One of the best ways to understand how the international economy works is to start by looking at what happens inside nations. (Paul Krugman)

Introduction

If we had to describe the economic geography of the European Union (EU-15) in only one phrase, we would say that there is a high degree of spatial agglomeration of economic activity in the EU-area and very pronounced core-periphery divides along various economic dimensions.

There are marked differences in per capita output and income levels across European regions. People from the richest European regions have e.g. an average real purchasing power about five times higher than people from the poorest areas. Spatial divides and regional disparities are even larger with respect to other indicators of economic activity. In this book, we will specifically be concerned with regional unemployment rates. In the European Union today, regions with practically full employment and regions with excessive mass unemployment coexist. In many cases, they even coexist within the same country. Germany, Italy and Spain are the most prominent examples of national economies, where some regions have unemployment rates below 5 per cent, whereas others are stuck with figures well above 20 per cent. Such spatial unemployment disparities within and across countries exist for decades. In recent years, they even tended to increase.

In chapter A of this book we will give an overview about the spatial structure of economic activity in the European Union. We will argue that regional unemployment rates in the EU follow a quite distinct, trans-national pattern and closely resemble the core-periphery-structure of regional GDP per capita. Regional unemployment rates are low in the rich core regions of the European Union, where population, production and income are agglomerated. On the contrary, high unemployment rates are found in the sparsely populated and economically peripheral regions with low levels of output and income per capita.

The main aim of this book is to explain this stylised fact. More specifically, we aim to explain the spatial structure of regional unemployment rates within an integrated economic area in relation to the corresponding spatial structure of output and income. This is a largely unexplored issue in economic theory.

Theorizing about unemployment has always been one of the most prominent tasks for macroeconomists, who predominantly think about the phenomenon of unemployment in its national dimension. Actually, different schools of thought within macroeconomics are still distinguished by the way how they think about the emergence of unemployment, especially in relation to the rate of inflation, and by the

the implications they derive for economic policy. Regional issues traditionally play a minor role in this debate.

However, regional labour market analysis has gained some prominence during the last ten years. One useful *regional* approach comes from David Blanchflower and Andrew Oswald (1990, 1996). These two authors have compiled a great deal of empirical evidence about regional labour markets and claim to have distilled an "empirical law" of economics from the data, according to which "doubling the unemployment rate of some region will drive down the regional wage level by roughly ten per cent". This law, known as the *wage curve*, and the theoretical work that is associated with it, will play an important role for our analysis. In order to justify the existence of a wage curve theoretically, one has to work with concepts of imperfect competition in the labour market. So do Blanchflower/Oswald in the theoretical parts of their work, which is build on one specific macroeconomic approach that is often labelled the "European labour market model (ELMM)". This important macroeconomic precursor will be introduced and discussed in chapter B of this book. Chapter C will then be devoted to the theory of the wage curve, that in many respects is the regional pendant of the ELMM.

The wage curve theory is useful for our purposes, since it draws an inherent link between key labour market variables on a regional level, the unemployment rate and the real wage level. But the existing wage curve models alone are insufficient to account for the observed spatial agglomeration of economic activity in the EU. The existing literature is useful to understand how regional unemployment rates develop if the corresponding regional levels of wages, output and income are exogenously given. But wage curve theory is ill-equipped to address *why* there are so pronounced disparities in the real world.

Economic agglomeration theories are the second string in the literature that is related to our theoretical analysis. It is known since Alfred Marshall (1890) that there are forces in the world that push for spatial concentration of economic activity in only a few locations or regions within an economy. Again, such spatial and regional issues traditionally have been neglected by mainstream economists. Of course, important contributions have been made in location economics, in urban and regional economics in the course of more than a century.[1] But all in all, this field of economics has eked a shadow existence within the discipline. This has dramatically changed in the last years. The revival of interest in spatial and regional issues as a piece of mainstream economics is somehow symbolised by the seminal contributions of Krugman (1980, 1991a,b) that led to the theories known as "new trade theory (NTT)" and "new economic geography (NEG)". Especially

