Chapter 7

Summary and conclusions

Involuntary unemployment has been and continues to be one of the major policy concerns in the European Union (EU). The rise in unemployment rates, first in the early 1980s, and later in the 1990s, created both economic and social challenges for European countries.

Another challenge for European countries is to reach an acceptable level of employment in relation to their potential labour force. This is becoming increasingly important, as the ageing of Europe’s population will test European budgets to the limit. Looming ahead is a major rise in spending, not only on pensions, but also on health and long-term care.

Finally, there exist marked differences in unemployment rates and participation rates, not only between European countries, but also within them.

Most international studies on unemployment rates and participation rates, however, are only limited to national data. For that reason they cannot do justice to regional disparities within countries. Most regional studies, in turn, are restricted to one single country, and thereby cannot analyse the effect of different national institutions on unemployment rates and labour participation rates. Finally, regional studies that do cover multiple countries generally do not include national explanatory variables other than country dummies.

We use both regional and national data of several European countries to provide a more balanced analysis of unemployment rates and participation rates. In this thesis we answer the following three questions: (i) What is the effect of both 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, 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?

7.1 Summary

Since we analyse regional unemployment rates and regional participation rates of several EU countries, we have a hierarchical dataset. In this dataset regions are lower level units and countries are higher level units. Ignoring this hierarchical structure of the data and working at a single level either by estimating a macroeconomic equation based on macro data or a regional economic equation based on regional data, is likely to lead to a distorted representation of reality. To account for the variability on both levels and to allow for nationally different relations between the regional explanatory variables and regional unemployment and participation rates, we adopt a multilevel model.

In chapter 2 we discuss problems that occur when using hierarchical data and explain how a multilevel model may solve these problems. We also give a brief overview of the use of multilevel models in previous regional labour market studies. Up to now, most regional labour market studies use multilevel models to analyse micro data and regional data, where the lower level units are individuals and the higher level units are regions.

As we want to analyse regional unemployment rates and regional participation rates for several countries over time, we encounter additional problems such as explanatory variables that are not strictly exogenous, heteroskedasticity, spatial correlation, and correlation over time. Although each of these problems has been dealt with separately in the multilevel literature, the combination of them has not. We develop an econometric model to account for both the hierarchical structure of the data and the problems associated with analysing regional data of multiple countries over time.

Prior to estimating the model of regional participation rates, we discuss the theory behind the individual participation decision and the participation rate at the regional level in chapter 3. We first explain the differences between the participation decision and the hours of work
decision at the individual level. At the individual level, participation is a binary decision variable, while hours of work is a continuous decision variable. Consequently, the participation decision depends on a comparison of utility levels, while the hours of work decision involves marginal utilities. Hence, even though many of the explanatory variables are the same, their influence on the hours of work decision may differ from their influence on the participation decision in terms of both sign and magnitude.

At the regional level, participation rates can be interpreted as either the proportion of time an individual wants to devote to working, or as the proportion of individuals who want to participate in the labour market. Since the former interpretation only holds under very stringent assumptions and is not very common, we adopt the second interpretation. More specifically, we define the regional participation rate as the number of employed individuals, plus the number of unemployed individuals, divided by the working age population of a region.

We develop a theoretical framework for the individual participation decisions in section 3.3 and then aggregate individual labour participation decisions for homogeneous groups. We also illustrate how labour participation decisions vary across groups and show how this variation affects regional participation rates. In section 3.4 we view regional labour participation from a wider perspective. We discuss interactions that occur at the regional level and briefly discuss some national institutions that influence regional participation rates. An interaction irrelevant at the individual level, but important at the regional level, is the interaction between the unemployment rate and the labour force participation rate. At the regional level the unemployment rate and the labour participation rate are mutually dependent. On the one hand, higher unemployment rates may discourage individuals from participating in the labour market, because the probability of finding a job is lower. On the other hand, an increase in the number of individuals who want to participate in the labour market may increase the regional unemployment rate.

In chapter 4 we estimate the econometric model discussed in chapter 2 to investigate the theoretical framework developed in chapter 3.

We estimate our model for men and women, because the participation behaviour of men is different from the participation behaviour of women.
Male labour participation rates appear to be positively related to previous labour participation, pension wealth accrual, and education. Unemployment benefits and the percentage of people aged under 15 in a region appear to have a negative impact on male labour participation rates.

Female labour participation rates are positively related to previous labour participation, unemployment benefits, pension wealth accrual, education, and industry mix. The industry mix represents to what extent the sectoral composition and the part-time/full-time structure in a region is favourable to women. The percentage of people aged under 15 in a region negatively affects female labour participation.

The variable with the largest positive effect on male labour participation is the educational attainment of the population. A one percentage point increase in the number of people having higher education raises male labour participation by 0.24 percentage point in the long-term. The effect of this increase on female labour participation is even higher (0.29 percentage point). However, the variable with the largest positive effect on long-term female labour participation is the industry mix. A one percentage point increase of the industry mix variable increases female labour participation by 0.76 percentage point.

Both regional and national variables appear to be important in explaining labour participation rates: regional variables appear slightly more important in the case of female labour participation rates, while national variables appear slightly more important in the case of male labour participation rates.

