

UNIVERSITÀ CATTOLICA DEL SACRO CUORE

**Dottorato di ricerca in
Modelli Quantitativi per la Politica Economica
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S.S.D: SECS-P/02; SECS-P/05**

**THREE ESSAYS ON LABOUR MOBILITY AND
UNEMPLOYMENT**

**Tesi di Dottorato di: Chiara Mussida
Matricola: 3480072**

Anno Accademico 2008/2009



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Coordinatore: Ch.mo Prof. Maurizio Baussola

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To my parents

Acknowledgements

IN October 2005, I was lucky enough to have the opportunity to start the Doctoral School of Economic Policy at the Catholic University of the Sacred Heart and, experience by experience, challenge by challenge, time really flew past. That first year, I was offered a Master year at the University of Sussex in Brighton (UK), and I feel fortunate to have started my research there.

Looking back, I realise how much this experience has taught me, and not only from a professional viewpoint. I was able to meet and work with many people, to all of whom I am very grateful. Here I would like to mention some in particular.

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"An economist is an expert who will know tomorrow why the things he predicted yesterday didn't happen today."

DR LAURENCE J. PETER
(1919-1990)

Executive Summary

STRUCTURED in three essays, this thesis focus on unemployment and labour mobility in Italy and Lombardy (the biggest Italian's region).

The first section offers a picture of the main theoretical and the empirical issues related to these complex phenomena. The purpose of this section is twofold. On one hand we aim to offer an exhaustive picture of the theoretical and empirical developments of such phenomena. On the other hand, we introduce the empirical investigations of the subsequent essays as evolutions of the ones proposed by literature. We also emphasizes the original contribution and the logic behind.

The first essay investigates the determinants of the unemployment duration and of the related competing risks (CRM hereafter) for Lombardy. The choice to concentrate the initial part of this dissertation on Lombardy is primarily driven by two factors. First, there is interest in applying relevant techniques to a regional context characterized by a certain degree of homogeneity of economic indicators. Further, Lombardy is one of the most important Italian regions (confirmed by many economics indicators), and is quite homogeneous in terms of labour market indicators (only little differences between provinces, with the north-east with the fewest unemployment problems).

This allows verifying the effectiveness of these investigations of the determinants of unemployment duration and the related CRM without dealing with the typical dualism between north and south which is a structural feature of the Italian labour market. This is a way to investigate in depth the characteristics of the relevant phenomenon of unemployment for a significant partition of Italy, which is representative of both richest regions in Europe and Italian regions as well (such as Tuscany or Emilia Romagna).

The second essay enlarges the attention to Italy by employing techniques of unemployment duration and competing risks to analyse the overall Italian unemployment and its main exit routes. Those are tools to get an exhaustive picture and relevant insights on the evolution of the Italian unemployment duration. The techniques employed for the overall country obviously differ from the ones used for the region of Lombardy, and these differences also offer the scope for interesting considerations.

The third essay deals with the relevant issue of labour market mobility. This is a theme quite linked to unemployment, since it allows understanding and exploring its causes. We focus on two different kind of analysis.

At macro level, we estimate the gross flows between the relevant labour market states of employment, unemployment, and inactivity (three-state representation of the labour market) to quantify the overall

labour market mobility. The second part of this section, instead, offers micro econometrics estimates of the determinants of such labour market transitions, to investigate the causes of such mobility.

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Chapter 1

Introduction

Unemployment is a widely-debated phenomenon and detailed analysis may help in understanding its causes and possibly drive relevant policy decisions. The problem affects European countries, and a huge amount of literature has been produced in the attempt to explain its features. There has always been much heterogeneity in unemployment rates across countries, and this is even more marked today.

Our analysis will tackle the problem of unemployment in the Italian region of Lombardy and for Italy as a whole. Even within Italy, differences nationwide are striking: Italy's unemployment rate shows sharp regional differences between the north and the south; this is typically defined as a structural feature of our "dual labour market". The rate also differs between labour market categories, such as men versus women, young versus older workers, and the skilled versus the unskilled.

As pointed out in the literature (e.g. [Blanchard \(2006\)](#)), a high unemployment rate may be the arithmetic result of high flows into or out of unemployment, and/or a high average duration of unemployment. This decomposition of the basic indicator of 'unemployment' offers scope for subsequent analysis of unemployment duration, competing risks and labour mobility, for a detailed and dynamic understanding of this highly relevant phenomenon.

The question of whether the unemployment rate is a good indicator of the general state of the labour market is also addressed in the literature. If the labour market offers poor employment prospects people may decide not to join the labour force, younger people deciding to go on with their studies. These decisions will be reflected by lower participation rates and consequent higher rates of inactivity, not by higher rates of unemployment.

