

DISSERTATIONES RERUM OECONOMICARUM
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KERLY ESPENBERG

Inequalities on the labour market
in Estonia during the Great Recession



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LIST OF ORIGINAL PUBLICATIONS

The current dissertation is based on the following publications referred to in the text by the Roman numbers:

- Study I: **Masso, J., Krillo¹, K.** Mixed Adjustment Forms and Inequality Effects in Estonia, Latvia and Lithuania. – Work Inequalities in the Crisis: Evidence from Europe. Edited by D. Vaughan-Whitehead. UK: Edward Elgar Publishing, 2011, pp. 38–102
- Study II **Masso, J., Espenberg, K.** Early Application of Fiscal Austerity Measures in the Baltic States. – Public Sector Shock. The Impact of Policy Retrenchment in Europe. Edited by D. Vaughan-Whitehead. UK: Edward Elgar Publishing., 2013 (forthcoming), pp. 84–133.
- Study III **Espenberg, K., Themas, A., Masso, J., Eamets, R.** Does a University Degree Pay Off In The Estonian Labour Market? Studies for the Learning Society, Vol 2, No 2–3, 2012, pp. 46–62.
- Study IV **Espenberg, K., Themas, A., Masso, J.** The Graduate Gender Pay Gap in Estonia. – Higher Education at a Crossroad: the Case of Estonia. Edited by E. Saar and R. Mõttus. Germany: Peter Lang Publishing, 2013 (forthcoming), pp. 391–413.

¹ Krillo is the maiden name of Kerly Espenberg.

LIST OF AUTHOR'S PUBLICATIONS AND CONFERENCE PROCEEDINGS

I Chapters in books

- Espenberg, K., Themas, A., Masso, J.** The Graduate Gender Pay Gap in Estonia. – Higher Education at a Crossroad: the Case of Estonia. Edited by E. Saar and R. Mõttus. Germany: Peter Lang Publishing, 2013 (forthcoming), pp. 391–413.
- Espenberg, K., Themas, A., Masso, J., Eamets, R.** Why Do Social Science Graduates Earn More than Natural Science Graduates in Estonia? – Higher Education at a Crossroad: the Case of Estonia. Edited by E. Saar and R. Mõttus. Germany: Peter Lang Publishing, 2013 (forthcoming), pp. 343–365.
- Masso, J., Espenberg, K.** Early Application of Fiscal Austerity Measures in the Baltic States. – Public Sector Shock. The Impact of Policy Retrenchment in Europe. Edited by D. Vaughan-Whitehead. UK: Edward Elgar Publishing., 2013 (forthcoming), pp. 84–133.
- Masso, J., Espenberg, K.** Early Application of Fiscal Austerity Measures in the Baltic States. – Public Sector Adjustments in Europe: Scope, Effects and Policy Issues. Edited by D. Vaughan-Whitehead. Geneva: International Labour Organisation, 2012, pp. 45–70.
- Masso, J., Krillo, K.** Mixed Adjustment Forms and Inequality Effects in Estonia, Latvia and Lithuania. Work Inequalities in the Crisis: Evidence from Europe. Edited by D. Vaughan-Whitehead. UK: Edward Elgar Publishing, 2011, pp. 38–102.
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II Articles in international journals

Merikull, J., Eamets, R., Humal, K., Espenberg, K. Power Without Manpower: Forecasting Labour Demand for Estonian Energy Sector. *Energy Policy*, 2012, Vol 49, pp. 740–750.

Espenberg, K., Themas, A., Masso, J., Eamets, R. Does a University Degree Pay Off In The Estonian Labour Market? *Studies for the Learning Society*, 2012, Vol 2, No 2–3, pp. 46–62.

Krillo, K., Masso, J. Part-Time/Full-Time Wage Gap in Central and Eastern Europe: the Case of Estonia. *Research in Economics and Business: Central and Eastern Europe*, 2010, Vol 2, No 1, pp. 47–75.

III Other research articles

Working Papers

Masso, J., Krillo, K. Labour Markets in the Baltic States During the Crisis 2008–2009: the Effect on Different Labour Market Groups. Faculty of Economics and Business Administration, University of Tartu, Working Paper Series, No. 79, 2011, 86 p.

Krillo, K., Masso, J. The Part-Time/Full-Time Wage Gap in Central and Eastern Europe: the Case of Estonia. Faculty of Economics and Business Administration, University of Tartu, Working Paper Series, No. 65, 2010, 65 p.

Eamets, R., Philips, K., Alloja, J., Krillo, K. Benchmarking EU Countries Against Danish Flexicurity Model. Indiana University, Bloomington, West European Studies Working Paper Series, 2008, 25 p.

Conference publications

Krillo, K., Masso, J. Reasons for Low Part-Time Employment in Eastern Europe – Any Role for Low Wages? – Discussions on Estonian Economic Policy XVII. Berlin-Tallinn: Berliner Wissenschafts-Verlag ja Mattimar OÜ, 2009, pp. 117–139.

Eamets, R., Philips, K., Alloja, J., Krillo, K., Lauringson, A. Benchmarking EU countries against Danish flexicurity model. – III International Conference: Baltic Business and Socio-Economic Development. 17–19 June, Tallinn, Estonia, 2007, 21 p. (CD)

INTRODUCTION

Motivation for research

Discourse on inequality dates back more than two thousand years. Aristotle was the first Western thinker to distinguish between justice and equity, as early as 350 BC in his “The Nicomachean Ethics” (World Development Report 2005). More than two centuries ago Rousseau (1754, quoted via Charles-Coll 2011: 18) declared in his discourse on the origins of inequality that when the first societies were born where individuals came to be part of groups in which private property existed and where each person had a specific role and therefore interacted with others, the foundations for inequalities among individuals were laid. Since Adam Smith’s “Wealth of Nations” (1776), economists have devoted a great deal of attention to the nature, causes and effects of inequality.

This thesis contributes to existing knowledge in several respects. Firstly, there is no well-developed framework of approaches to inequalities on the labour market. Therefore, a system of such inequalities is developed in this thesis. Secondly, the empirical sections provide new information about the responses of the Estonian labour market to the global financial crisis. Based on the title of the thesis, ‘Inequalities on the labour market during the Great Recession in Estonia’, there are three important questions to be answered that motivated the research: 1) why inequalities on the labour market; 2) why Estonia; and 3) why Great Recession.

The focus in the thesis is on inequalities that emerge on the labour market. To a degree such inequalities are inherent to developed market economies and reflect differences in people’s abilities, preferences and behaviour. Therefore, the question arises as to whether and why inequalities on the labour market should be reduced. The answer is that inequalities on the labour market may lead to many undesirable sociological side-effects such as social, educational and health inequalities which reduce the cohesiveness of society (including polarisation between communities, ethnic groups, regions and social classes), creating a basis for poverty and social exclusion and ending up in lower economic growth. Therefore, inequality on the labour market matters – if people are treated fairly and granted the opportunity to maximise their potential and achieve their aspirations, this leads to a more cohesive society, which in turn generates many beneficial social, educational and health effects and in the end leads to higher economic growth.

Estonia is a particularly interesting case in terms of inequalities on the labour market. In an international comparison the country tops the list of European Union (EU) Member States based on the gender pay gap and gender segregation on the labour market. Age-based discrepancies have also been remarkable, with high unemployment among young people, non-Estonians and those with lower levels of education presenting great challenges to the government ever since the country regained its independence.

The recent crisis, which has also been named the Great Recession², has placed inequalities on the labour market on the policy agenda. Over the past few years the world has experienced the worst economic crisis since the Great Depression – one that has resulted in widespread job losses and social hardship. The International Labour Organisation (ILO) has estimated that 22 million jobs would have been needed globally in 2011 to restore pre-crisis employment rates (World of Work report 2010). The achievement of the employment-related goals set in the Europe 2020 strategy is doubtful because of the recession. However, the European Commission still holds the view that Member States must implement measures to make work more attractive, help the unemployed back into work, combat poverty, promote social inclusion, invest in education and training and balance security and flexibility (European Commission conclusion of 24/25 March 2011). These goals can only be met if inequality on the labour market is tackled appropriately.

As a small open economy with a small domestic market, Estonia is vulnerable to external shocks. The ‘Russian crisis’ of the late 1990s showed that downturns in countries with which Estonia has trade relations have an immediate impact on its economy. Since joining the EU, Estonia’s economic growth has become a much-vaunted success story. The Baltic States became the most rapidly growing countries in the EU in the mid-2000s. According to Eurostat data, from 2000–2007 GDP per capita increased almost three-fold in Estonia. This growth also supported employment and wage increases: during this period the Estonian labour market was characterised by decreasing unemployment rates and labour shortages.

The global financial crisis and the slump in private capital flows affected the country heavily. During the crisis, Estonia – like the other Baltic States – experienced the sharpest decline in GDP of all developed countries (World Economic Outlook 2010). The recession had a severe effect on the labour market. It was widely speculated that the economies of Estonia, Latvia and Lithuania would not recover without external devaluation (Aslund 2011, Lindner 2011). Estonia was one of the first EU Member States to introduce strict austerity measures to cope with the effects of the recession. Using internal devaluation measures, the country maintained the lowest sovereign debt level of any country in the EU. This enabled it to join the Eurozone in 2011 and made Estonia’s fiscal consolidation ability a success story known internationally (Aslund 2011, Lindner 2011).

The impact of the Russian crisis – the only economic downturn Estonia had experienced since the end of its transition process – reflected the fact that the shock did not influence different labour market groups in the same way (for more details, see Appendix 1). Therefore, it is important to analyse which labour market groups were particularly vulnerable during the crisis and what changes occurred in inequalities on the labour market. This analysis enables

² This term was used by Strauss-Kahn in his speech ‘Crisis Management and Policy Coordination: Do We Need a New Global Framework?’ of 15 May 2009.

proper policy measures to be developed in support of active participation, the hindering of the negative consequences of the crisis (like long-term unemployment) and avoiding people becoming discouraged and losing their skills and knowledge.

Aim and research tasks

The aim of the thesis is to ascertain which labour market groups have been most vulnerable since the onset of the recession in Estonia. Such analysis is necessary in order to develop appropriate policy intervention measures targeted at specific labour market groups, to support the sustainable recovery of the economy and to avoid such negative consequences as social exclusion and poverty. The analysis reveals which labour market groups have proven most vulnerable and why, enabling conclusions to be drawn as to whether the crisis has led to systematic imbalances on the labour market that require strong policy intervention measures in order to be overcome or rather short-term fluctuations that are likely to recover once the economy stabilises. Since labour market institutions (minimum wages, income tax and industrial relations) have an important role in influencing the effects of inequalities on the labour market during a crisis, these are also covered in the thesis.

Particular attention is turned in the thesis to recent university graduates. There are few studies analysing the labour market success of recent graduates during the recession. The position of such graduates is an interesting research question because both theoretical considerations and empirical results indicate that more highly educated are in a much better position even during a crisis. However, it was not known whether this also applied to recent university graduates in Estonia. During a recession, when jobs are being destroyed, it may be difficult for them to enter the labour market – and yet theories assume that this group should be highly competitive on the labour market.

Two aspects are analysed in regard to university graduates: the gender pay gap and inequalities on the labour market between graduates of social and real sciences. The latter was chosen as a topic for analysis because the Estonian Higher Education Strategy for 2006–2013, which was adopted by the Estonian parliament in 2006, clearly indicates that more real scientists are needed for knowledge-based development. It also promotes real sciences studies. In recent years there has been debate in Estonian society that there is ‘over-production’ of social sciences graduates in the country and that they face difficulties finding jobs after graduating. However, no studies have been carried out that indicate whether this assumption is correct. Therefore, this thesis fills in this gap and analyses whether these assumptions are supported by empirical facts.

The former was chosen since research conducted in other countries shows that gender gap tends to be low or non-existent for those entering the labour market, our analysis was motivated by a desire to find out whether the same is

true for Estonia in the context of the crisis, where the labour market conditions have been less favourable compared to more stable times. The group of recent university graduates surveyed in the context of the gender pay gap is interesting in terms of the labour market because it provides a useful insight into whether gender segregation and possibly even discrimination effects emerge among university graduates – a group that should have the best grounds for equal treatment.

To achieve the aims of the thesis, the following research tasks were set:

1. to develop a system of inequalities on the labour market that draws together the employment and remuneration side of such inequalities;
2. to analyse which labour market adjustment mechanisms were used on the Estonian labour market during the Great Recession;
3. to analyse the differences between the labour-related adjustment mechanisms used in Estonia's public and private sectors during the Great Recession;
4. to analyse the role of the labour market institutions in inequalities on the labour market in Estonia during the Great Recession;
5. to analyse how inequalities on the labour market changed by gender, age, nationality and educational level in Estonia during the Great Recession;
6. to analyse the extent and causes of inequalities on the labour market between graduates of social and real sciences in Estonia during the Great Recession;
7. to estimate the extent of the gender pay gap among university graduates in Estonia during the Great Recession; and
8. based on the results of the previous research tasks, to analyse which labour market groups have been more vulnerable during the crisis and what the main factors influencing this were.

Some limitations are set on the research. In the thesis the focus is on inequalities on the labour market. Therefore, non-wage income inequalities (social transfers, pensions, capital income etc.) and other types of inequality (social, educational and health care) are not analysed. The short-term effects of the Great Recession on labour market inequalities are analysed because the study was conducted during the early years of the recession (2008–2010) and it was not possible to identify longer-term effects. In analysing inequalities, it is possible to focus on a single-country experience or make a cross-country comparison. In the thesis the focus is primarily on the Estonian experience, although the inequalities on the labour market in the other Baltic States and labour market developments in the EU during the Great Recession are analysed to place the results in a wider context. The focus is on mapping the size of, changes in and influences on inequalities on the labour market in Estonia; the consequences and active labour market policies are not analysed in detail in the thesis.

There are many socio-economic factors by which inequalities can be analysed. In the within-country context these are mostly socio-demographic and socio-economic factors like gender, race/ethnicity, nationality, education and

age; personal opinions and beliefs like religious and political views and sexual orientation; and health condition like disabilities and HIV/AIDS (European Handbook on Equality...2007). The following factors are included in this thesis: gender, ethnicity/nationality, educational level and age. There are two reasons for this: firstly, some aspects (such as race) are not important issues when it comes to inequalities in Estonia. Secondly, for aspects like political opinion, social origin, sexual orientation and health status we lack relevant data in labour market databases. The discussion on inequalities on the labour market among recent graduates is limited to the gender wage gap and inequalities on the labour market between social and real sciences graduates, since although these two issues have been hotly debated in society of late, no research has been done that would provide an insight into the issues.

Data and methodology

Several data sources are used in the thesis: Eurostat, national statistical office databases, an Estonian labour force survey and alumni surveys. The Eurostat data and data gathered from the national statistical offices in the Baltic States are used to present an overview of general trends in labour market developments as well as other economic indicators (GDP, exports, debt etc.). National statistical office databases are used when data is lacking in Eurostat.

The Eurostat and national statistical office data are comparable across countries, but quite limited in terms of variables. Therefore calculations based on Estonian labour force survey data are used to analyse inequalities for which no data is publicly available. Another reason for using the labour force survey data is the time lag related to releasing Eurostat (and other international organisation) data. The lack of data for recent years is the main reason why relatively little research has been done to analyse the effects of the recession from 2008–2011. Up-to-date Estonian labour force survey data was available to the author as the University of Tartu has an agreement with Statistics Estonia. Data from recent university alumni surveys are used to analyse the inequalities on the labour market between recent graduates of social and real sciences and the gender pay gap labour market behaviour of university graduates during the crisis.

The main quantitative data analysis methods used in the thesis are descriptive analysis and regression analysis. Oaxaca-Blinder decomposition is also applied to gain more insight into the ‘explained’ aspect of inequalities (i.e. the fraction of the difference due to the explanatory variables used in the analysis) and the ‘unexplained’ aspect (i.e. the fraction of the difference not explained by the variables used in the analysis).

In addition to quantitative research methods, case studies are also used to illustrate the effects of the crisis. Quantitative analysis methods provide an overview of the inequality situation, but case studies tell the stories behind these

numbers. Case studies are chosen to illustrate the ‘typical’ situation or an original case in the Estonian context. Therefore, case studies add to the analysis as they provide greater insight into the experience of a particular ‘case’ (as in the stories of different enterprises at the end of chapter 3.1) or explain the causes and effects of certain sectors (as in the case studies at the end of chapter 3.2). The qualitative data used in the thesis were collected mainly through interviews and media analysis. In the case studies a combined approach was used: quantitative data were combined with the results of the interviews and document analysis. If possible, all relevant stakeholders were interviewed to guarantee the triangulation of the results presented and avoid over-emphasising the opinions of a certain stakeholder group. Template analysis was used as the qualitative data analysis method in the thesis.

Structure of thesis

The thesis consists of six chapters. The first chapter provides the theoretical framework for inequalities on the labour market. In chapter 1.1 the nature of the inequalities on the labour market approach and its position in the inequalities framework is introduced. Influences of such inequalities as well as links between labour market flexibility and inequality during the recession are discussed in chapter 1.2. In the second chapter research questions and propositions are set out. These are based on the theory introduced in the first chapter as well as Estonia’s experience of the only financial crisis – the ‘Russian crisis’ – it had gone through after since its transition period (with further details provided in Appendix 1). The data and research methods used in the thesis are also introduced as well as indicators used to measure inequalities on the labour market.

The third and fourth chapters are empirical. The third chapter – one of the first to introduce Estonia’s crisis experience to an international audience – focuses on trends in inequalities on the labour market, mainly in Estonia, during the Great Recession although in some respects a comparative analysis of all three Baltic States has been carried out. Industrial relations during the crisis are also analysed in chapters 3.1 and 3.2 as this is the important institutional factor affecting the labour market situation of different groups. The chapter 3.1, ‘Mixed adjustment forms and inequality effects in Estonia, Latvia and Lithuania’ (Study I), focuses on the evolution of inequalities on the labour market during the early years of the recession (2008–2009). Different adjustment mechanisms (redundancies, part-time employment, forced vacations, wage reductions etc.) used by enterprises and public sector organisations in Estonia in order to cope with the negative effects of the crisis are at the heart of

the analysis in this chapter³. After outlining the main trends, inequalities on the labour market between different categories are discussed. The chapter also includes two case studies: one focuses on the adjustment mechanisms used by large industrial enterprises; and the second on labour-related adjustments made in one of the largest public sector employers in Estonia, the Estonian Police and Border Guard Board.

Chapter 3.2, 'Early application of fiscal austerity measures in the Baltic States' (Study II), focuses on the effects of the crisis on inequality on the labour market in the Estonian public sector. This topic is particularly important because, unlike the rest of the EU where public sector reforms began in 2010 and 2011, in Estonia the public sector was heavily consolidated as early as the beginning of 2009. Therefore, there should be more evidence of the effects of public sector cuts on the economy and the labour market, which may also provide lessons for the rest of Europe. The chapter starts by setting the scene, analysing trends in the financial positions of Baltic States governments a few years before and during the crisis (2006–2010). After this the employment adjustments made in the public sector during the crisis are analysed, drawing parallels with the private sector, including job flow analysis and the public-private sector wage gap. The impact on the supply of public services is also covered. Two case studies are provided at the end of the chapter: one looks at changes in accessibility to health care services as a result of the crisis in Estonia; the other study analyses how the recession has influenced service quality and employment in the Estonian Rescue Board, a large public sector organisation responsible for guaranteeing rescue services in Estonia.

An overview of developments in inequalities on the labour market in EU countries during the Great Recession is given in chapter 3.3. This chapter paints the larger European picture, enabling a better understanding of the development and inequalities of the Estonian labour market in the broader European context. All three aspects of inequalities on the labour market are analysed, based on recent EU-level cross-country surveys that focus on developments during the Great Recession.

Chapter four focuses on the labour market inequalities of Estonian university graduates using data from Estonian alumni surveys. Chapter 4.1, 'Does a university degree pay off in the Estonian labour market?' (Study III), analyses the inequalities on the labour market between graduates in the social and real sciences. After outlining the relevance of the topic, an overview of Estonia's higher education system is provided. Data are then introduced and employment and wage differences between graduates and their causes are analysed. The factors influencing wage inequality between the graduates are presented.

The second sub-chapter, 'The graduate gender gap in Estonia' (Study IV), analyses the extent of and reasons for the gender pay gap between recent

³ Other effects of the recession such as trends in work-related accidents, participation in training and labour disputes are also discussed. These topics are not directly related to inequality, but indicate labour market developments during the recession.

graduates. Firstly, an overview of the determinants of the gender pay gap among graduates based on previous studies is given. Then the econometric framework, data and variables used in the analysis are introduced. Gender differences by study field as well as the gender pay gap and reasons for wage differences are analysed. Here again the Oaxaca-Blinder decomposition method is applied.

The fifth chapter summarises the main findings of the thesis. It presents a summary of studies and discussion about developments in inequalities on the Estonian labour market during the crisis. The adjustment mechanisms used and the role of institutions in influencing inequalities is summarised. Which inequalities are likely to be more persistent and harmful to recovery unless proper policy measures are implemented is also discussed. The last chapter presents both conclusions and suggestions for future work.

Contributions of individual authors

All articles forming the empirical part of the thesis are co-authored. Study I was written by both authors who contributed to all parts of the study. Kerly Espenberg was solely responsible for chapter 3.1.7.2 (the case study of austerity measures used by the Estonian Police) and Jaan Masso for chapter 3.1.7.1 (the case study of adjustment mechanisms used in different private sector companies in Estonia during the early stages of the Great Recession).

In Study II both authors contributed to all parts of the article. Jaan Masso was mainly responsible for making the calculations based on micro-data and both authors were responsible for interpreting the results of the calculations. Kerly Espenberg collected and interpreted data based on Eurostat and national statistical offices and was responsible for both case studies.

In Study III Kerly Espenberg was responsible for writing the overview of Estonia's higher education system, analysing employment and wage discrepancies between university graduates in the real and social sciences and interpreting the results of the wage models. The calculations of the models were done by Jaan Masso and the literature review by Aivi Themas. Raul Eamets contributed to the discussion section.

In Study IV Kerly Espenberg was solely responsible for the chapters outlining the econometric framework used in the article and empirical chapter analysing gender segregation in higher education studies in Estonia and the wage gap among recent graduates. She also contributed to the literature review, which was mainly written by Aivi Themas, and to interpreting the results of the wage regressions in cooperation with Jaan Masso, who was responsible for the wage gap calculations.

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I am fully responsible for any mistakes or omissions detected in this thesis.

I. NATURE, CAUSES AND POSSIBILITIES OF TACKLING INEQUALITIES ON THE LABOUR MARKET

I.1. Inequalities on the labour market

I.1.1. Types of inequality

Amartya Sen (1973) neatly summarised inequality by saying that the idea is both very simple and very complex. On the one hand it is so simple that most people understand the nature of inequality; on the other, the nature of inequality is so complex that many philosophers, political theorists, sociologists and economists have debated its meaning and implications in the past, continue to do so in the present and will very probably still be debating it in the future.

In the simplest terms, inequality can be defined as the absence of equality. However, this definition is too simplistic and conceals many facets of the complex nature of inequality. Equality and inequality are neither opposites nor extremes, and absolute equality is rarely achievable or even desirable. When tackling inequality, the main questions are: what types of inequality are desirable or acceptable, and to what extent? As such, discourse on inequality is closely related to distribution and equity. The roots in political philosophy of equity and inequality date back to the ancient Greeks, while Roman law also included principles of equality for free Romans (whilst discriminating against slaves) (World Development Report 2005). Plato, for example, argued that “if a state is to avoid... civil disintegration... extreme poverty and wealth must not be allowed to rise in any section of the citizen body, because both lead to disasters” (quoted via Cowell 1995: 21).

In contemporary political philosophy there are many competitive strands in distributive justice theories that have differing views as to what a just society is and in what cases the inequalities that emerge are fair or acceptable. An overview of the most important distributive justice theories is provided below. A comprehensive examination of contemporary theories and critics is beyond the scope of this thesis and can be found, for example, in Roemer (1998a) and Rawls (1999).

Theories promoting welfare-based principles of equality – the most famous strand of political thinking being utilitarianism – argue that distributive principles should be designed and assessed based on their influence on welfare. Utilitarianism (founded by Jeremy Bentham in the 18th century and further developed by Mill, Arrow and others) advocates the view that resources should be distributed in a way that maximises their utility. Utilitarianists paid no particular attention to the distribution of utility; in their view it was the total sum of utility in society that should be maximised. (Roemer 2011)

Modern theories of distributive justice have moved beyond the utilitarian view, mainly because of its fundamental failure to deal with welfare

distribution. Since the beginning of the 1970s several influential thinkers like John Rawls, Amartya Sen, Ronald Dworkin and John Roemer have made remarkable contributions to developing equality theory. Egalitarians (most famously the scholars Sen, Cohen and others) advocate the equal allocation of resources among all members of society. Simpler egalitarian theories claim that everyone should be assured an equal quantity of resources, while more sophisticated egalitarian thinkers understand the shortcomings of such thinking since lazy people would be rewarded and the hard-working discouraged (Rawls 1999). Therefore, adherents to strict egalitarian views have developed complex measures (like equal happiness, equal power to use resources and an equal chance to be happy) which would give everybody equal amounts but would not suffer from these drawbacks (Roemer 1998b). Sen's theory (1973, 1985 and further developed in 1997) is based on the idea that people are driven by different factors in changing resources to actions. According to his view, the set of possible functionings (a "capability set", i.e. a set of actions a person could perform and states the person values or enjoys) from which people could choose should be equal.

John Rawls represents the view that fair principles of justice are those that everyone would agree as being in the fair position, i.e. they permit a divergence from strict equality if inequalities make the most disadvantaged society members better off. In his 'Theory of Justice' (1971, 1999) Rawls claims that each person must have equal basic rights and liberties, and in order to be fair socio-economic inequalities must meet the equal opportunities criterion (i.e. based on the position and occupation open to every member of society meeting the equal opportunity criterion) and must serve the well-being of those members of society who are in the worst situation. Rawls's 'Difference Principle' claims that the allocation to be chosen should maximise the opportunities of the least privileged group. Inequalities are therefore acceptable only insofar as the most vulnerable have the highest gains compared to any other distribution. Progressive taxation is an example of Rawls's principle in practice.

Ronald Dworkin (1981a, 1981b, 2002) provided one of the most detailed responses to Rawl's theory. He relies in his equality theory on the principle that in order for distribution to be just, one person should not envy another because of the resources they have obtained. The theory developed by Dworkin and known as the 'luck egalitarian view' is based on the idea that factors that are not under the control of the individual should not have an impact on distribution. In other words, unequal natural endowments should be compensated. Provided people have an equal starting point, the end results can be unequal due to choices made – and people should live with the consequences of their choices.

Roemer (1998b) advocates an equal opportunity policy. While acknowledging that each individual is responsible for their own welfare, he stresses the importance of circumstances over which a person has no control. As such, Roemer sees the need for public action in order to equalise the opportunities that people have.

While the aforementioned principles allow state intervention to achieve the desired distributive pattern, libertarians (Robert Nozick being the best known representative of this strand of thinking: anti-egalitarian) criticise distributive ideals that have an economic rationale (such as the maximisation or equality of welfare or goods) and argue that any outcome that is achieved as a result of the voluntary exchange is just. Anti-egalitarians support the idea on minimal state intervention and see the main role of the state in guaranteeing property rights. (Roemer 2011)

Although Rawls, Sen, Dworkin and Roemer have important differences in their theories, they also have much in common. They have all contributed to a shift in focus on social justice from outcomes to opportunities; they all reject final welfare or utility as the appropriate grounds on which to assess fairness of distribution; they all acknowledge the importance of the individual's responsibility in moving from resources to outcomes; and they all accept that a fair allocation of resources is one that is accepted by the members of society (World Development Report 2005).

As indicated above, theories differ in whether they support the achievement of equality in resource distribution (the egalitarian view) or rather equality of opportunity (Rawls and his followers). Equality of results (also known as equality of outcome) means equality in end results (i.e. in the labour market context equal (un)employment rates or wages). However, most strands of contemporary political philosophy support the idea of guaranteeing the equality of opportunity. As initiated by Rawls (1971) and formalised in Roemer (1998b), equality of opportunity means that those who are similar should be treated similarly without arbitrary barriers. As Lloyd Thomas (1977: 388) concluded: "One has an opportunity to do something or to have something provided that one can do it or have it if one chooses. One has no opportunity to do something or to have something if one cannot do it or have it even if one wishes to."

From the labour market perspective, equality of opportunity means equal access to jobs and equal pay for equal work. Most strands of contemporary equality philosophy theories share the understanding that perfect equality does not mean just distribution. Those who work harder or have invested in themselves in order to acquire higher skills and are therefore more productive should earn more and be more competitive on the labour market. As such, equality (of both opportunity and results) on the labour market in modern political philosophy does not mean achieving uniform equality for all labour market participants, but rather relies on the idea that an individual's success in life (or in our case, on the labour market) should depend on their talent and achievement and not on irrelevant characteristics, i.e. personal characteristics that an individual cannot influence (such as family background, nationality, race, religion, gender and sexual orientation) (Chalmers et al. 2011, see also chapter 1.1.2). This way of thinking could be summarised using Aristotle's famous quote: "Equality consists in the same treatment of similar persons", i.e. like should be treated alike.

Equality of results and equality of opportunities are often seen as contrasting political philosophies (Roemer 1995). A mainstream political view sees these two as largely exclusive in the sense that in order to achieve one type of equality to the other needs to be sacrificed at least to some extent. For example, to promote gender or ethnic equality in employment, one policy measure that could be employed is the use of quotas, i.e. determining that a certain percentage of the workforce/senior executives should consist of women or ethnic minorities (see chapter 1.2.2 for a more thorough overview of policy measures used to tackle inequality on the labour market). These measures discriminate against men or those who are not ethnic minorities. In this case achieving equality of results leads to a violation of equality of opportunity. The contrary may also hold: achieving equality in opportunity may lead to inequality in results (Chalmers et al. 2010).

However, these two equality concepts are not mutually exclusive. Equality of opportunity measures may also contribute to achieving equality of results, and *vice versa*. For example, anti-discrimination rules that remove artificial barriers and promote equality of opportunity in participation on the labour market for groups who are discriminated against also support equality of results when the labour market participation of these groups increases (Strauss 1992).

1.1.2. Inequalities on the labour market

In this thesis two aspects of the inequalities that emerge on the labour market – employment and wage inequality – are drawn together under the umbrella term ‘inequalities on the labour market’. Before introducing this concept, an overview of the inequality system is provided.

Inequalities on the labour market form part of economic inequality. In the Oxford Handbook of Economic Inequality this term is defined as “inequalities with an economic effect or an economic origin, being as much an outcome of the underlying economic process as an input of these processes” (Salverda et al. 2011: 8). This definition indicates the broad nature of economic inequality. However, the term tends to be used in a much narrower sense (in the Oxford Handbook of Economic Inequality and in Sen (1997) for example, and in many other studies), reflecting disparities in the distribution of material wealth or monetary (both labour and non-labour) income between groups. In addition to aspects related to labour income (and, when using the broader term, the labour market) which are introduced in detail below, economic inequality also includes non-labour income (social transfers, pensions, capital income etc.) and assets (see Figure 1).

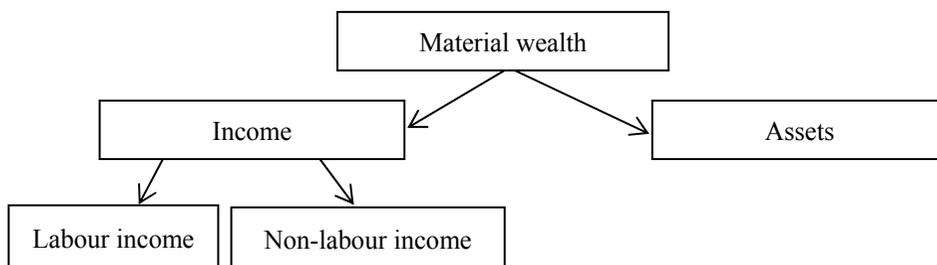


Figure 1. Position of labour market income in wealth system (developed by author)

In addition to economic inequality, three other types of inequality are usually distinguished in inequality literature (see for example the Oxford Handbook of Economic Inequality 2011; Wilkinson, Pickett 2010): social, health and educational inequality. These four dimensions can be summed up as socio-economic inequality. Health inequality (also known as ‘health equity’ or ‘healthcare disparities’) means differences and disparities in health achievements, i.e. the quality of health and health care, such as life expectancy, mortality, higher incidence of [a certain] disease and access to health care. Educational inequality refers to disparities in grades, test scores, drop-out rates, [high school and university] entrance numbers and completion rates etc. Social inequality covers areas such as property rights, freedom of speech and assembly, voting rights, access to housing, food and other social goods, job satisfaction, access to credit and community life. (Why Socio-Economic... 2010)

These four dimensions are closely linked and reinforce one another. For example, differences in initial conditions (social inequality) may result in educational and health inequality, as wealthier parents enjoy more possibilities to provide better education and health care for their children (intergenerational transmission effects). This in turn influences the labour market success of the person, creating inequality on the labour market. Educational inequality can lead to economic inequality, and *vice versa*. However, these different dimensions are rarely brought together – in literature only one or two aspects tend to be analysed. A recent book by Wilkinson and Pickett (2010) is one of the few exceptions, as it analyses all four aspects of inequality together.

The inequalities in labour market participation/involvement are not usually included in economic inequality debates, which concentrate mainly on income-related aspects. This is the main reason that led to the necessity to create a system for inequalities on the labour market. In this thesis these inequalities are divided into two groups: participation inequality and labour income inequality (see Figure 2). Labour market participation consists of two parts. The first of these – labour market participation level inequality – reflects inequalities in the rate of participants actively engaged on the labour market. The term ‘participation’ should be understood in regard to employment and unemployment; its flipside, ‘inactivity’, has no place here. This side of inequality is measured by employment and unemployment gaps. Since not only participation

but also the extent to which a person is engaged in labour market activities is important, the second side – labour market participation activeness inequality – reflects differences in the level of active involvement in labour market activities, i.e. inequality in working hours. This side of inequality is measured by working hours and part-time work.

The other side of the labour market participation is related to inequalities in labour income. Non-labour income like social transfers and capital income as well as assets do not form part of labour market remuneration inequality and are therefore beyond the scope of the inequalities on the labour market system (but as discussed above, they do form part of economic inequality). However, such income of course influences labour market participation decisions.

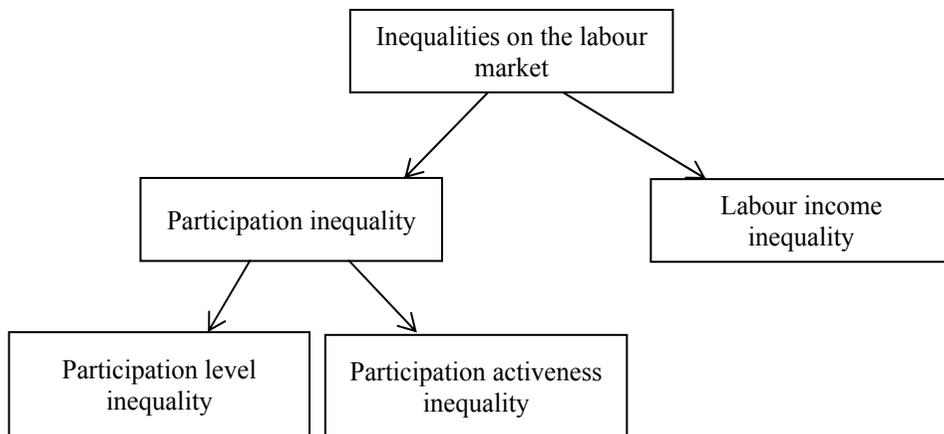


Figure 2. Inequalities system (developed by author)

There are three important aspects that require our attention in order for us to understand the nature of the inequalities on the labour market developed in this thesis: the groups between whom inequalities are analysed, measurement of inequalities and to which extent inequalities are acceptable or desirable. The first question is between whom the inequalities are measured in the thesis. There are many socio-economic and socio-demographic factors that have been used in national (i.e. within-country) inequality studies, as per the bases of inequality in previous studies, like gender, race/ethnicity, nationality and age; personal opinions and beliefs like religious and political views, sexual orientation etc.; and health condition like disabilities, HIV status/AIDS and so on (European Handbook of...2007). In the labour market context, inequality related to gender, nationality, age and educational level are mainly analysed. There are two key reasons for this: firstly, some aspects (like race) are not important issues since the racial minority community is small in Estonia; and secondly, for aspects like social origin, sexual orientation and For age, three groups are distinguished: young (15–24), middle-aged (25–49) and elderly

(50+). For nationality two groups are distinguished: Estonians and non-Estonians. In terms of educational levels, three groups are distinguished: those with primary, secondary and tertiary education.

The second issue is the measurement of inequalities on the labour market. These can be measured using different indicators. Labour income inequality can be measured on the level of society (using the composite indices that indicate the distribution of the labour market across all wage earners) and between certain groups (the gender wage or (un)employment gap, the wage or (un)employment gap between Estonians and non-Estonians, youth and the elderly etc.). Participation inequalities are measured between groups since no composite indicators that would adequately measure them are widely used. For participation level inequality, two states exist in essence: people can either be employed or unemployed. For participation activeness inequality it is possible to create an indicator similar to wage inequality (hours distribution across those employed), but this indicator is not widely used. The approach of measuring inequalities on the labour market in this thesis is outlined in more detail in chapter 1.2.2.

As discussed in the previous chapter, zero-level inequality (i.e. total equality) is not realistically achievable because of the differences in people's talents, preferences etc. The last question discussed in this section is the extent to which inequalities on the labour market are desirable or acceptable. It is not possible to provide an unambiguous answer to this question. Friedman (2008) recently attempted to determine how much inequality is needed to provide optimal economic efficiency and how much is too much. He showed theoretically that there must be a point from which the incentive ceases to make economic sense and where the opportunity costs of other economic priorities are too high. His response was that inequality becomes excessive when its cost to society exceeds the value of the increased productivity resulting from the incentive. In practice inequality is usually observed and interpreted from a comparative perspective. For example, comparing the level of inequality in Estonia with the EU average and extreme cases provides an insight into Estonia's relative position. Inequality levels remarkably above the average are considered to be danger signs, while lower levels are interpreted as being good. However, as emphasised above, there are no clear target lines.

To conclude, contemporary distributive justice theories have contrasting views which inequalities and to what extent are acceptable and which not in the society. Although there are differences between different stands of political philosophy, most of them also share common view that equality of opportunity should be guaranteed, i.e. equal should be treated alike and equality of results would not be fair because it would penalise those who have more talented or hard-working. A concept of the inequalities on the labour market has also been developed that draws together the different aspects of inequalities that emerge on the labour market: participation inequality (which includes both participation level and participation activeness inequality) and labour income inequality.

I.2. Influencers of inequalities on the labour market and the development of inequalities on the labour market during the recession

I.2.1. Factors influencing inequalities on the labour market

There is a complex set of interrelated factors that influence inequalities on the labour market. Since the focus in this thesis is on the within-country approach to such inequalities, this chapter introduces the factors influencing these inequalities between groups (as opposed to between countries). These factors can be divided into four groups (see Figure 3):

- 1) personal characteristics;
- 2) society-level attitudes;
- 3) economic indicators;
- 4) institutional factors.

These factors are introduced in turn. It should be noted that society-level attitude, personal characteristics and economic indicators are the factors that cause the most inequality on the labour market, while institutional factors may both cause and tackle such inequalities, depending on the nature of the policy action.

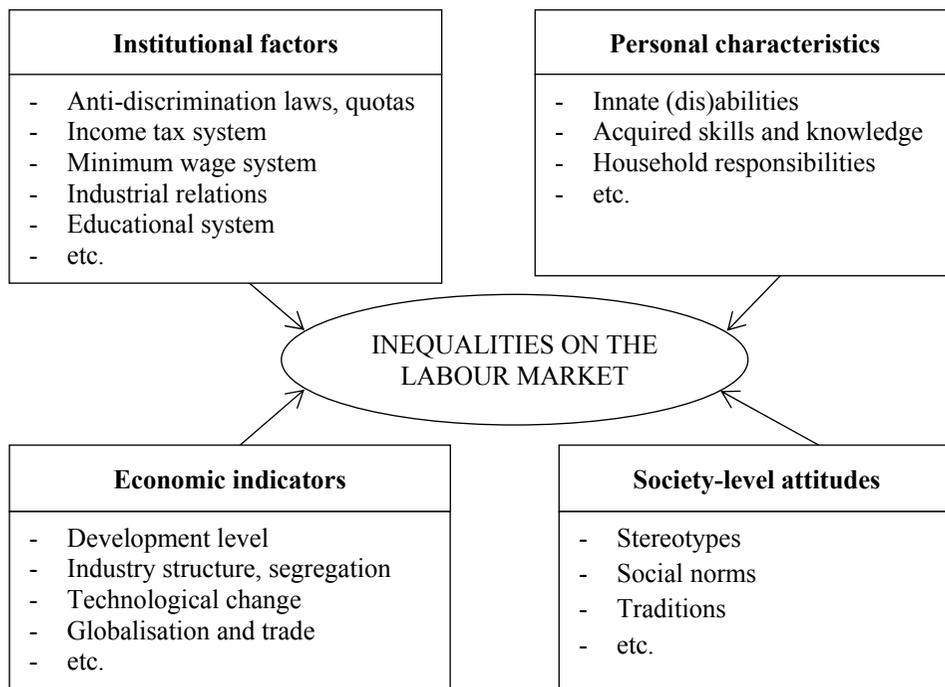


Figure 3. Main influencers of inequalities on the labour market (developed by author based on Lawlor et al. (2011) and Blanchflower, Slaughter (1999))

Personal characteristics

Personal characteristics play an important role in determining a person's labour market position. These can be divided into two groups that are closely linked: individual characteristics and household characteristics. Individual factors can in turn be divided into two groups:

- 1) innate abilities (intelligence, physical (dis)abilities etc.) and characteristics (gender, nationality, race etc.); and
- 2) the skills and knowledge (education, work experience etc.) acquired during people's lives.

Innate (dis)abilities (intelligence, personality, charisma, strength, mental and physical disabilities and others) influence a person's labour market career prospects. Those who are more talented and have no disabilities have better prospects on the labour market. According to human capital theory (see, for example, Becker 1964), from acquired skills, education has a huge influence on a person's labour market success. In addition to education, other skills and knowledge acquired (such as previous labour market experience) also lead to inequalities on the labour market (a detailed analysis of causal effects of education on earnings is provided in Card 1999). Empirical data clearly support the validity of human capital theory and increasing returns on education and job tenure, reinforcing itself in the context of the financial crisis. OECD and Eurostat data clearly show that people with higher educational levels exhibit higher wages and lower unemployment rates even in a crisis period

Innate abilities, education and job experience represent the 'objective' side of the inequalities seen on the labour market. Other innate personal characteristics like gender, nationality and race influence the probability of a person's labour market success as well (see chapter 1). The inequalities arising due to these factors are closely linked with the norms and traditions inherent in society and segregation on the labour market discussed below. These factors may cause 'non-objective' inequalities in the sense that having certain characteristics may pose a higher risk of being disadvantaged on the labour market.

The socio-economic situation of the household, including wealth and asset ownership and the attitude of the parents towards education and working, plays a role in either promoting or discouraging a person's innate abilities. Richer families are better able to support the acquisition of skills that help improve the career prospects of their children. A thorough overview of intergenerational mobility of the labour market is given by Solon (1999).

Household composition also influences labour market success, especially in terms of the gender division of the family and care responsibilities. For example, women are likely to have more frequent and longer career breaks and more flexible working hours for family reasons. Raising children often means that women do not participate (at least not full-time) on the labour market for at least some period in their life, which influences both their wages and

employment prospects, raising inequalities. (Blundell, Macurdy 1999, Killingsworth, Heckman 1986, Montgomery, Trussell 1986)

Society-level attitudes

Inequalities on the labour market arising due to society-level factors are often not objectively explainable. Stereotypes, social norms and traditions are ‘invisible’ obstacles that may hinder the labour market access and success of certain groups and lead to unfavourable treatment of particular groups on the labour market based on their individual characteristics (such as gender, race and ethnicity) without any objective reason, in turn possibly leading to discrimination. These factors may stop certain groups from accessing the labour market and affect their labour market performance and pay. In other words, traditions and norms inherent in society may result in both inequality of opportunity and results. (For further details, see Polachek and Siebert 1993)

According to the Merriam-Webster dictionary, negative stereotypes and beliefs are standardised mental pictures held by members of a group about another group or phenomenon. Stereotypes typically represent oversimplified or overgeneralised opinions: perceived group characteristics are assumed to apply to every member of the group. Stereotypes can originate from the culture in which people are socialised, real inter-group differences (e.g. cultural and socio-economic differences) and cognitive bias resulting from the process of categorical differentiation between groups of people (European Handbook on Equality Data 2007). Social norms are laws that govern society’s behaviours (Oxford Dictionary of Sociology). These determine what is regarded as ‘correct’ and ‘incorrect’. Traditions are beliefs within a society that originate in the past but are still maintained in the present (Merriam-Webster dictionary).

Gender stereotypes are a well-known example of attitudes that cause inequalities on the labour market. In the opinion of the European Commission, the undervaluing of women’s work as well as traditions and stereotypes⁴ are key causes of the gender pay gap in Europe. The commission’s opinion highlights the fact that women frequently earn less than men doing jobs of equal value because jobs that require similar skills, qualifications or experience tend to be poorly paid and undervalued when they are dominated by women. For example, [mainly female-dominated] cashiers’ positions in supermarkets are usually more lowly-paid than [mainly male-dominated] positions involving stacking shelves and other physical tasks (Opinion on the effectiveness... 2009).

⁴ The other causes are: 1) horizontal and vertical segregation of the labour market, as introduced under economic indicators; 2) wage structure (in the Opinion on the effectiveness... (2009) it is claimed that women are less represented in the collective bargaining process and that individual and collective wage negotiations lead to a situation where female professions are more lowly-paid compared to those of men); and 3) reconciliation of work and private life (introduced under personal characteristics).

Ethnic stereotypes are also widely recognised. Ethnic inequality has no rational basis, but visible physical characteristics such as skin colour and nationality play a part. For example, black people who have been in the USA longer than many waves of immigrants have always remained disadvantaged (Blackburn 2008).

Traditions and social norms also play a major role in determining a person's labour market success. Similar to stereotypes, traditions are related to individual factors. For example, in Southern Europe the labour market participation rates of women have always been lower than in other European countries since there the woman's main role has always been associated with taking care of the family, and the 'male breadwinner' theory still holds (see, for example, Gonzales 2006). In the Nordic countries, by contrast, women's labour market participation rates are much higher since gender equality has been promoted for much longer (see Holli et al. 2005 for an overview of studies conducted in this field).

These attitudes have a direct influence on the inequalities that emerge on the labour market. Traditions and stereotypes influence the educational path and consequently the later professional career of individuals. For example, in countries where the female employment rate is low (e.g. Malta, Hungary and Italy) the gender pay gap is lower than the EU average, which may reflect the small proportion of low-skilled women in the workforce. Highly segregated labour markets (such as Cyprus, Estonia, Slovakia and Finland) tend to have much higher gender pay gaps because women are over-represented in sectors which are relatively more lowly-paid (Opinion on the effectiveness... 2009).

Economic indicators

While personal characteristics and society-level attitudes mainly indicate why there are discrepancies in labour market inequalities between different groups, economic indicators mostly cause changes in labour market inequalities (although, of course, they also have an influence on the level of inequalities). Among economic factors, development level, technological change and globalisation are three most important demand-related factors affecting inequalities on the labour market. In what follows, an overview of how each of these factors influences inequalities is given (however, it should be noted that for each of these factors economic theories have been developed that link to the inequality theory).

Research into the nature of the relationship between economic development and wage inequality started with the seminal work of Kuznets (1955). Kuznets's theory explains the long-term relationship between wage inequality and economic development. According to this hypothesis, wage inequality follows an inverted U-shaped pattern during economic development, i.e. inequality is initially positively correlated with economic development and becomes negative at higher levels of development. Kuznets explained the ascending component of

the U-curve – where inequality widens in the early stages of growth – with the shifts from rural/agricultural production (the sector with lower income per capita) to urban/industrialised production⁵ (the sector with higher income per capita). While initially most of those employed are engaged in the agricultural sector where wages are more compressed, during this shift wage inequality increases as more and more workers become involved in the industry where wages are higher. At some point wage inequality starts to decrease because those at the lower end of wage distribution also relocate to the industry sector.

Kuznets's theory has its roots in skill-biased technological change theory. There is consensus in economic literature that technical change favours more skilled workers, replaces tasks previously performed by the low-skilled, raises relative demand for skilled workers and increases both employment and wage inequality (Katz and Autor 1999, Acemoglu 2002, Card, DiNardo 2002). Depending on the nature of the technological change, it tends to shift the sectoral composition of the workforce, crowding out those whose skills do not correspond and favouring those [groups] whose skills do correspond to shifts in demand. These developments may have a direct influence on inequalities on the labour market via the segregational effects introduced below.

It is also claimed that recent technological changes associated with new forms of information and communication technology tend to reduce demand for medium-skilled (middle-income) workers who mainly perform routine tasks that can be accomplished by computers, while increasing demand for low- and high-skilled workers who do manual and abstract non-routine tasks respectively that are harder to replace with machines. If demand shifts are not offset by similar shifts in the composition of labour supply (i.e. a sufficient rise in the attainment of tertiary education and therefore in the supply of high-skilled workers), the technological progress can reduce the income of medium-skilled workers relative to that of both low- and high-skilled workers and influence inequalities on the labour market⁶ (Inequality in labour... 2012).

The aforementioned economic developments influence inequalities on the labour market due to labour market segregation. Segregation on the labour market refers to a situation where different groups are not equally distributed across the economy. It was Adam Smith who declared that it is the division of labour and not the inherent characteristics of individuals that causes “the very different genius which appears to distinguish men of different professions”

⁵ More recent models generalise Kuznets's approach beyond the rural/urban dimension, for example the shift from an undeveloped to a developed financial system (Greenwood, Jovanovic 1990).

⁶ However, developments in the last two decades have shed some light on the validity of the hypothesis. As Card and DiNardo (2002) claim, the main problem is that wage inequality stabilised in the 1990s despite ongoing developments in computer technology. Also, skills-biased technological change fails to explain gender and racial wage gaps (especially since data shows that women use computers more in their work than men) and the age gradient (data showing that computer use has increased slightly faster among older workers than younger workers).

(Smith 1776: 15–16). The degree of segregation levels varies from perfect segregation to perfect integration. Perfect segregation occurs when occupation and group membership correspond perfectly – where any given occupation employs only one group. Perfect integration, on the other hand, occurs when each group holds the same proportion of positions in an occupation as it holds in the labour force (Blackwell Encyclopaedia of Sociology).

The industrial structure of the economy also influences inequalities on the labour market, mainly via the effects of segregation. Both occupational and sectoral segregation are important influencers of inequalities on the labour market and are influenced in turn by society-level attitudes like traditions, stereotypes and norms. Occupational segregation refers to a situation where different groups are not similarly distributed across occupations; sectoral segregation to a situation where different groups are not similarly distributed across sectors (Bettio, Veraschagina 2009). Segregation mostly raises the ‘fair’ part of the inequalities seen on the labour market. If a certain group (e.g. males) are more concentrated in sectors or occupations that are more productive and therefore better paid compared to sectors/jobs dominated by the other group (e.g. females), the gender wage gap is objective in the sense that it reflects differences in men’s and women’s marginal product. For example, according to Eurostat statistics from 2010 women represented just 32% of managers in companies within the EU, 10% of the members of management boards of large companies and 29% of scientists and engineers across Europe.

