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MASTER'S THESIS

Determinants of active labor market policy:

A spatial and multilevel analysis of ALMP expenditures in 29 OECD countries between 1985 and 2010

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Abstract

In recent years, a growing field of research, known as policy diffusion, has investigated the idea that policy choices affect each other across geographic units. However, the distinction between direct and indirect diffusion has to a large part been neglected. This thesis adds to the policy diffusion literature by distinguishing between direct and indirect diffusion of active labor market policy (ALMP). Hence, the analysis also contributes to the research focusing on explaining variation in ALMP. Using spatial and multilevel regression methods, the thesis investigates causes of diffusion and identifies the most important determinants of the variation in ALMP expenditures across 29 OECD countries, between 1985 and 2010. The empirical analysis finds evidence to support the argument that the spread of ALMP across countries is driven by domestic determinants and common contexts, and not by diffusion of the policy itself. Domestic institutional variables are found to be most influential in explaining geographic patterns of ALMP, more precisely social democratic welfare regime and corporatism. The same variables, in addition to the age of EU membership, are found to be responsible for explaining expenditure variation across countries in the period 1985-2010.

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Table of contents

List of tables

List of figures

1.0 Introduction

Since the mid-1980s the use of active labor market policies (ALMP) have spread among the members of Organization for Economic Cooperation and Development (OECD) (Bonoli 2010). According to Shin (2000), ALMP has become the most utilized policy option in welfare states, because programs such as education, training and recruitment subsidies, greatly affect productivity and the skill level of the workforce. Most OECD countries substantially increased their ALMP expenditures between 1985 and 1995 (Shin 2000). Nevertheless, there is a large disparity on spending on active measures across OECD countries (Shin 2000). There are countries that spend more than 1.5 percent (Finland, Denmark, Netherlands and Sweden), while others have very low expenditures, under 0.1 percent of GDP (Czech Republic and Mexico) (OECD.Stat 2011). A few scholars have attempted to explain the differences in ALMP expenditures within and between countries (e.g., Armingeon 2007; Bonoli 2010; Franzese and Hays 2006; van Vliet and Koster 2011), although the largest body of literature on ALMP is centered on evaluating its effects on unemployment (see for example Card et al. 2010). This thesis seeks to explain the variation in ALMP across 29 OECD countries during the period 1985-2010. Thus, the main research question is: *What explains the variation in ALMP expenditures across 29 OECD countries over the time period 1985-2010?* The aim is to identify the most important determinants of ALMP, which can explain developments over time, as well as between countries.

National politicians do not make decisions in a vacuum; they are subject to pressure from a range of actors, processes and events, which compromise their autonomy. Decision-making autonomy can be defined as freedom from intervention, oversight, and control from external actors (Barber and Martin 2001). To understand the pattern of policy variation, it is important to examine the factors that influence the autonomy of national politicians in formulating and allocating money to ALMP. The constraints to national policy autonomy can be of both domestic and international character, as well as economic and political. Thus, the thesis identifies four broad categories of determinants (Table 1), and aims to test their relative power in explaining ALMP variation.

Table 1. Determinants of ALMP

	Domestic	International
Political	Left-wing powers, social democracy, corporatism	**Spatial policy diffusion** Political integration: EU
Economic	Macroeconomic indicators	Economic globalization

First, the domestic economic constraint is the state of the national economy, which puts limits on the welfare budget. This may in turn restrict politicians' ability to allocate money to ALMP. Second, domestic political constraints are national institutional arrangements, such as welfare systems and constellations of social partnership, which may restrict political freedom in the short run. Third, international economic restrictions on national policy autonomy may be the consequences of economic globalization. Finally, policy autonomy may also be constrained by international political conditions, such as political pressure from international organizations or through policy influence from foreign governments, also known as policy diffusion. Within the framework of these four categories the analysis pays special attention to the effect of spatial policy diffusion, meaning the spread of policy across borders.

Scholars studying the variation in ALMP have yet to consider the limitations to policy autonomy holistically, and in a comparative perspective. Most previous studies have concentrated on one type of constraint, and the topic that has attracted the most attention is the role of social democracy (including welfare regime, union strength, social partners and left-wing politics) in explaining variation in ALMP (e.g., Bonoli 2003;2010; Janoski 1990;1994; Jingjing et al. 2008; Martin and Swank 2004; Mosley et al. 1998; Pontusson and Swenson 1996; Rueda 2006). Further, the impact of international organizations such as the OECD and the EU has been of considerable interest (e.g., Armingeon 2007; van Vliet 2010; van Vliet and Koster 2011). The research on diffusion processes of ALMP, on the other hand, has been very limited. Only a few studies have analyzed ALMP diffusion (e.g., Franzese and Hays 2006; Kemmerling 2006). Franzese and Hays (2006) study negative diffusion of ALMP, by focusing on spillover effects, which encourage countries to free ride off the active measures of their neighbors. Kemmerling (2006) takes for granted that positive diffusion of ALMP occurs. He looks at ALMP diffusion as the dependent variable and tries to explain why it happens. However, the diffusion studies of Franzese and Hays (2006) and Kemmerling (2006) fail to distinguish between direct and indirect diffusion of ALMP. In fact, the policy diffusion

literature in general, has been unsuccessful in identifying the causes and mechanisms of diffusion (Gilardi 2010). By overlooking the differences between direct policy adoption from one country to another (direct diffusion), and the spread of policy driven by common political, institutional, cultural or linguistic contexts (indirect diffusion), the explanations for why diffusion processes occur in the first place are obscured. Therefore, this thesis distinguishes clearly between direct and indirect diffusion of ALMP. It provides explanations for why indirect diffusion is more likely to cause spatial spreading of ALMP, than direct diffusion. The main reasons for this argument is the path dependent nature of ALMP (Armingeon 2007; Bonoli 2010) and the differences in institutional arrangements between OECD countries. An analysis of policy diffusion requires a defined structure of dependence between countries. This analysis tests ALMP diffusion across OECD countries with two different spatial weights: geographic proximity and bilateral trade. Previous studies have exclusively relied on geographic measures of proximity (i.e., Franzese and Hays 2006; Kemmerling 2006). The use of a non-geographic measure in the analysis of ALMP diffusion rests on the assumption that the spread of policy does not necessarily depend on geography.

To summarize, the thesis makes two main contributions to the literature. First, it takes a holistic approach to comparing the relative importance of constraints to national policy autonomy of ALMP. Second, it adds to the policy diffusion literature by distinguishing between direct and indirect diffusion of ALMP, and by testing diffusion using a non-geographic weight structure.

The thesis takes a quantitative approach to explaining the variation in ALMP. Both spatial analysis and multilevel regression are used to evaluate the effect of policy diffusion and explanatory variables. The data material has a panel data structure covering 29 OECD countries and annual observations between 1985 and 2010. The choice of method allows for distinguishing between direct and indirect types of diffusion, while at the same time evaluating and comparing the effects within and between countries of a range of explanatory variables.

To answer the research question, *What explains the variation in ALMP expenditures across 29 OECD countries over the time period 1985-2010?*, three sub-questions are formulated. These will serve as focal points of the analysis.

1. Is there a policy diffusion effect in ALMP? Policy diffusion refers to the process where one country's policy choices are adopted or by another country (Braun and Gilardi 2006; Simmons and Elkins 2004). The analysis tests whether there exists a spatial pattern of ALMP within the OECD, and aims to find out if spatial patterns are caused by direct diffusion of ALMP, or indirectly through diffusion of common political, cultural, institutional or economic contexts. Spatial diffusion of ALMP within the OECD is expected because of the pressure from the OECD and the EU to activate labor politics (Armingeon 2007; Kluve et al. 2007), and because of the documented growth in ALMP over the past two and a half decades within countries of the OECD (Bonoli 2010).

2. Which factors are more important in explaining ALMP, domestic or international? It has been argued that political and economic globalization has compromised the policy autonomy of individual states (Garrett 1998b). De Haan and Plümper (2006) argue that European integration reduces policy autonomy of EU member states. Clark et al. (1998: 87) claim that the increase in international capital mobility has caused an increase in economic policy convergence, "a decrease in the ability of states to effectively regulate behavior, and a threat to national sovereignty". Shin (2000), on the other hand, claims that the constraint placed upon the discretion of the nation state caused by globalization, leads to more money being allocated to ALMP. Because economic integration drives competition among countries, welfare states need to reform their social policies into business friendly policies. Hence, active measures are argued to be more market friendly, as they often entail human capital investment, in contrast to pacifying benefit transfers (Shin 2000). In other words, international contexts can have both positive and negative impacts on ALMP. The focus in this thesis is to find out whether national politicians are constrained by international forces to either increase or decrease ALMP efforts, and to determine the influence of international factors in relation to domestic in explaining variation.

3. Do economic factors matter more than political factors in explaining ALMP variation? Janoski (1994: 59) claims that "political power variables should have a strong and positive effect that is greater than socioeconomic variables because ALMP is a discretionary rather than automatic policy". Nevertheless, Lewis-Beck (1977) finds statistical evidence that socioeconomic variables are far more important in determining public policy, than political variables. Previous research focusing on the effect of political and institutional variables on

ALMP (e.g., Janoski 1994; Rueda 2006) are inconclusive. Scholars have found that social democratic welfare regimes, left-wing government and corporatism have either no effect at all in explaining ALMP variation, while others find negative effects on spending. By comparing political variables to economic variables, it is possible to determine whether politics matter at all, or if ALMP is an automatic response to the international economy and/or domestic macroeconomic indicators. This question seeks to find out to what extent political decisions regarding ALMP spending are constrained by economic conditions.

The thesis has the following structure: The second chapter defines ALMP, explains the motivation behind such policies and provides a rough historical background of its use and extension. The third chapter is the theory chapter. It starts by defining policy diffusion, explains the difference between direct and indirect diffusion, and outlines the mechanisms through which diffusion may happen. Then, the theoretical expectations to domestic and international determinants, as well as control variables are discussed, and hypotheses are developed. The fourth chapter explains the method applied in the analysis. The first part of the chapter concerns spatial regression analysis, and the second part explains the principles of multilevel panel models. The fifth chapter provides an overview of the data used in the analysis, variable operationalization, as well as descriptive statistics and how the weight matrices are calculated. In the sixth chapter, model estimations are conducted step by step, results are analyzed and a summary of the main findings is presented. Chapter seven discusses the results in relation to theory, hypotheses and previous findings. Chapter eight concludes, discusses the thesis' contribution to the literature and points to further research.

2.0 Active labor market policies

Active labor market policies are government interventions to improve the functioning of the labor market (OECD 2010). These active measures include job training, employment incentives, supported employment and rehabilitation, direct job creation and start-up incentives. Passive measures, on the other hand, are limited to benefit transfers, such as unemployment benefits and early retirement schemes (OECD 2010). To get a clearer understanding of what form ALMP takes in practice, Bonoli (2010: 439-41) suggests to distinguish between four main program categories: 1) Incentive reinforcement; 2) employment assistance; 3) occupation; and 4) human capital investment. Incentive reinforcement refers to initiatives that try to strengthen work incentives for benefit recipients. This can be achieved by for example making benefits conditional on work scheme participation. Employment assistance refers to measures that aim to remove obstacles to labor market participation. Examples of programs include placement services and job-search assistance. Parents who lack child-care may also receive help in finding and paying for appropriate day-care. The third category, occupation, has the objective of keeping unemployed people occupied, where the goal not necessarily is labor market reentry. Through job creation and work experience programs in the public or non-profit sector, the fall in human capital during periods of high unemployment is prevented. The final category, human capital investment (also known as *upskilling*) refers to vocational training and courses designed to make the jobless more attractive for employers. There are great cross-national differences in the distribution of the various programs (Bonoli 2010). The first and second categories, incentive reinforcement and employment assistance, are most common in English-speaking countries, but elements also exist in the Nordic countries and continental Europe. The third category, occupying the unemployed, has been widely used in continental Europe, especially during the 1980s and early 1990s. The Nordic countries rely heavily on the final category of human capital investment (Bonoli 2010: 441). The divergences in the use of the various programs indicate that language and political culture are influential in determining ALMP.

The concept of ALMP was developed in Sweden by social democrats in the 1950s (Bonoli 2010). In the period between the end of the Second World War and the mid-1970s, Sweden is described as a pioneer of labor market policy, "introducing a unique kind of labor market policy that other countries could only stand back and admire" (Toft 2003: 569). The

introduction of the Rehn-Meidner model in the Swedish macroeconomy marked the invention of active labor market policies (Janoski and Hicks 1994). The Rehn-Meidner model (Meidner 1948; Rehn 1948), that was developed by two Swedish trade union economists, recommends selective employment policy combined with tight macroeconomic policy and solidary wage policy, to ensure full employment and economic growth while avoiding problems of inflation.
The OECD started exploring the qualities of ALMP as early as 1964 (Kemmerling 2006). Throughout the 1970s ALMP was implemented in a number of industrialized countries, a development mainly driven by left-wing governments (Janoski and Hicks 1994). In 1992 the labor ministers of the OECD endorsed an official framework for labor market policies. The framework emphasized the urgent need to shift public spending from passive to active measures (Shin 2000). ALMP was again strongly advocated by the 1994 OECD Jobs Study, which highlighted the positive virtues of active measures: improving access to labor markets, promoting more efficient labor markets, strengthening links between growth of aggregate demand, job creation and the supply of qualified labor (OECD 1994: 36). For the same reasons, ALMP became an important part of the European Employment Strategy in 1997 (Franzese and Hays 2006; Kluve et al. 2007). Through an "open method of coordination" the EU continues to promote the activation of labor market policies (Kluve et al. 2007). Although ALMP is a product of the political left, it has now been accepted by liberals, conservatives and liberal economists, because of its market enabling effects and macroeconomic benefits (Armingeon 2007).

3.0 Theory and hypotheses

The third chapter presents the theoretical framework of the analysis. Theory is necessary to justify the expectation of a policy diffusion effect in ALMP, as well as the choice of independent variables. This chapter presents theoretical arguments for how the four categories of constraints to policy autonomy – domestic political, domestic economic, international political and international economic – are expected to influence the variation in ALMP. A total of 14 hypotheses are formulated about the relationship between explanatory variables and ALMP variation.

The chapter is structured as follows: First, policy diffusion is defined and the differences between direct and indirect diffusion are clarified. Six mechanisms of diffusion are presented and their relevance for ALMP diffusion is discussed. Further, the different structures of dependence between countries, is theorized. The second part of the chapter presents theory on domestic political determinants of ALMP variation. The domestic economic determinants are considered to be control variables, which are reviewed toward the end of the chapter. The third section concentrates on presenting theory on international explanations for ALMP variation. Both political integration through the EU and economic globalization are discussed. Finally, expectations to control variables are presented, before a brief summary of the theory chapter is provided.

3.1 Policy diffusion and Galton's problem

It is reasonable to expect policy diffusion of ALMP among OECD countries for several reasons. First, the OECD started emphasizing activation of labor market policies as early as 1964 (Kemmerling 2006: 158), and has since encouraged member countries to increase ALMP efforts. The work of the OECD rests upon the principles of scientific rationality and validity. It is an intergovernmental organization promoting policy best practices based on the assumption that knowledge matters in the development of national policies (Armingeon 2007). Although the OECD does not have the power to impose policies on member countries, it provides an arena for communication and the exchange of experiences, which encourages diffusion of policy among member countries (Kemmerling 2006). Secondly, Bonoli (2010) suggests that the mere fact that ALMP have increased across OECD countries during the last couple of decades indicates that some form of policy diffusion has taken place. This may not be the case, but the expectation to spatial diffusion of ALMP is fair.

In recent years, the idea that policy choices affect each other across geographic units has gained increased interest from scholars of comparative politics (Gilardi 2010). The fact that governments influence each other's policy-making has been known for a long time, but was until recently treated as a problem, also known as *Galton's problem*[1], because this so-called spatial autocorrelation complicated the empirical analyses. It was seen as a nuisance that had to be controlled for (Braun and Gilardi 2006).

Now a growing literature on policy diffusion is putting the "problem" in the center of attention and is exploring the characteristics and consequences of patterns of similar policy-making across states and countries. A central goal is to model and explain Galton's problem, rather than control it (e.g., Beck et al. 2006; Braun and Gilardi 2006; Franzese and Hays 2008; Hays et al. 2009; Kemmerling 2006; Meseguer and Gilardi 2008; Meseguer and Gilardi 2009; Simmons and Elkins 2004; van Vliet 2010). Recent research has provided evidence of policy diffusion and improved operationalization of diffusion mechanisms (Gilardi 2010). However, Braun and Gilardi (2006) criticize the diffusion literature for being weak and theoretically incoherent, because literature on various diffusion mechanisms lack a common theoretical basis. Braun and Gilardi (2006) review the literature and develop a common framework of theoretical determinants of diffusion processes. Before presenting this framework covering six mechanisms of diffusion, it is necessary to discuss how diffusion is defined in the literature, and how it is used in this thesis.

The literature defines policy diffusion both as policy-making interdependence, and as the spatial spreading of similar policies driven by domestic or exogenous external variables. This distinction has been given slightly different labels. Simmons and Elkins (2004) distinguish *diffusion processes* from *diffusion outcomes*. Franzese and Hays (2008) distinguish between *interdependence* and *diffusion*, while Braun and Gilardi (2006) draw a line between *diffusion* and *spurious diffusion*. Essentially, they all agree on the differences between the two types of diffusion. Diffusion-like patterns may exist without interdependence in decision-making. Interdependence is evident when values on the dependent variable in one unit, directly affect values on the dependent variable in other units. Diffusion, however, may also refer to patterns of outcomes (i.e., values on the dependent variable) across spatial units. These patterns must not depend on outcomes affecting each other directly, but may be driven by correlations in

[1] See for example Walker (1969) and Gray (1973).

domestic or exogenous international determinants (Franzese and Hays 2006: 771-72). In other words, policy makers in different countries may end up choosing the same policies independently of each other, as reactions to the same needs. The spread of the same policies may therefore not be caused by direct diffusion of a policy itself, but by diffusion of domestic determinants or common contexts[2] (Braun and Gilardi 2006). One example is the globalization of economic liberalization. Simmons and Elkins (2004) theorize that liberalization patterns, which tend to cluster in time and space, could be reactions to international phenomena (e.g., currency crisis and economic recession), instead of interdependent policy-making. Liberalization may also just be the number one choice for liberal democracies, resulting in diffusion-like patterns, but which in reality are independent, but similar reactions to the same circumstances. Such processes are not classified as diffusion by Simmons and Elkins (2004).

In this thesis both types of diffusion, i.e., policy-making interdependence and spurious diffusion, are of interest. To avoid concept confusion the two types will hereafter be called *direct* and *indirect diffusion,* respectively. There are two reasons for considering both types. First, a central part of the analysis is to find out if there is evidence of spatial patterns in ALMP, caused by either type. And if so, to test whether domestic and exogenous international variables can account for this pattern. If independent variables explain spatial patterns of ALMP, we are dealing with indirect diffusion. If the opposite is the case, it is evidence of direct diffusion. Second, spatial diffusion researchers have found that policy interdependence matters alongside, or in interaction with, other internal and external determinants (Braun and Gilardi 2006; Collier and Messick 1975; Simmons and Elkins 2004). Thus, it is probable that direct diffusion of outcome exists alongside diffusion of common contexts.

Mechanisms of policy diffusion

The driving force in the policy diffusion literature is the interest in the mechanisms causing policy diffusion. When aiming to identify diffusion of a certain policy, and distinguishing between the direct and indirect type, it is useful to understand how and why diffusion processes occur at all. Therefore, a range of diffusion mechanisms is presented below.

[2] See also Berry and Berry (1990), Collier and Messick (1975) and Van den Bulte and Lilien (2001).

If direct policy diffusion is defined as government A's behavior influencing government B's behavior (i.e., interdependence), then the mechanism of diffusion is "a systematic set of statements that provide a plausible account of why the behavior of A influences B" (Braun and Gilardi 2006: 299). Simmons and Elkins (2004) distinguish between two types of direct diffusion mechanisms: altering payoffs and learning. Payoffs of governments are altered when policy decisions of one government change the costs and benefits of neighboring countries' policies. One example where payoffs are altered is when country A increases ALMP efforts and the increase leads to a decrease in unemployment in an area shared by country A and country B. This situation creates incentives for country B to free ride on the ALMP efforts made by country A. For instance, unemployed in Belgium can travel to France to participate in training programs and then return to Belgium more employable (Franzese and Hays 2006). Learning, on the other hand, may take place when governments face a situation where the appropriate policy is lacking, and they turn to their neighbors for policy advice (Armingeon 2007).

Braun and Gilardi (2006) aim at developing a theoretically consistent framework of diffusion mechanisms. The framework considers altering payoffs and the effectiveness of policy, but it does not explicitly distinguish between direct and indirect diffusion mechanisms. Braun and Gilardi (2006) consider six types of mechanisms: 1) learning, 2) competitive and cooperative interdependence, 3) coercion, 4) common norms, 5) taken-for-grantedness, and 6) symbolic imitation. According to definitions of direct and indirect diffusion, the first two mechanisms refer to direct diffusion, because actions of one government directly affect other governments. Number three and four, coercion and common norms, describe indirect diffusion processes, while the latter two can be mechanisms of both direct and indirect diffusion.

Learning is defined as "the acquisition of new relevant information that permits the updating of beliefs about the effects of a new policy" (Meseguer 2004; 2005, in Braun and Gilardi 2006: 306). New information can come either from prior decisions and experiences, or from the experiences of others. From a rational choice perspective actors choose policies depending on effectiveness, which they learn about from others (Meseguer 2006). However, learning is not useful in evaluating policy payoff. Braun and Gilardi (2006) take as example privatization of the telecommunication industry. Privatization may render greater payoffs than public monopolies in one country, while strong trade unions may cause monopolies to be more

valuable than privatization in others. They emphasize that payoffs matter in interaction with effectiveness, thus making the utility of policy change dependent on both payoffs and effectiveness. In contrast, Meseguer (2006) assigns payoffs to the error term making it additive to effectiveness. Thus, he expects policy change as soon as one of the elements is greater than the other, while Braun and Gilardi (2006) in their model expect actors to choose less effective policies when evidence is weighted with positive payoffs.

