Involuntary unemployment is and has been one of the major policy concerns in the European Union (EU). The variation in unemployment rates across countries in the European Union is substantial, but the variation in unemployment rates between regions within countries is even larger (OECD, 2005b). Moreover, though unemployment differences between countries in Europe have decreased markedly in the past decade, regional unemployment differences within countries have remained stable. In some European countries regional unemployment differences have even increased (OECD, 2005a).

Two factors that contribute to the persistence of regional unemployment within EU countries are obstacles to migration and regional inflexibility of wages. In a recent study, the OECD (2005a) distinguishes several barriers to migration due to housing policies such as unfavourable tax incentives, social housing tenure, and transaction costs related to buying and selling a house.

In Continental Europe wage-setting is highly centralised (OECD, 2004, Table 3.5). Wages typically are determined per sector at the national level instead of by plant or at the regional level. Sectoral wage bargaining processes result in nationwide wages per sector with limited room for regional deviations. Consequently, the wage-setting mechanism loses much of its equilibrating qualities.

The struggle against unemployment and regional unemployment differences is important, but reaching an acceptable level of employment
Introduction and overview

in relation to the potential labour force is an equally important issue. At the Lisbon summit in 2000, EU leaders set themselves targets of reaching an overall employment rate of 70%, and of 60% for women by 2010 (European Commission, 2000). Moreover, in our data set\(^1\) regional disparities in the male and female participation rate within the member states of the EU are, on average, 65% and 73% of those between the member states of the EU, respectively. Reaching an acceptable level of participation is urgent as the rapid ageing of Europe’s population will test European budgets to the limit. Looming ahead is a big rise in spending, not only on pensions, but also on health and long-term care.

The differences in both regional unemployment and regional participation across countries are illustrated in figure 1.1 on page 6 and figure 1.2 on page 7. Participation rates can be as high as 80% in Denmark and as low as 50% in Sicilia (Italy). The unemployment rate ranges from 2.5% in Luxembourg to 32% in Andalusia (Spain).

1.1 Aim

Although regional participation rates and regional unemployment rates vary widely both within and across EU countries, most international studies use only national data. For that reason they are unable to explain regional disparities within countries. Most regional studies, in turn, are restricted to a single country, the result being that they cannot do justice to the effect of different national institutions on unemployment rates and labour participation rates. Furthermore, regional studies that do include multiple countries generally do not include national explanatory variables other than country dummies, which also does not clarify much either.

The aim of this thesis is to investigate the influence of regional and national variables on regional labour markets in a cross-country perspective from both a theoretical and an empirical point of view. We want to answer the following three questions: (i) What is the effect of regional and national variables on regional participation rates and regional unemployment rates in the EU?; (ii) Is the effect of explanatory variables on regional labour market outcomes the same for all countries,

\(^1\)For details see appendix 4.A on page 87.
or does it differ across countries?; (iii) As wage-setting is highly centralised in Continental Europe, what is the effect of national institutions on regional labour markets under centralised wage bargaining?

We answer the first two questions by developing an econometric model suited for analysing hierarchical data, where regions are lower level units and countries are higher level units. We adopt a multilevel model with random coefficients for the regional-level variables and fixed coefficients for the national-level variables. We extend this model to account for heteroskedasticity, serial dependence, spatial dependence, and endogeneity. As a result, we are able to differentiate between the effect of regional and national characteristics.

To answer the third question we develop a theoretical model of a country with two regions where wage bargaining takes place at the national level. The two regions have different labour market characteristics and individuals can migrate to the region with the more favourable labour market characteristics if they find a job there. Employment, unemployment, participation as well as migration are assumed to be endogenous.

1.2 Outline

In chapter 2 we discuss problems arising when analysing hierarchical data. We also give an overview of how multilevel models have been used in the regional labour market literature to solve these problems. Analysing regional participation and regional unemployment over time poses some additional statistical problems that have to be dealt with, such as heteroskedasticity, explanatory variables that are not strictly exogenous, spatial correlation, and correlation over time. Although each of these additional problems have been addressed separately in the existing multilevel literature, the combination of these problems has not been explored. For this reason, we develop an econometric model taking into account that errors terms are heteroskedastic, observations may be correlated over time and space, and that part of the explanatory variables are not strictly exogenous.

In chapter 3 we develop a theoretical framework for regional labour participation. First, we discuss the differences between the participation decision and the hours of work decision and compare two possible
interpretations of the regional participation rate. Next, we develop a theoretical framework that identifies the key determinants of the individual labour force decision and explain the aggregation from the micro level to the regional level. Finally, we discuss interactions that are negligible at the individual level, but that do matter at the regional level. For example, the participation decision of an individual is influenced by the regional unemployment rate, but conversely, the participation decision of an individual does not influence the regional unemployment rate. By contrast, at the aggregate regional level, participation rates are not only influenced by regional unemployment rates, but also the other way around.

In chapter 4 we use the statistical model developed in chapter 2 and the theoretical framework developed in chapter 3 to analyse regional participation rates in the European Union. We include regional explanatory variables to account for the economic and demographic structure of regions. In addition, we include national explanatory variables in order to reckon with the effect of national labour market institutions on regional participation. Our findings indicate that the hypotheses that regional participation rates in the EU are determined by a common structure, and that labour force participation can be encouraged by a common policy, must be rejected. Policy measures having large effects in one country may have small, or even adverse effects in another country.

In chapter 5 we derive a theoretical framework of regional unemployment, participation and migration in a country with centralised wage bargaining. The theoretical framework consists of four stages covering two regions and one sector within one country. Wages are determined at the national level through wage negotiations between the employer federation and the union. At the regional level individual firms decide, given the wage level, how many workers they want to hire, while working-age individuals determine whether they want to participate in the labour market in their home region, in the other region, or not at all. Firms are identical and produce for a national market, as the transport costs of trade are zero. In the last stage the product market clears. We use this framework to simulate the effect of moving costs and unemployment benefits on regional unemployment, participation, migration, and regional unemployment differentials. The theoretical lit-
erature on regional labour markets under centralised wage bargaining is rather sparse. Our contribution to this literature is the inclusion of the participation behaviour of individuals in a model with both regional unemployment and migration under centralised wage bargaining.

In chapter 6 we investigate the effect of regional and national variables and institutions on regional unemployment, using the statistical model derived in chapter 2. We include regional explanatory variables to account for the effect of the regional economic and demographic structure on regional unemployment. In addition, we include both national institutions and interactions of national institutions as explanatory variables. We find that the effect of the regional variables on unemployment varies widely across countries. Moreover, we find evidence of interaction effects between labour market institutions. The effect of one labour market institution on unemployment depends on the value of another labour market institution. In chapter 7 we recapitulate our major findings.
Figure 1.1: Labour participation rates by region.
Figure 1.2: Unemployment rates by region.