The relationship between globalisation and inequalities on the labour market is a controversial area in economic literature where theory has run well ahead of empirical research. International trade – which is mostly used as a proxy for globalisation – affects the prices of products, which in turn influence factor prices by changing relative factor demands and therefore inequalities on the labour market. A trade-induced change in a country’s product prices alters relative profit opportunities, resulting in a shift towards (or away from) those industries in which relative profitability or demand has risen (or fallen) (Blanchflower, Slaughter 1999). In recent years theories have been developed explaining why globalisation may have a beneficial, obstructive or insignificant effect on inequalities on the labour market. As summarised by Wade (2001), there are three strands of theory: the neoclassical growth theory predicts that as a result of globalisation the world’s economy will converge (equality) in average productivity, employment and income levels because of increased mobility of capital; the endogenous growth theory predicts divergence (increasing inequality) since the diminishing returns of capital are offset by increasing returns of technological innovation in developed countries; and the dependency approach predicts that convergence is less likely and divergence more likely because of the differential benefits from economic integration and trade, and locking developing countries in to producing certain commodities.

According to Lall et al. (2007), at the within-country level the effect of globalisation on income distribution is polarised between two approaches. One

school of thought, a positive one, argues that globalisation results in a rising tide of income and that even low-income groups benefit from globalisation. Here parallels can be drawn with the Kuznets hypothesis, which proposes that although inequality will rise in the initial phases of industrial development, at some point it will start to decrease as the country's transition to industrialisation is completed. The principal analytical link between trade liberalisation and wage inequality is based on the Stolper-Samuelson theorem (see Stolper, Samuelson 1941) which implies that within a two country-two goods framework, in a less developed country where low-skilled labour is abundant, increased trade openness would result in an increase in the relative wages of the poor and a reduction in wage inequality (this conclusion being easily extended to the employment gap in favour of low-skilled workers). In a more developed country the situation is the reverse: trade openness increases inequalities on the labour market. The opposing school of thought argues that although globalisation may improve incomes overall, the benefits are not equally shared among the workforce and there are losers as well as winners in relative (and possibly even absolute) terms.

Institutional factors

While the aforementioned three groups of factors explain what causes inequalities on the labour market, institutional factors are policy measures that tackle such inequalities. As discussed earlier, there are two sides to inequality: inequality of opportunity, which reflects differences in access to equal conditions; and inequality of results, which indicates differences in final outcomes. In developed countries, policy measures are not usually designed to achieve absolute equality on the labour market, in terms of participation or remuneration equality. This would decrease people's motivation to fully exploit their talent if everyone were rewarded equally in spite of the results achieved; on the other, absolute equality in results on the labour market (e.g. similar levels of (un)employment by gender or age) is questionable because of different work preferences, family-related activities, talents, health status etc. In other words, there are 'natural' inequalities stemming from preferences and person-specific abilities. The role of the state is seen to be to promote equality on the labour market by removing visible or invisible obstacles that lead to the exclusion of certain groups. Nevertheless, some policy measures (such as the tax system) are also targeted at fighting against inequalities on the labour market and its consequences such as poverty and social exclusion. Anti-discrimination laws, income taxes, a national minimum wage and trade unions are the key institutional factors influencing inequalities on the labour market.

Labour market discrimination can occur in many different settings and take many forms. It can be related to recruitment, promotion, job assignment, termination, compensation, working conditions and even harassment (Equality at work... 2011). There is universal acceptance in developed countries that the

institutional setting should prohibit discrimination, both direct⁷ and indirect⁸. The main role of the state is to guarantee a proper environment in which people can compete freely via non-discriminatory measures. Anti-discrimination laws aim to promote equality of opportunity on the labour market in terms of both participation and remuneration and to remove inequality emerging due to discriminatory factors.

Over the last 70 years great improvements have been made in prohibiting discrimination (i.e. removing formal barriers from achieving equality of opportunity). The International Labour Organisation (hereinafter the ILO), the United Nations Organisation and the European Union have achieved considerable progress in developing equality of opportunity by prohibiting both direct and indirect discrimination on the labour market. The roots of international initiatives aimed at achieving the equal treatment date back to 1944 when the ILO declared in the Article 2 of Philadelphia Declaration that “All human beings, irrespective of race, creed or sex, have the right to pursue both their material well-being and their spiritual development in conditions of freedom and dignity, of economic security and equal opportunity”. Guaranteeing equal pay for equal work has long been on the policy agenda of developed countries: at the EU level it was declared in the Council Directive 75/117/EC of 10 February 1975 on the approximation of the laws of Member States relating to the application of the principle of equal pay for men and women. Several other EU directives since then (Directive 76/207/EC, Directive 2000/43/EC, Directive 2000/78/EC, Directive 2006/54/EC) have also sought to promote equality of opportunity on the labour market.

Increasing the employment of social groups whose participation in employment is low is a challenge for states. Quotas and other strong policy measures can be used to promote labour market participation equality. These measures, as discussed in chapter 1.1, may result in discrimination against other

⁷ In the case of direct discrimination, one group is treated less favourably than another doing the same job. Direct discrimination emerges when rules, practices and policies exclude or give preference to certain individuals because they belong to a particular group (Equality at work... 2011). According to Article 2 of EU directive 2000/78/EC, direct discrimination shall be deemed to occur when one person is treated less favourably than another is, has been or would be treated in a comparable situation on grounds of racial or ethnic origin, religion or belief, disability, age or sexual orientation.

⁸ Discrimination is indirect when apparently neutral norms and practices have a disproportionate and unjustifiable effect on one or more identifiable groups (Equality at work... 2011). According to Article 2 of EU directive 2000/78/EC, indirect discrimination shall be deemed to occur when an apparently neutral provision, criterion or practice puts persons of a racial or ethnic origin, or those of a particular religion or belief, a particular disability, a particular age or a particular sexual orientation at a particular disadvantage compared to others, unless that provision, criterion or practice is objectively justified by a legitimate aim and the means of achieving this aim is appropriate and necessary, or as regards persons with a particular disability, the employer or any person or organisation is obliged to take appropriate measures to provide reasonable accommodation in order to eliminate disadvantages entailed by such a provision, criterion or practice.

groups. The educational system also influences inequalities on the labour market. Equality of educational opportunity means that all children are given the same or equivalent alternatives in relation to their choice of educational programme, setting all those who make the same choices effortful tasks and measuring their performance in the same way (Campbell 1975). As discussed above, education is one of the most 'objective' causes of the inequalities seen on the labour market. Public educational policy can decrease the effects of unequal initial conditions by providing equal access to education and measures supporting the successful integration of risk groups (e.g. teaching the official language to children from ethnic minorities) in the early stages of life. Here again the main aim is to improve equal access to the labour market and remove obstacles created by factors not controlled by the person, such as innate differences in social status and disabilities. While former policy measures have been designed to promote equality in opportunity on the labour market, the tax system influences labour market outcomes. The income tax system influences wage inequality. A progressive tax system is one of the main redistributive policy measures used in many countries that reduces after-tax wage inequality, decreasing inequality in labour income (Immervoll, Richardson 2011).

The existence of a minimum wage decreases wage inequalities by setting the lowest wage level allowed in the economy. The effects of the minimum wage on inequalities on the labour market may be mixed. As correctly noted by Freeman (1996), the effects of changes in the minimum wage depend on the labour market and redistributive system of the country, the level of the minimum wage and its enforcement. At best, the minimum wage shifts earnings distribution in favour of the lowly-paid; at worst, it reduces employment at the lower end of income distribution, placing those people at risk of poverty, and via spill-over effects increases wages for wage distribution as a whole, therefore possibly even increasing wage disparities (Stewart 2012).

Neither of these developments are certain *per se*, so the effect of changing the minimum wage (and income tax) on wage inequality is rarely if ever certain (a detailed analysis of which is provided in Volscho (2005)). Neoclassical economic theory focuses on the effect of minimum wages on employment and predicts that higher minimum wages will reduce employment opportunities for those at the lower end of income distribution. Therefore, if wages for these people increase, it may result in higher unemployment among the lower-waged. Institutional economists, on the other hand, see minimum wages as a means of income redistribution. Moreover, there may be 'ripple' or 'spill-over' effect which means that a minimum wage increase may result in the wages of workers above the minimum wage also increasing and overall wage inequality increasing further. For more details, see Card and Krueger (1995) and Brown (1999).

The influence of industrial relations on inequalities on the labour market is *a priori* ambiguous. The strength of the unions in state, sector and enterprise level as well as the level of the negotiations has a role here. Powerful unions may

reduce inequality by standardising pay rates among workers throughout the economy, but may also increase inequality if they manage to increase wages for only one group of employees at the expense of others (Blanchflower, Slaughter 1999). Also, if unions are powerful in the state-level, they may demand either equal treatment for all (or a certain groups of) employed, therefore contributing to decreasing inequalities, or, on the contrary, more favourable conditions only to some group, therefore increasing inequalities on the labour market.

1.2.2. Development of inequalities on the labour market during the recession

The development of inequalities on the labour market during the recession is more of an empirical than a theoretical research topic. The short-term changes occurring in such inequalities during the recession depend mostly on the nature of the recession itself (i.e. economic factors) and the institutional measures used to cope with the shock.

In addition to the factors introduced in the previous chapter, the development of inequalities on the labour market during the crisis depends to a great extent on labour market flexibility, i.e. the success of a country's labour market in flexibly responding to the new challenges posed by internal or external imbalances created during the recession. While labour market flexibility measures how effectively a country's labour market adjusts to economic shocks, changes in inequalities on the labour market indicate the groups that are influenced more and influenced less during this adjustment process. For example, downward wage flexibility is regarded as an important indicator of the flexibility of the labour market. If wage adjustments are different for different groups (e.g. men and women), changes in inequalities are also observable. As the next step, in this case it is interesting to analyse what the causes of the changes are in order to understand whether the changes are 'objective' (for example, occurring due to segregation effects; see the previous section) or otherwise (for example, when it is expected that women should be made redundant first due to traditions).

The most famous distinction of labour market flexibility was created by Atkinson (developed in 1984, further developed in Atkinson, Meager 1986) and includes all three dimensions – employment, hours and wages – used in this thesis to define inequalities on the labour market⁹ (see Figure 4). In the labour market flexibility concept (and via transactional effects, as well as for inequalities on the labour market) labour market institutions have an important role to play in encouraging labour markets to achieve the equilibrium determined by the intersection of supply and demand (Standing 1989). What follows is an introduction to important theories that explain why inequalities on the labour

⁹ Of the different labour market flexibility dimensions, functional flexibility is beyond the scope of inequalities on the labour market since it is an in-company adjustment strategy and does not directly influence inequalities on the labor market.

market can change during a recession. These theories help to understand the changes occurring during a recession that result in changes in the inequalities seen on the labour market.

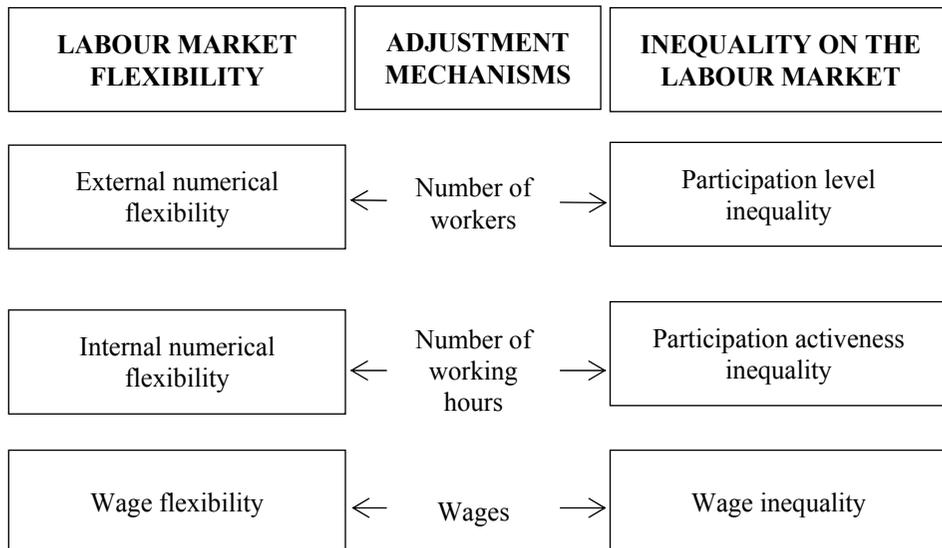


Figure 4. Relationship between labour market flexibility and inequalities on the labour market dimensions (arrows indicate adjustment mechanisms, as developed by author)

Employers’ preferences as to which adjustment mechanisms should be used and to which employees should be made redundant first have an important influence on labour market flexibility and inequality. Most theories support the rigidity of wages and adjustment via the number of workers. The following overview is based to a great extent on Babecky et al. (2009). Implicit contract theory (developed independently by Baily 1974, Gordon 1974 and Azariadis 1975; see also Beaudry, DiNardo 1991 and 1995) explains why redundancies rather than wage cuts occur during a recession. The theory refers to voluntary and self-enforcing (i.e. neither party wishes to breach the contract because they would both be worse-off) long-term agreements between employers and employees. Risk-neutral employers insure risk-averse employees against fluctuations in marginal productivity by maintaining stable wages. Firms do this because in this way they obtain labour more cheaply by guaranteeing that wages will not decline in the long run. Since companies sign such contracts with employees they consider more valuable, the theory supports better labour market prospects for workers with a higher tenure and more skills. Such employees are at lower risk of losing their jobs and tend to have more rigid wages even during the recession.

According to the efficiency wage theory, a worker’s productivity depends positively on his or her wage. Hence, firms avoid cutting wages even during

recessions because this would lower productivity and negatively influence profit. This means that other labour adjustment mechanisms – primarily reductions in the number of employees – are used in order to cope with the negative effects of the crisis. There are several sub-models of efficiency wage theory (shirking theory and fair wage-effort hypothesis) that explain why productivity may depend on wages paid or who may be laid off first. The shirking theory of Eaton and White (1983) and Shapiro and Stiglitz (1984) assumes that firms monitor workers and make those redundant whose performance is below standard. The higher the wages, the greater the cost to workers when shirking results in lay-offs and the higher the incentive to meet the standard. This theory does not imply downward wage rigidity, since a higher unemployment rate increases the cost to workers of dismissal and so makes it possible to reduce pay. According to this theory, workers who deviate from the standard set in the company (productivity levels, cooperation with colleagues etc.) are made redundant first. The fair wage-effort hypothesis (Akerlof and Yellen 1990) postulates that if workers are paid a wage less than that perceived as fair, the effort they put in is less than what it would be in the case of a fair wage. Both of these theories assume that higher earnings assure workers' gratitude and loyalty to the employer, therefore boosting their effort. These theories help explain the changes between different labour market groups. For example, the effort of high-skilled workers is typically more difficult to monitor and more valuable in terms of added value, especially for high-skilled white-collar jobs. As such, firms are reluctant to cut their wages, which leads to higher downward rigidity in their wages compared to those of lower-skilled workers. This may result in changes in wage inequality.

Another important aspect to consider is the fact that the wage level influences not only productivity, but also the propensity of employees to quit. According to the turnover model of Stiglitz (1974), firms that cut wages face the risk of higher levels of resignation. As hiring and training new workers is costly to employers, wage decreases are avoided and those who have more company-specific human capital are more valuable to the employer. Similarly, the adverse selection model (Weiss 1980) predicts that the most productive workers are likely to quit in the event of wage cuts. A wage above the labour market equilibrium will guarantee that a company can choose workers from a bigger pool. Again, as the costs related to employing white-collar workers tend to be higher than those of employing blue-collar workers, the wages of highly skilled workers are expected to be more downwardly rigid and companies to prefer to lay off those who are relatively less costly to replace in terms of training and hiring costs, resulting in changes in both participation and wage inequality.

According to the insider-outsider theory (Lindebeck and Snower 1988), wages tend to be rigid because 'insiders' – i.e. workers who are well protected from lay-offs typically because of their skills and tenure – resist wage reductions even in order to save the jobs of recently hired workers ('outsiders') or to encourage the hiring of unemployed people. This implies that workers

with a higher tenure and/or permanent contracts have more power in the wage-setting process compared to recently hired and/or temporary employees. Therefore, wages tend to be downwardly rigid and those with a shorter tenure or lower skills are made redundant first.

Production technology is also likely to affect wage rigidity. The general economic rationale expects that workers in businesses operating with labour-intensive technology have more leeway in wage negotiations and therefore, on the basis of reasons analogous to the insider-outsider theory, the more labour-intensive the technology used in the firm, the more rigid the wages (Babecky et al. 2009). However, the reciprocity theory (developed by Rabin 1993) predicts the opposite: workers are very sensitive to wage reductions since they are considered to be punishments. One of the consequences of the reciprocity theory, according to Howitt (2002), is that wage cuts are less likely to occur in firms where the proportion of labour costs in total costs is lower because the effect on the firm of reducing labour costs is lower compared to the potential loss caused by dissatisfied workers.

The labour hoarding theory (developed by Oi (1962), Miller (1971), and Fair (1985) and others) explains why firms usually decide not to adjust employment in line with transitory fluctuations in demand for production. Firstly, adjusting the labour force during short-time fluctuations is costly because of hiring and firing costs (i.e. the costs associated with the termination of labour contracts, such as redundancy, recruiting and training costs). Secondly, if the decrease in demand is temporary (as is expected in a recession), during the recovery period it is profitable for companies to maintain a workforce that has firm-specific human capital. Therefore, at least to some extent and in the case of some worker categories (skilled labour), businesses may prefer to adjust the labour input by an intensive (i.e. working hours) rather than extensive (i.e. workforce) margin, which results in changes in participation activeness inequality. The main results of the theoretical considerations introduced are briefly summarised in the table below.

Table 1. Adjustment strategies used and most vulnerable groups during the recession according to different theories

Theory	Adjustment strategies used during the recession	Most secure/vulnerable groups
Implicit contracts theory	Rigid wages. Voluntary and self-enforcing long-term agreements prohibit employers from reducing wages even during recessions. Therefore, other adjustment strategies (decrease in the number of workers and/or working hours) are used.	Since such agreements are first signed with workers valuable to employers, workers with higher skills and longer tenure are more secure in recessions.
Efficiency wage theory, shirking theory, fair-wage hypothesis	Rigid wages. Firms avoid cutting wages even during recessions because this would lower productivity and negatively influence profit. Therefore, other adjustment strategies (decrease in the number of workers and/or working hours) are used.	Workers with higher skills are more secure against wage decreases during a recession. Employers fire those workers whose performance is below standard first.
Turnover model, adverse selection model	Rigid wages. Firms that cut wages face the risk of higher levels of resignation.	Those who have accumulated more employer-specific human capital are relatively more secure against wage cuts. Employers prefer to lay off workers who are relatively less costly to replace.
Insider-outsider theory	Rigid wages. 'Insiders' resist wage reductions.	Employees with shorter tenure or lower skills are made redundant first.
Labour hoarding theory	Decreasing working hours. Adjusting the labour force during short-term fluctuations is costly because of hiring and firing costs.	Employers prefer to lay off workers who are relatively less costly to replace.

In addition to employer preferences, the factors introduced in chapter 1.2.1 (most importantly institutional measures and economic structure) determine which labour market adjustment mechanisms are used during a crisis and which changes in inequalities on the labour market occur. Changes in employment and wage inequality during a recession also depend on the nature of the recession. For example, segregation of the workforce on the labour market may influence the inequalities reflected in occupational and sectoral effects. If, for example, sectors in which males dominate the workforce suffer more during a recession, we can expect to see a higher increase in male unemployment compared to that of females. Developments in wages depend on occupational changes: if low-wage jobs were wiped out during a recession, we could observe a decrease in the general wage gap.

Also, there may be differences between the public and private sectors. Unlike the private sector, the public sector can be much more able (at least in the short term) to compensate for decreasing revenue via state reserves or sovereign debt. In addition, public sector reforms (including those related to optimising the number of those employed and reducing wages) usually take more time since they need to be negotiated between a range of parties and be effectively communicated to the general public in order to be successfully implemented. Therefore, differences in timing and in the measures used in the public and private sectors should be expected during a crisis.

In addition to institutional factors introduced in the previous chapter, employment protection legislation (EPL) has an important role in influencing the choice of adjustment measures used during the crisis and as a result, also change in inequalities on the labour market. EPL determines how easy or difficult it is to hire and fire workers, adjust working time or reduce wages, therefore influencing labour market flexibility and inequality. According to the Holden model (Holden, Wulfsberg 2007; 2008), strict employment protection legislation increases wage and employment rigidity since such rules make it more difficult to amend agreements that have been entered into. Employment protection legislation determines the choices of employers: if it is costly to hire and fire workers, employers prefer those who have a longer tenure and higher skills, therefore raising age-based or educational inequalities during the crisis (as discussed above). Therefore, such legislation directly influences the use of the adjustment mechanisms employed, but may also influence inequalities on the labour market in cases where different guarantees are provided for different labour market groups (making it more costly to lay off certain groups of workers).

As discussed in chapter 1.2.1., trade unions (or industrial relations more in general) also play an important role in tackling inequalities on the labour market. This role is particularly important during recessions. Strong trade unions have great bargaining power: they may not accept a reduction in wages or redundancies among their members. Various theoretical models correlate the higher bargaining power of trade unions and higher wage rigidity. The models developed by Dunlop (1944), Shisler (1943) and Oswald (1986) are based on the idea that unions attempt to maximise the wages of their members and care less about the possible negative effects on employment. This leads to downwardly rigid wages, but may increase participation level inequality when trade union density and collective agreement coverage is unbalanced towards certain labour market groups. The structure of the wage setting may also play a role. Unions negotiating at the company level are likely to be more flexible in accepting wage cuts and care more about employment in the event of a recession compared to sectoral unions.

For example, if unions are particularly strong in sectors where men dominate as workers, the male-female wage gap would likely decrease during a recession, while the unemployment gap would increase if the unions in those sectors

resisted wage decreases and employers used lay-offs instead. Several theories indicate that employers prefer to maintain more experienced workers (and their wages) during a recession. This explains the increasing unemployment gap between younger and older workers.

There are many factors that influence inequalities on the labour market: individual characteristics (innate (dis)abilities, education, job experience and household factors and others), norms, traditions and stereotypes inherent in society, the development level, industry structure and openness of the economy as well as institutional factors such as the effective implementation of anti-discrimination legislation, minimum wages, tax structure and industrial relations as well as educational system have their role here. The development of inequalities on the labour market during the recession depends on the preferences of the employers in regards of which adjustment mechanisms to use (to decrease number of employees, working hours and/or wages). The employment protection legislation and trade unions also influence the employers' choice between adjustment mechanisms to use. Development of inequalities on the labour market can depend on many interrelated factors, and there is no uniform effect to be expected to occur. There are several theories that explain why different adjustment mechanisms (reducing the number of workers, working hours or wages) may occur during a recession. Inequalities on the labour market change if these adjustment mechanisms are not used uniformly across the economy. Also, theories support the more favourable position of skilled workers, so that when skills are not uniformly distributed between certain groups we can expect changes in inequalities on the labour market.

2. RESEARCH QUESTIONS, DATA AND METHODOLOGY USED IN THE THESIS

2.1. Research questions and propositions

Based on the theoretical considerations and Estonia's experience of the Russian crisis (see Appendix 1), three research questions are formulated. The following figure outlines the system of research questions.

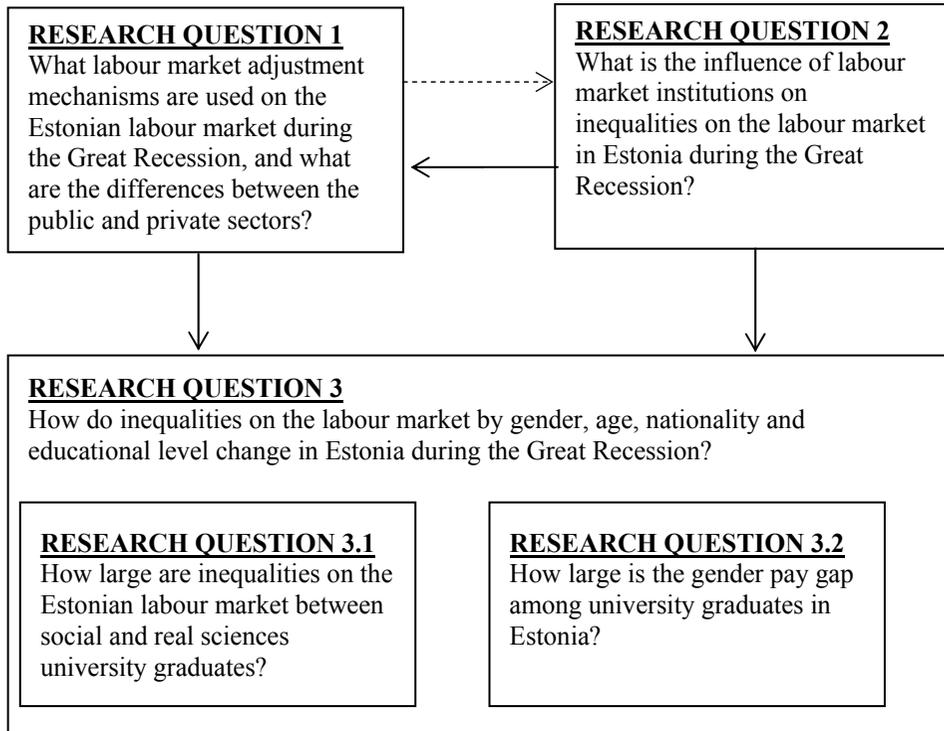


Figure 5. System of research questions

Research question 1 focuses on general adjustment mechanisms used on the Estonian labour market in order to cope with the negative effects of the recession. This provides the background needed to better understand why inequalities between labour market groups changed during the recession. Developments in three adjustment mechanisms – employment, working hours and wages – that could be used to cope with the negative effects of the crisis are analysed. Since sectoral and occupational segregation is an important determinant of inequalities on the labour market and the Estonian labour market is highly segregated, developments in the private and public sector are also

discussed and compared. Also, it was important to analyse developments in inequalities on the labour market separately in the public and private sectors because of the limitations the Estonian public sector faced due to negotiations to join the Eurozone and the small domestic market in Estonia.

Research question 2 is closely related to the other two research questions since institutions can potentially influence the choice of adjustment mechanisms as well as the development of inequalities on the labour market (for more details, see chapter 1.2). In this thesis the focus is on the role of the minimum wage and trade unions on influencing inequalities on the labour market. The tax system is not analysed since in Estonia income tax is proportional and therefore does not significantly influence wage inequality. The educational system is left out since it has a long-term impact on the labour market, but in this thesis the short-term effects are analysed. Anti-discrimination law is not considered either since it did not change during the recession in Estonia.

Research questions 1 and 2 are necessary in order to understand what inequalities emerged on the labour market during the Great Recession (research question 3). Changes in inequalities on the labour market by gender, age, nationality and education were analysed. In addition, recent university graduates were surveyed in more detail (see research questions 3.1 and 3.2). While most studies focus on lower-educated young people as a vulnerable group on the labour market, there is little discussion about highly educated young people's position on the market at the start of their careers. Analysis of recent graduates during the recession was particularly interesting since the effects of a crisis are usually less severe on the highly educated. However, so far no analysis has focused on the labour market behaviour of recent university graduates in Estonia. Since high-quality data were available that enabled an insight into these issues, it was possible to gain more insight into inequalities on the labour market between social and real sciences graduates. This topic is particularly interesting in light of the public debates in Estonia regarding imbalances in the higher education system, which is seen to 'overproduce' social sciences graduates, who then face difficulties after completing their studies on the contrary to real sciences graduates who are seen as drivers of development.

Also, as discussed in chapter 1, guaranteeing equality of opportunity is one of the main roles of the state when considering inequalities on the labour market. According to Eurostat data, the gender pay gap in Estonia is the highest of all EU Member States. However, studies done in other countries indicate that in the early stages of people's careers the gender wage gap is remarkably lower. Therefore, the extent of the gender pay gap for university graduates a year after completing their studies was analysed, distinguishing between the extent to which this is explained by such factors as differences in age, field of study, university and occupation and the extent to which it remains unexplained, possibly indicating discrimination against women.

What follows is a more detailed description of the research questions and propositions.

Research question 1: What labour market adjustment mechanisms are used on the Estonian labour market during the Great Recession, and what are the differences between the public and private sectors?

Proposition 1: All three adjustment mechanisms (adjustment in number of workers, working hours and wages) are used in Estonia during the Great Recession in order to cope with its negative effects.

According to the labour market flexibility concept, there are three main channels that can be used during a recession: adjustment of number of workers, working hours and wages. Based on previous experience and theoretical considerations it was expected that all three adjustment mechanisms would be used in Estonia during the crisis. Estonia is a small country with a small domestic market and is highly dependent on exports. As such, when external demand decreases, it is expected that the labour market will adjust in line with the decrease in production because the domestic market is not able to compensate for it. As discussed in chapter 1.2, the three most important factors influencing the choice between labour market adjustment mechanisms used in a recession are employment protection legislation, the strength of trade unions and employers' preferences (which, of course, are influenced by the nature of the recession).

Employment protection legislation has a great role in determining how easy or costly it is to adjust the stock of workforce and/or working time. The new Employment Contracts Act which entered force in Estonia in mid-2009 made it less costly for employers to make workers redundant. It was therefore expected that employment would decrease, since there were no stringent employment protection barriers that would prevent it.

Trade union membership and collective agreement coverage have been low in Estonia since the country regained its independence and have decreased over the last decade (Kallaste, Woolfson 2009; Espenberg et al. 2012a). At the national level the minimum wage is negotiated and the share of the minimum wage as a percentage of the average wage was modest (approximately 32–33%) during 2005–2007. Most wage negotiations are conducted at the individual level; there are only a few strong sectoral-level trade unions in Estonia. These are good prerequisites for wage flexibility. Therefore, it was expected that trade unions would have only a modest ability to resist employment, hours and wage cuts, which support the assumption of an employment decrease and downward flexibility of wages and working hours during the recession.

The adjustment strategies used and the extent of the adjustments depend on employers' preferences. According to the hoarding theory, employers prefer to decrease working hours instead of laying off workers because, firstly, they do not know how long the recession will last and are willing to maintain employees who have company-specific human capital and, secondly, there are costs associated with firing and later re-hiring workers (see chapter 1.2.2). Therefore, it was expected that at least at the start of the recession an adjustment

(reduction) in working hours would also be used and the number of workers would decrease less than could be expected based on the fall in product demand.

There are several theories (the efficiency wage theory, the turnover theory and the implicit contract theory) that support the idea that wages should be downwardly rigid during recessions (see chapter 1.2.2). However, experience from the Russian crisis in the late 1990s – when the Estonian labour market was considered to be rather rigid based on the OECD employment protection legislation index (Cazes, Nesporova 2003; Eamets, Masso 2005) – showed great labour market flexibility in Estonia. A vast increase in unemployment as well as wage reductions occurred (see Appendix 1). This supports the assumption that wages could be downwardly flexible in Estonia.

Proposition 2: Wage inequality on the Estonian labour market decreases during the Great Recession.

As discussed in chapter 1.1.2., while no good composite indicators have been developed for participation, it is possible to measure changes in wage inequality on the national level. According to labour market theories, wage inequality on the national level may increase or decrease during a recession. The highly skilled and better educated are less likely to lose their jobs. Job losses tend to be concentrated at the lower end of skills distribution, and since productivity is linked to remuneration, also to the lower end of wage distribution (see chapter 1.2.2). Therefore, wage inequality could increase during the recession. However, there are many lower-paid jobs where the wages paid are close or equal to the minimum wage and therefore there is no room to further decrease them. Many of these jobs are found in the services sector in Estonia and are unlikely to be destroyed even during a recession, unless structural changes occur. Therefore, it is expected that less job destruction will be seen in the lower part of wage distribution and that there will be a decrease in wage inequality as a result. The experience of the Russian crisis showed that wage inequality decreased during the recession.

Proposition 3: There are differences in the adjustment mechanisms used in the public and private sectors in Estonia during the crisis. In the public sector the adjustments are smaller, while in the private sector a reduction in employment and hours are used more often than in the public sector.

It is not *a priori* clear which adjustment mechanisms should be used in the public and private sector. The Estonian government has always followed a balanced state budget and low sovereign debt policy. Its decision to join the Eurozone at the end of the 2000s put enormous pressure on government expenditure in order to meet the Maastricht criteria. This meant that the deficit of the state budget as well as the sovereign debt level needed to be kept under control. It was therefore expected that, due to decreasing tax revenue, costs – including labour costs – would need to be cut in the public sector.

However, there are several aspects that indicate that adjustments in the public sector could be smaller. Although in general labour law is similar for private and public sector employees in Estonia, labour legislation guarantees are somewhat different. Job guarantees are higher for public sector workers, especially in regards to redundancies. For example, according to the Estonian Public Service Act, the terms of advance notice are longer, benefits in the event of redundancies are higher and if new jobs are created within six months of redundancy, they must be offered first to ex-officials if they correspond to their skills. Therefore, a lower reduction in employment could be expected in the public sector.

Trade union membership and collective bargaining coverage is higher in the public sector than in the private sector in Estonia (Espenberg et al. 2012a). The public sector is regarded as being rather optimised, which means that a decrease in the number of public sector employees could strongly affect the quality of the services provided. Structural changes designed to increase efficiency without decreasing service quality would take several years in the public sector. In addition, demand in the private sector is more volatile than in the public sector.

Based on the aforementioned aspects, it could be expected that in the public sector the employment reductions are smaller than in the private sector. It was expected that although the efficiency wage theory, the implicit contracts theory et al. support the downward rigidity of wages, wage decreases could occur in the public sector if the state does not decide to abandon a strict budget balance and low sovereign debt regime. The private sector did not face limitations similar to those in the public sector, so it was expected that in the private sector the adjustments would occur to a larger extent by adjusting the number of workers compared to the public sector and that wage and working hour reductions would also be used.

Research question 2: What is the influence of labour market institutions on inequalities on the labour market in Estonia during the Great Recession?

Proposition 4: Labour market institutions have a limited impact on inequalities on the Estonian labour market during the recession.

As indicated above, industrial relations have rather weakly developed in Estonia. During the boom period in the mid-2000s there were signs of a rise in social dialogue in Estonia at both the company level (an increase in collective agreements signed and a wage increase in both the private and public sectors – especially in the latter, where collective agreement coverage is much higher) and the state level (an increase in the minimum wage and involvement of employers' and employees' representatives in the decision-making process). However, the role of trade unions has remained modest and the number of collective agreements and level of collective bargaining coverage low (see

Espenberg et al. 2012a) and it was expected that this would not change remarkably during the recession.

The minimum wage has always been modest in Estonia (see Masso, Krillo 2010). Even during the period of economic growth it only increased in line with the average wage increase, i.e. as a proportion of the average wage it did not change significantly (from 2004–2007 it even decreased from 34% to 32%; see Espenberg, Vahaste 2012). This indicates the relatively low bargaining power of state-level representatives even during the economic boom. Also, the share of minimum-wage earners has traditionally been low in Estonia (Masso, Krillo 2010). Therefore, it was expected that the minimum wage would have a limited impact on wage and participation inequality during the recession.

Research question 3: How do inequalities on the labour market by gender, age, nationality and educational level change in Estonia during the Great Recession?

Proposition 5: Female/male participation inequality and the gender pay gap decrease in Estonia during the recession.

In Estonia both occupational and sectoral segregation by gender is the highest among the EU-27 (Bettio, Verashchagina 2009). Therefore, it was expected that the effects of the crisis on employment, hours and wages would be different for men and women. Employment in industry tends to be more volatile than in services during recessions (see Stehrer, Ward 2012 for an overview of long-term trends in developed countries). Women are more concentrated in the services sector in Estonia, while men dominate in industry. The gender pay gap in Estonia is the highest in the EU. As it was expected that wage reductions would be lower at the lower end of wage distribution (see the explanation in proposition 2), it was expected that the gender pay gap would decrease during the recession.

The experience of the Russian crisis also showed that the recession did not have uniform effects on men and women. During the crisis the male/female unemployment gap increased since male-dominated sectors were hit harder than sectors in which predominantly women were employed. The gender pay gap also shrank temporarily during the Russian crisis. According to Eamets (2004) and Rõõm, Viilmann (2003) wages were more flexible in sectors that were more male-dominated, although several female-dominated sectors experienced decreases in average wages as well (for more details, see Appendix 1). Therefore, it was expected that men would face a higher incidence of job losses and wage decreases compared to women during the recession.

Proposition 6: Participation and wage inequality by age increases, i.e. young people experience a higher incidence of losing their jobs and decrease in wages during the recession.

According to the insider-outsider theory and adverse selection model, those who have longer tenure and more company-specific human capital are better secured against job loss during recessions. Therefore, young people face a particularly high risk of unemployment during a recession because they have less labour market experience and fewer skills. This was also seen during the Russian crisis. For the same reasons it is likely that they have less bargaining power in wage negotiations and are more likely to accept wage cuts. It was therefore expected that young workers would face a higher incidence of job losses and wage decreases during the recession.

Proposition 7: Participation and wage inequality between Estonians and non-Estonians increase during the recession.

Similar to most other EU Member States, ethnic minorities in Estonia are less competitive on the labour market – an ethnic pay and employment gap has been observable since the country regained its independence. Many of these differences are explained by lower qualifications, i.e. the education and language skills of minorities (for the EU experience, see for example Dustmann and Fabbri 2003; for Estonian analysis see Lepik 2010). Also, there is clear regional, sectoral and occupational segregation among non-Estonian workers: non-Estonians are concentrated in North-Eastern Estonia (for example, since 2009 more than 70% of the inhabitants of Ida-Viru County have been non-Estonians) where sectoral distribution of employment is unbalanced and industry prevails (Lepik 2010). The Estonian labour market is characterised by ethnic occupational segregation: non-Estonians are disproportionately more concentrated in industry (Krusell 2009), which is more open to external shocks than services and among them there are disproportionately fewer managers and professionals (around half, Lepik 2010).

Leping and Toomet (2008) have documented a substantial rise in the wage gap (and its unexplained part) between Estonians and non-Estonians in recent decades. They found that the gap is mainly explained by different returns to education and regional differences in the distribution of labour. The Russian crisis clearly showed that non-Estonians suffered more during the crisis. Therefore, it was expected that non-Estonians would be more vulnerable to the negative effects of the recession in terms of both employment prospects and wages.

Proposition 8: Participation and wage inequality between the highly and lower-educated increase during the recession.

According to different labour market theories (see chapter 1.2) highly educated employees are more valuable to employers since they are more productive and more difficult to replace compared to the more lowly educated. However, not all

highly educated employees are secured with jobs during a recession, especially when sectors where high-skilled workers dominate are severely affected by the negative impact of the recession. However, job losses being higher among the highly skilled than among the lower-skilled is not likely to happen, at least not in the short term in developed countries. Also, during the Russian crisis the lower-educated were more severely impacted by the gloomy labour market prospects during the crisis. Educational unemployment gaps increased during the recession, favouring the better educated. As such, it was expected to see increasing participation and wage inequality between the higher- and lower-educated during the recession.

More highly educated young people form a particularly interesting group on the labour market. They have up-to-date skills which should increase their competitiveness, but on the other hand, if they have no or only limited experience their access to jobs is likely to be more complicated, especially in light of the job destruction that occurs during a recession. Therefore, the situation of highly educated recent graduates is also analysed in the thesis. Two specific topics were studied: the gender pay gap among recent university graduates and inequality on the labour market between graduates of social and real sciences.

Research question 3.1: How large are the inequalities on the Estonian labour market between university graduates of the social and real sciences?

Proposition 9: Social sciences graduates have better labour market prospects than real sciences graduates on the Estonian labour market.

Real sciences experts are considered crucial to the development of the knowledge-based economy (Estonian higher education strategy 2006–2013). The EU set a goal of increasing the number of graduates in the real sciences by at least 15% by 2010 (Progress Towards... 2009). The Estonian government has supported studies in the real and technical sciences by providing state-funded university places, while the majority of social sciences students pay their own tuition fees. Similar to most European countries, Estonia is still characterised by a low proportion of young people choosing to study natural and life sciences. According to data from the Ministry of Education and Research, a third of students study social sciences compared to around 10% studying real sciences in Estonia.

According to data of Ministry of Education and Research, the majority of social sciences students pay for their studies themselves – *ca* 85% of such students are not in state-funded places; in the real sciences, only around 15% of students pay for their own studies. Since people are expected to make rational choices, it is expected that the returns on education are higher for social sciences students once they graduate and compensate the investments made.

Research question 3.2: How large is the gender pay gap among university graduates in Estonia?

Proposition 10: The gender pay gap among university graduates is lower than the average gender pay gap in Estonia.

Previous studies document the low gender wage gap in people's early careers compared to the average gender wage gap (see for example Beblo and Wolf, 2000; Datta Gupta and Smith 2002; The gender pay gap... 2010). According to Eurostat statistics, the gender pay gap increases with age (in the EU-27 the gap was 3.1% for employees younger than 30, 17.5% for those aged 30–39 and 23.8% for those aged 40–49 in 2006). The human capital theory also supports the idea of a lower pay gap among men and women in their early careers since previous labour market experience and family obligations should be more similar for young men and women entering the labour market. Therefore, it was expected that the gender pay gap among university graduates would be lower than the society-level average.

To conclude this chapter, the system linking the research questions and empirical analysis conducted is provided in the following figure. Chapter 3 focuses on the adjustment mechanisms used and general developments in inequalities on the labour market during the global financial crisis. Chapter 3.1 describes the adjustment forms used at the beginning of the crisis. Chapter 3.2 focuses on developments in the public sector, drawing parallels with the private sector. Both chapters also analyse the role of institutions and how inequalities between different groups changed during the crisis. Chapter 4 focuses on recent university graduates, i.e. research questions 3.1 and 3.2.

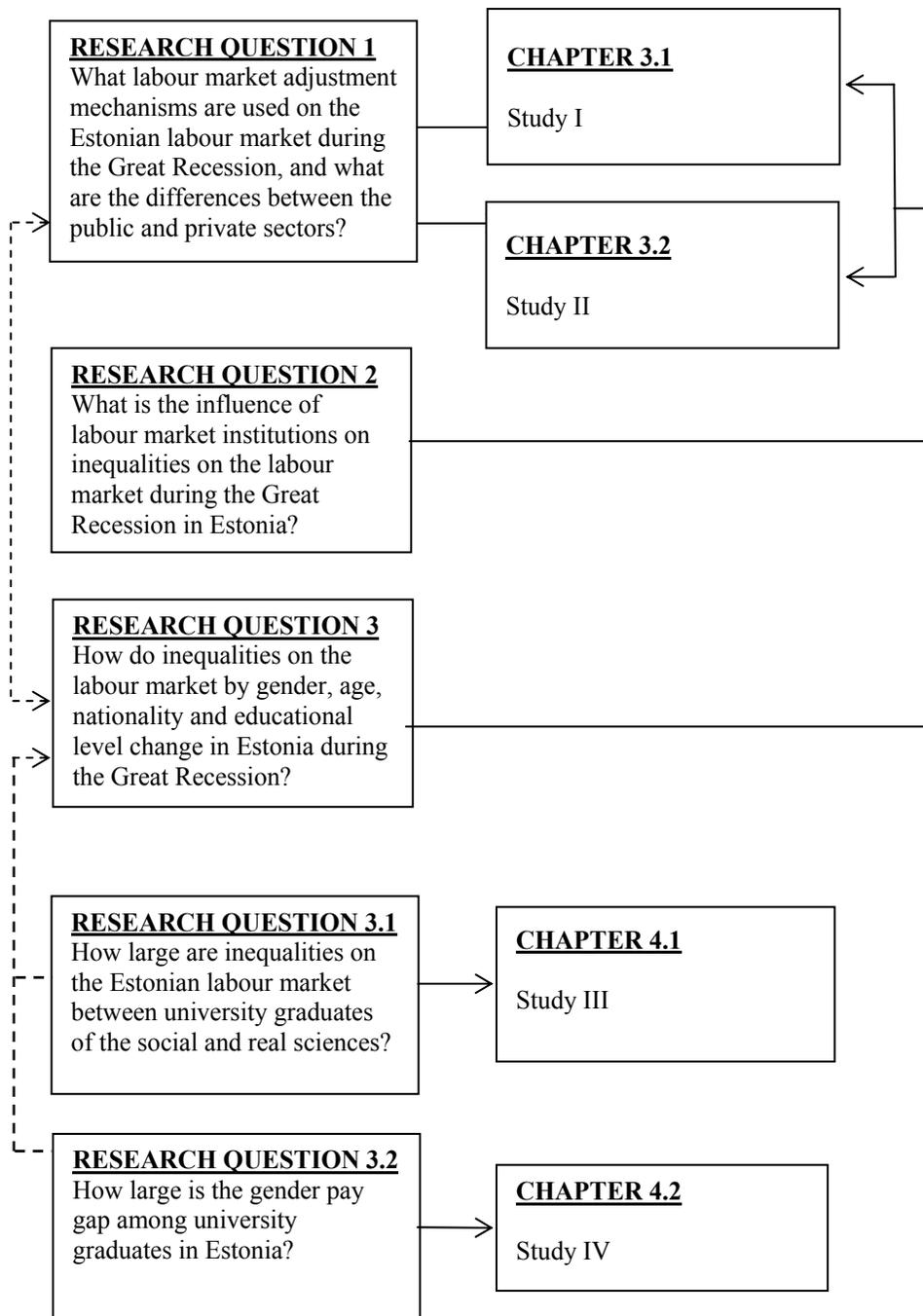


Figure 6. System of research questions and chapters of thesis (developed by author)

Note: The dotted lines indicate connections between research questions. The continuous lines represent the chapters in which analysis of the research questions is provided.

2.2. Data, estimation methods and research methods used in the thesis

2.2.1. Data used in the thesis

In the thesis data from different sources are combined in order to gain a more thorough understanding of the different aspects of inequality. Aggregated data and the author's own calculations based on labour force surveys and recent university alumni surveys were the main data sources. The main sources of aggregate data are the statistical offices of the Baltic States and Eurostat, which both mainly use labour force survey data. The Estonian Labour Force Survey (LSF) is a nation-wide survey conducted on the basis of methodology developed by the International Labour Organisation. Therefore, the results of the LSFs are comparable between countries.

The first LSF was conducted in Estonia in 1995. From 1997–1999 the survey was carried out annually in the 2nd quarter; since 2000 it has been organised as a continuous quarterly survey and is on-going, i.e. people are surveyed throughout the year and results are released on a quarterly as well as a yearly basis. The survey covers the entire country and takes in both private and collective households. Participation is voluntary. The target population comprises all persons aged 15–74 years that are permanent residents of Estonia. The sample size per quarter is approximately 2500 households, with a sampling size of around 0.5% of the working-age population. The sampling frame is based on the Population Register. (Estonian labour force... 2012)

In 2005 the sampling designing of the LSF was changed to a stratified, systematic, one-phase sampling of individuals. This means that the individuals are systematically sampled within each stratum and their households included in the sample. Prior to 2005 the sampling design was a stratified, systematic, two-phase sampling of individuals, whose households were included in the sample in the second phase with the probability inverse to the number of persons aged 15–74 in the household. Since 2005 the 2-(2)-2 rotation plan has been used, i.e. every sampled household is interviewed for four quarters according to the rotation pattern 2-(2)-2. Weighting is used to guarantee that the survey results can be generalised in terms of the Estonian labour market (Labour force survey... 2005).

The great advantage of the Estonian LSF compared to the LSFs conducted in many other countries is that it includes information on wages. Also, Estonian LFS data were available for research for the thesis in a timely manner. For this reason it was possible to analyse the effects of the crisis on labour market inequalities with only a very short time lag. The main problem related to LSF data is that although the results can be generalised in broad terms, for specific groups the sample size may be too small for reliable conclusions.

Eurostat data follows standardised methodology in order to guarantee the comparability of indicators between countries. The main problem faced when

using Eurostat data is the time lag related to its publication. When analysing the impact of the recession on the labour market, it is vital to have as recent data as possible. However, in Eurostat many indicators are released with a 2–3 year lag. This is also the main reason why the first cross-national comparisons of the effects of the crisis on labour market inequalities introduced in chapter 3.3 have only been published recently and in most cases cover only the first two years of the recession (2008 and 2009). Another caveat that should be borne in mind when using Eurostat data is that although comparability of data is sought, the results may not be entirely comparable due to national differences in data gathering methods. Since the indicators used in the thesis are based on fairly standardised calculation methodology, there should not be problems with data comparability.

Data from the national statistical offices of the Baltic States were used where Eurostat data was not available. For some indicators national statistical offices provide more detailed data than Eurostat, and they also release data more operatively. These were the two main reasons for using data from these offices.

To date there have been two university alumni surveys in Estonia. The first survey was conducted by Klaris Uuringud OÜ in April and May 2006 and covered graduates of six Estonian public universities who had been awarded their degrees in 2005. Postal and online questionnaires (in Estonian only) were used. There were 2975 respondents. For more details, see Vaade and Tamm (2007). The second alumni survey was conducted by the Centre for Applied Social Sciences of the University of Tartu in 2010. It covered graduates from 14 Estonian universities who had been awarded their degrees in 2009. The survey was conducted from August to November 2010 as an online questionnaire, again only in Estonian (although this should not have caused systematic bias, since the majority of curricula are in Estonian and students should have been able to respond in the language). The total number of responses was 2203. For more details, see Krillo et al. (2010).

There are certain methodological issues that should be borne in mind when using the results of the alumni surveys. The questionnaires used in the 1st and 2nd surveys were not identical. In the preparation process of the 2nd survey the questionnaire was modified on the basis of a Eurostudent questionnaire and the opinions of the project team. The questionnaires were developed by national experts and were designed for national needs. Since no international methodology was observed, the results are not directly comparable to international surveys. Also, the methods used to conduct the surveys were not identical: the 2nd survey was online-based while with the 1st survey it had been possible to respond online or by posting the questionnaire back to the researchers. Since participation in the survey was voluntary and anonymous and the online-based questioning method was used, there may be certain biases in answers provided that could not be controlled.

In this thesis, case studies are also used to illustrate the inequalities emerging on the Estonian labour market during the Great Recession. In chapter 3.1 the

five private enterprises selected are large and well-known companies – leading producers in their industry segments. Although their experience cannot be generalised, it is still very informative in understanding whether the practices used were similar or not. The Police and Border Guard Board is the biggest public sector employer in Estonia, and therefore very influential. In chapter 3.2 the rescue sector and health care were included as case studies since they both provide public services that are used by many citizens. Therefore, the problems faced in these sectors directly influence the everyday lives of many people.

Qualitative and quantitative data were used in the case studies. The data were collected by the authors via personal interviews and from both publicly available data sources (like the quantitative data used in the case study entitled ‘Changes in the accessibility of health care services as a result of the crisis’ which can be accessed on the Estonian Health Insurance Fund website) and non-available data sources (like the Estonian Rescue Board and Police and Border Guard Board data) to which the authors were granted access by the administrations of these organisations. The interviewees were carefully selected so that their experience would add to the discussion. Results of previous studies and articles published in the media were also used. More detailed information about the data is provided in the respective parts of the thesis.

2.2.2. Indicators and research methods used to measure inequalities on the labour market in the thesis

Based on the inequalities on the labour market system approach introduced in chapter 1.1, the indicators are divided into two groups: those indicating 1) inequality in labour income; and 2) inequality in participation on the labour market. In addition, a short overview of the Oaxaca-Blinder decomposition method is provided which is used in economic literature to give an insight into the extent to which the differences observed are ‘objective’ or ‘explained’ and the extent to which these reflect discrimination.

Indicators measuring wage inequality on the labour market

When analysing the remuneration side of the inequality emerging on the labour market, it is mainly wages (i.e. basic pay plus regular bonuses) that are the focus of interest. Therefore, in what follows the term ‘wage inequality’ is used, but this can easily be generalised for all remuneration components. The aim of wage inequality indices is to reduce inequality to one composite measure that adequately characterises the differences between groups; they are based on wage distribution. In this thesis, wage gaps are used to measure wage

inequality¹⁰. The measures used – the differences between average wages and percentile ratios – are by far the most commonly used indicators in empirical studies done in this field. Differences between average wages indicate absolute differences while percentile ratios (measured as a quotient of average wages) indicate relative differences. Wage inequality indicators can be calculated for society as a whole (based on the distribution of wages across the economy) or between certain groups (for example, by gender, age, nationality and educational level).