Competitive and cooperative interdependence is the second mechanism of Braun and Gilardi's framework. This can be described as a prisoner's dilemma type situation – cooperation may make everyone better off, but the temptation to prioritize one's own needs is constant (Lazer 2001, in Braun and Gilardi 2006). Competitive interdependence rests on the assumption that governments aim to attract economic activity and act strategically to achieve it (Simmons and Elkins 2004). For example, the lowering of taxes by one country creates incentives for neighboring countries to do the same. In contrast, cooperative interdependence deals with compatibility. In many cases, such as international standards, commercial law and accounting, and international regulation of financial markets, it is effective for countries to cooperate and harmonize. Regarding competitive and cooperative interdependence, Braun and Gilardi (2006) argue that policy choices depend only on effectiveness, and not on payoffs. They use the example of taxation; higher taxation leads to greater payoffs, but at the same time it encourages investors to move their money to countries with lower tax levels. Thus, total tax revenue is reduced, and external policy-making has altered the effectiveness of domestic policy.

Coercion is the third mechanism of diffusion and refers to the pressure from international organizations to implement recommended policy (Braun and Gilardi 2006). Organizations like the EU, IMF and the World Bank do this to a lesser or greater extent using both carrots and sticks. Coercion is strictly speaking a mechanism of indirect diffusion, because it does not describe the influence of one country's policy on neighboring countries' policy choices, but the influence from an external institution upon one or more countries. Coercion can only be perceived as a mechanism of direct diffusion if one country uses economic or other sanctions to threaten a neighbor country to implement, or refrain from implementing, certain policies. In the case of ALMP, interstate coercion is not very likely.

Common norms is the fourth mechanism of policy diffusion. Through interactions in networks and organizations countries develop common norms and values. Braun and Gilardi (2006) transfer this process to policy, and claim that actors under common norms develop the same views on effectiveness of policy, and therefore, choose the same policies. The mechanism of common norms is also one of indirect diffusion, because it does not describe a process where countries are directly influenced by each other's policies. Instead, it explains how common underlying factors might drive governments to choose the same policies.

The fifth mechanism is what Braun and Gilardi (2006) have named *taken-for-grantedness.* This mechanism is based on the belief that over time some practices and policies become the natural way of doing things; actors automatically assign them high effectiveness and alternatives are no longer considered. In spite of politics being characterized by diverging views, some examples of diffusion through taken-for-grantedness can be found: e.g., women's suffrage rights and abolition of slavery (Braun and Gilardi 2006). Taken-for-grantedness is both a direct and indirect diffusion mechanism. First, countries need to influence each other directly to start a process. Then, a large number of countries need to have implemented the policy for it to be perceived as taken for granted. The second step is more of a common norms-type mechanism because it reflects a collective subscription to the same values.

Symbolic imitation is the sixth mechanism, which concerns the spread of policies that are perceived as socially valued practices. An example of symbolic imitation is granting independence to central banks (McNamara 2002). The practice of delegation sends a strong symbolic message that the government is doing the right thing, and it serves as legitimization in times of economic stress (Braun and Gilardi 2006). Symbolic imitation may also be of both direct and indirect character. Countries might look to each other to decide on the best practices, but they might also decide according to a more abstract international policy trend.

The six mechanisms of policy diffusion explained above – learning, competitive and cooperative interdependence, coercion, common norms, taken-for-grantedness and symbolic imitation – explain the causes of the spread of policy across national borders. When applied to diffusion of ALMP across OECD countries, some mechanisms are theoretically more plausible than others. This thesis argues that learning is the most relevant mechanism describing direct diffusion of ALMP, but also competitive and cooperative interdependence

may occur. In addition, coercion may have an impact on diffusion, but only indirectly through international organizations.

Learning is essentially the acquisition of new information about what works and what does not. The process of learning therefore requires communication between countries. The OECD is an organization that was established for precisely the purpose of communicating the best policies to its member countries, motivated by its slogan "Better policies for better lives" (OECD 2013). Drawing from member country experiences, the OECD especially encourages ALMP efforts through actively communicating its virtues (Armingeon 2007). According to Bonoli (2010: 438) "learning seems the most adequate to account for the success of ALMPs". However, diffusion of ALMP can also be influenced by the mechanism of competitive interaction. If ALMP is perceived as a costly welfare benefit that requires a certain tax level, countries may compete in a social race to the bottom where expenditures for active measures are cut to attract foreign capital. The third, and least likely mechanism, coercion may contribute to indirect diffusion of ALMP, for example through sanction-threatened EU pressure to activate labor market policies.

It is less likely that diffusion is due to mechanisms of common norms, taken-for-grantedness or symbolic imitation. Common norms are unlikely to cause ALMP diffusion within the OECD, because OECD countries are too politically and culturally diverse. Many evaluations of ALMP effectiveness are inconclusive (Card et al. 2010), and perceptions across governments are divergent. For the same reasons, taken-for-grantedness, is not a probable cause of diffusion. ALMP is too young a phenomenon and it is not perceived as the only sane response to unemployment. ALMP implementation through symbolic imitation is not likely, due to the high costs of these programs. However, one case where symbolic imitation of ALMP is probable is as a strategic action to please the EU. New member states or pending applicants could be expected to increase their ALMP efforts to earn goodwill from the EU, given that activation is encouraged through the European Employment Strategy (Franzese and Hays 2006). However, this mechanism is rather one of coercion (i.e., policy pressure from the EU), than of symbolic imitation.

Is it relevant to expect ALMP diffusion across OECD countries at all? There are two reasons why the answer to this question is positive. First, both the EU, through the European Employment Strategy, and the OECD strongly advocate increased ALMP efforts. Although

these recommendations are not legally binding, it is nevertheless reasonable to expect that they have had an impact (i.e., caused a diffusion process through learning, coercion, and cooperative and competitive interaction). Second, there is strong evidence that ALMP efforts have increased and spread across the OECD during the last couple of decades (Bonoli 2010). Thus, there is good reason to believe that the growth in ALMP has resulted in some diffusion-like pattern (i.e., diffusion of outcome). A hypothesis regarding diffusion of ALMP can be formulated.

H1: Policy diffusion is a determinant of ALMP variation

To test whether a diffusion-like pattern exists, it is essential to define what constitutes a pattern. The field of geography commonly uses common borders or border length between two countries to define spatial relationships. The use of geographic proximity is justified by Tobler's (1970: 235) first law of geography: "Everything is related to everything else, but near things are more related than distant things". However, distance does not necessarily mean geographic distance. In political science a range of other measures of proximity are possible, depending on research question. Beck et al. (2006) mention, among others, common language and colonial history. Others have used migration flows (Figlio et al. 1999) and bilateral trade relationships (Lebreton and Roi 2009). In this analysis, both bilateral trade and common borders are used to define spatial relationships between countries. The following section discusses the choice of weight matrices when studying diffusion of ALMP.

Defining the structure of dependence

Almost without exception, the few spatial analyses that have been conducted with ALMP as the dependent variable have used geographic measures of proximity (i.e., neighbor dummy and/or border length) (e.g., Franzese and Hays 2006; Kemmerling 2006). However, spatial analysis must not define space as geographic distance or Euclidean distance (Beck et al. 2006); space can also be economic or political in its nature (Lee and Yu 2010). Ward and Gleditsch (2008) suggest average travel time, number of mobile phone conversations, amount of tourism, or amount of commerce between each region, as plausible metrics of distance. Geographic proximity is not necessarily the number one choice of spatial weight, because it can only confirm or reject spatial diffusion, but not explain why. In other words, geographic weighting can lead to spurious causality, by for example showing that countries closer

together influence each other stronger, when in fact the actual cause of diffusion is not geography per se, but common political, cultural, linguistic, or historical contexts.

Therefore, this analysis uses both geographic proximity and bilateral trade flows to define distance between countries. It is useful to first test the presence of diffusion based on the simplest neighbor/non-neighbor matrix, to find out if there exists a spatial correlation in ALMP at all. However, the cases included in the analysis are geographically dispersed across the world, with heavy concentration in Europe. It is likely that evidence of spatial diffusion based on neighborhood is not an effect of policy interdependence between governments, but for example an effect of policy diffusion through the EU. A measure that provides more information on the cause of diffusion is bilateral trade. Trade flows describe the economic proximity of two countries (Ward and Gleditsch 2008), irrelevant of geographic distance. Countries with strong trade relations can be expected to align their industrial and labor policies to facilitate business and prevent political embargoes (Garrett 1995). According to Beck et al. (2006: 33) "[…] countries tend to be more dependent or influenced by their major trading partners, where the bilateral trade flows are large relative to a country's total trade". When using two different dependence structures, it is important to keep in mind that diffusion patterns will also look different on the map. This means that trade relationships cannot be used to explain geographic diffusion patterns.

As pointed out by a number of scholars (e.g., Collier and Messick 1975; Simmons and Elkins 2004), direct policy diffusion, i.e., interdependence, does not act in isolation. There will necessarily be domestic and external variables that explain part of the variation in ALMP. The following sections will theoretically outline potential influences of ALMP determinants, domestic and international, political and economic, as well as certain interaction effects. Hypotheses describing causal relationships between determinants and ALMP will be developed.

3.2 Domestic explanations for ALMP efforts

To formulate hypotheses about the impact of domestic factors in constraining policy autonomy of ALMP, it is important to consider theoretical expectations to both political and economic domestic variables. This section concentrates on theory of the domestic political determinants left-wing government, corporatism and social democratic welfare state, while

domestic economic variables are discussed under control variables in the final section of the chapter.

Left-wing government

In comparative politics, it is a common assumption that the party in government matters for policy and policy outcome (Garrett and Lange 1991), and that parties of the left and right have diverging preferences concerning social spending (Alvarez et al. 1991). Haan and Sturm (1994) theorize that government spending as a share of total output tends to be higher in countries with left-wing governments. Most scholars agree that the relationship between left-powers and ALMP is likely to be positive, because the idea of ALMP was conceived in a social democratic environment (Bonoli 2010), with the acceptance of state intervention in the market (Armingeon 2007). Thus, history and theory suggest a divergence in support for ALMP across the political right-left scale, where left-wing parties are the most likely to support such policies (Armingeon 2007; Bonoli 2010; Janoski and Hicks 1994; Jingjing et al. 2008). This view is challenged by Rueda (2007a) who suggests that the social democrats are split in their relationship to ALMP. Rueda distinguishes between insiders and outsiders with respect to the labor market, and argues that ALMP is a disadvantage to the insiders, because such policies tend to reinforce competition, which again leads to downward pressure on wages. Politicians in power are more likely to serve insiders, rather than outsiders, because insiders are generally better organized and more likely to reward politicians through voting (Bonoli 2010; Rueda 2007a). Although theories are contradicting a positive effect of left-wing governments on ALMP is expected, but the hypothesis is tested two-tailed.

H2: Left-wing governments have a positive effect on ALMP efforts

Corporatism

Corporatism is defined as "the cooperation between the state and the organizations of capital and labor in the formulation and implementation of public policy" (Lehmbruch 1984; Marks 1986, in O'Connel 1994: 221). Institutions of corporatism are concerned with wage bargaining, labor policies and labor market regulation (Franzese 2002). One measure of corporatism is trade union density, another is degree of centralized wage bargaining (Kenworthy 2000; Visser 2011).

A number of scholars have analyzed the effect of corporatism on labor market policy outcome (e.g., Janoski 1990;1994; Martin and Swank 2004; Mosley et al. 1998; O'Connel 1994; Pontusson and Swenson 1996; Rueda 2007b). The common assumption is that corporatism correlates positively with ALMP, because strong trade unions are expected to work for the benefit of those on the rim of the labor market. Bonoli and Emmenegger (2010) emphasize the role of social trust among unions and employers as a means for success of ALMP and other employment policies.

However, Rueda's (2007a) insider-outsider model takes a two-fold approach to the role of corporatism in influencing employment policies. First, the model relies on the premise that unions have no interest in serving anyone but their employed members: the insiders. He argues that ALMP does not benefit the insiders, because such policies tend to reinforce competition, by bringing unemployed back to work, which causes downward pressure on wages. Hence, unions are not in favor of ALMP. The second approach hypothesizes that unions with large constituencies are more concerned with the performance of the economy as a whole, and thus do support ALMP (Rueda 2007a). Union density is a measure of union members in percent of total employed labor force. When using this measure of corporatism, Rueda's (1997) second hypothesis is most fitting, as high union density implies larger unions or more unions with the interest of securing efficient labor markets and general economic growth. Hence, the following hypothesis is developed.

H3: Union density has a positive effect on ALMP efforts

Corporatism and left-wing governments are not isolated phenomena. Rueda (2006), Garrett (1998a) and Alvarez et al. (1991) all study the influence of the interaction between strong unions and left-wing governments. Alvarez et al. (1991) argue that the ability of the left to pursue its desired policies depends on the political institutions in a country – in particular the labor movement. The stronger the labor movement, the greater is the capacity of a left-wing government to implement desired policies. Hence, a hypothesis describing the interaction effect of corporatism and left-wing governments is formulated:

H4: Left-wing government given corporatism has a positive effect on ALMP efforts

Social democratic welfare regime

Different welfare regimes may differ on the level of ALMP effort, even after controlling for the political orientation of the government (Armingeon 2007). Because welfare states are results of long historical processes, there will be regime-specific predispositions toward ALMP, which are independent of changing political power distributions (Armingeon 2007; Esping-Andersen 1990). According to Esping-Andersen (1990), emphasis on ALMP is one of the defining features of the social democratic welfare state found in the Nordic countries, which necessarily makes it positively correlated to ALMP. Also, activation strategies were introduced in the Nordic countries during periods of public expansion, which provided favorable conditions for the institutionalization of ALMP. In contrast, ALMP was not initiated in the continental and Anglo-Saxon countries until the mid-1980s. These were times of fiscal discipline, which made the introduction of ALMP more difficult (Armingeon 2007; Bonoli 2007). However, there are scholars who view ALMP as a compromise between social democracy and liberalism, who challenge the argument that social democratic regimes are more favorable to ALMP (Bonoli 2010; Rueda 2007b). They argue that through ALMP, social democratic regimes are able to pursue their objectives without harming the interests of capital. Shin (2000) claims that ALMP is market friendly, because it entails upskilling the labor force, which is a good thing for capitalists and for the market. This means that countries with liberal welfare regimes are just as likely to pursue ALMP. Because theories are diverging, social democratic welfare regime as a determinant of ALMP is included in this analysis. The following hypothesis is formulated:

H5: Social democratic welfare regime has an effect on ALMP efforts

3.3 International explanations for ALMP efforts

So far five hypotheses have been developed, describing the expectation to policy diffusion and the relationship between domestic political variables and ALMP. The topic of this section is the international dimension of constraints to policy autonomy. In addition to spatial policy diffusion of ALMP, the literature identifies a number of international variables. In the following paragraphs the expected effects of political integration, exposure to trade and international business cycles are presented.

Political integration: The European Union

Just like economic integration of markets, political integration can impact domestic decision-making. Supranational organizations like the EU can impose policy directives on member states[3]. Although initiatives to coordinate employment objectives started already in the early 1990s, the EU did not officially encourage the development of ALMP until the launch of the European Employment Strategy at the Luxembourg Jobs Summit in 1997 (Kluve et al. 2007). Through the mechanism of "open method of coordination", which relies on voluntary policy implementation by EU member states, activation of labor market policies are supposed to improve social inclusion and contribute to converging labor markets. However, when it comes to the implementation of ALMP, the EU, although supranational, wields only soft power over national politicians (Armingeon 2007). Nevertheless, van Vliet (2010) claims that EU countries converge on active measures as a direct cause of the emphasis on activation in the European Employment Strategy. Armingeon (2007) argues that the EU can be a successful ALMP broker when allowing national politicians to implement labor market policies that are designed to respond to local needs. Further, he theorizes that established EU countries are more likely to implement ALMP, compared to younger members, because ALMPs are complex welfare policies, which require a certain level of functioning welfare institutions. Based on the European Employment Strategy's activation recommendations and Armingeon's (2007) assumption regarding old and new members, the following effects of EU membership are expected.

H6: EU membership has a positive effect on ALMP efforts

H7: Age of EU membership has a positive effect on ALMP efforts

Economic globalization

The literature indicates two competing theories regarding the relationship between social welfare spending and economic globalization: 1) the efficiency hypothesis, and 2) the compensation hypothesis (Dreher et al. 2008). The efficiency hypothesis implies that large

[3] Policy impact of international organizations is not to be confused with direct policy diffusion, which describes policy impact of one country upon another. However, EU membership is only one effect on ALMP alongside processes driven by policy diffusion mechanisms, such as strategic action and spillover effects. For details, see Franzese and Hays (2006).

social expenditures are an impediment to international competitiveness, and that trade liberalization leads to budgetary pressure, which restrains governments' fiscal policies. On the opposite, the compensation hypothesis predicts that globalization may change the preferences and/or needs of the Downsian median voter (see Downs 1957), and consequently the political incentives to expand the welfare budget (Armingeon 2007; Dreher et al. 2008; Leibrecht et al. 2011). Public welfare expansion may be necessary to protect the workforce from the volatilities of an unpredictable world market (Armingeon 2007; Cameron 1978; Katzenstein 1985). Katzenstein (1985) claims that open economies are more willing to use active policies to compensate for open market vulnerabilities. Although they contradict each other, the efficiency and compensation hypotheses may cycle each other, through a mechanism where liberalization leads to greater needs for social protection, whereupon reduced international competitiveness calls for less domestic spending (Dreher et al. 2008). Hence, a hypothesis regarding the general relationship between economic globalization and ALMP is formulated.

H8: Economic globalization has an effect on ALMP efforts

To be more specific with regard to the effect of economic globalization on ALMP, this thesis looks closer at three elements of economic globalization: exposure to trade and international business cycles.

Exposure to trade

> One of the most widely held beliefs about the globalization of markets is that it has substantially decreased the autonomy of the nation-state, resulting in a "race to the bottom" whereby governments competing for mobile economic resources race to dismantle their welfare states (Garrett 1998b: 71-72).

Garrett (1998b) analyzes the mechanisms at work between national governments and the international economy, and argues both theoretically and empirically, that increased exposure to trade is not as constraining on national autonomy as commonly believed. First, trade is believed to compete with the welfare state. Welfare provisions are expensive and need to be financed either by taxes or by borrowing. Higher taxation reduces international competitiveness, and increases the cost of doing business. Borrowing, on the other hand, leads to inflation and higher interest rates, which reduces investment. The theory of reducing taxation and government spending to increase international competitiveness is also known as

"the social race to the bottom" (Castles 2004). Garrett (1998b) and Pierson (1996), however, argue that the welfare state is too popular among OECD countries, that government responses to changes in competitiveness are slow, and that there is no reason to expect swift changes to established domestic institutions. Rodrik (1998) too, disagrees with conventional wisdom and believes in a positive correlation between an economy's exposure to trade and the size of government: "The correlation holds for most measures of government spending, in low- as well as high-income samples, and is robust to the inclusion of a wide range of controls" (Rodrik 1998: 997). He explains the positive relationship with the fact that government spending is risk-reducing when an economy is exposed to external risk. Hence, the "race to the bottom"-theory is rejected. However, Garrett (1998b) acknowledges that globalization correlates with diverging national economic policies, depending on domestic institutions. Especially, political party in power and strength of labor movement are influential on a government's reaction to economic openness. Based on the theories and arguments presented above, three hypotheses are formulated.

H9: Exposure to trade has an effect on ALMP efforts

H10: Exposure to trade given left-wing government has a positive effect on ALMP efforts

H11: Exposure to trade given strong unions has a positive effect on ALMP efforts

International business cycles

Is there a world business cycle? Do international business flows have the same effect on all countries? According to Kose et al. (2003), recent studies have shown that there are common links in macroeconomic fluctuations between countries. "[…] international financial flows have roughly similar effects on similarly situated countries" (Clark et al. 1998: 87). Thus, it is plausible to assume that international business cycles affect OECD countries somewhat similarly, because OECD countries are roughly similar in terms of economic development. Given the above, it is possible to hypothesize how business cycles impact ALMP efforts. Whether the effect is positive or negative follows the logic of efficiency versus compensation explained above (Janoski 1994). Therefore, a two-tailed hypothesis is developed.

H12: International business cycles have an effect on ALMP efforts

Next, it is logical to assume that the effect of international fluctuations is stronger for countries with a more open economy. The following hypothesis is formulated, describing the interaction between business cycles and trade exposure.

H13: The effect of international business cycles on ALMP efforts increases with exposure to trade

3.4 Control variables

In addition to the hypothesized relationships above, there are certain variables that are of less substantial interest in the analysis, but nevertheless need to be controlled for. These are national unemployment, GDP per capita, growth and inflation.

