was investigated by Zahariadis (2013), as will be mentioned in the next section.

1.5 Reasons for differences in the amount of state aid between countries in the EU

This section gives several possible reasons for the differences in the amount of state aid between countries in the EU. The discussed reasons will be used in the next chapter to shape the hypotheses of this thesis. First, it debates the evidence for a negotiation power effect on the amount of state aid. Some countries might have a higher influence on the Commission than others and thus receive approval for state aid more easily. Second, some governments might be more willing to grant aid than others. This is investigated thoroughly by looking at the characteristics of governments and their influence on the government policy. Finally, the effect of the industry is discussed. Some companies or industries are perhaps better able to persuade the government in financing their projects.

1.5.1 Negotiation power

Zahariadis (2013) claims that aid allocations depend on the willingness of a government to grant aid and its negotiation power with the Commission. In other words, it is up to the government to decide whether to apply for aid or not. He explains that the difference in state aid is partly due to the macroeconomic situation within a country and the bargaining power a country has towards the Commission. Thus, the political power of a country is said to have an influence on how many funds are approved by the Commission. Zahariadis (2013) mentions two political perspectives on state aid. On the one hand supranationalism and on the other hand power politics. These two theories are contrasting. Supranationalism puts almost all power with the Commission, while in the power politics theory governments are the strongest. In power politics, there is an impact of political power of a member state. In other words, the government of a country has a power over the European Commission.

Zahariadis follows mostly the vision of power politics, claiming that the governments can influence the Commission. However, he points out that this power is limited, since not all applications for government funding are approved. In his view the ‘less and better targeted state aid’-plan can only work if the national governments would decide to lower the amount of state aid themselves. In contrast to the reality where the European Commission is trying to reduce the amount of applications. This was already done by implementing the General Block Exemption Regulations (GBER) and minimis, as mentioned before.

The negotiation power argument of Zaharaiadis (2013) will be discussed in the interviews for this thesis in the next chapter.

The European Commission has implemented GBER that contain situations where the member states do not need to report the state aid to the European Commission. Blauberger (2009) declared that member states opt more for state aid following the GBER and thus comply with the objectives of the European Commission. In which case member states do not have to report to the Commission. However, the reason for this is because countries try to change the nature of their aid so that they respond to the GBER. Some aid that normally needs to be reported is thus not reported, in which case it becomes illegal aid. Finally, he remarked that some countries like France, the UK and Germany have previously rejected the revisions of the state aid policy of the European Commission. In other words, these countries make sure that the Commission cannot implement tougher regulations for state aid. This also serves as evidence for the negotiation power problem.

1.5.2 When are governments granting aid?

1.5.2.1 Governance

Hainz and Hakenes (2012) claimed that when state aid is granted the governance is very important for successful use of it. Governments should thus be very wary of which firm they grant subsidies in order not to waste resources. Dewatripont and Seabright (2006) showed when governments are likely to grant aid and how effective the European Commission is in controlling state aid. They discuss the problem of the so-called *subsidy war*, where aid is inefficiently granted by member states. They found evidence that politicians often waste money by subsidizing the wrong projects.

Minniti (2008) discussed the role of government policy on entrepreneurship. She discussed whether subsidies are productive, unproductive or destructive on entrepreneurial level. Minniti mentioned that too much government intervention can be negative for entrepreneurs rather than resolve the market imperfections. However, she stated that there is not enough knowledge to estimate what projects to finance and to what extent to promote economic growth.

1.5.2.2 Different incentives

Governments in the EU have different incentives as to the use of subsidies, which could partly explain why some governments grant more aid than others. Collie (2000) and his altered version of 2002 provided an explanation for the desire of a government to grant aid. He states that a welfare maximizing government wants to grant subsidies because of a gain in welfare. However, if all member states grant subsidies it is for the best that the aid is as low as possible or even eliminated. The latter is because this increases welfare in all member states, under the assumption that all member states are equal.

A higher opportunity cost for the government reduces the incentive to grant aid. Nevertheless, it should be noted that Collie does not consider the non-economic reasons for subsidies such as protecting employment and helping domestic firms to compete in the market. His paper suggests that the European Union should limit the amount of state aid since this would maximize total welfare for all member states. As indicated before, the European Commission also wants to reduce state aid and is already taking steps to do so. Collie concludes that state aid should best be prohibited. In Collie (2005) he adds that aid should not be prohibited for R&D when the spill-over effect is large enough and welfare maximizing. In all other cases, he maintains that state aid should better be banned.

Schwartz and Clements (1999) specified two, often contrasting, reasons why governments use subsidies. At first, they mentioned the vision of Houthakker (1972) who claimed that subsidies are mainly used to attract votes. Therefore, often leading to a non-efficient allocation of subsidies. Secondly, there is the economic goal of subsidies, namely to reallocate resources to increase welfare of the country by resolving market imperfections. Obviously, the two reasons are not always compatible with each other.

1.5.2.3 Size of a government and the number of subsidies

Clements, Rodriguez and Schwartz (1998) discussed what determines the number of subsidies granted by governments. They provided evidence that the government subsidies largely depend on the specific factors of a certain country. They say that the subsidy expenditures are influenced by the size of the government. Larger governments tend to give more subsidies. From their analysis, they extracted that *"each percentage point increase in the government spending to GDP ratio is leading to a fourth-tenths of a percentage point increase in the ratio of subsidies to GDP"* (Clements Rodriguez and Schwartz 1998:3). This suggests that the larger a government gets, the more it spends on subsidies. In other words, smaller governments are expected to be better at keeping the number of subsidies low.

Rothstein and Teorell (2008) and Alesina and Angeletos (2005) claim that large governments occasionally go for unprofitable projects, which might damage economic growth. They do this for their self-interest. This in contrast to small governments. Consequently, their thoughts could also strengthen the statement of Clements, Rodriguez and Schwartz (1998) that larger governments tend to have a higher ratio of subsidies to GDP. The previous finding could also hold up for state aid. It might be expected that countries with large governments tend to have a higher state aid to GDP ratio as well. This will be investigated in the third chapter.

1.5.3 State aid and industry

Adamonienė and Trifonova (2007) discussed the state support for small and medium enterprises (SMEs) in Lithuania. Their research mentions that Lithuanian SMEs are the most important to finance because they are most promising and the driving factor for the Lithuanian economy. They mention that SMEs are also the driving factor of the economy of most developed countries. If SMEs are successful, this typically results in an economic growth of a country. Article 107 TFEU states that member states can possibly grant state aid to *"promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment"*. Some regions of Lithuania could perhaps meet with this requirement. However, these firms are not subsidized enough to catch up with their competitors in other countries. The problem lies with the government, which has the wrong incentives.

There is also the question on how much impact companies have on the level of state aid within a country. As mentioned above, Kassim and Lyons (2013) discussed that state aid is politically sensitive. Therefore, it can be assumed that large enterprises might 'force' governments to grant subsidies for them to stay within the country. However, this is not the research question of this thesis and will therefore not be further elaborated.

1.6 Conclusion: what influences the amount of state aid?

The above results in four important possible reasons for the difference in amount of state aid between countries in the EU.

First, due to bad location of the aid some countries are perhaps more wasteful with resources. Therefore, the countries grant more aid than others because of insufficient evaluation of projects. In this case, the problem lies with the different approach of evaluation of projects governments have.

Second, Zahariadis (2013) states that governments have different negotiation power towards the Commission. Therefore, some countries, like Germany, might simply be able to receive more approved applications from the Commission.

Third, it can also be that countries have different focusses or incentives. Some countries might value something more important than others and therefore use more subsidies for it. The Commission tries to limit this by controlling for state aid but as mentioned before the law is not that strict. Depending on the different characteristics of governments, some governments are willing to spend more on subsidies than others. Therefore, this could explain part of the difference between EU member states.

Finally, there might be a pressure from industries or companies on the governments, forcing the government to grant more aid. For example, companies threatening to leave a country could have a high impact on the government.

This thesis aims to further explain what influences the amount of state aid used by a country and thus results in differences in the allocated aid between EU members. In the following chapter the previous and other possible reasons for the differences in the amount of state aid between countries in the EU are shortly discussed. These were discussed in interviews but not further investigated with data. The influence of government and country characteristics on the amount of state aid is further investigated in this thesis in chapter three by analysing data for EU members from 2009 till 2014. The next chapter discusses the hypotheses that will be used for this research.

2 Hypotheses

This chapter contains three sections. The first part will give possible reasons which were extracted from the literature review and discussed in the interviews but not further investigated with data. In the second part, there is a discussion of the hypotheses that will be investigated in chapter three by using data for the EU member countries. Finally, there is a short summary of this chapter. The thoughts and experience of the interviewees were put together and helped to shape the hypotheses and reasons mentioned below. The summary of the interviews can be found in appendix 3.

2.1 Discussion of the literature review

As mentioned in the literature review there are several reasons for the discrepancies in the amount of state aid. The reasons below are only briefly mentioned and were discussed in the interviews. They are not further investigated in the next chapter. However, they could be interesting for future research as to their effect on the total amount of state aid and on the amount of state aid as percentage of GDP.

2.1.1 Negotiation power

Nikolaos Zahariadis (2013) stated that some governments have better negotiation power than others towards the European Commission and therefore the Commission prohibits less aid from certain countries. However, the negotiation power is said not to have that much of an influence in an interview with Sophie De Vinck and Wouter Dutillieux, who work for the COMP. They say that the European Commission is not influenced because they need to follow the regulations. They stated that there is no negotiation power as the Commission acts on European interests and not on national.

It seems that the negotiation power argument of Zahariadis is actually the possibility of a member state to get away with illegal aid. The interviewees confirm this since it is not the case that the European Commission deliberately lets some members grant aid which would otherwise be illegal. Governments can simply grant aid without the European Commission finding out it was not by the rules. This is because the Commission cannot evaluate all the aid and member states thus profit from this. There seems to be a grey area in which state aid is not legal but it cannot be discovered or the chances of being detected are very small. More research should be done to confirm or reject this.