Differences in average wages indicate the ‘raw’ wage gap between the average wages of the groups concerned. The advantage of this indicator is that it is simple and easy to interpret; its main weakness is that the averages may be influenced by outliers and may not provide information about wage distribution as a whole. Percentile ratios are based on the division of those employed, from poorest to richest, into 100 equally sized groups. The most common percentile ratio is the decile (also known as the 90/10) ratio which presents the ratio of the average wage of the richest 10% of those employed divided by the average of the bottom 10%. This ratio can be calculated for any percentile ratio (e.g. 95/5 or 80/20), but the 90/10 ratio is by far the one most widely used in empirical research. The advantage of these percentile ratios is that they are insensitive to outliers at the very top and very bottom of wage distribution and it is possible to decompose changes across income distribution. The 90/10 ratio, for example, can be decomposed into two components – it is equal to the product of the 90/50 and 50/10 ratios. The disadvantage of this indicator is that it ignores information about middle-wage earners (Haughton, Khandker 2009). Decomposition partly overcomes this, as it helps us better understand the extent to which the 90/10 ratio is driven by inequality at the top of distribution vs. inequality at the bottom end of distribution (Making transition... 2000).

Indicators measuring participation inequality on the labour market

Participation inequality indicators measure the differences between the involvement in labour market activities of different labour market groups. Based on the nature of the measures, two categories of measures can be distinguished: 1) level indicators; and 2) intensity indicators.

To measure participation level inequality on the labour market, employment or unemployment gaps between different groups are used. When considering participation inequality between groups, (un)employment rates rather than absolute (un)employment numbers are used so as to smooth out the differences due to the unequal sizes of the groups.

The unemployment rate is a measure of the prevalence of unemployment among the working-age population. According to the Eurostat definition, the

¹⁰ Other indicators which are often used to measure income inequality (like the Gini and Theil index) are rarely used in wage inequality analysis and are therefore left out of this discussion.

unemployment rate represents unemployed persons as a percentage of the labour force based on the International Labour Office (ILO) definition. The labour force is the total number of people employed and unemployed. Unemployed persons comprise people aged 15–74 who are without work during the reference week, are available to start work within the next two weeks and have been actively seeking work in the past four weeks or have already found a job which will start within the next three months. Employed persons are people aged 15+ who performed work, even for just one hour per week, for pay, profit or family gain during the reference week or were not at work but had a job or business from which they were temporarily absent because of e.g. illness, holidays, industrial disputes or education/training. The employment rate is calculated by dividing the number of people in a certain age group in employment by the total population of the same age group.

Both the unemployment and employment gaps are used to measure participation inequality on the labour market. In the empirical part of this thesis the unemployment rate gaps are mainly used because these take into account only the active part of the labour market (i.e. the employed and the unemployed) and unlike the employment rate do not include in calculations those who do not actively participate on the labour market (i.e. the inactive).

Intensity indicators are factors that enable us to analyse the differences in the extent to which groups are involved in labour market activities. They are related to working hours. The most widely used indicators here are the average number of weekly or annual working hours, the part-time employment rate and the involuntary part-time employment rate, the latter indicating the underutilisation of the labour force on the labour market.

Unlike wage inequality indicators, there are no reliable composite measures that enable us to measure participation inequality at the level of society. Average (un)employment rates and working hours are too general and do not indicate inequality. Therefore, participation inequality can be used to compare two specific groups.

In terms of quantitative research methods, both descriptive statistical analysis based on the indicators outlined in chapter 2.2.2 and regression analysis methods (such as ordinary least squares, probit models and quintile regressions) are used in the thesis. The latter are used to analyse the factors that determined the inequalities observed. An overview of the research methods and data sources used in the empirical chapters of the thesis is provided in Table 2.

Table 2. Overview of data and quantitative research methods used in the thesis

	Topic	Research methods used	Data used
Study I	Employment change by sector	Descriptive analysis	LFS (NSO)
	Unemployment change by gender, age and nationality	Descriptive analysis	LFS (Eurostat, NSO)
	Labour market movements by gender, age, nationality, educational level and sector	Descriptive analysis, probit model, flow analysis	LFS (own calculations)
	Part-time work and forced vacation by gender, age and sector	Descriptive analysis	LFS (Eurostat)
	Change in average working hours by gender, age, educational level and sector	Descriptive analysis	LFS (own calculations)
	Wage change by sector, public/private wage gap	Descriptive analysis	Estonian Social Survey (NSO)
	Wage inequality: change in wage inequality, proportion of lower-paid employees, proportion of minimum wage earners	Descriptive analysis	LFS (own calculations)
	Gender wage gap	Descriptive analysis, Oaxaca-Blinder decomposition	LFS (own calculations)
	Part-time/full-time wage gap	Descriptive analysis	LFS (own calculations)
	Wage gap by nationality	Descriptive analysis	LFS (own calculations)
	Educational wage gap	Descriptive analysis	LFS (own calculations)
	Wage cuts by gender, educational level and sector	Descriptive analysis, regression analysis (probit model)	LFS (own calculations)
Study II	Employment change by gender and sector	Descriptive analysis, flow analysis	LFS (NSO)
	Share of low-wage employees by sector	Descriptive analysis	LFS (own calculations)
	Change in average working hours by sector	Descriptive analysis	LFS (Eurostat)
	Part-time work by sector	Descriptive analysis	LFS (Eurostat)
	Wage cuts by sector	Descriptive analysis	LFS (own calculations)
	Public/private sector wage gap	Descriptive analysis, regression analysis (quintile regression)	LFS (own calculations)

	Topic	Research methods used	Data used
Study III	Employment gap between social and real sciences graduates during studies and after graduating	Descriptive analysis	Alumni surveys 2007 & 2010
	Working hours during studies by field of study	Descriptive analysis	Alumni surveys 2007 & 2010
	Wage gap between social and real sciences university graduates	Descriptive analysis, regression analysis (OLS, Oaxaca-Blinder decomposition)	Alumni survey 2010
Study IV	Gender pay gap among university graduates	Descriptive analysis, regression analysis (OLS), Oaxaca-Blinder decomposition	Alumni survey 2010

Note: LFS – labour force survey; NSO – national statistical office

To determine which part of the inequality observed is caused by objective and measurable factors (such as educational, occupational and sectoral differences) and which by immeasurable factors (such as better motivation, talent etc. as well as discrimination), Oaxaca-Blinder decomposition was used¹¹. The Oaxaca and Blinder (1973) method (see also Oaxaca, Ransom (1999)) has been widely used in previous economic research to examine inequality on the labour market (see, for example, Johnson (1978) for racial discrimination; Reimers (1983) for racial discrimination in Spain; Stewart (1983) for racial discrimination in Britain; Atal et al. (2009) for gender and ethnic inequalities in Latin America; Johansson et al. (2005) for gender inequalities in Sweden). The technique decomposes the average wage/employment gap between two groups into two parts: 1) differences explained by the model; and 2) differences not explained by the model. The latter consists of the ‘discrimination’ aspect, but it is not correct to interpret this part as discriminatory only since it includes all factors not explained by the variables included. For example, differences in motivation and abilities may also play an important role and these aspects are often not included in analysis because of the lack of appropriate variables measuring such effects. Therefore, part of the unexplained gap reflects the inequality in opportunity introduced in chapter 1.1.

¹¹ There are other decomposition methods in addition to the Oaxaca-Blinder approach, but these are not used when analysing labour market inequalities. Therefore, they are not introduced in this chapter.

Table 3. Overview of case studies used in the thesis

Chapter	Case study	Research method used	Data used
Mixed adjustment forms and inequality effects in Estonia, Latvia and Lithuania	Adjustments in private and public enterprises and effects on inequality (5 private enterprises)	Template analysis	Interviews, annual reports of the companies
	Wage cuts and other adjustments in the Estonian Police Force	Template analysis	Interviews, articles published in the media, data collected by the Police and Border Guard Board
Early application of fiscal austerity measures in the Baltic States	Changes in the accessibility of health care services as a result of the crisis	Template analysis	Interviews, articles published in the media, Estonian Health Insurance Fund data
	Estonian rescue services hit by public sector adjustments	Template analysis	Interviews, articles published in the media, Estonian Rescue Board data

Qualitative and quantitative data and the results of previous studies and media analysis were used in the case studies, for which both quantitative and qualitative research methods were used (see Table 3). Analysis of the interview data was mainly based on template analysis. A detailed overview of the research methods used is provided in the respective parts of the thesis.

3. BALTIC STATES LABOUR MARKET INEQUALITIES DURING THE ECONOMIC FLUCTUATIONS

3.1. Mixed adjustment forms and inequality effects in Estonia, Latvia and Lithuania

Study I: **Masso, J., Krillo, K.** Mixed Adjustment Forms
and Inequality Effects in Estonia, Latvia and Lithuania. –
Work Inequalities in the Crisis: Evidence from Europe.
Edited by D. Vaughan-Whitehead.
UK: Edward Elgar Publishing, 2011, pp. 38–102

2. Mixed adjustment forms and inequality effects in Estonia, Latvia and Lithuania

Jaana Masso and Kerly Krillo

1. INTRODUCTION

The recent economic and financial crisis has hit the Baltic states particularly hard: their declines in annual GDP exceed even those seen at the beginning of the transition (see Table 2.1). There are several reasons for this. During the years preceding the crisis (2004–2007), all three countries experienced the highest growth in the European Union: average growth rates were 8.2 per cent in Lithuania, 8.5 per cent in Estonia and 10.3 per cent in Latvia. However, there were serious imbalances behind this growth that made it unsustainable. Wage growth – that compensated for wage fall in early transition – exceeded productivity growth, causing a loss of competitiveness in the private sector (especially in certain branches of manufacturing; Estonian Development Fund 2008). The large current account deficit (occasionally more than 20 per cent of GDP – it was around 22 per cent in Latvia in 2006–2007) was to a large extent financed by credit inflows, and so it was no longer possible to maintain external imbalances when the crisis broke out. While during 2003–2007 easy access to credit and low interest rates helped to fuel economic growth, in 2008 and 2009 bank lending contracted significantly due to banks' sharply diminished appetite for risk and fear of loan default.

Economic growth slowed in the Baltic states earlier than in the rest of Europe: Estonia and Latvia faced strong negative growth (–3.6 per cent and –4.6 per cent) as early as 2008. On the positive side, the financial institutions in the Baltic states had lower exposure to toxic US financial assets and the fact that the biggest banks are owned by Scandinavian banks has brought stability.

The crisis has been exacerbated by the use of fixed exchange rates by all three countries: Estonia and Lithuania have linked their currency to the euro, Latvia to SDR. Although at the beginning of the crisis devaluation

Table 2.1 Main macroeconomic and labour market indicators, Baltic states, 2009

Indicator	Estonia	Latvia	Lithuania	EU-25
GDP, % change	-14.1	-18.0	-14.8	-4.1
Industrial production, % change	-25.9	-15.8	-14.6	-14.5
Exports, % change	-24.1	-22.2	-21.7	-19.3
Employment, % change	-10.0	-13.6	-6.9	-1.8
Unemployment rate (LFS)	5.5 → 13.8	7.5 → 17.1	5.8 → 13.7	7.5 → 9.4
Vacancy rate*	2.5 → 0.9	1 → 0.3	1.7 → 0.5	2 → 1.4
Nominal wages, % change	-4.6	-4.0	-4.4	N.A.
Average working hours, % change	-2.0	-2.0	-1.3	-0.5
Budget deficit/GDP	-1.7	-9.0	-8.9	-6.8
Government debt/GDP*	4.6 → 7.2	19.5 → 36.1	15.6 → 29.0	62.3 → 74.3

Notes: * Change in annual average from 2008 to 2009.

Source: Eurostat, national statistical offices of the various Baltic states.

was discussed as the possible adjustment mechanism, all three countries have kept fixed exchange rates, while the currencies of many trading partners have lost value – and were even voluntarily depreciated – including Sweden, Norway, the Russian Federation and Poland. One of the main arguments for keeping a fixed exchange rate has been the large euro-denominated loan burden of the household sector.

All three Baltic countries are small open economies with foreign trade amounting to more than 100 per cent of GDP. This high export dependency also explains some of the strong impact of the crisis. Fiscal policy has not been able to balance this effect. Although there are automatic fiscal stabilizers such as unemployment insurance in place and initial levels of public debt were fairly low, these countries' ability to finance budget deficits has been limited. Their credit ratings for sovereign debt dropped and at the end of 2008 and beginning of 2009, Latvia and Lithuania in particular had limited access to sovereign debt. Latvia even had to apply for a loan from the IMF to finance government expenditure. An ambition to join the Eurozone in 2010 has motivated Estonia to keep its budget

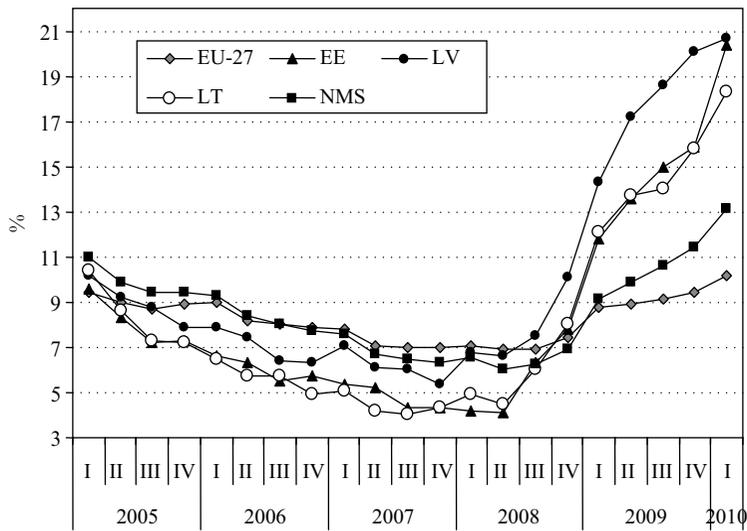
deficit below the Maastricht criterion (3 per cent of GDP). In a sense, fiscal policy has been pro-cyclical; for example, in Estonia there were tax cuts in 2006–2007 and tax increases in 2009 (OECD 2009).¹

In this chapter we provide an overview of the effects of the crisis on the labour markets of the Baltic states and on inequalities in the world of work. Despite some differences, these three countries form a fairly homogenous group, with similar institutions, overall level of economic development and similar development paths.² The Baltic states' labour markets have had one of the highest levels of wage inequality among EU countries (the value of the 90th/10th wage decile ratio in some years exceeded 4.5 – European Commission 2005). That is, in part, a result of the institutional setting of the labour market, characterized by low minimum wages, low union density and low coverage of collective agreements. In such conditions, the wage gaps between particular labour market groups can also be considerable. For instance, earlier studies have documented a large gender wage gap (see Rõõm and Kallaste 2004), as well as wage gaps between Estonians and non-Estonians (Leping and Toomet 2008) and part-time and full-time employees (Krillo and Masso 2010). The Baltic states have also been characterized by fairly high labour market flexibility (Masso and Eamets 2007), not to mention low union density and collective agreement coverage, modest expenditure on passive labour market policies and flexible wages (there were wage cuts during the previous recession in 1999). Employment protection legislation has been relatively strict but low enforcement seems to undermine its importance (Eamets and Masso 2005). In such conditions, it is interesting to study how different labour market segments have been influenced by the crisis.

2. INEQUALITIES DUE TO EMPLOYMENT ADJUSTMENTS

2.1 GDP Fall Immediately Reflected on Employment

Economic developments have directly influenced unemployment rates in all three Baltic states (see Figure 2.1). Due to strong economic growth and migration (for Estonia, see Randveer and Rõõm 2009) unemployment decreased considerably in all three Baltic states in the mid-2000s and until the beginning of the recession unemployment rates were below the EU27 average. Unemployment rates fell to levels not seen since independence was regained. This was a period of labour shortages in all the Baltic states, reflected in a substantial increase in wages (see subsection on wages).



Note: The average for New Member States (NMS) has been calculated as the unweighted average of new CEE member states.

Source: Eurostat.

Figure 2.1 Unemployment rates for persons aged 16–64 years in the EU-27, the NMS, Estonia, Latvia and Lithuania, 2005–2010

The economic crisis hit the Baltic states quickly and painfully. The unemployment rate rose more rapidly in Latvia (to almost 20 per cent at the end of 2009) than in Estonia and Lithuania (about 15.5 per cent), reflecting the greater GDP decline there. In comparison to the end of 2007, the unemployment rates were almost four times higher in all three Baltic states at the end of 2009. While in many Western European countries the current crisis has been characterized by falls in employment which are a lot lower than the falls in GDP (in the EU15 in 2009 GDP declined by 4.2 per cent, but employment fell by only 1.8 per cent), in Estonia and Latvia in particular falls in GDP and in employment have been closely correlated (the employment reduction was 71 per cent of the GDP decline in Estonia and 76 per cent in Latvia). In Lithuania, employment has fallen relatively little compared to the GDP decline (47 per cent only). Until 2010 unemployment was a short-term phenomenon. In 2010, however, the share of long-term unemployed also increased. While in most new member states unemployment rates have not yet reached the levels of the early 2000s, this has been the case in the Baltic states.

Table 2.2 Change in employment during the boom (2005–2007) and the recession (2008–2009) by sector, Baltic states (%)

Sector	Employment change, 2005–2007			Employment change, 2008–2009			Percentage of total job loss in 2009		
	EE	LV	LT	EE	LV	LT	EE	LV	LT
Total economy	7.9	8.0	4.1	-9.2	-12.2	-6.8	100.0	100.0	100.0
Primary sector	-3.2	-11.9	-22.9	-5.1	-0.4	8.9	2.1	0.3	-10.3
Industry	-5.6	7.2	1.0	-14.0	-21.0	-13.3	34.9	29.8	38.3
Construction	68.2	38.8	29.0	-28.0	-39.7	-26.4	37.4	36.2	42.2
Business services	7.3	19.1	15.1	-6.3	-8.1	-4.9	23.1	24.7	25.9
Public services	5.8	-6.4	0.1	-0.9	-4.3	-1.1	2.6	9.2	3.9

Source: National statistical offices.

2.2 Losses Different by Sector and Workers' Category

Job losses have not been uniform across economic sectors (Table 2.2). Developments in the construction sector have been particularly striking. During the boom years the sector was the biggest job creator (related to the boom in the real estate market, fuelled by easy credit) and during the recession the employment decline has been enormous. It is certain that most of these jobs will not be restored in the near future. Also, the manufacturing sector has seen major employment decline. Public sector employment has decreased significantly only in Latvia, where the depth of the recession made it impossible to make adjustments in the public sector by means of cuts in wages and working hours alone. Most of the employment adjustment occurred in the relatively early stages of the crisis. In Estonia, statistics on collective dismissals³ indicate that, at the end of 2007, the number of applications for collective redundancies started to increase; for a year (4th quarter 2007–3rd quarter 2008) the increase was fairly stable and modest, but in the last quarter of 2008 the increase in the number of applications as well as the number of employees involved was considerable – more than three times higher than in the previous quarter. The peak was in the first quarter of 2009, the figures falling off thereafter.

Labour market developments have influenced various labour market segments in different ways in the Baltic states (see Table 2.3). The recession has clearly hit the employment of males more than of females: several sectors in which males predominate have shrunk considerably. There are 'female-occupied' sectors that have been influenced by the economic cooling off, too, such as hotels and catering.

Table 2.3 *Unemployment rates, various labour market groups, Baltic states, 2005–2009*

Labour market group	2005	2007	2008	2009	Percentage points change, 2005–2007	Percentage points change, 2008–2009
Estonia						
Men and women	8.1	4.8	5.6	14.1	–3.3	8.5
Men	9.0	5.5	5.9	17.4	–3.5	11.5
Women	7.2	4.0	5.4	10.8	–3.2	5.4
15–24	15.9	10.0	12.0	27.5	–5.9	15.5
25–49	7.5	4.3	4.7	13.0	–3.2	8.3
50–69	5.9	3.3	4.5	10.5	–2.6	6.0
Nationals	5.3	3.5	4.2	11.0	–1.7	6.9
Foreigners	13.0	6.9	8.2	19.0	–6.1	10.7
Latvia						
Men and women	8.8	6.2	7.8	17.3	–2.6	9.5
Men	9.1	6.6	8.4	20.4	–2.5	12.0
Women	8.5	5.8	7.2	14.1	–2.7	6.9
Nationals	8.9	4	4.6	12.1	–4.9	7.5
Foreigners	NA	NA	11.1	23.5		12.4
15–24	15.7	8.2	13.4	29.2	–7.5	15.8
25–49	8.4	4.4	5.9	13.9	–4.0	8.0
50–74	7.8	3.7	5.1	10.8	–4.1	5.7
Lithuania						
Men and women	8.3	4.3	5.8	13.7	–4.0	7.9
Men	8.2	4.3	6.0	17.0	–3.9	11.0
Women	8.3	4.3	5.6	10.4	–4.0	4.8
15–24	15.7	8.2	13.4	29.2	–7.5	15.8
25–49	7.8	4.0	5.1	12.5	–3.8	7.4
50–74	6.8	3.8	4.4	10.4	–3.0	6.0

Source: Eurostat, national statistical offices.

Compared to the national majorities (Estonians, Latvians, Lithuanians), minorities (in the Baltic states mostly the Russian-speaking population) generally fared worse (in terms of both wages and employment) during the crisis since their unemployment rate increased disproportionately, probably due to poor language skills and ethnic segregation of the workforce.

During the whole period since regaining independence, high unemployment among young people has been one of the main challenges facing labour policymakers in the Baltic states. In comparison to other age groups, young people (aged 15–24) were more markedly affected by both

the economic boom and the recession. Thus, it is one of the buffers that absorbed the labour shortage during the boom years and employment reductions during the crisis. Nevertheless, even during the economic boom unemployment was highest among young people. The labour market entry of the relatively large cohorts born at the end of the 1980s and the beginning of the 1990s has also contributed to the high youth unemployment.

With regard to atypical forms of employment, temporary work is not widespread in the Baltic states. While in the EU on average about 13–15 per cent of employees are employed on a temporary basis and in the New Member States the incidence of temporary work is even higher, in the Baltic states the use of temporary contracts constituted only 2–3 per cent of total employment in 2008. In Estonia and Latvia, the level of temporary contracts shows a contra-cyclical trend: for example, it decreased in 2005–2008 (in Latvia from 8.5 per cent to 3.3 per cent, and in Estonia from 2.7 per cent to 2.4 per cent), but has increased during the crisis (in the first half of 2010, it was 6.2 per cent in Latvia and 3.6 per cent in Estonia). In Estonia the new law on employment contracts introduced in the middle of 2009 has liberalized the use of fixed-term contracts. The increasing share of temporary contracts is also due to increasing demand uncertainties during the crisis; firms want more flexibility and thus hire new employees on a temporary basis. Similarly, the self-employment rate, lower in the Baltic states than in the EU15, has even decreased during 2008–2010: in Estonia from 5.3 per cent to 3.9 per cent, in Latvia from 5.3 per cent to 5.1 per cent and in Lithuania from 7.7 per cent to 4.6 per cent (which is interesting, given the increasing employment in the primary sector). Self-employment is also likely to increase if people previously in salaried employment are forced to start their own business in order to make a living; the Global Entrepreneurship Monitor data indicate something similar for Latvia (Bosma and Levie 2010). Another form of flexible employment, temporary agency work, is relatively new in Estonia, with only about 2,800 temporary agency workers in 2007 (Estonian Ministry of Social Affairs 2007). Temporary agency work during the period of economic growth was used in cases of labour shortage and a need for additional staff. Thus, it is highly likely that the sector has shrunk considerably, although no statistics are available on that.

2.3 Changes of Employment Status

One advantage of the Estonian Labour Force Survey (LFS) is that it includes detailed information on the various reasons why employment contracts have been terminated. As shown by Table 2.4, relative to 2008,

Table 2.4 *Reasons for termination of employment contract, Estonia, 2007–2009 (%)*

Reason	Percentage of all terminations			Percentage change in total number, 2008–2009
	2007	2008	2009	
1. Closure of the enterprise	6.9	5.9	10.3	194
2. Reorganization of the enterprise	2.2	1.2	0.9	22
3. Dismissal initiated by the employer	7.6	7.4	7.0	60
4. Personnel reduction	9.2	11.3	26.7	300
5. Expiry of fixed-term contract or probation period	7.8	7.5	5.1	16
6. Termination of self-employment or farming	0.2	1.3	2.3	190
7. Military service	1.2	0.5	1.1	239
8. Illness or injury	19.1	16.4	11.2	16
9. Study	0.9	2.2	0.9	–28
10. Retirement at pension age	18.4	19.0	9.8	–12
11. Early retirement	4.2	2.9	2.8	64
12. Maternity leave	8.8	14.4	10.5	24
13. Need to take care of children or adults	1.5	0.8	1.4	183
14. Other personal reasons	5.7	4.8	4.2	51
15. Other work-related reasons	5.5	4.2	5.6	125

Source: Authors' calculations based on Estonian LFS.

involuntary departures (due to personnel reductions, closure of the enterprise or termination of self-employment) have become more significant and have grown in absolute numbers. However, there is anecdotal evidence that employers are trying to achieve the termination of employment contracts by other means than redundancies in order to avoid the payment of severance pay. Maternity leave has become less important. There is anecdotal evidence that women have opted to use the crisis for child birth in order to take advantage of Estonia's fairly generous system of paid parental leave (up to 435 days and with a maximum monthly benefit of 2,260 euros).

Table 2.5 Flows between labour market states, Estonia, 2008–2010 (%)

Group	Year	EE	Ee	EO	EU	UU	UE	UO	Hiring	Separation
Males	2008	91.9	8.0	5.8	2.2	30.0	43.2	26.8	15.7	16.1
	2009	82.5	8.2	7.6	9.9	42.1	45.4	12.5	14.7	25.7
	2010	76.7	8.3	8.9	14.3	64.0	18.3	17.7	16.4	31.5
Females	2008	89.4	6.9	8.5	2.0	23.5	58.5	18.0	18.2	17.5
	2009	83.6	6.0	11.2	5.1	30.0	45.6	24.4	17.9	22.4
	2010	82.3	4.7	10.7	7.0	41.8	36.4	21.9	16.2	22.4
Estonians	2008	90.2	7.0	8.0	1.8	24.1	50.4	25.4	17.3	16.8
	2009	83.2	7.1	10.3	6.5	29.2	51.0	19.8	16.3	23.9
	2010	82.6	7.3	10.0	7.4	50.8	26.8	22.5	17.3	24.7
Non-Estonians	2008	91.8	8.5	5.2	2.9	31.6	49.4	19.1	16.2	16.7
	2009	82.8	7.1	7.2	10.0	46.7	38.9	14.4	16.2	24.3
	2010	73.3	4.2	9.6	17.2	60.4	24.2	15.4	14.0	30.9
All	2008	90.7	7.5	7.2	2.1	27.4	49.8	22.9	17.0	16.8
	2009	83.1	7.1	9.4	7.5	36.8	45.7	17.6	16.2	24.0
	2010	79.8	6.3	9.9	10.3	54.9	25.7	19.4	16.3	26.6

Source: Authors' calculations based on Estonian LFS; 2010 includes only the first quarter.

Table 2.5 (above) presents the indicators of various labour market flows. Let us denote the three labour market states 'employment', 'unemployment' and 'inactivity', respectively, as E , U and O , then, over a given period (in this case, over the previous year), EU denotes movement from employment to unemployment. Let us also use EE to denote constant employment with the same employer and Ee job-to-job mobility. The hiring and separation rates (respectively HR and SR) can thus be defined as follows (Haltiwanger and Vodopivec 1999):

$$HR = (UE_t + IE_t + Ee_t)/E_{t-1}$$

$$SR = (Ee_t + EI_t + EU_t)/E_{t-1}$$

As we can see, the separation rate increased from 17 per cent to 27 per cent, while the hiring rate decreased only slightly. That is different from, for example, Hungary, where the employment adjustment occurred mostly through reduced hiring, while separations did not change much (Köllő, Chapter 7 this volume). The relatively higher separation rate in the Baltic countries might also mean a relatively lower wage decline; for example, while in Estonia the percentage change in employment was larger than the percentage change in wages in 2009 (respectively –10 per cent and –4.6 per cent), in Hungary it was the other way round (–3.7 per

cent and –5.5 per cent, respectively). The separation rates have increased relatively more for males and non-Estonians. The prospects of moving from unemployment to employment have clearly worsened, thus showing that long-term unemployment is a growing problem. Flows to inactivity have grown only slightly, at around 10 per cent, but are likely to increase in the near future if high unemployment persists. The rates of job-to-job mobility have decreased, especially for some groups (females, non-Estonians). The quarterly data show that while, during 2006–2007, 7–9 per cent of employees changed their workplace within the year, that number increased to 11.8 per cent at the end of 2008, but fell to 5 per cent in the third quarter of 2009. That may indicate that while in 2008 people being dismissed could still find work with another employer, in 2009 they remained unemployed. The recession may also have discouraged voluntary moves; that is, people chose to stay with their current employer even if they were dissatisfied. That may result in decreased job quality. Svejnar and Semerak (2009) argue that the crisis seems to have increased geographical labour mobility in New Member States: for example, people are more willing to commute or relocate to places with better employment opportunities.

3. ADJUSTMENT THROUGH PART-TIME EMPLOYMENT AND WORKING HOURS

3.1 Resort to Part-time

The Baltic states have been characterized by fairly high weekly working hours and a low incidence of part-time employment compared to the rest of the EU.⁴ In the Baltic states, the adjustment through working hours has been the most extensive compared to other CEE countries (Table 2.6). This adjustment has been more extensive for males (especially in Latvia: –2.4 per cent for males and –1.4 per cent for females). In Estonia, the adjustment was more marked in manufacturing (–2.5 per cent), and in Latvia and Lithuania in construction (–3.6 per cent and –1.8 per cent, respectively). Svejnar and Semerak (2009) argue that the observed adjustment in the form of a shorter working week in New Member States could be temporary and might later translate into unemployment. Shortened working hours might be due to the higher frequency of part-time employment or forced vacations. Data from the Estonian Labour Inspectorate on firms' applications for partly paid holidays or part-time working show that, at the end of 2008, there was a sudden spectacular increase in both applications and the number of employees involved (Figure 2.2, p. 49).

Table 2.6 Reduction of working hours during the crisis, Baltic states, 2008–2009

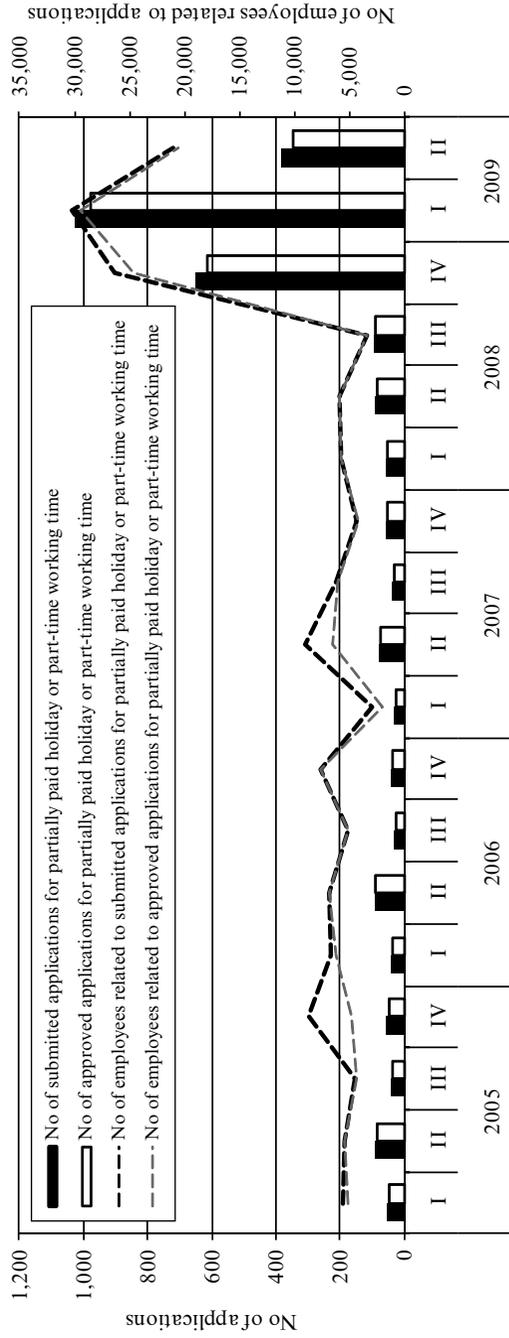
Country	Average number of weekly working hours in main job			Share of working hours in labour input reduction (%)
	2008	2009	2008–2009 (%)	
Estonia	39.1	37.6	–3.8	29.1
Latvia	39.4	38.8	–1.5	11.0
Lithuania	39.2	38.6	–1.5	17.8
Slovenia	39.5	38.8	–1.8	45.8
Bulgaria	41.0	40.3	–1.7	35.6
Hungary	40.0	39.6	–1.0	28.0
EU24	37.3	36.9	–1.1	37.6

Note: The share of hours in the reduction of labour input was calculated by differentiating the natural logarithm of the total labour input (hours times number of employed).

Source: Eurostat, authors' calculations.

Table 2.7 presents figures on the share of part-timers in employment. While in the EU27, average part-time employment was stable in 2005–2007 and in 2008–2009 increased slightly (by 0.5 percentage points), in the Baltic states the fluctuations have been much greater. The recession not only led to a decrease in the number of employed, but also forced many companies to resort to part-time work, due to falling demand. For example, in Estonia the share of part-time work increased from 7.2 per cent to 10.5 per cent. In Latvia and, especially, Lithuania the increase in part-time employment was more modest. In the last two quarters of 2009 the frequency of part-time employment decreased in Estonia, probably due to the fact that employers, who resorted to the adjustment of working time, had either overcome their financial problems or fired the redundant workers.

As in most other EU member states, in the Baltic states the incidence of part-time is more frequent among females, young people and older workers. During the recession, the incidence of part-time employment grew in all labour market groups, but the largest increase was among young people in Estonia and Latvia. This reflects the sectoral segregation of the workforce: young people and older workers are more often employed in service sector companies where the impact of the recession has not been as great as in industry, where more middle-aged workers are employed (see LFS data). Nevertheless, emerging part-time employment is also noticeable among men. The conclusion is that part-time work has



Source: Labour Inspectorate of Estonia.

Figure 2.2 Use of partly paid holidays or part-time working, Estonia, 2005–2009

Table 2.7 Frequency of part-time employment by gender and age, Baltic states, 2005–2009

Country	Group of workers	2005	2007	2008	2009	Percentage point change, 2005–2007	Percentage point change, 2008–2009
Estonia	All	7.8	8.2	7.2	10.5	0.4	3.3
	Males	4.9	4.3	4.1	7.0	–0.6	2.9
	Females	10.6	12.1	10.4	13.8	1.5	3.5
	15–24	16.9	13.8	12.9	17.7	–3.1	4.8
	25–49	5.1	5.6	4.7	7.7	0.5	3.0
	50–74	11.5	11.5	10.1	13.9	0.0	3.8
Latvia	All	8.3	6.4	6.3	8.9	–1.9	2.6
	Males	6.3	4.9	4.5	7.5	–1.4	3.0
	Females	10.4	8.0	8.1	10.2	–2.4	2.2
	15–24	9.9	12.9	9.6	15.0	3.0	5.4
	25–49	6.6	3.6	4.3	7.2	–3.0	2.8
	50–74	11.9	9.7	9.0	10.5	–2.2	1.5
Lithuania	All	7.1	8.5	6.7	8.2	1.4	1.5
	Males	5.1	6.9	4.9	6.9	1.8	2.0
	Females	9.1	10.1	8.6	9.5	1.0	0.9
	15–24	8.3	9.3	10.7	12.0	1.1	1.3
	25–49	5.9	6.9	5.4	6.7	1.1	1.4
	50–74	10.3	12.5	8.8	11.0	2.2	2.2

Source: Eurostat.

been used extensively in the Baltic states, especially in Estonia, to adjust to economic recession. Part-time employment enabled employers to avoid collective redundancies.

3.2 Forced Vacation

Another adjustment mechanism for reducing labour costs was (partly paid) forced vacations (in Estonia, at least 60 per cent of the minimum wage must be paid during such periods). The ELFS data show that, among the different reasons for being absent from work in the previous week, the frequency of forced vacations increased from 1 per cent in 2007 to 7.6 per cent in 2009. Groups of workers most often sent on involuntary vacation were construction workers, those with basic education, people employed in the primary sector, employees of domestically owned firms and males. On the other hand, this instrument was little used among young people.

3.3 An Opportunity or an Additional Risk for the Categories Concerned?

Table 2.8 (overleaf) presents the reduction in working hours for various labour market segments. Hours were reduced more often among the elderly and young employees, union members, those with basic education and public services employees, and less often in construction and some small firms. This shows us the various adjustment patterns across industries: while in construction, employment change was more important, in the public sector it was adjustment through working hours. A reduction in working hours is usually accompanied by a reduction in monthly pay (according to the LFS, this applied to 70 per cent of working hour reductions in 2009). The natural question is whether the cuts in hours have helped to preserve employment. Indeed, across various labour market segments a negative correlation was observable between the frequency of cuts in hours and the frequency of job losses.

4. GROWING WAGE INEQUALITIES AND ADJUSTMENT BY WAGE CUTS

It is worth paying particular attention to wage dynamics in the Baltic states during the crisis since past reactions to economic downturns, such as the Russian financial crisis in 1999, show that in the Baltic states, unlike in many other countries, wages were significantly decreased (Masso et al. 2007). The Baltic states are in fact characterized by weak wage-fixing institutions (modest minimum wages, weak unions, low coverage of collective agreements – see Section 1), and thus the stronger reaction of wages to adverse shocks is more likely to occur than in countries where industrial relations are better developed.

4.1 Immediate Wage Plunge

During the crisis, the inflation rates were very low or even negative in the Baltic states, and thus reductions in real wages could occur only through the cutting of nominal wages.

Table 2.9 illustrates the dynamics of annual wage increases. While during the period of rapid economic growth (2005–2007) annual wage increases could reach 20 per cent and more, at the beginning of the recession wage increases slowed down and even fell in 2009. Latvia, which was at the forefront in this respect during the growth period, also experienced the earliest and deepest decline during the recession. The wage growth

Table 2.8 Average weekly working hours for various groups of employees, Estonia, 2008–2009

Variable	Average hours, 2008	Average hours, 2009	Percentage change in average hours, 2008–2009	Percentage of reduced working hours, 2008–2009
All	39.6	38.9	-1.8	14.5
Male	40.7	40.0	-1.6	11.8
Female	38.4	37.7	-1.7	17.2
Basic education	40.6	38.9	-4.1	18.1
Secondary education	39.7	39.1	-1.5	15.4
Higher education	38.6	38.5	-0.4	11.8
Age 15–24	40.2	37.5	-6.7	32.6
Age 25–49	40.6	39.6	-2.3	10.9
Age 50–75	38.9	37.7	-2.9	18.1
State	38.5	38.5	-0.1	14.6
Foreign	40.4	39.9	-1.1	15.1
Domestic private	39.8	38.7	-2.8	14.3
1–10 employees	39.0	37.7	-3.2	14.6
11–49 employees	40.0	39.1	-2.1	14.0
50–199 employees	39.5	39.2	-0.8	17.8
200–499 employees	39.4	39.7	0.7	10.6
11–49 employees	39.8	39.2	-1.4	14.6
North Estonia	39.4	38.3	-2.7	17.0
Central Estonia	39.8	39.2	-1.5	11.9
North-East Estonia	39.7	39.4	-0.8	12.0
Western Estonia	39.5	38.9	-1.6	9.2
Southern Estonia	39.3	38.7	-1.6	15.3
Union member	39.2	38.9	-0.6	16.0
Blue-collar job	40.0	39.3	-1.9	16.3
White-collar job	39.1	38.4	-1.7	12.6
Primary	42.0	40.7	-3.2	14.7
Secondary	40.3	39.5	-2.0	14.6
Construction	41.5	40.2	-3.3	6.9
Business services	39.5	38.9	-1.6	16.0
Public services	37.9	37.7	-0.7	16.2

Source: Estonian LFS, authors' calculations.

preceding the recession was clearly unsustainable, however: real wage growth exceeded productivity growth, which undermined competitiveness, a process which continued during the recession despite large wage cuts. The turning point arrived in the last quarter of 2009 and in 2010

Table 2.9 Real wage growth and productivity growth, Baltic states, 2005–2010 (first half) (%)

Indicator	2005	2006	2007	2008	2009	2010, 1st half
Estonia						
Nominal wage growth	11.4	16.2	20.4	14.1	−4.6	−0.6
Real productivity growth	7.2	3.9	5.5	−5.2	−5.0	8.5
Real wage growth	7.0	11.2	12.8	3.1	−4.8	−2.0
Wage share	44.2	44.4	47.0	51.2	52.0	49.4
Real unit labour cost	−2.1	0.4	6.2	8.4	1.2	−9.6
Latvia						
Nominal wage growth	16.4	22.7	31.7	21.0	−3.8	−7.2
Real productivity growth	8.8	6.8	6.9	−4.5	−6.0	6.0
Real wage growth	8.9	15.1	19.7	4.9	−7.0	−4.3
Wage share	41.9	43.9	46.9	50.5	47.0	44.1
Real unit labour cost	4.2	5.0	6.0	7.0	−6.0	−12.0
Lithuania						
Nominal wage growth	10.0	16.6	19.4	19.6	−4.3	−6.4
Real productivity growth	4.6	6.1	7.3	4.1	−8.4	4.3
Real wage growth	7.2	12.3	12.9	7.6	−8.2	−6.4
Wage share	40.8	42.9	43.1	44.5	44.6	42.3
Real unit labour cost	−0.6	3.4	−1.8	0.5	0.9	−9.7

Source: Authors' calculations based on data from Eurostat and national statistical offices.

productivity growth was clearly ahead of wage growth. Thus, the Baltic states differ from other EU countries also in that the huge employment reduction was accompanied by a major reduction in aggregate productivity (Marelli et al. 2010).

4.2 Explanatory Factors

Several factors explain this wage decline. First, workers are more likely to accept wage cuts if they occur throughout the economy, thereby limiting their outside options (compare relative wage theories of wage rigidity). Another reason is certainly the low coverage of collective agreements and trade union weakness (Masso and Eamets 2007). Trade unions sometimes agree to wage reductions in order to maintain jobs, while there are also cases in which companies have introduced wage cuts without the prior agreement of the unions (for example, the Finnish-owned supermarket chain Prisma in 2010 – Osila and Nurmela 2010). It should be noted that Estonian legislation does not allow unilateral wage reductions. In each case, the employees have to sign a wage reduction agreement, but they generally agree to do so to avoid being laid off.

Wage flexibility is also achieved through various flexible pay schemes: according to the Bank of Estonia's wage survey, about 78 per cent of enterprises used payment schemes based on either individual job performance or the firm's performance (Rõõm and Uusküla 2006). In this case, a sort of in-built wage flexibility contributed to reduce wages automatically when profits went down.

4.3 Wages in the Public Sector Particularly Hit in Latvia

Table 2.10 shows that wages have declined throughout the economy, although of course there are differences across sectors. We have already mentioned the problems in the construction sector: but in comparison to the large nominal wage cuts in Estonia (–13 per cent) and Lithuania (–21 per cent), the change has been much more modest in Latvia (–1 per cent). Public administration jobs have also been hard hit (from 7.6 per cent in Estonia to 18 per cent in Latvia), reflecting cuts in the budgets of both national and local governments. While in Latvia the adjustment also took the form of employment cuts and unpaid vacation, the change in public sector employment was relatively more modest in Estonia and Lithuania. Despite the sharp decline in industrial production, the average wage has declined in manufacturing much less than in many business services branches. Comparing Tables 2.10 and 2.2 on adjustments in wages and employment, we can find evidence that the reason for the somewhat smaller wage decline in some sectors (such as manufacturing in Estonia) could be their relatively greater employment decline. The primary sector and mining and quarrying have also suffered. Almost the only sector with positive wage development is energy, which might also reflect the monopolistic position of several enterprises in this sector. The

Table 2.10 Annual wage changes by economic sector, Baltic states, 2008–2009 (%)

	Estonia		Latvia		Lithuania	
	2008	2009	2008	2009	2008	2009
Total economy	13.8	−4.6	20.6	−4.0	19.3	−4.4
Primary	17.7	−7.4	17.2	−4.6	23.4	−7.8
Industry	11.5	−3.5	13.4	−4.0	17.5	−4.2
– Manufacturing	10.8	−3.9	19.8	−2.1	17.5	−4.4
– Energy	17.0	6.8	5.6	−5.0	15.9	−0.1
Construction	8.3	−13.4	19.0	−1.1	10.3	−21.1
Business services	12.3	−4.2	21.0	−1.8	18.8	−5.2
Public services	17.4	−4.5	20.2	−9.7	22.0	−11.3
– Public administration	15.7	−7.6	16.1	−18.0	23.1	−9.7
– Education	20.4	−2.5	23.4	−9.9	25.9	7.8

Source: National statistical offices of Estonia, Latvia and Lithuania.

Table 2.11 Wage gap between the private and public sector, Baltic states, 2008–2009

Private/Public gap	Estonia	Latvia	Lithuania
2008	106	78	88
2009	96	86	84

differences in the education sector are quite significant across countries: while in Estonia the decline was modest (in fact, at the beginning of 2009 teachers even achieved some wage increases, although these were later reversed), wages in Latvia were cut drastically; from 1 September 2009 teachers' monthly gross wages were reduced by 28 per cent (Curkina 2009). In public administration, the largest contraction in public administration was also seen in Latvia: on 1 July 2009, wages below LVL 300 were cut by 15 per cent and those above LVL 300 by 20 per cent (Curkina 2009). Summarizing the differences between the public and private sectors, the wage cuts have been especially severe in the Latvian public sector. Table 2.11 summarizes the differences over time in the private–public sector wage gap in the three Baltic states. While all the above information applies to gross wages, net wages have been further reduced in Latvia due to the reduction of tax-free allowances and the introduction of progressive income tax (see Appendix Table 2A.2).

4.4 Persisting Wage Inequalities

Table 2.12 presents a range of data on wage inequalities. The rather high inequality level has not decreased during the crisis. The main trend in this respect seems to come from the increase in returns to education with the wage premium of people with higher education relative to basic education that increased from 51 per cent in 2008 to 67 per cent in 2009. During the crisis the wage gap with the non-Estonian population has also slightly decreased. The part-time wage penalty has been declining because of growing part-time employment among males. Union members have been somewhat better off during the crisis compared to non-union members. The number of minimum wage recipients decreased slightly in 2009. This is surprising, given that the minimum wage to average wage ratio increased (the minimum wage has been constant, but average wages have declined), but that is also because during the crisis many low-paid employees have just lost their job. The percentage of low-paid employees is increasing, which is consistent with increasing inequality.

Developments with regard to the gender pay gap deserve particular attention in the Baltic states, where it is the highest in the EU, above all in Estonia (around 25 per cent), but also in Latvia and Lithuania (15 per cent). One effect of the recession has been the narrowing of the gender pay gap in Estonia and Lithuania (unfortunately no data are available on Latvia) by almost 10 percentage points because male-dominated industries have suffered more (such as construction). However, at the end of 2009 some signs of an increase in the gender pay gap were observable again in both countries (in Estonia from 21 per cent in the second quarter of 2009 to 25 per cent in the first quarter of 2010), which could be due to a recovery in industrial production and the further budget cuts in public sector. The reduced gender pay gap was thus a very short-term phenomenon. Table 2.13 presents the results of the Oaxaca–Blinder decomposition for the gender wage gaps in various years (using the Estonian LFS and Stata package Oaxaca written by Jann 2008). As can be seen, during 2005–2007 the proportions of the explained (due to differences in workers' characteristics) and unexplained part attributed to discrimination were similar to the findings of earlier studies (Rõõm and Kallaste (2004) found for 1998–2000 that, of the total gap of 30 per cent, the explained part was 8 per cent and the unexplained part 21.3 per cent). For 2009 we can see that the reduction in the gender wage gap took place at the expense of the explained part (the most important factors being sectoral and occupational segregation), while the unexplained part of the wage gap did not change.

Table 2.12 Wage inequalities according to the Estonian LFS, 2005–2010

Variable	2005	2006	2007	2008	2009	2010
Overall wage inequality, P90/P10	3.54	3.41	3.63	3.52	3.75	3.78
Wage inequality in the lower half, P50/P10	1.79	1.74	1.88	1.88	1.99	1.90
Wage inequality in the upper half, P90/P50	1.98	1.96	1.93	1.88	1.88	1.99
Percentage of low-paid employees	27.1	27.5	28.1	27.5	30.6	30.6
Proportion of employees on the minimum wage (%)	6.7	5.6	5.4	5.0	4.2	5.4
Wages of females as a percentage of males	-23	-26	-29	-28	-23	-25
Wages of non-Estonians as a percentage of those of Estonians	-18	-21	-21	-18	-20	-24
Wages of union members as a percentage of those of non-members	10	-3	-5	-3	4	11
Wages of part-timers as a percentage of those of full-timers	-2	-5	-9	-10	1	6
Wage premium of those with a higher education in relation to those with a basic education (%)	61	54	41	51	67	85
Wage premium of those with a secondary education in relation to those with a basic education (%)	4	6	4	5	10	21

Source: Authors' calculations based on Estonian LFS; data on 2010 include only the first quarter.

4.5 Probability of Wage Cuts According to Individual Features

Next we analyse wage cuts at the individual level. Estonian LFS data include data on wages and each person is observed first for two quarters, and then after a two-quarter break for another two quarters.⁵ Table 2.14

Table 2.13 Oaxaca-Blinder decomposition of the gender wage gap, Estonia, 2005–2007, 2008 and 2009

Variables	2005–2007	2008	2009
Wage gap	0.29 (29.98)	0.31 (21.39)	0.26 (21.07)
Unexplained	0.24 (25.76)	0.24 (16.81)	0.28 (22.55)
Explained	0.05 (7.07)	0.08 (6.26)	–0.03 (–2.58)
Education	–0.022 (–9.59)	–0.03 (–7.23)	–0.035 (–10.07)
Sector	0.027 (5.21)	0.026 (2.93)	–0.002 (–0.32)
Age	0.014 (8.38)	0.015 (5.26)	–0.001 (–0.47)
Nationality	0.001 (1.14)	0.002 (0.79)	0.0 (–0.15)
Firm size	0.028 (4.73)	0.046 (4.84)	–0.002 (–0.23)
Ownership	0.012 (3.87)	0.021 (4.08)	0.014 (2.7)
Occupation	–0.006 (–5.35)	–0.002 (–0.99)	0.002 (1.38)

Note: Z-statistics are in parentheses.

Source: Authors' calculations based on Estonian Labour Force Survey data.

Table 2.14 Proportion of workers whose nominal hourly wages were increased or cut over the year, Estonia, 2006–2010 (%)

Indicator/group	2006	2007	2008	2009	2010, 1st quarter
Frequency of wage increase, all employees	69	77	67	33	34
Frequency of wage cut, all employees	23	15	16	42	51
Basic education	23	18	21	51	61
Secondary education	23	13	18	50	52
Higher education	26	17	16	34	45
Females	23	15	16	43	48
Males	24	15	20	50	57
Blue-collars	22	15	20	52	60
White-collars	25	15	16	40	44
Low wage	29	22	25	61	71

Source: Authors' calculations based on Estonian Labour Force Survey data.

shows that, by 2009, those whose net wages were reduced constituted 42 per cent of all people employed one year earlier. While during the period of high wage growth around 70–80 per cent of employees experienced wage increases, in 2009 the figure fell to 33 per cent. While wage cuts were somewhat more frequent among males than among females, education is fairly important and among those with a higher education the probability of a wage cut was much lower.

We also ran the probit model for the probability of wage cuts and linear regressions for the size of the wage change (Table 2.15). For comparison, the last two rows present the estimation results of a probit model for flows from employment to non-employment. As we can see, after controlling for other factors, the aforementioned conclusions still hold: wage cuts are more frequent in construction, in Northern Estonia (capital region) and for those with a lower level of education. There are no significant differences in the probability of wage reductions across firms with various owners, but if wage cuts occur, they are higher in private sector enterprises, both domestic and foreign-owned (and a bit smaller among foreign firms).⁶ Wage cuts are also more frequent among small firms (11–199 employees). The noted differences between blue-collar and white-collar occupations are no longer statistically significant, once we control for other variables. Concerning flows out of employment, many patterns are similar: the probability of moving from employment to unemployment is higher for men, young people, for those in the private sector (especially foreign-owned firms) and in certain other sectors (especially construction, but also manufacturing and the primary sector). For young people, a return to education has been one response to the reduced possibilities to find a job. Employees of foreign firms have once again a higher probability of being affected by the crisis. Employment in sectors other than services (either private or public services) also has a positive impact on the probability of losing one's job. People with a higher education have a significantly lower probability of falling out of employment.

