
Responses to unemployment during the Eurozone crisis

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List of Abbreviations

ALMP – Active Labour Market Policy

CME – Co-ordinated Market Economy

EES – European Employment Strategy

EPL – Employment Protection Legislation

EU LFS – European Labour Force Survey

EU – European Union

GDP – Gross Domestic Product

ILO – International Labour Organisation

LME – Liberal Market Economy

MME – Mixed Market Economy

MoU – Memorandum of Understanding

OECD – Organisation for Economic Co-operation and Development

PES – Public Employment Services

PLMP – Passive Labour Market Policy

PPS – Purchasing Power Standards

Country codes

AT – Austria

BE – Belgium

BG – Bulgaria

CY – Cyprus

CZ – Czech Republic

DE – Germany

DK – Denmark

EE – Estonia

EL – Greece

ES – Spain

FI – Finland

FR – France

HR – Croatia
HU – Hungary
IE – Ireland
IT – Italy
LT – Lithuania
LU – Luxembourg
LV – Latvia
MT – Malta
NL – Netherlands
PL – Poland
PT – Portugal
RO – Romania
SE – Sweden
SI – Slovenia
SK – Slovakia
UK – United Kingdom

1 Introduction

“The Eurozone crisis produced a dramatic rise in unemployment... but aggregate figures hide enormous disparities between Member States. Some countries like Austria or Germany are enjoying economic growth and high employment. However, many other Member States are struggling with continued economic contraction, with unemployment rates near or over 20% and with declining household incomes and rising levels of poverty.” (László Andor, 10th October 2014)

Speaking at a lecture at the Université Libre de Bruxelles, the Commissioner for Employment, Social Affairs and Inclusion, László Andor, captured some of the complexities in understanding what happened in relation to unemployment during the Eurozone crisis, and in its aftermath.

This quote is striking for two reasons. Firstly, it draws attention to how aggregate unemployment figures can mask what is going on, as it appears that clusters of countries were more affected by high unemployment than others. This is an important area to understand as countries in the Eurozone are tied to a single currency and had been focusing on boosting employment policies long before the Eurozone crisis, through developments such as the European Employment Strategy and the Europe 2020 growth strategy, and yet, as indicated from László Andor’s speech, clusters of countries responded to unemployment in different ways. Secondly, the divergence in unemployment rates, does not accord with the wider literature suggesting that European welfare states tend to make small changes to total spend on unemployment over time, therefore behaving in a similar way. This seems hard to believe if some countries experienced high unemployment.

With this in mind, the key aim of this dissertation is to contribute to this under-researched area, by exploring how and why European country responses to unemployment varied during the Eurozone crisis. It will achieve this by looking at three main research questions:

Firstly, it will focus at one component of overall unemployment spend, by asking, from 2005-2015 did European welfare states behave in a similar way relating to those receiving unemployment benefits and spend on out of work maintenance?

Secondly, it will establish whether there is a relationship between different clusters of countries (i.e. varieties of capitalism and emergent growth clusters) and spend on out of work maintenance during the Eurozone crisis?

Finally, it will build on these two broad questions to hone in on the experience of two Eurozone countries, by providing a paired comparison of how they responded to unemployment. And asks how, if at all, have passive and active labour market responses to unemployment differed in the case of Germany and Portugal prior to and during the Eurozone crisis?

To answer these questions, the dissertation is organised as follows: it will commence by providing an overview of the literature on European welfare states over the latter part of the twentieth century, but also with a particular focus on the period shortly before and during the Eurozone crisis. Particular attention will be drawn to the varieties of capitalism and emergent literature indicating how European countries may fall into particular clusters, which in turn may have influenced the way they have behaved in relation to unemployment. It will then build on this account by drawing on unemployment data from the European Labour Force Survey and the European Commission to look at the ten-year period covering before, during and shortly after the Eurozone crisis, and exploring whether there is relationship between clusters of European countries and spend on unemployment. Finally, it will provide a paired comparison of Germany and Portugal, two countries argued to be in two very different clusters in terms of their response to the Eurozone crisis. Focus will be drawn to how they responded to the challenge of unemployment during the Eurozone crisis through an assessment of their passive and active labour market policies.

In essence, this dissertation will argue that from 2005-2015 European countries did not behave in a similar way relating to those receiving unemployment benefits and spend of out of work maintenance, and there are striking patterns in how clusters of European countries responded to unemployment during the Eurozone crisis. The experience of Germany and Portugal in relation to their passive and active labour market policies illustrate some of the disparities across Europe.

2 Literature Review

This chapter provides context in understanding how the three main research questions were devised. In doing so, it draws on literature relating to how European welfare states have approached unemployment over time, but particularly prior to and during the Eurozone crisis. It also explores how welfare states can be characterised by particular country clusters and puts forward some of the key policy responses to lowering unemployment.

2.1 European welfare states in the latter part of the twentieth century

Much of the literature on European welfare states focuses on the period from the second half of the twentieth century, and often uses broad social expenditure data to show that European welfare states have tended to make small, incremental changes over this period.

A classic example of this, is the work of Pierson (1994, p13) who argues that welfare states often favour a path dependent route when considering their welfare responses. This is because, welfare retrenchment (that is making cuts to welfare spending) is often associated with considerable risks that can bring uncertain gains to the electorate, which can result in damaging the status quo and high political costs (for example losing an election). This, Pierson argues, makes it harder for retrenchment policies to gain any real traction.

In his later work, Pierson (1996) analyses OECD data on public expenditure data in Germany, Sweden, the United Kingdom (UK) and the United States (US) from 1979-1990. He focuses on a long time period too as he notes welfare cuts are designed for the long-term. Part of his analysis shows that the percentage change of government expenditure on total unemployment spend was minimal from 1979-1990 (within 5 per cent for all four countries). Therefore, he suggests that welfare states converge when it comes to how they spend their resources, but it is important to account for country nuances and how the experience of each country differs.

Despite emphasising the need for country nuances, Clayton and Pontusson (1998, p69) suggest that Pierson's viewpoint on welfare retrenchment is rather limited. This is in part due to not accounting for the potential rise in unemployment over time and the reduction in employment opportunities that changes the way countries respond to welfare pressures.

Building on the importance of accounting for unemployment levels, Korpi (2003) critiques Pierson's viewpoint, by putting forward that post-war welfare states are essentially founded on the principle of full employment. Therefore, for Korpi, a growth in unemployment is an important aspect of discerning the nature and extent of welfare retrenchment. Tracing the high level of unemployment in western Europe following the post 1970's oil price shock, Korpi argues that this was a source of major welfare retrenchment. Unlike Pierson's new politics approach, Korpi outlines that from a power-resources approach to welfare, that is, focussing on class related conflicts and the relative power of actors in the process is important, and therefore unemployment becomes a crucial measure of studying welfare retrenchment.

However, similar to Pierson's view, Starke et al (2008) also used social expenditure data to examine how welfare states respond to various welfare categories, one of which being unemployment but over a twenty-year period. Unlike Pierson, who focused on a small selection of countries and on percentage change over time, Starke et al carried out a series of statistical analyses on various forms of welfare spending as a percentage of GDP for OECD countries from 1980-2002. Their findings also show that while there are a handful of exceptional cases, overall, welfare states have tended to make limited adjustments, with spending levels by country appearing relatively stable over time. This adds weight to the notion that European welfare states converge, when it comes to total spend on welfare categories, but crucially it misses out the period of the Eurozone crisis.

A possible explanation given for convergence lies in countries encountering similar large-scale problems and pressures which means that they need to resort to similar responses. For instance, the pressures of globalisation meaning that countries need to

remain competitive and therefore reduce their social expenditure to enable higher export costs (Castles, 2004). While, another reason may also relate to countries favouring a path dependent route, and basing spending decisions on past experiences to keep a sense of balance or not to make any last mistakes (Krasner, 1984; Lindblom, 1959).

While this is a plausible argument, overall spending figures on unemployment which allow for comparisons by country, can present a partial picture of what is actually happening. This is because, much comparative analysis on welfare states uses social expenditure as a percentage of GDP. This can be problematic as the percentage of social expenditure may be affected by changes in GDP, rather than how much is spent on social expenditure (Green-Pedersen, 2007). Similarly, Siegel (2007) also outlines how it is often assumed that national statistical offices produce robust spend data. However, there can be difficulties compiling the data, tracking what is actually spent, and accounting for the array of actors and taxation features of advanced welfare states. Also, the true level of retrenchment can be masked, as stable unemployment spend figures over time do not account for changes in the number of those classified as unemployed.

In this sense, it appears from the literature that greater consideration of what is included in social expenditure data on unemployment is required, before any analysis is undertaken, and that total unemployment expenditure may not be the best dependent variable to choose. Another reason for this is because it often includes some people who may be engaged in some forms of work and/or receiving a top up to their income. Also, social expenditure on unemployment does not just include expenditure on benefits or assistance, it also includes job seeking activities (Eurostat, 2017).

Given all these considerations, this dissertation will focus on specifically on those receiving employment benefits and spend on out of work maintenance, prior, during and after the Eurozone crisis. As noted in Pierson's (1996) work, it is important to focus on welfare activities over a long period, so a ten-year time period was chosen as it takes time to feel the effects of welfare adjustments.

The first central research question is:

From 2005-2015 did European welfare states behave in a similar way relating to those receiving unemployment benefits and spend on out of work maintenance?

2.2 European welfare states shortly before and during the Eurozone crisis

The financial crisis of 2008 triggered by the bankruptcy of Lehman brothers in the US had ramifications on a global level. The years that followed were a challenging period for much of Europe which manifested itself into the Eurozone crisis. A clear turning point for Europe came in 2009 when the Greek Prime Minister revealed it had unprecedented levels of debt which were nearly double the levels across the countries in the Eurozone (BBC, 2012). During this period, higher than usual unemployment rates affected most European countries, with unemployment being regarded as a main national concern (European Commission, 2014a, p38).

Theodoropoulou (2018) discusses how the eurozone crisis brought to light the need for demand-side approaches which focused on effective labour market policies to stimulate growth, but also supply-side approaches which tackled the rising cost of unemployment.

In terms of the demand side, EU member states had been focusing on employment policies long before the Eurozone crisis. In 1997, EU member states agreed to a common set of objectives and targets in relation to employment policy, with the purpose of creating more jobs in the EU, this was known as the European Employment Strategy (EES). Flexicurity, formed a core part of this strategy and related to the need to have flexible and secure labour markets as exemplified in the Danish case (Heyes and Hastings, 2016, p1).

The Treaty of Lisbon, signed in 2007 by all participating EU member states was also clear in advocating 'a highly competitive social market economy, aiming at full

employment and social progress, and a high level of protection and improvement of the quality of the environment' (Treaty of Lisbon, 2007, Article 3). In this respect, there was a collective understanding among the EU member states in respect of stimulating labour market policies.

By 2010, the European Commission put forward a proposal at the Spring Council with a reworked EES known as the Europe 2020 growth strategy which aimed to foster greater employment policy co-ordination across the EU (European Commission, 2018). This was agreed by all participating member states. However, Bongardt et al (2010) discuss how on one hand this was seen a positive way forward in helping EU member states to respond in a co-ordinated way to the Eurozone crisis, but on the other hand, it jarred with the binding fiscal policies had meant that Eurozone countries were limited in their public spending Theodoropoulou (2018, p6).