2.1.2 More wasteful with resources

Governments must evaluate themselves what counts as state aid, as was mentioned in the literature review. Normally, this will not result in very different approaches on what needs to be perceived as state aid. However, the amounts allocated to a certain project could vary to a large extend. One country might perceive something more valuable than another and therefore grant more aid to a certain project. While in another country a similar project could be less financed. There might be a case of waste of resources, as Dewatripont and Seabright (2006) described in their research. If a government is more wasteful than another, this might influence the differences in the amount of state aid. That governments are sometimes wasteful with resources seems to be generally accepted. However, to measure the impact of this, more research is necessary.

2.1.3 Economic growth

Economic growth of a country could be an important factor in the determination of the amount of state aid. However, it could work in two ways. Countries with high economic growth could either spend more on aid because countries believe state aid might further increase their growth. Or they could restrict financing because there is no real need to allocate aid, due to an already high economic growth and an increase in private investment. Tunali et al. (2015) claim that state aid is not an effective tool to foster economic growth. In other words, in their vision countries cannot stimulate economic growth with state aid. Therefore, also economic growth might not have an influence on the amount of state aid. However, they mentioned their own shortcomings. They were not able to investigate all aspects of state aid. Future research should confirm or reject their statement. Furthermore, countries might still believe that state aid can increase economic growth despite the claim of Tunali and therefore decide to use state aid to prosper economic growth.

2.1.4 Differences in state aid analysis

The analysis of state aid could to be different in the countries within the EU, since all the interviewees mentioned this. The evaluation of whether something is state aid is done on national level. Therefore, some projects are considered to be state aid in one country while they are not in another and vice versa. The impact of this is difficult to measure. The European Commission can re-evaluate the decisions of member states. However, there seems to be a grey area, as mentioned above.

2.1.5 Impact of industry or companies

There might be a possible influence of companies or industries on the government. Kassim and Lyons (2013) claim that state aid is politically sensitive. Therefore, companies might influence the government and more precise the total amount of state aid. The question coming to mind is: what is the impact of companies on the amount of state aid? This question was discussed in all the interviews. They may have an impact on the number of subsidies and therefore perhaps increase the amount of state aid within a country. There can thus be an influence of the companies but this will not be investigated in this thesis. It is too difficult to measure the real impact of industry and companies on the amount of state aid therefore this was not done in this thesis.

2.2 Discussion of the hypotheses

In this section, the hypotheses are mentioned that will be tested in the next chapter. These hypotheses are an investigation towards some of the possible reasons for differences in the level of state aid as percentage GDP. The hypotheses are partly created through the literature review but also via the interviews and by a pre-analysis of data. The reasons and their matching hypotheses are discussed below.

2.2.1 Different membership date, country size and number of citizens

Three country characteristics could play a significant role in the amount of state aid, namely membership date, country size and number of citizens. In the interviews these three characteristics were discussed. Country size and number of citizens are expected to positively affect the total amount of state aid. For the SA/GDP ratio this is more difficult to predict. The two matching hypotheses will be investigated in the next chapter:

H_1: Country size, number of citizens and membership date have a significant influence on the total amount of state aid.

H_2: Country size, number of citizens and membership date have a significant influence on the SA/GDP ratio.

2.2.2 Different government characteristics

Differences on the level of governments could influence the total number of subsidies granted. The characteristics that could play a role are the size of governments and the different incentives for governments to allocate aid. The latter will be investigated by looking at the different objectives of state aid and the different instruments used to finance them.

2.2.2.1 Size of the government

There is already multiple research on the effect of the size of a government, as discussed in chapter one. The research showed that large governments were spending more subsidies in general. Clements, Rodriguez and Schwartz (1998) stated that large governments tend to have a higher ratio of subsidies to GDP. It could be expected that large governments have a higher ratio of state aid to GDP as well. This will be investigated in the next chapter. In this thesis, the size of the government is measured by the amount of resources a government has available and the government expenditure. In other words, the government revenue and expenditure could show the size of the government.

The hypotheses for this are:

H_3: Large governments tend to allocate a higher total amount of aid than small governments.

H_4: Large governments have a higher ratio of state aid to GDP.

2.2.2.2 Different objectives

The governments have different incentives to allocate aid. This could be partly explained by the differences in the amount of state aid for each objective. There has been quite some research on this, supporting that re-election, corruption etc. can have an influence. Rothstein and Teorell (2008) and Alesina and Angeletos (2005) showed that large governments occasionally go for unprofitable projects for their self-interest. In this thesis, however, only the effect of the different objectives of state aid will be measured. There might be an objective that explains some of the differences in the amount of state aid, or that follow a certain trend.

The fifth hypothesis is:

H_5: Because of a different use of the state aid objectives between EU member states, some objectives are explanatory for the differences between the amount of state aid as percentage of GDP.

2.2.2.3 Different state aid instruments

Governments can use a various range of aid instruments, which can be deducted out of the 2015 State Aid Scoreboard. The most commonly used are grants, tax exemptions, guarantees, equity participation, tax deferral and soft loans. These will be discussed in the regression analysis. Perhaps there is a trend to be found where countries use a certain instrument when they allocate a certain amount of state aid.

The matching hypothesis for the above is:

H_6: Governments use different instruments to allocate aid and this explains the SA/GDP ratio.

2.3 Conclusion

Multiple factors can play a role in the differences in the amount of state aid between countries in the EU. First, some governments seem to be more wasteful with resources than others and thus allocate more aid than necessary, as Dewatripont and Seabright (2006) showed. Next, some countries seem to be more able to get away with illegal aid than others (which is based on the research of Zahariadis (2013)). They are perceived to be better in deceiving the European Commission by bending the rules in their favour. Furthermore, economic growth could play a role. This could either have a positive or negative impact on the amount of state aid allocated. Tunali et al. (2015) claimed that state aid does not increase economic growth. Perhaps, this implies that economic growth also has no or low impact on state aid. The literature review described the evaluation procedure of state aid. This assessment happens on the national level, which might imply large differences between countries. Some countries have different departments for the evaluation of state aid. Therefore, there might also be differences in the evaluation of state aid within a country. Finally, there might be an impact of companies and industries on the amount of state aid granted by a government. Companies or industries could have a negotiation power towards the government, and thus force the government to increase the amount of state aid, since Kassim and Lyons (2013) mentioned that state aid is politically sensitive.

Next to the above reasons that were extracted out of the literature review, some other reasons were discussed. These reasons will be investigated in the next chapter. First, the influence of country characteristics country size, number of citizens and membership date on the amount of state aid will be measured. Then, the hypothesis claiming that large governments tend to have a larger amount of state aid will be tested. Furthermore, the objectives and finally the instruments of aid will be investigated to their influence on the SA/GDP ratio.

3 Data analysis

This chapter analyses a dataset to test and evaluate the hypotheses of the previous chapter. At first, the data and methodology used for this research are discussed. The second part of this chapter discusses the results.

3.1 Data and methodology

For the research the data of the 2015 State Aid Scoreboard, Eurostat and the World Bank were used. The figures were put into a single excel spreadsheet to create a dataset. This dataset was then imported into Stata version 14.2 for the analysis.

Note that the figures used for state aid do not include the state aid for social security and transport aid. Social security is not considered to be state aid in all EU member states and is therefore excluded. The reason for this is that social security is not always an economic activity. The Official Journal of the European Union (2015) notes that whether social security is an economic activity or not depends on the implementation and structure of it. Transportation aid is no part of the analysis because this is a different category of aid. Furthermore, the figures for railways are not included in the scoreboard of 2015 and thus also not included in the dataset.

An important remark to make is that the figures of the 2015 State Aid Scoreboard are calculated on national level. Each country needs to calculate their own amount of state aid for this scoreboard. Some countries are said to be stricter in implementing the regulations on state aid than others. Therefore, one country can have very reliable figures, while another could deviate from reality. Furthermore, the different objectives might contain different elements between countries. For example, some countries are ahead with renewable energy while others are falling behind. The latter influences the amount of state aid for environmental protection. Some countries like Belgium do not implement this into their figures while the UK does. Therefore, the results in the below analysis might not entirely add up with the reality.

The dependent variables are total amount of state aid (in millions of euros) and state aid as percentage of GDP (SA/GDP).

The data for the variables country size and number of citizens are data from the World Bank. The other variables in the research are all the objectives and the different, deducted from the 2015 State Aid Scoreboard.

The regressions are either panel data regression models or simple linear regression models generated in Stata version 14.2. For the panel data regression models, the time variable is the year, going from 2009-2014 for all countries. Each group is thus the individual country for the years 2009-2014 (2013-2014 for Croatia and 2009-2013 for Germany). For Croatia, only 2013 and 2014 are considered, because they only just entered the EU in 2013. Germany 2014 is also deleted out of the database because of an extreme use of environmental aid. This was due to the high investment for renewable energy, as mentioned in the literature review. Malta is excluded out of the research because of the very small size of the country. The aid compared to the size of the country was an extreme value, making Malta unreliable for measuring the effect of country size. However, it should be noted that Malta has a very high amount of state aid in contrast to the size of the country. On average, Malta spent an equal amount of state aid over the period 2009-2014 as Luxembourg, Estonia, Bulgaria, Lithuania and Cyprus. Other small countries, like Luxembourg and Cyprus, follow a more normal pattern and are therefore not excluded.

To know what type of panel data regression model to use (e.g. a random or fixed model), the regression models were tested with the Hausman test. This test indicates whether to use a fixed or a random model. The Hausman test measures if the difference in the coefficients is systematic or not. The hypotheses used is *H_0: difference in coefficients is not systematic*. Then it compares the coefficients of the fixed model (b) with the coefficients of the random model (B). The following formulas test which model to use:

$$\chi 2(1) = (b - B)'[V_b - V_B]^{(-1)}(b - B)$$

$$Prob > \chi 2$$

If the test has a probability score of less than 5%, a fixed model should be used, otherwise a random model is better. If a fixed model was used, the model was tested on the presence of heteroscedasticity with the *Modified Wald test for groupwise heteroskedasticity in fixed effect regression model*. If this was present, the option *Robust* was used to solve this. For a random model the *Breusch and Pagan Lagrangian multiplier test for random effects* was done to see whether the random model should be used or it would be better to use an Ordinary Least Squares (OLS) regression model.