Table 2.16 (overleaf) shows the extent to which reduction in the firm's total salary payments has been achieved by cutting nominal wages, working hours or employment. As can be seen, despite the widespread wage cuts the bulk of adjustment in payroll costs was due to employment reductions (see also Latvijas Banka 2009). Wage cuts are relatively more important in sales and trade, while in other sectors, such as energy, all adjustments have taken place through employment and hours reductions.

Table 2.15 Regression models for wage cuts and wage changes between 2008 and 2009, Estonia

Variable	Probit model for wage cuts		Regressions for wage changes among those experiencing wage cuts		Probit model for flows from employment to non-employment	
	Marginal effect	T-stat.	Coef.	T-stat.	Marginal effect	T-stat.
Males	0.010	(0.43)	-0.024	(-2.20)**	-0.003	(-0.25)
Secondary education	-0.002	(-0.09)	0.010	(0.78)	-0.019	(-1.35)
Higher education	-0.106	(-3.05)***	-0.034	(-1.92)*	-0.047	(-2.69)***
Age 25-49	0.021	(0.87)	-0.020	(-1.75)*	-0.050	(-4.15)***
Age 50-75	0.044	(1.64)	-0.033	(-2.58)**	-0.019	(-1.36)
Foreign	-0.012	(-0.26)	-0.055	(-2.61)***	0.005	(0.20)
Domestic private	0.030	(0.81)	-0.081	(-4.34)***	0.037	(1.82)*
11-49 employees	0.074	(2.62)***	0.008	(0.54)	0.019	(1.29)
50-199 employees	0.111	(3.51)***	-0.004	(-0.23)	0.000	(0.00)
200-499 employees	-0.038	(-0.76)	-0.008	(-0.27)	0.035	(1.16)
More than 500 employees	0.083	(1.50)	0.020	(0.76)	0.010	(0.32)
Central Estonia	0.022	(0.70)	-0.011	(-0.70)	-0.003	(-0.16)
North-East Estonia	-0.073	(-1.73)*	0.026	(1.28)	-0.016	(-0.74)
Western Estonia	-0.051	(-1.57)	0.033	(2.12)**	-0.023	(-1.42)
Southern Estonia	-0.025	(-0.92)	0.007	(0.54)	-0.021	(-1.50)
Union member	-0.066	(-1.65)*	-0.002	(-0.11)	-0.046	(-2.07)**
White-collar job	0.003	(0.14)	-0.004	(-0.34)	-0.028	(-2.12)**
Primary	-0.034	(-0.68)	0.005	(0.20)	-0.008	(-0.31)
Secondary	0.038	(1.30)	0.002	(0.13)	0.011	(0.70)
Construction	0.036	(0.89)	-0.043	(-2.02)**	0.035	(1.67)*

Table 2.15 (continued)

Variable	Probit model for wage cuts		Regressions for wage changes among those experiencing wage cuts		Probit model for flows from employment to non-employment	
	Marginal effect	T-stat.	Coef.	T-stat.	Marginal effect	T-stat.
Public services	-0.016	(-0.43)	-0.020	(-1.02)	-0.005	(-0.26)
Number of observations	2553.000		1152.000		4675.000	
Log-likelihood	-1719.768		461.642		-2067.580	
R-squared			0.074			
Pseudo R-squared	0.021				0.021	

Note: The reference groups are females, young people (age less than 25), state firms, Northern Estonia, blue-collar jobs and non-unionized workers. In the probit model for wage cuts, the dependent variable is 1 if nominal wages were cut more than 3 per cent during 2008–2009. * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Estonian Labour Force Survey data.

Table 2.16 *Percentage changes in various labour indicators across industries, Estonia, 2009 relative to 2008*

Industry	Total payroll	Hourly pay	Average hours per employee	Number of employed
Primary sector	20.4	22.1	-0.3	-1.1
Manufacturing	-23.1	-7.4	-2.5	-14.7
Energy	-7.0	-6.4	-1.2	0.5
Construction	-38.5	-14.1	-2.0	-26.9
Business services	-16.3	-9.0	-2.1	-6.0
Public services	1.3	3.8	-0.6	-1.8
Total economy	-15.8	-5.5	-1.8	-9.2

Note: The figures on primary sector wages are not reliable and differ from the official statistics.

Source: Authors' calculations based on the Estonian LFS.

5. INEQUALITIES DUE TO OTHER WORKING CONDITIONS

5.1 Accidents and Diseases at Work Declining but Differing by Country

This part of the report reviews developments during the crises with regard to other working conditions. First, we analysed recorded workplace accidents as indicators of health and safety in the workplace. Representatives of the Estonian Labour Inspectorate expressed the opinion that firms struggling to survive may pay less attention to the management of the work environment. The data on minor accidents exhibit a pro-cyclical pattern, while the number of fatal accidents has been trending downwards since 2006 and the number of serious accidents was fairly stable during 2005–2007 and decreased thereafter (see Table 2.17). Similar to Estonia, in Lithuania the total number of accidents decreased by 37 per cent during 2008–2009. While one explanation could be that the declining number of accidents simply reflects the decrease in employment, especially in sectors with a high

Table 2.17 *Accidents at work per 100,000 employees, Estonia, 2005–2009*

Indicator	2005	2007	2008	2009	Percentage change 2005–2007	Percentage change 2008–2009
Number of accidents						
All accidents	3431	3723	4073	2927	9	–28
Minor accidents	2405	2615	3105	2314	9	–25
Serious accidents	1002	1087	947	594	8	–37
Fatal accidents	24	21	21	19	–13	–10
Accidents per 100,000 employees						
Minor accidents	396	399.1	459.3	387.2	1	–16
Serious accidents	181.4	165.9	144.2	99.4	–9	–31
Fatal accidents	4	3.2	3.2	3.2	–20	0
Total economy	564.9	568.1	620.4	491.3	1	–21
Primary sector	689.4	623.8	747.0	600.0	–10	–20
Mining	813.6	981.8	716.7	625.0	21	–13
Manufacturing	977.8	1134.1	1088.9	812.8	16	–25
Electricity, gas, water	240.0	444.4	628.6	465.3	85	–26
Construction	620.1	521.3	591.4	447.7	–16	–24
Business services	431.1	411.8	469.3	390.3	–4	–17

Source: Labour Inspectorate of Estonia.

average frequency of accidents (more hazardous working conditions and higher risks of accidents, as in construction and manufacturing), that does not seem to be the case. When looking at the number of accidents at work per 100,000 employees (thus effectively controlling for sector and number of employees, but not working hours), the indicator has decreased in most sectors. The declining number of accidents is found in all sectors and may be related to less intensive work. The correlation coefficient between the changes in the value added produced in the sector and the change in accidents per 100,000 employees is 0.31, which gives some support to this proposition. Another explanation could be an increase in compliance with various regulations, but the visits of the Labour Inspectorate to enterprises indicated that the working environment was fairly similar in 2008 and 2009 (in both years in 82 per cent of enterprises the situation was considered 'Good' or 'Fairly good'). The number of different health and safety-related violations discovered grew by 21 per cent in 2009 in comparison to 2008 in Estonia, while it decreased by 10 per cent in Lithuania.

Other indicators of health and safety include registered occupational diseases and diseases caused by working. However, as the changes in this field are fairly long-term, it is not surprising to find that the number of occupational diseases diagnosed did not increase in Estonia in 2009 in comparison to 2008, while in Lithuania it decreased by 20 per cent (State Labour Inspectorate of the Republic of Lithuania).⁷

5.2 Training Falls in Latvia and Lithuania

Information on participation in training is relatively scarce in the Baltic states for the years of the crisis. According to the Estonian LFS, the proportion of those who had participated in some kind of training during the past four weeks was 2.6 per cent in 2008, 2.8 per cent in 2009 and 3.3 per cent in 2010 (first quarter). Similarly, the average number of hours in training has increased (19.9 in 2008, 24.9 in 2009 and 32.9 in 2010). However, compared to the previous year, the training was less often financed by the employer (72 per cent in 2008 and 83 per cent in 2009) and more frequently from other sources. The results of our case studies (Section 7) indicate that the situation is fairly diverse in different enterprises. According to the LFS data, participation in training decreased most in manufacturing and among blue-collars and increased among white-collars, but differences across other labour market segments were relatively small. The situation in Latvia and Lithuania is somewhat worse. While we do not have specific data on training, during 2008–2009 participation in lifelong learning in general increased in Estonia (9.8 to 10.6), but decreased in Latvia (6.8 to 5.3) and Lithuania (4.9 to 4.5).

5.3 Some Improvements in the World of Work?

One well-known phenomenon encountered in the Baltic states' labour markets is the use of unreported wages or so-called 'envelope wages', although a downward trend was observable before the crisis. According to Kriz et al. (2007), while in 1999 19 per cent of all working-age respondents received unreported wage income, by 2004 the share had fallen to 14 per cent. Despite the economic crisis the proportion of employees receiving envelope wages decreased from 12 per cent in 2008 to 9 per cent in 2009 (estimates of the Estonian Institute of Economic Research). The indicator 'working with oral employment contract' (used also by Kriz et al. 2007) decreased also (from 1.5 per cent to 0.9 per cent – authors' calculations from Estonian LFS data). The likely explanation for the decreasing incidence of envelope wages is that those earning such wages (construction workers, private sector employees, secondary jobs) have had a higher probability of losing their job. According to the traditional view, the informal sector could expand during downturns as it is inferior to formal employment, but there is also more recent evidence that it may behave pro-cyclically (Tyrowicz and Cichocki 2010), and thus the direction of change cannot be taken for granted.

The Estonian LFS includes data on general satisfaction with working conditions only for 2007 and 2008. Generally, in all four respects satisfaction with working conditions increased somewhat: the proportion of those almost or fully satisfied increased from 52 per cent to 55 per cent in health and safety, 51 per cent to 53 per cent in work intensity, 43 per cent to 49 per cent in health inspection and 47 per cent to 50 per cent regarding the design of the workplace. On the other hand, the case studies in the last section present enterprises in both the private and public sectors at which intensity at work and motivation have decreased. We can thus conclude that the crisis may have brought some improvements in working conditions, such as on the health and safety front, or reconciliation of work and family life because working hours are fewer, but in some cases it has also brought about a deterioration in the intensity at work and also wage cuts that have led to worker demotivation. The evidence presented in the case studies is thus mixed.

Due to the lack of data, it is not possible to say much about the impact of the crisis on the reconciliation of work and family life.⁸ Generally, Estonia has been characterized by low levels of part-time work which, in contrast to other countries, is not used by females for combining work and family life, but rather among the elderly and students; thus some full-timers cannot reduce their working hours, although they would like to do so (Krillo et al. 2007). Concerning developments during the crisis, among voluntary part-timers the importance of family-related reasons (taking care of children or other family members) increased from 15 per cent in

2008 to 19 per cent in 2009 (while in 2005 it was 10 per cent). The gap between the employment rates of females with children up to 6 years of age and males decreased during 2007–2009 (from 42 to 32 percentage points during 2007–2009), indicating a somewhat improved position for females in the labour market or maybe deteriorating for men.

5.4 Drastic Increase in Labour Conflicts

Another piece of evidence on the quality of labour relations concerns labour disputes, the number of which has been clearly affected by the crisis. During the whole period, the majority (about 94–97 per cent) of claims were submitted by employees in Estonia (see Table 2.18). While from 2005 until mid-2008 the number of claims submitted by employees was fairly stable, in the third quarter of 2008 it started to increase and peaked at about 1,850 in the second quarter of 2009. Since then the number of claims has decreased gradually. The rise was probably partly due to the new Labour Contracts Act that entered into force in July 2009 and partly due to the recession. Given the growing number of lay-offs, an increase in the number of claims for unlawful termination of contract is expected; the increase in these claims (91 per cent) is more or less in line with the increase in employment contract terminations at the employer's initiative (84 per cent, according to LFS data). The number of claims for unpaid wages while the labour contract is still in force has also increased (by 50 per cent). Claims related to withholding or not paying holiday pay have also increased considerably. Given falling employment, these developments clearly indicate that during the crisis many problems have emerged in relation to the timely payment of wages.

6. POLICY RESPONSES TO THE CRISIS: EFFECTIVE IN LIMITING GROWTH IN INEQUALITY?

The tables in the appendices provide an overview of the various policy measures introduced in the three Baltic countries to stimulate labour demand. As mentioned in the introduction, the ability of Baltic state governments to pursue expansionary fiscal policies has been fairly limited because of the need to control budget deficits.

6.1 More Resources for Labour Market Policies

Despite that, expenditure on labour market policies has increased considerably during the crisis (Table 2.19), both in absolute numbers and as

*Table 2.18 Dynamics of different kinds of claims made by employees and employers to the Estonian Labour Inspectorate**

Kind of claims	2005	2007	2008	2009	Percentage change 2005–2007	Percentage change 2008–2009
Claims by employees						
Total number of claims	4985	4230	6316	12166	–15	93
Claim for unlawful termination of employment contract	677	472	681	1304	–30	91
Claim for unlawful termination of employment contract (pregnant or person raising child below 3 years of age)	37	27	31	53	–27	71
Claim for unlawful termination of employment contract (submitted by employee representative)	4	1	6	0	–75	–100
Claim for unpaid wages while still employed	2211	1274	2032	3054	–42	50
Claim for unpaid terminal wage	0	0	0	3034		
Compensation for withholding terminal wage	908	1098	1628	1124	21	–31
Claim on compensation for withholding employment record book	23	17	11	0	–26	–100
Claim for annulment of disciplinary punishment	106	75	134	171	–29	28

Table 2.18 (continued)

Kind of claims	2005	2007	2008	2009	Percentage change 2005–2007	Percentage change 2008–2009
Claim related to unlawful withholding of wages or other compensation	109	83	110	85	–24	–23
Claim related to withholding of holiday pay	351	365	535	1078	4	101
Claim related to the nature of the contract	44	55	70	0	25	–100
Claim related to unequal treatment of the employee	0	7	8	10		25
Breach of contract due to the employer	0	0	0	648		
Other claims	515	756	1070	1605	47	50
Claims by employers						
Total number of claims	155	159	125	257	3	106
Compensation for material damage caused by employee	52	58	41	76	12	85

Note: * Employees' reasons for claims are not directly comparable during the whole period due to changes in methodology.

a percentage of GDP: in Estonia from 0.2 per cent to 1 per cent and in Lithuania from 0.4 per cent to 0.9 per cent.⁹ Most of the growth has come from passive measures, but spending on active policies has increased, too: from 0.04 per cent to 0.15 per cent in Estonia, and from 0.07 per cent to 0.24 per cent in Latvia. Nevertheless, even after the increase expenditure as a percentage of GDP is well below the levels of the old EU member states (EU15, in 2008: 1.7 per cent of GDP). The increasing funding from the EU structural and social funds has helped to finance active policies: for example, in Lithuania the use of EU funds in the financing of labour policies grew by 135 per cent. Expenditure on unemployment insurance has grown in Estonia particularly rapidly due to the growing average size

Table 2.19 Spending on labour market policies in Estonia before and during the crisis, 2005–2009 (%)

Indicator	2005	2006	2007	2008	2009	Change in total, 2009
Total spending, % of GDP	0.17	0.12	0.11	0.21	1.04	325.8
Spending on active measures, % of GDP	0.05	0.05	0.03	0.04	0.15	251.3
Spending on passive measures, % of GDP	0.11	0.07	0.08	0.17	0.89	341.7
Unemployment benefit	54.5	61.6	46.4	52.2	68.2	477.0
Unemployment assistance	21.6	17.2	26.8	15.1	9.6	179.5
Benefit upon collective termination of employment contract	10.1	10.6	15.0	17.2	11.3	190.6
Benefits upon insolvency of employer	13.8	10.5	11.8	15.5	10.9	211.6
New recipients of unemployment benefit	8 749	6 074	6 467	15 743	54 790	143.4
New recipients of unemployment benefit/new registered unemployed	20.5	24.1	22.7	33.1	45.3	46.2
Average unemployment benefit during first 100 days for new recipients	183	212	256	319	350	24.5
Registered unemployed/total (LFS) unemployed	49.9	37.6	42.0	51.4	70.5	37.2

Source: Unemployment insurance fund, Statistics Estonia, authors' calculations. The passive measures exclude data on early retirement.

Table 2.20 Participants in active labour market programmes, Estonia, 2005–2010

Indicator	2005	2006	2007	2008	2009	2010	Change 2009
Total participants (000s)	29.6	23.4	20.9	21.5	48.0	49.1	123.2%
Training (%)	44.6	43.0	33.8	30.6	36.1	28.7	162.8%
Job subsidies (%)	2.9	3.0	1.0	0.5	0.4	29.0	67.2%
Start-up grants (%)	1.2	1.2	0.7	0.8	1.0	0.8	205.6%
Public works (%)	1.6	1.8	4.0	2.8	3.2	2.3	163.7%
Job advice (%)	49.7	45.7	49.4	56.0	49.8	18.5	98.5%
Job club (%)	–	–	–	0.0	0.5	2.6	–
Other measures (%)	0.0	5.2	11.2	9.4	9.0	18.1	114.6%
Ratio of participation in active measures to registered unemployed (%)	44	51	57	39	35	NA	–8%

of benefits (indicating the relatively higher wages of the new unemployed people) and the growing proportion of newly registered unemployed receiving benefits; in other words, they more often have the required length of service. Probably related to the modest support for the unemployed, in the Baltic states registered unemployment has been constantly below LFS unemployment. Nevertheless, during the crisis we can see that the ratio has grown considerably in Estonia. The conditions for receiving unemployment benefits have been stable there (the foreseen increase in benefits related to the adoption of the new law in 2009 was postponed), but in Latvia the duration of benefits was increased to nine months and the eligibility criteria were loosened (Purfield and Rosenberg 2010). Table 2.20 on participation in active measures shows that the total number of participations more than doubled in 2009. The ratio of participations to registered unemployed declined slightly.

6.2 Training More Effective in Estonia?

In Estonia, the most important measures have been training and job advice. Participation has increased in all measures, but relatively more in start-up grants and job subsidies (in 2010). In Estonia, the new action plan (with a budget of around 45 million euros) to tackle the crisis was introduced in the second half of 2009, the aim of which was to create 5,000 jobs through a range of measures, such as the development of

business start-up support, widening the conditions for wage subsidies and hiring more consultants to advise the unemployed. The completely new policy measure introduced in 2010 is training vouchers: with that, micro and small firms can buy training from a specified list of organizations (maximum size of subsidy is about 960 euros); for micro firms it has also been made easier to apply for funding from the other training measure by lowering the minimum amount of the subsidy. Some local governments have also initiated public work programmes: in particular the city Government of Tallinn has organized several temporary jobs in municipality-owned enterprises at the minimum wage (in transportation), but jobs have also been created in private enterprises with the wage subsidy, the upper limit of which is the national minimum wage, together with payroll taxes.

We do not have detailed statistics on active policies in Latvia and Lithuania, but they have widened there as well. In Latvia, the public works programmes have offered full-time work for 24,000 registered unemployed, while training and assistance in starting a business have been offered to job seekers. In Lithuania, the Government introduced a large-scale programme consisting of various job support schemes at a total cost of 7 per cent of GDP (Purfield and Rosenberg 2010).

6.3 Towards More Flexible Labour Markets?

The most important legislative change in the field of labour relations in the recession period in Estonia was the new Labour Contracts Act, which entered into force on 1 July 2009. The main aim of adopting the new law was to make the labour market more flexible and to increase the social security provisions for workers. While before the crisis employment protection in Estonia was generally more rigid than in other Central and Eastern European countries, it is now more comparable (based on OECD EPL index, Brixiova, 2009). The new Labour Contracts Act has in many ways relaxed the regulations on regular contracts: notice periods for redundancy were reduced (depending on the length of the previous employment contract, from 2–4 months to 1 month); severance payments were also cut (from 2–4 to 1–3 months) and payment is now shared by the employer and the Estonian Unemployment Insurance Fund. To promote the use of flexible forms of employment, the conclusion of fixed-term contracts is now allowed in all cases. In Lithuania, similar to Estonia, the reforms introduced more flexibility into employment relations, in particular relaxing the conditions on using various flexible work arrangements (part-time, temporary employment and so on) and reduced severance pay (Purfield and Rosenberg 2010).

6.4 The Limited Influence of Social Partners

The recession has halted the rise of the minimum wage. In Estonia and Lithuania, the minimum wage has remained at the same level since 2008.¹⁰ By way of comparison, in Latvia at the beginning of 2009 the minimum wage was raised by 13 per cent to 180 lats; later in the tripartite negotiations in 2010 it was decided not to reduce the minimum wage to prevent further reductions in welfare.

In the period of rapid economic growth, the bargaining power of both employers and employees was more or less balanced and their influence remained relatively weak in Estonia. General pressure to raise wages did not originate from the trade unions; the main driver of wage increases was labour scarcity. During the crisis, we saw that trade union members did somewhat better in terms of employment and wages. Although the Estonian Trade Union Confederation expected a decline in trade union membership due to the large increase in unemployment and major collective redundancies in sectors in which trade union membership has traditionally been high (Nurmela 2009a), data from the Estonian LFS indicate that trade union membership as a percentage of salaried employees declined from 7.6 per cent in 2007 to 6.2 per cent in 2008, but then increased again in 2009 (7.6 per cent) and 2010 (9.5 per cent). Trade union membership has increased in the capital region, large enterprises and the public sector, while it has decreased in North-Eastern Estonia, the region with the highest unionization rate due to the large industrial enterprises located there.

One of the peculiarities of Estonia, in comparison to many other EU countries (and also Latvia) is that, despite the fairly radical steps taken by the Government to balance the state budget during the recession, the reaction from citizens and trade unions was less strong than one might have expected. Of course, the social partners have made recommendations to the Government and parliament on how to deal with the downturn.¹¹ However, to balance the state budget, governments have pushed through several changes, such as reducing social guarantees and cutting public sector wages without an adverse reaction from employees and employers. The relative weakness of both trade unions and employers' representatives in Estonia has clearly played a role here. Although the social partners have of course reacted, they have not had sufficient power to either force the Government to change its plans or to negotiate for more favourable conditions (except in Lithuania in 2009 – see Appendix Table 2A.3). For example, in February 2009 the Estonian parliament approved a state budget cut in the amount of EEK 8 billion (512 million euros), which included cuts in public sector wages (7 per cent on average) and changes in

sickness benefits. While the trade unions opposed the first, employers' representatives were not satisfied with the second which represented a major financial burden (according to estimates, EEK 500 million (32 million euros) on the employers (Nurmela 2009b). However, both changes were implemented.¹²

One indicator of the relative weakness of the social partners was the increase (three times) in 2009 of unemployment insurance contributions for both employers and employees in Estonia. By the end of 2009, contributions had almost quintupled in comparison to the beginning of the year, despite the opposition of both employers and trade unions.

7. CASE STUDIES: ADJUSTMENTS IN PRIVATE AND PUBLIC ENTERPRISES AND EFFECTS ON INEQUALITIES

We present here the different forms of adjustment adopted by five private enterprises in Estonia and analyse their various effects on inequalities and on vulnerable groups. We also present a case study carried out with the Estonian Police and identify the various effects which the crisis and the policy responses to it have had on policymakers and administrative employees. The five cases are summarized in Table 2.21.

7.1 Adjustment Patterns in a Sample of Five Estonian Private Enterprises

The following comparison of five industrial enterprises in Estonia illustrates the different adjustment patterns chosen by individual enterprises due to the different initial conditions and business environment. After the outbreak of the crisis, Estonian industry has perhaps been the most dynamic sector in the economy: in 2009, industrial production declined by 25.9 per cent in comparison to 2008, but in the second quarter of 2010 industrial production was 20 per cent higher than in 2009. Information was also available on company personnel policies during the recovery. The five case studies are from very different sectors of industry and represent typical enterprises: (1) Estiko Plastar, producer of various packaging materials; (2) Sangar, a sewing industry enterprise; (3) Toom Tekstiil, a textile industry enterprise; (4) Hanza Tarkon, a mechanical industry company; and (5) Eesti Energia, the largest energy producer. The information is based on interviews with the firms' personnel managers and other members of the enterprise, supplemented by information from other sources (for example, annual reports).¹³

Table 2.21 Different reaction patterns of Estonian industrial enterprises to the crisis

	1. Estiko Plastar	2. Sangar	3. Toom Tekstiil	4. Hanza Tarkon	5. Eesti Energia
Sector	Plastics	Clothing	Textiles	Mechanical	Energy
Percentage fall in sales in 2008-2009	-11.4	-21.7	-5.0	-10.9	+1.8
Main adjustment mechanism	Employment reduction	Various (employment, hours, wages and bonuses)	Employment (and wages)	Employment reduction	Employment of unskilled Cuts in fringe benefits
Employment	Employment reduction without major redundancies	Employment reduction without major redundancies, not only due to the crisis	Around 20% of employees made redundant, later some hiring	Around 25% of employment reduction through redundancies, recovery in 2010	Reduction of about 13% through terminations for various reasons
Working time	Part-time (80% of usual working-time) for about 30% of employees	Introduction of part-time work with summarized working time, around 10% of employees	No use of part-time work	Shortened four-day working week used in 2009	Part-time work has been used, as well as vacations
Wages	No cuts in basic pay	Wage cuts of between 10% (management) and 20% (production workers)	25% for whole workforce	No wage cuts	No cuts in basic pay but of bonuses

Table 2.21 (continued)

	1. Estiko Plastar	2. Sangar	3. Toom Tekstiil	4. Hanza Tarkon	5. Eesti Energia
Categories of employees most affected	Pre-retirement age employees	In production, mostly women employed For wage cuts production workers most hit	In production, mostly women	Redundancies affected whole enterprise relatively evenly (both males and females, employees mostly with secondary education)	Pre-retirement age employees temporary workers, unskilled affected by employment cuts. Remaining employees by fringe benefits cuts and by more intensity at work
Training	Has not decreased	Decreased considerably	Not much training has been offered	Some cuts in budget, but no major reductions	Some cuts in budget, but no major reduction, more selective
Fringe benefits	Christmas five days removed	Offered, but now mostly suspended	Not offered	Offered, mostly not reduced	Many offered, mostly suspended
Other working conditions	Work satisfaction has not changed Work—family balance improved	No major changes	No major changes	Work satisfaction has improved	Increased intensity at work; lower motivation and commitment
Other aspects of crisis	Crisis has enabled company to improve the workforce	Reduced labour turnover	No voluntary leaves of best employees, better job applicants	Reduced labour turnover	Desire to unify the conditions of collective agreements

7.1.1 Estiko Plastar: Human resources enhanced through agreed terminations and part-time work

Estiko Plastar is a producer of various packages and packaging materials and exports about 43 per cent of its production. During the crisis, the proportions of different groups of customers have changed: sales to the construction industry have declined and sales to the food industry have increased. The number of employees decreased from about 167 in 2008 to about 150 in 2010. There were almost no redundancies, however: in most cases, the employment contracts were terminated by mutual agreement. These employment contract terminations did not lead to labour disputes. The main group of employees affected was people of retirement age.¹⁴ Labour turnover decreased significantly during the crisis (10 per cent in 2007, but only 1 per cent in 2009). The economic crisis has enabled the enterprise to improve its workforce as it is possible to select new employees from a better pool of applicants (as evidenced by the fact that they remained with the enterprise after the probation period). The latter was noticeable only in 2009, however, and no longer in 2010. Part-time work was also used in 2009 for about one-third (45) of employees (80 per cent of regular working time). The firm did not even consider reducing employees' wages, but wages have not increased either. According to the firm's personnel manager, it is possible that wages will soon need to be increased in order to retain good quality workers. The training of employees has not decreased during the crisis, partly thanks to the projects of Enterprise Estonia. The provision of fringe benefits has not decreased either (childbirth, funerals, sports, Christmas parties and so on) as the management believes that it would lower working morale: only the paid five-day holiday at Christmas was abandoned. Combining work and family life was easier during the crisis as workers have had more time and there is less work over weekends. Involuntary leave was used only in the case of a few employees, although initially the enterprise submitted the application to the Labour Inspectorate to use it for all employees in order to achieve equal treatment. The regular survey of work satisfaction indicated that it remained at the same level in 2009 as before, despite the reorganization, employment reductions and increased requirements with regard to performance. In conclusion, the crisis had a relatively positive impact on the firm's human resources. The relatively early response to the crises was beneficial both to the firm and the employees leaving the firm as the latter were able to find a new job in the early phase of the crisis. The reorganization within the enterprise and the treatment of each employee on a case-by-case basis were also important.

7.1.2 Sangar: Wages and bonuses cuts to face declining orders

Sangar is a clothing industry enterprise located in the city of Tartu, whose main products are shirts for men and blouses for women. Subcontracting accounts for 75 per cent of sales and the rest is sold under its own brand. A reduction in orders was noticed only in the second half of 2009 with regard to advance sales; it was more noticeable in relation to subcontracting. Sales to some markets have decreased more (Iceland, Latvia, Lithuania), while the share of others has increased (Netherlands). The number of employees decreased from 308 in 2009 to about 250 in 2010. The greatest proportion of the employees concerned were women. However, according to the management, that was inevitable and not related only to the crises, but also caused by the folding of two production lines. There have been few redundancies and the reduction in the number of employees is mainly voluntary. Labour turnover has decreased significantly (from 10 per cent down to nil). In 2009, wage cuts were introduced: 20 per cent for office workers and 10 per cent for production workers (due to their lower wage levels) through reductions in bonuses. It was easier to explain the need for wage cuts to office workers as they knew the enterprise's situation. According to management, due to the wage cuts there have been no wage arrears. The collective agreement specified various fringe benefits (for marriage, funerals, workers with long tenure and so on) that have now mostly been suspended. The enterprise also started to use part-time work (30 hours a week, which in case of need can be increased to 40 hours) with summarized working time calculations that make possible working during weekends (although this has not been resorted to so far). This flexible working time arrangement applies to about 30 employees and is the result mainly of the fact that demand has become less predictable. Involuntary leaves have also been used to a very limited extent. The provision of training has decreased considerably (at some points to nil): in autumn 2010 the first training for two years was held. Despite the crisis, it is still not possible to hire good seamstresses.

7.1.3 Toom Tekstiil: Restructuring and wage cuts leading to voluntary quits

Toom Tekstiil is a textile industry enterprise with units in various towns (Viljandi, Abja) that produces mostly mattresses, bedding products and non-woven products. Most sales (70–80 per cent) are exports to EU countries on a subcontracting basis, while the rest is sold in Estonia under the company's own brand. The wide customer base has helped to achieve stability of sales. The reduction in sales in 2009 in comparison to 2008 was not large, but competitive pressure has increased, mark-ups have decreased and more work needs to be done to get orders. The number

of employees was reduced due to the reorganization of production: in Viljandi, two production units were merged, as a result of which 50 employees were made redundant. Currently, there are about 250 employees in the various production enterprises of the group. Due to the lengthy redundancy procedure it was also necessary later to hire people again as demand recovered. Wages were decreased for all employees by 25 per cent in mid-2009. There were discussions about the wage cut but it was decided that there was no alternative, something that has certainly demotivated best employees especially since there are several textile industry enterprises in the region. There have been no other fringe benefits due to the lack of a collective agreement. The firm has also used fixed-term contracts in case of extra need for working hours (currently about 10–15 per cent of all employees); part-time work or involuntary leaves have not been used. The crisis has been positive as it is now possible to be more selective when hiring employees, but there are now problems because some of the best employees are leaving voluntarily.

7.1.4 Hanza Tarkon: Preference given to external flexibility

Hanza Tarkon is a mechanical industry enterprise situated in Tartu doing subcontracting for various industries (telecommunications, automotive, energy and so on). The firm's revenues decreased in 2009 by about 11 per cent, but the relatively higher share of sales in the telecommunication industry has helped to stabilize revenues. The number of employees was reduced from 570 in 2008 to 400 in 2009, mostly through redundancies (about 150 employees). Redundancies were used because the firm aims to be transparent in its dealings. During the process the firm cooperated with the Estonian Unemployment Insurance Fund and external subcontractors. During 2010, due to the recovery of demand, half of the people made redundant were hired again. The training budget was reduced, but it cannot be said that the amount of training has decreased: on average, each employee participates annually in three to four training courses, also thanks to the help of Enterprise Estonia, Tartu City Government and the Ministry of Education and Research. In 2009, part-time work (in the form of a four-day work-week) was also used, but employees were not sent on involuntary leaves. The company did not undertake (and did not consider) wage cuts despite the increased competitive pressure, because the accompanying risks (reduced loyalty, motivation) would outweigh the benefits. But there were no wage increases either. Several fringe benefits for employees have also not been cut. Demand has always been fairly uncertain, especially after the outbreak of the crisis, and thus there is considerable need for flexibility in employment relations. Since 1 July about 20 per cent of employees have been employed on temporary (civil)

contracts (*tööettevõtuleping*); especially during 2010 most new employees have been on temporary contracts.

7.1.5 Eesti Energia: Pre-retired, unskilled and temporary workers the buffer in the crisis

Eesti Energia is the largest energy producer in Estonia. It is a state-owned and vertically integrated company engaged in power production, transmission, distribution and sales, and other related activities. An expanding area of activity is the production of fuel. Despite the reduction in energy sales to the domestic market the company managed to increase its profitability (net income increased by 65 per cent in 2009 in comparison to 2008) thanks to the sale of energy in other markets, the sale of shale oil and cost savings. However, competitive pressure is increasing due to the liberalization of the energy market. The number of employees was reduced from 8,501 to 7,351. During 2009, among the 1,229 employment contract terminations there were 500 lay-offs and 300 contracts were terminated based on mutual agreement. Employment reduction occurred in many areas, mainly employees close to retirement age and people employed on fixed-term contracts. Part-time work has also been used (by giving days off), both in the mines and among white-collar workers. Many people also took unused vacation days. Partly paid vacations were also used: for example, in summer 2009 one of the power stations (Balti elektrijaam) halted production for three weeks during the period of low demand and around 200 people were on holiday.

Thanks to the crisis, the firm has been able to release less capable employees and to replace them with more skilled workers. Unskilled workers, therefore, were the victims in this adjustment process. During 2008–2010 wages have remained at the same level; wage negotiations with the trade unions were relatively easy (job preservation was more important to them), but now people are worried about the fact that wages have stayed the same for two years and a certain pressure for wage increases can be felt. Perhaps the most important means of adjustment during the crisis was the freezing of several fringe benefits foreseen in the collective agreements. However, family-related benefits have been retained. The presence of nine different collective agreements makes reorganization more difficult (for example, when moving employees between different enterprises of the group). The goal is therefore to make uniform the conditions of the various collective agreements. It is also intended to abandon bonuses unrelated to work performance and to replace them with bonuses based on results and value added. All this is not entirely the result of the crisis, but the latter has brought things to a head. Although training was not a priority area for savings, the training budget was reduced and now

the company selects training more carefully: it avoids so-called 'luxury' products, but has retained professional training. Concerning the availability of people for vacant positions, at least for positions requiring less skill, only the quantity, not the quality of applicants has increased. Among the negative impacts of the crisis, people are less committed and loyal; they are often tired due to more intensive work; and, in case of dissatisfaction, they do not leave.

It is evident that adjustment patterns differ considerably. Several changes were not due to the crisis, but the downturn did increase the management's motivation to introduce them. The variations in the main adjustment mechanism across the enterprises contribute to work inequalities – some people are affected by wage cuts, others are not, and both the size and the differentiation of wage cuts differs: some enterprises have been able to maintain employment, but not others. This should explain the growing wage inequality that we noted in the LFS data. While earlier we referred to the impact of the crisis on young people and males, in particular, the case studies demonstrate that in certain cases females (in textile company 3, *Textiil*, and in clothing company 2, *Sangar*) and pre-retirement age workers (in plastics company 1, *Estiko Plastar*, and in energy company 5, *Eesti Energia*) were also heavily affected. Thus the picture is more complicated and there are emerging inequalities within various age groups, as well as between males and females.

7.2 Wage Cuts and Other Adjustments in the Estonian Police Force¹⁵

The Estonian Police (hereafter the Police) is one of the largest public sector organizations in Estonia. At the end of 2009, it hired approximately 4,230 people (police officers and civil servants).¹⁶ At the beginning of 2009, it was clear that the Police would have to economize. Faced by the need to cut staff costs by EEK 110 million in 2009 due to reductions in the state budget, there were basically three options to consider: (1) wage reductions, (2) holidays without pay and (3) redundancies. The Ministry of the Interior chose the first option. In July 2009, the Government changed the decree regulating the wage rates of police officers. The nature of the wage cut is permanent, not temporary.

7.2.1 Across-the-board wage cuts despite trade union opposition

The decision to cut wages was made at ministry level, although both the Police Board and the Association of Trade Unions of Employees of State and Local Government Agencies (ROTAL) would have preferred other solutions (namely, the use of obligatory leave without pay). In the opinion of Ele Nuka, representative of the Estonian Police Officers Trade Union,

the negotiation process was difficult and lasted for several months since the retirement benefit of former police officers is related to wage rates and the trade union demanded that the wage rate at the bottom of the wage scale not be cut. Nevertheless, the trade union eventually abandoned this claim.

Wages were decreased by 8 per cent at all levels (there are 10 wage levels altogether, with wage rates from EEK 8,280 to EEK 28,440). The same rates were agreed between the Ministry of the Interior and the trade union on 10 December 2009, when a new collective agreement was concluded (Press Release No. 239). The trade union proposed differentiating between different wage levels and, as already mentioned, not to cut wages at the first salary level; this option was not considered by the Ministry.

7.2.2 Increased wage inequality

Although the decree regulates the wage rates of police officers, several prefectures cut the wages of all staff, in other words including civil servants. In the Northern Police Prefecture wages were cut by 8 per cent for both police officers and other officials. In the Southern Police Prefecture the wages of other officials (excluding police officers) were cut by 4 per cent. In the Eastern Police Prefecture only the wages of police officers were cut, while those of others were not decreased. Therefore, in some sub-units of the Police wage inequality between police officers and other civil servants increased as a result of the wage decrease. Another effect of the wage cut was the decrease in retirement benefit of former police officers since their retirement benefit is related to the minimum salary level.

However, in October 2010 it was widely discussed in the media that, although it was stated that the wage cut was uniform, in fact at the beginning of 2010 management wages were increased. The Director General of the Police and Border Guard Board argued that the wage increase was due to the increase in workload and responsibility due to the merging of the two institutions. As a result of this, wage inequality increased during the crisis. We can conclude that, although it was emphasised that wages were cut on the solidarity principle, this was not in fact the case.

7.2.3 Second step: The use of unpaid holidays

At the beginning of 2010, when it was clear that it was necessary to save another EEK 200 million in staff costs, the administration of the Police (now the Police and Border Guard Board) faced the same difficult question: from what sources should the budget savings come? The decision was made at the administration level (and approved by the Ministry of the Interior) not to apply wage cuts or redundancies, but to use more unpaid holiday leave.¹⁷ Although at first the Ministry of the Interior took the view

that it is necessary to cut wages, both the Director General of the Police and Border Guard Board and the trade union insisted on the use of unpaid holiday leave instead. This was the least bad option because it made it possible to maintain jobs for all and the indirect loss of wages was compensated in the form of free (although not paid) days. Moreover, while wage adaptation must take place at the national level, which means that rates are likely to increase only after a number of years, the number of unpaid holiday leave days can be changed much more flexibly.

In addition to wage cuts and unpaid leave days, other measures to cut staff costs have been used. In 2009, the Police administration decided not to hire additional employees unless it was absolutely necessary.

7.2.4 Increasing quits due to wage cuts and higher intensity at work

The workload of the employees who left the organization was generally distributed between other employees, whose burden had already increased due to the use of statutory unpaid holiday leave.

The main concern of the Police with regard to human resources is certainly voluntary departures by employees because of wage cuts especially since wages are already higher in the private sector. According to the head of the Estonian Police Board labour relations department, Janne Pikma-Oovel, there were two categories that did leave after wage cuts: (1) men on low wages who had to support their families and (2) high-ranking officers (although the latter have tended to leave the Police during both the economic boom and the recession).

However, Janne Pikma-Oovel believes that this process is expanding to other categories. The first signs appeared in summer 2010, when she observed that the current situation had negatively influenced working morale. The same conclusion was drawn by the trade union representative. While at the beginning of the adaptation period people understood that wage cuts and unpaid holiday leave were absolutely necessary to avoid redundancies and there was a sense of solidarity, their patience is now fraying. The incidence of departures due to low wages and demands for pay increases are growing, now that in several areas the economy has begun to recover. It is difficult to distinguish between effects of organizational change and wage cut effects since some departures are due to the merger of the Police and the Border Guard, which is not acceptable to everybody. However, it is clear that reorganization would be easier to tolerate if the Government was dealing with the economic recession better.

In summary, wages and working condition have rapidly deteriorated and the Government has now put in place appropriate policy measures.

Among other savings measures directly related to human resource management, training has also decreased. There are two main reasons for this:

Table 2.22 *Expenditure on training and number of participants in the Estonian Police, 2006–2009*

	Cost (thousands of euros)			
	2006	2007	2008	2009
Form of training				
Open training	60.8	201.9	66.2	46.1
Tailor-made training	84.1	241.6	159.1	82.9
In-house training	60.3	132.4	226.3	182.6
Other	72.6	35.6	0.2	0.4
Total	277.7	611.5	451.8	312.1
Annual increase, %	–	120	–26	–31

Source: Police and Customs Board.

budgetary and reorganizational. When facing the need to cut costs, training costs were cut first. In addition, according to Ms Pikma-Oovel, in 2010 another reason was the launching of the new merged organization. There simply is not enough time to organize internal training seminars and those that have been carried out are related mainly to the new systems now in place (training seminars for users of the new SAP system that came into use in January 2010). The most important change made due to the recession is the abandonment of external training and motivational and team-work training. In sum, although participation in training even increased in 2008 and 2009, the cost of training decreased in those years by one-quarter and one-third, respectively (Table 2.22).

In the opinion of the head of the labour relations department and the trade union representative, the recession has not influenced the incidence of working accidents and absence from work.

To conclude, the measures taken by the Estonian Police to meet the demand of the Ministry of the Interior to cut personnel costs were uniform nominal wage cuts (of 8 per cent) and unpaid leave. Wages were cut uniformly for senior and junior officers, without exceptions based on gender, tenure and so on. Different prefectures used different numbers of unpaid leave days because their need to save on labour costs was different. No redundancies have been imposed for budgetary reasons. In 2009, this was avoided because there was no money to pay compensation, while in 2010 there is no need for it (other measures, such as decreasing training costs and applying unpaid leave have been used instead). Staff workload has clearly increased, however. Moreover, recently it has been observed that people have started to leave. This cannot be attributed to wage cuts alone; the merger of the Police Board, the Citizenship and Migration Board and

the Border Guard has also played a role. It is clear that people are tired of the situation and welcome new challenges if they appear.

8. CONCLUSIONS

The Baltic states are an interesting case for the study of inequalities during the crisis because the latter has hit them harder than any other EU member states. The Baltics have been characterized by fairly flexible labour markets and major labour market inequalities. As we have seen, various adjustment mechanisms have been combined during the crisis: by international comparison, fairly large falls can be seen in both employment (around –10 per cent in 2009), working hours (–2 per cent), wages (5–7 per cent) and fringe benefits. Overall, employment reductions have been the most important instrument. Part-time employment has grown, especially in Estonia, from fairly low levels. Employment reduction has occurred mainly due to increased job losses (separations), while the hiring rate has decreased only slightly. Declining job-to-job mobility is expected as people are afraid to change jobs. During the past 15 years expenditure in the Baltic states on both active and passive labour market policies has been relatively modest in comparison to the old EU15 (Masso and Paas 2007). However, during the crisis expenditure on both passive and active measures has grown significantly, also thanks to the use of EU funds.

Large wage cuts merit particular attention because usually there are many reasons for downward wage rigidity and in some previous crises (for example, in Sweden during the 1990s) wage cuts have affected only a small proportion of the population. In the case of Estonia, we have seen that, according to the LFS data over a year, about 50 per cent of employees had their monthly wage reduced. Although this number includes both basic pay and bonuses, there is also much evidence of cuts in basic pay, too. These adjustments can be seen not only in the private, but also the public sector (especially in Latvia), originating in the need to cut budget expenditure to keep the budget deficit down (2.7 per cent of GDP in Estonia in 2009). Nevertheless, expenditure is below the levels of the EU15.

The combination of different forms of adjustment might be the result of the high flexibility of Baltic labour markets, but since the crisis has been so deep (annual GDP decline in 2009: 14–18 per cent) it is probably not possible to make the necessary adjustments with employment alone (that is, without wage cuts). But we have also seen different adjustment patterns at the enterprise level, although the crisis has affected almost all sectors severely. Despite widespread wage cuts there are companies that did not plan to cut wages, despite economic difficulties and massive

unemployment. It seems that, among the various forms of expenditure on personnel, fringe benefits (with the possible exception of those related to families and children) were the first savings option (for firms that had them). On the other hand, although training expenditure was not unaffected, it was not hit hard. There is some evidence that the crisis seems to have stimulated more flexible work arrangements at enterprise level: the use of fixed-term contracts, flexible working time arrangements and pay schemes dependent on performance. It seems that many developments that we can see are not due solely to the crisis; rather the latter tipped the scales. Concerning health and safety, despite some warnings that firms struggling to survive may try to cut corners in this area, there do not seem to be negative developments; the same applies also to reconciling work and family life. Concerning the positive impacts of the crisis, firms have indicated that they have been able to be more selective in choosing among job applicants and to improve their pool of employees.

The different adjustment patterns at the level of individual enterprises contribute to work inequalities. Concerning the diverse impact of the crisis on various labour market segments, some aspects are similar to other European countries, such as the strong decline in manufacturing and the resulting employment decline among males. The other groups that have suffered particularly hard from the crisis are young people and Estonia's and Latvia's considerable non-native (Russian-speaking) populations. Estonia's high gender pay gap has decreased somewhat during the crisis, but only due to the component related to the different labour market characteristics of males and females. Wage inequality has increased somewhat during the crisis, which seems to be due primarily to the increasing premium for education and the differences in wage reductions across sectors and firms. The different labour market segments have also been affected by different means of adjustment and to different effects. For instance, in the public sector in Estonia and Lithuania employment cuts have been few and far between, with adjustments being made via wage cuts and working time reductions.

We can conclude that the current crisis has hit the labour markets of the Baltic states earlier and more severely than most other EU countries. The response of the three economies to the crisis has been relatively successful. The level of public debt has remained relatively modest in 2010 and the GDP growth rate in the second quarter of 2010 was one of the highest in the EU (3.1 per cent). The crisis is likely to have a relatively long-term impact on the labour market, however, not only because the high unemployment is likely to persist for a while and lead to an increase in structural unemployment, but because of its effect on other labour market developments. Due to the previous overheating of the economy certainly it has

also had some positive consequences (for example, the moderation of wage growth is needed to restore competitiveness). But the burdens it has imposed will be difficult to cope with. Given the previous growth in unemployment and Estonia joining the Eurozone, labour market developments remain a key challenge with regard to ensuring future growth.

NOTES

1. For an analysis of macroeconomic developments in the Baltic states and the boom–bust cycle, see also Brixiova et al. (2009) and Purfield and Rosenberg (2010).
2. For an overview of past labour market developments in the Baltic states, see, for example, Paas and Eamets (2007).
3. In Estonia, firms need to present applications for collective redundancies to the Labour Inspectorate. Under the Law on Employment Contracts, collective redundancies are defined as follows: employment contracts terminated within 30 calendar days of at least (a) 5 employees in enterprises employing up to 19 employees, (b) 10 employees in enterprises employing 20–99 employees, (c) 10 per cent of employees in enterprises employing 100–299 employees and (d) 30 employees in enterprises employing at least 300 employees.
4. For instance, in 2008 average weekly working hours in Estonia, Latvia and Lithuania were 39.5, 40.1 and 39.1 hours, respectively (compared to EU average of 37.8, Eurostat).
5. For wages we have only one figure, thus we cannot say whether the wage cut is due to a cut in basic pay or a reduction in bonuses.
6. Foreign firms' stronger orientation towards international markets could make them more responsive to global crises. On the other hand, foreign firms might also have more internal reserves while domestic firms need to react immediately to declining revenues with cost cutting.
7. The opinion of the Labour Inspectorate is that too few occupational diseases are diagnosed in Estonia (Tööinspektsioon 2009). It believes that the declining number of diseases caused by working is related to the fact that the employers do not direct employees to take part in mandatory health examinations.
8. At the time of writing only the Estonian LFS was available, while earlier studies (Anspal and Karu 2007) used working life barometer data for 2000, 2003 and 2005.
9. Sources: Estonia – Unemployment Insurance Fund; Lithuania – Lithuanian Labour Exchange.
10. Similar to the national minimum wage, in Estonia several collective agreements aimed at increasing wages at sectoral level (for example, in road transport, initially a 37 per cent increase was foreseen – Nurmela and Karu 2008) and at firm level (at the largest shipping company Tallink, a 9 per cent wage increase was foreseen in September 2009 but postponed by one year) have been halted.
11. For example, in September 2008 the Estonian Employers' Confederation forwarded its proposals on how to manage the economic downturn to the Government (Nurmela and Karu 2008). The list of actions covered such areas as public sector expenditure and fiscal policy, public administration and e-government, taxation, investment, labour market and education. With regard to the labour market, the employers proposed increasing flexibility by adopting the hotly debated draft Employment Contracts Act negotiated between the social partners earlier in 2008 and promoting the use of flexible forms of work (fixed-term employment, part-time work, teleworking). The employers also called on the Government to change the pension system to increase incentives to take up retirement, improve the availability of childcare facilities and make the regulations on

- parental benefit more flexible. The trade unions have also attempted to initiate dialogue – in 2008, EAKL and the Estonian Employees' Unions' Confederation expressed their dissatisfaction in a letter to the Prime Minister in which they claimed that 'with regard to the basic issues of working life, the Estonian authorities have repeatedly tried to avoid dialogue with the employee representative bodies' and that 'several draft acts that are important to employees . . . have been drafted without including the social partners' (Nurmela and Karu 2008).
12. The system of sickness benefit was also changed. Until July 2009, from the second day of illness, sickness benefits were paid by the Estonian Health Insurance Fund at a rate of 80 per cent of the employee's average wage. From 1 July 2009, the period not covered by sickness benefits was increased to three days. For the subsequent five days of illness, sickness benefits are paid by the employer at a rate of 70 per cent of the employee's average wage. The Health Insurance Fund pays sickness benefits (70 per cent of the employee's average income subject to social security contributions) only from the ninth day of illness.
 13. The interviews were conducted with Anne Ladva (Estiko), Jaan Rosenthal (Sangar), Aivar Talvet (Toom Tekstiil), Anu Ulp (Hanza Tarkon) and Riina Varts (Eesti Energia). The authors are grateful to them for their assistance.
 14. These employees had a lower retirement age (by five years) due to their work (thermo-processing of plastics). They were therefore entitled to both pensions and unemployment insurance.
 15. We would like to thank everyone who provided input to the case study. The following were interviewed: Janne Pikma-Oovel (head of labour relations department, Police and Border Guard); Vilve Kalda (head of administration, Police and Border Guard), Ele Nuka (representative of Estonian Police Officials Trade Union) and Riho Tamm, Veronika Remsel and Ketlin Nurk (labour relations specialists in the prefectures until the end of 2009).
 16. In August 2010, the number of employees was 6,260 (about one-quarter of all civil servants in Estonia), but it is not directly comparable due to structural changes carried out in the organization. On 1 January 2010, the Police Board, the Citizenship and Migration Board and the Border Guard merged into one institution, named the Police and Border Guard Board (PPA).
 17. However, facing the need to cut budgets, police prefectures applied other budget saving measures, even before the decision to cut wages was made at government level. The Eastern Police Prefecture applied obligatory unpaid holidays to balance the budget of the prefecture as early as May 2009; the Southern Police Prefecture had been doing so since June. The number of statutory unpaid leave days varied between different units, depending on the extent of the necessary cuts. For reasons of confidentiality, it is not possible to go into more detail here.