There is limited research on what happened during the Eurozone crisis in relation to unemployment, but Begg et al (2015) have carried out more recent research on European welfare states which shows that governments continued to spend on social protection prior to and after the Eurozone crisis. Government outlays on unemployment, alongside other categories of welfare (such as health, old age, housing and disability) all saw relatively stable increases over the period of the financial crisis. This again adds some weight to the argument that European welfare states find it difficult to make cuts to social spending, but also Begg et al note that this may lead to "less conspicuous cuts in public investment when public finances are under pressure" (Begg et al, 2015, p9). This makes the case for investigating how one component of unemployment spend was handled during the Eurozone crisis, rather than simply looking at a broad category of unemployment spend accounting for all unemployment activities.

2.3 Types of European welfare regimes

A further challenge to simply using broad social spending figures as an indicator of welfare retrenchment comes from Esping-Andersen (1990), who maintains that social

citizenship and social rights are important characteristics of welfare states. In looking at the extent to which people can live independent of market forces, Esping-Andersen identifies three types of welfare regime.

The first of these are 'liberal' welfare states that use means testing, therefore as people get wealthier they tend to choose private provision. This includes countries like the UK, Ireland and the US. The second type of welfare regime are 'corporatist' whereby rights are attached to social class and status. Examples of this include Austria, Italy, Germany and France. Finally, the third regime are 'social democratic'. This uses a mix means testing and universalistic programmes and tends to be exemplified by the Nordic countries (Esping-Andersen, 1990, p22-23). Brook and Manza (2007) corroborate the view that there are important differences by type of welfare regime, with social democratic countries more likely to vary in terms of their social expenditure and provision of welfare, spending more on welfare compared with liberal economies which spend less.

However, over time this model can be seen to be limited in its scope, and has since been extended to include the Southern European countries such as Portugal, Spain and Greece, as Ferrera (1996) argues that this group of countries are distinctive in seeing the extended family unit as a key part of welfare and favouring job protection. While it is important to account for the nuances and experiences of each country, the literature suggests that European welfare states can broadly fit into distinctive groupings in terms of the way they operate and respond to welfare (Begg et al, 2015).

The 'varieties of capitalism' literature also provides a further explanation for why groups of European countries tend to behave in a certain way, with particular reference to the Eurozone crisis. Hall (2014, p1226-7) argues that European economies were driven towards particular market responses to the Eurozone crisis which resulted in three main types of economies. The first of these are Co-ordinated Market Economies (CME) these are essentially export driven economies with tight monetary policy, focusing on higher level skills levels in the jobs market to generate higher value goods. Hall argues, these features enabled CMEs to suffer less detrimental effects compared to

other countries in Europe during the Eurozone crisis. Examples of this include Germany and the Scandinavian countries such as Sweden and Denmark.

The second type described by Hall (2014, p1226) are Mixed Market Economies (MME). These are more protected economies through a stronger union focus but they do not generate growth through their exports unlike CMEs. There is little focus on skills and training in the jobs market, therefore these economies tend to focus on lower value products. In contrast to CMEs, this group of countries were severely affected by the eurozone crisis. Examples of this include Portugal, Italy, Spain and Greece.

Finally, the third type, are Liberal Market Economies (LME) which in contrast to CMEs tend to focus on domestic led growth. These economies use devaluation to generate and maintain competitiveness. Examples of this include the UK and Ireland. For Hall, the consideration of these various country clusters are important in understanding how European countries varied in their response to the Eurozone crisis. He also accounts for how certain country clusters interact with each other. For instance, the operation of CMEs impacts upon MMEs, as CMEs have suited the nature of the European Monetary Union, while MMEs have found it more difficult to contain inflation and wage costs. This is corroborated by Christian Odendahl (2017, p2), Chief Economist at the Centre for European Reform who writes:

“Germany started exporting capital – capital that helped to build up debt and property bubbles elsewhere, which burst and caused widespread economic misery.”

The varieties of capitalism literature is adequate to some extent in recognising how clusters of countries responded to unemployment during the Eurozone crisis. For example, the CMEs are more likely to focus on skills development and training through their focus on higher value markets. Lapavitsas and Kouvelakis (2012) describes how Germany has prioritised highly qualified labour and a focus on developing human capital. While in comparison, MMEs tend to focus on lower value markets which ultimately go hand in hand with low skilled work. Barroso (2017 p6) explains how Eurostat figures for 2014 showed that Portugal along with their Mediterranean

counterparts Spain and Greece had a high percentage of unskilled labour, which was higher than the EU average. In this sense, there were considerable challenges to countries focussing on low skilled labour at the onset of the Eurozone crisis, as there was a shrinking of the number of jobs available and an oversupply of low skilled labour.

However, grouping countries in any way can neglect important country variations. For instance, the UK and Ireland (which form the LME classification) are quite distinct from each other in terms of the UK having its own currency while Ireland is tied to the Euro. In addition, Hall does indicate that the UK and Ireland showcase different experiences of the Eurozone crisis despite being rooted in a liberal market tradition, with Ireland showing notable differences in terms of high export growth compared to the UK, and also being one of few countries that required financial assistance to cover their debts (Hall, 2014, p1230). Meanwhile Godby (2014) outlines how Ireland was more closely aligned to Portugal, Spain, Italy and Greece in terms of high unemployment and high levels of government debt. In this respect, it is possible to challenge whether the LME cluster is an appropriate grouping.

Similarly, in questioning the resilience of the CME cluster, in the case of Germany during the Eurozone crisis, White (2017) elaborates on how Germany's ordo-liberalism tendencies, that is their attachment to a particular set of economic rules was upheld in times of crisis and restricted their spending activities. While looking at the experience of other Scandinavian countries in Hall's CME grouping, it can be argued that they were all affected in different ways by an earlier Nordic crisis in the 1990's which may have impacted how they dealt with the eurozone crisis (Mayes, 2009). In this respect, an alternative reason for the behaviour of the CME cluster during the Eurozone crisis may have been based on their long-standing preferences and learning from past experiences, as opposed to their market response.

In Hall's (2018) more recent work, he does note some of limitations of the varieties of capitalism literature, but suggests it is still useful in understanding the key responses to the eurozone crisis. He also accounts for emergent literature which focuses on various growth clusters across Europe, which factor in demand and supply side perspectives.

This involves keeping the initial varieties of capitalism classifications, but providing further groupings within these classifications which account for their growth strategy and adaptations made during the Eurozone crisis, for instance separating out CMEs by the Nordic and Continental clusters, and LMEs by whether they are demand-led or export-led (see table 1). Building on this, Agostini and Natali (2018, p33-34) undertook comparative analysis of structural labour market reforms from various country clusters since the start of the eurozone crisis and up until 2012, and their findings show that there has been a reduction of social standards particularly in Southern European countries through the rise of unemployment. It is also interesting to note that public spending cuts were also noted across Nordic and Continental countries too. In this way suggesting that a more detailed look at labour market policies is required to provide a more rounded picture.

This dissertation will test whether there is a relationship between the varieties of capitalism classifications from Hall's well-established varieties of capitalism work (2014) but also emergent literature on growth models in relation to responses to unemployment during the Eurozone crisis, in relation to spend on out of work maintenance.

The second research question of interest is:

Is there is a relationship between different clusters of countries (i.e. varieties of capitalism and emergent growth clusters) and spend on out of work maintenance during the Eurozone crisis?

2.4 Policy responses to lower unemployment

The literature relating to unemployment focuses on two main types of policy instruments to lower unemployment. The first of these are Passive Labour Market Policies (PLMP) which are designed to financially support those out of work and stabilise economies to avert a recession (Theodoropoulou, 2018, p7). PLMPs includes

providing unemployment benefits or out of work maintenance to those unable to find work, but also includes severance pay and policies relating to retirement.

The level of EPL, that is the level of autonomy employers have in how they choose to recruit or terminate employment contracts is also important in discerning the levels of unemployment, and how countries respond to PLMPs. There are clear differences in how the variety of capitalism clusters operate in terms of EPL, with CMEs and LMEs tending to observe lower levels of employment protection, but with MMEs having much higher levels of EPL (Theodoropoulou, 2018). While a restrictive level of EPL can be beneficial in securing low staff turnover to aid productivity, it can also have mixed implications for unemployment. As on one hand it can decrease unemployment, as once people are in work they are more likely to continue in the same job, but on the other hand there are very few new job openings for those who are seeking work (Sneessens, 2016, p156-7).

The second type of policy response is Active Labour Market Policies (ALMP) which aim to stimulate employment opportunities to match jobs to those out of work. This includes a drive towards providing training, counselling and active job search measures (Heyes and Hastings, 2016). In reality, countries tend to use a mix of both active and passive labour market policies to ameliorate the situation for those out of work but also remain productive at a country level. In this sense, it is important not to look at them in isolation, but focus on how they are used in conjunction with each other.

Building on the broader perspective in terms of understanding the change in one component of unemployment spend over time and whether clusters of countries have responded in a similar way through looking at unemployment data, this dissertation will provide a paired comparison of two countries in terms of their passive and active labour market policies. Using a variable-orientated approach which aims to test propositions derived from theory (Ragin, 1987, p54-55), this dissertation will test the hypothesis that two countries in the Eurozone have responded to unemployment prior and during the Eurozone crisis in relation to their varieties of capitalism classifications. This is

important in contributing to the literature on this area, by testing existing theories rather than simply creating new ones (Hodson, 2011, p20).

With this in mind, the chosen countries for further investigation are Germany from the CME cluster and Portugal from the MME cluster. The literature suggests that both countries appear to sit on opposite sides in terms of their response to the Eurozone crisis and are good examples of countries from their variety of capitalism classification, with Germany regarded as a dominant country and least affected by unemployment during the Eurozone crisis (Lapavitsas and Kouvelakis, 2012) and Portugal as one the countries suffering greatly in terms of high unemployment and being in need of financial assistance from the EU (Godby, 2014). While it would have been useful to include a LME country, it was problematic to decide on which LME country to choose. This is because, Ireland is a Eurozone country but as noted previously an exception in having a high level of exports, while the UK is not a part of the Eurozone but a good example of an LME. Therefore, this dissertation will simply focus on the individual policy responses of Germany and Portugal in relation to unemployment during the eurozone crisis.

The final research question is:

How, if at all, have passive and active labour market responses to unemployment differed in the case of Germany and Portugal prior and during the Eurozone crisis?

3 Data analysis

As stated in chapter 2, much of the existing literature on European welfare states focuses on the broad category of unemployment spend and does not account for any variations in social spending by welfare regime type. This chapter seeks to answer the first and second research questions, by undertaking data analysis on the EU LFS and spend figures on out of work maintenance from the European Commission.

3.1 Data sources used and approach to analysis

The first data source used is the EU LFS which is conducted in 33 countries mainly based in and around Europe. It is a large household survey, conducted every year by national statistical institutes and collated by Eurostat, a statistical office of the EU. The EU LFS is carried out face-to-face on those aged 15 and over and living in private households, and it provides rich information on labour participation (Eurostat, 2018a).