In appendix 4 there can be found an overview of all abbreviations used for the research. Appendix 5 contains the summary statistics for all variables used. The results of the regression are displayed in tables. When a variable is significant (on the 10% significance level), one star is put next to the coefficient. When a variable is strongly significant (on the 5% level), two stars are put next to the variable. When a variable is very strongly significant (on the 1% level), this is indicated by three stars.

3.2 Results and interpretation

The correlation between state aid and GPD is 89.17%, which means that the amount of state aid is very interrelated with GDP. Therefore, it is interesting to see what effect the country characteristics, different objectives and state aid instruments have on state aid in percentage of GDP (the SA/GDP ratio). This part is divided into three sections. First, three country characteristics and government size are considered for their effect on the amount of state aid and the SA/GDP ratio. Second, it is investigated whether objectives can explain a certain trend in the SA/GDP ratio. Finally, the aid instruments are put to test.

3.2.1 Country characteristics and size of the government

In this section the three country characteristics – country size, number of citizens and membership date- and the government size are investigated to their significance on the total amount of state aid and the SA/GDP ratio. This section is divided into three parts. The first part discusses the variables country size, number of citizens, membership date and the government size. The second part covers the model for the total amount of state aid and the matching hypotheses. The third part discusses the models for the SA/GDP ratio and the corresponding hypotheses.

3.2.1.1 Country size, number of citizens, membership date and government size

This part discusses three country characteristics and the government size. A pre-analysis of the data gives a first impression of the possible result for the hypotheses of the previous chapter.

- **Country size**

It can be excluded that the difference in the amount of state aid between EU member states is only due to country size, although in some cases it could play a significant role. In figure 7, the correlation between country size and the total amount of state aid is depicted. There does seem to be a cohesion between the size of a country and the total amount of state aid used. This is somewhat expected, since a larger country will probably have a greater need for aid in total amount. The correlation between country size and total amount of state aid is 72.52%. In other words, there is a high correlation between these two. Larger countries tend to allocate more aid on average. It can be expected that country size and total amount of state aid are significantly interrelated.

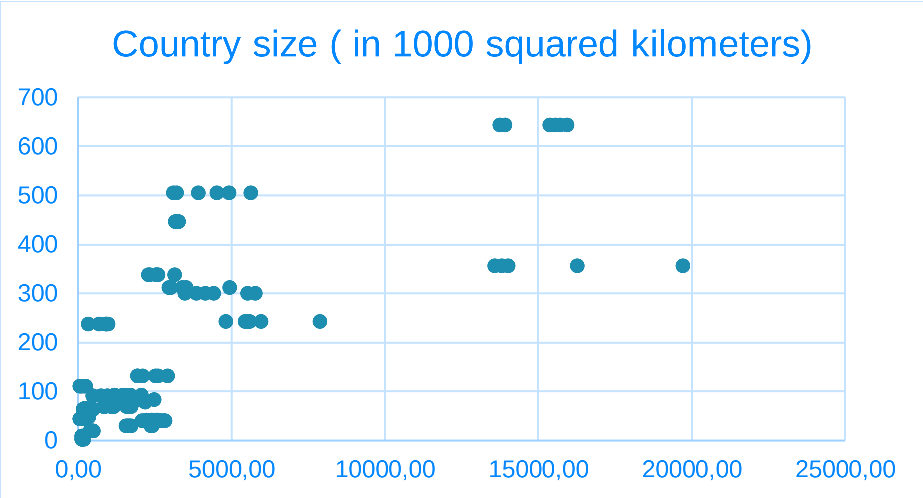

Figure 7: Correlation between Country Size and Total Amount of State Aid
Source: Author's creation with data from Commission Services (2015 State Aid Scoreboard)

Figure 8 shows the relation between country size and the SA/GDP ratio for the considered countries in the EU over the period 2009-2014. There is no real trend to be seen on the figure. The correlation between country size and SA/GDP is negative (-4.28%) and might indicate that larger countries in general have a lower amount of state aid to GDP. However, this is a very small correlation and no conclusions can be made from this. It can be expected that country size does not significantly influence the SA/GDP ratio.

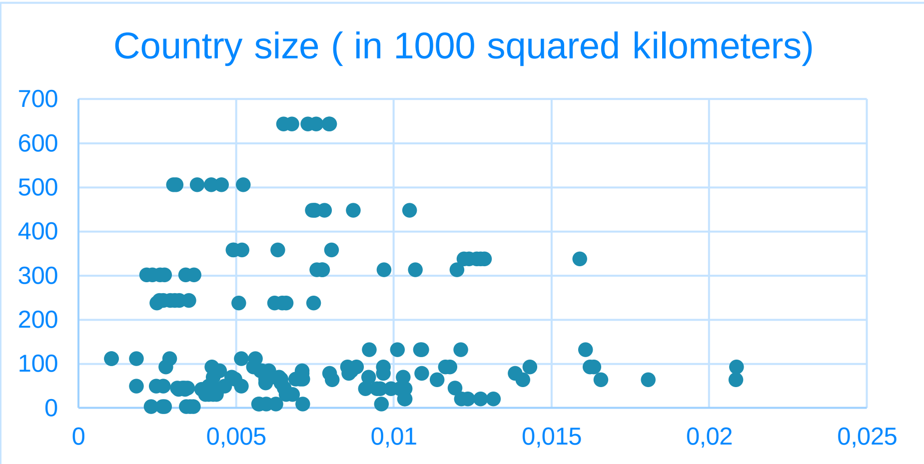

Figure 8: Correlation between Country Size and State Aid in Percentage GDP
Source: Author's creation with data from Commission Services (2015 State Aid Scoreboard)

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- **Number of citizens**

It can be expected that number of citizens will have a significant effect on the amount of state aid. More inhabitants could imply a higher need for aid. Table 1 shows the correlations between the number of citizens, GDP, total amount of state aid and the SA/GDP ratio.

Table 1: The correlation matrix for number of citizens, GDP, total amount of state aid and the SA/GDP ratio.

	Number of citizens	*GDP*	*Total amount of state aid*	*SA/GDP*
Number of citizens	1.000			
GDP	0.9551	1.000		
Total amount of state aid	0.8467	0.8917	1.000	
SA/GDP	-0.2773	-0.2896	-0.0538	1.000

Source: Author's own correlation matrix

The correlation between the total amount of state aid and the number of citizens is 84.67%, which is a strong correlation. In other words, countries with more inhabitants generally allocate more aid. There seems to be a low negative correlation between SA/GDP and number of citizens of -27.73%. In other words, this could mean that countries with more inhabitants generally have a lower SA/GDP ratio than countries with a lower number of inhabitants. Furthermore, GDP and number of citizens are highly correlated (95.51%). Overall, a higher number of citizens indicates a higher GDP. Both total amount of state aid and GDP are highly positively correlated with number of citizens, therefore it is strange that the SA/GDP ratio is negatively correlated. In general, it could thus be expected that a country with more inhabitants does have a higher GDP and allocates a higher amount of state aid, despite the lower SA/GDP ratio.

- **Membership date**

Not all countries in the EU joined in 1958. Thus, this thesis will test if membership date has anything to do with the amount of state aid. For the membership date, a dummy variable was generated (Newold10Member). The value 0 (old) for all countries with a membership before the year 2004. The value 1 (new) for all countries member since the year 2004. Old members in general spent more aid than the new EU members in the period 2009-2014, which is also depicted in figure 9.

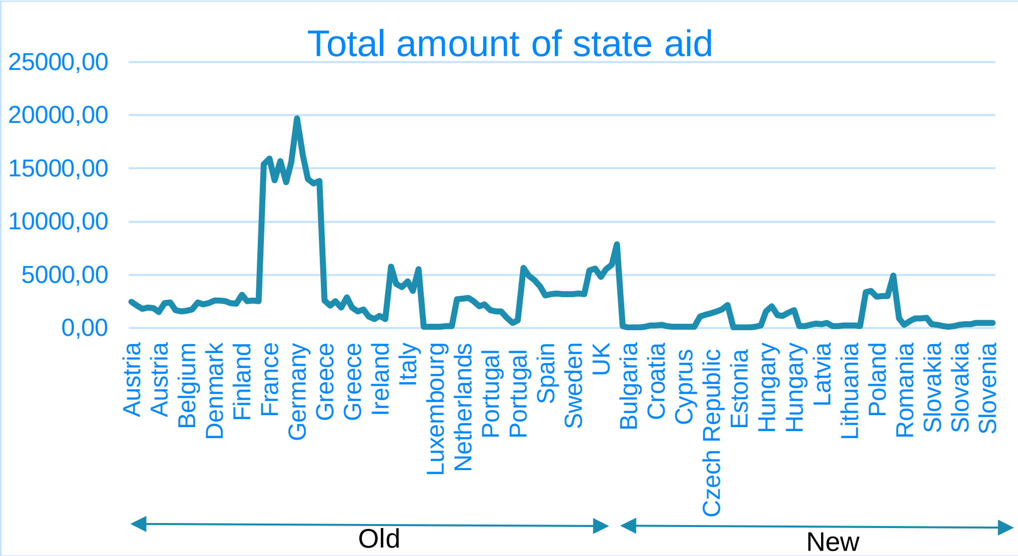

Figure 9: Total amount of state aid for old (before 2004) and new (since 2004) EU member states. Source: Author's creation with data from Commission Services (2015 State Aid Scoreboard)

A comparison of the mean of the total amount of state aid for new members versus old members over the period of 2009 till 2014 also indicates a gap between the two. The mean for old members is 4169.71 million euros, while this is only 784.23 million euros for new members on an annual basis. Of the 12 'new' members, only the Czech Republic, Hungary, Poland and Romania (which are all member since 2004) are scoring above the average of 784.23 million euros. While for the old members, only Portugal and Luxembourg allocated less than 784.23 million euros as state aid on an annual basis. Thus, a distinction can be made between new and old members.

Table 2: Mean value of total amount of state aid, new versus old member states

	Mean value of total amount of state aid	Number of member states
Old member states	4169.71 million euros	16
New member states	784.23 million euros	12
All member states	2772.02 million euros	28

Source: Author's own calculations

It can be expected that old member states spend significantly more on state aid than new member states. For the SA/GDP ratio there is no such trend to be found. Figure 10 shows this immediately. Some of the newer members even seem to have a higher SA/GDP ratio than old members.