Governments, including that of Italy, may want to reduce the number

of the unemployed. This results in the belief that a complete examination of the labour market entails considering not only unemployment rates, but also participation and employment rates. However, looking at the unemployment rate alone, and more specifically, trying to ascertain its two main components as mentioned above, is not misguided and may afford an accurate description and useful suggestions.

This dissertation studies the features of unemployment duration in Lombardy and Italy as a whole, and the determinants of labor market transitions. The main purpose is to understand the determinants of unemployment duration, and in particular of the phenomenon of Long-Term Unemployment ('LTU' hereafter). The empirical analyses in this work are aimed at understanding both the causes of and the main exit routes from the state of unemployment. The main competing causes for leaving this state are examined in depth. The last section aims to shed light on the determinants of labour market transition in order to assess both the mobility of the Italian labour market and feasible intervention to enhance this dynamic. We provide the policy makers with some guidelines for evaluating the impacts of 1990s regulation (such as the 'Treu package' of 1997, L. 196/1997)¹, and for improving the employability of the work-force, especially of disadvantaged groups.

In this work I will analyse the years 2004-2005 for the Italian region of Lombardy, and the decade 1993-2003 for Italy as a whole. During the 90s, the average European unemployment rate remained very high, and this is reflected by the trend in the unemployment rate for Italy. It increased from 9.7% in 1993 to 11.3% in 1998; thereafter the trend reversed, with lower rates. In 2003, the last year analysed, the Italian unemployment rate was 8.4%.

It seems opportune to add statistics for the last few years not covered by the longitudinal individual-level data (Italian Labour Force Survey) employed in these investigations. The reduction continued up to 2007 (6.1%), but the statistics available for 2008 suggest an increase in the indicator. The rates for Lombardy, which is one of the most important Italian regions, were decreasing during the two years investigated, 2004-2005.²

The choice of the time span analysed was principally driven by two factors. Firstly it permits an early assessment of the effectiveness of the labour market regulations introduced within the decade. The most relevant for our evaluation include the "Treu Package" of 1997 (L. 196/1997)

¹For an assessment of the Treu Reform, see [Sciulli \(2006b\)](#), [Sciulli \(2006a\)](#) and [Schindler \(2009\)](#).

²The official published statistics on the Italian labour market are available on line at <http://www.istat.it/lavoro/lavret/forzeditalavoro/serie.html>.

and subsequent reforms. This legislation was aimed at increasing labour market flexibility, by enhancing employment opportunities for disadvantaged labour market categories, typically women and younger workers. In this way, a reduction in the total bulk of unemployment could be achieved, with a simultaneous decrease in the incidence of LTU. Secondly, it was due to data availability constraints. The LFS of the Italian National Institute of Statistics made available longitudinal individual-level data for this period.³ Future availability of data for more recent years will provide the opportunity for further research on these issues.

Chapter 2 offers a detailed survey of unemployment and labour mobility by summarising the "state of the art" of the literature and describing the scope of the analyses undertaken for this dissertation (Chapter 3-5).

Chapter 3 applies duration and competing risk models (CRM) to individual-level data on unemployment spells from the 2004-2005 labour force surveys of the Italian region of Lombardy. The decision to concentrate the initial part of this dissertation on Lombardy was driven by two main factors. The first was our interest in applying relevant techniques to a regional context characterised by a certain degree of homogeneity in economic indicators. Second, Lombardy is one of the most important Italian regions, and this is confirmed by the main economic indicators. One-sixth of the population of Italy lives in Lombardy (9.5 million people) and it is one of the three richest regions in Europe, with a per capita GDP that is 30 % higher than the rest of Italy (and represents 20% of the Italian GDP).

This area, as stated above, is quite homogeneous in terms of labour market indicators (there are only small differences between provinces, with the north-east having the fewest unemployment problems), and this permits verification of the effectiveness of our investigations of the determinants of unemployment duration and the related CR without having to deal with the typical dualism between north and south which, as will be explained, structurally characterises the Italian labour market. This is a way to investigate in depth the features of unemployment for a significant partition of Italy, which is representative of the richest regions in both Europe and Italy.

CR and duration models are becoming increasingly pervasive in applied research to explain the factors determining both the time spent in a state (i.e. unemployment) and the exit route from that state (i.e. leaving unemployment for a job or non-participation). For a sample of individuals experiencing unemployment we obtain useful insights into the baseline hazard by applying a nonparametric estimation of the survivor func-

³For details on the Italian LFS definitions, see [Istat \(2002\)](#).

tion, and we also estimate four different parametric models within which the Weibull provides the best fit to the duration data. We find evidence of positive duration dependence and of higher likelihood of leaving unemployment for married, younger and better educated males. Then, by considering four different competing causes, we estimate CR models to investigate what individual characteristics drive transitions out of unemployment.