The second data source used comes from the European Commission labour market policy database, but the data has been accessed via Eurostat. This database holds expenditure data by country specifically on out of work maintenance, this is by the Purchasing Power Standards (PPS) per person wanting to work. PPS was chosen as it is a good comparative measure which is derived by dividing any economic aggregate of a country in national currency by its respective purchasing power parities, that is the indicators of price level differences across countries (Eurostat, 2018b). This measure is also calculated based on those wanting to work and not all inhabitants, therefore it is more of an accurate measure to look at when focusing on those seeking work and relevant to this study.

For the purposes of this analysis, only the 28 European Union (EU) member states have been included in the analysis. However selected countries were excluded if the data was missing. Table 1 shows how each of the 28 countries are classified, according to Peter Hall's (2014) varieties of capitalism classifications, which splits the countries into

three categories (CME, MME, LME). It also includes the emergent literature on growth models (Continental, Nordic, Mediterranean, Export-led and Demand-led) which provides further groupings within the CME and LME categories but also accounts for more EU countries. All the remaining countries are grouped as 'Other'.

Table 1: Country classification by type of variety of capitalism and by growth model

Country	Variety of capitalism	Growth model
Austria	CME	Continental
Belgium		Continental
Germany		Continental
Netherlands		Continental
Denmark		Nordic
Finland		Nordic
Sweden		Nordic
France	MME	Mediterranean
Greece		Mediterranean
Italy		Mediterranean
Portugal		Mediterranean
Spain		Mediterranean
United Kingdom	LME	Demand-led
Ireland		Export-led
Czech Republic	Other	Export-led
Estonia		Export-led
Hungary		Export-led
Poland		Export-led
Slovenia		Export-led
Bulgaria		Other
Croatia		Other
Cyprus		Other
Latvia		Other
Lithuania		Other
Luxembourg		Other
Malta		Other
Romania		Other
Slovakia		Other

3.2 Those registered unemployed and receiving benefits by country

One of the questions covered in the EU LFS focuses on the percentage of all unemployed people who are registered as unemployed with their national employment office and in receipt of employment benefits. Focusing on registered unemployment is important as any benefits are often conditional on this requirement. The duration of being unemployed for 3-5 months was chosen to see how generous European welfare states were to relatively newer people out of work. Also, as described in chapter 4, Public Employment Services (PES) initiatives are often triggered once someone has been unemployed for 6 months or more. According to the EU LFS (Eurostat, 2018c) unemployed people are defined as those who met the following conditions:

- They were not employed during the reference week of the survey;
- They were available to start work within the two weeks following the reference week of the survey; and
- They have been actively seeking work in the four weeks preceding the reference week of the survey or have already found a job to start within the next three months.

Table 2 looks at those who are registered unemployed and receiving benefits for 3-5 months (aged 15-64), as a percentage of all those who are unemployed for countries where data was available (23 European countries) from 2005-2015. This time period was chosen as it captures before, during and after the main challenging period of the Eurozone crisis. The percentage changes in five-year blocks during that period show there is considerable volatility between these years. The standard deviations for each five-year block are relatively high suggesting that the data is spread out from the mean. For instance, simply looking at the period before and during the Eurozone crisis (2005-2010), the percentage change values range from -23% for Austria to 103% for Italy. From 2005-2010, table 2 shows that 11 out of 19 countries (4 excluded for having no available data for those years) saw increases in the percentage of those registered unemployed and receiving benefits or assistance. This may be due to high unemployment rates at the onset of the Eurozone crisis during that period, meaning

that by 2010, welfare states were financially supporting more unemployed people. Looking at the whole ten-year period, the percentage change values range from -48% for Romania to 163% for Italy. During this ten-year period, there were 17 out of 20 countries (3 excluded for having no available data for those years) that saw percentage decreases from 2005-2015.

Table 2: Percentage of all unemployed people, registered unemployed for 3-5 months (aged 15-64) and receiving benefits or assistance (2000-2015)

Country	2005	2010	2015	% change	% change	% change
				2005-2010	2010-2015	2005-2015
Austria	67.1	51.5	59.4	-23%	15%	-11%
Belgium	67.0	57.7	57.9	-14%	0%	-14%
Cyprus	30.0	36.9	25.5	23%	-31%	-15%
Czech Republic	65.6	51.1	43.3	-22%	-15%	-34%
Denmark	62.0	54.5	36.0	-12%	-34%	-42%
Estonia	39.5	61.1	41.2	55%	-33%	4%
Finland	44.6	66.0	66.6	48%	1%	49%
France	55.7	58.3	55.4	5%	-5%	-1%
Germany	79.6	78.6	70.5	-1%	-10%	-11%
Greece	28.8	37.6	27.0	31%	-28%	-6%
Hungary	43.9	54.4	39.0	24%	-28%	-11%
Italy	6.3	12.8	16.6	103%	30%	163%
Latvia	37.4	41.3	31.9	10%	-23%	-15%
Lithuania	-	40.2	38.9	-	-3%	-
Luxembourg	46.9	41.9	37.4	-11%	-11%	-20%
Poland	20.5	19.6	15.1	-4%	-23%	-26%
Portugal	39.0	46.9	35.4	20%	-25%	-9%
Romania	23.5	29.1	12.3	24%	-58%	-48%
Slovakia	29.4	32.5	27.2	11%	-16%	-7%
Slovenia	40.8	35.5	30.4	-13%	-14%	-25%
Spain	-	49.2	37.0	-	-25%	-
Sweden	-	31.5	29.4	-	-7%	-
United Kingdom	33.9	-	27.1	-	-	-20%
Min	6.3	12.8	12.3	-23%	-58%	-48%
Max	79.6	78.6	70.5	103%	30%	163%
Standard deviation	18.0	15.0	15.3	30%	18%	43%
All countries average	43.1	44.9	37.4	13%	-16%	-5%

Base: all unemployed in years 2005, 2010 and 2015.

Source: EU LFS, available at Eurostat.

- Data not available.

Note: The following countries were excluded for unreliable estimates – Bulgaria, Croatia, Malta, and the Netherlands and Ireland. Break in time series recorded for 2005, treat as provisional.

The findings from table 2, challenges Pierson (1996) and Starke et al's (2008) work which suggests that European Welfare states make limited, incremental changes on government spend on unemployment, as focusing on the EU LFS survey data reveals greater volatility when simply focussing on those who are unemployed and receiving benefits from 2005-2015. However, it must be noted that data is missing for multiple years and therefore this provides only a partial picture of what happened during this period.

It was not possible to carry out analysis on the second research question using the EU LFS. This is due to no data available for Ireland and the Netherlands for the years of interest, and with limited data available for only some years for the United Kingdom, therefore it is not possible to fully look at CME and LME using this dataset.

3.3 Out of work maintenance by PPS per person wanting to work by country

In order to include more countries of interest as part of the analysis, it is advisable to look to another data source. Eurostat holds data from the European Commission on out of work maintenance provided by each European country by PPS per person wanting to work (see section 3.1 for more information on PPS).

Table 3 shows out of work maintenance by PPS per person wanting to work for years 2005-2015, for all 28 EU member states. This table tells a similar story to table 2, in that there is much variability between European countries in terms of spend by out of work maintenance by PPS per wanting to work from 2005-2015. Again, the standard deviations are high for all three years suggesting that the data is spread out, for instance prior to and during the Eurozone crisis (2005-2010) the lowest percentage change value was -42% for Sweden while the highest percentage change value was 480% for Estonia. The latter may be due to Estonia joining the EU in 2004, and this may have had an impact on their labour market policies going forward.

Table 3: Out of work maintenance by PPS per person wanting to work by country, for years 2005-2015

Country	2005	2010	2015	% change	% change	% change
				2005-10	2010-15	2005-15
Austria	4,376.50	5,049.01	6,178.32	15%	22%	41%
Belgium	7,090.67	8,189.79	6,670.91	16%	-19%	-6%
Bulgaria	158.01	537.87	698.70	240%	30%	342%
Cyprus	-	2,921.61	1,758.49	-	-40%	-
Czech Republic	605.05	1,379.80	1,217.26	128%	-12%	101%
Denmark	8,417.41	6,601.81	6,304.54	-22%	-5%	-25%
Estonia	195.70	1,134.99	1,477.07	480%	30%	655%
Finland	4,958.21	5,556.80	7,133.25	12%	28%	44%
France	9,112.66	8,897.62	8,807.27	-2%	-1%	-3%
Germany	5,869.94	6,223.62	6,190.84	6%	-1%	5%
Greece	1,661.57	2,264.36	686.25	36%	-70%	-59%
Hungary	813.29	1,410.78	786.81	73%	-44%	-3%
Ireland	5,741.26	9,582.01	9,533.60	67%	-1%	66%
Italy	1,816.29	3,537.60	2,901.79	95%	-18%	60%
Latvia	268.80	589.96	835.86	119%	42%	211%
Lithuania	216.48	652.78	792.29	202%	21%	266%
Luxembourg	11,853.81	7,443.42	4,138.55	-37%	-44%	-65%
Malta	-	1,029.18	786.74	-	-24%	-
Netherlands	10,041.60	9,437.23	9,246.45	-6%	-2%	-8%
Poland	288.32	407.47	388.68	41%	-5%	35%
Portugal	4,439.67	3,947.29	2,205.47	-11%	-44%	-50%
Romania	473.77	1,088.52	335.29	130%	-69%	-29%
Slovakia	254.64	495.73	594.04	95%	20%	133%
Slovenia	1,147.78	2,222.16	1,744.95	94%	-21%	52%
Spain	3,727.98	5,468.94	3,429.48	47%	-37%	-8%
Sweden	5,615.80	3,250.80	2,979.26	-42%	-8%	-47%
United Kingdom	807.50	1,023.08	-	27%	-	-
Min	158.01	407.47	335.29	-42%	-70%	-65%
Max	11,853.81	9,582.01	9,533.60	480%	42%	655%
Standard deviation	3508.68	3014.82	2999.55	108%	30%	158%
All countries Average	3,598.11	3,716.45	3,377.78	72%	-10%	71%

Source: European Commission - Directorate general for employment, social affairs and inclusion, available at Eurostat.