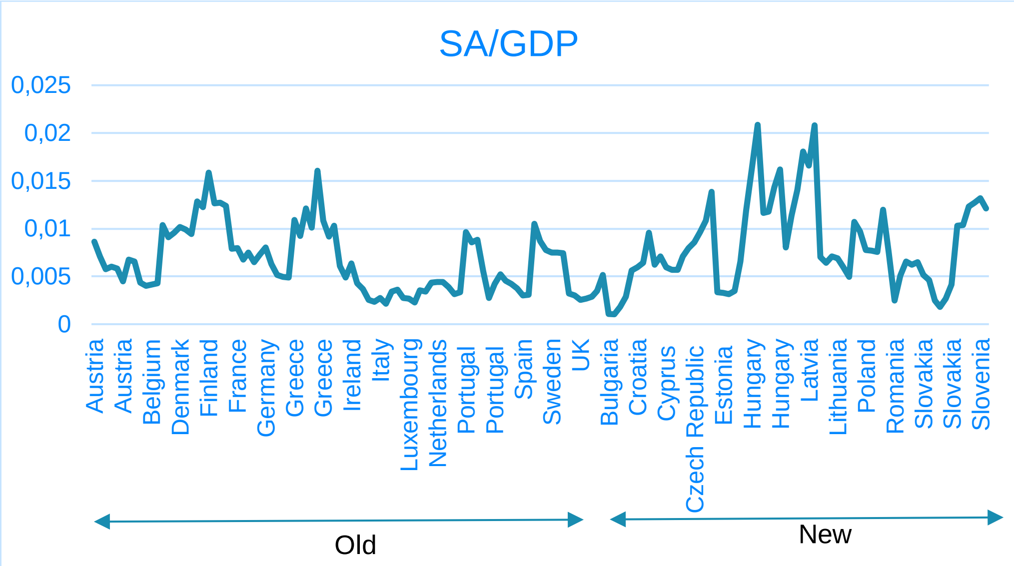

Figure 10: SA/GDP ratio for old (before 2004) and new (since 2004) EU member states. Source: Author's creation with data from Commission Services (2015 State Aid Scoreboard)

- **Government size**

Two dummy variables were generated to measure the size of the government. The first variable is the government size in terms of revenue (SizeOfGovREV). The mean value of government revenue is 221,173.64 million euros. Therefore, all government revenue above 200,000 million euros is considered as a large government, whilst all values below this amount indicate a small government in this research. For government size in terms of revenue 39 of the 157 observations (this is ~25%) are large governments.

The second variable is the government size in terms of expenditure (SizeOfGovEXP). The mean of government expenditure is 238,715 million euros. When government expenditure is larger than 200,000 million euros, it is a large government (dummy variable equal to 1). When the government expenditure is smaller than 200,000 million euros, it is a small government (equal to 0). In the case of government expenditure, 43 of the 157 observations (27.38%) are large governments with a border of 200,000 euros.

Table 3 shows the correlation matrix for size of government (in terms of government revenue and government expenditure), GDP, SA/GDP and total amount of state aid.

Table 3: Correlation matrix size of government, GDP, SA/GDP and total amount of state aid.

	SizeOfGov REV	SizeOfGov EXP	GDP	SA/GDP	Total amount of state aid
SizeOfGov REV	1.000				
SizeOfGov EXP	0.9361	1.000			
GDP	0.8428	0.8095	1.000		
SA/GDP	-0.3827	-0.3898	-0.2896	1.000	
Total amount of state aid	0.6766	0.6507	0.8917	-0.0538	1.000

Source: Author's own correlation matrix

The correlation between total amount of state aid and size of the government (both in terms of revenue as in terms of expenditure) is positive. There is a positive correlation between GDP and size of the government of 84.28% or 80.95% (in terms of revenue and in terms of expenditure respectively). The latter means that larger governments in general have a larger GDP. The SA/GDP ratio is clearly negatively correlated with, both, GDP and size of the government (respectively -38.27% and -38.98%). This means that countries with a higher GDP tend to have a lower SA/GDP ratio. Furthermore, larger governments tend to also have a smaller SA/GDP ratio. The latter is in contrast with the findings of Clements, Rodriguez and Schwartz (1998) who state that larger governments (in terms of expenditure) have a higher ratio of subsidies to GDP. It seems that their conclusion does not hold up for state aid. This is also in contrast to the hypothesis that large governments tend to have a higher SA/GDP ratio. The significance of this negative correlation will be measured later.

3.2.1.2 Total amount of state aid

Table 4 shows the results of the model that measures the impact of the country characteristics and government size on the total amount of state aid. The model is a simple linear regression model because country size and membership date are fixed variables over time. Furthermore, the size of the government only varies for some countries over time. Therefore, panel data regression models cannot be used because some of the variables are omitted.

Table 4: model for total amount of state aid

	Model for total amount of state aid
Country Size	4.78946*** (0.000)
Number of Citizens	0.0001189*** (0.000)
Membership Date (Newold10Member)	-1137.286*** (0.002)
Government size in terms of revenue	-416.1722 (0.707)
Government size in terms of expenditure	-360.5008 (0.719)
_cons	381.8696 (0.221)
R^2	0.7595
Number of observations	157
Number of groups	27

Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Author's own statistical regression

The above model shows that country size, number of citizens and membership date are significant variables for the total amount of state aid. Country size has a significant positive effect on the total amount of state aid. Larger countries significantly have a higher amount of state aid than smaller countries in general and ceteris paribus. The coefficient of 4.78946 could be interpreted as follows: an increase of one square kilometre in country size implied an increase of 4.79 million euros in total amount of state aid in general and ceteris paribus for the period 2009-2014. However, the coefficient is only a mean value over the studied period and purely illustrative. It cannot be used to estimate the amount of state aid in the future.

Number of citizens is also positively significant for the total amount of state aid. A higher number of citizens implies a higher amount of total aid. Membership date has a negative effect on the total amount of state aid. It seems that old members are significantly spending more in total amount of state aid than new members. The variables 'government size in terms of revenue' and 'government size in terms of expenditure' are not significant for the total amount of state aid.

The above results provide an answer to the first and third hypothesis:

H_1: Country size, number of citizens and membership date have a significant influence on the total amount of state aid.

H_3: Large governments tend to allocate a higher total amount of aid than small governments.

The first hypotheses can be confirmed. All three country characteristics have a significance influence on the total amount of state aid. The third hypotheses cannot be confirmed in this research. The size of the government is not significant in this research. There cannot be concluded that large governments tend to have a higher total amount of state aid than small governments.

An important note to make is that there are also other ways to determine the size of the government, it could be that other conclusions can be found. Furthermore, the definition of large and small governments can vary. In this research government size is determined by a border of 200,000 million euros in revenue or expenditure. It could be that a different definition of government size also results in different conclusions.

3.2.1.3 SA/GDP ratio

Table 5 shows the results of four models. The first model is a simple regression models because of the fixed variables. Models 2, 3 and 4 are random panel data regression models.

Table 5: models for SA/GDP ratio

	Model 1 (simple regression)	Model 2 (panel data)	Model 3 (panel data)	Model 4 (panel data)
Country Size	8.71e-06*** (0.001)	8.56e-06 (0.135)	–	–
Number of Citizens	0.0003308 (0.635)	-4.72e-11 (0.299)	–	–
Membership Date (Newold10Member)	-3.24e-11 (0.201)	0.0005837 (0.693)	–	–
Government size in terms of revenue	-0.0009027 (0.667)	-0.0002601 (0.846)	-0.0002130** (0.025)	–
Government size in terms of expenditure	-0.0031752* (0.097)	-0.0024399* (0.064)	–	-0.002750*** (0.003)
_cons	0.0073432*** (0.000)	0.0071455*** (0.000)	0.0077432*** (0.000)	0.0079647*** (0.000)
R^2				
within	-	0.0276	0.0079	0.0278
between	-	0.2520	0.1821	0.1782
overall	0.2189	0.2142	0.1465	0.1519
Number of observations	157	157	157	157
Number of groups	-	27	27	27

Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Author's own statistical regressions

- **Model 1**

Model 1 is a simple regression model. The variables country size and government size in terms of expenditure are significant for the SA/GDP ratio. Country size has a strongly significant and small positive impact on the SA/GDP ratio. Large countries tend to have a slightly higher SA/GDP ratio than small countries in general and ceteris paribus. Size of the government in terms of expenditure is significant on the 10% significance level. The coefficient is negative, which means that large governments tend to have a lower SA/GDP ratio in general and ceteris paribus. With the definition of large governments as governments with an expenditure higher than 200,000 million euros.

The coefficient of -0.0031752 is very large and could be interpreted as follows: If a government is large, the SA/GDP ratio is generally lower with 0.317%, than when a government is small.

The previous seems to be in contrast with the findings of Clements, Rodriguez and Schwartz (1998) who claimed that larger governments have a higher ratio of subsidies to GDP. For state aid their statement seems to be incorrect.

- **Model 2**

The second model is a random panel data regression model. This model differs from model 1 because it takes the time variable into account. In this model countries are compared to each other but also the differences within a country are considered for the period 2009-2014. Therefore, there are two R^2, one for the variance between groups and one for the variance within each cluster group. This model explains 25.2% of variance between countries and only 2.76% of the variance for a country over the period 2009-2014.

In this model, only size of government in terms of expenditure is a significant variable explaining SA/GDP. The coefficient is still negative, meaning that large governments seem to have a lower SA/GDP ratio. This is again in contrast to the findings of Clements, Rodriguez and Schwartz (1998).

- **Model 3**

Model 3 is a random panel data regression, which explains 18.21% of the differences between the countries. The only variable in this model is the size of government in terms of revenue. The variable is significant for the SA/GDP ratio on the 5% level, with a P-value of 0.025. It shows again that larger governments tend to have a negative effect on the amount of state aid as percentage of GDP.