Because ALMPs are developed to improve the labor market and help people back to work (OECD 2010), national unemployment is expected to have a positive effect on ALMP (Armingeon 2007; Janoski 1994). In quantitative studies of ALMP, the unemployment rate is often already accounted for in the operationalization of the ALMP variable (e.g., Armingeon 2007; Scarpetta 1996; van Vliet and Koster 2011). However, in order to distinguish between national and international effects of unemployment, both national and international unemployment rates are added as separate control variables in the empirical analysis. GDP per capita is also included as a control variable because of the expectation that more economically developed countries generally have higher social expenditures and more extensive protection systems (van Vliet and Koster 2011). Therefore a positive relationship between GDP per capita and ALMP is assumed. Further, it is essential to control for national business cycle effects, such as growth and inflation, when modeling ALMP variation (Franzese 2002; Janoski 1994). Janoski (1994) distinguishes between counter- and pro-cyclical theories of government spending. In the counter-cyclical model, governments are expected to tighten the belt during periods of growth, and increase spending during recessions. Pro-cyclical theories indicate the opposite, that slow growth and economic recession constrains governments from spending. Janoski (1994) supports the Keynesian type model due to the fact that ALMP is explicitly formulated as a counter-cyclical policy. Leibrecht et al. (2011) also argue in line with the Keynesian counter-cyclical model, that the need for protection policies like ALMP is lower during periods of high growth. Hence, negative relationships between growth and ALMP, and GDP and ALMP, are expected. The operationalization of ALMP in this analysis enforces these negative relationships. Because

ALMP expenditure is measured as a percentage of GDP, ALMP declines when GDP increases, even if budgets are not cut.

Janoski (1994) argues that inflation should be positively correlated to ALMP, because inflation is an economic problem which spending can correct. However, this is a much too simplistic assumption. High inflation rates reflect the erosion of the purchasing power of money, and by increasing government spending, the supply of money in the economy will increase, and thus the value of money will continue to fall (Cleaver 2004; Steigum 2004). Hence, inflation can have either a positive or a negative effect on ALMP efforts.

Finally, it is worth mentioning four variables that have been included in similar ALMP studies previously, but which are omitted from this analysis due to lack of data, lack of convincing theoretical justification and lack of significant results in previous studies. The omitted variables are national debt[4] (e.g., Leibrecht et al. 2011; van Vliet and Koster 2011), political business cycles (PBC)[5] (e.g., Mechtel and Potrafke 2011), female labor force participation[6] and economic shocks[7] (e.g., Janoski 1994).

[4] National debt rates are often associated with public spending cuts, because they entail higher interest rates, which again constrain a government's economic room to maneuver (Leibrecht et al. 2011; Sanz and Velázquez 2007). On the other hand, debt might lead to increased spending in an attempt to stimulate economic growth (Leibrecht et al. 2011). However, previous analyses (e.g., Leibrecht et al. 2011; van Vliet and Koster 2011) have not found robust effects of debt on public welfare spending.

[5] The theory of PBC (Nordhaus 1975) suggests that incumbent politicians seek votes preceding elections through expansive macroeconomic policy. However. Clark et al. (1998) argue that "existing cross-national examinations of PBC arguments are fundamentally flawed because they fail to consider the constraining influence of institutions, both domestic and international". They find that the open economy combined with cross-national differences in institutional arrangements cause the PBC assumption to break down.

[6] According to Janoski (1994), variation in female labor force participation strongly influences governments' ALMP expenditures. "ALMP should increase because employed men want insurance against competition in the labor market, and women want fairness at work and access to jobs" (Janoski 1994: 59). This argument rests on the assumption that men and women have essentially different preferences just because they differ in gender. This is a prejudicial, sexist and far-fetched assumption. Janoski (1994) also fails to present any direct significant evidence of a relationship between female labor market participation and ALMP.

[7] A sudden negative shock might cause increased unemployment, which leads to a rise in ALMP expenditures. However, Janoski (1994) finds only weak effects of the first (1973) and second (1979) oil price shocks in West-Germany, Sweden and the USA. Also, ALMP is like other policies of its type, a case of political inertia, meaning changes do not happen abrupt and suddenly (Armingeon 2007; Pierson 2004). For these reasons, this analysis does not take oil price shocks or other shocks to the economy into account.

3.5 Summary

The third chapter has provided an overview of the theoretical expectations to a range of determinants of ALMP, and hypotheses have been developed. First, spatial policy diffusion of ALMP was defined, a distinction was drawn between direct and indirect diffusion, and the various mechanisms through which diffusion processes operate were discussed with relevance to ALMP. Second, theory of the domestic determinants of ALMP left-wing government, corporatism and social democratic welfare state was presented. The third part of the chapter discussed theoretical expectations to international variables, more specifically the EU, economic globalization, exposure to trade and international business cycles. Finally, various control variables and omitted variables were mentioned.

4.0 Methodology

This study takes a quantitative approach to determining the degree of spatial dependence in ALMP, aiming to distinguish between direct and indirect diffusion, and to identify predictors of ALMP variation. The methods chapter has the following structure: First, the principles of spatial regression analysis are presented, which include explaining how weight matrices are defined, how Moran's I statistics are used, as well as the idea behind the international ALMP variable. In the second part of the chapter, the method of multilevel regression is presented, the choice of estimation strategy is explained, and parameters for evaluating model goodness-of-fit are discussed. Finally, the method for testing and interpreting interactive hypotheses is described, before a quick summary of the chapter is provided.

4.1 Spatial analysis

Quantitative spatial analysis is a method, which allows social science researchers to test and model Tobler's first law of geography, which predicts that near things are more related than distant things (Tobler 1970: 235). This section explains the quantitative method of spatial analysis, describes various ways in which spatial dependence can be detected, and distinguishes between spatial lag and spatial error regression models.

Statistical modeling of spatial diffusion processes in the social sciences was up until the last couple of decades restricted to geography; some fields of econometrics, such as urban and environmental studies; and sociological network studies (Franzese and Hays 2008). However, statistical spatial analysis is becoming a growing field of interest within political science (Ward and Gleditsch 2008), with special attention directed toward intergovernmental diffusion of policy and institutions (Franzese and Hays 2008). Nevertheless, most researchers of political science still have a tendency to ignore the spatial effect, or treat it as a nuisance (Ward and Gleditsch 2008).

> Ignoring these dependencies imposes a substantial price on our ability to generate meaningful inferences about the processes we study. Spatial analysis provides one way of reducing that price and taking advantage of the information we have about how social processes are interconnected. (Ward and Gleditsch 2008: 3)

By overlooking spatial dependencies in the data, empirical analyses also tend to overestimate the effects of non-spatial predictors, thus favoring theories of variables not sensitive to the

spatial effects (Franzese and Hays 2008). In this thesis the spatial analysis will be conducted by first observing the level of spatial correlation in ALMP and independent variables, using Moran's I statistics. Second, cross-section spatial regression models are fitted. Third, a multilevel panel model will be estimated to examine the effects of domestic, international, economic and political determinants of ALMP. Finally, the residuals of the multilevel model will be tested for spatial correlation. In theory, it is possible to fit a spatial lag model using panel data. However, estimating models with both temporal and spatial dependencies is challenging[8] (Ward and Gleditsch 2008: 86). Hence, the spatial panel data is avoided in this thesis, to simplify estimation procedures, to exploit all available information in the panel data, and to distinguish the spatial from the temporal correlations.

Among several types of spatial regression models, the two most common are the spatially lagged dependent variable model and the spatial error model (Ward and Gleditsch 2008). In this analysis, both types of models will be applied to distinguish between direct and indirect diffusion. The first spatial regression model is a model where values on the dependent variable directly affect values on the dependent variable of neighboring countries (Ward and Gleditsch 2008). In the case of ALMP, this would theoretically mean that ALMP efforts in Denmark directly affect ALMP efforts in Germany, given that Denmark and Germany are defined as "neighbors". Considering theories of policy diffusion, the spatially lagged dependent variable model is suited to test the theory of direct policy diffusion, also known as policy interdependence. The second type of spatial regression model is the spatial error model, where the spatial dependency is in the errors, instead of in the outcome variable. This model is suitable if one does not assume direct interdependence on the dependent variable between neighbors. In the spatial error model, spatial dependency is often viewed as a nuisance, comparable to how serial correlation is typically treated: as an estimation problem (Ward and Gleditsch 2008: 65). However, spatial error models can provide valuable information, namely that some unspecified factors or contexts are causing a pattern of spatial

[8] One way of modeling both dependencies is to add a temporally lagged dependent variable, which, however, seriously complicates the residual error structures. According to Beck et al. (2006), so far no one has come up with a good enough estimator for the spatial panel model. If one can justify the assumption that first-order spatial effects enter with a one period time lag, the model can be estimated using OLS (Ward and Gleditsch 2008). The con of this model is that the temporal lag is likely to suck up the effect of the spatial lag. This is because a lagged dependent variable will already account for any prior spatial effects. Thus the spatial effect, which may be strong in the absence of a temporal lag, will seem marginal when the temporally lagged dependent variable is present (Beck et al. 2006).

dependence in the errors. It can in other words confirm or reject theories of indirect diffusion. What it cannot do is explain why the spatial dependency exists. Both types of models require a definition of distance between units, which is specified in the model through the inclusion of a *weight matrix* (Drukker 2009).

Weight matrices

To be able to model ALMP diffusion across countries, it is necessary to define the relationship between countries. A weight or connectivity matrix is an *N*x*N* matrix, which defines the structure of dependence between the observed units (Beck et al. 2006). In this case *N* is the number of countries included in the analysis. The weight matrix is not estimated, but known to the researcher and units are by convention not related to themselves, which means that the matrix diagonal will always be zero (Beck et al. 2006). It is common to row-normalize the weight matrix (Ward and Gleditsch 2008). If the matrix is binary, each row sums to one, so that "…the net effect of connected observations is the same for all observations and that each individual neighbor has a relative weight proportional to one over the total number of connected observations" (Beck et al. 2006: 29). If the matrix is non-binary, each connection is divided by the row sum, to give the individual neighbor weight relative to total weight of neighbors.

This analysis uses two different spatial weight matrices. The first is based on bilateral trade, and the second is a binary (0/1) matrix based on shared country borders. Both matrices are row-normalized. The binary shared-border matrix assigns equal weight to all neighbors, while the trade matrix puts heavier weight on larger trading partners proportional to a country's total trade (Beck et al. 2006: 33).

Moran's I

Moran's I is a measure of spatial correlation between units on a specific variable. -1 indicates negative dependence, 0 a random dispersion (independence), and +1 positive spatial dependency (Haining 2003: 75-80). The Moran's I is calculated by cross-multiplying "a measure of spatial proximity with a measure of the similarity of values on some particular attribute" (Ward and Gleditsch 2008: 14), where spatial proximity is defined by a weight matrix. Moran's I is useful in detecting direct spatial diffusion in a single variable, and even more useful as a diagnostic tool. By estimating Moran's I for the residuals of a model including a spatially dependent y variable, it is possible to determine if independent variables

can account for the spatial dependence in y, and how much remains to be explained (Ward and Gleditsch 2008). As part of the spatial analysis of ALMP, Moran's I statistics are estimated for all relevant variables, as well as for the residuals of the final multilevel model. If a significant Moran's I is found for the dependent variable, but not in the residuals, the panel model has successfully explained all spatial dependence in the outcome variable. If this is the case, the Moran's I values of the independent variables can indicate the variables causing spatial diffusion.

Policy variable: International ALMP efforts

Because the spatial regression models and the Moran's I statistics are estimated using cross-section data, and not the full panel data, there is a huge amount of information not being exploited. In order to test spatial dependency using all available data, a policy variable is included as an independent variable in the multilevel regression model. The policy variable is a measure of the average ALMP spending of all foreign countries. In practice this means that for e.g., Germany, the international ALMP value in a given year will be the aggregated average of the ALMP efforts of all other countries in the data set, excluding Germany's own efforts. A Wald test of this variable's coefficient will show whether international ALMP levels significantly influence domestic ALMP levels. Note that this variable only measures external policy influence – insensitive to specific dependence structures.

4.2 Panel data as multilevel: Years nested within countries

In addition to testing hypotheses on spatial policy diffusion of ALMP, this thesis aims to identify determinants of variation in ALMP. For this purpose a multilevel random effects (RE) model estimated by maximum likelihood is applied to panel data. The structure of the data is interpreted as two-level with annual observations nested in countries (Hox 2010: 98). The multilevel model with random intercepts and slopes, including a cross-level interaction, is given by the following set of equations:

$$\text{Level 1: } Y_{ij} = \beta_{0j} + \beta_{1j} X_j + e_{ij}$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + \gamma_{01} Z_j + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} Z_j + u_{1j}$$

The first level equation looks like a normal OLS model, however, the subscripts *i* and *j* indicate the multilevel structure, where *i* represents annual observations (level one) and *j*

represents countries (level two). A separate level-one model is estimated for every country, which are combined in the multilevel model. The β_{0j} term shows that the average ALMP effort is different from country to country, while β_{1j} shows that the effects of independent variables vary across countries (Luke 2004: 10). When combining the first and second level equations, the multilevel model equation is given by:

$$Y_{ij} = \gamma_{00} + \gamma_{10}X_{ij} + \gamma_{01}Z_j + \gamma_{11}Z_jX_{ij} + u_{1j}X_{ij} + u_{0j} + e_{ij}$$

γ_{00} is the value of the level-one dependent variable ALMP, when all explanatory variables are zero. The term $\gamma_{10}X_{ij}$ represents the time-varying level-one variables, and $\gamma_{01}Z_j$ the time-invariant level-two variable. $\gamma_{11}Z_jX_{ij}$ is the cross-level interaction term, and $u_{1j}X_{ij}$ is the country-level residuals of the random slopes. A multilevel model will always have one residual term for each level. u_{0j} is the country-level residual term and e_{ij} is the residual term for annual observations (Hox 2010; Luke 2004: 10-14).

Maximum likelihood is the typical method when estimating multilevel regressions (Hox 2010: 257). Maximum likelihood estimation is an iterative procedure, which maximizes the probability of the model parameters given the data observed (Hox 2010: 40). In large samples, statisticians prefer maximum likelihood estimation over other methods for three reasons: 1) estimates are unbiased and consistent; 2) sampling distributions are almost normally distributed; and 3) estimates are efficient, meaning that standard errors are generally smaller than those of estimates produced by other methods (Singer and Willett 2003: 65). For these reasons, maximum likelihood estimates are relatively robust, even in cases where model assumptions do not always hold (Hox 2010: 40). The RE multilevel model approach to panel data is advantageous to simple OLS for several reasons. First, the RE model allows for inclusion of both time-varying (within-country effects) and time-constant variables (between-country effects). In a fixed effects (FE) model this would not be possible, because the fixed effects control for all between-country variation. Second, the RE method allows for modeling both random intercepts and random slopes, which can reflect that effects differ in both level and strength respectively, between countries (Allison 2009). Third, random models are better equipped to handle data sets with missing data (Hox 2010: 98-99). Fourth, multilevel models can handle unbalanced panels (Hox 2010: 79). The data set used in this analysis includes some former USSR satellite states, which lack data before 1990/1991. Fifth, by using a

multilevel approach to panel data, one does not have to assume that observations within countries are independent and can take advantage of all available information. Therefore one avoids running the risk of modeling observations that duplicate each other, giving the impression that the number of observations is larger than what is actually true (Steenbergen and Jones 2002: 219). Simple OLS estimation would violate the assumption of independent residuals and result in too small standard errors (Luke 2004: 21-23).

Building the multilevel model

The multilevel models are built after the bottom-up principle. This is the typical approach (Luke 2004) and implies starting with the simplest model, the intercept-only model, progressively adding variables, while continuously watching standard errors, p-values and residual variances at the distinct levels. The bottom-up approach is the opposite of starting out with a maximum number of parameters, which are stripped down to the model of best fit (Hox 2010: 56). The advantages of the bottom-up procedure is that one avoids computational difficulties due to complex and oversized models, and it is easier to stick to the principle of parsimony (Luke 2004). Because fixed parameters are usually more precise than random parameters (Hox 2010: 56), the fixed effects are added first, followed by random components. In the estimation process the following logic and order is exercised. First, the null model is estimated, including only the dependent variable. Second, domestic time-varying (level one) variables are added. Third, international time-varying variables are added. Fourth, time-invariant determinants (level two) are added. Coefficients that prove to be insignificant are excluded successively. Fifth, interaction terms are added to test the conditional hypotheses H4, H10, H11 and H13. Sixth, the effects of various random slopes are tested on a one-by-one basis. In the final model, cross-level interaction effects are added.

All models include 527 observations and 29 countries. By keeping the number of observations and groups constant the models are more easily comparable (Hox 2010: 50). To evaluate goodness-of-fit and to compare models, both deviance (Luke 2004: 34) (for nested models) and information criteria (Singer and Willett 2003) (for non-nested models) are used.

All models are estimated with robust standard errors to control for homoscedasticity (Hox 2010: 260-61), and a first-order autoregressive residuals structure to control for autocorrelation (Rabe-Hesketh and Skrondal 2008). In a first-order autoregressive model, the residuals of year t are regressed on the residuals of the previous year t-1 (Rabe-Hesketh and

Skrondal 2012: 308). In models with a fixed intercept, the correlations between the residuals will approach zero as time-lags increase (Rabe-Hesketh and Skrondal 2012: 309). However, in the case of ALMP, unobserved country specific characteristics are expected to affect the dependent variable, therefore intercepts are allowed to vary between countries in all multilevel models of the analysis. This produces a random intercepts model with first-order autoregressive level-one residuals, where correlations between residuals at various lags are not expected to approach zero, no matter how large the lags become (Rabe-Hesketh and Skrondal 2012: 316-17).

Goodness-of-fit and model comparison

The typical R^2-value for evaluating goodness-of-fit of a model is complicated and not very useful in comparing multilevel models. First, the R^2 value is distinct for every level in the model; second, adding variables to the model may result in lower, or even negative, values of R^2; and third, it is not possible to interpret R^2 as a proportion of explained variance, like it is done in a typical OLS regression (Luke 2004). There are meaningful ways to calculate interpretable R^2 results for every level (Rabe-Hesketh and Skrondal 2008: 103; Snijders and Bosker 1999). This thesis, however, will stick to two alternatives, which are more straightforward than, and just as good as, R^2: deviance and information criteria. The goodness-of-fit of multilevel maximum likelihood models is best evaluated using likelihood statistics. Deviance (-2*log-likelihood) is a measure of how good a model fits the data; the smaller the deviance, the better the model (Luke 2004; Rabe-Hesketh and Skrondal 2012: 323). The deviance cannot be interpreted alone, but can be used to compare nested models (Cameron and Trivedi 2010: 359). The formal likelihood-ratio test (LR-test), which is a significance test of the change in deviance between two nested models, is especially useful in determining the significance of random variance components (Hox 2010: 48; Rabe-Hesketh and Skrondal 2008). However, the disadvantage of the deviance statistic is that it will decrease as parameters are added to the model. Hence, it will favor more complex models, and therefore violates the principle of parsimony (Luke 2004: 34; Rabe-Hesketh and Skrondal 2012: 323). To make up for the disadvantages of the deviance statistic, Akaike Information Criterion (AIC) (Akaike 1998) and the Bayesian Information Criterion (BIC) (Schwarz 1978) are useful. Information criterion statistics are based on the log-likelihood (LL) parameter but decreases the LL statistics through respective penalties. The AIC penalty is based upon the number of parameters in the model ($-2\ln L+2k$, where k is number of parameters), and the BIC

penalty is even stricter and takes sample size into account, in addition to the number of parameters ($-2\ln L+k\ln N$, where N is sample size) (Cameron and Trivedi 2010: 359). Both AIC and BIC require the use of exactly the same dataset (Singer and Willett 2003: 120-22). AIC and BIC can also be used to compare non-nested models (Cameron and Trivedi 2010: 359; Luke 2004).

A second test to compare non-nested models is the Davidson-MacKinnon test, also known as the J-test (Davidson and MacKinnon 1981). This test is used to answer research questions *2. Which factors are more important in explaining ALMP, domestic or international?*; and *3. Do economic factors matter more than political factors in explaining ALMP variation?* The J-test compares two non-nested models by including the fitted values of the first model as a coefficient in the second model, and vice versa. If the fitted values provide an improvement to either model, it does not include the right set of predictors. Following the multilevel model estimations, another four multilevel models will be fitted: 1) domestic variables only; 2) international variables only; 3) political variables only; and 4) economic variables only. The domestic model will include the fitted values of the international model, and vice versa; the political model will include the fitted values of the economic model, and vice versa. The coefficients and t-tests of the fitted values in the four models will be analyzed to determine the relative strength of the variable groups.

Modeling interactive hypotheses

Several of the hypotheses formulated in chapter three are conditional hypotheses, which means that they describe relationships between X and Y, where the effect of X depends on the values of a third variable Z (Kam and Franzese 2007). According to Brambor et al. (2006: 64), "analysts should include interaction terms whenever they have conditional hypotheses". Therefore, interaction terms are used to test the following hypotheses:

H4: Left-wing government given corporatism has a positive effect on ALMP efforts
H10: Exposure to trade given left-wing government has a positive effect on ALMP efforts
H11: Exposure to trade given strong unions has a positive effect on ALMP efforts
H13: The effect of international business cycles on ALMP efforts increases with exposure to trade

When including an interaction term, XZ, in a regression model it is important to also include both constitutive variables, X and Z, even if these are not significant. Failure to do so may result in biased estimates (Brambor et al. 2006). The coefficients of the constitutive variables are not to be interpreted as direct, unconditional or main effects (Brambor et al. 2006; Kam and Franzese 2007: 20). The constitutive terms show only the effect of a one-unit change in X on Y when Z is zero, and vice versa. These coefficients make no meaningful sense when X=0 or Z=0 are unobserved in the sample. The only way to test the unconditional effect of X and Z on Y is to run a model without the interaction term (Brambor et al. 2006: 72). However, it makes little sense to analyze the unconditional effect of a variable, if the same variable is part of a conditional hypothesis (Brambor et al. 2006: 73). This is because if an interaction effect is found to be significant and to contribute toward a better model fit, then a model without the interaction will be a misspecification of the relationships between X, Z and Y. To make substantively meaningful sense of an interaction term and its constitutive variables, it is necessary to calculate marginal effects of the independent variables, and to show the uncertainties to which they are calculated (Brambor et al. 2006). In the multilevel analysis of ALMP, marginal effects and confidence intervals are calculated and displayed graphically for both intra-level and cross-level interactions.