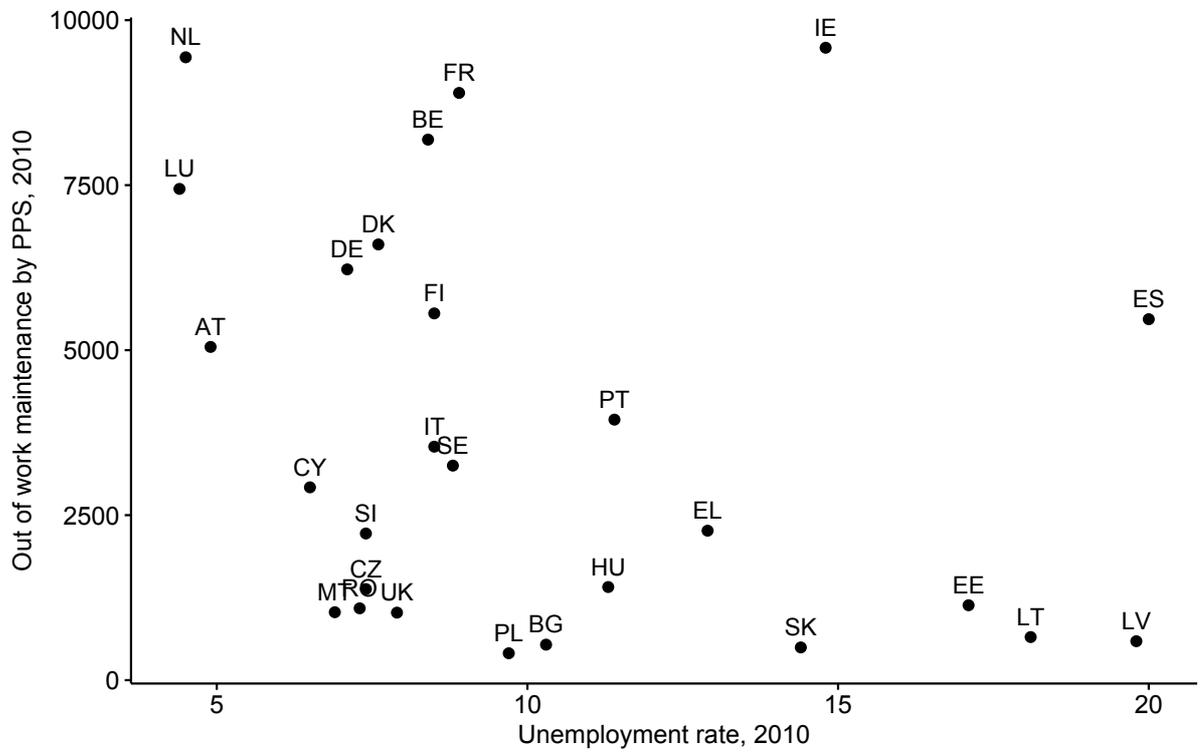
- Data not available.

Note: Croatia was excluded due to no data for these years.

In particular, during and after the peak of the Eurozone crisis from 2010 -2015, table 3 shows there were 20 countries that saw a decrease in out of work maintenance spend by PPS per person wanting to work, this compares with 5 countries that saw a decrease in out of work maintenance spend in years 2005-2010. In this respect, these figures may suggest that most countries did make retrenchments by spending less on out of work maintenance by PPS per person wanting to work during the peak period during and after the Eurozone crisis (2010 -2015). However, it is unclear whether this is due to these countries actually spending less on out of work maintenance, or whether it may be due to having more people to financially support in 2010. Therefore, to explore this further, figures 1 shows a scatterplot of out of work maintenance by PPS per person wanting to work for 2010, by the unemployment rate for that year, also showing each country.

Figure 1 shows that generally speaking and not accounting for the outliers (ES and IE), the countries that spend more on out of work maintenance by PPS per person wanting to work, also tend to have lower unemployment rates. It is also striking that it appears that CME countries (BE, NL, DE, DK, FI, AT and SE) appear to spend more on out of work maintenance and have a lower unemployment rate, while the picture is more mixed for the other varieties of capitalism classifications.

Figure 1: Scatterplot of out of work maintenance spend by PPS per person wanting to work by the unemployment rate, for 2010



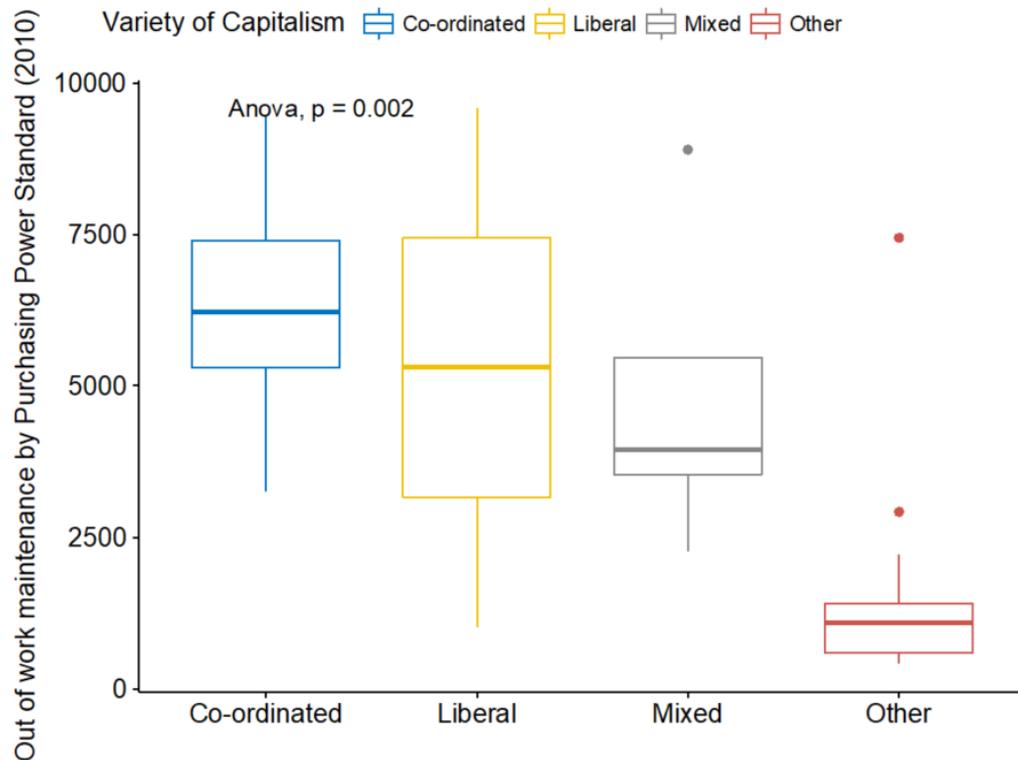
Source: European Commission (for out of work maintenance by PPS person wanting to work, 2010) and Eurostat (for Unemployment rate, 2010).

Note: Croatia was excluded due to no data for 2010.

3.4 Out of work maintenance by PPS per person wanting work by country clusters

Turning now to account for different types of country clusters, figure 2 shows a boxplot of out of work maintenance by PPS per person wanting to work, and by type of variety of capitalism for 2010, as this was the only year during the Eurozone crisis that data was available for both Ireland and the United Kingdom (which form part of the LME group). The thick line in each box is the median, or middle value, of out of work maintenance for each type of variety of capitalism classification, and it shows that CMEs have a higher median, compared to the other varieties of capitalism classifications. This means CMEs spend more, on average, on out of work maintenance (by PPS per person wanting to work) compared to LMEs, MMEs and Other types of economies. These findings are statistically significant ($p=0.002$). However, on closer investigation of the LMEs in the boxplot, the two countries in this classification (UK and Ireland) are quite far apart from each other. This links to the literature discussed previously suggesting that Ireland and the UK are quite distinct from each other. Similarly, the MMEs and Other categories also show unusually high values (see the dots in the boxplot which are outliers).

Figure 2: A boxplot of out of work maintenance by PPS per person wanting to work, and by type of variety of capitalism (2010)

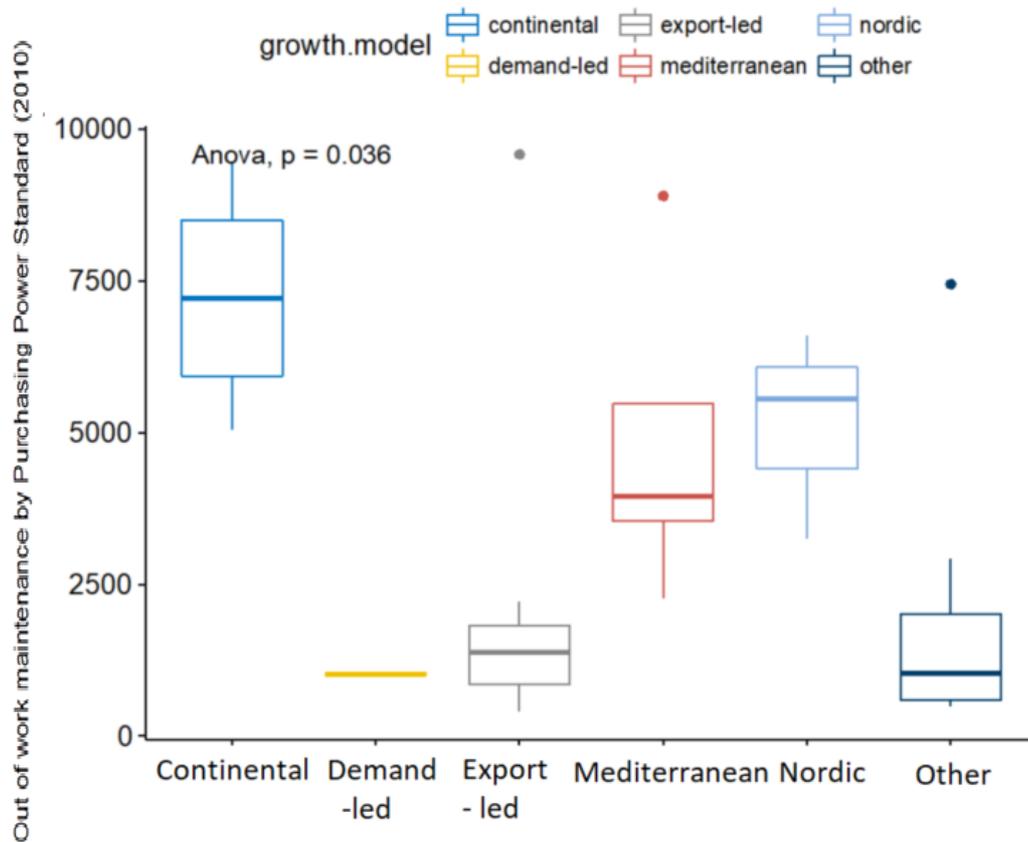


Source: European Commission (for out of work maintenance by PPS person wanting to work, 2010)

Note: Croatia was excluded due to no data for 2010.

Turning to see if there is a relationship with out of work maintenance spend and type of growth model, figure 3 shows a boxplot of out of work maintenance by PPS per person wanting to work, and by type of growth model for 2010. It shows that the Continental cluster has the highest median, closely followed by the Nordic cluster in comparison to the Mediterranean, demand-led (which only consists of the UK), export-led and other clusters. Interestingly, that there are outliers for the export-led, Mediterranean and Other models (see the dots for which are outside the range of the boxplots in figure 3) but not for the Continental and Nordic models. These findings are also statistically significant ($p=0.036$), but the findings in figure 2 by varieties of capitalism classifications are statistically significant at a higher level ($p=0.002$).

Figure 3: A boxplot of out of work maintenance by PPS per person wanting to work, and by type of growth model (2010)



Source: European Commission (for out of work maintenance by PPS person wanting to work, 2010)

Note: Croatia was excluded due to no data for 2010.

Both figures 2 and 3 appear to show that there is a relationship between varieties of capitalism and growth model clusters by out of maintenance spend (by PPS per person wanting to work). However, it is important to see if this relationship is present through carrying out further statistical analyses. With this in mind, two linear regression models were run with out of work maintenance by PPS per person wanting to work as the outcome variable, and type of variety of capitalism as the predictor variable for the first model, and type of growth model as the predictor in the second model. The predictors of varieties of capitalism and growth models are highly correlated with each other (as one is derived from the other) therefore the regression models needed to include these predictor variables separately.