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APPENDIX

Table 2A.1 Policy responses and recovery measures in Estonia

Policy area	Description of measure(s) taken	Implementation	Objectives
Increasing aggregate demand	Increased funding in the amount of EEK 264 (ca €16.9) million of transportation and entrepreneurship as a result of restructuring EU structural aid	In force since October 2009	Sustain employment
	Supporting enterprise start-up: <ul style="list-style-type: none"> • Increased subsidies to start a business (from EEK 50,000 to 100,000) and growth support (from EEK 200,000 to 500,000) • Extension of range of eligible applicants, activities supported and eligible expenditure Decrease in self-financing rate (from 50% to 35%)	In force since September 2009	
	Entrepreneur starting a business (or a business already operating up to three years) gets a subsidized start-up loan of up to EEK 1,000,000 (previously up to EEK 500,000)	In force since October 2009	Creation of new companies
Increase demand for labour	Increased funding in the amount of EEK 750 million (€48 million) of entrepreneurship (EEK 650 million) and employment (EEK 100 million) as a result of restructuring EU structural aid. Priorities in subsidizing entrepreneurship are promoting exports and investment in technology and R&D As regards employment promotion, additional funds were targeted to increase wage subsidies, trainee subsidies, remuneration of labour market training, and so on According to the estimates made in February 2010, 1,000 new jobs were created as a result of wage subsidies and practical training in January 2010. The Ministry of Social Affairs forecasts that by the end of 2010 the number of persons employed due to these measures will be up to 10,000. In total, the government has channelled an additional 2.3 billion kroons to support entrepreneurship and improve the labour market situation	In force since December 2009	Counter-cyclical employment measure

Table 2A.1 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
	Simplified conditions to obtain a wage subsidy. According to new regulations, a wage subsidy (50% of the wage, but at most the minimum wage) is paid to an employer for a maximum of 6 months if they hire:	In force since January 2010	Increase employment of long-term unemployed
	<ul style="list-style-type: none"> ● an unemployed person who has been registered with Töötukassa at least six months and has not found a job ● an unemployed person aged 16–24 who has been registered with Töötukassa at least three months and has not found a job 		Reduce youth unemployment
	In the case of non-permanent jobs, the wage subsidy is paid for half the duration of employment, but up to a maximum of six months		
	Until 1 January 2010 it was possible to pay a wage subsidy only in the case of permanent jobs		
	For employees or public sector workers who were unemployed for at least six months out of the past 12 months before getting a job, social contributions are paid on wages: that is, the general minimum limit on social contributions does not apply in such cases	Since 1 July 2010	Increasing employment for long-term unemployed
	Until this change employers had to pay social contributions from the statutory minimum (in 2009 and 2010 equal to EEK 4,350), whatever the gross wage was EEK 2,500 or EEK 4,350		Promoting part-time employment
	Summarized calculation of social contributions for employees with several part-time jobs; until 1 July employer had to pay social contribution at least from the minimum wage (in 2009 and 2010 equal to EEK 4,350) ¹		
	According to estimates, the number of part-time employees whose wage is less than the statutory minimum for the social contribution is 18,000. Their average wage is EEK 2,700; 8% of them have more than one part-time job (1,400 people)		

Table 2A.1 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
	It is estimated that these changes will affect 41,900 people; 3,000 new part-time jobs will be created; the cost of these changes will be EEK 10 million and the amount of additional social contributions paid will be EEK 32 million a year		
Increasing employment of people (and family members) with social and economic subsistence problems	An employer who hires a disabled person or a person with long-term health problems may receive up to 100% of the adaptation costs of work rooms and work instruments.	In force since January 2010	Reduce unemployment of disabled
	Labour market services and training targeted on people (and their family members) with social and economic subsistence problems (part of the programme 'Social work measures supporting employment': <ul style="list-style-type: none"> • subsistence consultation services to people with special needs and their families; consultation on technical aid to adjust home and workplace rehabilitation programmes (for at least 250 persons) • consultation for disabled youth who have left the family or substitute home (for at least 100 persons) • training provided by National Institute for Health Development to care workers (50 persons), psychiatric special needs workers (125 persons) and home care workers (75 persons) • training in how to use social services data register targeted on local government employees and service providers (500 persons) • technical aid technician training (60 persons) • debt consultation (15 persons) • training for experts and consultants assessing quality of rehabilitation services 	In force since January 2010	

Table 2A.1 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
Promoting use of teleworking	Training in teleworking for unemployed persons in different areas in Estonia, developing Estonia-wide teleworking network	In force since January 2010	Promoting teleworking
Training	The training card pilot project is aimed at better training of the unemployed based on their needs. The personal approach is used and training is targeted to increase the qualifications of the unemployed and their chances of getting a job.	In force since September 2009	Increase the skills of the unemployed
	Supporting the continuation of suspended studies	In force since January 2010	Increase the number of people with professional skills and knowledge

Table 2A.2 Policy responses and recovery measures in Latvia

Policy area	Description of measure(s) taken	Implementation	Objectives
Social policy	Increasing the period during which unemployment benefits can be received (to 8 months, previously 4 months for persons who have been made redundant and have accumulated up to 9 years of service, and to 6 months for persons who have been made redundant and have amassed between 10 and 19 years of service. For persons who have been made redundant and whose length of service is 20 or more years, unemployment benefit was granted for 9 months) ² Source: http://www.eurofound.europa.eu/eiro/2009/06/articles/lv0906019i.htm	1 July 2009– 31 December 2011	Increasing social insurance
	Decreasing old-age pensions and long-service pensions by 10% for non-working and 70% for working pensioners Source: http://www.eurofound.europa.eu/eiro/2009/06/articles/lv0906039i.htm	Since 1 July 2009	Decrease costs of state budget
Tax policy	Reducing tax-free allowance on personal income tax to LVL 35 (€50) (up to 1 July 2009 LVL 90 (about €129)). Source: http://www.eurofound.europa.eu/eiro/2009/06/articles/lv0906039i.htm	Since 1 July 2009	
	Increasing personal income tax to 26% (previously 23%)	Since 1 January 2010	Increasing tax revenues
	Reducing tax-free allowance of peasants and fishermen from LVL 4,000 to LVL 2,000 Sources: http://www.riganewstoday.com/2009/12/in-final-reading-of-saeima-has-been.html		
Decreasing state budget imbalances	Cutting state sector salaries Salary fund was reduced by 15% Monthly salaries below LVL 300 (€430; affecting 21% of employees in ministries and subsidiary institutions) were reduced by 15% Wages above LVL 300 were cut by 20% The salary decrease was projected to reduce state expenditure by about LVL 90 million (€129 million)	January 2009 Since 1 July 2009	Decrease costs of state budget

Table 2A.2 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
	Source: http://www.eurofound.europa.eu/eiro/2009/07/articles/lv0907019i.htm Decreasing teachers' monthly gross wages from LVL 345 (€494) to LVL 250 (€358)	Since 1 September 2009	Decrease costs of state budget
	Source: http://www.eurofound.europa.eu/eiro/2009/07/articles/lv0907019i.htm Implementing reform in the health care sector and decreasing the number of employees in the Ministry of Health by 43% (from 155 employees to 89)	Since September 2009	Decrease costs of state budget
Training	Source: http://www.eurofound.europa.eu/eiro/2009/07/articles/lv0907019i.htm Implementing three projects to promote training: <ul style="list-style-type: none"> ● vocational training for employees at risk of unemployment; ● unemployed persons' and jobseekers' training in Latvia; ● promoting vacancies in local government in order to develop and maintain work skills³ ● professional training using vouchers⁴ Source: http://www.eurofound.europa.eu/eiro/2009/11/articles/lv0911019i.htm	Since September 2009	Increase skills of unemployed
Promoting employer-side flexibility	Shortening notification terms in case of collective redundancies. The notification obligation in the case of collective redundancies was decreased to 45 days (previously 60 days); collective redundancies could also now be imposed 45 days (instead of 60 days) following notification: the right of the State Employment Agency to extend the term of notification to 60 days (instead of 75 days) prior to redundancies Source: http://www.labourlawnetwork.eu/national_labour_law/legislative_developments/prm/109/v_detail/ses_id_dab6d80bdb6c97c055d02bc1083c4d70/id_947/category_19/size_1/index.html For more information about changes in Latvian labour law, see: http://www.sorainen.com/legal/newsflash/lv-employment-april-2010/en.html	25 March 2010	Decreasing protection of workers in case of collective redundancies

Table 2A.3 Policy responses and recovery measures in Lithuania

Policy area	Description of measure(s) taken	Implemen- tation	Objectives
Decreasing state budget imbalances	<p>Without consulting with trade unions, the government decided on 17 June 2009 to cut the basic monthly wage⁵ in the public sector. The basic weekly wage was to be reduced from LTL 128 (about €37 as at 30 July 2009) to LTL 115 (€33). The pay cut was due to enter into force on 1 August and would have affected about 230,000 public sector employees, most of whom are already relatively low paid</p> <p>Dissatisfied with the government's decision, the Lithuanian Trade Union Confederation (Lietuvos profesinių sąjungų konfederacija, LPSK) adopted, on 19 June, a 'Declaration regarding the inconsiderate and unreasoned policy implemented by LRV'</p> <p>As the government ignored LPSK's warning, the trade union confederation launched a hunger strike initiative on 2 July at Independence Square in front of the parliament buildings. During the hunger strike, a meeting was held between the government and the trade unions' working group which ended in a number of joint decisions</p> <p>In the end, it was agreed with the trade union representatives that the government would cancel its decision to reduce the basic monthly wage with effect from 3 July. Taking into account the government's promise, LPSK stopped the hunger strike on 3 July. In turn, the government submitted alternative proposals to the parliament (Lietuvos</p>		Decreasing public sector wages

Table 2A.3 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
	<p>Respublikos Seimas, LRS) on how to reduce state spending. The proposals were accepted by the LRS on 16 July</p> <p>As promised, the main burden of the wage decrease was imposed on the highest paid public sector employees, including lawyers and state officials</p> <p>Pay rises for civil servant qualification grades were cut on a temporary basis from 1 August 2009 to 31 December 2010: more specifically, by 10%–15% for the third (lowest) qualification rating and by 30%–50% for the first (highest) qualification rating. Officers of the country's Special Investigation Service (Specialiųjų Tyrimų Tarnyba, STT), the State Security Department (Valstybės Saugumo Departamentas, VSD) and other civil servants have also been subject to similar changes</p>		
Promoting flexicurity	<p>Providing for additional security of workers employed under fixed-term employment contracts. Fixed-term employees should not receive less favourable employment conditions or opportunities to improve their qualifications and receive promotion than those employed on regular employment contracts</p> <p>Developing procedures for the termination of fixed-term employment contracts prior to expiry. An opportunity was provided in a collective agreement to reach agreement on cases when an employer is entitled to pay lower severance pay than the abovementioned</p>	1 August 2009	Regulating fixed-term employment

Table 2A.3 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
	<p>in case of termination of a fixed-term employment contract during the crisis. In no case may such severance pay be less than one month's average wages.⁶</p> <p>Effective until 31 December 2010 Source: http://www.eu-employment-observatory.net/resources/reports/Lithuania-LabourCodeAmendments.pdf</p> <p>Allowing employers and employees to come to terms in a collective agreement on conditions more favourable to employers as compared to those set out in the Labour Code. Matters with which collective agreements may deal include the following:</p> <ul style="list-style-type: none"> ● Shorter dismissal notice period. Under the Labour Code, employers are required to notify employees in writing of the termination of employment (without employee fault) two (and in certain cases – four) months in advance. Henceforth, collective agreements may provide for shorter time-limits, that is, up to one or two months, respectively ● Shorter notice period for change in remuneration terms and conditions. Under the Labour Code, employees must be notified one month in advance of new payment conditions. The amendment allows a two-week term to be included in the collective agreement 	<p>Since 1 August 2009</p>	

Table 2A.3 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
	<ul style="list-style-type: none"> • The amendment allows restrictions on dismissal from work to individuals with three years (rather than five, as in the Labour Code) until entitlement to old-age pension • Under the amendment, a fixed-term employment contract may, along with other grounds, be terminated with severance pay in the amount of one month's average salary • The amendment allows employers to pay a lower salary for time off granted for looking for a new job (stipulating a minimum hourly pay for time spent searching) <p>These changes remain in force until 31 December 2010 Source: http://www.sorainen.com/legal/newsflash/employment-law-july-2009/en.html</p>		
	<p>Introducing the possibility for the employer to settle with a redundant employee within a term of three months (rather than on the date of dismissal as was formerly the case), but only if the employee is eligible for severance pay amounting to at least five months' average wages</p> <p>Effective until 31 December 2010 Source: http://www.sorainen.com/legal/newsflash/employment-law-july-2009/en.html</p>	1 August 2009	
	<p>Revision of the procedure applied to pension-age employees in case of termination of employment contracts on their initiative. This amendment was sought by the GRL to take into consideration the requests of social partners and to avoid cases of abuse often</p>	1 August 2009	

Table 2A.3 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
	<p>encountered when pension-age employees enter into successive fixed-term employment contracts with new employers and become entitled (irrespective of the length of service with a particular enterprise) to termination of the employment contract under the simplified procedure (that is, by giving three days' notice to the employer) and receiving severance pay in the amount of two months' average wages. Expected to remain valid for an unlimited period</p> <p>Source: http://www.eu-employment-observatory.net/resources/reports/Lithuania-LabourCodeAmendments.pdf</p>		
	<p>Providing the possibility of concluding fixed-term employment contracts for work of a permanent nature for newly created jobs. Employers will be able to take advantage of this option for two years but no longer than for the period until 31 July 2012. If after this date an employment relationship continues under such a fixed-term contract, it will become a regular contract</p> <p>Source: http://www.deloitte.com/view/en_LT/lt/insights/publications/</p>	1 August 2010	
	<p>Introducing summary recording of working time in any enterprise, if necessary after considering the opinion of the employees' representatives or in other cases established by the collective agreement</p>	1 August 2010	Regulating working time

Table 2A.3 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
	<p>Previously, this right was granted only to enterprises that engage in uninterrupted activity and meet the established criteria</p> <p>Source: http://www.deloitte.com/view/en_LT/lt/insights/publications/e6e73363ce71a210VgnVCM100000ba42f00aRCRD.htm</p>		
	<p>Changing overtime work conditions. Now employees may work four hours overtime daily (previously four hours overtime was allowed every two working days). The annual overtime norm of 180 hours was not changed</p> <p>Source: http://www.sorainen.com/legal/newsflash/employment-law-july-2009/en.html</p>	1 August 2009	
	<p>Introducing more flexible procedures for determining overtime. As was previously the case, the employer will be able to resort to overtime only in exceptional cases. However, in other cases overtime may also be organized with written consent or at the request of the employee</p> <p>Source: http://www.deloitte.com/view/en_LT/lt/insights/publications/e6e73363ce71a210VgnVCM100000ba42f00aRCRD.htm</p>	1 August 2010	
	<p>Establishing employees' right to suspend an employment contract for no longer than three-month period if the employer for more than two consecutive months does not pay wages or fails to comply with their other obligations to the employee. If the employee on reasonable grounds suspends the employment contract, the</p>	1 August 2010	

Table 2A.3 (continued)

Policy area	Description of measure(s) taken	Implementation	Objectives
	<p>employer shall pay him not less than one minimum monthly wage compensation for each month. An employee who suspends the contract with no justification is responsible for the damage caused to the employer. During the suspension of the employment contract state social insurance contributions must be paid</p> <p>Source: http://www.deloitte.com/view/en_LT/lt/insights/publications/e6e73363ce71a210VgnVCM100000ba42f00aRCRD.htm</p>	1 August 2010	
	<p>Establishing a new type of employment contract – distance work, which also covers former employment contracts with home workers. A distance work employment contract may establish that an employee will perform his job functions in other places than a workplace, as long as it is acceptable to the employee, using IT. It is expected that distance work employment contracts will allow more flexible work organization. The details of such employment contracts will be established by the government and collective agreements</p> <p>Source: http://www.deloitte.com/view/en_LT/lt/insights/publications/e6e73363ce71a210VgnVCM100000ba42f00aRCRD.htm</p>	1 August 2010	

NOTES

1. For example, assume that the person has two part-time jobs: the first employer calculates the income tax exemption and pays EEK 2,500, the second employer pays EEK 1,500. Until 1 July 2010, the first employer had to pay social contributions from the statutory minimum (in 2010 EEK 4,350), that is, EEK 1,436, the second employer from the actual wage, that is, EEK 495. According to the new regulation, tax obligations can be summed. The second employer still pays social contributions from the actual wage, that is, EEK 495, but the first employer pays the contribution from the part lower than the statutory minimum ($\text{EEK } 941 (4,350 - 1500) \times 0.33$). The only requirement is that employees must inform the first employer of wages in other jobs.
2. Until July 2009, in order to receive unemployment benefit in Latvia, a person had to fulfil certain conditions: they had to obtain unemployed status; their length of service had to be at least one year; and they had to have paid compulsory social insurance contributions for no less than 12 months out of the past 18 before obtaining the status of an unemployed person. As of 1 July 2009, however, the period of compulsory social insurance contributions for eligibility to receive unemployment benefits was changed: all employees have to pay social insurance contributions for at least 9 months over a period of one year.
3. Under this programme, local governments provide vacancies for non-commercial purposes in the structural units of local government, institutions and agencies, and state social security centres. An unemployed person participating in the programme 'Training for developing and maintaining work skills if the employer is a local government' receives a grant of €142 (about LVL 100 as of 23 December 2009). An unemployed person who participates in the programme is insured against accidents at work as long as the employment does not exceed six months a year.
4. Employees working in the private sector who, due to the reduction of production capacity, are now part-time workers, can avail themselves of training vouchers under certain circumstances: if they are employed for more than six months in the company and as long as their working hours were reduced a month before applying for the programme. The voucher is a guarantee for an employee at risk of unemployment, enabling them to choose an educational programme relevant to their work. The training expenses will be covered by the government up to €711 (LVL 500) for a vocational training programme and €427 (LVL 300) for a professional postgraduate training programme. The minimum duration of training is six months. The programme aims to involve at least 11,000 employees at risk of unemployment up to 2013. This includes about 2,000 employees in 2009.
5. The basic monthly wage is applied as a reference to determine the wages of public sector employees, such as teachers, social workers, librarians and cultural workers.
6. Previously, the Lithuanian Labour Code provided that an employer shall be entitled to terminate a fixed-term employment contract before expiry only in exceptional circumstances if the employee cannot, with his consent, be transferred to other work, or upon the payment of the average wage to the employee for the remaining period of the employment contract.

3.2. Early application of fiscal austerity measures in the Baltic States

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Austerity Measures in the Baltic States. –
Public Sector Shock. The Impact of Policy Retrenchment in Europe.
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3. Early application of fiscal austerity measures in the Baltic states

Jaana Masso and Kerly Espenberg

1. INTRODUCTION

The economic recession in 2008–09 had a strong negative effect on the public sector in the Baltic states. Unlike the rest of the EU, where public sector reforms to cope with the challenges arising as a result of the crisis started in 2010–11 and were related to the debt crisis, in the Baltic states the public sector was heavily consolidated as early as 2009 and in Estonia significant budget cuts were introduced in February 2009. Thus, for the Baltics there should be comparatively more evidence on the effects of public sector cuts on the economy, the labour market and the quality of public services. The Baltic states' experience of the crises might also provide some lessons for the rest of Europe: hopefully some positive, but also some concerning the possible negative consequences of public sector adjustments.

Adjustment in the course of crises without exchange rate devaluation through so-called 'internal devaluation' (wage cuts restoring international competitiveness) has sometimes been described as fairly successful (for example, due to the relatively rapid recovery since 2010), and was introduced on the basis of quite a strong consensus among both politicians and the general public (for example, according to Eurobarometer, the approval ratings for the government increased from 38 per cent in summer 2009 to 53 per cent in spring 2010 (OECD 2011a) and without major protests. However, the policy choice was also simply chosen by local conditions (the private sector's large euro-denominated debt burden), and thus exchange rate devaluation would have ended up with the insolvency of many households and enterprises.

Labour market developments in the public sectors of the Baltic states are also an interesting object of study for other reasons. Estonia in particular has been characterized by a strong commitment to the balanced budget rule. The political rhetoric of the right-wing parties has implemented the idea of the 'lean state'. The Estonian public sector has been known for improving its services through the use of highly innovative ICT solutions and products,

such as digital receipts, web-based tax declarations, e-voting, digital signatures and e-government (paperless government), to name but a few.

While this chapter focuses mainly on Estonian experience, where possible we also try to cover the most important developments and features of the public sectors in Latvia and Lithuania. While there are important differences between the countries, factors such as similar historical background, level of economic development and highly correlated business cycles facilitate joint study.

2. GENERAL GOVERNMENT REVENUES, EXPENDITURES AND DEBT

Compared to the EU average, the government sector in the Baltic states is relatively small, on average (as indicated, for example, by the share of government expenditure in GDP: see Table 3.1). The Estonian government is in fact one of the smallest in the OECD. During the post-independence

Table 3.1 Overview of public finances in the Baltic states, 2006–2010

Country	2006	2007	2008	2009	2010
Primary balance, % of GDP					
Estonia	2.6	2.6	-2.7	-1.8	0.4
Latvia	0.0	0.0	-3.6	-8.2	-6.8
Lithuania	0.3	-0.3	-2.6	-8.2	-5.3
EU27	1.2	1.8	0.4	-4.3	-3.9
Government consolidated gross debt, % of GDP					
Estonia	4.4	3.7	4.5	7.2	6.7
Latvia	10.7	9.0	19.8	36.7	44.7
Lithuania	17.9	16.8	15.5	29.4	38.0
EU27	61.5	59.0	62.5	74.7	80.1
Tax revenues, % of GDP					
Estonia	30.8	31.5	31.8	35.8	34.3
Latvia	30.8	30.8	29.7	27.0	27.5
Lithuania	29.6	29.9	30.4	29.7	27.4
EU27	40.7	40.6	40.4	39.7	39.6
Changes in tax revenues, %					
Estonia	20.0	22.9	2.5	-4.4	-1.0
Latvia	29.5	31.7	4.8	-26.4	-1.0
Lithuania	18.5	20.5	14.9	-19.9	-4.4
EU27	6.9	5.8	0.1	-7.6	4.2

Source: Eurostat.

period the Baltic states have mainly been governed by right-wing parties and the principle of limited government has been constantly followed. The relatively low share of government expenditures as a share of GDP also reflects the lower GDP per capita in these countries (Staehr 2010). Compared to Central European economies (Poland, Hungary), the Baltic states have introduced fairly small public sectors with basic service provision.

In Estonia, the primary balance was positive during the boom years, which was related to higher than expected revenues and conservative fiscal policy. However, even in 2009, which marked the deepest point of the crisis, Estonia met the Maastricht criteria and the fiscal balance had again turned positive by 2010 (thanks also to some one-off revenues). These numbers do not show that there was less need for austerity measures, but rather that the relatively low deficit figures were achieved thanks to the budget cuts. The fiscal policy outcomes were also influenced by the quality of the fiscal policy institutions (in preparation, authorization and implementation): fairly high in Estonia (highest among the Central and East European (CEE) countries), but lower in Latvia and Lithuania (Fabrizio and Mody 2008).

The crisis clearly had a negative influence on the Baltic states' public finances. The sovereign debt that has traditionally been low – for example, thanks to the high growth trend (Staehr 2010) – increased during the crisis but has remained one of the lowest in the EU27 (for example, Estonia has no outstanding government bonds). It was possible to maintain low indebtedness in Estonia thanks to the fiscal reserves accumulated during the boom years (around 10 per cent of GDP). Unlike Estonia, however, Latvia had no fiscal reserves to support the economy during the deep recession. It is noticeable that Latvia's financing problems emerged in 2008 when the sovereign debt was just 20 per cent of GDP.¹ Latvia and Lithuania have increased their indebtedness to more-average levels during the crises.

During the boom period of 2006–07, total government revenues and expenditures increased considerably. At the beginning of the crisis, all three countries experienced problems in reacting to the difficulties they faced. Tax revenues decreased in all three Baltic states. In Estonia, where the share of tax revenues is the highest, the fall in tax revenues was lower than the EU average and much lower than in Latvia and Lithuania. The cyclical volatility of public finances was affected, on the one hand, by deliberate decisions – there were tax cuts during 2006–07 and tax increases in 2009 (OECD 2009) – but also by the somewhat more limited role of automatic fiscal stabilizers (such as the fact that the income tax system is proportional rather than progressive; for earlier evidence, see Kattai et al.

2003). In Estonia, tax revenues as a percentage of GDP actually increased in 2010 due to revenue-enhancing policies.

It can be argued that choosing budget cuts instead of other measures – such as financing a higher deficit with borrowing – was the right way of adjusting to the crisis because the GDP decline was longer lasting rather than temporary; – for example, in Estonia the 2007 GDP level will not be exceeded, according to Ministry of Finance forecasts, earlier than 2015 (Rahandusministeerium 2012) – and at least in early 2009, one could sell sovereign bonds in the market only at fairly high interest rates, if at all. The latter was also reflected in the high spreads of the credit default swaps (it was quite expensive to insure oneself against default by the Baltic states).

While generally the direct effect of the crisis on the public finances of the CEE countries was modest (Staehr 2010), the one exception was Latvia, which had to bail out its largest domestic bank (Parex Bank). The Baltic states managed their public finances differently during the crises: Latvia turned to the IMF and its fiscal policies were designed to satisfy the loan conditionalities; Estonia ran tight fiscal policies in order to satisfy the Maastricht criteria to join the Eurozone; and Lithuania managed to run substantial deficits during the crisis without turning to the IMF (*ibid.*). These different contexts have also influenced the public sector adjustments: in Estonia, for example, the less severe austerity measures were mostly of a cost-saving type and in Latvia much stronger budget consolidation – also involving structural changes – was needed.

Three supplementary state budget cuts passed in Estonia in 2009 accounted for 9.3 per cent of GDP. Compared to other countries undergoing fiscal consolidation, the government relied relatively strongly on non-tax measures (additional dividends from state-owned enterprises). Concerning the major consolidation measures, operational measures (mostly wage cuts) constituted around 0.73 per cent of GDP, adjustments in pensions (reducing the pension increase and suspending contributions to the second pillar) in total 1.2 per cent of GDP, decreased transfers to local governments (0.28 per cent) and other social security (0.72 per cent). In 2009, revenue measures were less important (2.7 per cent of GDP, increased VAT, unemployment insurance contributions and excise duties), while in 2010 revenues and expenditures were more balanced (1.3 versus 1.6 per cent of GDP). Generally, with these proportions Estonia was close to the OECD average. The state budget strategy has foreseen the restoration of fiscal balance by 2014 with gross debt stabilizing at around 14 per cent of GDP, which is still a fairly low number (OECD 2011b). Thus in Estonia about half of the budget cuts were achieved by the suspension for two years of contributions to the funded pension scheme, which perhaps

made the cuts less painful, but later they will have to be made up by higher pension contributions.

In Estonia, while cuts were generally in expenditure and so far have not concerned structural changes (as they were implemented very fast), this has led to further discussions of the sustainability of the public finances – for example, the sustainability of the social insurance system (Praxis 2011) – and structural changes (centralizing support functions, looking at possibilities to merge institutions, such as schools, and analysing the delivery of public services with the aim of reducing red tape – OECD 2011b). In the case of Estonia the need for territorial administrative reform – including reducing the current relatively large number of local governments and increasing the average size of municipalities – is a long-debated issue, but has not been implemented due to opposition from the largest party of the previous ruling coalitions (the Reform Party).

Another factor that fostered successful implementation of the reforms was Estonia's better institutions: along with Slovenia, Estonia has been assessed as the least corrupt country among the new EU member states. Also, Estonians have higher trust in national political institutions (parliament, government, parties) than Latvians and Lithuanians (based on Eurobarometer surveys; Kuokštis and Vilpišauskas 2010), which enabled a more rapid reaction to the crisis in Estonia and prevented tax revenues from declining too much (the growth of the shadow economy was more modest). In the new EU countries, the fiscal situation has also been improved by the EU structural funds, amounting to about 2–3 per cent of GDP during 2010–13 (Staehr 2010). It could also be because the budget amendments in 2009 and 2010 were agreed on a tripartite basis by government, unions and employer organizations (Aslund and Dombrovskis 2011). Kuokštis and Vilpišauskas (2010) indicate that the severe internal devaluation was possible thanks to domestic consensus between policy-makers and people about the commitment to fixed exchange rates, but also due to flexible labour markets. There was in any case very little contestation of fiscal austerity measures.

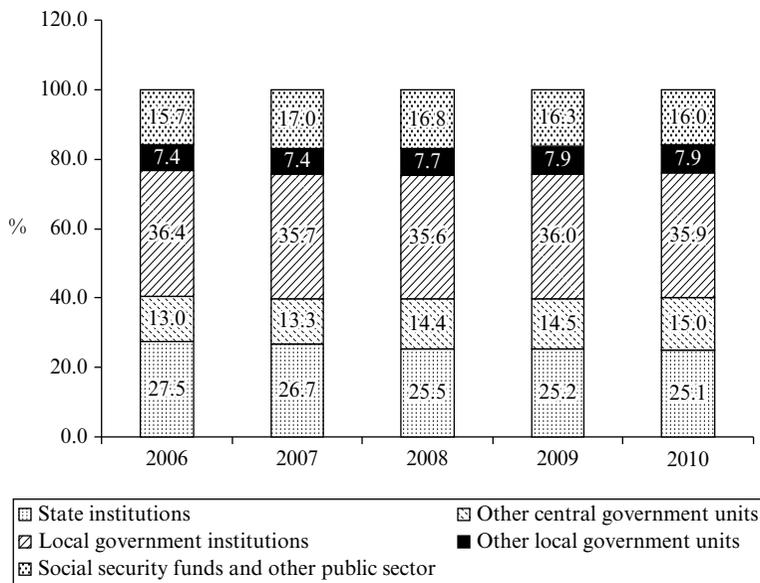
Estonia has managed to cope with the crisis more effectively than the other two Baltic states and the EU in general. Although during the economic downturn (2008–09) general government expenditures exceeded revenues, unlike many other countries, Estonia did not borrow heavily and instead decided to cut spending. The fiscal consolidation is believed to have contributed to the strong recovery. In 2011, Estonia showed the highest growth rate in the EU, although to some extent, the rapid growth rates experienced in 2010 resulted from the former drastic fall. Nevertheless, it is clear that the Estonian economy was capable of adjusting rapidly to the new situation and possibilities. This is certainly due to

the small size of the economy and its openness to international markets. The latter also benefited from the stimulus packages introduced by other countries (Statistics Estonia 2010).

3. EMPLOYMENT IN THE PUBLIC SECTOR

3.1 Public Sector Employment Dynamics

Figure 3.1 gives a short overview of employment in Estonia's public sector. More than one-third of public sector employees are employed in local government institutions and about a quarter in state institutions. Other central units employ about 15 per cent and social security funds and other public sector units about 16 per cent of all public sector employees. Although the share of social security institutions is marginal in relative terms, the number of employees has increased significantly during the past five years: while in 2006 there were 254 employees, in 2010 the total was



Note: State institutions: state institutions and constitutional institutions.

Source: Ministry of Finance.

Figure 3.1 Public sector employment by type of institution, Estonia, 2006–2010

712. In state and local government institutions the number of employees decreased during 2006–10, while in other central and local government units the increase was fairly stable during the period. In other public sector units employment increased during the boom period of 2006–07 and decreased during the recession (2009–10).

When considering public sector employment as the sum of employment in public administration, health care and nursing care (which is actually not entirely correct, given that in the last two sectors there are both privately and publicly owned entities), the share of public sector employment in total employment is similar to the EU27 average in the Baltic states, in Latvia and Lithuania about 25 per cent and in Estonia 28 per cent (EU27 average was 25.8 per cent). Among OECD countries, despite a relatively small government sector, Estonia's share of employment in general government and public corporations is above the OECD average (in 2008, 18.7 and 15 per cent, respectively). One reason is that, similar to the Nordic countries, Estonia relies relatively less on non-profit institutions or private enterprises for the provision of public services. Outsourcing – 80 per cent of which is in the form of intermediate consumption – is used relatively less and government employees more for the delivery of public services.

The Estonian public sector is female dominated. For instance, in 2009 36.1 per cent of employed women worked in the public sector, compared to 16.5 per cent of males. The gender composition of public sector employees has changed significantly during the past ten years. At the beginning and end of the period the distribution of employees by gender is similar: the share of females is approximately 52 per cent and of males 48 per cent. However, during the recovery from the Russian crisis (at the beginning of the new millennium) and period of strong growth (mid-2000s to 2008) the share of females increased considerably and decreased again thereafter (data from the Government Office Yearbook, 2007–10). Therefore, we can conclude that the share of females among public employees has been pro-cyclical.

The crisis had a clear negative influence on the Baltic states' labour markets, although it varied considerably between them (see Table 3.2). In Latvia, private sector employment increased most during the boom period of 2005–07. Unlike in Estonia, public sector employment decreased in Latvia and remained unchanged in Lithuania. During the crisis (2008–09) the total employment change was highest in Latvia, followed by Estonia and Lithuania. In all three countries most of the employment reduction came from the private sector. In 2010, which marked the start of the recovery, total employment decreased in all the Baltic states, but the changes were smaller and more similar across countries than in 2008–09.

Table 3.2 Changes in employment during boom (2005–2007), recession (2008–2009) and recovery (2010), public and private sectors, Baltic states (%)

Time period	Estonia			Latvia			Lithuania		
	Total	Private	Public	Total	Private	Public	Total	Private	Public
2005–07	7.9	8.7	5.8	8.0	13.4	–6.4	4.1	5.6	0.1
2008–09	–9.2	–12.3	–0.9	–12.2	–15.1	–4.3	–6.8	–8.8	–1.1
Percentage of job losses	100.0	97.5	2.6	100.0	91.0	9.2	100.0	96.2	3.9
2010	–4.2	–6.3	1.1	–4.6	–11.1	–2.0	–5.1	–6.1	–2.5

Note: Public and private sectors are defined here based on NACE sectors: in other words, the public sector includes public administration, education, health care and social work.

Source: National statistical offices.

While in 2008 employment in Estonia even increased a little compared to 2007, which marked the peak of the boom period, the increase was driven by the private sector. In the public sector, employment decreased by 7,200 during 2006–08. In 2009, in contrast, when private sector employment fell notably, in the public sector employment increased by 3,100 and was quite stable during 2010, too. While in the private sector the number of employed fell by almost 90,000 during 2008–10, in the public sector the increase was 2,200. As a result, the public sector employment share increased from 23.7 per cent in 2008 to 27.6 per cent in 2010.

Employment cuts have been a much less important adjustment measure in the public sector compared to the private sector (for more details, see Masso and Krillo 2011). In 2009, when comparing the reasons for leaving their last job, personnel cuts was indicated as the reason by 30 per cent of the non-employed whose last job was in the private sector and by 14 per cent of those whose last job was in the public sector. The most frequent reasons for quitting for former public sector employees were illness, retirement and maternity leave (that is, voluntary quits). Concerning those whose employment was terminated due to employer-related reasons (enterprise closure or reorganization, personnel cuts), the public and private sectors show similar patterns, with the percentage of males experiencing job loss increasing during the recession (in the private sector from 51 per cent in 2006 to 66 per cent in 2009; in the public sector from 20 per cent in 2006 to 34 per cent in 2009), probably because employment reductions were concentrated in the male-dominated parts of the public sector.

One possible outcome of public sector adjustments – for example, wage

cuts – is that people may try to find a job in the private sector. However, job-to-job analysis shows that this is not the case in Estonia; in fact, during the crisis the trend has been rather the reverse. The job-to-job flows between sectors are quite common in Estonia, especially in the public sector. In 2008, 55 per cent of people who changed job started work in the private sector. The change of sector was much more frequent in the case of previous employment in the public sector, possibly indicating higher investment in job-specific human capital. The figures converged in 2009 and 2010, which may indicate relatively worse opportunities for getting a new job in the public sector. Similarly, administrative records show that during the crisis the percentage turnover of Estonian public sector employees decreased considerably: while in the growth period the turnover rate was about 14–15 per cent, in 2009 (the deepest crisis year) the figure was less than 7 per cent (Government Office Yearbook, 2007–10).

Flows out of unemployment (Table 3.3), are generally somewhat higher for former public sector employees, indicating their higher competitiveness in the labour market. That applies especially to males: in other words, males with past public sector employment have quite a high probability, even during the crisis, of re-entering employment. For females, however, this applies only prior to the crisis period, while during the crisis their employment re-entry rate was a lot lower, which is astonishing given the recession affecting male-dominated sectors. This could be due to the higher average level of education in the public sector, while private sector job losses were greatest in sectors – such as construction – with many blue-collar jobs. Those made unemployed in the public sector had a higher average level of education and thus more competitiveness in the labour market.

Related to labour market flow analysis is that concerning job tenure in the public and private sectors. Long tenure may be related to and important for the accumulation of job-specific human capital, while shortened tenure due to fiscal consolidation measures may threaten the quality of public services, if the most experienced employees leave. As expected, according to the Labour Force Survey (LFS) data the average job tenure is almost twice as high in the public as in the private sector (6 versus 11 years). During the crisis, if there is any change, it is rather increasing (for males in the public sector from 10.3 years in 2008 to 10.9 years in 2010). Thus during the crisis, employees with lower tenure have been leaving, although that does not exclude problems in some areas. Concerning sub-branches of public services, job tenure has decreased in public administration and increased in health care and education. Furthermore, the departure of younger employees may cause future problems when the average age of the workforce is high, for example, in the case of teachers

Table 3.3 *Flows between labour market states, private and public sectors, Estonia, 2008–2010*

Group	Year	Employment to employment (EE)	Job change (Ee)	Employment inactivity (EO)	Employment to unemployment (EU)	Unemployment to employment (UE)	Share of flows between sectors in all Ee flows
Private, total	2008	90	8	7	2	52	11
	2009	82	8	9	9	52	12
	2010	76	8	11	13	25	25
Private, males	2008	92	9	6	3	48	7
	2009	82	9	7	11	48	7
	2010	74	9	9	17	19	6
Private, females	2008	89	8	9	2	56	16
	2009	81	8	12	7	57	21
	2010	79	7	13	9	35	50
Public, total	2008	91	5	8	1	67	55
	2009	88	3	10	2	51	41
	2010	88	2	8	4	36	33

Table 3.3 (continued)

Group	Year	Employment to employment (EE)	Job change (Ee)	Employment to inactivity (EO)	Employment to unemployment (EU)	Unemployment to employment (UE)	Share of flows between sectors in all Ee flows
Public, males	2008	94	4	6	0	67	67
	2009	87	4	9	4	80	58
	2010	87	6	10	3	49	31
Public, females	2008	90	5	8	2	71	49
	2009	88	3	10	2	36	28
	2010	88	1	7	4	27	37
All	2008	91	7	7	2	50	17
	2009	83	7	9	7	46	16
	2010	80	6	10	10	26	26

Note: The letters E, U and O denote the three labour market states of employment, unemployment and inactivity, respectively. Over a given period, for instance, EU denotes movement from employment to unemployment; we also use EE to denote constant employment with the same employer and Ee job-to-job mobility. For non-employed persons their last job is used to determine their sectoral affiliation. The public sector is defined as public administration, education and health care.

Source: Authors' calculations based on Estonian LFS; 2010 includes only the first quarter.

(in 2008, 49 years versus the national average of 42 years among private sector employees). Additional evidence on this issue from Ministry of Finance administrative records on public employees shows that during 2008–10 the share of officials with length of service of 1–5 years' average job tenure increased from 32 to 37 per cent, the share of those with 5–10 years fell from 23 to 20 per cent and that of those with 10–20 years rose from 29 to 33 per cent. The decreasing share of those with a service length of up to one year shows that during the crisis new hires fell significantly (if someone left the organization, then a new employee was not hired for the position).

3.2 Public Sector Employees Migrating Abroad

The other problem is that the high level of uncertainty about job losses and wage cuts may induce workers to look for work abroad. While temporary migration (or return migration) may have positive effects for the sending country (knowledge transfer from abroad or income transfers), permanent migration may mean the loss of a skilled workforce that may limit growth during a recovery. These issues have been particularly hotly debated in connection with a number of public sector occupations (doctors, police officers, rescue workers and armed forces). In the public sector, it is easier to move abroad due to the higher percentage of employees with a good education, language skills and so on. Estonian doctors and other medical staff, for example, are highly valued in Finland (see also Case Study 1).

Concerning the available evidence, there are no recent data to estimate the incidence of working abroad by sectors. However, surveys on migration intentions show that in 2006 the public sector had both a lower number of people with work experience abroad during the past five years (15 per cent in the private sector versus 10 per cent in the public sector) and a higher share of people without migration intentions (69 versus 63 per cent – the survey included 1,505 people). The much larger database of CV-Keskus (data on the employment histories of about 15 per cent of Estonian workers, around 50,000 employees) indicates that 10 per cent of private and 6 per cent of public sector employees have foreign work experience.

The official migration statistics indicate that during the crisis, emigration rose sharply in Latvia and Lithuania (in 2007–09 by 77 and 55 per cent, respectively), but not so much in Estonia (just 6 per cent during 2007–09; Philips and Pavlov 2010). However, the numbers may be greatly underestimated, especially in Estonia, because people working in Finland often do not change their place of residence, are hired by Estonian companies and their taxes are paid in Estonia. The evidence from the Estonian

LFS indicates that the number of people working abroad rose from around 15–20 thousand in 2007 to 20–30 thousand in 2009 (Eamets 2011).

In Estonia, the health-care sector was hit hard by the crisis (redundancies and wage cuts²) caused by the cutting of the funding for health-care services. The sector has been covered by a sectoral agreement on minimum wages (the current one was set on 1 January 2008) extended to all employers (the agreements have not covered other issues). Although there are no reliable estimates on how many Estonians work abroad (such statistics are not collected), trade unions in the health sector have pointed out that the migration of nurses and care workers to other countries was a result of the cuts, and was also due to uncertainties and increased workload. Also, many other benefits with regard to training have been cut as a result of the crisis (Osila and Nurmela 2011). The issue of emigration may also be important in other parts of the public sector, for example, there is anecdotal evidence of defence personnel leaving, for example, to work for security companies abroad.

4. WAGES IN THE PUBLIC SECTOR

The recession has strongly affected public sector wages in the Baltic states. Wage cuts and unpaid leave were used extensively to balance state budgets (see Masso and Krillo 2011). Public administration was the only area in which working time did not decrease significantly, as adjustment was carried out rather by wage cuts (and in Latvia also by employment cuts related to the need for much more extensive austerity measures). The widespread implementation of wage cuts was also facilitated by the weakness of trade unions and widespread performance-related pay. In many sectors the latter constitutes up to 30 per cent of wages, which makes it possible to keep base wages lower, while in the old EU countries performance-related pay usually constitutes only a small share of total pay (Eamets 2011).³ In the public sector various wage components (basic wages, bonuses, fringe benefits) were reduced, but in different institutions different adjustment strategies were used (see Case Studies 1 and 2 in this chapter and the police case study in Masso and Krillo 2011); however, due to the lack of survey data we cannot provide aggregate data on the relative importance of these various measures.

As can be seen from Table 3.4, the share of those whose wages were cut increased considerably during the crisis. It is also important to note that for all periods the share of workers whose wages were cut has been higher in the public sector, but the discrepancies have increased substantially during the crisis. Concerning other evidence from surveys of firms,

Table 3.4 Proportion of workers whose nominal hourly wages decreased over the year, Estonia, 2006–2010 (%)

Indicator/group	2006	2007	2008	2009	2010Q1
All employees	22	14	17	45	45
Public sector	29	22	25	61	71
Private sector	21	13	16	40	44

Source: Authors' calculations based on Estonian LFS data.

Fabiani et al. (2011) reported that in 2009 in Estonia 44 per cent of private firms made wage cuts (3 per cent in a total sample of nine countries). We may note that even before the crisis a large percentage of people in the LFS data were experiencing wage decreases. That can be considered as a kind of regression to the mean: people had a temporary pay increase in one year – for example, some bonuses – that were not repeated the following year, showing up in the data as a wage decrease.

4.1 Public Sector and Private Sector Progressively Converging in the Three Baltic States

Public administration wages were hit hard in all three Baltic states (with wage cuts ranging from 7.6 per cent in Estonia to 18 per cent in Latvia; see Table 3.5), reflecting cuts in the budgets of both national and local government. In Latvia, wages were reduced considerably in the public sector, particularly government institutions, while wages in Lithuania and Estonia fell relatively evenly across the board, with the wage decrease in the construction industry being the sharpest (Masso and Krillo 2011). This explains why private sector wages slightly lost out compared to the public sector: in Estonia the indicator decreased from 106 to 96 in 2008–09 and from 88 to 84 in Lithuania (see Table 3.6). In Latvia, at the beginning of the recession average public wages were substantially higher than private wages, but by the end of 2009 the difference was insignificant (9 per cent in Table 3.6). On 1 July 2009, wages below LVL 300 were cut by 15 per cent and those above LVL 300 by 20 per cent (Curkina 2009). Similar wage cuts were implemented in Lithuania and Estonia (8–10 per cent) (see Glassner 2010). As a result, private sector wages as a percentage of public sector wages increased from 78 per cent in 2008 to 91 per cent in 2010 in Latvia. As in the private sector the public sector wages were cut: in Estonia the indicator decreased from 106 to 96 in 2008–09 and from 88 to 84 in Lithuania (see Table 3.6). While all the above information applies

Table 3.5 Annual wage changes by economic sector in the Baltic states, 2008–2010 (%)

Industry	Estonia			Latvia			Lithuania		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
Total economy	13.8	-4.6	1.1	20.6	-4.0	-3.3	19.3	-4.4	-3.9
Primary	17.7	-7.4	7.1	17.2	-4.6	5.8	23.4	-7.8	-2.6
Industry	11.5	-3.5	5.5	13.4	-4.0	2.9	17.5	-4.2	-0.1
Manufacturing	10.8	-3.9	5.2	19.8	-2.1	0.2	17.5	-4.4	-0.1
Energy	17.0	6.8	5.2	5.6	-5.0	5.2	15.9	-0.1	1.0
Construction	8.3	-13.4	3.6	19.0	-1.1	-5.1	10.3	-21.1	-8.3
Business services	12.3	-4.2	-0.9	21.0	-1.8	-1.5	18.8	-5.2	-4.6
Public services	17.4	-4.5	-1.0	20.2	-10.1	-6.7	22.0	-11.3	0.8
Public administration	15.7	-7.6	-2.7	16.1	-18.0	-8.5	23.1	-9.7	-5.5
Education	20.4	-2.5	-0.7	23.4	-9.9	-10.5	25.9	7.8	-5.0
Health	20.1	-2.4	-3.5	19.2	-9.9	-4.3	20.9	-2.0	-4.5

Source: National statistical offices of Estonia, Latvia and Lithuania.

Table 3.6 Wages in the public sector relative to the private sector and economy average in the Baltic states, 2006–2010 (%)

	2006	2007	2008	2009	2010
Private sector wage/ public sector wage					
Estonia	104	108	106	96	98
Latvia	79	76	78	86	91
Lithuania	87	93	88	84	85
Public administration/ total economy					
Estonia	123	127	129	125	121
Latvia	142	148	142	122	115
Lithuania	95	96	97	99	99
Education/total economy					
Estonia	85	83	88	90	88
Latvia	97	99	101	95	88
Lithuania	81	77	77	79	78
Health/total economy					
Estonia	97	98	104	106	101
Latvia	99	103	102	95	94
Lithuania	91	86	88	80	84

Source: Authors' calculations based on data from Eurostat, national statistical offices and Estonian LFS. The private and public sector wages for Latvia and Lithuania are from the national statistical offices, the data for Estonia are calculated from the LFS data.

to gross wages, net wages were further reduced in Latvia due to the reduction of the tax-free allowance and the introduction of progressive income taxation. Aslund and Dombrovskis (2011) argue that in Latvia the real wage reduction was probably larger in the private sector than shown by official statistics due to the abandoning of the fringe benefits (that did not enter official statistics). Table 3.6, however, tends to show that private and public sector wages have been converging over the past few years.

It is noticeable that the wage gap was initially in favour of the private sector in Estonia, while in Latvia and Lithuania it favoured the public sector. Latvia's higher public sector wages pertain first of all to public administration, but to a lesser extent also to education and health. For all countries we can note that public administration has relatively higher, and both health and education relatively lower wage rates. Concerning the public–private gap in health and education, in Latvia the public sector had higher wages during 2006–08, but during the crisis the private sector had higher wages. The numbers reflect the tendency observed elsewhere that the public sector suffered from the crisis relatively more in Latvia.

The private–public⁴ sector pay gap in Estonia has been analysed in more detail by Leping (2005). The study showed that the dynamics of public and private sector wages have been quite similar in Estonia. At the end of the Soviet period and during the early transition, wages were higher in the private sector than in the public sector (something similar was found by Adamchik and Bedi (2000) for Poland in 1996). Later the wage differences between the two sectors decreased. Public sector wages exceeded private sector wages in 1999 when the Baltic states were hit by the Russian crisis. From 2002 to 2005 wages were higher in the private sector. Leping (2005) also analysed the wage differences with quintile regressions. The results showed that in the case of low-wage employees the potential wage level is similar in both the public and the private sectors, but in the case of high-wage employees, the private sector offers much better wage opportunities. The wage premium from working in the public sector for low-wage employees (10th percentile) declined from 8.5 per cent in 2001 to zero in 2004. The wage penalty from working in the public sector for high-wage employees (90th percentile) increased from 4 per cent in 2001 to 11 per cent in 2004. Our analysis reveals a private sector pay penalty for those with a higher education.

Table 3.6 reveals that the period after the one analysed by Leping (2005) is characterized by wage dynamics closely following macroeconomic fluctuations. While in 2005 public sector wages were higher, during 2006–08 wage growth in the public sector was unable to keep pace with the rapid wage growth in the private sector. The recession in 2009 turned the gap in favour of the public sector again (although there were wage

cuts both in the private and the public sectors). The recovery in 2010 tends to move the balance more in favour of private sector again because there are signs of wage pressure there. It has been declared in Estonia's State Budget Strategy that public sector wages will not increase before 2014. This has increased tensions (see Section 6 on industrial relations). Thus we may conclude that wage dynamics have rather been led by the private and public sectors responding to pressures, rather than the public sector wage increases creating an upward pressure on wages in the private sector.

4.2 A High Gender Pay Gap

Especially in Estonia the gender pay gap deserves attention due to its size: it is one of the largest in Europe. Econometric analysis using LFS data for 2000–08 showed that the gender pay gap was 23 per cent in the public sector and 31 per cent in the private sector. In the private sector the gap was higher in foreign-owned than in domestic enterprises (38 and 29 per cent, respectively), and the same applied to the unexplained part of the wage gap (18, 23 and 31 per cent, respectively, of private sector wages). To a certain extent that is explained by the generally higher wage inequality in the private sector. The gender pay gap was smaller for trade union members (Anspal et al. 2010). The lower wages of women are attributable to the fact that certain relatively low-paid occupations are female dominated. In most OECD countries teachers and nurses tend to earn less than the average university-educated adults, and Estonia is even further below the OECD average on this indicator.