4.3 Summary

Chapter four has discussed the method used in the empirical analysis. First, the principles of spatial regression analysis were explained, including the idea behind weight matrices, Moran's I statistics, and the intention behind the policy variable. The second part of this chapter explained multilevel regression analysis, presented the model estimation strategy, discussed various model statistics for evaluating goodness-of-fit, and provided a quick explanation of how interaction terms are interpreted.

5.0 Data and variables

An overview of the data in the analysis is useful to understand the scope of the study and to demonstrate that variables correspond to theory. The data chapter explains how the dependent and independent variables are operationalized, provides selected descriptive statistics and goes through the principles of the weight matrices.

5.1 Data overview

The analysis uses panel data of 29 OECD countries[9] over a 26-year period between 1985 and 2010. There are some missing values[10], for example pre-1991 for the former USSR satellite states. However, balanced panels are not a requirement in multilevel random effects models (Allison 2009). All multilevel models are estimated using the exact same data set. In the calculations of Moran's I values, and in the spatial regression models, cross-section data is used. Then, the panel data is collapsed to produce a cross-sectional data set reflecting the average of the total time period. The time period from 1985 to 2010 is chosen not only because of data availability. It was in the mid-1980s when ALMP first became popular outside the Nordic countries, and most OECD countries have since increased spending on active labor market measures (Shin 2000).

The selection of cases is limited to OECD members by the availability of ALMP data. The OECD has collected active labor market policy data, on a range of different programs, since 1985 for member countries (Grubb and Puymoyen 2008). Limiting the scope of comparison to advanced industrialized countries also limits diversity (Ebbinghaus 1998). All countries are advanced economies and participate on global markets.

To ensure accuracy of estimates of the variance components, a sufficient number of clusters are necessary. For multilevel models with random effects Rabe-Hesketh and Skrondal (2008:

[9] Australia, Austria, Belgium, Canada, Czech Republic, Chile, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, UK and USA.

[10] Multiple imputations (MI) (Rubin 2004) is an option for dealing with missing values. This is a procedure, which simulates a range of plausible values for each missing value. MI is not used in this analysis because it would complicate an already complex estimation procedure, and because multilevel models are well-equipped to handle missing values (Allison 2009).

62) recommend "typically more than 10-20". The multilevel regressions in this analysis, includes 29 countries, which meets the recommended threshold with a comfortable margin.

5.2 Variable operationalization

The data set used in the analysis is compiled using a number of different sources and databases. Table 2 below provides the complete overview of the variables, how they are operationalized, their sources and expected effects.

Table 2. Variable operationalization, sources and expectations

Variable	Operationalization	Source	Expectation
almp	Active labor market policy expenditures, % GDP	OECD	Endogenous
leftgov	Chief executive or party orientation: left, dummy	Database of political institutions	+
uniondens	Wage earning union members of total wage earners, %	OECD	+
socdemws	Social democratic welfare state, dummy	Esping-Andersen, 1990	+/-
eu	EU membership, dummy	EU	+
euage	Age of EU membership, number of years since entry	EU	+
trade	Trade, % of GDP	World Bank	+/-
gdpintl	International mean GDP/cap minus country GDP/cap, constant 2000 USD	World Bank	+/-
almpintl	International average ALMP/GDP minus country specific ALMP	OECD	+/-
unempintl	International average unemployment	World Bank	+
$unemp_{t-1}$	Unemployment, % of total labor force	World Bank	+
gdpcap	GDP per capita, constant 200 USD	World Bank	+
growth	GDP growth, annual %	World Bank	-
inflation	GDP deflator, annual %	World Bank	+/-

Dependent variable

The dependent variable, active labor market policies, is measured as government expenditures in percent of GDP (Grubb and Puymoyen 2008). This is the most common measure of ALMP (van Vliet and Koster 2011). There are other measures of ALMP, such as number of participants in the various programs, but data is limited. There are two reasons for operationalizing ALMP as spending in percent of GDP. The first advantage is that it corresponds to economic explanatory variables, and eases interpretation of the results. The

second reason is that the main interest of this study is to examine policy-making in terms of factors that lead politicians to say yes or no to ALMP; factors that lead politicians to allocate money for activation purposes. This study is not concerned with how successful programs have been in engaging and involving the unemployed. A few previous quantitative studies of ALMP have calculated ALMP as a function of the general unemployment rate, arguing that the need for ALMP is proportional to the number of unemployed people (Armingeon 2007; Scarpetta 1996; van Vliet 2010). Several scholars have used ALMP as a function of total LMP efforts, including passive labor market policies, i.e., unemployment benefits and early retirement transfers (Armingeon 2007; Kemmerling 2006; van Vliet and Koster 2011). The argument for taking passive labor market policies into account, when analyzing variation in active policies, is that two countries may spend just as much on labor market policies in total, but while one country puts heavy emphasis on activation, the other may rely almost exclusively on passive transfers (Armingeon 2007). In the following analysis, ALMP is measured as a share of GDP, without taking unemployment or passive labor market policies into account. When unemployment is included in the dependent variable, one has to assume that the influence of unemployment is constant over time and across countries, and it is impossible to examine the actual effect of unemployment. Instead unemployment is controlled for by including independent variables of national and international unemployment. Passive labor market policies are not considered, simply because total LMP efforts and the ratio between active and passive measures are of no interest in this thesis.

Data on the dependent variable ALMP is collected from OECD's statistics database (OECD.Stat 2011). The time-series is a combination of both OECD statistics and data collected by Eurostat. OECD collected consistent data for member countries on labor market programs both for expenditures and number of participants, between 1985 and 2002. In 1998 Eurostat started collecting the same data for Eurostat countries, but following a somewhat different classification system. After a while OECD adopted the Eurostat system, which avoids the double collection of data for the common OECD and Eurostat countries. To allow long time series analysis of data from both regimes, statisticians at OECD performed a

complex procedure resulting in comparable values running from 1985 to current data[11] (Grubb and Puymoyen 2008).

Independent variables

Left-wing government

To test the effect of ideology, a dummy variable for left-wing government is included. The variable has the value one for chief executives or major government parties that are defined as communist, socialist, social democratic or left-wing, and the value zero for all other parties (Keefer 2012).

Trade union density

The effect of corporatism is operationalized as trade union density, which is the ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners (OECD *Labour Force Statistics).* The variable is calculated using survey data, wherever possible, and administrative data adjusted for non-active and self-employed members otherwise (OECD.Stat 2010). Trade union density is only one measure of corporatism, others include degree of centralized bargaining, right to strike, number of effective unions, among many others (Kenworthy 2000; Visser 2011). Kenworthy (2000) distinguishes between indicators of centralization and concentration. When choosing which measurement to use, Kenworthy (2000) recommends selecting the one most appropriate to test theory and hypothesis. Union density is an indicator of concentration, and it is chosen because it is the best measure to test Rueda's insider-outsider model described in 3.2. The insider-outsider model concerns first and foremost the relationship between the unions and their members, and the preferences of the unions. The relationship between the unions and the organizations of employers is of less importance (Rueda 2006).

Social democratic welfare state

Social democratic welfare state is a dummy variable corresponding to Esping-Andersen's (1990) classification of welfare state types. Countries classified as social democratic welfare states have the value one, all others have the value zero. The variable is time-invariant – no countries change to or from the social democratic welfare type throughout the time period

[11] The procedure is thoroughly documented in the working paper "Long time series for public expenditures on labour market programmes" (Grubb and Puymoyen 2008).

1985-2010. The countries in the sample defined as social democratic welfare states are Denmark, Finland, Norway and Sweden – the Nordic countries – which implies that the variable is spatially clustered.

European Union

The effect of the European Union on ALMP is measured by two variables. The first is a dummy variable with the value one for EU members and zero for non-members. The second is an integer trend variable, which starts with the value one in the year of EU entry, and increases with one unit for every year of membership. E.g., Denmark who became a member in 1973 has the value 23 in the year 1995. Non-members have the value zero. The trend variable is supposed to capture the difference in the effect of the EU between young and old members, in order to test Armingeon's (2007) theory that EU pressure to activate labor market policies will have a stronger effect among older EU members.

Trade

Trade is the sum of exports and imports of goods and services measured as a share of GDP (World Bank 2013b). The trade volume in relation to GDP is an indicator of how important trade is to a country's economy. The more a country is exposed to trade, the more open its economy, and the more vulnerable it is to fluctuations in the international economy.

International business cycles

According to Madhani (2010: 181), "the business cycle is the upward and downward movements of levels of GDP". To measure the effect of international business cycles, GDP per capita data (World Bank 2013a) is recoded into an international GDP variable. Annual means across all countries in the sample are calculated, excluding country wise GDP per capita. I.e., values for Australia do not include Australian GDP per capita, values for Austria exclude Austrian GDP per capita. This calculation method is used to isolate the domestic effect from the international effect[12]. For a definition of what is included in the GDP term, see the variable description for GDP per capita below. The GDP data are in constant 2000 U.S. dollars.

[12] The same argument applies to the calculation of international ALMP and international unemployment.

International ALMP

The intention behind the international ALMP variable is to test if international levels of ALMP influence domestic policy makers. The variable is recoded from the dependent variable, calculating annual means for all foreign countries. This implies that for example for Japan, the international ALMP values do not involve Japanese ALMP values. The variable can be considered a policy diffusion variable, because it captures the influence of other countries' policies on domestic policies. However, the international ALMP variable does not distinguish between neighbors or structures of dependence among neighboring countries. It simply reflects the average of all foreign countries' ALMP in the sample.

Unemployment

Two variables of unemployment are used in the analysis: domestic and international. The data is collected from the International Labour Organization, but made available by the World Bank (2011b). Unemployment is measured as the share of the labor force, which is without work, but seeking work. The domestic unemployment variable is lagged with one year, because it is expected that governments are unable to react immediately to sudden changes in unemployment. The international unemployment variable is recoded using the domestic unemployment variable, calculating mean values across countries for every year, not including country specific unemployment. In other words, the variable measures the average unemployment rate between all foreign countries of a given country.

GDP per capita

For the GDP per capita variable, the gross domestic product is divided by midyear population. GDP is the total gross value contributed by all resident producers in the economy in addition to any product taxes minus subsidies not included in the value of the products. No deductions are made for depreciation of fabricated assets or for depletion and degradation of natural resources. The variable is measured in constant 2000 U.S. dollars (World Bank 2013a).

Growth

The growth variable is the annual percentage growth of GDP at market prices based on constant local currency. The GDP values are calculated just like GDP per capita above (World Bank 2012).

Inflation

The inflation variable is operationalized as annual growth in the GDP deflator. It is the rate of price change in the economy as a whole. The GDP deflator is the ratio of GDP in current local currency to GDP in constant local currency (World Bank 2011a). Another measure of inflation is the annual growth of consumer prices compared to a fixed average. The GDP deflator is chosen because the data availability is better. However, the two measures are in tandem.

5.3 Descriptive statistics

Table 3 below displays descriptive statistics of the dependent and independent variables. A brief run through of the descriptive statistics will ease the interpretation of the coefficients in the spatial and multilevel regression models. N in the last column shows the total number of non-missing observations of the variables, n indicates the number of countries for which there are non-missing values, and T-bar is the, per country, average number of years for which there are valid values. The dependent variable ALMP has an overall mean of 0.68, which means that the average share of GDP directed toward ALMP in a given country in a given year is seven percent. The standard deviation (SD) is 0.49, and the values range between 0.01 (Mexico in 2006/2007) and 3.04 (Sweden in 1992). The variation in ALMP is greater between countries, than over time within the same country, which is shown by the standard deviations of 0.44 and 0.21, respectively. This corresponds to theories of path dependence, which hypothesize that policies (and institutions) are phenomena that change and evolve slowly over time, because political decisions depend on, and are restrained by, previous decisions (Pierson 2004). The fact that ALMP is path dependent also implies that it fulfills the assumption of stationarity. A stationary process is one of which statistical properties do not change over time – its mean and variation are constant (Nason 2006).

Table 3. Descriptive statistics

Variable		Mean	SD	Min	Max	N/n/T-bar
almp	overall	0.683	0.493	0.010	3.040	614
	between		0.441	0.020	1.805	29
	within		0.213	-0.282	1.918	21.17
leftgov	overall	0.460	0.499	0	1	718
	between		0.275	0	1	29
	within		0.425	-0.387	1.380	24.76
uniondens	overall	34.197	19.652	7.576	83.890	671
	between		18.412	9.176	78.419	29
	within		5.623	18.079	65.088	23.14
socdemws	overall	0.138	0.345	0	1	754
	between		0.351	0	1	29
	within		0	0.138	0.138	26
eu	overall	0.521	0.500	0	1	754
	between		0.442	0	1	29
	within		0.247	-0.440	1.252	26
euage	overall	14.451	18.915	0	59.000	754
	between		18.492	0	46.500	29
	within		5.212	1.951	26.951	26
trade	overall	79.205	47.298	15.924	319.554	737
	between		44.658	21.865	237.797	29
	within		17.069	12.278	160.962	25
gdpintl	overall	18510	2661	14120	23382	754
	between		376	17681	19042	29
	within		2635	14555	22903	26
almpintl	overall	0.694	0.093	0.489	0.909	754
	between		0.022	0.636	0.719	29
	within		0.091	0.501	0.897	26
unempintl	overall	7.492	0.840	5.618	9.218	754
	between		0.116	7.114	7.652	29
	within		0.833	5.688	9.117	26
$unemp_{t-1}$	overall	7.437	3.927	1.500	23.900	676
	between		3.297	3.012	16.272	29
	within		2.305	-0.535	15.065	23
gdpcap	overall	18558	10581	2413	56285	739
	between		10174	4458	41107	29
	witihn		3559	1032	33737	26
growth	overall	2.647	3.002	-14.574	12.278	720
	between		1.118	1.015	6.103	29
	within		2.787	-14.358	10.710	25
inflation	overall	5.816	12.710	-6.382	208.175	720
	between		6.304	-0.153	26.707	29
	within		11.172	-18.733	190.509	24.83

Social democratic welfare state is the only variable with zero within-variation, and therefore the only time-invariant variable. The social democratic welfare state dummy variable has a mean of 0.14, indicating that 14 percent of the countries in the data set are social democratic welfare states. All other variables vary over time, to a greater or lesser extent. In addition to social democratic welfare state, two dummy variables are included in the analysis: left-wing government and EU membership. All other variables are on a metric level. Forty-six percent

of the observations in the sample are governments with left-wing executives. Fifty-two percent of the observations represent EU member countries. The variable union density has an overall mean of 34.2, and a standard deviation of 19.7. The minimum and maximum values range between 7.6 and 83.9. Given that union density is a percentage measure of the share of wage earning union members of total wage earners, there is considerable variation in the variable. However, a large part of the variation is between countries (SD=18.4), not within countries (SD=5.6). This tells us that union density is almost time-constant, and therefore better able to explain between-country variation, than within-country variation. The same can be said about the trend variable age of EU membership, which counts the number of years a country has been a member of the EU. The standard deviation of EU membership age between countries is 18.5, and within countries it is 5.2. Although the variable increases with one unit every year for EU members, the greatest variation is between countries, not within. Social democratic welfare state is the only variable which is completely time-constant, but both union density and EU membership age can be interpreted as close to time-invariant. Trade, too, has more between-variation than within-variation, indicated by the standard deviations of 44.7 and 17.1. The lowest trade value 16 percent of GDP (Japan in 1993) and the maximum value is 320 percent of GDP (Luxembourg in 2007). The variables international GDP, international ALMP, international unemployment, growth and inflation have more variation within countries than between. Table 3 shows descriptive statistics of national unemployment with one year lag, as used in the analysis. The average unemployment is 7.44 percent. The lowest unemployment level observed is 1.5 percent (Luxembourg in 1992), and the highest level observed is 24 percent (Spain in 1995).

5.4 Trade and border weighted matrices

Two weight matrices are used to define the structure of dependence between countries: bilateral trade flows and shared borders. For the bilateral trade matrix, data is collected from the OECD's "Trade in value by partner country" data (OECD.Stat 2012). Import and export values are added to get total trade volume, and the average across the time period 1985-2010 is calculated. In an ideal situation, it would be possible to create 26 matrices with the corresponding bilateral trade values for every year of the period. However, because of missing data, this is not possible. According to the OECD data, some countries export and import to themselves, but in the analysis the diagonal is set to zero, which is common in spatial analyses using spatial weights (Franzese and Hays 2006). The matrix is row-standardized. However, it

is not inversed as commonly done to matrices based on distance. This is because for relationships defined by geographic distance between two regions, the smaller the distance is, the closer the relationship between them. Therefore, distance matrices are inversed to ease interpretation. When using trade, the relationship is the opposite: the higher the trade volume, the tighter the relationship between two countries. Thus, it is not necessary to inverse the matrix. The binary border matrix is coded relying on The World Factbook (CIA 2013-14). No country is considered neighboring itself (diagonal of zero) and countries with no neighbors are deleted from the analysis. Borders of the included countries are considered constant over the time period between 1985 and 2010.

6.0 Empirical analysis

The thesis set out to identify the most influential constraints to the autonomy of ALMP decision-making, by taking a holistic approach to four broad categories of ALMP determinants: international political, international economic, domestic political and domestic economic. An important part of the analysis is to test the effect of policy diffusion, within the international political category of determinants. Therefore, the empirical analysis starts out by estimating Moran's I values for relevant independent variables followed by spatial regression models. This is to find out if the values on the dependent variable are spatially clustered, and if spatial regression models are suited to model policy diffusion of ALMP. In the second part of the analysis, multilevel model estimations are fitted step by step to identify effects of various determinants of ALMP. Moran's I values are calculated for the residuals of the full multilevel model, to be able to distinguish between direct and indirect diffusion effects of ALMP. Based on the full multilevel model, two sets of comparisons are done in order to decide whether political influences on ALMP are stronger than economic, and whether domestic predictors are more important than international. The final section of the chapter sums up main findings. A discussion of the results is presented in chapter seven.

6.1 Spatial analysis

The spatial part of the analysis aims to identify the degree and type of spatial dependence in ALMP. First, Moran's I estimates of spatial dependence are calculated for the dependent variable and relevant independent variables. Then, spatial lag and spatial error regression models are estimated. Finally, the residuals of the final multilevel model are tested for spatial clustering using Moran's I statistics. The spatial analysis is conducted using cross-section data. The data set is the aggregated average of the 1985-2010 panel data that is used in the later multilevel model.

Moran's I

In Table 4 below, two sets of Moran's I estimates are displayed. In the first column the dependence structure is defined as bilateral trade. Estimates of the second column are based

on the binary shared-border matrix[13]. P-values are based on two-tailed significance tests, because spatial correlations can be both negative (high, low), and positive (high, high; low, low).

Table 4. Moran's I statistics

	Weight: bilateral trade		Weight: shared border	
	Moran's I	P-value	Moran's I	P-value
almp	-0.036	0.990	0.397	0.014
socdem	-0.065	0.556	0.911	0.000
inflation	-0.068	0.514	0.026	0.692
uniondens	-0.081	0.364	0.657	0.000
euage	-0.136	0.048	0.614	0.000
leftgov	0.011	0.356	0.449	0.008
unempintl	0.010	0.366	0.112	0.382
almpintl	-0.041	0.912	0.379	0.020

All p-values are based on two-tailed tests

The Moran's I statistic ranges from -1 to +1, where 0 is random dispersion, +1 is perfect positive spatial correlation, and -1 is perfect negative spatial correlation (Haining 2003: 75-80). The estimates show that when weighted with bilateral trade, all variables have Moran's I values close to zero. The only significant estimate is that of EU membership age (-0.14, p=0.05). In other words, there is no spatial correlation in the dependent variable, or in the majority of the independent variables, when the spatial structure between countries is defined by trade flows. However, spatial correlation is found when proximity is defined by geography, i.e., shared borders. The Moran's I for ALMP is 0.40 with a p-value of 0.01[14], which is a clear indication of a positive spatial pattern in ALMP (Ward and Gleditsch 2008: 36). Figure 1 displays a scatterplot of the spatial correlation in the dependent variable, when weighted with shared borders. The ALMP variable is standardized and plotted against its spatial lag (Ward and Gleditsch 2008: 24-25). As shown by the fitted OLS regression line, countries with low ALMP values have neighbors with low values (low, low), while countries with higher ALMP values, also have neighbors with higher ALMP values (high, high). By

[13] For Moran's I values weighted with shared borders, the countries Greece and Chile are excluded. In the data set, Greece and Chile have no neighbors and therefore represent rows of zeroes in the matrix. This causes trouble when trying to estimate spatial regression models and Moran's I values. According to Ward and Gleditsch (2008: 20), a way of dealing with the non-neighbor problem is to exclude those countries from the analysis.

[14] Test is two-tailed because spatial correlation can be negative, as in the case of Franzese and Hays (2006).

comparing the clustering of observations around the fitted line in the lower left quadrant, to a higher dispersion toward the upper right quadrant, the graph indicates that the positive spatial correlation is stronger for lower values of ALMP.