While both linear regression models appeared significant overall, the diagnostic checks revealed that the residuals were not normally distributed as they should be for a linear regression model (see appendix 1). Therefore, it did not satisfy a key assumption of linear regression (Gelman and Hill, 2007) and have been discounted.

The Kruskal-Wallis test is a more appropriate test to run. It looks at whether there are significant differences on a continuous dependent variable (in this case out of work maintenance by PPS per person wanting to work) by an independent categorical variable (i.e. varieties of capitalism or growth models). This statistical test is also more appropriate for this dataset, as it does not assume that the data is normally distributed (Kruskal and Wallis, 1952). Running the Kruskal-Wallis test shows that there is a statistically significant difference between the amounts spent on out of work maintenance by PPS per person wanting to work, by varieties of capitalism classifications (Kruskal-Wallis chi-squared = 13.199, df = 3, p-value = 0.004225) with a mean rank of 20.8 for CMEs, 18 for MMEs, 16.5 for LMEs and 8.7 for those classified as other.

Turning the focus now to look at the growth models, running the Kruskal-Wallis test shows that there is a statistically significant difference between the amounts spent on out of work maintenance by PPS per person wanting to work, and by type of growth model (Kruskal-Wallis chi-squared = 12.043, df = 5, p-value = 0.03421) with a mean rank of 22 for Continental, 19 for Nordic, 18 for Mediterranean, 10 for Export-led, 6 for Demand-led (although this only consists of one country) and 8 for those classified as other.

Following statistically significant results from the Kruskal-Wallis test, it is appropriate to carry out a Dunn Test to provide pairwise comparisons using ranked sums (Dinno, 2015) in this case comparing the ranked sums of out of work maintenance by PPS, for each variety of capitalism classification, tested with each other – for example, comparing the ranked sums of CMEs compared to MMEs. This was carried out with ‘no adjustments’ made and by applying a ‘Holm’ adjustment to correct for multiple comparisons being made. When no adjustments are made, the findings show that two variety of capitalism

comparisons are significant (CMEs by Other and MMEs by Other), but when the holm adjustment is applied only one of these comparisons remains significant (CMEs by Other). The full findings are presented in Appendix 2.

Likewise, the Dunn test was repeated for comparing the ranked sums of out of work maintenance by PPS, for each growth model classifications compared with each other. When no adjustments are made, the findings show that three growth model comparisons are statistically significant (continental by export-led, continental by other and Mediterranean by other), but when the holm adjustment was applied none one of these comparisons remained statistically significant. The full findings are presented in Appendix 3.

3.5 Discussion and conclusions

This chapter has presented analysis on the EU LFS and data from the European Commission to understand some of the complexities in how countries responded to unemployment during the Eurozone crisis.

Looking at the ten-year period 2005-2015, that is the period shortly before, during and shortly after the Eurozone crisis, there is much variability in the figures by country on the percentage of those registered unemployed and receiving benefits (as seen in table 2) and for out of work maintenance by PPS per person wanting to work (as seen in table 3). Therefore, in answer to the first research question, it appears that European countries did not act in a similar way in terms of those registered unemployed and in receipt of benefits and in terms of out of maintenance spend, as the percentage changes were not small and consistent during the ten-year period. This challenges Pierson (1996) and Starke et al's (2008) work which suggests that European Welfare states make limited, incremental changes on overall government spend on the unemployment over time. Therefore, by isolating the unemployment figures to look purely at those in receipt of benefits and out of work maintenance a divergent picture emerges.

However, specifically looking at the EU LFS data, there are some obvious limitations in using this source as data is missing for some countries, but also for some countries there was a break in time series for the 2005 data. In addition, it is also important to note that these findings are based on cross-national survey data. It is worth highlighting that the method for the EU LFS is face-to-face interviews, therefore it is subject to certain forms of bias, such as interviewer bias in terms of how the questions are asked, and social desirability bias in terms of how people respond to questions, which may vary at a country level. It is also not possible to cross reference people's answers with actual unemployment records, therefore the findings are subjective. Nevertheless, it is important to recognise that the literature on unemployment spending over time very rarely focuses on cross-national survey sources, such as the EU LFS to account for more subjective accounts of unemployment and does not specifically look at those registered unemployed and in receipt of benefits. In this sense, data sources such as the EU LFS can provide meaningful insights from a different perspective, as opposed to only looking at objective spend figures.

There are also some challenges in looking at the figures in table 3, as this data source also has missing data for selected years. In addition, focusing on how much is spent on out of work maintenance over time could be considered a crude measure of how welfare states respond to unemployment as it is not clear if those countries that spend more are using their funds wisely and/or whether this reflects a higher standard of living for those who are unemployed. As discussed in chapter 2, it is also important to consider how these figures were collected and reconciled by PPS, as they may be subject to errors. Despite these misgivings, the European Commission data does provide a useful way to compare European countries, using a comparable spending measure, per person wanting to work.

In looking, at whether there is a relationship between the varieties of capitalism classifications and spend on out of work maintenance by PPS per person wanting work, there is a significant relationship as shown in the boxplot in figure 2, and this is also apparent by running the Kruskal-Wallis test. However, when further statistical testing was carried out through the Dunn test, the findings were only statistically significant for

CME's by the Other classification. Similarly, looking at whether there is a relationship between the growth model clusters and spend of out of work maintenance by PPS per person wanting work, there is a significant relationship as shown in the boxplot in figure 3, and this is also apparent by running the Kruskal-Wallis test. However, the Dunn test revealed that none of the growth model comparisons were statistically significant.

On balance, there is greater evidence to suggest that there is a relationship between varieties of capitalism clusters and spend on out of work maintenance by PPS per person wanting work, however the data cannot tell us anymore on why this may be the case.

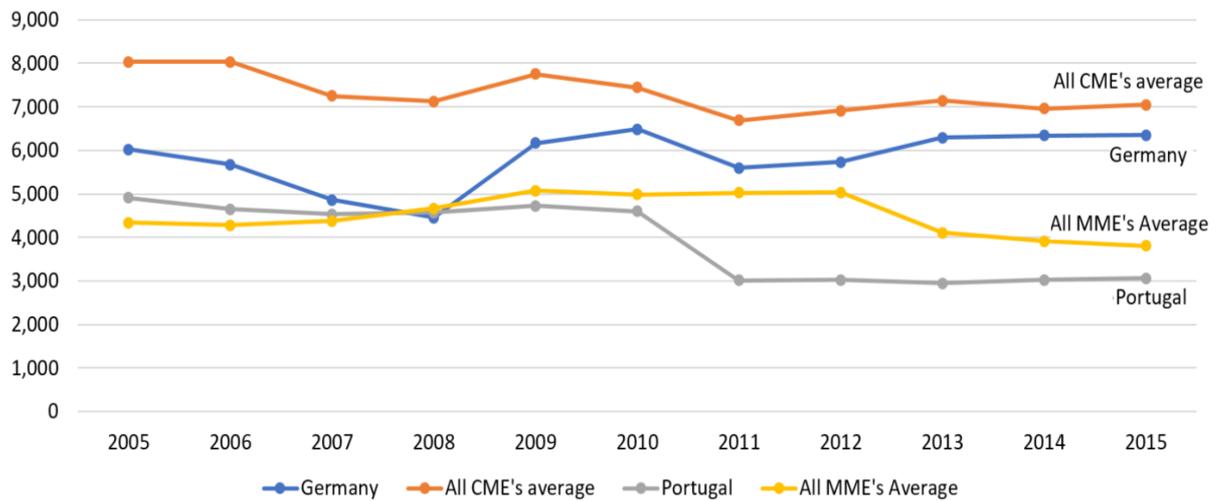
Chapters 4 and 5 seeks to understand why there may be disparities across country clusters by examining two countries from different varieties of capitalism clusters, through an assessment of their passive and active labour market policies.

4 Passive labour market policies in Germany and Portugal

The focus of the previous chapter was on data relating to those registered unemployed and receiving benefits and spend on out of work maintenance. Out of work maintenance, which can be in the form of unemployment benefits is just one key part of PLMPs. Other types include severance pay and early retirement benefits. PLMP measures are used to alleviate the symptoms of high unemployment, but are important too in stabilising economies (Theodoropoulou, 2018, p7). This chapter provides a paired comparison of PLMPs for Germany and Portugal, and reflects on how they relate to their variety of capitalism classifications.

To begin with a broad overview, figure 4 shows the spend on PLMPs by PPS by per person wanting to work from 2005-2015. On average, all CMEs spent more on PLMPs compared to all MMEs on average over this ten-year period. In the case of Germany, spending on PLMPs is below the all CMEs average, but it seemed to follow a similar trajectory in terms of its peaks and troughs in PLMP spend. While for Portugal, spend on PLMPs decreased from around 4,500 PPS in 2010 to just over 3,000 PPS in 2011, it then remained relatively stable at this level up until 2015. However, for all MMEs the average spend of PLMPs dropped in 2012, from just over 5,000 PPS to around 4,100 PPS in 2013, it remained relatively constant at this level until 2015. Comparing Germany and Portugal's spend on PLMPs, it appears that during the Eurozone crisis Germany spent more on PLMPs compared to Portugal. It is striking though, that while both countries decreased their spend from 2010 to 2011, Germany managed to steadily increase its spending from 2011, but Portugal had lower levels of PLMP spend than they were prior to the Eurozone crisis.

Figure 4: Spend on Passive Labour Market Policies * by PPS (per person wanting work) for CMEs, MMEs, Germany and Portugal (2005-2015)



Source: European Commission - Directorate general for employment, social affairs and inclusion (available at Eurostat)

*Includes out of work maintenance, severance pay and early retirement benefits.

Note: missing data for Greece for 2011 and 2012, therefore for these years the MME average is out of four countries instead of five.

4.1 EPL and severance pay

In order to understand how Germany and Portugal have approached PLMPs, it is important to account for the degree of flexibility within their labour markets as this can have a bearing on its dynamics and in particular on unemployment levels.

Portugal, along with the other MME countries in the EU were severely hit with a recession during the Eurozone crisis. Barroso (2017, p9) elaborates how southern European countries like Portugal have a high level of employment protection legislation, which means that employers had less flexibility in terms terminating employment contracts. This created obstacles to creating new jobs and hiring new staff, and negatively affected their unemployment rate. This left the Portuguese labour market unable to adapt to changing labour market needs spurred on by the economic downturn.

Portugal tried to reduce unemployment by investing in training (discussed later in chapter 5) and making substantial cuts to severance payments, that is the compensation offered by employers when workers lose their jobs. This was spurred on by a MoU signed in 2011 between Portugal and the Troika (comprising of the European Council, European Central Bank and International Monetary Fund). The MoU consisted of a number of measures highlighting the need for EPL reform in Portugal to tackle labour market segmentation, fostering job creation, and easing adjustment in the labour market. A key part of this related to severance pay and making it less stringent by reducing the gap between legislation relating to open-ended and temporary employment contracts, but also aligning severance entitlements for current employees to that of newly hired staff (MoU, 2011, p22).