Chapter 4 shifts attention to Italy, applying duration and competing risk models (CRM) to individual-level data on unemployment spells from the 1993-2003 labour force surveys in Italy. These estimates aim to apply the techniques of duration analysis and CR to the country overall by employing the available longitudinal individual-level data. The formulations used differ from those employed for the region of Lombardy, as will be clarified later. This is mainly due to sample size issues, which for Italy as a whole obviously involve employing more flexible formulations to model the likelihood of leaving the state of unemployment. The regional analysis instead is limited to parametric approaches which do not allow for a high degree of flexibility. This is typical of applications of the techniques explained to small-sized samples. However, it is the most appropriate way to investigate these issues, and it offers insights useful for exploring the features of unemployment for the Italian region of Lombardy.

In this chapter, we estimate the unemployment duration at the beginning and at the end of the decade for a sample of Italian individuals experiencing unemployment by using piecewise constant hazard models (PCHM), which provide the best fit to the duration data. We find evidence of strong negative duration dependence. This leads to increased unemployment persistence and consequently enhanced LTU incidence. The individual characteristics do not exert a sizeable impact on the likelihood of exiting. The effectiveness of recent labour market regulations is related to the reduction of short-term unemployment. The long-term unemployed, instead, remain locked in to the state of unemployment. This highlights the need for proper policy intervention in order to increase the employment opportunities of the long-term unemployed.

Next, by considering two different competing causes, we estimate CR models allowing independence of risks to investigate what individual characteristics drive transitions out of unemployment. Younger and better educated males with work experience have higher re-employment probabilities, while a considerable proportion of females leave the labour force after experiencing unemployment, signalling the presence of a discouragement effect. This section also describes the techniques used to allow

for dependence of competing risks and the different requirements to be satisfied. The impossibility of meeting these criteria, due to the kind of data available, does not permit the empirical investigation of the relevant issue of feasible dependence of the determinants of labour market transitions.

Clear differences emerge between the results for the Italian region of Lombardy and Italy as a whole. This is what we expected, since even though the different techniques are employed for the same purpose (analysing unemployment in depth), we have dealt with two quite dissimilar contexts, the former characterised by a certain degree of economic homogeneity, while the latter is strongly influenced by structural discrepancies.

The most striking difference refers to the nature of duration dependence. While this is positive for Lombardy, it is strongly negative for Italy as a whole. In Lombardy, the longer a spell of unemployment has gone on, the greater the likelihood that it will end. This may be consistent with the increased propensity to leave the labour force after a long unemployment experience, well known as a discouragement effect which affects the female component of the labour force. Negative duration dependence for Italy as a whole indicates a lower probability of leaving joblessness after a long unemployment experience.

This signals a higher unemployment persistence (and LTU incidence) for Italy as a whole. This is clearly due - as is also shown by the results for Lombardy - to a lower likelihood of exiting unemployment for those residents in the centre, south, and the islands with respect to the north of Italy. Married, younger, and better educated males have a higher probability of leaving unemployment in Lombardy, while individual characteristics do not exert a sizeable impact on whole-of-Italy estimates. In both cases the CR models emphasise the higher probability of successful exits for males and an increased propensity to leave the labour force for the female component, which underlines the presence of a discouragement effect.

Chapter 5 deals with the issue of labour mobility. In this section we apply standard multinomial logit specifications to individual-level data from the 1993-2003 labour force surveys in Italy. Following suggestions made in the main literature on the techniques for analysing data from longitudinal studies, we decide to follow a Markov chain approach to examine the labour market transitions between the states of employment, unemployment, and inactivity.

We estimate the determinants of labour market transitions at the beginning and at the end of the decade. We find evidence of increased labour

market stability. This refers particularly to increased unemployment persistence and consequently to enhanced long-term unemployment incidence. Some individual characteristics exert a sizeable impact on the probability of leaving the state of unemployment. The effectiveness of flexible labour market legislation is related to the reduction of short term unemployment. The long-term unemployed, instead, remain locked in to the state of unemployment. This highlights the need for proper policy intervention to increase employment opportunities of the long-term unemployed.

The results for employment transitions show the absence of increased employment opportunities for the disadvantaged labour market categories, especially for the young and females; these findings are confirmed for movements related to the state of inactivity.

We also present findings for the transition probabilities estimated on pooled data for the 1993-2003 period. After controlling for individual characteristics, by assuming their effect as being constant throughout the decade, and for cycle effects by employing structural indicators, we wish to see whether the residual year-to-year dynamics may be interpreted in the light of policy intervention or other economic facts.

Finally, in the *Conclusions* section, we summarise the main findings and elucidate policy implications and suggestions. We also point out how the methodologies developed and the research questions of this dissertation might be extended to provide background and inspiration for future research projects.