- **Model 4**

Model 4 is a random panel data regression which only considers size of the government in terms of expenditure. Size of the government in terms of expenditure is a very strongly significant variable on the 1% significance level. The coefficient is negative and large. If a country had a large government in the period 2009-2014, this had a negative impact of 0.0027502 on the SA/GDP ratio, ceteris paribus and in general. Therefore, the findings of Clements, Rodriguez and Schwartz (1998) seem not to hold up for state aid. Countries with large governments, seem to have a significant smaller amount of state aid to GDP.

- **Conclusion**

This part provided an answer to hypothesis 2 and 4:

H_2: Country size, number of citizens and membership date have a significant influence on the SA/GDP ratio.

H_4: Large governments have a higher ratio of state aid to GDP.

The second hypothesis seems not entirely true. It appears that not all the three country characteristics have a significant influence on the SA/GDP ratio. Country size is the only variable with a significant impact on the SA/GDP ratio. Country size is only significant in the first model and has a very small coefficient. Therefore, nothing can be concluded out of this.

In the literature review it was stated that large governments spend more on subsidies than small governments. However, government size seems to negatively affect the SA/GDP ratio. Countries with large governments had a lower SA/GDP ratio in general and ceteris paribus over the period 2009-2014. This contrasts with the expected results and with the findings of Clements, Rodriguez and Schwartz (1998) who claimed that larger governments have a higher ratio of subsidies to GDP. The fourth hypothesis seems to be incorrect. This research provides evidence for the opposite result. The SA/GDP ratio seems to be negatively affected for countries with a large government.

3.2.2 Objectives

In the literature review it was shown that governments tend to have different incentives to allocate aid. Schwartz and Clements (1999) gave two important reasons for governments to allocate aid. As a first, they mentioned that governments grant subsidies to attract votes. This was also supported by Kassim and Lyons (2013) who claimed that state aid is politically sensitive. As a second reason, Schwartz and Clements mentioned the aim of governments to resolve market imperfections. In this case, the need of a certain country is considered and governments subsidize to boost economic growth. Furthermore, it was clear that not all governments value the same objectives. In other words, because of different incentives the member states have different allocations for the objectives. Therefore, this part measures the effect of the different objectives on the amount of state aid as percentage of GDP. It tries to find significant objectives that explain the differences in the ratio SA/GDP. For this a robust fixed panel data model was used. The first 15 objectives belong to the category non-agricultural aid. The 16th objective is agricultural aid. The results of the model are depicted in table 6.

Table 6: model objectives

	Objectives
Closure aid	5.98e-06* (0.051)
Natural Disaster	-0.0000105 (0.332)
Culture	8.06e-06 (0.304)
Employment	5.42e-06 (0.159)
Environmental Protection	2.76e-06*** (0.006)
Heritage conservation	0.0000216 (0.376)
Export	-5.31e-06 (0.574)
Regional development	1.93e-06* (0.053)
Rescue and restructure	7.14e-06*** (0.002)
Research and development	6.01e-07 (0.523)
Sectoral development	2.44e-06 (0.197)
SME	-2.07e-06 (0.329)
Social support	6.21e-07 (0.574)
Training	1.35e-06 (0.678)
Other objectives	9.00e-06 (0.245)
Agricultural Aid	5.04e-06** (0.024)
_cons	0.0003922 (0.838)

R^2	
within	0.3532
between	0.0000
overall	0.0011
Number of observations	157
Number of groups	27

Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Author's own statistical panel data regression

The model explains 35.32% of the differences in the amount of state aid as percentage GDP within countries in the database. The model does not explain the differences between the countries.

Environmental protection was the most important objective, accounting for 25.13% of state aid on average for the entire EU over the period 2009-2014. Environmental protection is a significant objective, even though Germany for the year 2014 was excluded due to an exceptional value. Environmental protection is a strongly significant variable on the 1% significance level (with a score of 0.006) and has a coefficient of 0.00000276. The coefficient can be interpreted as a positive influence on the SA/GDP ratio. When a country had a higher amount of aid for environmental protection, in general and ceteris paribus, the SA/GDP was higher with 0.00000276 in the period 2009-2014 for a certain country. The latter is obvious since a higher amount of state aid for any objective is expected to increase the SA/GDP ratio.

Regional development, the second most important objective (18.61% of EU spending on state aid), is significant on the 10% significance level, with a score of 0.053. An increase of 1 million euros in regional development equals an increase in the SA/GDP ratio with 0.00000193 ceteris paribus and on average. Research and development, the third most important objective, is not significant.

Agricultural aid is a highly significant variable on the 5% level with a P-value of 0.024. The coefficient is positive and thus a higher amount of agricultural aid was in general and ceteris paribus a sign for a higher SA/GDP ratio.

Rescue and restructure is a strongly significant variable on the 1% level (P-value of 0.002), with a positive coefficient of 0.00000714. However, this accounts for a small amount of the total state aid. On average for the period 2009-2014 this was only 1.01% of the total state aid in the EU. Since, not all countries seem to use this, the relevance of this objective could be low.

Finally, closure aid is significant on the 10% level and has a positive effect on SA/GDP. The coefficient is 0.00000589 which means that an increase in the expenditure on closure aid, indicates an increase in SA/GDP.

The above results provide an answer to the matching hypothesis:

H_5: Because of different use of the state aid objectives between EU member states, some objectives are explanatory for the differences between the amount of state aid as percentage of GDP.

Aid objectives rescue and restructure, environmental protection and agricultural aid have a strongly positive significant effect on the amount of state aid as percentage of GDP. In other words, there is a trend to be found with these objectives. If a country allocated a high amount of state aid to these objectives, the ratio SA/GDP was generally higher in the period 2009-2014 compared to countries with a lower amount of aid for these objectives. Furthermore, regional development and closure aid are significant on the 10% significance level. Consequently, they could in general partly predict whether the SA/GDP ratio of a country is high or low.

3.2.3 Instruments

Grants and tax exemptions are the only instruments widely used by all EU countries, except for Greece that used a high number of guarantees. The latter is probably because of the Greek crisis. On average, a country in the EU used 65% grants and 28% tax exemptions over the period 2009-2014. Sweden and Portugal used more tax exemptions and less grants but in general the largest group mainly uses grants. Luxembourg even exclusively uses grants to allocate aid.

This section tries to provide an answer to the following hypothesis:

H_6: Governments use different instruments to allocate aid and this explains the amount of state aid distributed.

Table 7 shows the results of the robust fixed panel data regression model.

Table 7: model for instruments

	Model instruments
Equity participation	4.08e-06 (0.115)
Grant	1.00e-06 (0.114)
Guarantee	3.30e-06 (0.115)
Soft loan	4.60e-07 (0.711)
Tax deferral	1.25e-06 (0.842)
Tax exemption	1.43e-06** (0.044)
Other instruments	1.80e-06* (0.068)
_cons	0.004202*** (0.001)
R^2	
within	0.1976
between	0.0066
overall	0.0015
Number of observations	157
Number of groups	27

Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Source: Author's own statistical panel data regression

The outcome of the model has only one strongly significant variable, namely tax exemption. Tax exemption seems to explain some of the differences within a country (the model explains 19.76% of differences within a country). An increase in tax exemptions was in general and ceteris paribus an indication of an increase in the SA/GDP ratio. The 'other instruments' are significant on the 10% level although there is not much to say about this.

To provide an answer to hypothesis six, this research showed that tax exemptions is an explanatory instrument for the SA/GDP ratio. Governments that use a large amount of tax exemptions, seem to have a higher SA/GDP ratio in general.

General Conclusion

Summary

This thesis provides an overview of previous research on state aid in search of reasons for the discrepancies in the level of state aid between countries in the EU. In four interviews, the findings were discussed to help shape the hypotheses and strengthen or question the previous research. Then, this thesis analysed data of the 2015 State Aid Scoreboard, Eurostat and the World Bank to formulate an answer to the hypotheses. The most important results are summarized below.

First, Zahariadis (2013) states that governments have different negotiation power towards the Commission. In other words, he claims that countries can allocate more aid than necessary because of their good relations with the European Commission. It seems that the negotiation power argument appears to be more an ability to get away with illegal aid without the European Commission finding out. The interviewees for this thesis confirmed this. Perhaps, some countries are better at manipulating or bending the rules of state aid to answer to the needs of GBERs. In which case, the state aid is not evaluated by the European Commission. This thesis did not further investigate this reason with data because this is very difficult to measure.

Second, companies and industries might have an influence on the amount of state aid by pressuring the governments to grant aid. As mentioned before, Kassim and Lyons (2013) believe that state aid is politically sensitive and politicians would bend the rules for their own interest. Interviewee Karel De Corte mentioned that sometimes ministers decide to allocate aid irrespectively of the outcome of the evaluation. This again is difficult to measure and therefore not further investigated in this thesis.

Third, the research of Dewatripont and Seabright (2006) showed that governments are wasteful with resources and do not always choose the best projects. This could be partly because of a different evaluation of state aid between and within countries, as the interviews indicated. Furthermore, Clements, Rodriguez and Schwartz (1998) claimed that large governments tend to have a higher ratio of subsidies to GDP and are perhaps more wasteful than small governments. Rothstein and Teorell (2008) and Alesina and Angeletos (2005) stated that large governments are more often supporting ‘bad projects’ than small governments. In summary, large governments seem to be more wasteful with resources in general and therefore often have a higher ratio of subsidies to GDP than countries with small governments.

This thesis tested whether the statement of Clements, Rodriguez and Schwartz (1998) holds up for state aid. In other words, it was investigated whether large governments tend to have a higher SA/GDP ratio or not. The analysis of this thesis implies that this does not seem to be the case for state aid. For countries with large governments (with an expenditure higher than 200,000), the SA/GDP ratio was significantly lower for the period 2009-2014. Over the period 2009-2014, countries with large governments had a significantly lower SA/GDP ratio in general and ceteris paribus than countries with small governments. For total amount of state aid, the size of the government seems not to be significant. In other words, a large government does not imply a higher or lower total amount of state aid.