The MoU was intended to lay down a consistent framework for different types of employment contract and improve job creation opportunities to stimulate growth. These changes were reflected in a revised labour code which came into force in Portugal in June 2012, making it less burdensome for employers to terminate employment contracts, and therefore easier to take on new staff (European Labour Law Network, 2012; Santos and Fernandes, 2016, p94). This change in the approach towards severance pay, is also reflected in other southern European countries, part of the MME or Mediterranean cluster, as Barroso (2017, p10) notes that while Spain, Portugal and Greece have all have all approached collective and individual dismissal procedures differently, these countries have acted in a similar way in terms of how they reduced their severance payments.

By comparison, Germany along with other continental countries has a more moderate level of EPL, therefore enabling greater flexibility in responding to changing labour market requirements, although it must be noted that this differs from the Nordic countries (also part of the CME cluster) which have a much lower EPL (Sneessens, 2016).

In Germany, Eichhorst and Hassel (2018, p123) explain how in 2009 an EPL measure was put in place during the Eurozone crisis which increased the maximum duration of short-

time working from 6-24 months. Short-term working allows firms in financial trouble to apply to their local employment office for short term support and means that firms refrain from firing staff, but rather shorten their hours of work. Similarly, other features of German EPL encourage short time working, as the cost of terminating employment contracts are high and severance pay is encouraged for a longer period (Burda and Hunt, 2011, p297).

This flexibility enabled Germany to keep more people in work and reduce the number of people seeking work. This may help to add some context to figures in table 3 which shows that out of work maintenance by PPS per person wanting work for Germany increased by 5% from 2005-2015, this may be because the number of people seeking work was lower by 2015 due to the prevalence of short-time working, rather than the German government spending more on out of work maintenance.

Germany had a much lower unemployment rate compared to other Eurozone countries during the peak of the Eurozone crisis (as seen in figure 1), and while this is something to be commended during this difficult period, as it helped to keep Germany productive to have more people in work, it can also be argued that greater flexibility in non-standard forms of employment has widened wage inequalities (Sneessens, 2016).

Burda and Hunt (2011, p314) also discuss how what is often referred to as 'Germany's Labour Market Miracle' in terms of sustaining employment during the Eurozone crisis may be partly due to firms previously being reluctant to take on new staff and therefore fewer people lost their job during the earlier recession in 2008. In this sense, Germany's performance may not necessarily be due to its market response or growth strategy (as argued by Peter Hall) but may be due to cautious attitudes of German employers.

4.2 Unemployment benefits

In looking at how unemployment benefits were used during the Eurozone crisis, Germany's response to unemployment benefits during the Eurozone crisis can be

traced back to the Hartz reforms between 2002-2005, which were a crucial part of the then Chancellor Gerhard Schröder's Agenda 2010 programme. The Hartz IV reform combined previous social and unemployment assistance systems into a single means-tested welfare benefit system, which meant that those who were unemployed were assured with a minimum income (Tisch and Wolff, 2015, p19).

The earlier Hartz reforms also made the eligibility for unemployment assistance benefits harder, as it reduced the duration a person could be on benefits (from 32 months to 24 months) and increased sanctions for job seekers refusing job offers (Burda and Hunt, 2011, p305). In this sense, the Hartz reforms were seen as a way to discourage long-term unemployment. During the Eurozone crisis these reforms were still in place but slight changes were made. This included re-calculating the minimum income support levels so that they were in line with the growth in prices and wages, and the provision of special in-kind education contributions for children from households receiving these benefits (Eichhorst and Hassel, 2018, p123). While it may appear that the Hartz reforms relating to unemployment assistance benefits were more generous, it is important to note that fewer people received it as the unemployment rate was low.

By comparison, Portugal, was dealing with a much greater volume of people looking for work during the Eurozone crisis. As discussed in section 4.2, high levels of EPL appear to have contributed to high unemployment levels during the Eurozone crisis. This was particularly among young people seeking work, and the Portuguese Prime Minister, Pedro Passos Coelho, came under criticism during this period for stating that those who are unemployed should 'show more effort and leave their comfort zone' by searching for job opportunities abroad (Wise, 2012) in this sense almost implying that those who were unemployed during the Eurozone crisis were keen to remain unemployed. Supporting this point, Santos and Fernandes (2016, p92) discuss how the nature of the Portuguese unemployment benefit scheme was a possible contributor to high unemployment, as it was more generous than the EU average, therefore questioning whether paid employment was a suitable alternative to unemployment benefits.

Following the MoU signed by Portugal in 2011, changes were made to the maximum duration a person could receive unemployment benefits, with a view to reducing long-term unemployment. It was reduced from 38 months to 26 months, in order to reduce long-term unemployment. However, at the same time the unemployment benefit scheme widened its coverage by having less stringent eligibility criteria and allowing a temporary increase in unemployment benefits to jobless households (MoU, 2011, p21; Santos and Fernandes, 2016, p95). This may provide some explanation for why in table 2, those registered unemployed and receiving benefits for a duration of 3-5 months in Portugal was highest in 2010 (46.9%) which was during the period of the Eurozone crisis, compared to the years prior to the crisis. Table 2 also shows that by 2015 those registered unemployed and receiving benefits had reduced (35.4%) indicating that the measures put in place following the MoU had helped to ameliorate the situation. A more recent news article supports this, by reflecting on how Portugal's socialist government has made a recovery in reducing high unemployment built up from the Eurozone crisis (Samson, 2017).

4.3 Retirement policies

During the Eurozone crisis, Portugal was keen to adjust the way it organised its financial resources and reduce public expenditure. A key part of this related to its approach to early retirement and prompted again by the MoU (2011, p11) the Portuguese government agreed to greater monitoring of retirement flows during the eurozone crisis. A similar focus is noted in the Economic Adjustment Programme for Portugal 2011-2014, early retirement was suspended as this was deemed to be costly given the financial climate (European Commission, 2014b, p29).

This accorded with an OECD Outlook report calling on national governments not to re-introduce early retirement schemes given its cost implications (OECD, 2013). Reflecting on these adjustment reforms, the ILO (ILO, 2014, p29) notes that the early retirement suspension coincided with the increase of the retirement age in Portugal to 66 years old and means-testing some pensions. In this way, it is clear to see that the suspension of early retirement policies was a response to high unemployment in Portugal.

However, by comparison, Germany took a different stance on early retirement during the Eurozone crisis in lowering their retirement age to 63 and introducing a new form of early retirement. However, this is not in line with earlier Hartz reforms in 2002-2005, which had initially, reduced incentives for older people to retire earlier and also take advantage of generous unemployment benefits, therefore enabling older people to work for longer and contribute to economic growth (Odendahl, 2017, p7).

The reversal of the Hartz reforms policy, after the 2013 general election introduced a new form of early retirement for those born prior to 1952, but was phased out for younger generations (Eichhorst and Hassel, 2018, p133). There was reported criticism from the German EU Commissioner who stated that the lowering of the retirement reforms jarred with Southern European countries like Portugal who were introducing more stringent retirement reforms (Ross, 2014). In this way, it can be argued that Germany's stance on encouraging early retirement ties in with a co-ordinated market economy response in terms of prioritising skills development and boosting firm's competitiveness through favouring younger skilled workers.

4.4 Summary

In summary, it is evident that there are some clear differences in the way Germany and Portugal have approached PLMPs. Table 4 summarises the main measures and how they changed during the Eurozone crisis. In reviewing the measures introduced, it is evident that Germany largely followed an incremental approach, which involved making slight amendments to short time working and unemployment benefit provisions. While, Portugal's PLMP measures are less borne out of adjustments to previous policies in place but rather in relation to the MoU signed in 2011. Changes include substantial cuts to severance pay, the duration of unemployment benefits and suspending early retirement to make cost savings. This is a very different approach to Germany, but it must be noted that Germany and Portugal behaved in a similar way in terms of extending the provisions of unemployment benefits in jobless households.

Table 4: Summary of passive labour market measures used during the Eurozone crisis

	Germany	Portugal
Employment	Moderate EPL: Able to introduce greater flexibility more easily.	High EPL: Able to introduce reforms but it was harder and took longer to have an impact.
Protection	Intervention: Increasing duration of short-time working and discouraging firms to fire staff through longer severance periods and high firing costs.	Intervention: Made substantial cuts to severance payments by making open ended and temporary contracts more consistent.
Legislation	Unemployment rate: Low.	Unemployment rate: High.
Unemployment benefits	Intervention: Built on earlier Hartz reforms, with targeted measures such re-calculating the minimum income support levels and offering special in-kind benefits to jobless households with children.	Intervention: Changes made to maximum duration a person could receive unemployment benefits, but also widened its coverage in some areas, such as a temporary increase in benefits to jobless households.
Retirement policies	Retirement age: reduced to 63 years old.	Retirement age: increased to 66 years old.
	Early retirement: New policy introduced for those born prior to 1952 to receive benefits to leave the labour market.	Early retirement: Suspended early retirement given cost concerns, and wanting people to stay in work for longer.

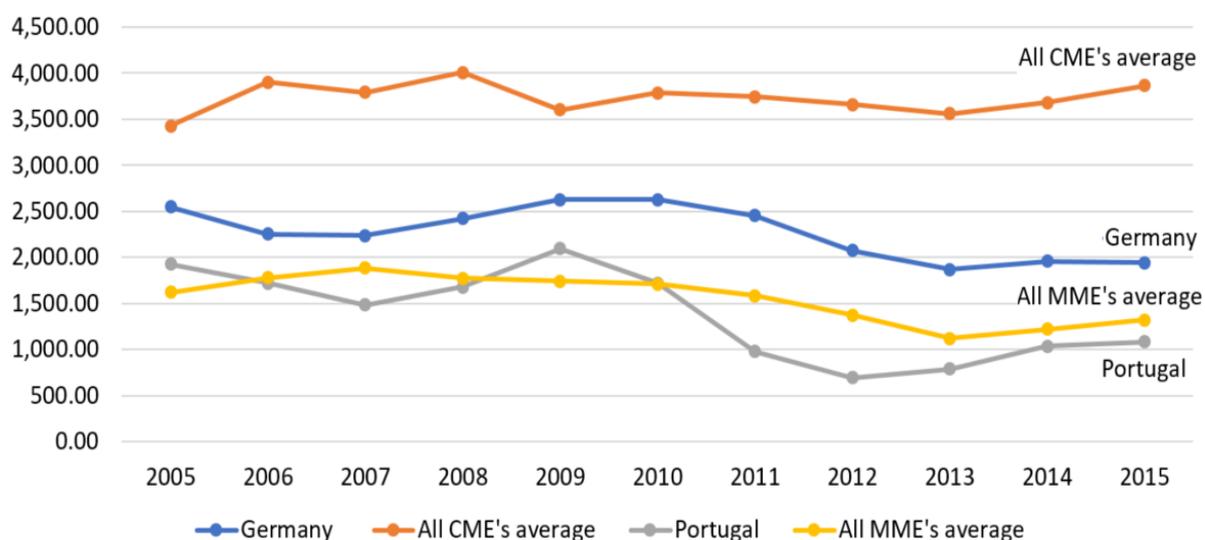
In essence, this chapter has shown that on the surface, Portugal appears to have made changes to its approach by making cuts to severance pay and some aspects of unemployment benefits to deal with the high levels of unemployment across Southern Europe. Meanwhile, Germany demonstrated greater flexibility which resulted in more people being in work, and a focus on higher level skills which is in line with its CME classification. However, it must be noted that for Germany, low unemployment may have come at the cost of widening wage inequalities. The next chapter builds on this argument and goes on to explore the ALMPs for Germany and Portugal.