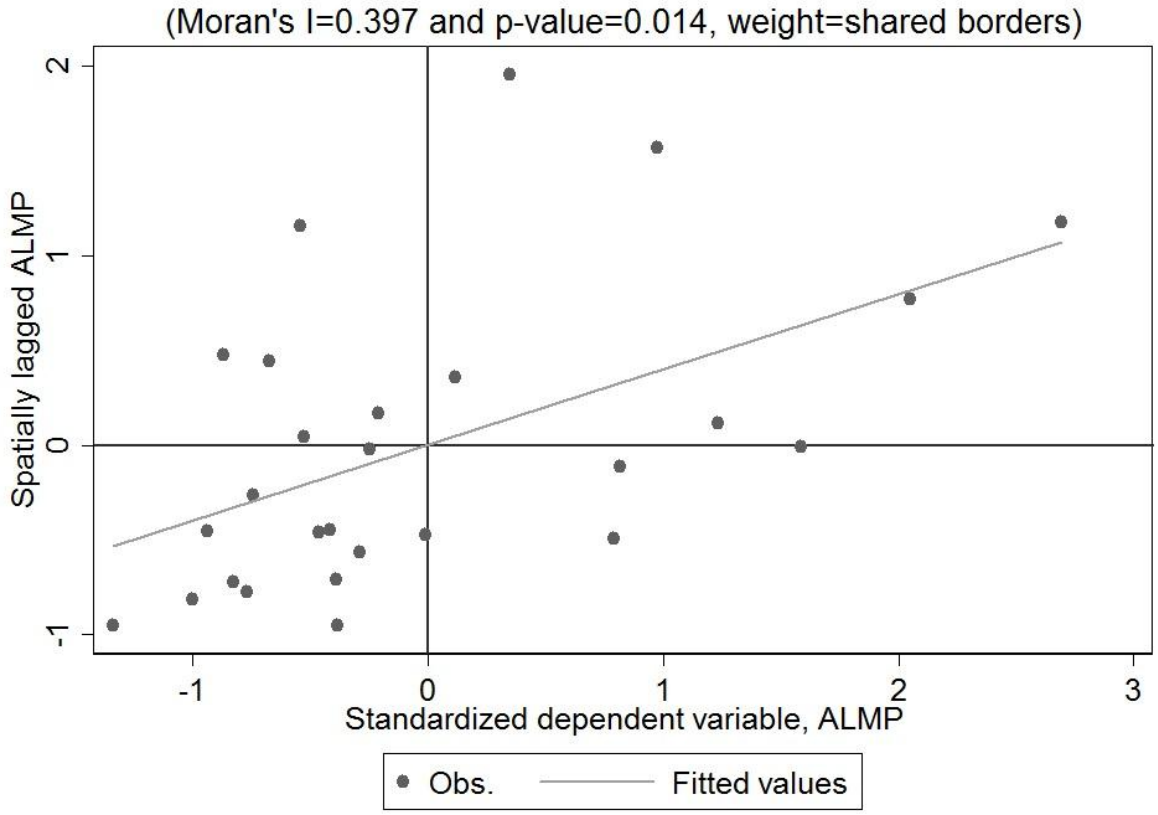

Figure 1. Moran's I scatterplot for standardized dependent variable and its spatial lag

In regression models with ALMP as the dependent variable, the spatial correlation must be accounted for to avoid violating the assumption of independent residuals. Independent variables may be able to control for some of the spatial correlation in the dependent variable (Ward and Gleditsch 2008). As shown in Table 4, there are spatially correlated explanatory variables. All independent variables have positive Moran's I values, but only social democratic welfare state, union density, EU membership age, left-wing government and international ALMP are significant ($p<0.05$). Social democratic welfare state is almost perfectly spatially correlated, with a Moran's I value of 0.91. This is of course due to the fact that all social democratic welfare states are clustered in the Nordic countries. Union density, EU membership age and left-wing government have Moran's I values of 0.66, 0.61 and 0.45, respectively. The spatial correlation of EU membership age is easily explained by the fact that EU members are clustered in Europe, while the sample includes countries from four

continents. There is no intuitive explanation for the spatial clustering of union density and left-wing government. The international ALMP variable, which measures the international ALMP trend minus country specific ALMP effort, is also spatially correlated. This is obvious, since the values on the dependent variable is spatially clustered.

If explanatory variables can account for the spatial correlation in ALMP, it is likely that the spatial pattern is caused by diffusion of common contexts. In other words, that spatial correlation in ALMP is the result of policy-makers choosing the same policies as a response to the same needs (Braun and Gilardi 2006). To find out if this is true, the Moran's I value is calculated for the residuals of the final multilevel model. But before examining if independent variables can account for spatial clustering in ALMP, the analysis proceeds by estimating two types of spatial regression models: spatial lag and spatial error.

Spatial regression

The Moran's I estimates rejected the presence of spatial correlation, when using a weight matrix based on trade flows. The following spatial lag and spatial error models are therefore weighted with the binary border matrix. In the spatial lag model a spatially lagged dependent variable is added to the right side of the model, to control for first-order spatial correlation. The spatial error model is a so-called autoregressive model, which corrects for spatial correlation in the residuals. Those variables that prove significant in the multilevel model (Model 7) are included in the first step, while all non-significant variables are excluded in the second step (Table 5, below).

Judging by the deviance, AIC and BIC statistics of the spatial lag model, the model excluding all non-significant variables (union density, inflation and international unemployment) is a better fit. The coefficient of left-wing government is positive (0.098), with a p-value of 0.07. Hence, left-wing governments have a positive effect on ALMP efforts. A country that changes from non-left to a left government will experience an increase in ALMP efforts of 0.098 percentage points. The effect of social democratic welfare state is also positive and significant, 0.01. Countries changing to a social democratic welfare state will increase ALMP efforts by 0.273 percentage points.

Table 5. Spatial lag model, shared borders

Step 1: Variables of multilevel Model 7				**Step 2: Excluding insignificant variables**			
almp	Coef.	Rob. s.e.	P-value	almp	Coef.	Rob. s.e.	P-value
leftgov	0.071	0.059	0.228	leftgov	0.098	0.054	0.068
socdemws	0.255	0.087	0.003	socdemws	0.273	0.075	0.000
uniondens	0.001	0.001	0.353	uniondens			
eu	0.004	0.001	0.000	eu	0.004	0.001	0.000
inflation	0.001	0.002	0.537	inflation			
almpintl	-17.115	0.977	0.170	almpintl	-17.395	0.899	0.000
unempintl	-0.155	0.113	0.000	unempintl			
_cons	13.573	0.969	0.000	_cons	12.626	0.635	0.000
rho	-0.152	0.064	0.017	rho	-0.140	0.063	0.028
Deviance	-70	AIC	-55	Deviance	-73	AIC	-59
N	27	BIC	-42	N	27	BIC	-50

All p-values are based on two-tailed tests

The effect of average EU membership age is positive with a coefficient of 0.004 and significant ($p<0.01$). Theoretically this means that older EU members have higher ALMP levels. However, it does not really make sense to interpret this coefficient literally, because the variable measures the average age of EU membership between 1985 and 2010.

Rho is the spatial lag parameter and measures the average influence of one country's ALMP on neighboring countries' ALMP. In the spatial lag model above, rho is negative, -0.14, and significant with a p-value of 0.03. In other words, there is evidence of negative spatial dependence in the dependent variable after controlling for the spatial effects of the explanatory variables. This means that if country A increases its ALMP efforts by one percentage point, neighboring countries will on average reduce their ALMP efforts by 0.140 percentage points. The fact that rho is significant proves that the inclusion of the spatial lag of the dependent variable improves the models ability to account for differences in ALMP between countries (Ward and Gleditsch 2008). The LR-test of rho is significant, which means that the spatial lag model is a better fit than simple OLS. A significant rho value also means that if fitting an OLS regression using the same data set, the estimates would not be efficient.

The negative spatial diffusion in ALMP is supported by the significant ($p<0.01$) and negative effect (-17.4) of international ALMP, which measures the average ALMP effort in percent of GDP of all foreign countries in the sample. In other words, one percentage point increase in the international ALMP level leads to a 17.4 percentage point decrease in the dependent

variable. The values of ALMP in the observed data[15] range from 0.02 to 1.8 percent, which makes a reduction of 17.4 percentage points unrealistic. A more sensible description of the relationship between international ALMP and ALMP is to say that a 0.01 percentage point increase in international ALMP leads ALMP to decrease by 0.174 percentage points. The international ALMP level has a strong negative effect on domestic ALMP levels. These findings are consistent with Franzese and Hays' (2006) theory that countries free-ride off each other's ALMP. They find empirical evidence that the increase in worker-training programs in one country decreases equilibrium expenditures in neighbor countries. In practice this means that work seekers travel to a neighbor country where training programs are offered, whereupon they return to their home country more employable. At the same time, they have relieved their own government from offering ALMP. The results of the spatial lag model contrast the Moran's I value of the dependent variable, which shows positive and significant spatial correlation. This discrepancy between the Moran's I values and the negative value of rho in the model, is caused first by the spatially lagged dependent variable, and then by spatial clustering of the explanatory variables. The spatially lagged dependent variable may remove a large part of the spatial correlation, while the spatial clustering of the independent variables may cause the spatial correlation parameter rho to turn negative. However, as the spatial lag model is a simple model using a small data set, results might not be reliable. A more complex and more carefully specified model is needed to interpret spatial correlation in ALMP further. Before moving on to the multilevel models using panel data, a spatial error model is estimated to examine whether there are omitted variables causing spatial clustering in the error terms.

In the spatial error model it is assumed that any spatial dependency comes from the error terms, as a result of factors and contexts that are not included in the model (Ward and Gleditsch 2008: 68). Table 6 shows the results of the spatial error model. Variables that are clearly insignificant in the first estimation are removed; the results of the second estimation are displayed in the right column.

[15] The average of ALMP between 1985 and 2010

Table 6. Spatial error model, shared borders

Step 1: Variables of multilevel Model 7				**Step 2: Excluding insignificant variables**			
almp	Coef.	Rob. s.e.	P-value	almp	Coef.	Rob. s.e.	P-value
leftgov	-0.029	0.063	0.648	leftgov			
socdemws	0.141	0.080	0.078	socdemws	0.133	0.069	0.055
uniondens	0.000	0.001	0.769	uniondens			
eu	0.004	0.001	0.002	eu	0.004	0.001	0.000
inflation	0.004	0.002	0.036	inflation	0.003	0.002	0.043
almpintl	-19.020	0.652	0.000	almpintl	-18.948	0.648	0.000
unempintl	-0.198	0.081	0.015	unempintl	-0.193	0.082	0.000
_cons	15.243	0.738	0.000	_cons	15.133	0.719	0.000
lambda	0.652	0.144	0.000	lambda	0.634	0.146	0.000
Deviance	-78	AIC	-58	Deviance	-78	AIC	-62
N	27	BIC	-45	N	27	BIC	-52

All p-values are based on two-tailed tests

Lambda is the spatial correlation parameter in the spatial error model. A significant lambda coefficient means that the error terms are spatially correlated (Ward and Gleditsch 2008). The lambda coefficient is highly significant and positive, indicating that there is positive spatial dependence in the residuals caused by some unknown omitted variables. The LR-test is significant and proves that, in this case, a spatial error model is more appropriate than OLS regression. Contrary to the spatial lag model, left-wing government has no significant effect in the error model. However, inflation and international unemployment, which are not significant in the spatial lag model, are both significant at the five percent level in the error model. Inflation has a small positive effect with a coefficient of 0.003, while international unemployment has a negative effect (-0.193). Social democratic welfare state is positive (0.133) and significant (p=0.06), although the effect is slightly weaker than in the lag model. The effect of EU remains roughly the same, and so does the effect of international ALMP.

Summary of findings: Spatial analysis

The Moran's I values and spatial parameters rho and lambda show clear evidence of spatial dependence. This supports the hypothesis that spatial policy diffusion is a determinant of ALMP. The Moran's I value of the dependent variable shows positive spatial correlation in the dependent variable, the spatial error model shows positive spatial clustering in the error terms, but when estimating a spatial lag model including explanatory variables, the spatial dependence at lag one is negative. This might be a result of the spatially lagged dependent variable removing positive spatial correlation in the dependent variable, while independent

variables cause the spatial correlation to appear negative. This might be an indication of indirect diffusion, because independent variables are able to account for positive spatial correlation. In other words, external factors drive what appears to be direct policy diffusion of ALMP.

Because the spatial models above are estimated using a data set of only 27 observations, caution should be maintained in the interpretation of the spatial diffusion parameters as well as the effects of explanatory variables. In order to better distinguish between direct and indirect diffusion of ALMP, and for a closer look at domestic and external predictors of ALMP, the next section explores the advantages of multilevel regression analysis applied on a larger data set containing 29 countries over a time period of 26 years.

6.2 Multilevel model estimations

The second part of the analysis uses multilevel regression analysis with random effects to test the importance of various determinants of ALMP. Following the final model, the role of autocorrelation in explaining path dependency is discussed, and the spatial clustering of the residuals is analyzed. Further, the relative influence of the two dimensions of constraints to policy autonomy: international – domestic, and political – economic, is tested and discussed, before a summary of findings is presented.

Model 1: The null model, random intercepts

Model 1 is the null model displayed in Table 7 below, contains only the intercept and variances within and between countries (Rabe-Hesketh and Skrondal 2012: 316-17). The AIC and BIC for the null model are -758 and -751, respectively. The deviance is -766. Alone these parameters make no sense, but provide a reference for the goodness of fit, against which the next model can be compared. The intercept is the average ALMP effort across all observations, which is 0.62 percent of GDP. The country-level variance is 0.148 and the variance within countries is 0.58. The intra-class correlation is the country-level variance in proportion to total variance, which in this case is 72 percent. This indicates first that a large part of the variation in ALMP is due to between-country differences, and second, that autocorrelation is likely to be high. The latter is confirmed by the parameter rho (0.96), which gives the first-order autocorrelation in the residuals (Luke 2004). High degrees of autocorrelation can mean two things. First, there may be variables that are not controlled for, but should have been included. Second, high autocorrelation may be a sign of policy inertia

(Pierson 2004). However, autocorrelation is expected to decrease as independent variables and random coefficients are added to the model, therefore possible path dependency and policy stickiness (Pierson 2004) of ALMP will be discussed further following the final model.

Table 7. Multilevel Model 1-2

Model 1. Null model.				**Model 2. Domestic variables**			
almp	Coef.	Rob. s.e.	P-value	almp	Coef.	Rob. s.e.	P-value
_cons	0.621	0.077	0.000	_cons	0.312	0.125	0.013
				leftgov	-0.026	0.018	0.137
				uniondens	0.010	0.004	0.005
				$unemp_{t-1}$	0.013	0.007	0.067
				gdpcap	0.000	0.000	0.351
				growth	-0.006	0.002	0.006
				inflation	-0.008	0.003	0.016
Random part:				**Random part:**			
var(_cons)	0.583	0.048		var(_cons)	0.000	0.000	
var(_e)	0.148	0.062		var(_e)	0.143	0.035	
AR(1) rho	0.960	0.011		AR(1) rho	0.962	0.010	
Intra-class corr.	0.72	AIC	-758	Intra-class corr.	1.00	AIC	-799
N	527	BIC	-751	N	527	BIC	-756
Countries	29	Deviance	-766	Countries	29	Deviance	-819

All p-values are based on two-tailed tests

Model 2: Domestic time-varying variables, random intercepts

In the second model, the domestic level one variables left-wing government, union density, GDP per capita, growth and inflation are added to the null model. The deviance statistic has decreased to -819, AIC has decreased to -799, and BIC to -756, which according to expectations, confirms that Model 2 is a better model. The within-country variance is now close to zero, whereas the country-level variance has decreased marginally from 0.148 to 0.143. This may be due to the union density variable, which varies so little within countries that it becomes close to a time-invariant variable, contributing to explaining variance at the country-level. The autocorrelation parameter rho has a slight increase from 0.960 to 0.962. In other words, the variables added in Model 2, do not contribute to control for autocorrelation.

The coefficient of GDP per capita is close to zero and is far from significant. It is therefore excluded from further estimations. Left-wing government is negative (-0.026) with a p-value of 0.14. Strictly, this does not entail significance, but because left-wing government is a

variable of interest, it is not excluded from the model at this point. Union density has a positive effect (0.010) on ALMP, and is significant (p<0.01). Unemployment at lag one is, as expected, also significant (p=0.07), with a positive coefficient (0.013). Growth has a negative effect (-0.006), everything else held equal, and the effect is significant (p<0.01). The effect of inflation is equally negative and significant (-0.008, p=0.02).

Model 3: Domestic and international time-varying variables, random intercepts

In Model 3, GDP per capita is excluded, and the following international determinants of ALMP are added: EU membership, EU membership age, international unemployment, exposure to trade, international GDP per capita, and international ALMP.

Table 8. Multilevel Model 3-4

Model 3. Dom. + intl. variables				**Model 4. Time-invariant variable**			
almp	Coef.	Rob. s.e.	P-value	almp	Coef.	Rob. s.e.	P-value
leftgov	-0.022	0.015	0.136				
				socdemws	0.073	0.073	0.045
uniondens	0.009	0.004	0.016	uniondens	0.007	0.004	0.073
$unemp_{t-1}$	0.008	0.007	0.198				
growth	-0.003	0.002	0.083				
inflation	-0.006	0.003	0.019	inflation	-0.006	0.003	0.029
eu	-0.101	0.084	0.229				
euage	0.011	0.003	0.000	euage	0.010	0.003	0.001
unempintl	0.027	0.012	0.030	unempintl	0.033	0.012	0.007
trade	0.000	0.001	0.794				
gdpintl	0.000	0.000	0.633				
almpintl	0.192	0.131	0.144	almpintl	0.273	0.131	0.037
_cons	-0.045	0.281	0.872	_cons	-0.216	0.130	0.096
Random part:				**Random part:**			
var(_cons)	0.000	-		var(_cons)	0.000	0.000	
var(_e)	0.114	0.037		var(_e)	0.100	0.077	
AR(1) rho	0.956	0.008		AR(1) rho	0.948	0.042	
Intra-class corr.	1.00	AIC	-832	Intra-class corr.	1.00	AIC	-832
N	527	BIC	-772	N	527	BIC	-789
Countries	29	Deviance	-860	Countries	29	Deviance	-852

All p-values are based on two-tailed tests

This leads the deviance to decrease further to -860, and the AIC and BIC to decrease to -832 and -772. Model 3 is clearly a better fit than Model 2. Now, the within-country variance is zero. The between-country variance has decreased further to 0.114, although the standard

error is slightly higher than in Model 2. The autocorrelation in the residuals has decreased to 0.956, a slight improvement compared to the null model.

Left government has the same negative effect as in Model 2, but the effect is not significant (p=0.14). The hypothesis about a positive relationship between left-wing government and ALMP is therefore not supported. The unconditional effect of left-wing government is not found to be significant. The effect of EU membership is also not significant (p>0.1), undermining the hypothesis that EU membership has a positive effect on ALMP. However, the effect of EU membership age is significant (p<0.01), and positive (0.011). The effects of national unemployment, trade and international GDP per capita are not found significant (p>0.1). Therefore, the variables left-wing government, unemployment, EU membership, trade and international GDP will not be included in the next step. Union density is still positive with nearly the same strength as in Model 2 and the effect is significant with a p-value of 0.02. Growth is negative with a p-value of 0.08. Inflation is still negative and significant (p=0.02). International unemployment is positive and significant (p=0.03). International ALMP is positive with a coefficient of 0.192, but it is not significant at the ten percent level. However, a p-value of 0.13 is not too far away from significance, so for the moment the variable is kept for further estimations.

The hypothesis of the effect of economic globalization on ALMP, is tested with a collective test of the variables international GDP and trade. The chi-square test is not significant (p=0.78). Thus, the model does not find a significant effect of economic globalization on ALMP efforts.

At this stage a Hausman test is conducted to test whether proceeding with a random effects model is sensible. The Hausman test, using the variables included in Model 3, shows that the difference in coefficients between random and fixed effects models is not systematic (Prob>chi^2=0.52). Hence, a random effects model is preferred because it will produce more efficient estimates (Baum 2006: 230). By avoiding fixed effects it is also possible to include time-invariant variables (Allison 2009).

Model 4: Adding social democratic welfare state, random intercepts

In Model 4 the time-invariant variable social democratic welfare state is included and left-wing government, unemployment, growth, trade, EU and international GDP are excluded due

to insignificance[16]. Now, the deviance is not relevant, because the third and fourth models are not nested. Therefore, only AIC and BIC are considered. AIC has decreased to -832 and BIC to -789. Autocorrelation is still high, but decreases further to 0.948. These are not large shifts, but Model 4 is simpler than Model 3 and therefore clearly a better model (see for example Luke 2004: 34; Rabe-Hesketh and Skrondal 2012: 323). The within-variance remains close to zero, and the between-variance has decreased from 0.111 to 0.100, indicating that more of the between differences are accounted for in this model. This is due to the time-invariant social democratic welfare state variable. Social democratic welfare state has a positive (0.073) and significant (p=0.05) effect on ALMP. Its coefficient shows that countries with social democratic welfare states on average spend 0.073 percentage points more on ALMP in percent of GDP. The results of Model 4 support the hypothesis that social democratic welfare regimes have an effect on ALMP. The effect of union density is slightly weaker in Model 4, compared to Model 5. The coefficient, however, is still positive and significant with a p-value of 0.073. If union density increases with one percentage point, ALMP increases with 0.007 percentage points. This may seem marginal, but considering that ALMP values range between 0.01 and 3.04, the effect is worth noting. The results support the hypothesized positive relationship between union density and ALMP. International unemployment and international ALMP efforts also have positive effects, with p-values of 0.01 and 0.04, respectively. The effect of inflation is unchanged from Model 3 – negative and significant.

The variables union density and social democratic welfare state are highly correlated, 0.79[17]. However, as noted by (Berry 1993: 27): "a *nearly* linear relationship among independent variables does not violate any assumption". The problem may rather be that small changes in the model can lead to large fluctuations in coefficients, in addition to inflated standard errors (Midtbø 2012). However, as the estimation results of Models 4 through 7 show, the coefficients of social democratic welfare state and union density remain close to constant, with relatively small standard errors.

[16] Growth is significant in Model 3, but proved insignificant in Model 4, and is therefore removed for reasons of parsimony.