Fourth, different country characteristics might have an influence on the amount of state aid allocated. The size of a country, number of citizens and membership date (new or old member of the EU) were put to the test in this thesis. All three characteristics seem to have a significant influence on the total amount of state aid. Larger countries and countries with more inhabitants spent more on state aid in general over the period 2009-2014. Furthermore, old member states (countries that joined the EU before 2004) spent significantly more in total amount of state aid than new members (member since 2004) over the investigated period. For the SA/GDP ratio only country size seems to have a significant positive impact. However, this is a questionable result because this was only the case in model 1 (simple regression model) and not in model 2 (panel data regression).

Fifth, governments seem to have different incentives, which could also partly explain the previously discussed wastefulness of governments. Schwartz and Clements (1999) gave two, often conflicting, reasons for governments to grant aid. On the one hand, the governments think about re-election and therefore subsidize some projects to win votes. This is supported by Kassim and Lyons (2013) who claim that state aid is politically sensitive. On the other hand, governments want to stimulate the economy and solve market imperfections. Friederiszick et al. (2006) discussed the use of state aid to solve market imperfections. Some governments seem to grant more aid to solve market imperfections than others.

In summary, governments tend to have different incentives. This thesis investigated the differences by analysing the different objectives and instruments used for state aid. The objectives rescue and restructure, environmental protection and agricultural aid seem to have a strongly significant positive effect on the amount of state aid as percentage of GDP. In other words, these objectives explain a certain trend. When a country spends more aid on one of these objectives, the ratio SA/GDP was generally higher in the period 2009-2014.

Furthermore, regional development and closure aid are significant on the 10% significance level. These objectives also have a positive impact on the SA/GDP ratio. A higher allocation on regional development or closure aid indicated a higher SA/GDP ratio.

As for the instruments, tax exemption seems to be an explanatory instrument for the SA/GDP ratio. An increase in tax exemptions was in general and ceteris paribus an indication of an increase in the SA/GDP ratio.

Finally, there seem to be other reasons for differences in the amount of state aid between countries in the EU that are not further investigated in this thesis. For example, the economic growth of a country could be significant, although this could have two effects. Either a country with a high growth can further stimulate growth by allocating aid, or it could reduce the amount of state aid because of a lower need. The effect of a possible different evaluation of state aid could also be of significance. Moreover, not all aid is used which could have an influence or there could be an impact of industries or companies where governments feel obliged to grant aid. The latter is supported by the claim that state aid is politically sensitive. Obviously, multiple and perhaps even more reasons could play a role. Further investigation could be done to measure their impact.

Shortcomings and future research

Future research could be done to strengthen the conclusions of this thesis or prove otherwise. The findings of this thesis could be wrong due to incorrect data because it is not possible to know the real figures of state aid. Moreover, the research is limited to the years 2009-2014. It is also unclear how high the impact of the investigated reasons is on the amount of state aid. This thesis provides a small base for future research.

Multiple reasons were not investigated in detail and some of them are difficult to discuss due to insufficient data. It could be interesting to measure the impact of the reasons that were not further investigated and perhaps even find other reasons for the differences in the amount of state aid between countries in the EU.

Appendices

Appendix 1: Articles 107-109 TFEU

Article 107

(ex Article 87 TEC)

1. Save as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market.

2. The following shall be compatible with the internal market:

(a) aid having a social character, granted to individual consumers, provided that such aid is granted without discrimination related to the origin of the products concerned;

(b) aid to make good the damage caused by natural disasters or exceptional occurrences;

(c) aid granted to the economy of certain areas of the Federal Republic of Germany affected by the division of Germany, in so far as such aid is required in order to compensate for the economic disadvantages caused by that division. Five years after the entry into force of the Treaty of Lisbon, the Council, acting on a proposal from the Commission, may adopt a decision repealing this point.

3. The following may be considered to be compatible with the internal market:

(a) aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment, and of the regions referred to in Article 349, in view of their structural, economic and social situation;

(b) aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State;

(c) aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest;

(d) aid to promote culture and heritage conservation where such aid does not affect trading conditions and competition in the Union to an extent that is contrary to the common interest;

(e) such other categories of aid as may be specified by decision of the Council on a proposal from the Commission.

Article 108

(ex Article 88 TEC)

1. The Commission shall, in cooperation with Member States, keep under constant review all systems of aid existing in those States. It shall propose to the latter any appropriate measures required by the progressive development or by the functioning of the internal market.

2. If, after giving notice to the parties concerned to submit their comments, the Commission finds that aid granted by a State or through State resources is not compatible with the internal market having regard to Article 107, or that such aid is being misused, it shall decide that the State concerned shall abolish or alter such aid within a period of time to be determined by the Commission.

If the State concerned does not comply with this decision within the prescribed time, the Commission or any other interested State may, in derogation from the provisions of Articles 258 and 259, refer the matter to the Court of Justice of the European Union direct.

On application by a Member State, the Council may, acting unanimously, decide that aid which that State is granting or intends to grant shall be considered to be compatible with the internal market, in derogation from the provisions of Article 107 or from the regulations provided for in Article 109, if such a decision is justified by exceptional circumstances. If, as regards the aid in question, the Commission has already initiated the procedure provided for in the first subparagraph of this paragraph, the fact that the State concerned has made its application to the Council shall have the effect of suspending that procedure until the Council has made its attitude known.

If, however, the Council has not made its attitude known within three months of the said application being made, the Commission shall give its decision on the case.

3. The Commission shall be informed, in sufficient time to enable it to submit its comments, of any plans to grant or alter aid. If it considers that any such plan is not compatible with the internal market having regard to Article 107, it shall without delay initiate the procedure provided for in paragraph 2. The Member State concerned shall not put its proposed measures into effect until this procedure has resulted in a final decision.

4. The Commission may adopt regulations relating to the categories of State aid that the Council has, pursuant to Article 109, determined may be exempted from the procedure provided for by paragraph 3 of this Article.

Article 109

(ex Article 89 TEC)

The Council, on a proposal from the Commission and after consulting the European Parliament, may make any appropriate regulations for the application of Articles 107 and 108 and may in particular determine the conditions in which Article 108(3) shall apply and the categories of aid exempted from this procedure.

Appendix 2: Figures of 2014 for all 28 EU members

Table 8: Figures of 2014 for all 28 EU members

Country	*SA/GDP*	*Total amount of state aid*
Austria	0,004475	1478,588
Belgium	0,004269	1711,001
Bulgaria	0,005603	239,6149913
Croatia	0,00642	275,9345856
Cyprus	0,005701	100,153
Czech Republic	0,013843	2168,618628
Denmark	0,00946	2509,154615
Estonia	0,011935	235,815
Finland	0,012387	2545,227818
France	0,007263	15543,233
Germany	0,013529	39559,259
Greece	0,010839	1928,721549
Hungary	0,01622	1702,328587
Ireland	0,004268	824,482
Italy	0,0034	5508,551759
Latvia	0,020838	491,944
Lithuania	0,004946	180,9884731
Luxembourg	0,003417	168,357
Malta	0,009721	81,912

Netherlands	0,003375	2237,678275
Poland	0,011994	4929,303537
Portugal	0,004228	731,801901
Romania	0,006461	971,4595945
Slovakia	0,004116	312,57
Slovenia	0,012128	452,786
Spain	0,003082	3196,526
Sweden	0,007404	3203,63042
UK	0,003482	7871,499624

Source: Data from Commission Services (2015 State Aid Scoreboard)

Appendix 3: Interviews

Interview Hilde Decleer (October 14th 2016)

Hilde Decleer is alderman for economy in Bruges. She did not know a lot about state aid. Therefore, the interview is not added in detail. However, the fact that she did not have the knowledge on state aid pointed out that cities of a country are not aware of the content of state aid. Most cities do not know that state aid should be reported or what counts as state aid. It is more on regional and national level that the rules of state aid are followed.

Interview with Ellen Cardoen (October 28th 2016)

Ellen Cardoen is spokesperson for the Flemish EFRO-program. EFRO stands for 'Europees Fonds voor Regionale Ontwikkeling' (European Fund for Regional Development). Via this program projects in (West-)Flanders are supported (subsidised) that fit the goals of the program.

I had mentioned that my thesis will be about the reasons for differences in the level of state aid between countries in the EU beforehand. She had prepared some notes containing general knowledge on state aid which was further discussed in the interview.

Ellen Cardoen mentioned the following:

There is a general guideline in the EU where 6 questions should decide whether the subsidy is state aid or not (and thus whether the European Commission should be informed about it). Only if all 6 questions are answered with yes, it is state aid.

1) *Is there an extraction of government resources?*
2) *Are these resources going towards an undertaking (every institution influencing the market f.e. companies but this can also be a government institution etc.)*
3) *Does this imply an advantage?*
4) *Is the advantage discriminating?*
5) *Is there potential distortion of competition?*
6) *Is there an influence on the economic activity between two member states?*

The problem with these 6 questions is that it is decided on national level what answer is given to it. As soon as one question is answered with no, it is no longer state aid. Some countries might be stricter in answering these questions than others. Therefore, some subsidies are not reported to the European Commission. And if there is no complaint, the Commission will thus never know. As far as she knows, there haven't been a lot of complaints, certainly not on the regional level.

Provinces often do not even know what state aid is or what the rulings of state aid are about. They just spend the money they receive from governments, and don't ask questions on where it comes from or if it was reported to the European Commission or not. This also became clear with an interview with Hilde Decleer, alderman of economy of Bruges. (Hilde Decleer had no clue what state aid really included and certainly never heard of her funds being reported to the European Commission, which is mostly not the case either.)

Not all countries have the same view on what counts as state aid. Furthermore, there is something like DAB and DAEB. DA(E)B stands for 'Diensten van Algemeen (Economisch) Belang', which can be translated as Services of National (Economic) Interest. The DAB consist of public transportation, social insurance, public media etc. The DAEB are listed by the government of a country, for Flanders there are only 5 listed services (service flats, VMSW, Syntra, VITO and FIT) where for other regions or countries this list can amount to a lot more. Dependent on the country this list of DAEB can be very long or very short. For DA(E)B government intervention is necessary because there seems to be a form of market failure the government needs to resolve. For DA(E)B the Commission doesn't need to be informed. This again, can be an important reason for differences in the amount of state aid between countries in the EU.