5 Active labour market policies in Germany and Portugal

Active labour market policies (ALMP) relate to when national governments intervene in helping to match employment opportunities to those seeking work. This covers training, PES and engagement with employers. This chapter will build on chapter 4 and compare how Germany and Portugal used PLMPs in conjunction with ALMPs to reduce long-term unemployment and keep their economies in check during the Eurozone crisis.

Figure 5 shows the spend on ALMP by PPS by per person wanting to work from 2005-2015. Similar to figure 4, on average, all CME spent more on ALMP compared to all MMEs on average over this ten-year period. The all CME average stayed relatively stable, fluctuating slightly from just under 3,500 PPS in 2005, to just under 4,000 PPS by 2015. Meanwhile, Germany spent much less than the all CME average during this ten-year period. Portugal's spend on ALMP is more closely aligned to the all MME average, but it encountered a reduction in ALMP from 2010 onwards, with its lowest point in 2012 at just over 500 PPS. It is interesting to note, that even at Portugal's highest point of ALMP spend it was still below that of Germany and the all CME average.

Figure 5: Spend on all Active Labour Market Policies* by PPS (per person wanting work) for CMEs, MMEs, Germany and Portugal (2005-2015)



Source: European Commission - Directorate general for employment, social affairs and inclusion (available at Eurostat)

Note: missing data for Greece for 2011 and 2012, therefore for these years the MMEs average is out of four countries instead of five. No EU average has been provided as there is missing data for some countries across multiple years.

* Includes training, employment incentives, supported employment and rehabilitation, direct job creation and start up incentives.

5.1 Training

Prior to and during the Eurozone crisis, vocational training programmes were offered as an appropriate ALMP measure by local employment agencies in Germany. There has also been a number of targeted training programmes aimed at those seeking work. For instance, the training programme 'WeGebAU' which focuses on continuing training of low-skilled workers and older employees in companies and came into force in 2006 (German National Reform program, 2011, p52) and was extended to develop skills in small and medium sized companies during the Eurozone crisis. This was a crucial part of Germany's need to maintain competitiveness and its focus on higher level skills, which ties in with the mentality of CMEs, and as a result greater funding for training

initiatives was given for those engaged in temporary employment or partial employment (Ehmke and Lindner, 2015).

Turning to vocational training for young people leaving school, Eichhorst and Hassel (2018) discuss how this form of vocational training has been relatively stable prior and during the Eurozone crisis, with German employers and local chambers of commerce being supportive of vocational education and training. However, despite this focus on training, the 'mittelstand', that is, Germany's medium sized businesses had reported that there was a lack of take up for training activities and a narrow focus on eligibility (Ehmke and Lindner, 2015, p30; The Economist, 2015). By 2014, the German government and social partners created an Alliance for Education and Training which aimed to generate more vacancies but also assisted training for low achievers to move into apprenticeships (Eichhorst and Hassel, 2018, p124). In this sense, it is evident that Germany has regarded training an important part of ALMP which has been in force, prior to, during and after the Eurozone crisis. It has also implemented changes to its array of training packages in an incremental way with the aim of improving its effectiveness. However, this is quite a different picture to the Portuguese case.

Portugal began to implement ALMP measures in the early 2000's, sparked by the EES signed in 1997. Part of this focussed on training programmes in Portugal for young people and those in work, but it was at much lower levels in comparison to Germany and the Eurozone average (Cardoso and Branco, 2017, p7) and noted in figure 5. This links to MMEs being active in low value markets and therefore not prioritising the development of skills and training activities, compared to CMEs.

While the MoU signed in 2011, had a clear focus on improving employability and reducing long-term unemployment, Cardoso and Branco (2017) discuss how Portugal did not design and implement appropriate ALMP measures focused on training until 2012. This included a mix of measures, one of which was focused on training. The 'Vida Ativa' training scheme was a part of this, with the key aim of developing high-employability training modules to redirect those who are on unemployment benefits to more targeted training measures (European Commission, 2012).

An Economic Adjustment programme review highlights the important role played by the Vida Ativa programme, but also notes the 'Impulso Jovem' training programme which is targeted specifically at young people. Reflecting on how effective Portugal's training activities has been it outlines that participation in ALMP has risen and many of those on unemployment benefits are redirected to training measures (European Commission 2014c, p43).

However, it must be noted that participation in ALMP relating to training only relate to those who are registered as unemployed. Santos and Fernandes (2016, p107) dwell on how in 2011, Portugal saw a notable increase in those who are available for work but inactive, and therefore not covered by official unemployment records.

5.2 PES and engagement with employers

A key part of helping to align employment opportunities to those seeking work involves offering incentives to work through PES and appealing to employers to take on new staff. In Germany, the previous Hartz reform package included the introduction of non-standard forms of work (i.e. jobs that are not full-time or permanent) these are known as 'mini jobs'. They have financial benefits for workers (who may use these jobs as main source of income or secondary income) in terms of being exempt from tax and social insurance contributions. For German employers too, this arrangement was appealing as it meant they only paid the basic employer contributions and could pay lower wages (Eichhorst and Hassel, 2018) .

Therefore, when there were cuts to the payments and the duration of unemployment benefits in Germany through the Hartz reforms (as described in section 4.2), mini jobs provided a means of helping match people back to work, and was used, in particular during the Eurozone crisis (Eichhorst and Hassel, 2018, p119). However, mini-jobs have sparked much debate as on one hand, being framed negatively in terms of how long people stay in these roles, but seen as a positive in relation to potentially providing a

key function in terms of stimulating the labour market to create more jobs (Lozano, 2014).

Another well-known means of encouraging those on unemployment benefits back to work during the Eurozone crisis was through the German PES programme called 'One-Euro-Job'. This enabled those who were unemployed to receive at least one euro per hour in addition to their welfare benefit (Wolff, 2012). It is mainly for public or not for profit sectors and used by PES to assign welfare recipients to temporary roles to see how willing they are to work. Following analysis of administration records, Wolff carried out analysis on employment prospects on a large sample of welfare recipients on this programme, and found that it had greater success for those who had been long-term unemployed compared to those who were newly unemployed. This is important, as ALMP have the ultimate goal of reducing long-term unemployment (see section 5.3). In 2010, during the Eurozone crisis, there were around 660,000 people using the one-Euro-job programme. This is a reduction since its introduction in 2006, but in line with overall reduction in the average number of those classed as unemployment during the eurozone crisis (Tisch and Wolff, 2015, p20).

However, it can be argued that the 'One-Euro-Job' programme, along with mini jobs has decreased social standards, as it has come under much criticism for masking the true level of unemployment and confining people to work with limited scope to progress to more secure forms of employment (Saunders,2005), and also helping to reduce unemployment but keeping wages low for a prolonged period (The Economist, 2013).

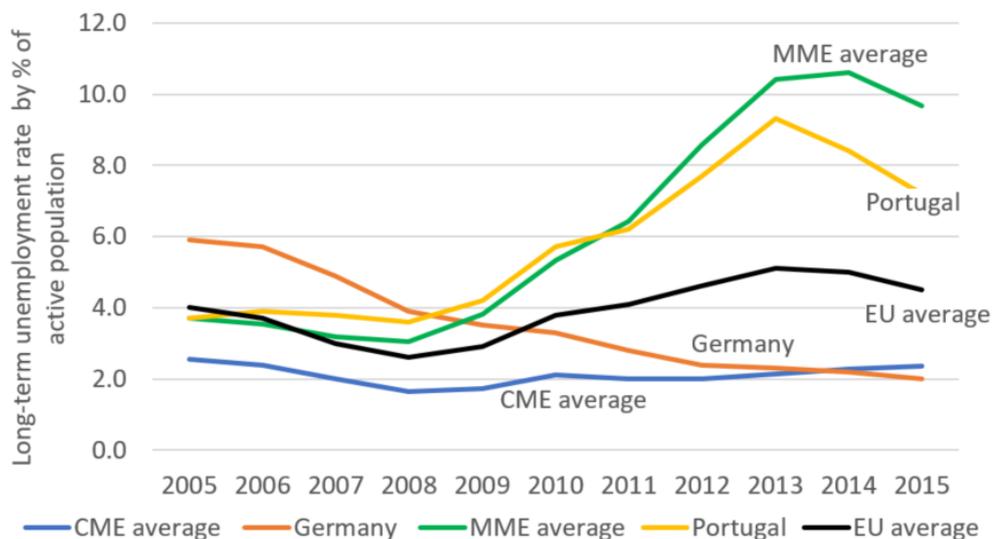
For Portugal, the focus on PES was something that was taken forward though the MoU signed in 2011. It includes clear provisions on the providing an action plan for possible improvements in respect of the role of PES, along with other ALMP activities (MoU, 2011, p24). In line with this, Portugal pushed forward in introducing ALMP measures particularly in relation to training, but also focussing on better PES which included measures aimed at improving job counselling and providing job search assistance (Santos and Fernandes, 2016, p97).

Similarly, new workfare programmes were introduced such as ‘Estimulo 2012’ which offered wage subsidies to employers hiring people registered at their PES centre with benefits to employers if they provide training and employment for at least 6 months. While for those registered at their PES centre for over 6 months, they were encouraged to accept work paid at gross wages below their employment benefit as they could still claim up to half of their unemployment benefits to cover this shortfall (Santos and Fernandes, 2016, p98). Engagement with employers was also a strong focus, but it took time to gain any real traction, as in 2011 there was little interest in them, but by 2015 they were being used considerably, although it is hard to tell whether these new jobs would have been created even if hiring incentives were not introduced (OECD, 2017, p50).

5.3 Reducing long-term unemployment

As indicated in this chapter, a key goal of ALMPs is the need to reduce long-term unemployment. Figure 6 charts long-term unemployment (that is, those unemployed for 12 months or more) by the percentage of the active population from 2005-2015. This shows that the MME average of long-term unemployment began to rise at the onset of the Eurozone crisis, and peaked at around 10% of the active population by 2014. Portugal followed a similar trajectory to the MME average up until 2013 where long-term unemployment began to fall. Meanwhile, the CME average of long-term unemployment was relatively stable, hovering at around 2% of the active population. For Germany, long-term unemployment was much higher prior to the Eurozone crisis in comparison to the CME average (6%), but by 2012, this was more closely in line with CME average (at around 2%).

Figure 6: Long term unemployment by % of active population by CMEs, MMEs, EU average, Germany and Portugal (2005-2015)



Source: EU LFS, available at Eurostat

Note: those who are long-term unemployed have been unemployed for at least 12 months.

While active persons in the labour market include those, who are either employed or unemployed.

From the literature and long-term unemployment figures, it appears that both Germany and Portugal were relatively successful in reducing long-term unemployment. However, Theodoropoulou (2018, p7) discusses how ALMP measures tend to be more successful when there are enough jobs for those seeking them. In the case of Portugal, this meant it was harder for their activation policies have the desired effect, as they had an oversupply of people seeking labour and there were significant financial restrictions on the budget of PES (ILO, 2014, p56). In contrast to this, Germany's long-term unemployment rate started to reduce from 2006 onwards, and may relate to the earlier Hartz reforms which introduced non-standard forms of work to encourage those who were unemployed back to work.