[17] A bivariate correlation matrix (Table A-1, Appendix) shows that multicollinearity between the other independent variables is not alarming.

Model 5: Within-country interaction terms, random intercepts

To test the conditional hypotheses H4[18], H10[19], H11[20] and H13[21], the fifth model includes interaction terms. Model 5a in Table 8 below shows that the interaction between left-wing government and union density is significant with a p-value of 0.06. The other interactions have coefficients close to zero and they are not significant (p>0.1). According to the estimates of Model 5a, exposure to trade given left-wing government does not have a significant effect on ALMP efforts. Neither does exposure to trade given strong unions. No evidence is found to support the hypothesis that the effect of international business cycles increases with exposure to trade. All interactions, except the one between left-wing government and union density, are excluded from further estimations due to their insignificant effects.

Table 9. Multilevel Model 5

Model 5a. Interactions.				**Model 5b. Only sig. interactions**			
almp	Coef.	Rob. s.e.	P-value		Coef.	Rob. s.e.	P-value
leftgov	0.013	0.032	0.672	leftgov	0.054	0.036	0.130
uniondens	0.014	0.008	0.069	uniondens	0.008	0.004	0.044
leftgov*uniondens	-0.002	0.001	0.063	leftgov*uniondens	-0.002	0.001	0.072
gdpintl	0.000	0.000	0.437	gdpintl			
trade	0.002	0.005	0.705	trade			
gdpintl*trade	0.000	0.000	0.991	gdpintl*trade			
trade*uniondens	0.000	0.000	0.116	trade*uniondens			
leftgov*trade	0.001	0.000	0.111	leftgov*trade			
socdemws	0.364	0.202	0.072	socdemws	0.382	0.195	0.051
euage	0.011	0.003	0.000	euage	0.009	0.003	0.002
almpintl	0.200	0.134	0.134	almpintl	0.263	0.124	0.035
unempintl	0.030	0.013	0.020	unempintl	0.033	0.012	0.006
inflation	-0.006	0.003	0.028	inflation	-0.006	0.003	0.028
_cons	-0.107	0.383	0.781	_cons	-0.242	0.135	0.072
Random part:				**Random part:**			
var(_cons)	0.000	0.000		var(_cons)	0.000	0.000	
var(_e)	0.096	0.398		var(_e)	0.103	0.106	
AR(1) rho	0.948	0.236		AR(1) rho	0.951	0.054	
Intra-class corr.	1.00	AIC	-841	Intra-class corr.	1.00	AIC	-842
N	527	BIC	-768	N	527	BIC	-791
Countries	29	Deviance	-875	Countries	29	Deviance	-866

All p-values are based on two-tailed tests

[18] H4: Left-wing government given corporatism has a positive effect on ALMP efforts

[19] H10: Exposure to trade given left-wing government has a positive effect on ALMP efforts

[20] H11: Exposure to trade given strong unions has a positive effect on ALMP efforts

[21] H13: The effect of international business cycles on ALMP efforts increases with exposure to trade

Model 5b shows the model output when insignificant interactions and their constitutive terms are excluded. Considering AIC, BIC and deviance statistics of Model 5a and Model 5b, it is not explicit that 5b is the better model. However, interaction terms severely complicate a model; when in doubt, a simpler model should be preferred over a complex one (see for example Luke 2004: 34; Rabe-Hesketh and Skrondal 2012: 323). When comparing Model 5b to Model 4 – the only difference being the inclusion of the interaction between left-wing government and union density, and its constitutive variables – Model 5b provides a better fit. This is because AIC decreases from -832 in Model 4, to -842 in Model 5b; BIC decreases from -789 to -791; and the deviance statistic decreases to -866. In Model 5b, rho increases slightly to 0.951, but autocorrelation is still lower than in the null model.

To facilitate the interpretation of the interaction between left-wing government and union density, marginal effects of left-wing government at different values of union density are calculated. The marginal effect of left-wing government for various values of union density is presented visually in Figure 2 below.

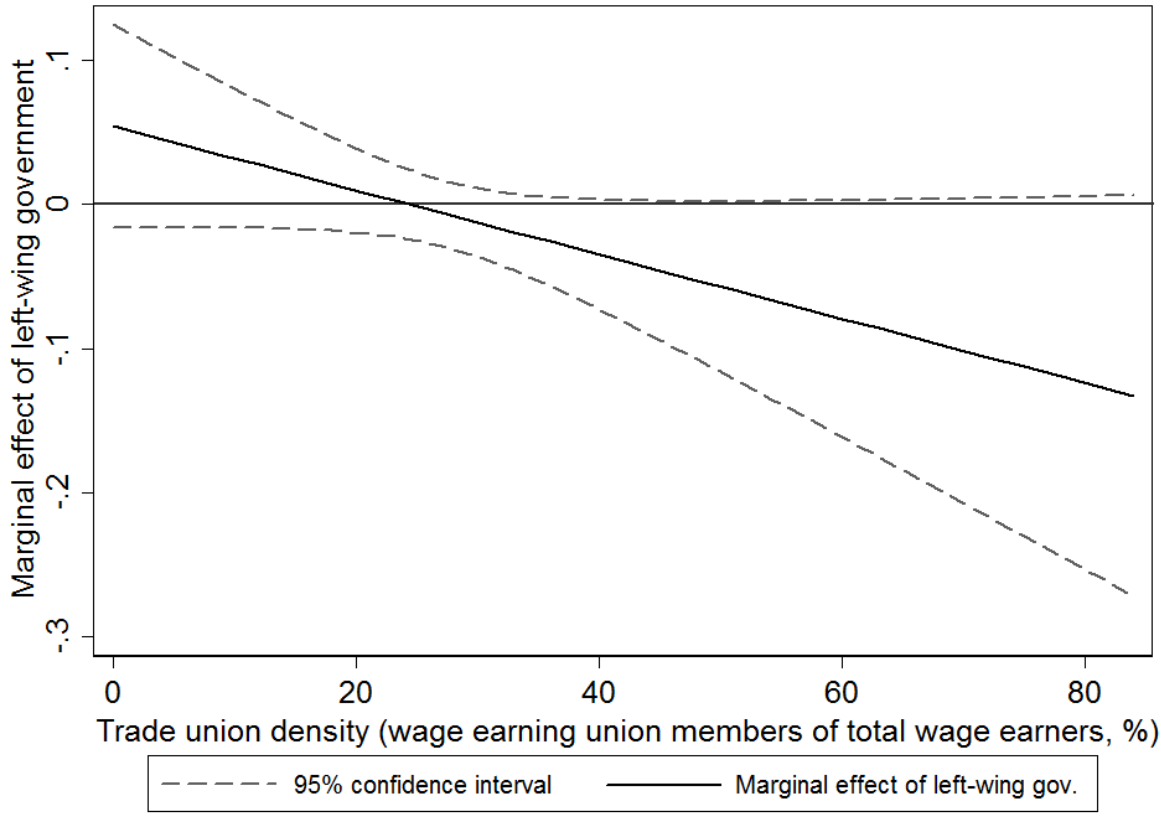

Figure 2. Marginal effect of left-wing government at various values of union density

The effect of the interaction is significant at the five percent level for values of union density when both dotted lines are completely above or below the zero line. The coefficient of the interaction has a p-value of 0.07, while the graph is calculated with 95 percent confidence intervals. Thus the dotted lines are never both on the same side of zero. However, for trade union density values above 40, the marginal effect of left government is significant ($0.05<p<0.1$). As the graph shows, the effect of the interaction is positive for union density values below 25, but not significant. For union density values above 25, however, the interaction effect is negative, but not significant until trade union density reaches 40 percent. Approximately 30 percent of the observations in the sample have union density values above 40 percent. The hypothesized positive relationship between left-wing government and ALMP given strong unions is rejected by the estimates of Model 5.

The coefficient of the constitutive term union density is the effect of union density when left-wing government is equal to zero. Setting left-wing government to zero makes sense – it only means that the chief executive party in government is non-left. The effect of union density when party in government is non-left is positive (0.008) and significant with a p-value of 0.04.

Model 6: Random coefficients

In Model 6 the assumption that time-varying variables affect observations across countries equally, is relaxed. This means that coefficients are allowed to vary in both direction and strength between countries. Variables that previously have been excluded due to insignificance can now be included again as random effects, because "it is quite possible for an explanatory variable to have no significant average regression slope […], but have a significant variance component for this slope" (Hox 2010: 58). When including a random effect, the corresponding fixed slope must be included as well, because it rarely makes sense to expect varying effects of a variable while at the same time constraining its mean effect to zero (Rabe-Hesketh and Skrondal 2008: 171).

In complex models the inclusion of more than one random coefficient is demanding, and may cause the iteration process to break down if it fails to achieve convergence (Rabe-Hesketh and Skrondal 2008: 172). Therefore, random coefficients are analyzed one by one. The random slope effects to be tested and examined are international GDP, left-wing government, EU membership age and international ALMP. The variable international GDP has no main effect

on ALMP, which may be due to the fact that the cross-country differences in effect are so great. The effect of international GDP levels can be expected to vary between countries, because countries are not equally exposed to international markets and the international economy. Some states are more vulnerable to international business cycles than others, thus the effect may vary accordingly (Dreher et al. 2008). The effect of left-wing government can also be expected to vary between countries. It is likely that there is political consensus on ALMP across the left and the right in some countries, whereas in others the left side support ALMP, whereas the political right side opposes active labor market policies. Janoski's (1994: 79-80) cross-national comparison of ALMP in the USA, West-Germany and Sweden finds that the effect of left-wing government varies between countries, depending on welfare regime. In Sweden, a social democratic welfare state, both the political left and right support ALMP. In the conservative welfare regime of West-Germany, ALMP is strongly driven by left-wing politics.

EU membership age has a positive main effect on ALMP, confirming Armingeon's (2007) theory that older EU members are better institutionalized and thus better equipped to successfully implement the relative complicated active labor market policies. Therefore, it is interesting to test what happens to the effect of EU membership age, when countries reach higher ALMP levels. Does the effect of EU hold for well-functioning welfare states outside the EU? Does the effect of EU membership age diminish with increasing ALMP efforts? The effect of international ALMP levels is expected to vary between countries, because some countries are more sensitive to international political influences than others. European countries, for example, might be more aware of each other's policies than the USA is aware of international welfare trends.

First, the random effects of international business cycles, left-wing government and EU membership age are discussed briefly. Finally, because the spatial policy diffusion effect on ALMP plays a central part in this thesis, the model including the random slope effect of international ALMP efforts will be examined more carefully. Model 7 includes a cross-level interaction term, in an attempt to explain why the effect of international ALMP varies between countries.

Table 10. Multilevel Model 6a-b

Model 6a. Random slope effect: gdpintl				**Model 6b. Random slope effect: leftgov**			
almp	Coef.	Rob. s.e.	P-value	almp	Coef.	Rob. s.e.	P-value
leftgov	0.058	0.037	0.116	leftgov	0.062	0.038	0.099
uniondens	0.007	0.004	0.108	uniondens	0.009	0.004	0.034
leftgov*uniondens	-0.002	0.001	0.069	leftgov*uniondens	-0.002	0.001	0.063
socdemws	0.289	0.180	0.086	socdemws	0.374	0.190	0.048
euage	0.009	0.003	0.000	euage	0.009	0.003	0.001
almpintl	0.237	0.124	0.055	almpintl	0.261	0.126	0.038
unempintl	0.030	0.012	0.027	unempintl	0.033	0.012	0.007
inflation	-0.006	0.003	0.031	inflation	-0.006	0.002	0.022
gdpintl	0.000	0.000	0.260				
_cons	0.087	0.312	0.780	_cons	-0.260	0.135	0.055
Random part:				**Random part:**			
var(gdpintl)	0.000	0.000		var(leftgov)	0.001	0.001	
var(_cons)	0.698	0.539		var(_cons)	0.025	0.012	
cov(gdpintl,_cons)	0.000	0.000		cov(leftgov,_cons)	-0.006	0.003	
var(_e)	0.061	0.012		var(_e)	0.083	0.025	
AR(1) rho	0.920	0.021		AR(1) rho	0.940	0.010	
Intra-class corr.	0.08	AIC	-849	Intra-class corr.	0.77	AIC	-841
N	527	BIC	-785	N	527	BIC	-781
Countries	29	Deviance	-879	Countries	29	Deviance	-869

All p-values are based on two-tailed tests

International business cycles

Even though the average slope effect of international GDP per capita is not significant, the LR-test shows that the variable has a significant variance component to the regression slope. Goodness-of-fit measures remain inconclusive on whether adding the random effect of international GDP yields a better model. The deviance and AIC statistics are both lower than in Model 5b, with values of -879 and -849, respectively, but the BIC has slightly increased to -785. The autocorrelation is smaller than in any of the previous models, with a rho value of 0.92. By letting the effect of international business cycles vary between countries, the size of the between-variance component is reduced to 0.061, the intercepts variance has increased to 0.70 and the variance of the slopes for international GDP is practically zero. The latter essentially means that there is no unexplained slope variance of international GDP. The covariance between intercepts and slopes is negative, but small: $-3.02*10^{-5}$. In theory, this means that countries that spend more on ALMP are less influenced by international business cycles. However, because the covariance is so small, the effect is negligible. Considering that the fixed mean effect of international business cycles is zero and that the random slope effects

are minimal, there is no doubt that the hypothesized relationship between international business cycles and ALMP can be rejected.

Left-wing government

When the slope of left-wing government is allowed to vary between countries, the effects of explanatory variables remain the same: none of them change sign and the changes in strength are marginal. Compared to Model 5b between-country variance is reduced to 0.083, and the variance of the intercepts has increased to 0.025. The random slopes variance of left-wing government is 0.001. The covariance between slopes and intercepts is negative, -0.006, indicating that the effect of a left party in government decreases as countries increase their ALMP efforts. The formal LR-test shows that the random coefficient model with left government is preferred to the random intercept model. However, the changes in deviance, AIC and BIC are so small, that the random intercept Model 5b is be preferred over the model where left-wing government is allowed to vary between countries. The deviance decreases to -869, but the AIC increases to -841, and the BIC increases to -781. Autocorrelation is 0.94, which is somewhat lower than in Model 5b.

Table 11. Multilevel Model 6c-d

Model 6c. Random slope effect: euage				**Model 6d. Random slope effect: almpintl**			
almp	Coef.	Rob. s.e.	P-value	almp	Coef.	Rob. s.e.	P-value
leftgov	0.055	0.036	0.127	leftgov	0.051	0.033	0.123
uniondens	0.008	0.004	0.033	uniondens	0.008	0.004	0.040
leftgov*uniondens	-0.002	0.001	0.072	leftgov*uniondens	-0.002	0.001	0.064
socdemws	0.321	0.174	0.066	socdemws	0.247	0.178	0.165
euage	0.010	0.004	0.019	euage	0.009	0.003	0.001
almpintl	0.267	0.125	0.033	almpintl	0.260	0.127	0.040
unempintl	0.032	0.012	0.008	unempintl	0.031	0.012	0.010
inflation	-0.006	0.003	0.028	inflation	-0.005	0.002	0.027
_cons	-0.218	0.131	0.096	_cons	-0.196	0.123	0.112
Random part:				**Random part:**			
var(euage)	0.000	0.000		var(almpintl)	0.163	0.088	
var(_cons)	0.038	0.059		var(_cons)	0.009	0.011	
cov(euage,_cons)	-0.003	0.004		cov(almpintl,_cons)	-0.038	0.032	
var(_e)	0.060	0.011		var(_e)	0.074	0.021	
AR(1) rho	0.918	0.027		AR(1) rho	0.934	0.008	
Intra-class corr.	0.61	AIC	-846	Intra-class corr.	0.89	AIC	-846
N	527	BIC	-786	N	527	BIC	-786
Countries	29	Deviance	-874	Countries	29	Deviance	-874

All p-values are based on two-tailed tests

Age of EU membership

EU membership age has a stable significant and positive main effect on ALMP in models 3 through 5b. This means that older EU members will spend more money on ALMP than younger EU members. In Model 6c the random effect of EU membership age is estimated to test if the effect of EU membership age varies between countries. The LR-test against Model 5b is significant, which indicates that the effect of EU membership age does vary significantly between countries. However, the goodness-of-fit statistics do not clearly state that Model 6c is a better fit than Model 5b. Autocorrelation in the residuals has decreased to 0.92, AIC decreases from -842 to -846, and the deviance decreases from -866 to -874. The BIC statistic, on the other hand, increases from -791 to -786. However, by letting the effect of EU membership age vary between countries, the between-variance is reduced from 0.103 to 0.060. The variance of the intercepts increases to 0.038, while the variance of the slopes is zero. The covariance between intercepts and slopes is -0.003, indicating that the effect of EU membership age is reduced as countries increase their ALMP efforts.

International ALMP efforts

The effect of international ALMP efforts is significant in the random intercept model, but it also has a significant random slope effect. The LR-test is significant against the random intercept model with a p-value of 0.06. The deviance has decreased from Model 5 to -874, AIC has decreased to -846, and the BIC has increased a little to -786. Autocorrelation decreases to 0.93, which is lower than in the null model (0.96) and lower than in Model 5b (0.95). Concluding on these findings, the sixth model including variance components of international ALMP efforts is a better fit than the random intercept model. The between-country variance has decreased to 0.074, the variance of the intercepts has increased from zero to 0.009, and the variance of the slopes is estimated to 0.163. The covariance of the intercepts and slopes is negative, -0.038, which can be interpreted to mean that countries become less influenced by international ALMP trends as they reach higher ALMP spending levels themselves. The main effects of the independent variables remain approximately the same, the exception is social democratic welfare state, which loses strength and its p-value increases from 0.043 to 0.159. The intra-class correlation of 0.89 indicates that 89 percent of the unexplained variation is at country level.

Model 7: Cross-level interaction, random coefficient

Because the spatial policy diffusion effect on ALMP plays a central part in this thesis, the random slope of the policy variable international ALMP will be examined more carefully. In an attempt to explain the slope variance of international ALMP, the cross-level interaction term between international ALMP and the country-level predictor social democratic welfare state, is added to the model[22].

Table 12. Multilevel Model 7

Model 7. Final model[23]

almp	Coef.	Rob. s.e.	P-value
leftgov	0.050	0.032	0.120
uniondens	0.008	0.004	0.040
leftgov*uniondens	-0.002	0.001	0.060
socdemws	-0.173	0.235	0.461
socdemws*almpintl	0.893	0.353	0.011
euage	0.009	0.003	0.001
almpintl	0.109	0.146	0.454
unempintl	0.033	0.012	0.007
inflation	-0.005	0.002	0.025
_cons	-0.127	0.104	0.226
Random part:			
var(almpintl)	0.081	0.045	
var(_cons)	0.001	0.002	
cov(almpintl,_cons)	-0.007	0.013	
var(_e)	0.073	0.025	
AR(1) rho	0.933	0.009	
Intra-class corr.	0.99	AIC	-852
N	527	BIC	-788
Countries	29	Deviance	-882

All p-values are based on two-tailed tests

[22] To achieve convergence the maximum likelihood option `difficult` (Stata) is applied. This means that a different stepping algorithm in non-concave regions is used in the iteration process.

[23] To ensure unbiased estimates, the outliers Norway, 1988; Sweden, 1990; 1994; and 1999 are diagnosed (see Figure A-1 in Appendix), using Rabe-Hesketh and Skrondal's (2012: 161) definition of outliers: standardized residuals of more than ±4. An outlying observation is only influential to estimates if it additionally represents a data point with leverage (Midtbø 2012). The identification of observations with leverage in multilevel analyses is complicated (Langford and Toby 1998), but the influence of outliers can be observed by removing them from the model. When excluding Norway, 1988; Sweden, 1990; 1994; and 1999, the estimates of Model 7 remain unchanged (see Table A-2 in Appendix). Hence, there are no influential observations causing biased estimates.

The interaction is significant with a p-value of 0.01, and the slope variance is reduced to 0.081. The social democratic welfare state can account for some of the variation in slopes of international ALMP efforts, but not all. If we calculate the standard deviation (=root 0.081=0.285) and compare it to the average international ALMP slope variance in Model 6 (0.160), 0.285 is not exactly a small standard deviation. Model 7, which includes the cross-level interaction, is still a better fit than Model 6d. The deviance, AIC and BIC statistics are all lower than in Model 6d: -882, -852, and -788, respectively.

In the final model, the between-country variance is 0.073 – a minor reduction from Model 6d. The variance of the intercepts is reduced from 0.009 to 0.001. The autocorrelation parameter shows a slight reduction from 0.934 to 0.933. The intra-class correlation is now at 0.99, which means that almost all unexplained variation is variation at country level.

Before proceeding to evaluate the effects of explanatory variables, the question of causality should be addressed. In Model 7, the variable of which ALMP is most likely to be both a cause and a consequence is international unemployment[24]. An increase in unemployment creates a rise in the demand for ALMP, while an increase in ALMP can be expected to lower unemployment. Therefore a Granger's causality test (Granger 1969) is conducted to evaluate the direction of causality between ALMP and international unemployment[25]. The F-tests are significant in both directions, which is an indication of the expected circular causality. In other words, international unemployment is not completely exogenous, but as shown by Card et al. (2010), the effect of ALMP on unemployment is weak or even non-existent depending on type of program. Therefore, the dynamic relationship between ALMP and international unemployment is not likely to influence the robustness of the results. Also, the two variables are likely to have a stabilizing effect on each other.

[24] It is theoretically unlikely that ALMP has a causal effect on the variables left-wing government, union density, social democratic welfare state and age of EU membership. ALMP is a policy among hundreds of government policies; it would be an exaggeration of its importance to expect it to have an impact on the ideology of government. Union density, social democratic welfare regime and age of EU membership are institutional variables which are not likely to be influenced by single policy areas.