[1] Location economics is actually seen as a "German tradition" and dates back to Heinrich von Thünen (1826), and followed by several other German writers such as Weber (1909), Christaller (1966), Loesch (1954). For a brief overview of some history of economic thought see Fujita/Krugman/Venables (1999), ch. 2+3.

the latter can be seen as a modern theory of regional agglomeration that explicitly addresses why core-periphery divides of economic activity can endogenously emerge and persist within an integrated area.
Chapter D will be devoted to the discussion of regional agglomeration theories, with special emphasis on NEG. The core model of Krugman (1991a) will be introduced, and the main developments of this theory will be traced until the current research frontier. Still we conclude that there are several unexplored and open issues. One of these issues, which is not directly related to the analysis of regional unemployment disparities, concerns unrealistic predictions that current NEG-models make about the development of regional costs-of-living during the process of regional agglomeration. This issue is taken up in chapter D, where we derive an own model that improves on the current state of art in the NEG-literature.
The main critique we formulate against the new agglomeration theories, however, is that they have nothing to say about unemployment. All standard models of NTT and NEG assume that labour markets always automatically clear. The phenomenon of regional unemployment disparities can thus not be analysed with these models. This neglect is peculiar, given that regional differences in unemployment rates are at least as pronounced, if not even more dramatic, than income disparities in the EU-15.
The chapters E and F we will therefore propose theoretical frameworks that attempt to close this gap in economic theory. In chapter E we will marry a wage curve, which is thought of as a labour market equilibrium curve, with a product market that exhibits the essential features of the new regional agglomeration theories. The innovation that comes from this model is twofold: Firstly, it can be seen as a general equilibrium model with a wage curve, where the regional disparities can develop endogenously. And secondly, the model can be seen as an attempt to introduce the element of unemployment to the new regional agglomeration theories.
The main result of our model framework is that the spatial structure of unemployment follows the spatial agglomeration pattern of overall economic activity. Large core regions with high per capita income levels have low unemployment rates. Vice versa, small regions with low income levels have high unemployment rates. Hence, our theoretical framework implies results that are consistent with the stylised facts about regional unemployment disparities and regional agglomeration in the EU.
Chapter F will specifically address the issue of labour mobility. If there are intranational economic disparities, what happens if people migrate from the blurring to the blooming areas? Is labour mobility an adjustment force that gradually leads to an erosion of existing disparities? Or do differences even get larger and more pronounced when workers migrate? The conventional viewpoint on this matter, known from the neoclassical theory of factor migration, is that labour mobility will lead to a convergence of wages and income levels. But even slight departures

from the neoclassical world lead to fundamentally different conclusions about the impacts and effects of interregional labour mobility.

We will specifically be concerned with the issue of *selective* labour migration. There are good theoretical and empirical reasons to assume that the group of workers who are mobile across space mainly consists of young and well educated individuals. The economic consequences of this *selective* labour migration are then derived using two alternative theoretical models. In the first version, we abstracts from endogenous agglomeration forces and formulate a straightforward neoclassical approach with a Cobb-Douglas production function. Still the model shows that high skilled labour migration will lead to a regional divergence process with respect to the real incomes of immobile low-skilled workers. In a second version, we again introduce endogenous agglomeration economies and show that selective migration and localised increasing returns are two distinct, but complementary arguments why labour mobility leads to regional divergence instead of convergence.

Both frameworks of chapter F are then taken further to analyse the implications of national union wage setting for regional unemployment outcomes. The models specifically address intra-national unemployment disparities that arise because of undifferentiated union wage setting irrespective of regional productivity differentials. The regional unemployment disparities that arise are magnified through selective labour migration. All in all, the models of chapter F constitute an alternative, but complementary view about the relation of regional agglomeration and regional unemployment. The book will be finished by some concluding remarks and a very brief discussion of some policy issues.