5.4 Summary

In summary, there are some clear differences in the way Germany and Portugal have approached their ALMPs. Table 5 details a summary of the key ALMP measures used during the Eurozone crisis. In essence, while Germany has made small changes to its

training programmes and PES over time, Portugal was very much spurred on by high unemployment and the promises it made as part of its MoU to start prioritising ALMPs.

Table 5: Summary of active labour market measures used during the Eurozone crisis

	Germany	Portugal
	Strong focus prior to the Eurozone crisis.	Very little focus on training prior to the Eurozone crisis.
Training measures	Made incremental changes to existing training programmes to develop higher level skills.	Implemented new training measures during the Eurozone crisis , specifically targeting those on unemployment benefits and young people.
Public Employment Services	Continued focus on PES such as mini jobs and the ‘One Euro Job’ programme.	Improvements made to PES during the Eurozone crisis through offering wage subsidies to employers
Impact	Long-term unemployment rate: reduced from 2006	Long-term unemployment rate: reduced from 2013

Overall, this chapter has shown that both Germany and Portugal have approached ALMP measures differently prior and during the Eurozone crisis, but both made some gains in reducing their long-term unemployment rates. For Germany, this reduction began prior to the Eurozone crisis, but similar to chapter 4, PES may have reduced long-term unemployment but increased the number of people in low paid work. While for Portugal, ALMPs were reformed in response to Eurozone crisis and seen as a means of stimulating labour market policies.

6 Conclusion

In essence, this dissertation has provided some powerful insights which contribute to understanding the broader picture in relation to some of the complexities relating to unemployment during the Eurozone crisis.

Firstly, it has shown that by isolating figures looking at those registered unemployed and in receipt of benefits, and spend on out of work maintenance, European countries did not act in a similar or consistent way over the ten-year period accounting for the Eurozone crisis. This challenges the work of some of the wider literature in this area that tends to focus on the broad category of unemployment spend to suggest that European countries make minimal changes over time. This dissertation has contributed to this area, by accounting for cross-national data and unemployment spend figures by individual spending categories, as looking at total unemployment spend can be highly misleading.

Secondly, this dissertation has shown that the Eurozone crisis has exposed how unemployment spend on out of work maintenance varied by particular country clusters, and accounted for new, emergent literature on growth models. This includes more European countries (than the varieties of capitalism classifications) and separates out the LME cluster which has been problematic, as the UK and Ireland had very different experiences of the Eurozone crisis. Through carrying out data analysis on varieties of capitalism clusters and growth model clusters, there is evidence to suggest that there is a relationship by both types of clusters and spend on out of work maintenance during the Eurozone crisis. However, through further statistical testing (using the Dunn test) the results showed that only one paired comparison was significant, that is, the CME cluster by the 'Other' cluster.

Finally, in testing the hypothesis that two countries in the Eurozone (Germany and Portugal) have responded to unemployment prior and during the Eurozone crisis in

relation to their varieties of capitalism classifications, an examination of their passive and active labour market policies supports this hypothesis. However, it is clear that their reasons for doing so may not strictly relate to their market response, and unemployment levels may have had a bearing on this.

In the case of Germany, labour market policies were deployed prior to the Eurozone crisis and incremental changes were made to help deal with the challenges presented by the Eurozone crisis. This included a focus on non-standard forms of work while also focusing on the development of higher-level skills. This accords with what is expected of CMEs and helped to maintain Germany's competitiveness. However, greater flexibility in the German labour market has been argued to come at the cost of widening wage inequalities, and therefore challenges how successful it has been in practice. It also questions whether Germany is a role model of how to respond in challenging periods.

With regards to Portugal, prior to the Eurozone crisis it was clear that it operated in line with what was expected of MMEs, as there was little focus on skills and training, and lower value markets were pursued at the detriment of being competitive. However, through the MoU signed in 2011, Portugal has made a concerted effort to improve its passive and active labour market policies, by introducing targeted training and PES initiatives to reduce long-term unemployment. However, it is unclear how sustainable these policies will be in the long term.

In looking to the future, a recognition of how and why EU member states behaved differently in relation to unemployment during the Eurozone crisis is important. This can help labour market policies to be effective during challenging periods, and provide valuable lessons for the future. As a way forward, this dissertation has been a useful starting point for more research to be undertaken on the component parts of unemployment spend by European countries, and the inclusion of cross-national data sources.

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Appendix 1 – Results of linear regression models

	Model 1	Model 2
Intercept-Co-ordinated (model 1) and Continental (model 2)	6329.87 ***	7224.91 ***
	-899.85	-1310.99
Liberal	-1027.32	
	-1908.87	
Mixed	-1506.7	
	-1394.04	
Other	-4690.31 ***	
	-1116.13	
Demand-led		-6201.83 *
		-2931.47
Export-led		-4835.32 **
		-1643.42
Mediterranean		-2401.75
		-1758.88
Nordic		-2088.44
		-2002.57
Other		-5200.75 **
		-1643.42
R ²	0.47	0.41
Adj. R ²	0.4	0.27
Num. obs.	27	27
RMSE	2380.78	2621.98

*** p < 0.001,

** p < 0.01,

* p < 0.05

Note: Does not include Croatia. Results discounted as the Shapiro Test revealed that the residuals were statistically significantly different (p-value < 0.05) to that of a normal distribution. Model 1: p-value = 0.004498, Model 2: p-value = 0.02228.

Appendix 2 – Dunn test results for varieties of capitalism clusters

		Comparison of x by group (No adjustment)		
Col Mean				
Row Mean	Co-ordinated	Liberal	Mixed	
Liberal	0.684658 0.2468	-		
Mixed	0.614759 0.2694	0.225876 0.4106		
Other	3.351891 0.0004*	1.346107 0.0891	2.30206 0.0107*	

* p-value < 0.05

		Comparison of x by group (Holm)		
Col Mean				
Row Mean	Co-ordinated	Liberal	Mixed	
Liberal	0.684658 0.7403	-		
Mixed	0.614759 0.5387	0.225876 0.4106		
Other	3.351891 0.0024*	1.346107 0.3565	2.30206 0.0533	

* p-value < 0.05

Note: Does not include Croatia.

Appendix 3 - Dunn test results by growth models

	Comparison of x by group (No adjustment)				
Col Mean					
Row Mean	Continental	Demand-led	Export-led	Mediterranean	Nordic
Demand-led	1.831167 0.0335				
Export-led	2.347481 0.0095*	-0.538748 0.295			
Mediterranean	0.798201 0.2124	-1.380131 0.0838	-1.598374 0.055		
Nordic	0.53611 0.2959	-1.418416 0.078	-1.538839 0.0619	-0.172516 0.4315	
Other	2.692065 0.0036*	-0.336717 0.3682	0.404061 0.3431	1.967229 0.0246*	1.85182 3 0.032

* p-value < 0.05

Note: Does not include Croatia.

		Comparison of x by group (Holm)			
Col Mean-					
Row Mean	Continental	Demand- led	Export- led	Mediterranean	Nordic
Demand-led	1.831167 0.3689				
Export-led	2.347481 0.1323	-0.538748 1			
Mediterranean	0.798201 1	-1.380131 0.5864	- 1.598374 0.5498		
Nordic	0.53611 1	-1.418416 0.6243	- 1.538839 0.5573	-0.172516 0.4315	
Other	2.692065 0.0533	-0.336717 0.7363	0.404061 1	1.967229 0.3195	1.851 823 0.384 3

* p-value < 0.05

Note: Does not include Croatia.

Appendix 4 – R code

```
unemployment <- read.csv ("unemployment.data.csv")
unemployment

data <- na.omit(unemployment)
data

# variable names
# ID
# Country - full name
# Cnty - short code
# wr - welfare regime (varieties of capitalism)
# gm - growth models
# PPS_oow_2010 - Out of work maintenance by PPS, per person
  wanting to work (2010)
# UR_2010 - Unemployment rate (2010)

#boxplot of PPS on out of work maintenance - by varieties of
  capitalism
install.packages("ggpubr")
library (ggpubr)
ggboxplot(data, x = "wr", y = "PPS_oow_2010",xlab = "Variety
  of Capitalism",ylab = "Out of work maintenance by
  Purchasing Power Standard (2010)",
  color = "wr", palette = "jco")+
  stat_compare_means(method = "anova")

#boxplot of PPS on out of work maintenance - by growth model
ggboxplot(data, x = "gm", y = "PPS_oow_2010",ylab = "Out of
  work maintenance by Purchasing Power Standard (2010)",
  color = "gm", palette = "jco")+
  stat_compare_means(method = "anova")

#Scatterplot of out of work maintenance by unemployment
  rates
```

```
ggscatter(data, x = "UR_2010", y = "PPS_oww_2010", label =  
"Cnty", xlab="Unemployment rate, 2010", ylab="Out of work  
maintenance by PPS, 2010")
```

```
#Linear model -PPS on out of work maintenance by intercept  
only
```

```
lm1 <-lm(PPS_oww_2010 ~1,data=data)
```

```
summary(lm1)
```

```
#testing residuals are normally distributed
```

```
hist(resid(lm1),probability=T)
```

```
curve (dnorm (x, mean(resid(lm1)), sd(resid(lm1)),add=T))
```

```
shapiro.test(resid(lm1)) #shapiro test is statistically  
significantly different to that of a normal distribution -  
discount.
```

```
#by wr
```

```
lm2 <-lm(PPS_oww_2010 ~ 1 + wr,data=data)
```

```
summary(lm2)
```

```
hist(resid(lm2),probability=T)
```

```
curve (dnorm (x, mean(resid(lm2)), sd(resid(lm2)),add=T))
```

```
shapiro.test(resid(lm2)) #shapiro test is statistically  
significantly different to that of a normal distribution -  
discount.
```

```
#by gm
```

```
lm3 <-lm(PPS_oww_2010 ~ 1 + gm,data=data)
```

```
summary(lm3)
```

```
hist(resid(lm3),probability =T)
```

```
shapiro.test(resid(lm3)) #shapiro test is statistically  
significantly different to that of a normal distribution -  
discount.
```

```
#Kruskal test - by varieties of capitalism
```

```
kruskal.test (PPS_oww_2010 ~ wr, data=data)
```

```
#statistically significant by varieties of capitalism.
```

```
#mean ranks by varieties of capitalism groupings
```

```
data$rank <- rank(data$PPS_oww_2010)
```

```
by(data$rank,data$wr,mean)
```

```
#Kruskal test - by growth model
kruskal.test (PPS_oow_2010 ~ gm, data=data) #statistically
significant by growth model.

#mean ranks by growth model groupings
by(data$rank, data$gm, mean)

#Dunn test - by varieties of capitalism
install.packages ("dunn.test")
library (dunn.test)

dunn.test (data$PPS_oow_2010, data$wr, method = "none")
dunn.test (data$PPS_oow_2010, data$wr, method = "holm")

#Dunn test - by growth model
dunn.test (data$PPS_oow_2010, data$gm, method = "none")
dunn.test (data$PPS_oow_2010, data$gm, method = "holm")
```