[25] First, ALMP is regressed on four lags of itself and four lags of international unemployment, in addition to all other variables included in Model 7. Then, international unemployment is regressed on four lags of itself and four lags of ALMP, in addition to all other variables included in Model 7. F-tests of the respective lags are used to determine whether ALMP granger-causes international unemployment, or if international unemployment granger-causes ALMP (Worrall 2008: 245).

Now, let us take a closer look at the coefficients of explanatory variables. From Model 5b we know that the interaction between left-wing government and union density has a negative effect for union density values above 40 percent. The coefficient and significance of this interaction is essentially the same in Model 7. The interaction between social democratic welfare state and international ALMP, which contributes to explaining slope variance, has a coefficient of 0.893 and is significant with a p-value of 0.01. To aid the interpretation of the interaction, the marginal effect of social democratic welfare state is calculated for a range of international ALMP values and displayed graphically. Figure 3 shows this marginal effect with its 95 percent confidence intervals.

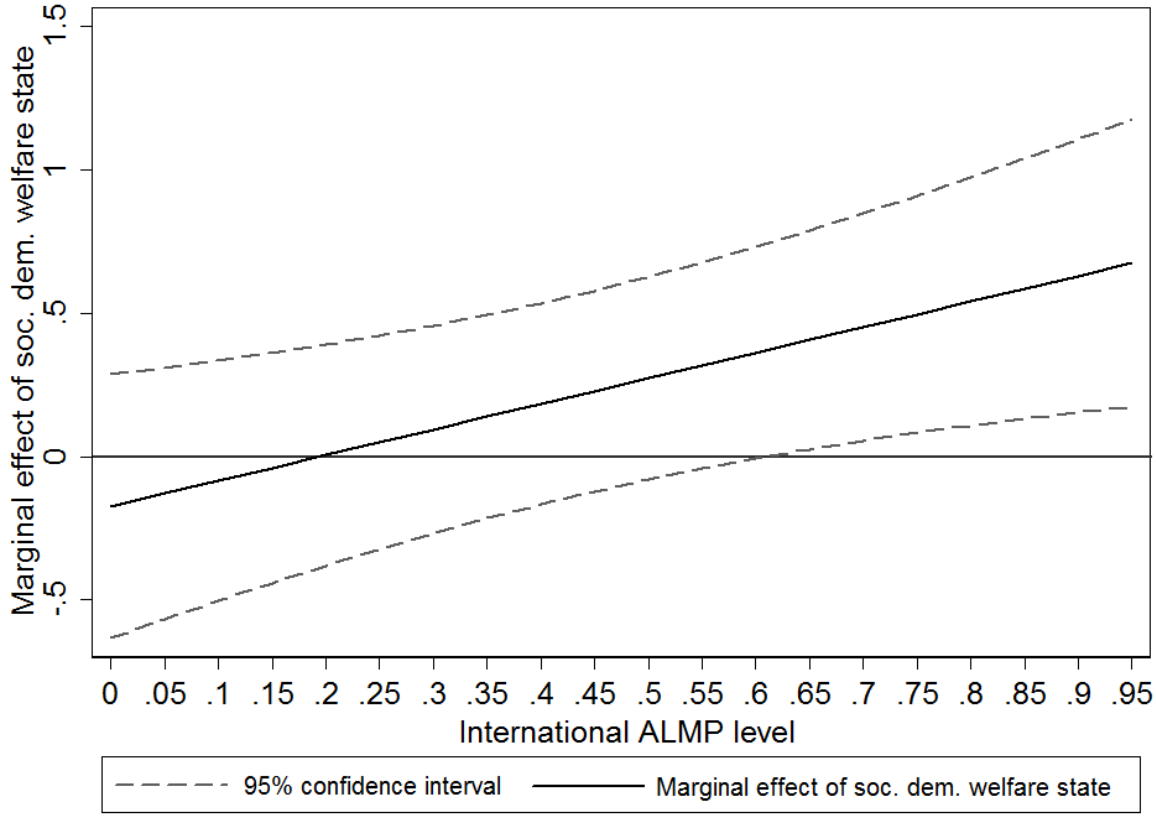

Figure 3. Marginal effect of social democracy at various values of international ALMP

The interaction effect is positive for international ALMP values above 0.2, but it is only significant ($p<0.05$) for values of international ALMP above 0.61. The effect of social democratic welfare state increases as international ALMP levels rise. To detect if this effect is actually observed in the sample, it can be useful to examine the proportion of observations that have international ALMP values above 0.61 (Brambor et al. 2006: 76). Eighty percent of

the observations in the sample fall within the range of significance. Interpreting the constitutive term social democratic welfare state makes no sense, as international ALMP is never zero. The coefficient of international ALMP is positive, 0.109, but not significant ($p>0.1$), which means that there is no effect of international ALMP levels in countries with non-social democratic welfare states.

The effect of EU membership age is the same as in Model 6d, with a coefficient of 0.009 and a p-value below 0.01. Each additional year as member of the EU leads to an increase in ALMP efforts of 0.009 percentage points. This supports the hypothesis that EU membership age has a positive effect on ALMP. The longer a country has been an EU member, the higher its ALMP efforts. International unemployment also has a positive and significant effect on ALMP ($p<0.01$). When the international unemployment rate increases by one percentage point, ALMP increases by 0.03 percentage points. Inflation has a negative impact on ALMP. Its coefficient (-0.005) is significant with a p-value of 0.03, which means that a one percentage point rise in inflation will lead to a 0.005 drop in ALMP.

The autocorrelation parameter rho is now 0.93, which, as expected, is a reduction from the null model. As mentioned above, high degrees of autocorrelation can be caused by both the failure to control for important variables and by path dependence of policy. With reference to a range of previous quantitative analyses of ALMP (Armingeon 2007; Bonoli 2010; Franzese and Hays 2006; Janoski 1994; Kemmerling 2006; Rueda 2006; van Vliet and Koster 2011) comparable to this study, and the reference to omitted variables in section 3.4, the chance of omitted variables being of importance in accounting for autocorrelation is not likely. Thus, chances are that ALMP suffers from path dependence.

Autocorrelation and path dependence

A path dependent process is essentially a self-reinforcing process where reversal or change becomes increasingly unattractive over time. The sequence of events is of great importance, and early events, known as *critical junctures*, are more influential for future outcomes, than later events (Pierson 2004). Leibrecht et al. (2011) argue that path dependence creates a lock-in of the behavior of governments and citizens in the case of welfare provisions. When spending is generous, it is likely that citizens protest against cutbacks; when spending is tight, citizens are likely to vote against expansion because they fear the increased tax burden. This is what Clemens and Cook (1999: 458) describe when they claim that "formal political

institutions have great capacities for eliminating alternatives". Usually, path dependency is used to refer to the built in status quo bias of institutions, also known as institutional stickiness, but according to Pierson (2004), the phenomenon applies to policy as well. There are two broad reasons why ALMP can be expected to be path dependent: the complexity of politics and the general preference of politicians to constrain the freedom of their successors. First, because politics are complex and opaque, trial-and-error processes of learning are difficult and far form automatic. Learning from errors of the past takes time (Pierson 2004). This is relevant for ALMP, because of the difficulty in measuring and evaluating its effects (Card et al. 2010). Second, policies are very often designed to be difficult to overturn, because politicians seek to bind their successors. Sometimes they are even willing to bind themselves to increase political trust (Pierson 2004). For instance, granting independence to central banks to secure macroeconomic stability. Even when politicians are not bound to ALMP by law, the durability effect of established policy might still be considerable. According to Rose (1991), policies are sticky because extensive policy arrangements fundamentally shape incentives and resources of political actors. Empirical evidence of ALMP developments across countries support the argument of path dependence, and demonstrates the importance of critical junctures in deciding future ALMP spending levels. According to Bonoli (2003), early developments of ALMP have locked countries into a specific policy path. The costs of shifting to alternatives increase due to normative views and incentive structures that encourage politicians to stay within the established path. ALMP was integrated into the Nordic welfare states in the 1960s, which were times of macroeconomic expansion. This provided favorable conditions for the institutionalization of ALMP. In contrast, the continental and Anglo-Saxon countries did not introduce ALMP until the mid-1980s, when the fiscal trend was dominated by belt-tightening (Armingeon 2007). Still today, the Nordic countries spend on average a larger share of GDP on ALMP, compared to the other members of the OECD (OECD.Stat 2011).

Moran's I of residuals

The Moran's I value of the residuals can be used to determine if there is spatial correlation in the residuals of the multilevel model. The Moran's I value calculated for the residuals of Model 7 is -0.1 with a p-value of 0.74. In other words, the residuals of the final multilevel model are not spatially correlated. The scatter plot of the standardized residuals against spatially lagged residuals is shown in Figure 4 below.

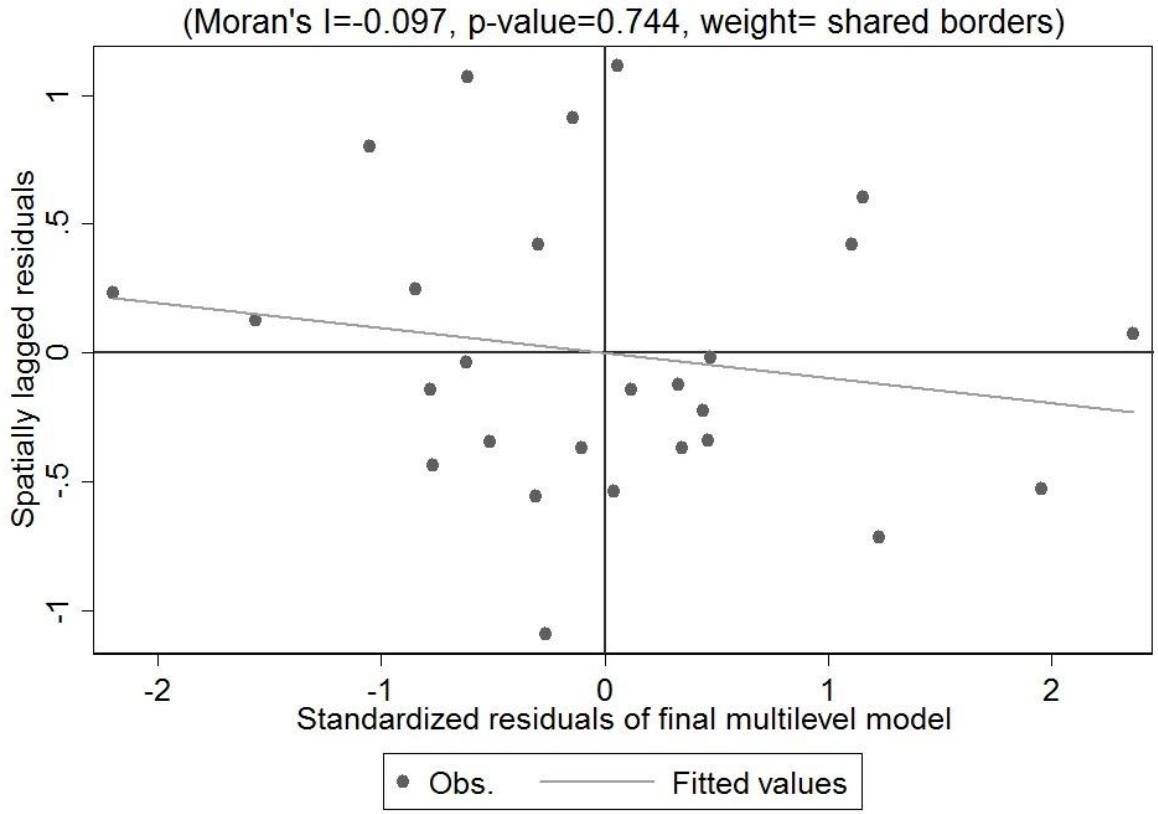

Figure 4. Moran's I scatterplot of standardized residuals and its spatial lag

The graph displays randomly distributed observations around the origin. This implies two things: First, the assumption of independent regression residuals is not violated, and the results of the final multilevel model are not affected by spatial clustering, i.e., estimates and standard errors are unbiased. Second, since there is evidence of spatial correlation in the dependent variable, but not in the residuals, the spatial dependence must have been eliminated by either 1) one or more explanatory variables (Ward and Gleditsch 2008); or 2) the temporal autoregressive residuals structure (Beck et al. 2006: 41). First, from the Moran's I values weighted with shared borders in Table 4, we know that the explanatory variables social democratic welfare state, union density, EU membership age, left-wing government and international ALMP have positive spatial correlations. It is likely that the spatial diffusion pattern in ALMP is a result of spatial clustering of social democratic welfare states, union density or age of EU membership, and that these variables eliminate spatially correlated error terms.

Left-wing government does not have an unconditional significant effect on ALMP in Model 7, and can therefore not be expected to contribute to the reduction of spatial correlation in the residuals. Since international ALMP is an aggregate of ALMP, it will logically explain a large part of the variation in ALMP. International ALMP will also have the same spatial structure as ALMP, and will therefore be partly responsible for the lack of spatial dependence in the residuals. The second possible reason for the lack of spatial dependence in the residuals has to do with autocorrelation. By controlling for first-order autocorrelation in the residuals, it is possible that some spatial correlation is accounted for as well. Beck et al. (2006: 41) show that spatial effects matter less in models where temporal effects are controlled for, because prior spatial effects are contained in the temporal effect.

Comparing categories of constraints to policy autonomy

Through the identification of the most important ALMP determinants, the goal of the analysis is to reach inference on the autonomy of policy. By comparing sets of variables, the relative importance of each dimension of constraints can be determined. This section aims to answer two of the questions formulated in the introduction of this thesis: *Which factors are more important in explaining ALMP, domestic or international? Do economic factors matter more than political factors in explaining ALMP variation?*

First, the international-domestic dimension is considered. As an initial approach, it can be useful to look at the coefficients of the final model. Both domestic (union density, inflation, union density*left-wing government) and international (EU membership age, international unemployment) variables have significant effects, as well as the domestic international interaction of social democratic welfare state and international ALMP. It is impossible to determine the importance of either group just by looking at the coefficients and z-tests. Therefore a collective test is conducted on both domestic variables and international variables, respectively, but the results show that both groups contribute significantly to the model. To reach a conclusion, two new models are estimated: one including only international determinants, and another with only domestic variables. Since the models are not nested, AIC and BIC estimates are used to determine goodness-of-fit. Results are displayed in Table 13 below. The information criterion estimates show that international variables are collectively more influential in explaining the variation in ALMP, than domestic variables.

Table 13. Comparing groups of variables

	Domestic		International		Political		Economic	
almp	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value
uniondens	0.011	0.016			0.008	0.058		
socdemws	0.182	0.431			0.424	0.033		
leftgov	0.060	0.107			0.054	0.149		
leftgov#uniond	-0.002	0.060			-0.002	0.085		
euage			0.008	0.022	0.010	0.000		
inflation	-0.008	0.014					-0.006	0.020
almpintl			0.298	0.023	0.560	0.000		
unempintl			0.038	0.004			0.050	0.000
_cons	0.266	0.049	0.009	0.885	-0.233	0.113	0.268	0.000
	Est.	Rob. s.e.	Est.	Rob. s.e.	Est.	Rob. s.e.	Est.	Rob. s.e.
var(_cons)	0.011	0.060	0.000	0.000	0.000	0.000	0.020	0.076
var (e)	0.131	0.067	0.167	0.062	0.106	0.608	0.175	0.098
AR(1) rho	0.958	0.017	0.968	0.004	0.950	0.310	0.970	0.013
AIC	**-799**		**-806**		**-827**		**-806**	
BIC	**-761**		**-776**		**-784**		**-781**	
N	527		527		527		527	

All p-values are based on two-tailed tests

The same procedure is repeated in the comparison between political and economic variables. Both types are represented and significant in Model 7. Collective tests show that both types contribute significantly to improving the model. The AIC and BIC values of the separate models, however, show that political variables are collectively more important in explaining ALMP than economic variables. To make sure these results are reliable, an alternative method of comparing groups of variables – the Davidson-MacKinnon J-test (Davidson and MacKinnon 1981) – is conducted. For the J-test, the fitted values of the domestic model are included in the international model, and vice versa, and the fitted values of the political model are in included in the economic model, and vice versa. Results are displayed in Table 14 below. The coefficients of the fitted values are significant at the five percent level in all four models. This means that none of the models include the right set of variables, and that the explanatory power of each model is improved when "opposite" variables are added. To determine the relative explanatory power of the variable groups, the fitted values coefficients are useful indications. In the domestic model, the fitted values of the international model have a coefficient of 0.923. In comparison, the domestic model fitted values have a coefficient of

0.888 in the international model. Both are significant ($p<0.01$), hence, the international variables have a stronger collective effect on ALMP, than domestic variables.

Table 14. Davidson-MacKinnon J-test

	Domestic		International		Political		Economic	
almp	Coef.	P-value	Coef.	P-value	Coef.	P-value	Coef.	P-value
uniondens	0.008	0.055			0.008	0.043		
socdemws	0.372	0.065			0.393	0.043		
leftgov	0.054	0.141			0.054	0.136		
leftgov#uniond	-0.002	0.073			-0.002	0.075		
euage			0.009	0.004	0.009	0.001		
inflation	-0.006	0.022					-0.006	0.014
almpintl			0.250	0.054	0.238	0.022		
unempintl			0.032	0.007			0.023	0.010
fitted values*	**0.923**	**0.000**	**0.888**	**0.004**	**0.729**	**0.001**	**0.842**	**0.000**
_cons	-0.238	0.104	-0.480	0.011	-0.450	0.016		
	Est.	Rob. s.e.	Est.	Rob. s.e.	Est.	Rob. s.e.	Est.	Rob. s.e.
var(_cons)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
var (e)	0.106	0.717	0.108	0.034	0.103	0.029	0.106	0.031
AR(1) rho	0.952	0.350	0.953	0.010	0.951	0.009	0.952	0.008
N	527		527		527		527	

* Fitted values of opposite model
All p-values are based on two-tailed tests

This is consistent with the AIC and BIC statistics above. The coefficient of the fitted values from the economic model is 0.729, while the coefficient of the political fitted values is 0.842. Again, p-values are under lower than 0.01. In other words, political variables have a stronger explanatory power than economic variables. This is also consistent with the AIC and BIC statistics above. It is therefore safe to say that international factors are more important in explaining ALMP than domestic, and that political factors are more important than economic.

The importance of international variables over domestic in determining ALMP, concurs with the theories of Garrett (1998b) and de Haan and Plümper (2006). Garrett (1998b) argues that globalization, whether it be political or economic, compromises national policy autonomy of individual states. De Haan and Plümper (2006) concentrate on the impact of European integration, and theorize that increased political integration erodes domestic fiscal policy autonomy. Regarding the second dimension of influence, political-economic, the comparison above finds support for Janoski's (1994) argument that political variables are more important

that socioeconomic, because of the discretionary nature of ALMP. In other words, ALMP does not automatically respond to international or national macroeconomic fluctuations.

Summary of findings: Multilevel analysis

The multilevel model analysis finds significant and positive effects of union density, social democratic welfare state, age of EU membership, international ALMP levels and international unemployment. The unconditional effect of left-wing government is not significant, but the interaction between left-wing government and union density is significant and negative. There is no significant effect of economic globalization, trade or international business cycles, with the exception of the positive effect of international unemployment. The interactive effects of left-wing government and trade, union density and trade or international business cycles and trade are of no significant effect. The control variables national unemployment and growth do not have significant effects on ALMP. However, before being excluded from further estimations, their coefficients had signs as theoretically expected: positive for unemployment and negative for growth. Inflation has a negative effect on ALMP. Random slope effects of EU membership age, left-wing government and international GDP are not found to contribute significantly to a better model fit. The random slope effect of international ALMP efforts, on the other hand, is found to be significant. The time-invariant social democratic welfare state variable contributes to explaining part of the slope variance of international ALMP efforts. The residuals of the full model are highly autocorrelated, which is evidence of the fact that ALMP is path dependent. A comparison of different variable groups shows that political factors are more important in determining ALMP than economic, and that international factors matter more than domestic factors. Although the dependent variable is spatially correlated, there is no spatial correlation in the residuals of Model 7. Thus, the estimates and standard errors of the final multilevel model are not biased.

In order to get a better understanding of the implications of the empirical analysis, the next chapter provides a more in-depth discussion of the most important findings. The inferences drawn in this thesis are also compared to theory and to the results of previous studies.

7.0 Discussion of results

The analysis of variation in ALMP aimed to test the degree of spatial dependence in ALMP, i.e., spatial policy diffusion, to distinguish between direct and indirect diffusion, and to determine which independent variables most successfully explain ALMP variation across OECD countries between 1985 and 2010. Moran's I values, spatial lag and spatial error models show clearly that the ALMP variable is spatially correlated, which supports the hypothesis of policy diffusion being a determinant of ALMP. Values on the dependent variable in one country are associated with similar values in neighboring countries. The spatial parameters rho and lambda indicate that failing to control for spatial correlation leads to biased estimates and standard errors in cross-section analyses. However, the residuals of the multilevel panel model are not spatially clustered, even though spatial correlation is not actively controlled for. This means that independent variables successfully explain the spatial correlation in ALMP. An interpretation of these results is that the spatial pattern in ALMP is caused by indirect diffusion, and not direct diffusion. In other words, policy makers do not adopt each other's policies through learning or competitive and cooperative interdependence (Gilardi 2010), but through the diffusion of common contexts or as similar reactions to similar needs (Braun and Gilardi 2006). The following discussion will first review variables identified by the multilevel analysis as important for explaining variation in ALMP and compare the effects found in this analysis to theory and findings of previous studies. The second part of the discussion will provide explanations for why direct diffusion of ALMP does not occur. The third section explains how diffusion of independent variables might cause spatial clustering of ALMP. Finally, the results are summarized and their implications for policy autonomy are discussed.