4.3 Low Pay Dynamics in the Public Sector

As we saw, the public–private sector wage gap may be less informative as it does not reveal the wage distributions within the public and private sectors, for instance the share of low-paid employees. For example, while in general in Lithuania wages have been higher in the public sector, at the same time the Lithuanian public sector also has a group of extremely low-paid public sector employees (health-care professionals, cultural and artistic workers; EWCO 2010). The story seems to be that even within the public sector, wage inequality is quite large. The numbers from Estonian LFS data in Table 3.7 reveal that the increase in the share of low-paid employees during the crisis years can be attributed rather to the private sector, while in the public sector the share is actually declining. While generally the share of low-wage employees is lower in the public sector, similar to the private sector the proportion is twice as high among women,

Table 3.7 Share of low-wage employees in the public and private sectors, Estonia, 2005–2010

Sector	2005	2006	2007	2008	2009	2010
Private sector	0.29	0.28	0.28	0.27	0.32	0.33
Private sector, females	0.39	0.39	0.41	0.40	0.44	0.41
Private sector, males	0.19	0.18	0.17	0.15	0.21	0.26
Public sector	0.23	0.27	0.29	0.30	0.27	0.25
Public sector, females	0.29	0.33	0.34	0.36	0.32	0.28
Public sector, males	0.10	0.13	0.17	0.15	0.14	0.16
All	0.27	0.28	0.28	0.28	0.31	0.31

Source: Authors' calculations based on Estonian LFS data.

illustrating again the importance of considering gender issues when discussing the public sector labour market.

4.4 Higher Wage Compression in the Public Sector

Naturally, we would expect the wage distribution to be more compressed in the public sector, where wages are more regulated (defined pay scales). Thus it would be helpful to look at the wage gap by percentiles (Table 3.8). For males, working in the public sector seems to be more beneficial for low-wage earners, while among high-wage earners in most periods the gap has favoured the private sector. Among females, the gap has been in favour of the public sector among both low- and high-wage earners, while it is higher among high-wage earners: in other words, the picture is the opposite of that of males. Part of the story could be Estonia's high gender wage gap, which is a lot lower in the public sector. But generally these results seem to be well in line with evidence from other countries. In Estonia, the impact of the unions is low in both the private and public sectors. Collective bargaining has been more widespread in sectors such as health care and education, which are mostly part of the public sector, and also in transport, energy and mining, which belong both to the public and private sectors (Masso and Eamets 2007). Thus the low unionization in Estonia should reduce the importance of the wage gap between private and public sectors (Leping 2005).

One factor contributing to inequality is that the Estonian government has a delegated system of human resource management and a strong performance orientation (performance-related pay). Concerning wage inequality in the public sector, the OECD (2011c) notes that in public services it should be similar to other countries (middle managers earn 1.5

Table 3.8 Wage inequality: net hourly wages in the public and private sectors, Estonia, 2005–2010

Group	Sector	Statistic	2005	2006	2007	2008	2009	2010
Females	Private	p10	14.12	16.37	19.49	23.71	23.54	22.74
	Public	p10	15.30	16.82	19.68	23.71	23.87	25.39
	Public/ private	p10	1.08	1.03	1.01	1.00	1.01	1.12
	Private	p90	41.19	50.58	59.05	71.14	74.11	73.82
	Public	p90	51.49	54.37	63.97	77.07	82.42	73.82
	Public/ private	p90	1.25	1.07	1.08	1.08	1.11	1.00
Males	Private	p10	15.89	18.91	24.41	29.64	26.68	24.61
	Public	p10	19.84	23.14	24.80	29.64	29.64	27.05
	Public/ private	p10	1.25	1.22	1.02	1.00	1.11	1.10
	Private	p90	58.85	72.69	91.53	106.71	107.90	112.20
	Public	p90	58.85	65.00	76.77	94.86	100.78	118.11
	Public/ private	p90	1.00	0.89	0.84	0.89	0.93	1.05

Note: P10 and p90 denote, respectively, the 10% and 90% quintiles of the wage distribution.

Source: Authors' calculations based on Estonian LFS data.

times more than economists). On the other hand, unlike in most OECD countries, in Estonia the wages of public sector workers are made public, which should contribute to transparency and leave less room for discrimination (such as gender inequality).

High intersectoral labour mobility (see Table 3.3), on the one hand, could lower the monopsony power of public sector employers, which should increase wages in the public sector, but on the other hand, the low geographical mobility of labour decreases public sector wages, especially in peripheral regions (Leping 2005).

4.5 Some Econometric Findings on the Public Sector–Private Sector Wage Gap

As a final step in the analysis of the public–private sector wage gap, we ran quintile regression models. We estimated the wage gap for the 10, 25, 50, 75 and 90 percent quintiles, and as a robustness check we also estimated the usual mean OLS regression. The list of explanatory variables includes

the usual ones deployed in wage equations: age, tenure, firm size, education, occupational categories, dummy part-time employees, gender and location. The results presented in Table 3.9 show again that the public sector compresses the wage distribution: working in the public sector increases the wages of low-wage employees, but lowers the wages of high-wage employees. For 2005–07, the estimated wage gap was on average –3.8 per cent, with +6.9 per cent in the lowest percentile and –10.4 per cent in the highest percentile. In 2009, the three numbers for the gap were just +1.6, +7.8 and –4.6 per cent, in other words, the effect of changing the balance in favour of the public sector was felt in both the lower and upper parts of the wage distribution.

Employees with a university degree benefit from working in the public sector in the case of lower quintiles (+6.7 per cent in the lowest 10 per cent), but lose out in the case of higher quintiles (–11.2 per cent in the highest 10 per cent), which is a result similar to Leping (*ibid.*). What is potentially worrying is that the gap in the highest 10 per cent has even widened (although generally the public sector has become more attractive during the crisis). Workers with secondary-level education, on the other hand, lose out from working in the public sector in the highest quintiles (although many of the estimates are statistically insignificant, especially during the crisis). The results for employees with primary-level education could also be driven by the relatively small number of employees in this group. The issue remains whether the public sector offers other non-wage advantages (fringe benefits, more stable job relationships) that compensate for wages.

With regard to gender, Leping (2005) found for 2003 that women benefit more, or actually lose less, from working in the public sector than men in the case of most quintiles. In our data, however, the contrary emerges: working in the public sector is more to the benefit of males: for mean regressions the wage gaps for 2005–07 were –7.1 and –1.9 per cent, respectively, and in 2009 –2.1 and 5.3 per cent. It seems that there are some specifically female-oriented jobs that are relatively low paid (such as teachers). Thus the public sector is in this sense effectively not contributing enough to decreasing Estonia's high gender wage gap.

It should be reasonable to assume that in the public sector organizations personnel practices are based more on rules than in the private sector. However, case studies in the public sector organizations (Kallaste et al. 2010) indicate that the use of job evaluation means that bureaucratic regulations do not necessarily reduce subjectivity in wage determination. Vertical segregation seems to be important as well (there are more males in the top leadership), while in the private sector horizontal segregation was also quite important (males and females working in different occupations).

Table 3.9 Estimated size of the public-private sector wage gap from OLS and quintile regressions, Estonia

Quintile	Specification	2005–2007			2008			2009		
		Wage gap	T-stat.	Wage gap	T-stat.	Wage gap	T-stat.	Wage gap	T-stat.	
OLS	All	-0.038	(-3.86)***	-0.061	(-4.12)***	0.016	(1.36)			
OLS	Females	-0.071	(-5.48)***	-0.079	(-3.93)***	-0.021	(-1.47)			
OLS	Males	-0.019	(-1.28)	-0.054	(-2.47)**	0.053	(2.41)**			
OLS	Primary education	-0.071	(-3.84)***	-0.091	(-2.41)**	0.042	(1.30)			
OLS	Secondary education	-0.044	(-2.96)***	-0.056	(-2.86)***	0.013	(0.80)			
OLS	Higher education	-0.035	(-1.78)*	-0.089	(-3.03)***	-0.000	(-0.02)			
q10	All	0.069	(5.34)***	-0.012	(-0.43)	0.078	(3.80)***			
q10	Females	0.023	(1.66)*	-0.056	(-2.21)**	0.037	(1.27)			
q10	Males	0.095	(4.65)***	-0.016	(-0.52)	0.117	(5.45)***			
q10	Primary education	0.026	(0.94)	-0.057	(-0.86)	0.069	(1.68)*			
q10	Secondary education	0.057	(2.37)**	-0.043	(-1.39)	0.063	(2.52)**			
q10	Higher education	0.067	(1.71)*	0.017	(0.33)	0.103	(2.11)**			
q25	All	0.009	(0.83)	-0.050	(-2.56)**	0.038	(2.25)**			
q25	Females	-0.003	(-0.22)	-0.064	(-4.16)***	0.014	(0.96)			
q25	Males	-0.002	(-0.12)	-0.042	(-1.27)	0.083	(3.71)***			
q25	Primary education	-0.012	(-0.96)	-0.085	(-2.45)**	0.054	(1.58)			
q25	Secondary education	0.006	(0.27)	-0.059	(-3.10)***	0.023	(1.44)			
q25	Higher education	-0.044	(-2.71)***	-0.050	(-1.46)	0.037	(0.98)			

q50	All	-0.043	(-10.09)***	-0.059	(-3.35)***	0.007	(0.60)
q50	Females	-0.052	(-5.24)***	-0.054	(-2.55)**	-0.026	(-2.69)**
q50	Males	-0.039	(-2.88)***	-0.048	(-1.60)	0.030	(1.15)
q50	Primary education	-0.063	(-3.54)***	-0.134	(-3.73)***	-0.019	(-0.61)
q50	Secondary education	-0.046	(-3.56)***	-0.054	(-2.20)**	-0.007	(-0.35)
q50	Higher education	-0.050	(-1.75)*	-0.098	(-3.23)***	0.005	(0.15)
q75	All	-0.074	(-8.57)***	-0.079	(-3.46)***	-0.032	(-2.70)**
q75	Females	-0.094	(-7.06)***	-0.112	(-4.68)***	-0.073	(-4.31)***
q75	Males	-0.063	(-5.25)***	-0.047	(-1.42)	0.026	(0.98)
q75	Primary education	-0.113	(-4.38)***	-0.084	(-1.09)	0.007	(0.15)
q75	Secondary education	-0.059	(-3.45)***	-0.053	(-2.00)**	-0.019	(-0.77)
q75	Higher education	-0.084	(-2.53)**	-0.184	(-5.49)***	-0.055	(-2.24)**
q90	All	-0.104	(-6.67)***	-0.089	(-4.92)***	-0.046	(-1.73)*
q90	Females	-0.146	(-8.11)***	-0.142	(-3.18)***	-0.130	(-5.59)***
q90	Males	-0.066	(-3.31)***	-0.051	(-1.26)	0.011	(0.32)
q90	Primary education	-0.151	(-4.09)***	-0.063	(-0.59)	0.048	(0.59)
q90	Secondary education	-0.102	(-3.84)***	-0.045	(-1.19)	-0.025	(-0.88)
q90	Higher education	-0.112	(-2.99)***	-0.192	(-3.75)***	-0.199	(-4.37)***

Note: Reported are the parameter estimates from the quintile regressions on the hourly log wage. The list of other explanatory variables in the regressions includes age, age squared, tenure, tenure squared, four dummies for firm size groups, three dummies for education, eight dummies for one-digit occupational categories, dummies for part-time employees, gender and location (capital region). * Significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Authors' calculations based on Estonian LFS data.

Wages are determined by two systems supporting each other (legal acts, such as the Public Service Act, versus organizations' internal salary administration), that may make wage determination non-transparent for employees (another problem could be that the evaluation of occupations is carried out only for a subset of jobs). In practice, the statutory wage components (such as for workers with degrees, wages, tenure) were adjusted to make total pay correspond to the internal pay schemes without breaking the law. As a result, bureaucratic legislation does not necessarily reduce the gender pay gap automatically and the more equal pay in the public sector is rather due to internal job evaluation. Also, the positive example of the public sector could help to reduce the problem in the private sector (*ibid.*). Similarly, the study on the remuneration of public sector employees in Lithuania found that in the case of centralized remuneration, pay conditions could still vary greatly across the institutions as the remuneration of public sector employees is governed by a large number of different legal documents (EWCO 2010).

5. ADJUSTMENTS IN OTHER WORKING CONDITIONS DURING THE CRISIS

Compared to other adjustment mechanisms (wages and employment), adjustment through working time (mainly part-time employment and reduced hours) has been less important in the Baltic states, and the same applies for the public sector. However, at least in Estonia it has been quite substantial (from 2008 to 2009 average hours decreased by 3.8). In 2009–10 unpaid vacation leave was used to cut labour costs (see Masso and Krillo 2011). In public administration, working hours remained largely the same in 2008–09. One can see some reduction in hours in the health sector in all three Baltic countries and education in Estonia and an increase in part-time employment in Latvia (Table 3.10).

In addition to wages, the cuts in public expenditure also affected training. In sum, total training expenditure in all branches of the civil service decreased in 2009 by almost 60 per cent on average, but recovered in 2010 thanks to the more active use of foreign aid (EU funds, *Avaliku teenistuse aastaraamat 2011*). Training expenditure as a share of payroll decreased in the ministries from 2.5 per cent in 2008 to 1.5 per cent in 2009 and then increased again to 2.1 per cent in 2010. According to the Estonian LFS, the proportion of those who had participated in some kind of training during the past four weeks in 2008 was 2.8 per cent in the private and 7.7 per cent in the public sector; in 2009 both numbers increased somewhat. Thus, we would say that compared to the private sector the public sector

Table 3.10 *Adjustment in working time in the public and private sectors, Baltic states, 2008–2009*

Country	Industry	Average working hours at main job			Share of part-time employees		
		2008	2009	Change 2008–09	2008	2009	Change 2008–09
Estonia	Public admin.	39.4	39.2	–0.2	2.9	2.2	–0.7
	Health	38.3	37.9	–0.4	14.1	11.8	–2.3
	Education	35.6	34.9	–0.7	12.7	13.1	0.4
	Total	39.1	37.6	–1.5	7.2	10.5	3.4
Latvia	Public admin.	39.0	39.1	0.1	3.7	4.2	0.5
	Health	39.1	38.5	–0.6	7.6	10.1	2.5
	Education	36.3	36.3	0.0	9.0	8.4	–0.6
	Total	39.4	38.8	–0.6	6.3	8.9	2.6
Lithuania	Public admin.	40.0	39.9	–0.1	2.3	1.6	–0.6
	Health	39.3	38.4	–0.9	5.1	5.9	0.9
	Education	35.6	35.5	–0.1	11.0	9.7	–1.3
	Total	39.2	38.6	–0.6	6.7	8.3	1.6
EU27	Public admin.	36.8	36.7	–0.1	12.9	12.9	0.0
	Health	33.9	33.9	0.0	31.4	31.6	0.2
	Education	32.0	31.9	–0.1	25.2	25.7	0.5
	Total	37.3	36.9	–0.4	18.2	18.8	0.5

Source: Eurostat, Authors' calculations.

suffered less from training cuts as the private sector did not have a similar possibility of funding training expenditure from structural funds.

The Estonian LFS in 2007–08 also includes questions about the work environment. Generally, in the public sector satisfaction with different aspects of working conditions (work safety, intensity, health, work environment) is higher than in the private sector: in general the share of employees rating working conditions good or very good was 10 percentage points higher in 2007–08. Concerning unequal treatment at work (information was gathered only in 2008), during the past five years with regard to all aspects in the public sector fewer employees had experienced unequal treatment; the differences were greatest concerning the distribution of work or shifts (2.7 per cent in the private versus 1.2 per cent in the public sector), but perhaps somewhat surprisingly the percentage with experience of discrimination was quite low for all aspects. A more important issue in the public sector seems to be unpaid overtime (in 2008, 0.7 per cent in the private and 1.7 per cent in the public sector), especially in the education

sector. Unfortunately due to lack of data for later years it is not possible to see, for example, the influence of public sector cuts on these issues.

6. INDUSTRIAL RELATIONS DURING THE CRISIS

In Estonia, in which the level of unionization is generally low, the public sector is significantly more unionized than the private sector, especially in education and health care where the union membership rates are above 20 per cent (see Table 3.11). As also indicated in previous studies (Osila 2011), union membership is much lower in the public administration. For comparison, the public administration in Latvia is characterized by very high coverage of collective agreements of more than 80 per cent, with sectoral unions (Curkina 2011). In Latvia it has been observed that the economic crisis has led to the softening of the rules of collective bargaining. While there are some estimates on unionization rates, it is difficult to estimate collective bargaining coverage; in Estonia the estimate from ROTAL⁵ was that the agreements in force in 2008 covered 4,080 employees (7 per cent of employment). During the crisis, union membership has remained fairly stable in Estonia.

Unlike many other European countries, wage cuts did not lead to large-scale protests in the public sector in Estonia. The government declared that public sector wage cuts are necessary to balance the state budget and to avoid heavy state borrowing and massive lay-offs. Therefore, wage cuts were accepted by public sector trade unions and employees without major opposition. Wage reductions were seen as a better solution than the other alternative (massive lay-offs).

On 25 June 2009, the Estonian government approved the draft acts to cut the wages of many public sector workers. The changes were

Table 3.11 Union membership in the public and private sectors, Estonia, 2005–2010 (%)

Industry	2005	2006	2007	2008	2009	2010
Total economy	9	8	8	6	8	9
Public sector	21	21	20	17	19	20
Private sector	4	4	3	2	3	4
Public administration	4	4	4	4	6	5
Education	26	25	20	19	21	19
Health care	22	24	24	16	22	29

Source: Authors' calculations based on Estonian LFS.

implemented quite easily and without hostile reactions on the part of trade unions. Teachers' wages were decreased by 4 per cent, back to 2008 levels. Minimum wages of prosecutors were decreased by 6 per cent, and the wages of police and border guards by 8 per cent. Support for recruits was decreased by 8 per cent, and the wages of members of the armed forces that exceeded the minimum wage were cut by 8 per cent.

Unlike in Estonia and Latvia, where the governments were able to implement measures unfavourable to public sector employees quite easily (in Latvia several protest actions followed the government decision to implement budget cuts and wage reductions in the education sector: see Curkina (2009) for more details), Lithuanian trade unions reacted to the government plans more actively. At the beginning of 2009 the trade unions (both public and private sector) organized a protest action in response to the government's unwillingness to discuss on a programme that the unions found to be inadequate in light of the economic and labour market situation. As no satisfactory response came from the government, on 16 January 2009 trade unions organized a general protest action in which 5,000–7,000 people participated (Blaziene 2009a). The next strong reaction followed in July 2009 in response to the government decision on 17 June 2009 to cut the basic nominal monthly wage in the public sector without consulting the trade unions.

The basic weekly wage⁶ was to be reduced from LTL 128 (about €37) to LTL 115 (€33) in the public sector. The pay cut was planned to enter into force on 1 August 2009 and would have affected about 230,000 public sector employees, most of whom were relatively low paid. The Lithuanian Trade Union Confederation (LPSK) reacted by adopting a 'Declaration regarding the inconsiderate and unreasonable policy implemented by LRV' on 19 June. As the government ignored LPSK's warning, a hunger strike was organized on 2 July 2009 in Independence Square in front of the parliament buildings. The government and LPSK agreed that, while a cut in public sector wages was unavoidable, the biggest burden should be assumed by the highest-paid public sector employees. In the end, it was agreed with the trade union representatives that the government would cancel its decision to reduce the basic monthly wage with effect from 3 July. As a result, LPSK stopped the hunger strike action on 3 July. As promised, the main burden of the salary decrease was placed on the highest-paid public sector employees, including lawyers and state officials. Pay rises for civil servant qualification grades were cut on a temporary basis from 1 August 2009 to 31 December 2010: more specifically, by 10–15 per cent for the third (lowest) qualification rating and by 30–50 per cent for the first (highest) qualification rating (Blaziene 2009b). In October 2009, four sectoral trade unions and the Pensioners' Party simultaneously

launched five protest actions near the parliament and four government ministries. The protests arose due to dissatisfaction with the government's policy of seeking to match budget revenue with expenditure, which resulted in significant wage cuts for public sector employees.

In Lithuania, in response to the trade union actions, a national agreement was signed by the government and national peak social partner organizations at the end of October 2009. In the agreement, economic, administrative and social commitments were stipulated (for more details, see Blaziene 2009c). From the public sector perspective the most important issue was job losses. The national agreement was widely criticized by independent experts and opponents, who argued that the accord was void and that it met the interests only of its signatory parties rather than those of the public. At the beginning of 2011 a discussion was initiated to renew the agreement. Among other things, employers criticized the government for delays in reducing the number of civil servants.

It may be surprising that in Estonia no strikes were called during the crisis when austerity measures were introduced, but took place later during the recovery. Although the State Budgetary Strategy for 2012–15, approved in late April 2011 by the government, prescribes zero growth in the operating costs of state institutions for the next four years, in light of the recovery, union pressure to increase wages has strengthened. Since independence Estonia has had only a few strikes and the teachers' strike in March 2011 was the most widespread in the country's post-war history. The reason for the strike was the refusal by the Ministry of Education and Research to raise basic wages by 20 per cent in 2012. The three-day strike involved about 15,000 education workers. The support strikes were organized in several other sectors, such as medicine, transport, road workers and power plants. The strike drew attention to the longstanding problems of teachers' relatively low wages and high workload, including unpaid overtime. The ministry's position is that funds for the pay increase should be found from the education system due to Estonia's already relatively high level of education expenditure as a share of GDP (in 2008, 5.67 per cent of GDP, versus 5.07 per cent in the EU27), for example, through reforming the school network and closing those with fewer pupils.

The recent State and Local Government Authorities Industrial Relations Study (Praxis, University of Tartu 2011) covered many aspects of the public sector industrial relations system in Estonia. Seventy-two interviews with different target group representatives (employers, trade union representatives, employees' representatives, trade union confederations and employers' confederation) were carried out during the study. Interviews showed that the fact that trade unions largely just accepted government pressure to cut wages and implement unpaid leave also indicated

to people that the unions are weak as regards protecting their members' interests. Several interviewed trade union representatives also emphasized that their bargaining power to resist the crisis measures was weaker than that of the employers (see Table 3.12). Although the wage cuts and unpaid leave were clearly not in workers' interests, the employees' representatives agreed to them because the alternative proposed/considered (lay-offs) by the employers would have been even worse. On the other hand, in some state agencies where problems were especially acute during the crisis (for example, the Estonian Rescue Board) workers decided to join forces to demand a pay increase and improvements in other working conditions (see Case Study 2, below).

In the interviews the trade union representatives also pointed out that one negative side-effect that influenced union membership during the crisis was the union membership fee. As wages decreased and the ability of the trade unions to protect their members' interests remained weak, it persuaded people to withdraw from the trade union.

Another interesting impact of the crisis was the fact that the employers – that is, the heads of public sector institutions – admitted that their ministry had pressured them during the crisis to abandon the collective agreement in force before the crisis. There were several cases in which the collective agreement was terminated because the ministry had forced the head of the institution to take that step. Several heads and employees' representatives of public sector institutions admitted in interviews that it was not possible to provide employees with the benefits laid down in the collective agreement during the crisis. In some institutions the changes were made to the collective agreement, while in others changes were agreed orally between employers and employees' representatives.

7. IMPACT ON THE PROVISION OF PUBLIC SERVICES

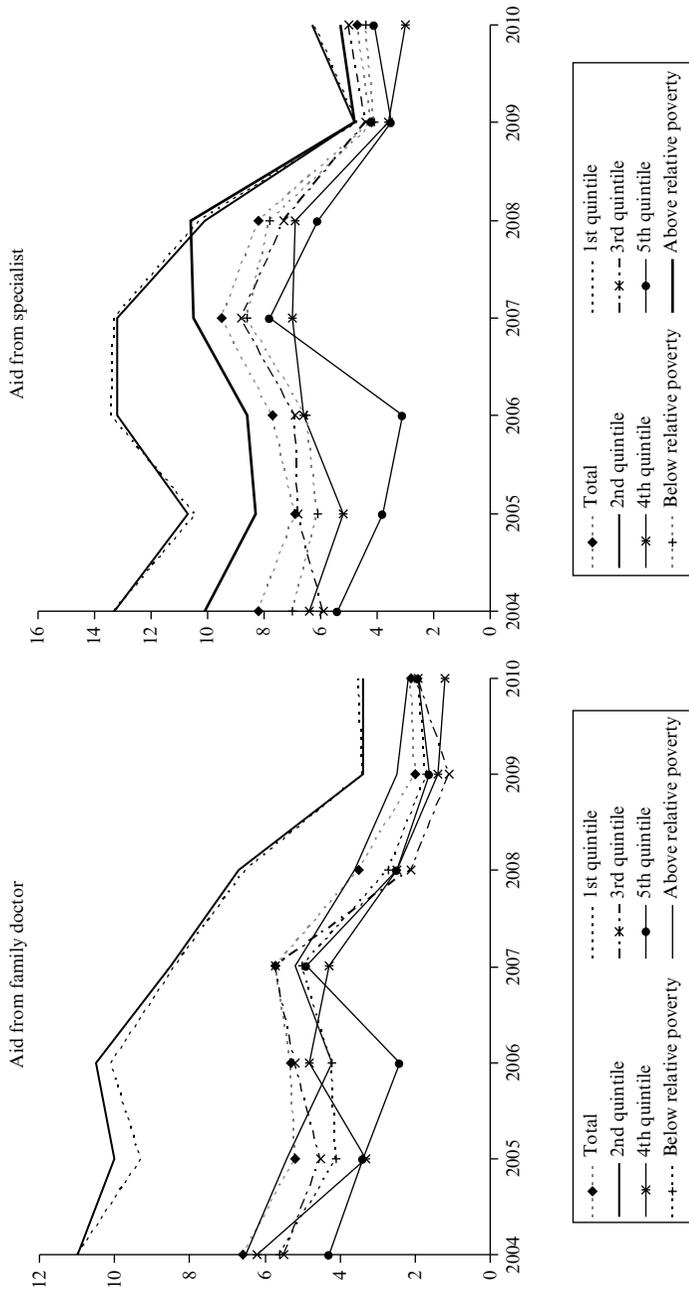
The economic crisis has also affected the accessibility of health-care services. Thus it is the topic of Case Study 1 (Section 8.1). Figure 3.2 presents data from the Estonian social survey on the self-reported numbers of people not receiving medical aid. The figure indicates that while for family doctors the more or less continuous improvement came to a halt in 2010, in the case of specialists (consultants) the situation became even worse.⁷ Furthermore, own estimates of health were quite stable during 2005–10; among those below the poverty line they actually improved (the percentage of people considering their health good or very good increased during 2008–10 from 32 to 45 per cent). Concerning other countries, in Latvia

Table 3.12 Unionization of Estonian, Latvian and Lithuanian public sectors

Sector	Estonia	Latvia	Lithuania
<i>Unions with membership</i>			
Public administration	Estonian Employees' Unions' Confederation (TALO) – in the sector 167, total 11,729	LAPA – Latvian United Trade Union of Police workers – 1,700; Trade Union of Employees of State Institutions – 4,620; Trade Union of Employees of Local Governments – 1,352	Lithuanian Trade Union of Civil Servants (LVTPS) – 3,180; Lithuanian Trade Union of Constables and Police Employees (LVRSRPS) – 3,000
Education	Estonian Education Personnel Union (EPU) – 10,538; Association of Intellectuals – 1,500; Federation of the Estonian Universities, Institutions of Science, Research and Development – 1,247	Latvian Education and Science Workers' Trade Union (LIZDA) – 35,844 (2010)	Lithuanian Teachers' Trade Union (LMPS) – 1,800; Lithuanian Education Employees' Trade Union (LŠDPS) – 12,000; Christian Trade Union of Education Workers (KŠDPS) – 1,040; Federation of Lithuanian Education and Science Trade Unions (LŠMPSF) – 7,479
<i>Density</i>			
Density in education, 2008	22.4%	48.3%	15.4%
Density in public administration, 2008	0.4%	8.9%	3.0%

Density in hospitals, 2006 Bodies to refuse the conclusion of collective agreements	78.0% Several ministries, local governments	57.0% Police	3.0% Ministry of Interior; organizational level in education (school principals reluctant to recognize unions)
<i>Collective bargaining coverage</i> Public administration	ROTA ca 7%	No data	Enterprise-level agreements ca 10% of civil servants Organizational level, no valid sectoral level
Education	Difficult to estimate due to different levels, but high	93% of LIZDA members covered by collective agreement	
<i>Levels of bargaining</i> Public administration	Sectoral, multi-employer, enterprise level	Organization level	Enterprise level only
Education	Sectoral, multi-employer, enterprise level	Organizational (universities), sectoral level	About 20–30% (estimate)

Source: Authors' compilation based on data from EIROOnline.



Source: Statistics Estonia, based on Estonian social survey. Availability of medical aid: the people not receiving medical aid are those who during the past 12 months needed medical aid, but for some reason did not get it.

Figure 3.2 Percentage of people not receiving medical aid, Estonia, 2004–2010

the situation somewhat worsened in 2009 (from 6.9 to 8.1 per cent due to excessive costs); generally Latvia seems to have by far the highest values on this indicator (in Estonia and Lithuania the figures are just 0.8 and 0.7 per cent of surveyed individuals, respectively).

One interesting example illustrating the negative effects of the crisis on the provision of public services is the programme 'A kindergarten place for each child', which was halted by the Estonian government in 2009. The programme started in 2007 and was aimed at helping local governments to solve the problem of lack of kindergarten places. According the Pre-school Child Care Institutions Act (passed 18 February 1999), a rural municipality or city government will provide all children from one to seven years of age whose residence is in the administrative territory of the given rural municipality or city and whose parents so wish, the opportunity to attend a childcare institution in the catchment area.

In 2008, €14.4 million was budgeted for the programme, €9.6 million of which was distributed to local governments (75 million EEK for improving the educational environment and €4.8 million for wages if the minimum wage of a kindergarten teacher who had a higher education was equal to a municipal junior school teacher's minimum wage and the minimum wage of a teacher with vocational education was equal to at least 85 per cent of the junior pedagogue's minimum wage); €4.8 million was project-based support for local governments that started building a new kindergarten facility or to renovate the existing building so that new kindergarten places were developed. Before halting the programme, five kindergartens were built with state support (Peterson 2010). Nevertheless, despite the fact that the programme was frozen in 2009, it was still possible to increase the number of kindergarten places because local governments can get support for this activity from structural funds. However, since the crisis severely hit the revenue base of local governments, it has been difficult to provide the necessary self-financing and therefore the goal has not been reached. The issue has been on the media agenda because of the government's decision to halt the programme, but so far no steps have been taken to restart it.

Concerning education, given that pupil/teacher ratios and average class sizes were at relatively low levels before the crisis in Latvia and Lithuania (but not so in Estonia, see Table 3.13) caused by declining birth rates, it is more difficult to find arguments that the employment cuts worsened the situation in education. The other issue concerns the wages of teachers. Similarly, in the health sector the number of hospital beds per 100,000 inhabitants in Estonia was at the level of other EU countries, while Latvia and Lithuania exceeded it considerably. Thus, one may find some arguments here that there was indeed room for consolidation in the Latvian health-care sector without threatening the provision of health care at the required level.

Table 3.13 Education and health sector indicators, Baltic states, 2006 and 2009

Country	Beds per 100,000 inhabitants		Ratio of students to teachers, ISCED 1–3		Average class size, ISCED 1		Average class size, ISCED 2	
	2006	2009	2006	2009	2006	2009	2006	2009
Estonia	565.3	550.9	13.3	16.3	19.3	18.1	23.1	20.1
Latvia	690.7	543.9	11.2	10.6	14.8	15.1	18.0	16.3
Lithuania	758.6	682.4	9.0	8.0	14.8	14.9	21.7	20.6
Hungary	792.1	715.0	10.9	11.4	20.0	20.7	21.4	21.7
Poland	647.5	665.0	12.1	11.4	20.1	18.7	24.7	23.3
France	704.7	660.5	14.2	14.6	22.5	22.7	24.3	24.5
Germany	829.1	822.9	17.2	16.6	22.1	21.7	24.7	24.7
UK	356.8	330.2	15.6	15.8	24.5	24.5	22.4	19.6

Source: Eurostat.

The Latvian government carried out significant reorganization in health care, with large-scale job losses, reduced services and merging institutions. The government decided to close several hospitals and closed about a hundred schools, with 2,400 teachers laid off (thereby bringing the pupil/teacher ratio to more reasonable levels: Aslund and Dombrovskis 2011).⁸ The number of civil servants was reduced by 8,000 and half of the 75 state agencies were closed down. It was easier to implement administrative reforms as most people supported the idea of fewer bureaucrats. The positive impact of the austerity measures was that because the cuts needed to be selective, the macroeconomic crisis accelerated reforms, for example, in health care, education (too many institutions of higher learning) and local government (ibid.). The very difficult situation in Latvia made it easier to undertake reforms, some of which, like the one pertaining to local government, have still not been undertaken in Estonia for political reasons.

8. CASE STUDIES

8.1 Case Study 1: Changes in the Accessibility of Health-care Services as a Result of the Crisis

8.1.1 Introduction

The Estonian health-care system has undergone significant changes since independence in 1991. In 1990, Estonia had about 120 hospitals with

about 14,000 acute care beds. In the early 1990s, the main aim of the health sector reform was to move away from a Semashko-type – a radically supplier-oriented system financed by the state budget and controlled by the state by central planning, with no private suppliers – health-care system to a decentralized and market-forces-driven system. During the second half of the 1990s the changes were more incremental. The legal environment was rearranged to increase efficiency and transparency. An important milestone in hospital sector reform was the development of the Hospital Master Plan 2015 (adopted in 2003) to make projections about future hospital capacity. The plan suggested that the number of acute in-patient beds be reduced by two-thirds and that acute in-patient care be concentrated in larger hospitals, decreasing the total number of hospitals through mergers and other types of restructuring, by three-quarters (from 68 to 15⁹) by 2015 (Habicht et al. 2006).

According to the Health Care Services Organization Act that entered into force in 2001, all public hospitals had to be incorporated in private law as foundations or joint-stock companies. As a result, all public hospitals began to act under private law, having full managerial rights over assets and access to financial markets, but at the same time giving them full residual claimant status. In addition, the Estonian Health Insurance Fund (EHIF) was established through special legislation as a public independent legal entity with seven regional departments and replaced the previous system of regional and central sickness funds (EHIF 2011).

Today, Estonian health insurance is based on social insurance and the system relies on the principle of solidarity: the EHIF covers the cost of health services required in case of illness regardless of the amount of social contributions paid. The Fund also uses the social contributions paid by the working population to cover the cost of health services provided to persons with no employment income. For the health services provided to the persons benefiting from insurance cover, the EHIF pays the health-care institution on the basis of the reference price fixed by the government and indicated in the Fund's list of health services (*ibid.*).

Nevertheless, the implementation of health sector reform has been prolonged and therefore criticized. The National Audit Office 2010 audit concludes that the active treatment hospital network set out in the hospital network development plan is too big and unsustainable, because not all hospitals will have enough patients, qualified doctors or money for hospital improvements in the future. The audit criticizes the ministry, saying that the lack of clear decisions by the Minister of Social Affairs on the hospital network required has damaged the interests of the state as well as hospital managers (National Audit Office 2010). In the overview of the use and preservation of state assets in 2010, the National Audit Office

emphasizes that although the Minister of Social Affairs admitted at the time that the hospital network is not optimal or sustainable in the use of both human and financial resources, the minister has not taken any significant steps to reform the hospital network after the audit. The government's action programme for 2011–15 approved in spring 2011 does not mention reforming the hospital network at all. The main conclusion is that the hospital network needs reform and the GP system needs development (National Audit Office 2011).

8.1.2 Study design

When designing the case study, the research team used data from the EHIF, interviews and media analysis. Interviews¹⁰ were done with representatives of the following institutions: the EHIF as an institution responsible for funding decisions in the health-care sector; the Estonian Hospitals' Association as the union established for representing common interests in health-care matters and arranging cooperation between hospitals;¹¹ and one large and two smaller hospitals¹² to cover the hospitals' side as well.

Interview plans for the EHIF and the Estonian Hospitals' Association were more general than those for hospitals. In the former the questions were asked at societal level; in the latter the focus was on measures implemented by hospitals to cope with the negative effects of the crisis. The questions asked focused on the following issues: the most important measures taken during the crisis (2009–11), reasons why those measures were chosen and which other alternatives were considered and whether it would have been possible to achieve the necessary cost savings more effectively with other measures.

8.1.3 Decreasing the amount of services provided

To cope with the negative effects of the crisis, the EHIF made the following decisions:

- in March 2009 the EHIF increased the maximum allowed duration of waiting time for ambulatory specialized medical care (excluding day-care surgery) from four to six weeks (the four-week period had been stable from 2002 when the time limit was first set);
- in 2009 the quantity of planned stationary services (for example, operations that can be planned for a longer period ahead) was decreased by 4 per cent; and
- in 2010 the reference price of all health-care services was decreased by 6 per cent.

Hannes Danilov, the head of the EHIF, commented that in the difficult budgetary situation the first measure was necessary to keep the level of

services at the same level: 'This year [2009] we cannot increase the number of treatment cases due to the stringent budget, but it is likely that the demand increase will continue and therefore we are forced to increase the length of waiting lists' (Board of the Estonian Health Insurance Fund 2009). The increase in the maximum allowed waiting time helped to save funds as less medical treatment was provided. According to Danilov, the second measure was used because until 2008 access to the service was rather good (waiting period was 1–1.5 months) and the decrease did not reduce accessibility considerably. Due to the development of technology and improvements in treatment methods it is increasingly possible to provide such services as ambulatory or in the form of day care. Reference prices were cut because lower costs were planned for health insurance in the state budget. In the opinion of Danilov the steps taken were the best choices when taking into account the difficult situation faced. Accessibility to health-care services decreased somewhat, but not drastically and most important health-care functions – such as emergency medical care – are at a decent level.

8.1.4 Hospitals' strategy of reducing staff costs

The changes undertaken directly influenced the revenue base of the hospitals. Hospital representatives admitted in their responses that in terms of fixed costs efficiency has been achieved long ago and there was no room to decrease those costs in order to cut costs during the recession. To some extent it was possible to do things more cheaply; however, this meant a decrease in service quality because it was more uncomfortable for the patient and more labour intensive for hospital staff. Control over the procurement and use of medical equipment was strengthened. In some hospitals, investments in construction work and repair were postponed until the recovery.

Another fairly extreme option would have been to close down less-profitable departments; however, this option was not used (at least not in hospitals included in the survey) because there was a general feeling that it would be very difficult to open them again when times got better, for several reasons (staff would leave and it would be difficult and costly to rehire and retrain good specialists; clients would get used to using the services of other service providers; EHIF contracting policy is based on previous policy and therefore it would be difficult to make a fresh start).

Therefore, staff costs were the main source of cutting costs. Hospitals included in the survey used different strategies to cut staff costs. In one of the largest hospitals in Estonia there were no lay-offs. Since the base wages of the medical staff are regulated in the collective agreement signed by the government, the Estonian Hospitals' Association, the Estonian Nurses' Union and

the Federation of Estonian Healthcare Professionals' Unions and in most cases minimum levels are paid (see Masso and Krillo 2011 for more details), it was not possible to decrease basic wages. Therefore, mostly bonuses were decreased. On the average, wages were reduced by 9 per cent for all employees. The hospital management of the large hospital therefore decided not to use part-time work and non-paid leave because the resulting cost savings would have been modest. In one smaller Estonian hospital wages were decreased by at least 10 per cent, mainly by cutting bonuses and minimizing overtime. To decrease the basic wage, changes in individual employment contracts were made in 2010. Therefore, the strategies used were similar to the larger hospital in this case. However, another smaller hospital laid off pension-aged staff, optimized the use of overtime and, where possible, used unpaid leave in 2010. In this hospital wages were not decreased.

8.1.5 Turnover and emigration in response

The reactions of medical staff to the budget cuts varied. According to hospital representatives, the most important trends that emerged during the recession were as follows. First, working in other medical institutions increased. The head of one smaller hospital admitted that a very important reason for the worsening of accessibility to medical services was the lack of medical staff (especially doctors) who quit on their own initiative. Second, the representative of a large hospital said that doctors who could speak Finnish started to look for jobs in Finland. This trend emerged approximately a year after the start of the recession and peaked in 2011 (for example, in this hospital approximately 2.5 per cent of doctors left to work in Finland). Unfortunately, there are no national-level data available to enable us to estimate how many Estonian doctors have emigrated during the recession.

8.1.6 Decreases in service accessibility

The number of persons on the waiting list for doctors' appointments has increased considerably in recent years, even before the crisis (see Table 3.14). This applies to all kinds of services: specialized medical care, health care and dental care. During the 2005–11 period, the number of persons on waiting lists increased by almost 70 per cent. The increase was particularly high in ambulatory specialized care and ambulatory medical rehabilitation. It is important to note that in most services the trend has not reversed during the crisis, the exceptions being day-care surgery and procedures where the number of people on waiting lists decreased during the boom and has increased in recession time; and in-patient health care and orthodontia which have shown a pro-cyclical trend. In ambulatory medical rehabilitation, the number of persons on waiting lists has also

Table 3.14 Number of persons on waiting lists for medical care, Estonia, 2005–2011

	2005	2008	2009	2010	2011	Change 2005–11 %	Change 2005–07 %	Change 2008–11 %
Total	171,746	224,563	249,921	259,227	289,077	68	30	29
Specialized medical care								
Ambulatory specialized medical care	128,882	179,132	207,761	218,979	244,997	90	41	37
Day-care surgery and procedures	3,699	3,213	3,041	3,428	3,801	3	-11	18
In-patient medical treatment	12,414	12,365	11,972	9,603	9,098	-27	-28	-26
Ambulatory medical rehabilitation	2,545	3,799	3,292	4,048	5,740	126	6	51
In-patient medical rehabilitation	1,236	1,356	1,413	1,308	1,645	33	14	21
Health care								
Ambulatory health care	306	492	591	496	776	154	23	58
In-patient health care	620	992	748	715	877	41	24	-12
Dental care								
Persons with a child under 1 year or who are engaged in day-time studies	16,646	17,041	16,155	15,886	17,118	3	7	0
Orthodontia	5,398	6,173	4,948	4,764	5,025	-7	28	-19

Source: Estonian Health Insurance Fund.

Table 3.15 *Number of persons on waiting lists for medical care, by reason, Estonia, 2005–2011*

Reason for waiting list	2005	2008	2009	2010	2011	Change 2005–11 %
Total	171,746	224,563	249,921	259,227	289,077	68
Within permitted waiting period (that is, waiting no longer than permitted period)	115,023	130,825	154,372	151,310	174,888	52
Due to lack of financial resources*	1,347	54	1,998	1,244	2,002	49
Due to lack of capacity**/**	6,561	4,227	2,453	3,047	1,406	-79
Due to special requests of the patient (certain doctor or date of appointment)*	27,419	56,325	50,121	51,732	57,629	110
Due to follow-up inspection*	20,641	30,344	37,652	47,179	50,673	145
Other reasons*	755	2,788	3,325	4,715	2,479	228
<i>Share of those who get an appointment time within the permitted waiting period</i>	<i>67.0</i>	<i>58.3</i>	<i>61.8</i>	<i>58.4</i>	<i>60.5</i>	

Note: * Marked only if a person has waited longer than the maximum permitted waiting period; ** Lack of doctors and other staff, rooms, technical equipment and so on.

Source: Estonian Health Insurance Fund.

increased considerably during the recession compared to the period of economic growth.

The number of people who have to wait longer than the maximum period set by the EHIF has also increased during the crisis (see Table 3.15). While in 2005 two persons out of three got an appointment within the

permitted waiting period (four weeks), in 2008–11 the share was about 58–60 per cent.

8.1.7 Lack of doctors leading to lower capacity to respond to demand

The number of people who had to wait longer than the maximum waiting period set by the EHIF due to financial stringency increased by 37 times during the crisis and the problem has remained relevant during the recovery period. In 2011, the EHIF carried out two inspections of local and central hospitals, focusing on the specialist areas in which waiting periods are longest. The aim of the inspections was to ascertain the reasons for long waiting times in ambulatory specialized medical care and to find solutions. The results indicate that in August the main problem was lack of capacity due to a lack of doctors and unavailability of technical equipment and rooms. The staff problems were partly caused by the holiday season but partly they were permanent. In some hospitals there were problems with a lack of specialists. This problem was highlighted in both August and October. The heads of the hospitals where there were problems with staff indicated to the EHIF that they are actively seeking doctors but it is difficult to find good specialists. Another problem emphasized by the hospitals in October was the lack of financial resources. As a result, the EHIF and hospitals started negotiations to increase funding in those specialities. Another conclusion was that, as a rule, the number of doctors' hours for which patients must pay is significantly lower than hours that are free of charge (in other words, paid by the EHIF). This is despite the fact that appointments can be obtained much more quickly if one pays (EHIF 2011).

8.1.8 Conclusion

Facing a difficult situation and the need to cut costs in order to keep the budget balanced, the EHIF decreased the quantity of planned stationary services by 4 per cent and the reference price of health-care services by 8 per cent, and also increased the maximum allowed waiting time for ambulatory specialized medical care from four to six weeks. These measures had immediate negative effects on hospital budgets because the vast bulk of their revenues comes from the EHIF.

Inevitably, these developments meant that accessibility to health-care services has worsened during the crisis. The number of persons on waiting lists and who have to wait longer than the maximum period set by the EHIF has increased. Hospitals have used various adjustment mechanisms: some have reduced staff costs by wage cuts, some by laying off personnel of pensionable age. Hospital managements admit that one effect of the crisis that has negative effects both now and during the recovery is doctors

leaving to find positions elsewhere. The interviews indicate that in smaller hospitals doctors leave to work in larger hospitals and large hospitals face the situation that doctors move abroad (mainly to Nordic countries).

The question is whether better measures could have been taken to cope with the crisis. Hannes Danilov, head of the EHIF, believes that the options chosen were the best, all things considered. Hospital representatives thought that a better hospital network would have helped to alleviate outcomes. However, this would have required clear policy decisions on hospital reform. In Danilov's opinion the health-care system should be better defended against economic cycles and the state should borrow from abroad if necessary to maintain services (again, it was emphasized that all these steps require reform).

8.2 Case Study 2: Estonian Rescue Services Hit by Public Sector Adjustments

8.2.1 Introduction

In Estonia, the provision of rescue service is coordinated by the Estonian Rescue Board. Until the end of the 1990s there was a fairly widespread network of volunteers (similar to many other EU countries today) but at the beginning of the new millennium it was decided that rescue service should be provided by the state in a centralized way. In total, there are about 2,500 Rescue Board employees, 1,800 of them in rescue stations.

The crisis has hit Estonian rescue workers hard,¹³ probably more than many other public service providers in Estonia. During the crisis years the budget of the Rescue Board has been cut by 20 per cent, which has had direct consequences for workers' wages and other working conditions, as well as for the quality of rescue services.

Interviews were conducted with Alo Tammsalu, deputy director general of the Estonian Rescue Board, and with Toomas Suigusaar, representative of the Estonian Rescue Sector Workers' Trade Union. The focus of the interviews was twofold: first, the effects of the crisis on Rescue Board employees; second, the effects on service quality and accessibility. An extensive media analysis was also carried out.

8.2.2 Developments during the crisis – effects on workers

On 29 June 2009, the government and the State and Local Government Workers' Trade Union Confederation (ROTAL) reached agreement to reduce the basic wage of rescue workers at all levels by 8 per cent from 1 July 2009. The negotiations between the government and ROTAL were very intense and only a couple of days before the agreement was reached (25 June) the government threatened that unless workers' representatives

agreed a wage cut, 193 rescue workers would have to be laid off at the beginning of July. Fearful of redundancies, workers' representatives agreed to the demand. As a result of the agreement, the government promised not to lay off rescue workers in 2009.

Toomas Suigusaar, representative of the Rescue Workers' Trade Union, admits that during the negotiations the employer clearly had the upper hand: the decision was basically made by the management without asking the opinion of the trade union because it was clear that the budget needed to be cut. The trade union had to choose whether to accept the heavy lay-offs or cut the wages of all rescue workers by 8 per cent. Facing such pressure, the trade union decided to change the collective agreement and accept wage cuts. At that time (2009) there were only 250 trade union members working for the Rescue Board.

Basic wages were cut by 8 per cent for all employees – rescue workers as well as management and office workers. However, due to the other measures applied (analysed in detail below), the total wage decrease was on average 20–25 per cent, according to Alo Tammsalu. He said that employees whose wages were higher before the crisis experienced higher income decreases during the recession. In other words, the crisis measures were not uniform across different employee categories.

Tammsalu admitted in the interview that the management of the Rescue Board had faced a very difficult situation in 2008 when the economic downturn began. Due to the very stringent budget, at the beginning of 2009 it was decided that rescue workers could not do overtime.¹⁴ Although workers' representatives demanded 24-hour shifts in collective agreement negotiations at the end of 2008, finally they agreed to the employer's demand that only 22 hours of a 24-hour shift would be remunerated. In 2010, 24-hour shifts were restored.¹⁵ However, due to lack of resources the income of rescue workers did not increase. 'Since we had no money, we gave a free day for the rescue workers and each rescue worker worked a month less a year as a result', commented Tammsalu in the media.

At the beginning of the crisis, the additional remuneration and other benefits were also decreased considerably due to the lack of funds. It was decided not to use holiday bonuses other than statutory holiday pay, no Christmas bonuses were paid and the use of official cars and telephone expense payments was cut. According to Tammsalu, the 8 per cent wage cut was one of the last measures used when it was clear that the budget had to be balanced. Unlike many other state and private organizations, unpaid leave days could not be used in the Rescue Board – at least in the case of rescue workers – because it was simply not possible to close rescue stations for a couple of days a month and no extra human resources were available (overtime was not allowed).

In 2010, the wages of rescue workers remained at the same level as 2009. Negotiations between the government and employees' representatives were very intense and the final agreement for 2010 was not reached before mid-December 2009. Although at the beginning of the negotiations the Rescue Board said that it would be necessary to lay off 110 workers, finally about €1 million extra funding was found, so the number of lay-offs was decreased to 40. The lay-offs concerned mainly rescue workers and support staff (for example, repair staff), and were based on medical examinations and evaluations. In addition to lay-offs, it was decided that no new employees would be hired in positions that become vacant due to voluntary departures. Therefore, during 2010–11 the number of job positions in the Rescue Board decreased by approximately 100 (that is, 4 per cent).

Although the measures implemented were not in favour of the employees and hit their income hard, few people left the organization voluntarily. The main reason was the difficult labour market situation in general. Another interesting effect of the crisis is the 'contrariwise career system'. Since during the good times (2007–08) the wages of low-paid employees (mainly rescue workers) in the Rescue Board increased more than those of higher-paid employees, and during the crisis, on the contrary, wages fell proportionally more for those whose wages were higher and less for those at the lower end of the wage scale, office workers have begun to prefer to work as rescue workers. Tammsalu sees several further reasons for that. On the one hand, there is less responsibility, but on the other the shifts are more flexible (rescue workers currently have one 24-hour shift followed by 72 hours' leisure time in which many take a second job). Tammsalu also said that the workload of office staff is considerable and they have to do overtime without receiving extra pay.

8.2.3 Immediate effects on service provision

Wage cuts and decreases in paid working time had clear negative effects on life rescue capabilities. In autumn 2009, trade union representative Andres Reinberg commented that in many places lay-offs have led to a situation in which only three or four men respond to an emergency call instead of six men previously. According to him, four men is the minimum acceptable level to fight a fire. Tammsalu agrees with that and also admits that the decision to abolish overtime in 2009 led to a situation in which the ability to provide life rescue services was reduced.

In October 2011 it was announced that the Rescue Board would close more than 10 rescue stations because of lack of funds. There were at that time 16 rescue stations out of 82 that were not capable of providing life rescue services at all and 20 rescue stations that could do so only

occasionally. Therefore, the main aim of the restructuring was to merge rescue stations to guarantee life rescue capability.

Finally, at the beginning of February 2012 the Rescue Board decided to close nine rescue stations in rural areas that did not have life rescue capabilities. It is hoped that the gap will be partially covered by volunteers (Tammsalu claims that there are more than 1,000 voluntary rescue workers in Estonia). However, he admits that state support for volunteers is weak. As always, there are losers from the changes, but according to Tammsalu, the gains should exceed the losses. As a result of the reform, the service quality for 121,000 citizens in areas with higher population density will increase and it will decrease for 20,000. As a result of the reform, the location of rescue stations will be better in accordance with demographic changes over the past decade. It is estimated that to guarantee life rescue capabilities in all rescue stations, approximately €6 million would have been needed.

Due to its lack of resources the Rescue Board does not have the funds to renew equipment. For example, while it has been agreed that every five years personal protective clothing and equipment should be renewed, during the crisis this has not been possible. Repair work and services have been cut to a minimum.