Another thing is the AGVV (Algemene Groepsvrijstellingsverordening), this is a list of state aid exceptions. Under certain amounts of money (a barrier), there needs to be no report to the European Commission. The barriers vary between EU member states. The real reason for the introduction of this is the "less and better targeted state aid"-plan, which was actually launched to reduce the workload of the COMP. The COMP received an enormous amount of applies for state aid and then decided to implement these regulations in order to reduce the applications.

Finally, there is something like "minimis", which is about amounts lower than 200.000 euros for companies during three consecutive years. These amounts, should also not be reported to the Commission.

In conclusion, all member states can decide on their own regulation on state aid. However, as soon as there are complaints, the European Commission needs to be involved. According to Ellen Cardoen, there are not a lot of complaints in reality. The lax regulation is not really seen as a problem. Of course, this might be a very important reason for the difference in the level of state aid between member states in the EU. It also suggests that analyses on the impact of state aid on economic level are not really accurate. This is due to a lot of subsidies not included in the research. Therefore, it is not possible to assess the real impact of the difference in level of state aid on the economy of the member states.

After the discussion, I posed several questions:

Willem: Tunali (2015) mentions that state aid has no real impact on the economic level (investment level and economic growth). Do you think this is true?

Ellen: I am surprised by that conclusion. Overall, the different interpretations of state aid should certainly have an impact on the economies of member state and therefore (somewhat) distort competition. State aid has an influence on the competition between member states. However, the real impact of state aid cannot be measured.

Willem: Zahariadis (2013) mentions in his paper that the use of state aid depends on the governments will to allocate aid and its negotiation power to get it past the Commission.

Ellen: It is the Directorate-General for Competition for state aid that decides whether or not the applied state aid can be granted by a government. However, governments have their own regulations concerning what is defined as state aid. Different interpretations of state aid could be a reason for the difference in level of state aid between members in the EU. However, I do not know if there is a negotiation power towards the Commission.

Willem: I also have other reasons for discrepancies in the level of state aid. Do you think the economic growth of a country or different political parties in power of a country could play a role in the amount of state aid?

Ellen: I cannot really give an answer to that. Politics (re-election) obviously could have an influence, like in the case of Ford Belgium. With Ford Belgium, it was the case that the government wanted to allocate aid but they were not allowed. Belgium tried to convince the European Commission that aid could save Ford Genk. Yet, the Commission was not convinced. They believed that state aid would help the factory to run on the short term but on the long term this would not bring a solution. Consequently, the aid was not justified and thus not granted by the COMP. This case is clearly politically sensitive. However, I do not believe that differences in political parties can play a role.

Willem: Do you think there might be an influence of companies or industries on the government to allocate aid? Adamonienė and Trifonova (2007) mentioned an information problem in their research. They believe that (Lithuanian) SMEs are not informed enough about state aid and they do not know that they can get aid. Some European countries seem to have better knowledge and companies convince governments to grant.

Ellen: I believe that there might be an information problem. It does not really matter whether companies know if their subsidies are considered state aid or not. On company or industry level there is no real information problem. However, there might be an information problem for governments. Some governments might be more informed with what they would get away with if they were not reporting the state aid. This could be a reason for the stricter regulations in one country than another. I do not know if there is an influence of companies on the amount of state aid.

Willem: I found that not all aid is allocated when it is approved by the COMP. Could there be an explanation for this?

Ellen: I have no view on this because I did not know there was a difference between the state aid actually used and the state aid applied for.

Willem: Could you come up with another reason or perhaps exclude one of my reasons?

Ellen: I do not know what really causes the difference between amounts of state aid within the EU. For the new entrants, state aid might be higher as percentage of GDP because these countries have a lot to catch up on. Like for example: building of rail roads, highways etc. But for countries like Germany, I do not know. I have no real vision on this.

At the end of the interview she gave me the name of Karel De Corte, who I interviewed later.

Interview with Sophie De Vinck and Wouter Dutillieux (December 19th 2016)

Sophie De Vinck and Wouter Dutillieux, who are contact persons from the Directorate General for Competition for state aid agreed to an interview to give an answer to my questions and to generally explain state aid more clearly. The following was discussed:

At first, I explained the subject of this thesis and they provided more detailed information on state aid in general. Most of which was already mentioned in the interview with Ellen Cardoen but some important details were mentioned to make things clearer. This interview and the one with Ellen helped to create the evaluation procedure in the literature review.

Then some questions were asked and Sophie and Wouter answered them together. The most important questions are mentioned below:

Willem: What influences the government to allocate aid or not? Could this be for their own interest? Rent-seeking, re-election etc.?

Sophie and Wouter: The governments need to report their state aid to the European Commission. In fact, everything should be well documented. The GBER are not further examined by the European Commission in good faith. However, the more important and large aid allocations are investigated. An important note to make is that there is a grey area. By this, we mean that not all governments are honest in reporting their aid. Some aid could be placed under the GBER while they do not follow the norms for this. Some aid is thus not legal. However, it is not possible for the European Commission to investigate all aid. They do not have enough manpower for this.

Willem: What about the less-and-better-targeted-state-aid-plan? Has that anything to do with this?

Sophie and Wouter: That plan is indeed created to reduce the workload of the European Commission. Because of the implementation of GBER, less state aid cases should be examined. However, that is not the only aim. Furthermore, it also tries to 'better allocate' the aid, which means that countries need to invest only if this is necessary.

Willem: Are there any cases where governments are wasteful and this is not discovered then?

Sophie and Wouter: The European Commission examines the most important cases. However, now and then the media or a company brings up questionable aid. In which case, the European Commission starts an investigation. In some cases, the aid is indeed not legal and should be recovered by the member state.

Willem: Do they then receive a fine or punishment?

Sophie and Wouter: No, mostly they receive a warning. Obviously, the country is then closer watched. As mentioned before, there is a grey area. The European Commission cannot control all state aid and thus illegal aid occurs from time to time without the COMP knowing it.

Willem: maybe some big enterprises, like AB InBev, have an impact on the government and thus on the amount of state aid that is allocated? Ellen Cardoen already mentioned that companies do not really care whether their subsidies are state aid or not. What do you think?

Sophie and Wouter: It are the governments that decide if aid will be allocated or not. Of course, they want the best for their country and try to convince companies to stay. Furthermore, they also think about votes and the employment of a country. However, a government cannot grant aid to their own liking. They need to follow the rules on state aid for their aid allocations. There is again the grey zone that is not investigated so yes, there might be an impact of companies or industries. However, we believe that this is limited.

Willem: I found some research that state aid is politically sensitive. Could it be that some political party allocates more subsidies in general, and therefore, has a higher aid allocation.

Sophie and Wouter: we cannot answer to that question. Some governments could indeed be more willing to allocate aid.

Willem: Ellen Cardoen mentioned an analysis of 6 questions to decide whether something is state aid. Could this analysis be different on the country level?

Sophie and Wouter: The analysis varies from institution but it indeed results in the same conclusion. We use only four questions for example. The analysis is on national level, so some cases are evaluated stricter than others. However, as mentioned before, the countries need to follow the rules on the state aid. If they would allocate aid for something that actually should not be state aid, this will probably be discovered if it has high consequences. The media could bring this up, or a company or industry that is hurt, will report this to the COMP. Again, there is this grey area.

Willem: Could you possibly give more reasons on state aid differences within the EU? I already have: differences in economic growth, size of a country, a different state aid analysis between countries.

Sophie and Wouter: The economic growth could be interpreted in two ways. Either, a government could say: yes, we will continue with the aid to further stimulate growth. Or they could decide to reduce the amount of state aid because of an already high growth. Size of a country will definitely play a role; larger countries will need for example more aid to reduce differences on the regional level. There might be multiple other reasons: it could be interesting to look at the GDP differences, the GINI coefficient and such.

Willem: In previous research, there was a claim that countries have a negotiation power argument towards the European Commission. Could this be true?

Sophie and Wouter: The European Commission does not act on national interest but on the interest of the entire EU. Thus, it cannot be the case that the European Commission lets some countries get away with illegal or misplaced aid. The aim of the European Commission is to make the EU grow and they need to follow the law that was mutually implemented by all EU member states. We believe that there is no negotiation power towards the Commission. Although it could be the case that some countries are better at covering their illegal aid or are better at bending the rules in their advantage. Furthermore, all EU member states had their say in the creation of the law on state aid. Some countries could have had a higher impact on the EU rules than others. The latter, could depend on negotiation power. However, it is not the case that countries can simply allocate more aid because of a better relationship with the European Commission.

Interview with Karel De Corte (April 4th 2017)

Interview with Karel De Corte, expert on European state aid rulings at the Flemish government. After a brief explanation on the topic of this thesis, the interview with Karel De Corte went as follows:

Willem: Can you explain me what your function consists of?

Karel: I am coordinator for state aid for the Flemish government. My role is to advice ministers on whether state aid can be granted or not. I am the “lucky” person who gathers the numbers for the State Aid Scoreboard of the European Commission for Belgium.

There is a high difference between Flanders and Wallonia in terms of figures. Flanders reports more state aid than Wallonia. In contrast to Flanders, Wallonia is still wrong since they do not include certain things, like cultural aid, into the report of their state aid.

Willem: The budget of Belgium for cultural aid should be higher then?

Karel: Yes, all aid for culture in the scoreboard is coming from Flanders. Therefore, I do not know whether an analysis of the data of the scoreboard is very accurate. The Commission is depending on the data the member states report to them. Not all member states provide the full data on state aid and thus the figures in the scoreboard are not the real figures. However, when the Commission investigates a certain case it could be that they ask more data when data is missing.

Willem: I read about such a case. Belgium needs to recover aid for the Belgian Tax Profit scheme. Can you tell me something about that?

Karel: Yes, that is true. The reason for that was a complaint of companies that were disadvantaged by that scheme. Only the multinationals could benefit from this and thus there was a distortion of competition. (…) Therefore, the aid should be recovered. This aid was even not included in the State Aid Scoreboard. Again, the data of the scoreboard is therefore limited. However, the European Commission is becoming more strict and member states do report more and more aid because of the risk of illegal aid being detected.

In 2014, the Commission has changed the rules on state aid. By implementing more GBER, the member states also have an incentive to report more aid.