7.1 Determinants of ALMP

The analysis found significant effects of a range of determinants of ALMP across 29 OECD countries in the period 1985-2010. Table 15 gives an overview of evaluations of the 13 hypotheses that were developed in the theory chapter.

Table 15. Evaluation of hypotheses

Theory	Variable	Expectation	Actual effect	Evaluation
Policy diffusion	almpintl + spatial analysis	H1: Policy diffusion is a determinant of ALMP variation	Evidence of indirect diffusion	Supported
Left-wing party in government	leftgov (dummy)	H2: Left-wing governments have a positive effect on ALMP efforts	Significant random slope effect	Rejected
Corporatism	uniondens	H3: Union density has a positive effect on ALMP efforts	Positive and significant	Supported
Left government given corporatism	leftgov*uniondens	H4: Left-wing government given corporatism has a positive effect on ALMP efforts	Negative and significant	Rejected
Social democratic welfare state	socdemws (dummy)	H5: Social democratic welfare regime has an effect on ALMP efforts	Positive and significant	Supported
EU membership	eu (dummy)	H6: EU membership has a positive effect on ALMP efforts	No significant effect	Rejected
EU membership age	euage	H7: Age of EU membership has a positive effect on ALMP efforts	Positive and significant	Supported
Economic globalization	gdpintlc and trade collectively	H8: Economic globalization has an effect on ALMP efforts	No significant effect	Rejected
Trade	trade	H9: Exposure to trade has an effect on ALMP efforts	No significant effect	Rejected
Trade given left government	trade*leftgov	H10: Exposure to trade given left-wing government has a positive effect on ALMP efforts	No significant effect	Rejected
Trade given corporatism	trade*uniondens	H11: Exposure to trade given strong unions has a positive effect on ALMP efforts	No significant effect	Rejected
International business cycles	gdpintlc	H12: International business cycles have an effect on ALMP efforts	Effect of fixed and random effect zero	Rejected
International business cycles in an open economy	gdpintlc*trade	H13: The effect of international business cycles on ALMP efforts increases with exposure to trade	No significant effect	Rejected

The empirical analysis of this thesis has shown that international determinants are more important than domestic, and that political are more important than economic, in explaining ALMP variation. For a better understanding of what the results of these comparisons

implicate, the essential findings of the multilevel analyses can be divided into three points: 1) social democracy and left-wing politics; 2) international political pressure; and 3) domestic and international macroeconomic indicators.

First, social democratic welfare regime and union density were found to have positive effects on ALMP. The results indicate that Esping-Andersen (1990) is correct about ALMP being a defining feature of social democracy. Jingjing et al. (2008) also find that the Nordic welfare model has a positive relationship to ALMP, which strengthens the results of this analysis. Corporatism, operationalized by union density, can be seen as a characteristic of social democracy (Mosley et al. 1998). The positive effect found in the multilevel analysis further supports Esping-Andersen's (1990) theory, while rejecting Rueda's (2006) insider-outsider model. This theory predicts that unions are likely to discourage ALMP efforts because of the increased competition for work, which leads to pressure on wages. The results found here, however, show the direct opposite, that unions are more likely to support ALMP. Left-wing government, on the other hand, has no effect at all on ALMP, and the interaction between union density and left-wing government is negative. Bonoli (2010), too, finds only weak or non-existent effects of left-wing governments. It may seem like a paradox that while social democracy is a positive predictor of ALMP, left-wing governments have no effect. However, when considering the path dependent nature of ALMP, proven by autocorrelation, it is quite obvious. Just like ALMP, both social democracy and corporatism are sticky phenomena favoring the status quo. Both variables provide good conditions for the institutionalization of ALMP. Even though political preferences regarding ALMP are diverging along the left-right dimension, the effect of ideological alternation is simply not relevant, compared to the institutional arrangements favoring or disfavoring ALMP. Alvarez et al. (1991) argue that the ability of the left to pursue desired policies is stronger when unions are stronger and better organized. The negative effect of the interaction between left-wing government and union density gives no support for this theory. Based on these findings, it is reasonable to argue that ALMP is a type of policy where there exists political consensus in a given country, irrelevant of current ideology of government. This argument is also supported by Bonoli's (2010) study, which finds that institutional predictors have strong effects in interaction with existing labor-market policies.

Regarding the second point, international political pressure, two determinants are relevant: the EU and international ALMP levels. First, the EU is expected to encourage countries to implement ALMP using soft power through the open method of coordination (Armingeon 2007). Activation is motivated by the employment goals formulated in the European Employment Strategy, and van Vliet (2010) claim to find convergence on ALMP among EU members, as a direct consequence of the European Employment Strategy. According to this analysis, EU members do not spend more money on ALMP than non-members. The direct effect of the EU is therefore rejected. However, the empirical analysis of this thesis demonstrated that when considering the number of years a country has been an EU member, a positive effect on ALMP is found. This supports Armingeon's (2007) theory that older members are more likely to implement ALMP, than less established members. This is because older members democratized earlier and have more complex and better institutionalized welfare systems. In other words, the effect of EU membership age might not have anything to do with activation pressure from the EU, but rather with the quality and extent of welfare institutions. Second, the analysis finds a positive effect of international ALMP efforts on national ALMP efforts. This can be interpreted to mean that governments look abroad to adjust own policies to international levels. However, because no evidence of neither learning nor competitive interdependence was found, it is more likely that what looks like appliance to an international trend is another sign of indirect diffusion. The coefficient of international ALMP efforts might just reflect the general trend of increased ALMP efforts, which has been evident since 1985 (Bonoli 2010). However, a trend per se, does not contribute to explain why ALMP increases.

Finally, macroeconomic indicators, both international and domestic are found to be less important in explaining ALMP, than political variables. No effect is found of economic globalization, operationalized by exposure to trade and international business cycles. Both the efficiency and the compensation hypotheses (Dreher et al. 2008) are rejected. In other words, ALMP does not react to fluctuations in the international economy, which further supports the argument of ALMP being path dependent in nature. National unemployment has no effect on ALMP, which legitimates the choice of not including unemployment in the measure of ALMP like others have done before (Armingeon 2007; Scarpetta 1996; van Vliet 2010). International unemployment is found to have a positive effect on ALMP, as expected.

To summarize, ALMP variation can best be explained by institutional variables such as welfare regime and corporatism. Changing ideologies of governments are not found to be influential. A direct effect of recommendations to activate labor market policies from the EU is not found. However, it is evident that older EU members spend more money on ALMP, than younger members. This indicates that ALMP depends on a certain level of established welfare institutions. Finally, neither domestic nor international business cycles have an effect on ALMP. All of these findings support the argument that ALMP is path dependent. The next two sections explain why evidence of direct ALMP diffusion is not found, and elaborate on the probable causes of indirect diffusion.

7.2 Why not direct diffusion?

In this thesis, it has been argued that direct diffusion of ALMP is likely to occur first and foremost through the mechanism of learning, but also through competitive and cooperative interdependence. Because this analysis found no evidence of direct diffusion, this section attempts to explain why it did not, concentrating on the two direct diffusion mechanisms learning and competitive and cooperative interdependence. First, why do countries not learn from each other's ALMP successes and failures? Casey and Gold (2005), who evaluated the attempt to encourage learning and diffusion of ALMP in the EU[26], report that the two most common impediments to transfer is either 1) that programs are solutions to problems that do not exist in the home country, or 2) that that the effects of programs are unclear or unconvincing. Further, they developed three categories of constraints to learning based on the results of their evaluation: institutional, attitudinal and administrative-financial. First, the complexity of a country's institutional arrangements may challenge the transfer of active labor market programs. Examples are diverging legal frameworks, social partnership constellations, social security systems, different tax systems or differing political structures. In some cases institutional divergences can require that a whole set of institutional arrangements are changed, in order for a specific labor market program to be transferable. The second hindrance to transfer is attitudinal. One example mentioned by Casey and Gold (2005), is the Swedish program for female entrepreneurship, which was turned down by Belgian, Greek, Portuguese and Spanish reviewers, because attitudes toward working women

[26] Whilst they found evidence of policy convergence on certain employment goals, they found no evidence of neither systematic learning, nor diffusion of ALMP. Learning does take place in the form of information exchange, but it does not result in the transfer of policy (Casey and Gold 2005).

in the mentioned countries would undermine any attempt to adopt a similar program. Third, administrative and financial constraints may also be impediments to the transfer of programs, for example in cases where the appropriate administrative body is lacking, or where resources are scarce and the cost burdens are too high for a government to bear.

In line with the findings of Casey and Gold (2005), Kemmerling (2006) argues that institutional interdependence within countries is one explanation for the absence of learning. He also mentions path dependence as a second reason. As explained in chapter six, early ALMP developments are likely to lock policy into a specific path, which makes changing course seem hard, costly and unattractive for politicians.

Another reason why this analysis shows no sign of direct spatial diffusion may be the definition of the spatial dependence structure. Learning does not require geographic proximity, but rather cultural, demographic or linguistic (Franzese and Hays 2006). The same explanation is valid for the second mechanism of diffusion, cooperative or competitive interdependence (Braun and Gilardi 2006). Competition for investment or mobile capital does not require countries to be neighbors, but it does require common economic ties (Franzese and Hays 2006). Because the structure of dependence in this analysis is geographic, it is not surprising that diffusion through economic competition is not found.

The quantitative analysis finds no direct diffusion of ALMP when the spatial dependence structure is defined by geographic proximity. Even though the values on the dependent variable ALMP are spatially clustered, the multilevel model successfully controls for spatial correlation in the residuals. As explained above, neither learning nor economic competition causes direct diffusion. To understand why ALMP is geographically clustered, even though governments do not directly influence each other's labor market policies, it is necessary to examine independent variables as reasons for indirect diffusion.

7.3 Causes of indirect diffusion

Since direct policy diffusion is rejected, the spatial pattern of ALMP may be driven by spatial correlations in domestic or external international determinants, i.e., indirect diffusion (Franzese and Hays 2006). The evaluation of encouraged learning by Casey and Gold (2005: 37) provides good reason to believe that indirect diffusion is a relevant determinant of ALMP: "[…] the extent to which they [ALMP] offer any opportunity for transfer was judged in terms

of whether they fitted into the framework of institutions and financing systems that prevailed in the reviewer's country". In other words, a precondition for direct diffusion is that institutions are somewhat similar. If institutional characteristics diffuse across countries, the probability that policy will diffuse as well, increases.

By examining the Moran's I values of the independent variables, it is possible to get an indication of which variables are most likely to account for the spatial correlation in ALMP. Judging from Table 3 in section 6.1, it is clear that the political independent variables social democratic welfare state, union density, EU membership age, left-wing government and international ALMP efforts are all positively spatially correlated, with significant Moran's I values. Some of these variables may in various ways facilitate the spatial diffusion of ALMP. Especially social democratic welfare regime and corporatism are likely to cause policy diffusion. Both variables are geographically clustered and entail some degree of common institutional structures. The same goes for EU membership, which is also geographically clustered. However, as discussed in section 7.1, the effect of EU membership is ambiguous. Left-wing government is not found to have any direct effect on ALMP, and will therefore neither be able to influence its spatial pattern. International ALMP efforts are simply a reflection of the general trend to increase ALMP across countries, but it does not explain *why* ALMP efforts cluster geographically. The economic variables inflation and international unemployment are not spatially clustered, which shows that the spatial pattern of ALMP is not a result of macroeconomic factors; neither domestic, nor international. This finding supports the evidence that political variables are more influential in explaining variation in ALMP. As pointed out by Janoski (1994), ALMP is not an automatic response to macroeconomic fluctuations. Thus, the variables that are most likely to cause indirect diffusion of ALMP are social democratic welfare regimes, union density and possibly EU membership.

7.4 Summary: Policy autonomy

The analysis was motivated by the need to uncover the constraints to national autonomy of active labor market policy. To evaluate the autonomy of national politicians in deciding on ALMP, it is useful to review the four categories of constraints identified in the introductory chapter: 1) domestic economic, 2) domestic political, 3) international economic, and 4) international political.

As discussed above, the analysis finds little or no effect of neither domestic, nor international economic factors on ALMP. Thus, economy in general is not a constraint to policy autonomy. International political factors include EU membership and policy diffusion effects. An impact of EU membership per se is not found, but the age of EU membership has a positive effect on ALMP. However, as Armingeon (2007) points out, older EU members are likely to have better institutionalized welfare systems, which is a precondition for ALMP, than younger members. In other words, the positive effect of EU membership age is likely to reflect the effectiveness of welfare systems, which de facto is a domestic determinant. Indirect diffusion is found to influence ALMP, through the diffusion of the independent variables social democratic welfare state and union density. This demonstrates that international political pressure is not found to constrain national policy autonomy. The remaining category of constraints that needs to be discussed is the domestic political category. As the empirical analysis and the discussion above have demonstrated, type of welfare state and union density are influential in determining ALMP. However, unlike what one would expect, the effect of left-wing government is not significant. From these findings it is reasonable to argue that institutions matter more than the shifting ideologies of governments. The empirical analysis provide solid evidence that ALMP is path dependent, which can be interpreted as learning within states, in contrast to between-state learning, as suggested by policy diffusion. Politicians are likely to stick to a specific policy path, using history as their guide to future decisions on ALMP. Paul Sacks argues that within-state learning "implies that elements within the state, acting, presumably, in pursuit of the national interest decide what to do without serious opposition from external actors" (Hall 1993: 276). A conclusion that can be drawn from the discussion is that policy autonomy of ALMP is compromised for elected politicians in the short run, but in the long run path dependence ensures the freedom from economic constraints, both internal and external, and freedom from external political pressure.

8.0 Conclusion

The aim of this thesis was to explain variation in ALMP expenditures across 29 OECD countries between 1985 and 2010. To answer the research question, spatial and multilevel analyses explored policy diffusion processes of ALMP, in addition to identifying the most important determinants of ALMP variation. The analysis found a spatial pattern of ALMP when defining the relationship between countries by geographic proximity. But, what appears to be a pattern of diffusion in the dependent variable is likely to be a result of the spatially clustered explanatory variables social democratic welfare regime, union density, and possibly EU membership. Key determinants of ALMP variation are social democratic welfare state, union density and age of EU membership. Macroeconomic variables are not found to impact the variation in ALMP. This may explain why no sign of neither direct nor indirect diffusion was identified when using trade flows to define spatial proximity. Further, the analysis shows that ALMP is strongly path dependent, which constrains the autonomy of elected politicians in the short run, but ensures freedom from external pressure in the long run.

One should be very cautious about generalizing inferences drawn here, to other policy areas. However, as exposed by the discussion of diffusion processes above, the direct adoption of policy between governments is not as straight forward as the literature might indicate. As such, the findings of this thesis may have implications for future research on policy diffusion in general, by demonstrating that scholars should pay close to attention to the distinction between direct and indirect processes of diffusion.

The thesis makes two main contributions to the literature. First, the holistic approach to comparing constraints to policy autonomy is new in the field of research focused on explaining ALMP variation. Second, the analysis adds to the policy diffusion literature by highlighting the importance of differentiating between direct and indirect diffusion, and by testing diffusion using a non-geographic weight structure.

Nevertheless, this analysis only touches upon a field of political science, where potential research questions are far from exhausted. Three approaches to the further exploration of the variation in ALMP are suggested: 1) examining temporal lags of diffusion; 2) decomposing the dependent variable; and 3) studying the dynamic effects between causes and consequences of ALMP.

First, by improving the data availability of ALMP, or using multiple imputations to resolve the problem of missing values, it is possible to conduct spatial analyses of every year in the panel data, and not just of the 26-year average. This will improve robustness of results considerably. Better data availability also facilitates the evaluation of temporal lags of spatial diffusion effects, which can improve knowledge of diffusion effects and mechanisms.

Second, the dependent variable in this analysis is operationalized as total ALMP spending in percent of GDP, which covers all types of active program. However, ALMP is not one singular program, but a whole arrangement of different initiatives, which popularity differ by country (Bonoli 2010). By splitting up the dependent variable into the different program categories, it is possible to examine how determinants influence the various programs differently. This may give further insights into variation patterns of ALMP, but also inferences on which types of programs that are more likely to diffuse across borders.

Third, because this study treats ALMP as the dependent variable, it has not dealt with the effectiveness of these policies in reducing unemployment. In recent years, economists have made considerable efforts toward this matter, but results remain inconclusive. They acknowledge that some types of programs are more successful than others, but direct effects on unemployment are hard to pinpoint (Card et al. 2010; Dar and Tzannatos 1999; Kluve et al. 2007; Martin 2000; Stephan 2008). From a political science perspective, an interesting topic for further research is the dynamic between effects and diffusion of ALMP. As pointed out by Casey and Gold (2005), a large impediment to direct diffusion, i.e., learning, is the lack of conviction that programs have made an impact elsewhere. Meseguer (2006), likewise, argues that actors choose policies depending on effectiveness. By first studying the effects of the various programs at various lags, the conclusions drawn can be used to predict diffusion of ALMP through learning. In other words, identifying the programs that are most likely to be successful in reducing unemployment, and then testing their effect on ALMP diffusion, may produce results that are useful to both scholars interested in mechanisms of policy diffusion, and to organizations like the OECD and the EU when encouraging convergence of political best-practices across member states.

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Appendix: Correlation matrix and outlier diagnostics

Table A-1. Correlation matrix

Correlation matrix. Variables of Model 7

	leftgov	uniondens	socdemws	euage	almpintl	unempintl	inflation
leftgov	1						
uniondens	-0.02	1					
socdemws	0.03	0.79	1				
euage	-0.27	0.03	-0.12	1			
almpintl	0.07	0.01	-0.13	-0.21	1		
unempintl	0.05	0.12	0.01	-0.10	0.72	1	
inflation	0.08	-0.07	-0.09	-0.20	0.22	0.09	1

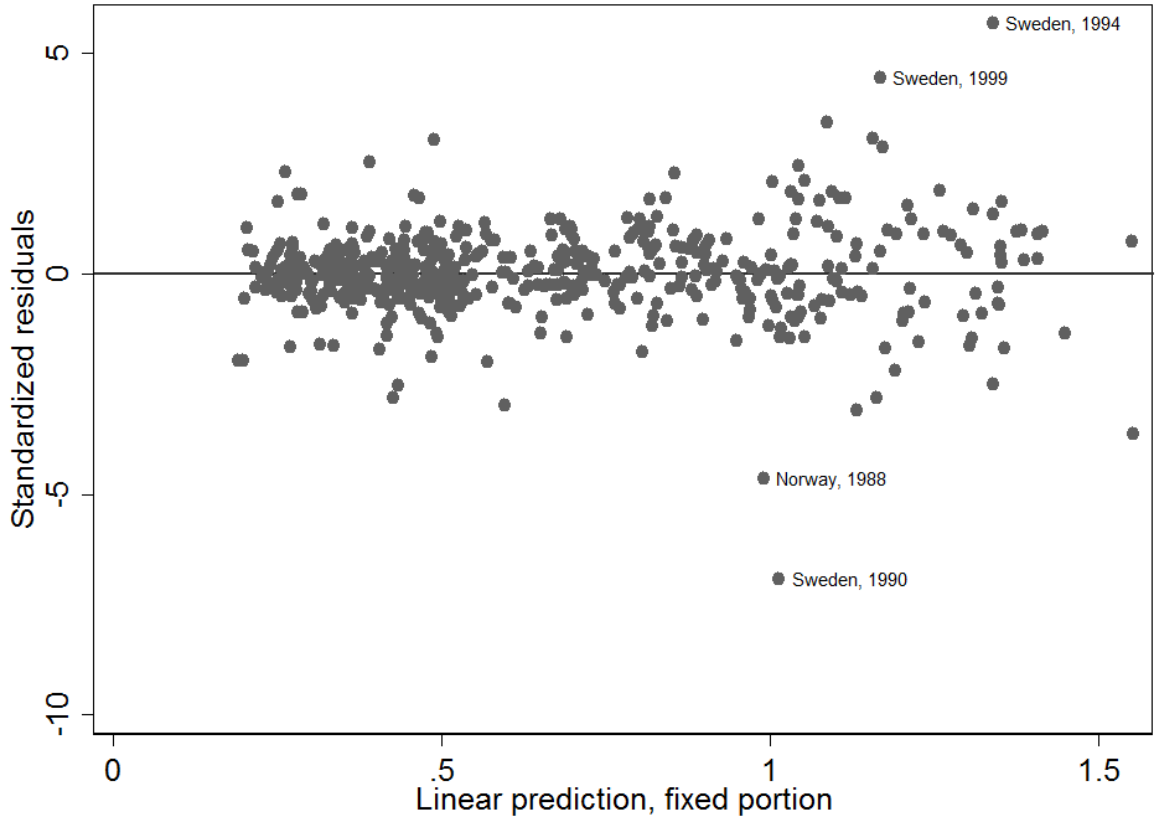

Figure A-1. Scatterplot of standardized residuals against linear prediction of Model 7

Table A-2. Final model, excluding outliers

Model 7. Excluding outliers

almp	Coef.	Rob. s.e.	P-value
leftgov	0.037	0.024	0.123
uniondens	0.007	0.003	0.041
leftgov*uniondens	-0.001	0.001	0.039
socdemws	-0.196	0.237	0.409
socdemws*almpintl	0.951	0.366	0.009
euage	0.009	0.003	0.000
almpintl	0.155	0.135	0.252
unempintl	0.028	0.011	0.013
inflation	-0.005	0.002	0.015
_cons	-0.108	0.100	0.283
Random part:			
var(almpintl)	0.087	0.045	
var(_cons)	0.001	0.003	
cov(almpintl,_cons)	-0.009	0.014	
var(_e)	0.072	0.023	
AR(1) rho	0.938	0.008	
Intra-class corr.	0.99	AIC	-883
N	523	BIC	-819
Countries	29	Deviance	-913

All p-values are based on two-tailed tests