Both Tammsalu and Suigusaar said that it is agreed that all those working in rescue stations to be closed will be offered a job in other rescue stations. The 80 persons concerned will be distributed between rescue stations that remain after the reform (72 rescue stations in total). Moreover, it is likely that new employees will be needed partly because of this restructuring (to provide life rescue services, a minimum of three men have to respond) and partly because of the educational reform. Since the beginning of 2012, at least a general secondary education has been needed to work for the Rescue Board and new professional requirements have been implemented. This is the final stage of the training reform that has lasted about ten years.

8.2.4 Service provision during the crisis

Table 3.16 reports the number of deaths due to fire. As can be seen, until 2010 in Estonia the number of deaths per 100,000 inhabitants due to fire decreased significantly. Within a five-year period (from 2006 to 2010) the death rate decreased by about 2.6 times in Estonia, much more than in Latvia, Lithuania and Finland. However, in 2010–11 we can see a slight increase in the death rate.

8.2.5 Conclusion

The difficult decisions made during the crisis in the Estonian rescue services have not been easy for the management. From 2008 to 2011 the

Table 3.16 *Number of deaths due to fire in Estonia and neighbouring countries, 2006–2011*

Year	Number of deaths				Deaths by 100,000 inhabitants			
	Estonia	Latvia	Lithuania	Finland	Estonia	Latvia	Lithuania	Finland
2006	164	207	297	90	12.2	10.2	8.9	2.3
2007	132	163	270	102	9.8	9.0	8.6	1.7
2008	89	145	203	104	6.6	7.1	7.9	1.9
2009	63	148	233	80	4.7	6.4	6.6	2.0
2010	69	122	137	67	5.1	6.5	7.0	1.5
2011	73	207	297	90	5.4	5.5	4.2	1.2

Source: Estonian Rescue Board.

budget of the Rescue Board was cut by 20 per cent, resulting in lay-offs, wage cuts, unpaid overtime and restructuring of rescue stations. The number of rescue workers was also cut by voluntary departures and some rescue stations now have only three employees or fewer. Therefore, large-scale reform is in process to restructure the whole system so that life rescue capability is secured.

One side-effect of the tensions was an increase in unionization. While in spring 2009 there were 250 trade union members, at the beginning of October the number was already 700 and it increased to more than 1,000 by 2011. According to the trade union representatives, the main reason for increased unionization was the heightened sense of insecurity.

Regarding the latest trends, in September 2011 the government announced that it had found an extra €2.1 million (€1.4 million for wages and €0.7 million for other spending, such as equipment). This will be used to pay for overtime work, redundancy payments for rescue workers whose rescue stations will be closed and do not want a job in other rescue stations and to compensate those who lose out as a result of the reform.¹⁶

Tammsalu admits that today the situation is more difficult from the Rescue Board side because the government has announced that its budget will not be increased until at least 2016. The problem is particularly topical because of the recent sharp increase in fuel prices. Since fuel consumption is an important part of Rescue Board costs, the administration must find ways of cutting spending. Dissatisfaction among employees is increasing and it is likely that the voluntary departure rate will increase as the economy recovers. On the negative side, Tammsalu says that whereas the 2009 wage cuts applied to all rescue sector workers uniformly, the wage increase will apply to rescue workers, which means that the inequalities within the Rescue Board will rise and this may cause tensions. Currently,

the average wage of rescue workers is €600–700 (national average wage was about €860 in Estonia in the second quarter of 2011).

The crisis has clearly had a negative impact on both Rescue Board workers and the quantity and quality of service. Tammsalu concludes: ‘We did not have scope to “let out air” from our budget. Before this 20 per cent decrease we already had to work very efficiently. Therefore, we [the management of the Rescue Board] had no other choice but to cut services’.

Looking back at developments in 2009–11, the question is, what could have been done differently? Suigusaar, the trade union representative, thinks that the Rescue Board should have been firmer during the crisis. In his opinion political considerations exert too much influence, which creates destabilization and fosters tensions. Tammsalu, the employer’s representative, sees developments in recent years as partly forced, but still necessary to guarantee that the rescue system develops to match demographic trends. On the positive side he finds that much has been achieved in terms of preventive measures, even during the crisis. He sees preventive work and monitoring as the main mechanisms helping to save funds to ensure an adequate response.

9. CONCLUSIONS AND POLICY ISSUES

Estonia’s fiscal situation has generally been regarded as relatively healthy due to the limited sovereign debt burden and strong commitment to a balanced budget, thus there is no direct need to consolidate public sector expenditure to cope with a debt crisis. Estonia has had a relatively small public sector, due to the dominance of right-wing parties in government and relatively low revenues. The Estonian public sector underwent adjustment during the early crisis (2009–10), mostly to address the Maastricht criteria and make it possible for Estonia to join the Eurozone. While these adjustments were more mechanical and did not entail structural changes, naturally the crisis has led to further discussions on the sustainability of public finances and structural changes. Due to the limited revenue increase it is hard to meet the growing wage claims due to the recovery in the private sector. This chapter outlines a number of negative effects that the Baltic states have experienced during the crisis, such as the decrease in public sector wages, labour mobility to the private sector, and migration abroad (especially among health sector employees). The case studies of rescue workers and health care further illustrate the negative effects of fiscal consolidation.

In terms of social dialogue, against a background of relatively low general union density in the public sector unionization has increased,

although the adjustments during the crisis demonstrate trade union weakness. As indicated by surveys and our case studies, trade unions generally just gave in to pressure from the government to introduce austerity measures. Wage cuts did not lead to large-scale protests, but in the course of the recovery dissatisfaction has been increasing (teachers' strike in March 2012). The breakdown of tripartite dialogue due to the employers' representatives leaving the board of the Unemployment Insurance Fund and the Health Insurance Fund (the disagreements were about the unemployment insurance contribution and administration of the reserves of the two funds) also indicates a failure of tripartite dialogue (Osila 2012). We can see some indications of increasing union density (as in rescue services), thus the question remains whether in the future we shall see more changes in collective labour relations in the public sector.

Compared to Latvia and Lithuania, the Estonian public sector was probably in a better situation due to previous reforms. Nevertheless, in several areas (rescue sector, health care, education) stakeholders argued that the unfinished structural reforms were the reason for the more painful adjustment during the crisis and must be addressed if Estonia is to solve its challenges. However, this depends very much on political will.

NOTES

1. This may bear some resemblance to the 'debt intolerance' phenomenon noted by Reinhart et al. (2003).
2. The funding for health care also decreased in Lithuania and uncovered existing inefficiencies. The health-care system was streamlined with job cuts among nurses (Blaziene 2011). The health sector was in fact too large, for example, in terms of hospital beds per population, and consequently also underfunded.
3. That argument is based on the fact that while according to Fabiani et al. (2011) cutting flexible wages was the major adjustment strategy for 9.8 per cent of surveyed European firms, cutting base wages was only important for 1.2 per cent of firms, with Estonia the only country where cutting base wages was the main adjustment strategy for a substantial number of firms (14 per cent of all firms).
4. Public sector was defined in his study as all organizations where central governments or local governments owned more than 50 per cent of the share capital.
5. Riigi-ja Omavalitsuse Töötajate Ametiühingute Liit (Confederation of Trade Unions of the State and Self-Government Institution Workers).
6. The basic monthly wages are applied as a reference to determine the wages of public sector employees such as tutors, social workers, librarians and cultural workers.
7. We have excluded dentists as people mostly have to pay for dental services themselves. However, in the case of dentists similar tendencies can be observed (the situation improved until 2009 and worsened in 2010).
8. In Latvia, public financing of health care decreased by 21 per cent in 2009, which, may increase household spending on health care. There have been some criticisms of the cutbacks, but it is an open question what their effects will be (Curkina 2009).
9. Later it was increased to 19.
10. A telephone interview was conducted with a representative of the Estonian Hospitals'

- Association. The head of the EHIF, Mr Hannes Danilov, and representatives of the hospitals (one large and two smaller) preferred to provide answers in written form.
11. The Estonian Doctors' Association as the union representing the rights of doctors was also asked to participate in the study, but did not respond.
 12. The large hospital is one of the biggest in Estonia, while one of the smaller hospitals participating in the study is located in southern and the other in northern Estonia.
 13. 'Rescue workers' means those directly involved in rescuing people, not Rescue Board employees in general.
 14. In Estonia, rescue workers are subject to the total working-time regulation. According to the Employment Contracts Act, in calculating total working time, overtime means work exceeding the agreed working time at the end of the calculation period.
 15. Under Estonian legislation, the employer must provide a 30-minute break for every eight hours worked, which is not calculated as part of working time. Since rescue workers cannot leave the scene during the break, it was agreed that rest time would be calculated as part of working time.
 16. As a result of the reform, first-level commands will be closed and men will move to second- and third-level commands. As a result, their wages will increase.

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3.3. Developments and inequalities on the labour market during the Great Recession – experience of European countries

This chapter provides an overview of the impact of the Great Recession on the European labour market with a focus on inequality on the labour market based on recent EU-level studies¹². The analysis focuses on the Great Recession period alone because no other economic contradictions of its kind have previously manifested that have influenced the Estonian economy so severely. Due to the lag in releasing internationally comparable data, the first studies focusing on the effects of the crisis at the EU level are relatively recent, published mainly in 2011 and 2012. Where relevant and possible, the Estonian case (or that of the Baltic States) is highlighted. The main results of studies that have analysed the evolution of inequality on the labour market at the EU level during the global financial crisis are provided in Annex 2.

As discussed in chapter 1.2.2, the three main labour market adjustment strategies that can be used during a recession in order to decrease labour-related costs are reducing the workforce (i.e. making people redundant), working hours or wages. The main adjustment strategy used by EU Member States was to reduce employment during the crisis. While Europe experienced a ‘jobs miracle’ between the late 1990s and the onset of the crisis (with over 20 million new jobs created in little more than 10 years), a total of 5.5 million jobs were lost in Europe during the recession¹³ (Hurley 2011, Eurofound Yearbook 2012).

The impact of the recession on the labour market has varied considerably among Member States, being dependent on how severely the country was hit by the crisis. As noted by Arpaia and Curci (2010), heterogeneity across countries was influenced by domestic and external imbalances and industry composition. Countries which experienced the earliest decrease in employment were also those that experienced the largest and longest peak-to-trough declines. In some Member States (such as Hungary, Ireland, Lithuania, Romania and Spain) employment began to decline as early as the 3rd quarter of 2007. In others (Cyprus, the Czech Republic, Germany, the Netherlands and Poland) decline set in during the 4th quarter of 2008. Some countries (like Belgium, France, Germany, Poland and the UK) remained relatively unaffected while others (the

¹² A good overview of evidence from previous recessions can be found in Arpaia and Curci (2010).

¹³ There were concerns regarding the quality of the jobs created during this period. The perception was that many were low-paying, dead-end service sector jobs and that not enough jobs were created in more knowledge-intensive and productivity-enhancing areas. However, the Fernandez-Macias (2008) research, which used data from 23 EU Member States, showed that this was not true: from 1995-2008 employment growth was skewed towards relatively higher-paid jobs. They found that growth was actually weakest in the middle of wage distribution due to the long-term decline in manufacturing employment. The growth in lowest-paid jobs was somewhat greater.

Baltic States, Ireland and Spain) experienced a vast increase in unemployment. There were 12 consecutive quarters of GDP decline in Lithuania, compared to just 2–3 in Austria, Cyprus and Luxembourg (Hurley et al. 2011). In Poland, Slovakia, Slovenia and Norway persistent wage growth was observable even during the crisis period (Vaughan-Whitehead... 2012).

The Baltic States form particularly interesting case examples when analysing the recession's effects on the labour market as these three countries rank highest¹⁴ in peak-to-trough employment decline (19.2% in Latvia, 16.7% in Estonia and 15% in Lithuania; Hurley et al. 2011). This was largely the result of pre-recession weaknesses as well as greater exposure to the direct consequences of the shocks (Arpaia, Curci 2010).

Distinct heterogeneity can be seen in the measures used by European companies during the crisis across countries (see Table 4). Estonia clearly stands out in the international comparison as a country where wage adjustments were the most important measure employed during the crisis. Whereas in the other countries included in the survey of Fabiani et al. (2010) the importance of reductions in the base wage and flexible wages as a cost-cutting strategy varied from 4% (in Belgium) to 18% (in Poland), in Estonia wage reductions were far and away the most important measures used (40% of costs were cut via these two measures). The decrease in permanent employment was also more important as a cost-cutting strategy in Estonia than in other countries. Decreases in temporary employment, hours worked and non-labour costs were relatively less important.

Table 4. Main cost-cutting strategy adopted by companies, 2009 (%)

	Base wage	Flexible wages	Permanent employment	Temporary employment	Hours worked	Non-labour costs
Austria	0.3	12.2	12.2	11.1	36.2	28
Belgium	0.9	3.1	16.8	29.6	24.9	24.6
Czech Republic	0.0	10.4	27.9	16.4	5.3	40.1
Estonia	14.3	25.1	24.2	3.7	9.3	23.5
France	0.1	9.9	17.1	33.9	12.4	26.2
Italy	1.3	8.9	16.6	21.1	18.4	33.7
Netherlands	1.4	5.0	8.1	40.5	6.2	38.8
Poland	1.9	15.9	16.7	9.1	7.6	48.7
Spain	1.0	5.5	23.2	41.6	5.9	22.8
Average	1.2	9.8	16.9	24.3	13.6	33.9

Source: Fabiani et al. 2010: 20.

¹⁴ At the opposite end of the scale are Belgium (0.3%), Malta (1.7%) and France (2.1%) with only modest employment changes (Hurley et al. 2011).

The measures employed were greatly dependent on the labour market institutions of the particular country (i.e. employment protection legislation and trade union bargaining power). According to Fabiani et al. (2010), countries where employment protection is strict tended to adjust the number of temporary workers and hours rather than the number of workers employed on the basis of permanent contracts. Permanent workers were mainly laid off by companies that experienced a strong demand shock during the crisis. Union bargaining power was positively correlated with variations in employment (i.e. hours worked and temporary work) and negatively with wage adjustments. This conclusion is in accordance with the results of Babecky et al. (2009), who also found that wage rigidity during the first few years of the crisis depended on the institutional characteristics of the labour market: collective bargaining coverage being positively related to downward real wage rigidity and downward nominal wage rigidity being positively correlated with the extent of permanent contracts. This effect was stronger in countries where employment protection regulations are stricter.

To a remarkable extent this chapter introduces the results of study by Hurley et al. (2011) who analysed the impact of the recession (between the 2nd quarter of 2008 and the 2nd quarter of 2010) on the structure of employment in terms of occupation and sectors in EU Member States. They used an interesting (and for our case very informative) approach, breaking employment down into individual ‘jobs’ – i.e. a specific occupation in a specific sector – using hourly wages as a proxy for job quality¹⁵. According to the results of the study, sharp employment losses have occurred in the 2nd and 3rd wage quintiles, especially in construction and manufacturing during the recession. In the 1st and 4th wage quintiles employment losses have been more moderate.

At the Member State level Hurley et al. (2011) identify three main patterns in employment shifts in terms of inequality on the labour market: upgrading (job growth/smaller decrease in employment skewed to top of wage distribution, destruction of employment concentrated among lower-paid jobs; Germany, Luxembourg, Sweden and Slovakia fall into this category); polarisation (growth/smaller decrease in employment at lower and upper ends of wage spectrum compared to middle; Bulgaria, Cyprus, Spain, France, Greece, Ireland, Latvia, Portugal, Slovenia and the UK fall into this category); and downgrading (higher destruction of employment in higher-paid jobs while lower-paid employment either grew or decreased to a smaller extent; Denmark, the Czech Republic, Hungary, Italy and Lithuania fall into this category). Other countries, including Estonia, do not show a clear trend in this regard: employment declined across wage distribution as a whole.

¹⁵ This approach was developed by Stiglitz (1974) and has been proven to be appropriate (see for example Leschke and Watt 2008 and Employment in Europe 2008) and has been extensively used, for example by Levy and Murnane (1992), Ilg and Haugen (2000), Wright and Dwyer (2003) and Hurley et al. (2011).

It is also interesting to note that the number of ‘polarised’ countries increased during the recession: whereas based on 1995–2007 data (survey by Fernandez-Macias 2008) only Cyprus and France fell into this category, during the crisis they were joined by eight new Member States, mainly due to employment decline in the construction sector, which tends to be concentrated among middle-income jobs. The number of ‘upgrading’ countries remained roughly the same during the recession. There were purely upgrading countries such as Luxembourg, Germany, Sweden and Slovakia, while hybrid polarisation/upgrading countries such as Austria and Belgium experienced a significant loss in medium-paid jobs, little change in the lowest-paid jobs and growth at the top. Hurley et al. (2011)

Countries that recorded the largest peak-to-trough employment growth, including all three Baltic States, experienced a concentration of job losses in low-skilled but medium-paid jobs. Comparing the experiences of all EU Member States, the Baltics stand out as unique cases. In Estonia the employment change was negative in all wage quintiles, but the highest in the 4th quintile. Among other Member States this pattern is similar to Bulgaria. In Lithuania, atypically, employment shrank most in the highest and 3rd wage quintile and much less in the two lowest wage quintiles, meaning that here the crisis hurt higher wage earners much more. Latvia experienced a remarkable decline in employment in the 2nd, 3rd and 4th wage quintiles and a modest decrease in the 1st and 5th quintiles (Hurley et al. 2011). This means that in Latvia middle-income earners were hurt the most, which is in accordance with the results presented in *Wages and working...* (2012).

In the highest wage quintile, employment grew by *ca* 1% per year even during the period of intense job destruction. This growth was mainly due to an increase in employment in knowledge-based services (KIS), especially in health, education and science involving computer services. KIS jobs have remained relatively unaffected during the crisis, enjoying employment growth across all quintiles. In contrast, less knowledge-intensive services (LKIS) suffered employment losses, especially in retail, postal services, warehousing and transport and personal services. Hurley et al. (2011)

Estonia is highlighted as a success story in Hurley et al. (2011) as an EU Member State that succeeded, even during the recession, in boosting employment in knowledge-intensive services (KIS) in all wage quintiles (with notable growth in the top quintile – mainly in education, health and public administration) except the bottom one. The proportion of employment in KIS increased most in Estonia out of all EU Member States: by 8 percentage points in all quintiles except the lowest.

This means that the polarisation of the employment structure has been further accentuated during the crisis in the EU. Higher-paid and skilled jobs have been much more resilient to the effects of the recession than lower-paid and lower-skilled jobs. The recession has negatively impacted on employment

in two ways: by destruction medium-paid jobs and stemming the net creation of new higher-paid employment (Hurley et al. (2011)).

Although the changes in unemployment rates are informative, they provide only a limited picture – such rates only describe net effects, while inflow and outflow effects may be neutralised. A recent study by Arpaia and Curci (2010) analyses labour market flows during the first two years of the Great Recession (2008–2009) in EU Member States. Using labour force surveys from these countries, they find that during the crisis the separation rate increased and the hiring rate decreased. Here again the Baltic States clearly stand out, similar to Spain and Ireland, where the increased inflow rate was accompanied by a decreasing outflow rate resulting in a massive rise in unemployment.

Wage cuts were used to a lesser extent than employment reduction in Europe. Nominal wage cuts remained exceptional in the EU during the crisis, although a decline in real wage progression has been observed around Europe (Wages and Working... 2012). Flexible wage components were decreased instead (Arpaia, Curci 2010, Fabiani et al. 2010). According to a recent European Central Bank company survey covering nine countries – Austria, Belgium, the Czech Republic, Estonia, Spain, France, Italy, the Netherlands and Poland – on average just 3.2% of companies cut wages in 2009, with these cuts affecting 1.8% of employees (Fabiani et al. 2010)¹⁶.

However, in the Baltic States the situation was quite different. Estonia, Latvia and Lithuania were the first EU Member States in which an average wage decrease was already observable in 2009, joined in 2010 by Greece and Ireland (Wages and working... 2012, Fabiani et al. 2010). In Estonia, companies experienced by far the highest incidence of nominal wage cuts in international comparison: 44% of companies decreased wages in 2009, exceeding the Czech Republic, the second highest, five times (see Table 5). In Estonia, nominal wage cuts affected 30% of employees in 2009. Estonia also stands out in international comparison in terms of nominal wage freezes: while on average 34% of the companies in the countries covered in the study froze wages in 2009, in Estonia the same figure was 62% (with the proportion of employees affected being 57%). Only in France was the share of companies freezing wages higher (Fabiani et al. 2010).

Fabiani et al. (2010) relate this to a highly flexible institutional environment for wage setting (Estonia having the lowest coverage of collective agreements among the sampled countries and labour regulation reforms imposing more

¹⁶ This is in accordance with the results of a study by Babecky et al. (2009) which analysed downward nominal and real wage rigidity in 14 European countries (including Estonia) based on a unique company-level survey carried out in late 2007 and early 2008. They found that the incidence of both types of wage rigidity was substantial in Europe – approximately 10% of firms had experienced wage freezes, while 17% had applied wage indexation mechanisms. They also found that wage rigidity was related to workforce composition and was consistent with efficiency wage and insider-outsider theory. The wages (in both nominal and real terms) of high-skilled white-collar workers were more rigid than those of blue-collar and lower-skilled white-collar workers.

flexible employment protection legislation and lowering redundancy costs), currency board arrangements prohibiting Estonia from using currency depreciation during the crisis and the magnitude of negative demand shock hitting Estonia which prompted firms to use all possible channels for cost-cutting, including lowering base wages.

Table 5. Incidence of wage cuts and freezes in selected EU countries 2007–2009

	Nominal wage cuts					Nominal wage freezes				
	Companies (%)			Employees (%)		Companies (%)			Employees (%)	
	2007	2009*	2009**	2007	2009	2007	2009*	2009**	2007	2009
AT	1.54	1.72	1.51	0.06	1.23	9.3	1.76	8.43	5.71	1.07
BE	2.87	1.04	1.76	0.2	0.27	15.89	23.72	4.41	2.39	14.58
CZ	9.32	8.95	3.24	1.13	3.71	31.39	54.63	11.72	11.95	49.13
EE	3.68	44.08	38.61	0.14	30.35	21.27	61.54	64.61	9.6	56.94
ES	0.14	2.55	0.52	0.03	1.35	1.45	26.68	3.73	0.8	22.21
FR	2.54	1.92	4.73	0.86	1.21	7.68	85.98	83.77	5.27	82.48
IT	0.68	2.03	4.29	0.06	1.14	3.81	31.71	62.77	1.25	30.86
NL	1.58	2.55	3.78	0.17	1.18	25.80	15.22	8.67	15.86	12.58
PL	5.70	4.20	1.58	3.79	2.6	9.72	17.98	8.07	7.79	16.59
Eurozone	1.27	2.07	3.29	0.23	1.14	7.64	37.09	43.12	3.89	34.38
Non-Eurozone	6.43	6.48	2.68	3.10	3.70	14.80	27.37	10.25	8.76	24.99
Total	2.63	3.22	3.13	0.99	1.81	9.53	34.51	34.46	5.18	31.88

Notes: * in 2009 (by the time the study was completed); ** in 2009 (forecast)

Source: Fabiani et al. 2010: 23.

Internationally comparable data regarding wage inequality during the recession is not yet available in many countries. However, the general conclusion that can be drawn based on the available data is that wage inequality either remained stable or increased during the recession (Jenkins et al. (2011), *Wages and working... 2012*)

The same general conclusion was drawn in a recent Eurofound study. In Belgium, France, Luxembourg and Italy wage inequality remained stable in 2009. However, this development is not universal: in Germany, Ireland, Portugal, Poland, Estonia, Latvia and Lithuania wage inequality increased. It is interesting to note that in many EU Member States we can see the mirror image: a decrease in the high/medium wage gap and an increase in the medium/low wage gap (in Belgium, Cyprus, Germany, Denmark and Ireland in 2009) or an increase in the high/medium category and a decrease in the medium/low

category (Bulgaria, the Czech Republic, Finland, Italy, Romania, Slovakia and the UK). However, since signs of the occupational wage gap were not stable from 2008–2010, this result should not be overemphasised since it merely illustrates the adjustment process (Wages and working... 2012).

So far in this sub-chapter the emphasis has been on outlining general labour market trends during the recession. The remainder of this chapter is devoted to inequalities on the EU labour market: which categories have suffered more and which less and how inequalities on the labour market between private and public sectors have evolved. The sectoral impact of the crisis is clearly observable. Employment and wage decreases have not been uniform across sectors. Construction and manufacturing have suffered most throughout Europe (Smeeding et al. 2011; Hurley et al. 2011, Wages and working... 2012). In manufacturing, 3.8 million jobs were destroyed (Hurley et al. 2011). In 2008 and 2009 these sectors lost *ca* 9% of their jobs, which accounted for 70% of total job loss in these sectors (Arpaia, Curci 2010). In 2009 manufacturing employment decreased in 17 Member States, while in six others it was accompanied by a nominal wage decrease (Wages and working... 2012). The picture in construction is similar: jobs in this sector accounted for over 35% of total net decline in jobs, with more than 1.9 million jobs destroyed in this sector during the crisis (Hurley et al. 2011).

The services sector suffered relatively less during the Great Recession and the picture is more mixed among EU Member States. In the accommodation and food services sector a decrease in employment was observable in 16 countries. Financial services were primarily affected by wage decreases (in 11 countries). Public administration was hit with a delay in many countries. While it remained something of a safe haven in 2009, negative effects were observable in 2010 (Wages and working... 2012). In public services, growth in jobs continued during the recession, being fastest in the highest two wage quintiles. Private services experienced job losses in all quintiles except the highest (Hurley et al. 2011).

Country-based effects in sectoral developments are clearly dominant. The Baltic States are distinct from other countries as both wages and employment were affected in all sectors (Wages and working... 2012). Unfortunately, no data was available for Estonia, but the results can be generalised to include Estonia based on the empirical results introduced in chapter 3.

Related to sectoral effects, blue-collar workers have been on the frontline in terms of employment and wage cuts (see Table 6). In the initial phase of the recession the jobs of relatively high-skilled workers were at risk (for example in the financial services sector), but as the crisis deepened it clearly affected sectors which employ more unskilled and semi-skilled labour (manufacturing and construction). It is also interesting to note that the skills effect has been different for white- and blue-collar workers. While for highly skilled white-collar workers the employment rate actually increased during the recession and for lower skilled white-collar workers only a moderate decrease in employment

was observable, highly skilled blue-collar workers were hit hardest by the recession. This is in line with the conclusion made above that those in the medium wage category were hurt most during the crisis. (Hurley et al. 2011)

Table 6. Changes in employment level by major combined sector and occupation grouping from 2nd quarter 2008 to 2nd quarter 2010, EU27 (%)

Sector/occupation	White-collar		Blue-collar		All
	Highly skilled	Lower skilled	Highly skilled	Lower skilled	
Primary sector	-7.7	-2.6	-0.9	2.9	-0.7
Construction	-3.6	-10.5	-11.2	-16.4	-10.7
Manufacturing	-6.9	-7.8	-10.1	-14.0	-10.2
Retail	-2.7	-3.4	-5.8	-6.3	-3.7
Other private services	1.6	-0.8	-2.0	-0.9	0.1
Public services and utilities	4.3	3.0	-3.7	-0.6	3.1
All	0.9	-1.0	-7.3	-6.0	-2.3

Source: Hurley et al. (2011): 19.

Somewhat related to skill effects, educational effects were also observable: the increase in unemployment among the highly educated was smaller than among the less educated (Smeeding et al. 2011). This is closely related to skills: during a recession those with lower skills and work experience are at higher risk of losing their jobs (Arpaia, Curci 2010).

Since the sectors that suffer most have traditionally been male-dominated, this explains why males were more affected by the crisis than females (Arpaia, Curci 2010; Hurley et al. 2011, Wage and working... 2012). Between the 2nd quarter of 2008 and the 1st quarter of 2009, men bore almost 80% of the total job losses in the EU (Arpaia, Curci 2010). During the decade preceding the crisis, the gender employment gap continued to decrease, i.e. growth in female employment was faster in both relative and absolute terms compared to growth in male employment. This trend continued during the crisis. According to Hurley et al. (2011), women fared better on the labour market than men during the recession¹⁷. This is in accordance with results of a recent Eurostat survey which also concluded that men were more affected by the consequences of the crisis in terms of wages and job security than women (Wage and working... 2012).

During the crisis, four ‘male’ jobs were lost for every ‘female’ job, i.e. men accounted for over 80% of net job decline in employment between 2008 and

¹⁷ However, this did not mean that women escaped the negative effects of the recession. The study published by the ILO (Vaughan-Whitehead 2012) shows that women employed in male-dominated sectors were often the first to be laid off.

2010 (Hurley et al. 2011). The disproportionate effect of the recession on men is mainly related to sectoral effects (Arpaia, Curci 2010). Construction and manufacturing, which are strongly male-dominated sectors (accounting for 90% and 70% of total employment respectively) suffered most during the recession (Arpaia, Curci 2010). Here again the Baltic States experienced the largest increase in the gender unemployment gap. However, this does not mean that women were unaffected by the crisis: as a result of shrinking in construction and to a lesser extent manufacturing, men in the Baltic States went from outnumbering women in employment prior to the crisis to being outnumbered by women as a result of it (Wages and working... 2011). The few sources of (generally high-quality) employment growth were, as previously discussed, concentrated around predominantly female-occupied health and education jobs. In 2008 the gender pay gap was shrinking in most EU countries, including the Baltic States. However, the developments were different in the Baltic States. Latvia saw an increase in the gender pay gap in 2009 and 2010 and Lithuania in 2010; no data could be sourced for Estonia. (Wages and working... 2012)

Young workers were hit hard by the recession, especially in the countries that suffered most (Ireland, Greece, Portugal and Spain). Their growth in unemployment rates was double that of other age brackets and particularly high in the Baltic States, Ireland and Spain. Younger workers suffered more compared to older workers around the world, even in OECD countries where the increase in overall unemployment was not remarkable (Arpaia, Curci 2010). Eurostat data for spring 2012 paints a stark picture: the average youth unemployment rate is as high as 22% in the EU and exceeds 50% in Greece and Spain. At present *ca* 5.5 million young people are unemployed in Europe (Best days... 2012).

Young men were hit harder by the recession than young women, but the most noticeably hurt were low-skilled youth: their employment decreased by 11%, a dramatic contrast to the employment gain of 2% for tertiary graduates. Full-time employment among youth fell by 13%, while part-time employment fell by less than 3% (Scarpetta, Sonnet 2012).

High youth unemployment and inactivity during recessions are not new phenomena. It is well-known that youth unemployment responds more sensitively to changes in the business climate than that of other age groups (Blanchflower and Freeman 2000, Jimeno and Rodriguez-Palenzuela 2002, OECD Employment Outlook 2006). There are many reasons for this, such as lack of labour market experience, seniority and company-specific human capital (see for example Global Wage Report 2010 and Martin 2009).

As concluded by Dietrich (2012), the danger of a “lost generation” is no longer a slogan, but a terrifying reality. What is particularly worrying is that, according to Eurostat estimates, *ca* 7.5 million or 13% of young people aged 15–24 were not in employment, education or training in 2010. The same applies to OECD countries, where the average NEET (not in employment, education or training) rate was 12.3% in the 1st quarter of 2011 compared to 10.7% in the 1st

quarter of 2008. This means that 22 million young people were out of work in the 1st quarter of 2011 and 14 million of them were inactive and not studying – almost double the level of those who were unemployed (8 million) (Scarpetta, Sonnet 2012). The Eurofound project on young people and NEETs (those not in employment, education or training) estimates that the economic cost of their disengagement (including the missing contribution of NEETs to society, i.e. foregone earnings and unpaid tax and social contributions and the excess in welfare transfers that NEETs receive) from the labour market in the EU 26 amounted to 119.2 billion euros per year, which corresponds to approximately 1% of the aggregated GDP of these EU Member States (Mascherini 2012, Choudhry et al. 2012).

This is a very worrying situation. For many people in this age bracket inactivity means discouragement and marginalisation. Even during the sluggish recovery they have faced difficulties finding a job and face a particularly high risk of long-term unemployment and exclusion (Scarpetta, Sonnet 2012).

The employment level among older workers remained surprisingly high during the recession, and 1.7 million new jobs were created for those aged between 50 and 64. Employment growth among older workers was observable throughout the wage spectrum, but was skewed towards top-paying jobs. The employment level of core-age workers (aged 30–49) and especially young workers was severely affected. For younger workers, jobs were lost across the wage spectrum. The likely explanations here are limited experience and opportunity to acquire workplace skills, since they are more likely to be in non-permanent jobs (Hurley et al. 2011). This is in line with a recent Eurostat survey (Wages and working... 2011) which found that older workers more frequently faced wage cuts, but not job losses, whereas young workers faced the risk of unemployment.

Non-nationals were hit harder than nationals and those with lower levels of education harder than the better-educated. With respect to origins, non-natives stand a slightly higher chance of facing wage cuts and a much higher risk of facing job losses than natives (Wages and working... 2011). Not all situations of inequality can be attributed to acts of direct discrimination. The consequences of the crisis on migrant workers have been harshest in the sectors and countries most severely affected by it. For example, in countries where construction had been the engine of growth, migrant workers have suffered the greatest losses of employment. Similarly, certain immigrant groups have been hit harder than others – for instance, Pakistanis and Bangladeshis in the UK and Hispanics in the USA. By contrast, groups that fared better were generally concentrated in jobs requiring higher levels of education (Papademetiou et al. 2010).

In terms of employment status the picture was mixed during the recession. In the early phase of the recession, workers with atypical, temporary or agency contracts suffered most (Arpaia, Curci 2010). For example, 90% of employment losses in Spain affected temporary workers (Vaughan-Whitehead 2012).

However, the majority of employment growth since 2009 has been in temporary (and low-paid) jobs. Despite the growth in part-time work, this still tends to be prevalent among more lowly paid jobs. Part-time work has expanded across the wage spectrum since the crisis began. This growth has clearly been polarised, with gains more evident in low-paid and high-paid jobs and marginal growth in the middle. Part-time employment gains have been more or less equally distributed between males and females: of the 1.2 million new part-time jobs created, around half were 'male' and the other half 'female'. New male part-time jobs have mostly been more lowly paid positions in agriculture, food and beverages; while over 2/3rd of the growth in female part-time employment has been in higher-paying jobs in education, health and professional services. (Hurley et al. 2011)

As discussed previously, in most EU countries the public sector was hit with a delay. The recent ILO report highlighted that the recession has had a more adverse effect on the private rather than the public sector. In 11 of the 18 European countries for which data was available, nominal earnings in the public sector rose faster or decreased less compared to earnings in the private sector during the recession. The more robust nature of public sector wages is linked to higher unionisation and a higher degree of coordination among public sector employees (Global Wage Report... 2010).

However, this has also been influenced by the strong increase in government budget deficits in most EU Member States. In some countries – notably Greece, Portugal and Ireland – the budget deficit is out of control, causing a crisis of the single currency, which may have a negative impact on economic recovery in the Eurozone as a whole. Since most budget deficits are unsustainable in the long run, most Member States will face a prolonged period of austerity measures and many governments have already announced major cutbacks in public spending or tax increases. Theodoropoulou and Watt (2011) estimated the size of these austerity packages at 0.9% of GDP in the EU in 2010 and 2011.

In most countries the majority of these packages consist of expenditure cuts, which include pay freezes or pay cuts for workers in the public sector and reductions in government staff numbers. Consequently, the prospects for public sector workers over the next few years look rather grim in many countries and they will, in all probability, risk either losing their jobs or suffering substantial pay cuts. Since it may take some time for these measures to be implemented, the negative consequences of the crisis are likely to hit public sector workers when the economy begins to recover and the employment conditions of private sector workers are improving again. Therefore, it is likely that we will see longer-term negative effects of inequality here. Although different approaches are used and there is some variation across countries, in general it can be concluded that collective bargaining institutions have not played their role in full in the EU during the recession: quite the contrary (Wages and working... 2012).

The impact of the recession on the labour market has varied considerably among Member States. The measures used to cope with the crisis were greatly

dependent on the labour market institutions of the particular country (i.e. employment protection legislation and trade union bargaining power). The main adjustment strategy used by EU Member States was to reduce employment during the crisis. Countries that recorded the largest peak-to-trough employment growth, including all three Baltic States, experienced a concentration of job losses in low-skilled but medium-paid jobs. Nominal wage cuts remained exceptional in the EU during the crisis, flexible wage components were decreased instead. However, Estonia, Latvia and Lithuania were the first EU Member States where average wage decreased already in 2009. Employment and wage decreases have not been uniform across sectors, construction and manufacturing have suffered most throughout Europe and the recession has more adversely affected the private than the public sector.

Blue-collar workers have been on the frontline in terms of employment and wage cuts. Since the sectors that suffer most have traditionally been male-dominated, this explains why males were more affected by the crisis than females. Young workers were hit hard by the recession, especially in the countries that suffered most and the danger of a 'lost generation' is no longer a slogan, but a terrifying reality. The employment level among older workers remained surprisingly high during the recession in most EU Member States. Non-nationals were hit harder than nationals and those with lower levels of education harder than the better-educated.

4. INEQUALITIES ON THE LABOUR MARKET BETWEEN SOCIAL AND REAL SCIENCES GRADUATES AND GRADUATES GENDER PAY GAP IN ESTONIA DURING THE CRISIS

4.1. Does a university degree pay off in the Estonian labour market

Study III **Espenberg, K., Themis, A., Masso, J., Eamets, R.**
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DOES A UNIVERSITY DEGREE PAY OFF IN THE ESTONIAN LABOUR MARKET?

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ABSTRACT

While graduates of real sciences are considered crucial to the development of the knowledge-based economy, most European countries are still characterised by the low proportion of young people choosing to study natural and life sciences. The current research is motivated by a desire to compare the labour market performance of graduates of various disciplines to see whether there is any evidence of an over-supply of social science graduates. In this study we use the data from two waves of an Estonian survey of university alumni to analyse the labour market positions of young people with different educational backgrounds, during and after graduation, through both an economic boom and a deep recession. The results show that many students work during their studies, mostly for economic reasons. There are some signs of over-qualification and a mismatch between subjects studied and current jobs. There is a wage-premium observable between social science and real science graduates only at the master/doctoral level, not at bachelor level. This is partly explained by examining the sectors and companies where social and real sciences graduates are employed; however, a part of the gap remains unexplained.

Keywords: higher education, returns to education, academic fields.

JEL codes: I20, J31, J24

INTRODUCTION

Education is widely regarded in economics as a means of increasing the human capital and thus as the key to both the success of individuals in the labour market and the competitiveness of whole nations. Educated people are the crucial precondition to guarantee sustainable economic growth in the knowledge-based economy. A key role in education is played by the universities, thus research into graduate employment is a matter of a great interest both for economists and government representatives all over the world. The success of the graduates' entrance into the labour market has been studied from different aspects, such as the female-male wage gap and its relation to the field of the subject (Livanos and Pouliakas 2009; Machin and Puhani 2003; Goldberg and Hill 2007), whether some fields of study lead to higher postgraduate income (Finnie and Frenette 1999; Thomas and Zhang 2005; Black, Seth and Lowell 2003; Kanep 2005), the effect of the quality of the university attended (e.g. the research intensity) on labour market outcome (Ciriaci and Muscio 2010), issues of over-qualification and the match between the skills required at the workplace and those acquired in universities (Velasco 2011).

Despite these existing studies, research of the relative positions of graduates from different fields are lacking from the perspective of comparing real science and social science graduates. It is widely perceived that graduates of real sciences, such as the science

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and technology fields, are critical to the knowledge-based economy, yet students in many cases tend to prefer to study social sciences and humanities (see Table 2). The European Union set the goal of increasing the number of graduates in the real science at least 15% by the year 2010 (Progress Towards... 2009). Even though the share of graduates in these fields has increased in some countries (Estonia has exceeded the EU target for 2010), most European countries are still characterised by a low proportion of their young people choosing to study natural and life sciences specialties. The Estonian government has supported the studies in real and technical sciences by providing state-funded university places, while the majority of social sciences students pay tuition fees. In 2009, about 84% of social sciences students had to pay for their studies, while for real sciences this figure was 25% (Ministry of Education and Research).

The issues are particularly topical in the case of the Central and Eastern European economies. While generally, communist economies were characterised by their rather high level of general education, the fall of the iron curtain and sudden introduction of capitalism led to drastic changes for certain occupations (Campos and Dabušinskas 2009) which in turn affected the attraction of certain courses taken in universities. Another result was, however, a general increase in the number of university students (see Table 2). For instance, in Estonia over the last decade, the number of students at higher education level has more than doubled from around 25,000 in the mid-1990s to approximately 69,000 in 2008 (Estonian Ministry of Education and Research). In Estonia the percentage of people with tertiary education in the 25–64 age group was 36% in 2009 (in comparison, the OECD average was 28% in 2007). According to common understanding, the number of students has increased because the interest in studying social sciences has increased dramatically. If we look at the facts we can see that despite the very sharp increase in the total number of students, the proportion of students studying social sciences (in our study this category includes business and law) has been relatively stable (at about 40%) since 1998 and the proportion of real and technical sciences (hereinafter *real sciences*) students has also been stable (see appendix 1).

Given these issues, the purpose of this article is to compare the success of university graduates in social and real sciences in the labour market of Estonia, a small Central and Eastern European economy. There is a general perception that in Estonia there is an overproduction of social sciences specialists and therefore many of them face difficulties entering the labour market after graduation. In our view, labour demand determines the professional decisions of young people and we believe that, in contradiction to the aforementioned statement, young people with social science

degrees fare better after graduation than their fellow graduates in real and technical science subjects.

We compare their labour market status during their studies, a year after graduation and their wage after graduation. We use data from two recent alumni surveys; the first was launched in 2007 (it includes data on the labour market situation in 2006) and the second in 2010 (reporting data on 2009). People were surveyed a year after graduation. We focus only on graduates of four public universities, but this covers the majority of students in Estonia. It has been mentioned in the literature that graduates in particular study fields have a higher post-graduation income (Finnie and Frenette 1999; Thomas and Zhang 2005; Black, Seth and Lowell 2003, Kanep 2005) and especially fields of study such as law, business, engineering and health have a very large positive effect on graduates' earnings (Thomas and Zhang 2005; Norton 2008). Wage differentials exist between fields due to differences in the types of training provided. The wages for individuals majoring in fields of study providing specific training should exceed those majoring in more general areas. On the one hand, specific study fields that create specific skills only produce skills applicable to a small number of firms in the labour market. Study programmes that provide general training on the other hand, should allow an individual to find employment in a wider range of firms because they possess more transferable skills (Thorson 2005). Employers prefer to hire graduates from specific fields with specific competence requirements to cover vacancies. Holding a degree in a specific subject is sometimes a pre-requisite, and maybe a statutory one, to work in certain occupations (Vila *et al* 2007).

Evidence about the effect of the university attended on the labour market outcome is somewhat controversial. A paper by Ciriaci and Muscio (2010) analysed the determinants of Italian graduates' employability with special reference to university quality measured in terms of research performance. Their results confirmed that the "better" the university, the greater the likelihood of graduates being employed. However, there are surveys (e.g. McGuinness 2003) according to which the impacts on job quality and earnings were mainly limited to graduates in particular disciplines or those obtaining "poor" degrees from "good" universities. The results suggested that the labour market outcome for most graduates depended more on the subject studied and class of degree awarded than on the actual university attended.

The comparison between the two years (2006 and 2009) is important to ascertain whether changes in the economic situation have significantly influenced graduate access to the labour market. The mid-2000s were characterised by vast economic growth and a scarcity of labour in Estonia. In 2007, the youth un-

employment rate was, on average, about 10% (in the fourth quarter 6.5%). The global financial crisis hit Estonia quickly and painfully in 2008–2009. Estonia was among those countries that experienced a vast increase in unemployment. For youth, the increase was particularly high, reaching 40% in the first quarter of 2010. In comparison, a recent survey was conducted in the United Kingdom (2010) “Changes in student choices and graduate employment” by the Higher Education Careers Service Unit on behalf of Universities UK. It brings out the evidence that the emergence and experience of the recession has had an impact upon student choice and take-up of subject; however this impact is not universal across all subject disciplines. The main conclusions were that graduate unemployment is rising but the risk of unemployment is not equal across all subject disciplines: there have been fewer applications to study degrees related to those fields adversely affected by the recession. Recruitment to some occupations appears to be particularly sensitive to changes in the economy, whilst others appear to be far less so.

As mentioned, one motivation for the study is that, because the number of graduates has increased over the past decade, there is a theory that increased supply is not matched by demand and there might be insufficient graduate level jobs. Concerning the earlier studies, Velasco (2011) explored the question of over-qualification among European graduates. His paper investigates the incidence of over-qualification, based on an alternative subjective measure: unrealised expectations – when an individual’s expectations concerning labour market benefits from an investment in schooling are not realised. The results showed that graduating in the social sciences, arts and humanities, enhances the probability of being over-qualified for the positions applied for, while graduates with law, health or business degrees are more likely to be adequately educated (Velasco 2011).

The rest of the paper is structured as follows. The second section gives a general overview of the Estonian educational system. In the third section we introduce our data and in the fourth present our results. The last section concludes the research and suggests some of its implications for practitioners and academics.

OVERVIEW OF ESTONIAN HIGHER EDUCATION SYSTEM AND ITS FUNDING

At the beginning of 2011 there were 33 educational institutions offering higher education in Estonia. According to the ownership and type of education provided, they can be divided as follows:

- 6 public universities
- 3 privately owned universities
- 10 public professional higher education institutions
- 12 private professional higher education institutions
- 2 public vocational educational institutions.

Estonia signed the Bologna Declaration in 1999. This was a stimulus for large-scale changes – new study programmes were developed, the autonomy of universities was increased, a new study credits accumulation system based on student workload and an accreditation system was introduced. Since the academic year 2002/2003, the general structure of higher education has three cycles that comply with the bachelor degree (or professional higher education diploma); the master’s degree and the doctoral degree model of the European higher education field. A Diploma Supplement as well as a degree recognising the correspondence of qualifications awarded under different qualification systems were introduced in 2004.

Studies at higher education level are funded from the budget of the Ministry of Education and Research within the scope of the state-funded education. The funding system of state-funded study places consists of two main components: the total cost of a student place is calculated by multiplying the base cost of the student place by the co-efficient established for a field of study (or a study programme as an exception).

Public expenditure on higher education has been around 1% of GDP in recent years. In 2009 this amounted to EUR 179 million (1.3% of GDP, see Table 1).

In Estonia, some students qualify for state-funded study places. The ratio of students in state-funded and non-state funded study places has changed significantly over the years (see Table 2). During the 2009/2010 academic year, 48% of all students had their studies funded by the state. However, there are remarkable differences between the social and the real sciences. While the vast majority of social sciences students have to finance their studies themselves (84% in 2009), in real sciences most places are state-funded (75% in 2009). This reflects the policy of the government in supporting real sciences.

DATA

In 2007 and 2010, a survey of alumni in Estonia was conducted in a web-based format¹. The questionnaire requested information on work activity while studying

¹ In 2010 the questionnaire was adapted slightly, i.e. the 2007 and 2010 questionnaires do not accord completely.

Table 1 TOTAL PUBLIC EXPENDITURE ON EDUCATION

	2005	2006	2007	2008	2009
Total public expenditure on education (EUR million)	554	626	753	839	831
Share of GDP (%)	4.96	4.73	4.82	5.22	6.06
Total public expenditure on higher education (EUR million)	101	111	161	172	179
Share of GDP (%)	0.91	0.84	1.03	1.07	1.30

Source: Ministry of Education and Research

Table 2 STUDENTS STUDYING IN STATE-FUNDED AND NON-FUNDED PLACES

Field of Study	No of students									
	8.11.2005		10.11.2006		10.11.2007		10.11.2008		10.11.2009	
	SF	NSF	SF	NSF	SF	NSF	SF	NSF	SF	NSF
Social sciences	4 090	22 515	4 013	23 326	3 884	23 509	3 898	23 210	3 938	21 174
Share of total	15	85	15	85	14	86	14	86	16	84
Real sciences	5 058	1 802	5 060	1 769	5 038	1 527	5 015	1 480	5 398	1 793
Share of total	74	26	74	26	77	23	77	23	75	25
TOTAL	31 386	36 901	31 268	37 499	31 150	37 018	31 536	36 863	33 080	35 905
Share of total	46	54	45	55	46	54	46	54	48	52

Note: SF – state funded; NSF – non-state funded.

Source: Ministry of Education and Research

and the labour market status a year after graduation. There were also questions on different aspects relating to work after graduation including which channels were used to gain entry to the labour market, whether and to what extent the job taken was related to the previous field of study, the current employment position, skills and level of education required for the position, gross wage and other income. In 2007 the response rate was 22.8% (1565 alumni of 6852) and in 2010 24.2% (1735 of 7156). Weighting² was used to ensure generalisation of the whole population (all graduates). The data was calibrated by university and degrees using the survey software, Bascula.

University graduates were surveyed about one year after graduation, so the 2007 survey covered those who graduated in 2006 and the 2010 survey those who graduated in 2009. Both graduates and postgraduates who had completed master's or doctoral degree studies were involved. In 2007, the survey covered five Estonian universities governed by public law – the University of Tartu, Tallinn University of Technolo-

gy, Tallinn University, the Estonian Academy of Arts and the Estonian University of Life Sciences. In 2010, the survey included more higher education institutions. As our aim is to compare the labour market situation of students who graduated in 2006 and 2009, in our analysis we include only respondents from the aforementioned four universities (excluding the Estonian Academy of Arts since it does not provide social or real sciences programmes) to guarantee the comparability of the results between the two years. The public universities included in the survey cover most of the country's students (see Table 3).

As the sample size of those who had graduated from applied higher education was too small to permit reliable conclusions, we excluded this group from our analysis. Since our interest is to compare the labour market success of the real sciences (i.e. natural and exact sciences) and social sciences (social sciences, including economics and law) students, we excluded other groups from the analysis. To sum up, we focus on the labour market situation of those recently

² The results were weighted across the following variables: the institution, field of study and level of graduation.

Table 3 UNIVERSITY GRADUATES IN ESTONIA IN 2006 AND 2009

	2006			2009		
	Total	4 universities	Sample*	Total	4 universities	Sample*
TOTAL all levels	8 073	6 695	1 543	7 825	6 957	1 696
Professional higher education and diploma study	790	735	161	501	546	92
Bachelor's degree	5 290	4 233	954	4 533	3 850	910
Bachelor's/Master's degree combined	315	311	58	393	392	75
Master's degree	1 535	1 263	330	2 238	2 011	580
Doctoral degree	143	153	40	160	158	39

Note: * sample – number of respondents.

Source: Estonian Education Information System EHIS, alumni surveys, authors' own calculations

Table 4 OVERVIEW OF ALUMNI SURVEY DATA

	2009		2006	
	Number of alumni	% of total	Number of alumni	% of total
TOTAL	3014		2498	
UNIVERSITIES				
University of Tartu	1 301	43	1 309	52
Tallinn University of Technology	1 113	37	654	26
Tallinn University	4 58	15	420	17
Estonian University of Life Sciences	142	5	115	5
LEVEL				
Bachelor's degrees	1 952	65	1 815	73
Master's / Doctoral degrees	1 062	35	683	27
FIELD OF STUDY				
Social sciences	2 196	73	1 710	68
Real sciences	818	27	788	32

Source: alumni surveys, authors' own calculations, weighted

awarded bachelors, master's and doctoral degrees in social sciences and real sciences by four Estonian universities governed by public law.

A comparison of the two years indicates that the share of social science graduates and postgraduates has increased. The proportion of those graduating at bachelor level has decreased, but this is due to an increase in graduations at master's and doctoral levels. In absolute terms the number of first degree graduates has increased by about 7.5%.

RESULTS

Working while studying

There are remarkable differences in work patterns while studying between students of social sciences and real sciences. The majority of social science students worked during studies and this tendency has widened (while in 2006 one fifth of students did not work while studying, in 2009 the figure was 12%, see Table 5), in real sciences the share of those work-

ing while studying is 15 percentage points lower in both years. Remarkable differences appear between working before studies – in social sciences every second alumni worked before they took up studying full-time, while among real sciences graduates it was around one in five. However, probably due to difficult economic conditions, the share of those not working while studying has decreased by about 7 percentage points in both groups.