Willem: Those changes are part of the less and better targeted state aid plan?

Karel: Yes, that plan exists already some time. Actually, state aid is prohibited and is only allowed to fix market imperfections or situations that are disadvantageous. For example, environmental aid and R&D are important things to finance with aid. Company investments are not really a good objective of aid because these investments would happen without aid as well. Regional aid can be used to help a lagging area to be more attractive. There needs to be a clear objective for state aid otherwise it would be distorting competition. Providing aid to a certain company is not done and would be distortion of competition. For example, if a company would want to educate people this cannot be financed by aid because this only targets a small group. However, a public education can be financed because this is available for everyone. Sometimes, aid would help a company to stay within a country. Granting aid to a certain company or group of companies is actually not allowed. However, it sometimes happens that the minister says they will grant aid anyways. This is a case of illegal aid. We advise the minister not to grant aid because it is not allowed, but they do not always listen to that and say: do it anyway.

I have the feeling that Flanders is very strict in following the rules for state aid compared to other regions and member states, who are less strict.

Willem: I read a paper about negotiation power towards the Commission, does that have anything to do with that?

Karel: No, it is more the case of how far a member state wishes to go in taking the risks of granting illegal aid. The Commission is not able to evaluate all the aid. They already have an intensive amount of work to evaluate some of the cases and thus lots of illegal aid is not discovered because it is never investigated. However, if a member state is ‘busted’ and the illegal aid is discovered they will be more intensely monitored by the European Commission. In that case, member states will be more strict in following the rules to avoid further sanctions and because the chance of the illegal aid being detected is higher.

Belgium is more careful than other countries for example. This is because we are very close to the COMP, which evaluates state aid and is also situated in Brussels. The media is writing about the Belgian ministers granting aid in the newspaper for example. Most of the workers at the COMP also see this news and therefore illegal aid can be detected sooner and more easily than from other countries. Therefore, there is often a discussion on whether to grant aid or not, even if the evaluation would point out that no aid should be granted.

Often we are overruled by the government, that says: “It is an important project to finance so do it anyway, even if it is not justified. We shall see in a couple of years what will happen if it is discovered.”. Most of the time they are then gone, and we are the ones who can solve it (he jokes).

Willem: Those ministers think about being re-elected?

Karel: Yes, they want to stimulate the economy. Subsidizing a company could for example mean 20 new jobs. The governments often have good incentives but mostly it is not in line with the regulations on state aid and therefore no aid should be granted.

Willem: In a previous interview, the evaluation procedure of state aid was discussed. Ellen Cardoen gave me 6 questions to evaluate state aid. Could you provide me with more information on that?

Karel: Yes, we also use that evaluation procedure. Mostly for economic cases, it points out to be state aid. It is rather difficult to come to a “no aid” conclusion. A case where it is more difficult is aid for UNIZO’s and VOCA’s, who help companies individually. There is actually a market for this because there are consultants that provide company advice. Therefore, it can be debated whether aid to UNIZO’s and VOCA’s is justified. On the political level these kind of situations are pushed through anyway. (…) There is a grey area where illegal aid like this is not discovered. If the Commission would do a thorough research on cases like this, certainly some things would not be accepted.

It is also more easy to mention a common interest for state aid in the department of sports, culture etc. than in the department of economy. There is no real issue to grant state aid for these objectives that frequently tend to have a common interest. As a consequence, there are large differences between member states in the allocation of aid. Officially, the European Commission should be the one to indicate whether something is state aid or not. In practice, this analysis is done by the member states.

Everything member states report is certainly state aid. All aid that is not reported is uncertain whether it would have been allowed by the COMP but there is also not the issue of the aid not being accepted by the COMP. The aid in the grey zone can thus either be illegal but it could also be that if the aid was reported to the COMP, they would accept the proposal.

Member states rather not ask the COMP for advice because if this would be negative advice, they would not be able to allocate the aid since the Commission knows about it.

Willem: Some members follow the rules more strict than others?

Karel: Belgium is rather strict, but France, Portugal, Spain are more often saying there is no market and thus allocate aid. Netherland and Denmark are countries that are very strict in interpreting the evaluation on state aid. They are quicker in seeing an activity as economic and thus they claim that there is a market present. As a result, no aid will be granted to the activity. Even public projects are sometimes not receiving aid because they believe companies can do the same. For example the Netherlands claim that local economies are competing against companies and therefore do not receive aid. While in Belgium, it is the case that all cities receive aid. No questions are asked.

Willem: I had an interview with Hilde Decleer, alderman of Bruges and she didn't even know what state aid was about.

Karel: Indeed, the cities are not aware of any aid. Only the very large cities like Antwerp and Ghent are aware of some of the aid and sit at the negotiation table from time to time. However, their presence is very limited and they do not believe that their activities are state aid. The cities often do not know they need to comply to the state aid law. Perhaps in the future, this will change but I believe this will not happen soon. (…)

The European Commission is not able to investigate all aid of the 28 member states because they do not have the manpower to do so. As a result, the grey zone is not examined leading to unjustified aid. However, over time the COMP was able to investigate state aid better. Recently, there was a study that proved that in 1/3 of the state aid files there were large errors. The sample that was investigated was very small so on the total scale this could even be worse. It could be that in the future more and more cases will be examined and errors will be discovered. Now already there are cases where it is not possible to get away with aid allocations when this was possible in the past.

Willem: There is also something like SGEI's (DAEB's in Dutch)?

Karel: Yes, legally speaking SGEI's are no state aid. However, sometimes the Commission decides that they are state aid. For example, public transportation is of public interest. Governments can legally provide free public transportation without the Commission blocking this. However, the finances for this should cover and only cover the costs of the activity. As soon as too much money is given, there is an overcompensation and is considered state aid. What counts as SGEI is decided by governments themselves, not all countries have the same list of SGEIs. Some countries do not see an activity as an SGEI because they decide there is a market for it, while another does. When the Commission decides there is a market for an activity, they can block the decision of a government to see an activity as an SGEI.

Willem: Member states have different objectives for state aid as is clear out of the State Aid Scoreboard. Could you tell me something about that?

Karel: Yes, because of the Brexit I have analysed the data as well to see the differences between Belgium and the UK. The UK has for example an enormous amount of environmental aid in percentage to GDP compared to Belgium. The reason for this is that for Belgium environmental aid is only going to companies that are investing in the environment. The UK is financing whole sectors and projects for renewable energy which leads to a much higher environmental aid. The UK is further in the development of renewable energy than Belgium. These differences also count. Some countries are more developed in certain areas than others. Some countries have more subcategories for objectives than another. The State Aid Scoreboard is a general overview but the figures are not conclusive for the practical use of it. It can show a trend but it does not show the real numbers.

Appendix 4: Overview of the used variables

Table 9: Overview of the used variables

SAGDP	State aid as percentage of GDP
TotSA	Total amount of state aid (in million euros)
Newold10member	Dummy variable, where 0 is an old member (member before the year 2004) and 1 is a new member (member since 2004)
CountrySize	Size of the country (in 1000 square kilometres)
Objectives of state aid (in million euros)	
NonAgrAid	Non-Agricultural Aid
ClosureAid	Closure Aid
NaturalDisaster	Compensation of damages caused by natural disaster
Culture	Culture
Employment	Employment
EnvironmentalProtection	Environmental protection incl Energy saving
HeritageConservation	Heritage conservation
Export	Promotion of export and internationalisation
RegionalDevelopment	Regional Development

RescueRestructure	Rescue & Restructure
ResearchAndDevelopment	Research and development including innovation
SectoralDevelopment	Sectoral development
SME	SME including risk capital
SocialSupport	Social support to individual consumers
Training	Training
Other	Other
AgrAid	Agricultural Aid
Instruments of state aid (in million euros)	
Equitypart	Equity participation
Grant	Grants
Guarantee	Guarantees
Softloan	Soft Loan
Taxdeferral	Tax Deferral
Taxexemption	Tax Exemption
OtherInstr	Other Instruments
SAcitizen	State aid per citizen
GDP	Gross Domestic Product
GovExp	Government Expenditure
GovRev	Government Revenue

SizeOfGov	Size of the government (dummy variable with 1=large government, and 0= small government)

Appendix 5: Summary statistics

Table 10: Summary Statistics

Variable	***Observations***	***Mean value***	***Standard deviation***	***Minimum value***	***Maximum value***
SAGDP	157	.0072463	.0040186	.0010347	.0208612
TotSA	157	2703.388	3813.585	39.91126	19710.36
CountrySize	157	167.4057	169.5113	2.586	643.801
Numberofcitizens	157	1.86e+07	2.27e+07	493500	8.20e+07
Newold10member	157	.433121	.4970926	0	1
ClosureAid	157	30.07712	208.1546	0	1529.831
NaturalDisaster	157	3.204719	15.85743	0	153.97
Culture	157	86.99547	136.0354	0	662.068
Employment	157	109.2192	286.6574	0	1472.86
Environmental protection	157	542.9509	1027.796	0	6038.501
HeritageCons	157	2.700385	8.649509	0	53.258
Export	157	10.27292	41.89826	0	273.1722
Regionalde~t	157	534.2207	994.6302	0	6144.022
RescueRest~e	157	29.25382	81.74026	0	546.6
Researchan~t	157	393.3576	647.1747	.1113482	3040.716

Sectoralde~t	157	267.2631	528.5346	0	2909.432
SME	157	167.5757	366.0722	-.030082	1691.969
Socialsupp~t	157	118.637	623.9128	0	4773.712
Training	157	33.86314	66.35005	0	551.0026
OtherObj	157	31.51528	97.33152	0	733.373
AgrAid	157	342.2814	400.4381	6.524303	1793.994
Equitypart~n	157	24.8909	89.42023	0	942.8877
Grant	157	1265.479	1710.223	9.910752	9455.719
Guarantee	157	103.0684	369.2957	0	1874.236
Softloan	157	65.66909	143.1381	0	950.6594
Taxdeferral	157	2.62243	12.76524	0	136.8026
Taxexemption	157	879.1774	1691.419	0	8353.318
OtherInstr	157	20.19992	110.314	0	1080.407
SizeOfGovREV	157	.2484076	.4334721	0	1

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