Another striking result is the large variation in the random coefficients of the regional variables. The standard deviation of the random coefficients exceeds the coefficient estimates of the regional variables. This result indicates that the regional participation rates in different countries of the EU are not determined by a common structure and that labour force participation in the EU cannot be encouraged by a common policy.

In chapter 5 we develop a one-sector model of two regional labour markets under centralised wage bargaining. We contribute to the existing literature by including and endogenising labour participation in a model with centralised wage bargaining and regional migration. Although previous studies usually incorporated migration, they did not include participation. Firms are identical and produce for the national
7.1 Summary

market; the transport costs of goods within the country are zero. The migration costs are generally positive and individuals only migrate if they succeed in finding a job in the other region (i.e. we do not allow for speculative migration).

The model consist of four stages. In the first stage the union and the employer federation engage in wage bargaining at the national level. In the second stage the employers determine how many employees they want to hire at the negotiated wage. In the third stage individuals maximise their utility by deciding whether they want to participate in the labour market in their own region, in the other region, or whether they do not want to participate. In the fourth stage the product market clears.

Using this model we analyse the effect of unemployment benefits and moving costs on employment, migration, regional participation, regional unemployment, and regional unemployment differences.

As part of the model is not analytically solvable, we run numerical simulations to obtain results. In these simulations, region 1 is assumed to be smaller than region 2 and to have less favourable labour market conditions.

An increase in unemployment benefits leads to higher wages and lower employment, whereas moving costs do not affect wages and employment.

Participation in both regions decreases marginally if unemployment benefits increase. An increase in moving costs is shown to have a small but different effect on participation per region. In region 1 the effect is positive and in region 2 the effect is negative. Regional unemployment differentials generally become larger if unemployment benefits rise.

An exception is the situation in which moving costs are high. If moving costs are high, an increase in unemployment benefits increases migration and thereby lowers unemployment differences. By contrast, an increase in moving costs always decreases migration and increases unemployment differentials.

In chapter 6 we analyse regional unemployment rates for EU countries using both regional and national variables, by applying the same econometric model as in chapter 4.

The regional explanatory variables are selected based on the extensive overview of empirical regional unemployment studies by Elhorst (2003a). We use the percentage of the working age population between
15 and 24 and the percentage between 55 and 64 to capture the demographic composition of the population in different regions. The percentage of people having medium or higher education is used to account for differences in the educational attainment of the labour force. Employment growth and labour productivity growth are included as measures of the economic performance of regions and labour participation is used to incorporate the effect of labour supply on unemployment.

National explanatory variables are selected based on studies of the influence of labour market institutions on national unemployment rates. The wage bargaining structure is accounted for by including interaction variables between union density and the level of centralisation of wage bargaining. Other variables being accounted for are employment protection, the change in inflation, the unemployment benefit replacement rate, the tax wedge, and the interaction between the benefit replacement rate and the tax wedge.

Regional unemployment rates appear to be positively related to the percentage of the working age population aged between 15 and 24, lagged unemployment, the tax wedge, and unemployment benefits, and to be negatively related to education, labour productivity growth, employment growth, the participation rate, the change in inflation, employment protection, and the interaction between unemployment benefits and the tax wedge. Union density has a negative impact on regional unemployment, provided that wage bargaining takes place at either the centralised or the decentralised level, whereas it has no impact if wage bargaining takes place at the intermediate level. The influence of the percentage of the working age population aged between 55 and 64 on regional unemployment is not significant either.

Both regional and national variables appear to be important in their contribution to the explanation of the unemployment rate.

Another striking result is again the large variation in the random coefficients of the regional variables, which indicates that regional unemployment rates in different countries of the EU, just as regional participation rates are not determined by a common structure.

A final noteworthy result is that the effect of national variables is not constant across countries. Due to interaction effects between institutions, the effect of one institution depends on the value of other institutions.
7.2 Conclusions

We can now recapture the results as answers to the three questions raised at the beginning of this chapter. First, we see that both regional and national variables are important in explaining regional participation and unemployment rates. In other words, ignoring either regional or national variables leads to a distorted representation of reality.

Second, we see that the effects of regional variables on regional participation and unemployment rates vary markedly across countries. This implies that the same policy causes different outcomes in different countries, and that there is no common cure for all countries.

A striking illustration is presented by Denmark, where the institutional set-up leads, contrary to other countries, to a negative rather than a positive effect of the population aged between 15-24 and 55-64 on unemployment. This is probably due to Denmark’s long tradition of apprenticeships, its safeguards to prevent dropouts from formal education, and its opportunity for older workers to work part-time while already receiving partial retirement benefits.

In addition, we see that the effect of national variables on unemployment is also different for different countries. The effect of one labour market institution depends on the value of others. The effect of union density on unemployment depends on the degree of centralisation of wage bargaining, while the tax wedge and the unemployment benefit replacement rate dampen each other’s effect on unemployment. Consequently, the overall institutional framework has to be considered in order to design effective policies aimed at reducing unemployment.

Third, using our theoretical model for employment, unemployment, migration, and participation we can identify the effects of unemployment benefits and moving costs on regional labour markets under centralised wage bargaining. In general, higher benefits lead to higher unemployment and greater regional differences in unemployment rates. Only if moving costs are high may an increase in benefits lower regional unemployment differences. By contrast, higher moving costs always lead to higher regional unemployment differences.