Compared to real sciences, full-time working is much more widespread among social sciences students (see Table 2). As expected, during master's/doctoral studies, full-time working is much more widespread than during bachelor studies (there are several reasons: firstly, many jobs require at least some kind of knowledge or experience; secondly, during bachelor studies it is difficult to reconcile studying and working

because of the heavy study load) but still, remarkable differences remain between social and real sciences.

Compared to the financial boom period, full-time working has clearly decreased, especially among social sciences bachelor students and also, remarkably, among real sciences students. This reflects the current Estonian overall labour market situation. In Estonia, the use of part-time employment has increased the most among the EU countries and part-time work is extensively used to avoid redundancies (see Krillo, Masso 2011).

In both social and real sciences most students work for financial reasons, other reasons such as gaining work experience are less important. This is understandable since Estonian scholarships at all levels of higher education are insufficient to cover even basic living ex-

Table 5 INCIDENCE OF WORKING DURING STUDIES

	Field of Study			
	Real sciences		Social sciences	
	2006	2009	2006	2009
Before and during studies	18	23	48	50
During studies	46	47	31	35
Before but not during studies	2	5	3	3
Neither before nor during studies	33	26	19	12
TOTAL	100	100	100	100

Source: alumni surveys, authors' own calculations

Table 6 WORKLOAD DURING STUDIES (DETAIL ON THOSE WHO WORKED DURING STUDIES)

Level of study	Field of Study	Full-time	Part-time/ occasional	Total
2009				
Bachelor's degree	Social sciences	47	53	100
	Real sciences	17	83	100
Master's and doctoral degrees	Social sciences	75	25	100
	Real sciences	30	70	100
2006				
Bachelor's degree	Social sciences	49	52	100
	Real sciences	36	64	100
Master's and doctoral degrees	Social sciences	88	12	100
	Real sciences	60	40	100

Source: alumni surveys, authors' own calculations

penses. During the recession, the relative importance of the need to find an income has increased, especially among undergraduates. There are probably several reasons for this: it is highly likely that parents are now less able to support the studies of their children due to the difficult economic situation, which means that students need to finance their studies themselves. In Estonia wages have decreased in many areas and there is anecdotal evidence that many families face the need to finance their debts at a higher level than in the mid-2000s (see Krillo, Masso 2011), meaning that disposa-

ble income has decreased. Secondly, the availability of loans has clearly worsened due to banks' conservative lending policies, which has probably also influenced the economic subsistence of the young.

Financial difficulties are reflected in the relationship between the subject being studied and the tasks of the job held during studies. During the crisis, working in a field closely related to the subject has decreased especially among master's/doctoral degree students (see Table 8).

Table 7 MAIN REASON FOR WORKING DURING STUDIES

Level of study	Field of Study	Financial difficulties	To obtain working experience	Self-determination	A good job offer was made	Other reasons	Total
2009							
Bachelor's degree	Social sciences	62	18	6	4	10	100
	Real sciences	72	21	3	2	2	100
Master's and doctoral degrees	Social sciences	48	23	9	3	17	100
	Real sciences	50	35	7	4	4	100
2006							
Bachelor's degree	Social sciences	44	40	6	9	1	100
	Real sciences	43	44	3	4	5	100
Master's and doctoral degrees	Social sciences	42	33	7	9	9	100
	Real sciences	53	35	4	8	0	100

Source: Alumni surveys 2006 and 2009; authors' calculations

Table 8 RELATIONSHIP BETWEEN TASKS OF THE JOB HELD DURING STUDIES AND THE SUBJECT LEARNT

Level of study	Field of Study	Very closely	Rather closely	To some degree	Not at all	Total
2009						
Bachelor's degree	Social sciences	25	17	31	27	100
	Natural sciences	29	16	22	33	100
Master's and doctoral degrees	Social sciences	51	26	16	7	100
	Natural sciences	50	21	14	15	100
2006						
Bachelor's degree	Social sciences	23	28	23	26	100
	Natural sciences	27	30	14	29	100
Master's and doctoral degrees	Social sciences	36	44	16	4	100
	Natural sciences	65	24	8	3	100

Source: Alumni surveys 2006 and 2009; authors' calculations

Working after graduation

As with working patterns while studying, there are also remarkable discrepancies when comparing the labour market status of students a year after graduation. Compared to real sciences, a considerably higher proportion of social sciences graduates are working while fewer are continuing to study. The differences appear for all degree levels in both surveys. In 2009, four of every five social sciences graduates with a bachelor's degree were working a year after graduation (half of them were working *as well as* studying), among real sciences graduates at the same level the figure is less than 60% and a considerably higher proportion are only studying.

At higher degree levels, the proportion of those continuing studies is clearly lower among social sciences students (of the 2009 graduates, about 50% of social sciences bachelor's degree graduates and 10% with a master's degree continued studies; in real sciences the figures were 75% and 40%, respectively). This is probably due to the labour demand; while in social sciences fields, employers are often content to specify only "higher education" among their qualification requirements, in real sciences, a master's degree is often required to guarantee sufficient knowledge to successfully enter the labour market.

Compared to 2006, in 2009 the proportion of those either only working or only studying decreases and

the proportion of those studying and working has increased both in social and real sciences (except among students of higher degrees in social science). From the working perspective, this probably reflects the developments in the labour market – while in 2006 there was a labour scarcity which meant that young specialists were invited to enter into the labour market and there was little need to obtain a higher postgraduate degree. In 2009, when Estonia's labour market was characterised by a vast increase in unemployment, studying was partly used as a means to avoid unemployment. On the other hand, the difficult economic situation forces more students to work while studying.

The rate of unemployment has been really low among Estonian graduates (see Table 9), but has increased somewhat for those with higher degrees and for those holding social science bachelor's degrees. To provide a baseline, in Estonia the general unemployment rate was 4.7% in 2007 and 16.9% in 2010.

Compared to social sciences, more real sciences graduates have a job closely related to their profession (see Table 10). Similarly to working during studies, the share of those whose job is not related to the subject studied has increased during the recession.

When it comes to their current profession, social science graduates contribute a greater proportion of managers and legislators than real science graduates

Table 9 LABOUR MARKET STATUS ONE YEAR AFTER GRADUATION

Level of study	Field of Study	Working	Studying	Working and studying	Unemployed ³	At home	Other	Total
2009								
Bachelor's degree	Social sciences	40	11	40	3	4	2	100
	Real sciences	20	37	38	1	0	3	100
Master's and doctoral degrees	Social sciences	79	1	10	2	7	0	100
	Real sciences	51	4	37	1	7	0	100
2006								
Bachelor's degree	Social sciences	51	25	20	0	4	0	100
	Real sciences	37	34	26	1	1	0	100
Master's and doctoral degrees	Social sciences	75	10	8	0	6	1	100
	Real sciences	55	27	17	0	1	0	100

Source: alumni surveys, authors' own calculations

³ This is not equal with unemployment rate, because it reflects the share of graduates unemployed a year after graduation.

Table 10 RELATIONSHIP BETWEEN CURRENT JOB TASKS AND THE SUBJECT STUDIED

Level of study	Field of Study	Very closely	Rather closely	To some degree	Not at all	Total
2009						
Bachelor's degree	Social sciences	41	23	22	15	100
	Real sciences	52	15	20	14	100
Master's and doctoral degrees	Social sciences	60	26	8	6	100
	Real sciences	65	15	11	9	100
2006						
Bachelor's degree	Social sciences	38	34	21	7	100
	Real sciences	46	33	10	10	100
Master's and doctoral degrees	Social sciences	40	44	16	0	100
	Real sciences	69	24	5	1	100

Source: alumni surveys, authors' own calculations

Table 11 CURRENT PROFESSIONS OF ALUMNI

Level of study	Field of Study	Legislators, senior officials and managers	Professionals	Technicians and associate professionals	Officials	Other	Total
2009							
Bachelor's degree	Social sciences	10	29	33	22	6	100
	Real sciences	6	56	26	0	11	100
Master's and doctoral degrees	Social sciences	17	57	20	5	1	100
	Real sciences	5	66	25	3	2	100
2006							
Bachelor's degree	Social sciences	21	16	37	16	11	100
	Real sciences	6	22	49	8	17	100
Master's and doctoral degrees	Social sciences	37	41	13	8	0	100
	Real sciences	9	43	43	3	1	100

Source: alumni surveys, authors' own calculations

do. When comparing two years, we can see remarkable differences (see Table 11 for more details). As expected, among those who completed master's or doctoral degrees, the proportion taking white-collar professional roles are higher than among those just holding a first degree.

Compared to 2006, in 2009 fewer graduates were working as legislators, senior officials and managers and more were working as professionals. The result applies both to first and higher degree holders. This

trend is particularly visible among those holding a bachelor's degree in social sciences: while in 2006 only around 20% of them were professionals, in 2009 the proportion was as high as 56%. For real sciences, the decrease in the numbers working in a job directly related to their subject of study is mainly associated with changes in the technician and associate professional fields. In 2006, around half of all those with a real sciences bachelor's degree held a job in that category, while by 2009 only around one in four did. For those with higher degrees, the proportions are of the

same magnitude. Among social sciences graduates the numbers working as officials have increased.

The analysis of over- and under-qualification (i.e. mismatches between educational level obtained and that required for the job held) indicates that at both first and higher degree levels there are signs of both over-qualification and under-qualification⁴. At the first degree level there are no remarkable differences between social sciences and real sciences: about 60% of graduates have a job that accords with their degree; for 26% of social science graduates and 24% of real science graduates their job requires less education and for 14% of social science graduates and 17% of real science graduates, they hold jobs that would normally require a higher level of education than they have actually attained.

For those with higher degrees the discrepancies are higher; 44% of those with social sciences qualifications and 60% of their counterparts from real sciences have a job corresponding to their educational level, while for the remainder, their jobs require a lower educational level. In general then, we can conclude that over-qualification is higher among real sciences graduates.

Salary

Detailed wage data is only available for 2009; therefore we will use data from the 2009 alumni study. As can be seen from Figure 1 and Appendix 2, a social science education pays off more than a real science education. At both bachelor's and master's levels, the

Table 12 RELATIONSHIP BETWEEN ACTUAL EDUCATIONAL LEVEL AND EDUCATIONAL LEVEL REQUIRED IN THE CURRENT JOB (SUBJECTIVE EVALUATION BY GRADUATES)

Level of study	Field of Study	Educational level is not important	Secondary (general)	Vocational	Bachelor	Professional higher	Master/doctoral	Total
2009								
Bachelor's degree	Social sciences	8	18	1	60	4	10	100
	Real sciences	7	17	0	59	3	14	100
Master's and doctoral degrees	Social sciences	2	4	1	47	3	44	100
	Real sciences	2	1	1	32	4	60	100

Source: alumni surveys, authors' own calculations

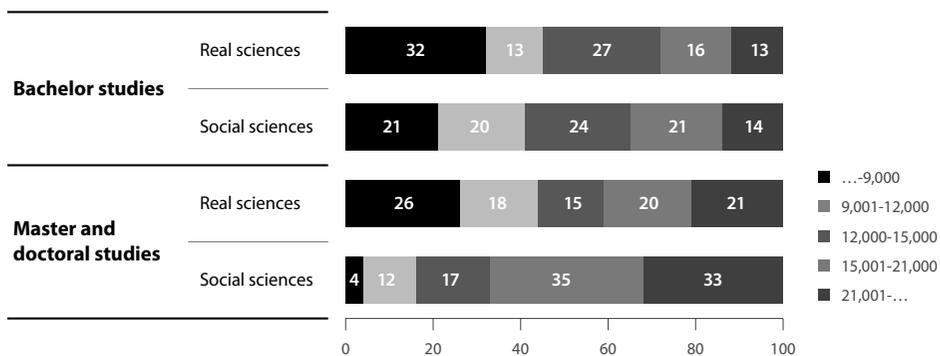


Figure 1 WAGE DISTRIBUTION OF 2009 GRADUATES BY EDUCATIONAL LEVEL AND SUBJECT LEARNT (EEK)

Source: 2009 alumni survey, authors' own calculations

⁴ As data about this aspect is not available for 2006, the results of 2009 are presented.

proportion of those earning a high salary (more than 15000 EEK) is considerably higher among social sciences graduates than among real sciences graduates.

Social sciences graduates with bachelor's degrees earn about 10 percent per month more than their real sciences counterparts, while at the higher degree level the difference is almost 30%⁵ (see Table 13). Moreover, although a higher degree clearly has an impact in both groups, in social sciences the influence is far more noticeable – the mean wage of a holder of a doctorate or a master's degree is about 35% higher than that of employees with a bachelor's degree in social sciences. For the real sciences the difference is about 4%. The independent samples of the ANOVA *t*-test indicates that the differences between social and real sciences graduates' wages are statistically significant both for first and higher degree holders.

We estimated OLS wage regressions to analyse which factors influence the wages of real and social sciences graduates. Unfortunately the database does not include appropriate instruments to use when estimating the wage equation with 2SLS or a Heckman selection model, so we used OLS instead, despite being aware of the fact that due to endogeneity, the results obtained may be biased.

However, the results obtained indicate that factors influencing wages are quite similar for social and

real sciences graduates (see Table 14). When other variables are considered equal, white-collar staff earn more than blue-collar staff, master's degree graduates more than bachelor's degree graduates, those with longer job tenure earn more than those who are less experienced, and those who worked during their studies earn more than those who did not work while studying. The influence of the region in which graduates work and of the university they graduated from is mixed. While for social sciences alumni the university attended matters, it is not the case for real sciences students. The influence of the region where the job is located is important for social sciences graduates' (jobs in Northern and Eastern Estonia pay more than in any other region).

As the final step of the analysis, we also performed the Oaxaca-Blinder decomposition of the wage difference between the graduates of real and social sciences. The calculations were undertaken using the Stata package Oaxaca written by Jann (2008). The purpose of the exercise was to discover to what extent the differences between the graduates of real and social sciences can be accounted for by different factors, for example, gender segregation in education (as Estonia is characterised by a very high gender wage gap, this could well explain part of the difference) or, due to different returns on these factors among graduates from social and real sciences (e.g. wages increasing more with job experience in one of the

Table 13 GROSS MONTHLY SALARY OF EMPLOYED ALUMNI A YEAR AFTER GRADUATION (EUR)

Statistics	Bachelor's degree		Master's/Doctoral degree	
	Social sciences	Real sciences	Social sciences	Real sciences
N	889	186	477	236
Mean	949	855	1 339	1 040
Median	895	863	1 208	901
Std. Deviation	415	377	571	600
Minimum	320	211	639	275
Maximum	2 556	1 853	3 835	3 375
Percentiles	1	332	211	639
	5	403	294	724
	95	1 584	1 540	2 556
	99	2 237	1 853	3 835

Source: 2009 alumni survey, authors' own calculations

⁵ We excluded 5% at the lowest and 1% at the highest end of wage distribution in each group from the analysis to mitigate the influence of outliers.

Table 14 WAGE EQUATIONS FOR SOCIAL AND REAL SCIENCES GRADUATES

	Real Sciences	Social Sciences
White-collar	0.610***	0.219***
Central Estonia	-0.197*	-0.469***
Eastern Estonia	0.000	-0.087
Southern Estonia	-0.280***	-0.289***
Western Estonia	-0.085	-0.291***
University of Life Sciences	-0.091	-0.259***
Tallinn University of Technology	0.089	-0.087***
Tallinn University	0.024	-0.236***
Working during studies	0.113*	0.098***
Level	0.101**	0.2982***
Job tenure	0.063**	0.041***
Constant	8.680***	9.312
F-statistic	15.843***	57.949***
Adjusted R ²	0.279	0.315

Note: dependent variable is the natural log of the wage variable. The category “white-collar” includes legislators, senior officials and managers, professionals, technicians and associate professionals.

groups)⁶. We also analyse which part of the wage gap is linked to differences in the workers’ characteristics (i.e. an explained or objective gap) and which part is related to the differences in returns to these characteristics (i.e. an unexplained or a subjective gap). For that purpose, wage regressions were estimated, where the log net wage was regressed on a number of variables characterising the person (gender, tenure, education, age) and the job (sector of employment, occupation).

Figure 2 presents the Kernel density functions for wage distributions. It is apparent that social sciences graduates generally have higher salaries, when we look only at the graduates with a master’s degree. When looking at those with a bachelor’s degree, the relation is somewhat less clear, but social science graduates are more strongly represented among those with salaries between 7000 and 15000 kroons (447 to 959 euros), while real science graduates are more frequently among those with salaries below 7000 kroons (approximately 447 euros). When pooling both samples together, again the picture seems to indicate higher salaries among social science graduates, as real sci-

ences graduates are relatively over-represented among the lower-wage earners.

Table 15 presents the results of the Oaxaca-Blinder decomposition (see appendix 3 for statistics on the data used). Generally, the explained component has a negative sign, that is, the factors in the model would explain the higher wages of real science graduates, also seen in the raw data. The total wage gap is around 17% in favour of social sciences and the explained part 18%. Note that the raw gap here may differ somewhat from the numbers reported elsewhere because the calculations here include only the observations with non-missing values of the relevant variables. Generally, one can observe that variables, like the level of study (master’s or bachelor’s degree), university, gender and age, account for almost the entire wage gap and there is not much explanatory power to the other variables related to the person, job or enterprise. This could also be simply related to the particular sample analysed which is relatively homogenous in some variables, that is, almost without any employees in blue-collar jobs. Thus, length of job tenure not be-

⁶ There have been a few surveys on the male-female wage gap according to the field of subject and the effect of their educational choices (Livanos and Pouliakas 2009; Machin and Puhani 2003; Goldberg and Hill 2007). It is found that the field of subject explains a significant part of the gender wage gap among graduates. Subjects in which women are relatively over-represented (e.g. education, humanities) are also those with the lowest wage returns. Men, on the contrary, concentrate more on financially rewarding subjects than women.

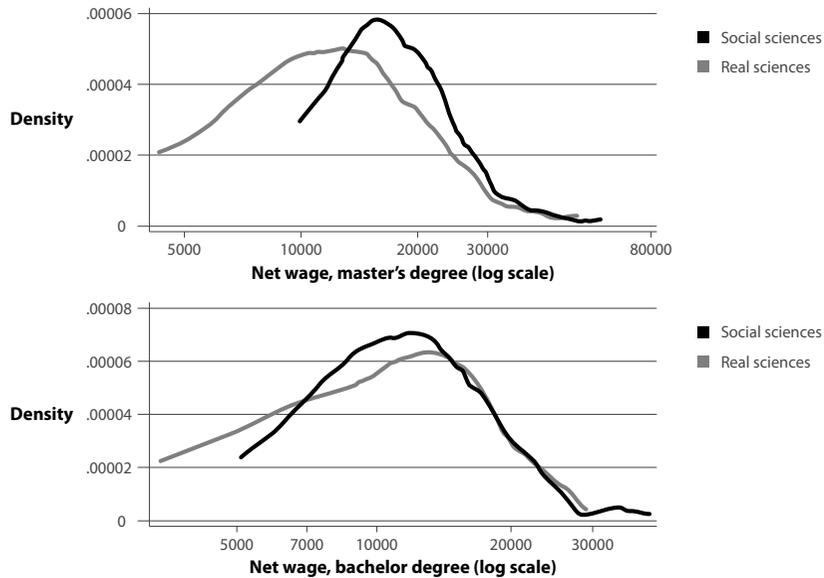


Figure 2 KERNEL DENSITY FOR WAGE DISTRIBUTION: GROSS WAGES, LOWER 5% AND UPPER 1% OBSERVATIONS DROPPED

Table 15 OAXACA-BLINDER DECOMPOSITION OF THE WAGE GAP BETWEEN THE GRADUATES OF REAL AND SOCIAL SCIENCES

Variables	1	2	3	4	5
Social sciences	11585.9	11585.9	11585.9	11585.9	11585.9
Real sciences	13750.0	13750.0	13750.0	13750.0	13750.0
Wage gap (log difference)	-17.1%	-17.1%	-17.1%	-17.1%	-17.1%
Explained	-5.3%	-15.1%	-14.1%	-18.2%	-18.0%
Unexplained	-11.8%	-2.0%	-3.0%	1.1%	0.9%
Explained part by factors					
Level (master/bachelor)	-0.053 (0.01)	-0.032 (-2.4)	-0.025 (-2.09)	-0.034 (-2.4)	-0.033 (-2.36)
University		-0.069 (-3.88)	-0.056 (-3.43)	-0.035 (-2.43)	-0.03 (-2.56)
Gender		-0.026 (-2.31)	-0.025 (-2.28)	-0.022 (-2.21)	-0.025 (-2.37)
Age		-0.024 (-2.28)	-0.023 (-2.27)	-0.022 (-2.23)	-0.017 (-1.97)
Occupation			-0.013 (-1)	-0.024 (-1.57)	-0.022 (-1.45)
Sector				-0.046 (-1.22)	-0.035 (-0.93)
Location					0.009 (0.91)
Firm size					-0.024 (-1.86)
Tenure					-0.005 (-1.08)
Observations	597	597	597	597	597

Note. Gross wage, lower 5% and upper 1% observations dropped: only intramural students. Z-statistics are in parentheses. In order to control possible measurement errors, we excluded the lower 5% and upper 1% of observations from the calculations. Both graduates with master's and bachelor's degrees are included in the calculations. The sample size is in all estimations the same, as we chose to sample the observations with non-missing values in all relevant variables.

ing significant could simply indicate that university graduates find jobs quite easily; the number of unemployed among them is quite small, so there is little variation in this variable. The same holds for these broad occupational categories as almost none work in blue-collar occupations. While the impact of the sector looks strong, it is also insignificant, being quite imprecisely estimated. By far the most important variable explaining a large part of the variation in wages seems to be the university attended. The latter could, to some extent, reflect the different specialities and curricula at different universities, but that could also be because graduates from some universities (most notably, the University of Tartu) are more highly valued in the labour market than some other graduates polled (e.g. those from the Estonian University of Life Sciences); this is also observable from the raw data (i.e. the graduates of the University of Tartu earning almost 70% more than the graduates of the Estonian University of Life Sciences).

CONCLUSION

The aim of this paper is to compare the labour market outcomes of graduates in the real sciences with those in the social sciences. We used data from two recent (2007 and 2010) alumni studies to analyse labour market activity and the wages between the two groups. Despite the lack of state-funded places, social science degrees are far more popular than real science degrees in Estonia, although the Estonian government has declared that the latter is a priority in order to guarantee sustainable development. In our study we surveyed the reasons for this tendency.

The recession has influenced the work-related choices of students. Most of the graduates polled had completed some kind of work experience prior to graduation – in 2009, 85% of social science and 70% of real science graduates were working while studying. The most frequently mentioned reason for working while studying was the need to finance the costs of studying. This is particularly true for undergraduates who work mainly for economic reasons. The proportion of students working to fund their studies has increased considerably during the economic downturn. Without additional funding, it is difficult to maintain a reasonable standard of living because scholarship bursaries in Estonia are rather low and then not universally available. Another reason may be that parents are less able to support their children's studies because of the decrease in disposable income (during the economic crisis wage cuts have been widespread throughout Estonia).

Students who work during their studies do so mostly for economic reasons and then in fields not directly

related to their studies. Only every fourth social sciences student and less than a third of real sciences bachelor's degree students had a job directly related to the subject studied. The equivalent proportion for higher degree students (based on subjective reporting) was around 50%. This is a cautionary sign that should not be ignored. It is not to say that the Estonian educational system is generating too many social and real scientists, but it is clear that the problem probably lies not just in the educational system but in entrepreneurship in general – we should be developing an environment that needs well-educated real and social scientists.

After graduation most of the alumni polled either continued studying and/or working, the number of those unemployed being low. The proportion of those only working (i.e. not continuing studies) is much higher among social science graduates compared to those who specialised in real sciences – the latter mostly continue studying. The comparison with two years previously reveals that in 2009 studying was much more widespread. This reflects the general situation in the labour market well – owing to the high unemployment rate it is difficult to find work, which provides an incentive to continue studying. All in all, this is a positive development and for now, at least, over-qualification is not a serious issue in Estonia.

Compared to a few years ago, today fewer graduates start their careers in managerial positions. The incidence of working in an area not related to the subject studied has increased, although the proportion of graduates in that situation is not particularly high (about 15% of graduates with a bachelor's degree, 6% of holders of a higher degree in social sciences and 9% of their counterparts from the real sciences faculties). It is a positive sign, taking into account the high unemployment rate and heavy competition within the labour market.

The comparison with the professions and incomes of real and social sciences graduates reveals the background of popularity for the latter – at both first and higher degree level, the wages of social sciences graduates are clearly higher. A decomposition of the wage differences shows that the key factors determining these differences are sector, university and firm size.

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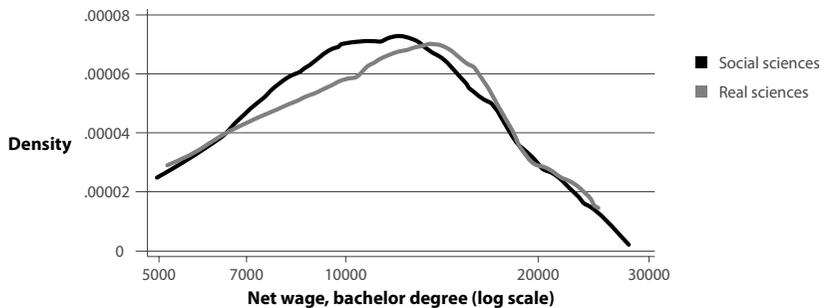
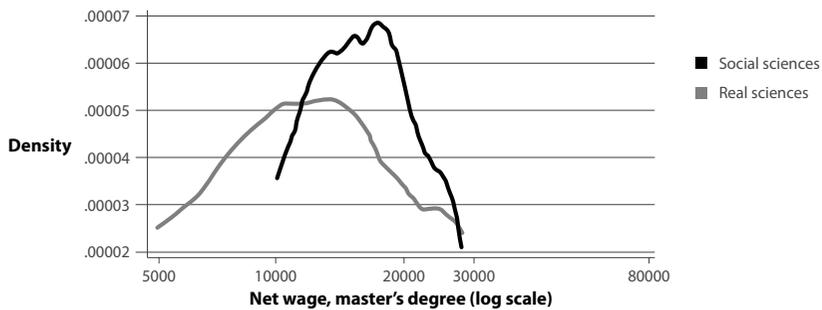
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Appendix 1 NUMBER OF STUDENTS IN SOCIAL AND REAL SCIENCES FACULTIES IN ESTONIA, 1995-2009

	Social sciences		Real sciences		TOTAL	
	No of students	Share of total	No of students	Share of total	No of students	Share of total
1995/96	8 883	33%	2 289	8%	27 234	100%
1996/97	10 286	34%	2 303	8%	30 072	100%
1997/98	12 415	36%	2 920	8%	34 542	100%
1998/99	16 039	39%	3 241	8%	40 621	100%
1999/00	20 254	41%	3 774	8%	49 574	100%
2000/01	22 234	39%	4 883	9%	56 437	100%
2001/02	23 062	38%	5 537	9%	60 409	100%
2002/03	24 029	38%	6 399	10%	63 625	100%
2003/04	25 031	38%	6 580	10%	65 659	100%
2004/05	25 786	38%	7 025	10%	67 760	100%
2005/06	26 605	39%	6 860	10%	68 287	100%
2006/07	27 339	40%	6 829	10%	68 767	100%
2007/08	27 393	40%	6 565	10%	68 168	100%
2008/09	27 108	40%	6 495	9%	68 399	100%

Source: Ministry of Education and Research



Appendix 2 KERNEL DENSITY FOR WAGE DISTRIBUTION: NET WAGES, WAGES BELOW MINIMUM WAGE AND ABOVE 100,000 EEK DROPPED

Appendix 3 DESCRIPTIVE STATISTICS OF THE VARIABLES USED IN THE OAXACA DECOMPOSITION

Variables	Mean	Standard deviation	Minimum	Maximum
Age	27.88	6.75	21	58
Age squared	822.69	464.11	441	3364
Bachelor's degree	0.56	0.50	0	1
Master's degree	0.44	0.50	0	1
Net wage, EEK	11809.41	7286.03	3800	91562
Log net wage	9.25	0.47	8.24	11.42
Construction	0.02	0.15	0	1
Hotels and restaurants	0.03	0.17	0	1
Other business services	0.06	0.24	0	1
Public services	0.33	0.47	0	1
Sales and trade	0.04	0.19	0	1
Industry	0.07	0.25	0	1
Real sciences	0.35	0.48	0	1
Social sciences	0.65	0.48	0	1
Male	0.26	0.44	0	1
Legislators, senior officials and managers	0.09	0.29	0	1
Professionals	0.53	0.50	0	1
Technicians and associate professionals	0.21	0.41	0	1
Clerks	0.10	0.29	0	1
Service workers and retail sales workers	0.04	0.21	0	1
Skilled agricultural and fishery workers	0.00	0.05	0	1
Craft and related trade workers	0.01	0.08	0	1
Plant and machine operators and assemblers	0.00	0.06	0	1
Elementary occupations	0.01	0.09	0	1
1–19 employees	0.12	0.32	0	1
20–49 employees	0.18	0.39	0	1
50–199 employees	0.25	0.43	0	1
200–499 employees	0.12	0.32	0	1
More than 500 employees	0.20	0.40	0	1
Job tenure 4–12 months	0.21	0.41	0	1
Job tenure 12–36 months	0.33	0.47	0	1
Job tenure more than 3 years	0.36	0.48	0	1
Estonian University of Life Sciences	0.13	0.34	0	1
Tallinn University	0.26	0.44	0	1
Tallinn Technical University	0.26	0.44	0	1
University of Tartu	0.32	0.47	0	1

4.2. The graduate gender pay gap in Estonia

Study IV **Espenberg, K., Thomas, A., Masso, J.**
The Graduate Gender Pay Gap in Estonia. –
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Chapter 16.

The graduate gender pay gap in Estonia

Kerly Espenberg, Aivi Themis, Jaan Masso

Introduction

Equal pay for equal work is one of the founding principles of the European Union (EU). Enshrined in the Treaty of Rome in 1957, it was the subject of a 1975 directive 75/117/EEC, which prohibited all discrimination in all aspects of pay between women and men for the same work or for work of equal value. Although there has been considerable progress towards equality, and there are now fewer cases of direct discrimination, according to Eurostat data, there are still important differences between men's and women's earnings in the EU.

The gender pay gap is linked to a number of factors that are frequently interrelated. The reasons can be divided into two broad categories (UNDP, 2006): first, direct discrimination: this occurs when people who have the same level of education and amount of work experience are treated differently because of their gender – different pay levels for the same work or different job requirements for the same pay; and second, objective discrimination: this occurs as a result of occupational gender segregation in the labour market – the concentration of women and men in different sectors and occupations and the lower human capital of women (due to lower job tenure). It has been widely observed and agreed that the prevalence of discrimination has decreased due to the development of international regulations by the International Labour Office (ILO), United Nations (UN) and EU.

The focus of this study was on gender segregation in different subject areas in Estonian higher education, the male-female wage gap among recent graduates and the main reasons for the gap. Estonia is a particularly interesting case because it has the largest raw (i.e. unadjusted) gender pay gap of all European Union (EU-27) countries²¹. Our research contributed to the existing literature in this field in several ways. First, we gave an overview of gender segregation in higher education by subject types for last 20 years based on data from the Ministry of Education and Research and previous research. Second, while there are several recent studies focusing on working among students (Mägi et al., 2011; Saar and Unt, 2011) and the general gender pay gap in

21 Eurostat online-database: Gender Pay Gap Statistics
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Gender_pay_gap_statistics.

Estonia (Anspal, Kraut and Rõdm, 2010), in our work we focused on the existence of the gap shortly after entering the labour market. There is a growing interest in this field and our study will add valuable knowledge to it. For the wage gap analysis we used data from a recent survey of university graduates (Themas, Espenberg and Eamets, 2011). We used several multivariate statistical analysis methods, including regression analysis and decomposition, to analyse which factors explain the gender wage gap among higher education graduates and to what extent.

The rest of the paper is structured as follows. In the second part of this paper we give a short overview of previous studies in this field; in the third part we introduce the econometric framework and in the fourth part the data and variables used. The results are presented in the fifth section and in the final section we present our conclusions.

Determinants of the gender pay gap

There is a large body of literature focusing on the gender pay gap and its determinants in various countries. In this section we give a short overview of studies, which have focused on the graduate wage gap and its causes. Traditionally, within the context of human capital theory, differences in pay are explained by differences in individual characteristics, like age, education and work experience. Evidence from different studies (Plantenga and Remery, 2006; Anspal et al., 2010) suggests that these differences only play a minor role in the persistence of the gender pay gap.

The gender pay gap is found to be lowest or non-existent for young employees²², and it increases with age as a result of the career breaks taken (or potential career breaks due to family obligations) by women during their working lives (Beblo and Wolf, 2000; Datta Gupta and Smith, 2002; Belgian Presidency Report, 2010). The wages of women of child-bearing age may be lower than those of men because employers assume that during a certain period of their lives women will not participate in the labour market due to having children. There are potential costs to employers for this (seeking and training substitute employees), so they compensate during wage negotiations by offering women of child-bearing age lower pay than they would offer to men. In addition to the negative impact of direct discrimination, this can also have an indirect

22 This is confirmed by a clear increase in the gender pay gap with age in the EU-27, from 3.1 per cent for employees younger than 30 years to 17.5 per cent for those 30–39 and 23.8 per cent for those 40–49 years old in 2006. It decreases slightly, however, for those of 50 years and older (21.8 per cent).

effect on women's wages as they will also have fewer opportunities to undertake specific training and to move up the career ladder. The differences in women's and men's wages in various groups indicate that discrimination is one of the reasons for the gender pay gap in Estonia. The wage difference between women and men is the greatest in the age range 25–54 years, during which time having a family and raising children is most likely (Anspal et al., 2010).

Educational differences once played a major role in the gender wage gap. However, today this is not as significant as it used to be because more and more women undertake higher education. In most EU countries women's education levels are at least comparable to men's, and even tend to be higher among the younger generations (Pothieux and Meurs, 2005). Educational attainment affects both female participation in the labour market and their level of earnings. The Eurostat data shows that the situation varies among EU member states; in some countries the gender pay gap is much higher for people with a higher level of education than for those with a lower level of education (e.g. Czech Republic, Greece and France), in other countries the opposite is true (a lower wage gap for those with higher education, for example in Belgium and Lithuania) while in others the gender pay gap is less dependent on educational attainment (e.g. Bulgaria, the UK).

A study of the gender wage gap in Estonia (Anspal et al., 2010) suggests that although an increase in educational level will decrease the gender pay gap, wage differences for highly educated workers have not changed significantly over the years. Even though, in most EU countries, women have higher educational qualifications than men, they remain under-represented – because of educational segregation – in the most valued subject areas (engineering, science and so forth) (O'Dorchai, 2008).

Human capital theory states that the incentive to invest in education depends on the time a person expects to work over their lifetime. In turn, the education acquired in schools and on-the-job training determines their earning potential. The more years worked, the greater the opportunity to reap the benefits of higher earnings. However, dropping out of the labour force (for example, to take care of children) reduces the years worked during a lifetime, which in turn decreases the potential rewards from human capital. Thus, all other things being equal, the less a person participates in the labour force over their lifetime, the lower the benefits of the investment, and hence the smaller the incentive to invest in training. Since, on average, women work fewer hours throughout their lives than men, one would expect women to purchase less human capital investments than men. Lower human capital investments relative to men translate to lower hourly wages for women. Hence the male-female wage gap widens (Polachek, 2004; O'Dorchai, 2008).

A key indicator related to the complex underlying factors affecting the situation of women in the labour market is their participation–employment rate and working hours. Eurostat data²³ shows that in most of the EU countries where the female employment rate is low (e.g. Malta, Italy, Greece, Poland, Hungary, Romania, Slovakia), the pay gap is lower than EU average, which may reflect the small proportion of low-skilled or unskilled women in the workforce. A possible explanation could be the self-selection effect, i.e. mainly those women who can expect high earnings participate in the labour market, and they are concentrated in sectors or jobs where wages are particularly high. Countries in which a significant proportion of women work part-time (e.g. Netherlands, Germany, UK, Austria, Sweden, and Luxembourg) tend to have a relatively high gender pay gap as women with low-pay perspectives enter the labour market via these part-time jobs.

Part-time work, which almost exclusively involves women, leads to a significant gap in working hours, and consequently, in earnings (Manning and Petrongolo, 2006; O'Dorchai, 2008; Belgian Presidency Report, 2010). Often the labour market is significantly divided in terms of the types of jobs that are available full-time and those that are offered as part-time employment. Part-time jobs are more often found in the low skill jobs and low pay sectors, and make up a significant proportion of the low productivity parts of the economy. It has also been found that women who work part time have, on average, lower educational qualifications than their full time counterparts, are more likely to be married or co-habiting, and have more and younger children.

In 2010 in the EU, 29 per cent of women 'in the age range 25–49 years worked part-time'²⁴. Of all workers in the EU, 19.2 per cent worked part-time in 2010. Part-time work was most common among working women in the Netherlands, Switzerland and Germany. Statistics Estonia finds that part-time work is not widespread in Estonia. In 2010, 10 per cent of women and only 4 per cent of men aged 25–49 worked part-time. Compared to women in Estonia, the number of women aged 25–49 and working part-time was even smaller in Greece, Lithuania, Slovakia and Bulgaria. Men working part-time were also rare elsewhere in the EU. In 2010 in the EU only 6 per cent of men aged 25–49 worked part-time (only in the Netherlands was the corresponding indicator above 10 per cent).

23 Eurostat: Gender Pay Gap Statistics,
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Gender_pay_gap_statistics.

24 Eurostat online database: Employment Statistics,
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Employment_statistics.

Women also spend more time out of the labour force or work part-time due to family obligations (e.g. to take care of children, elderly or disabled family members) and this also lowers their wages relative to men who tend to work full-time (Olsen and Walby, 2004; Datta Gupta et al., 2006; O’Dorchai, 2008). There is an important role for the state to ensure that childcare services for children under three years old are available, and that parental leave is adequate, for example. All these factors have an important effect on the labour market participation rate of women with small children, and they can either encourage or discourage the participation of women in employment, particularly in full-time work. Other family characteristics (e.g. having a partner, having children and the number of children) can also affect the participation rates of women in employment (Pothieux and Meurs, 2005).

It is generally assumed that wage gaps will be smaller in the public sector since the mechanism for setting pay is highly regulated and established in pay scales with few individual salary components. This also means that the wage system is based more on the measurable characteristics of the employees (such as length of working experience and educational level), which means that it is less likely that people working in the same job with the same qualifications will earn different wages. The public sector is heavily represented in female employment in EU-27 countries according to the Belgian Presidency Report (2010). In all countries (except Finland and Sweden) average salaries in the public sector were higher than those in the private sector, for both women and men. However, the size of the wage gap varies greatly depending on the country and sector concerned – generally the wage gap found in the public sector is lower than that found in the private sector, with some exceptions (e.g. Bulgaria, Finland, Greece and Hungary). Part of the pay gap in the public sector is explained by the lack of females in senior management roles (NJCHES 2010). Lucifora and Meurs (2006) examine public-private pay determinants for three European countries, France, Great Britain and Italy in 1998, and show that, on average, low-skilled public sector workers are paid higher wages than their private sector counterparts, whilst the opposite is true for highly-skilled workers. They also found that the public sector pay premium is greater for female public sector employees than for males. The proportion of women employed in the public sector in Estonia is higher than that of men²⁵ (See Table 1). Anspal et al.(2010) find that, on average, the gender pay gap is lower in the public sector than in the private sector (in 2000–2008 accordingly 23 per cent for public sector and 31 per cent in private sector) in Estonia. Wage differences

25 Statistics Estonia shows that 36.9 per cent of women in employment worked in the public sector in 2010, but only 17.7 per cent of men.

in the public sector compared to the private sector are smaller, not only in Estonia, but also in the EU as a whole (Plantenga and Remery, 2006; European Commission, 2009a).

In contrast to human capital theorists, other researchers look to job-related variables to explain the existence of the wage gap. Some of them have focused particularly on the relationship between sex segregation in the workplace and women's comparatively low wages. Segregation encompasses the clustering of women and men in different occupational groups, in different occupations within these groups, in different jobs within these occupations, and in the same type of job in different industries or firms.

Anspal et al. (2010) indicate that part of the gender pay gap in Estonia is derived from horizontal and vertical segregation²⁶. The possible reasons for the gender segregation of the Estonian labour market are the high employment rate for women which is above average compared to other EU member states²⁷, and the size of the sectors in which women predominate, e.g. education, health care and other social services. The hourly wage data shows that women and men earn different wages even within the same occupation (and, on average, the gender pay gap in the same occupation is 13 per cent). Therefore, the concentration of women and men in different sectors and occupations measurably impacts on the gender pay gap in Estonia, but does not fully explain it.

Highly segregated labour markets mean that employment for women is more concentrated in a restricted number of sectors and/or professions (countries with the highest sector segregation include Estonia, Latvia, Lithuania, Ireland, Slovakia, Finland, Bulgaria, Lithuania and Cyprus) and this tends to result in higher pay gap statistics. Previous research shows (Olsen and Walby, 2004) that the higher the proportion of males in an occupation the higher the wages, so the fact that women are more concentrated in occupations with fewer males means that their average wages are lowered by this factor. The results of a recent European-wide study reveal that Estonia is at the top of the list of countries with the highest occupational and sectoral gender segregation (European Commission, 2009b). Key factors identified in the large volume of literature on segregation are comparative biological advantages, lower investment in human capital by females, different family roles, preferences and

26 Concentration in different sectors (e.g. construction, health care, education) is called horizontal segregation, and vertical integration is the concentration in different occupational levels in the same sector (e.g. managers, clerks).

27 Eurostat, Employment rate by gender, age group 15–64, <http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tsiem010&language=en>

prejudices, socialisation and stereotypes, entry barriers and organisational practices. Gender stereotypes are cultural and social attitudes towards what are traditionally considered to be 'male' or 'female' roles and functions. They may influence women's and men's choices of studies and jobs, and may lead to a gender-segregated labour market. These stereotypes influence the unequal shares of working time between women and men, and income and family responsibilities; they also constitute barriers to the career advancement of women and their appointment to decision-making positions (European Commission, 2009c). In recent research, priority is given to four sets of factors: the choice of study field, stereotypes, the demand for shorter or flexible hours of work because of the unequal care burden and different family roles, and covert barriers and biases in organisational practices, including collective bargaining procedures (European Commission, 2009b).

Vertical segregation, or the lack of women at senior board and in executive level roles, has proved to be a difficult area for improvement. Manning and Petrongolo (2006) suggest that the 'glass ceiling' may be a critical factor contributing to the rapid increase in the gender pay gap in later working life. The relatively low representation of women in management positions may explain why the gender pay gap rises steadily with age and peaks for women in their 40s. Vertical segregation is also related to caring responsibilities and is influenced by both the impact of years out of the labour market and the lack of suitable, flexible management positions for women with childcare obligations. The 'sticky floor', which refers to the inability of women to progress from low-paid positions, is also often mentioned in the literature with regard to vertical segregation, and it is largely linked to the lack of progression opportunities in part-time jobs.

When analysing differences in the labour market returns for male and female higher education graduates, it is necessary to relate human capital investment not only to the vertical differentiation in the different degree levels attained, but also to the horizontal dimension of higher qualifications (different fields) as a further dimension of educational achievement (Garcia-Aracil, 2007; Triventi, 2011). When looking at the data clear differences can be seen in the subject areas that men and women choose to study for their degrees. Furthermore, there are clear wage differentials by degree subject. The gender pay gap and its relation to the field of study has been researched based on higher education graduates when they enter the labour market (Machin and Puhani, 2003; Garcia-Aracil, 2007; Goldberg and Hill, 2007; Livanos and Pouliakas, 2009). It has been found that graduates in particular subject areas (law, business, engineering, and health) have higher post-graduate incomes

(Finnie and Frenette, 2003; Black, Seth and Lowell, 2003; Kanep, 2005; Thomas and Zhang, 2005; Norton, 2008).

Napari (2006) finds that by using more detailed major categories (up to 241) instead of a few categories, the contribution of subject areas to the gender wage gap increase remarkably. Though there are some variations in the estimated size of the contribution of these major categories with the level of education (Bachelor's vs. Master's) and with the stage of a career (new entrants to the labour market vs. more experienced workers), the contribution of these major categories to the gender wage gap is remarkably large.

The different value of subject areas is also addressed in the literature. It is argued that the typical learning environment, as well as the acquired competencies and skills, vary between subject areas. The wages for individuals graduating in subject areas providing specific training should exceed those graduating in more general areas. However, particular subject areas that create specific skills only produce skills applicable to a small number of firms in the labour market. Study programmes that provide general training, on the other hand, should allow an individual to find employment in a wider range of firms because the skills that they possess are more transferable (Thorson, 2005; Reimer et al., 2008).

In their recent study of the gender wage gap in Estonia, Anspal et al., 2010 find that there is no one dominating factor that can be considered to be the main reason for the large gender pay gap in Estonia. The pay gap has developed as a result of the joint impact of many factors which cannot always be measured. The regression analysis showed that the unexplained wage difference made up approximately 85 per cent of the general pay gap in 2008. In general, the pay gap is smaller for people with higher education, for ethnic Estonians, single people, childless people, and for those who work in the public sector: these factors explained 15 per cent of the variance in the gender pay gap (Anspal and Rõdm, 2010:23–24). However the field of study did not reduce but increased the unexplained wage differences, since women have more frequently graduated in subject areas that ensure a higher than average wage than men.

Econometric framework

To decompose the graduate wage gap, we used the widely accepted Blinder (1973)-Oaxaca (1973) decomposition:

$$\Delta \equiv \ln w_m - \ln w_f = \underbrace{(X_m - X_f)\beta_m}_{\text{explained gap}} + \underbrace{(\beta_m - \beta_f)X_f}_{\text{unexplained gap}}$$

The first part on the right-hand side, 'explained gap', is the part of the gender pay gap due to observed differences in X-variables between males and females. The second part, 'unexplained gap', is a residual that arises due to differences in the returns to the X-variables between men and women. Sometimes the second term is regarded as discrimination against females; however, since the interpretation of the unexplained gap depends on whether all relevant differences between men and women have been taken into account, one has to be cautious when interpreting the explained and unexplained gaps.

The key question is which variables to include among the X-variables. Human capital variables like age, education and field of study, and work-related variables like occupation, industry, region, part-time and public sector, are often used.

In our calculations we used the programme developed by Jann (2008) for the implementation of the Blinder-Oaxaca decomposition for Stata.

Data and variables

In our analysis we used data from a 2010 alumni survey which covered 14 Estonian universities. The survey was conducted in a web-based format²⁸. Among other issues, the questionnaire included information about the labour market status and wages of the respondents a year after graduation. The response rate for the survey was 22 per cent. The total number of respondents was 2187. The results were weighted across the following variables: the institution, field of study and level of degree to ensure the validity of the results. The data was calibrated by university and degree.

University graduates were surveyed about one year after graduation, i.e. the survey covered those who graduated in 2009. The distribution by subject area in the sample closely follows the distribution of all graduates (see Table 1).

28 In 2010 the questionnaire was adapted slightly, i.e. the 2007 and 2010 questionnaires are not identical.

Table 10. *Distribution of graduates by subject area in the population and the survey sample*

	Graduates (population)		Graduates (sample, weighted)	
	Males	Females	Males	Females
Education	5.8	94.2	8.0	92.0
Humanities and arts	19.8	80.2	14.4	85.6
Social sciences, business and law	24.7	75.3	16.4	83.6
Science	53.8	46.2	43.9	56.1
Engineering, manufacturing and construction	67.6	32.4	59.2	40.8
Agriculture	44.1	55.9	39.4	60.6
Health and welfare	7.5	92.5	7.3	92.7
Services	39.4	60.6	31.3	68.7
Total	29.8	70.2	24.6	75.4

Source: *Estonian Ministry of Education and Research, Alumni survey 2010, authors' own calculations*

Whereas the survey thoroughly mapped study- and work-related aspects, there were several limitations of the survey that influence our research possibilities. For example, we did not ask about working hours so we cannot adjust wages according to hours worked in order to use full-time equivalent wages in the analysis. However, since the incidence of part-time work is low in Estonia, this is not a major problem and should not create bias in the results.

The variables used can be grouped into three categories: socio-demographic (sex, age), study-related (field of study, study level, university) and job-related (occupation, sector, location, firm size, tenure). Unfortunately our data does not include information about an individual's family-related responsibilities (marriage status, number of children, etc) which may have an important influence on labour market decisions.

Age is defined in years not in age groups. In the analysis we make the distinction between study level: bachelor and applied higher education versus master and doctoral graduates because it is highly likely that these categories are not similar. Compared to master/doctoral graduates, bachelor and applied higher education graduates have less work experience and this work is less related to the subject studied (Espenberg et al., 2012). For the university variable, we defined dummies for the each of the 14 universities included.

Occupation is defined based on the ISCO08 1-digit classificatory (i.e. 9 categories from managers to elementary occupations). White-collar staff are defined as ISCO08 categories 1–4 and blue-collar workers as ISCO08 categories 5–9. Tenure is measured as the length of employment in the current job position. In terms of location we distinguished between five Estonian

districts: Northern, Central, Eastern, Western and Southern Estonia. Firm size is a categorical variable having 6 values²⁹. We controlled for the sector by including a set of dummies for the field of activity of the main job, corresponding mostly to the 2-digit sectors of the NACE classification.

Empirical evidence – gender segregation in Estonian higher education and the wage gap of recent graduates

Gender segregation in Estonian higher education

As we have already observed (see Table 10), the Estonian higher education system is clearly gender-segregated. Females clearly dominate in education, humanities and arts, social sciences, business and law, and health and welfare. Males dominate in science and engineering, manufacturing and construction. The only two areas where the number of men and women are quite equally distributed are agriculture and services.

However, against the background of the increasing overall proportion of females undertaking higher education, the male-female segregation division between study fields has changed quite remarkably over the last two decades (see Figure 1). This is particularly true for services, where the proportion of females who had studied at a higher education institution was less than 30 per cent in the mid-90s, but it had increased to almost 50 per cent by 2011. The female proportion has also increased significantly in health and welfare (15 per cent), and in social sciences, business and law (10 per cent).

29 1 = 1–9 employees; 2 = 10–19 employees; 3 = 20–49 employees; 4 = 50–99 employees; 5 = 200–499 employees; 6 = more than 500 employees.

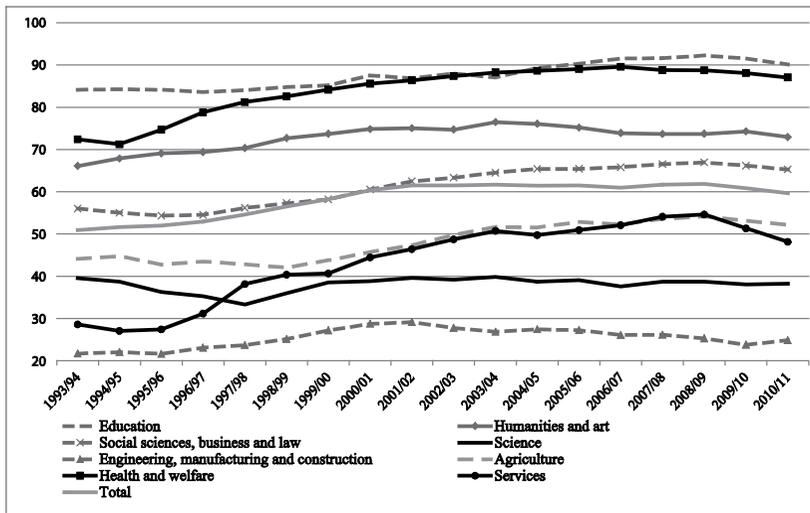


Figure 1. Female proportion of all students by study fields (per cent)

Source: Estonian Ministry of Education and Research

Another dimension important in this regard is the concentration of males/females in particular study fields (see

Table 11). Over 50 per cent of men study social sciences, business, law, engineering, manufacturing or construction. For females the picture is a bit more mixed, but still more than a third are studying social sciences, business or law.

	Males	Females	Total
Education	1.8	11.2	7.4
Humanities and arts	9.2	16.7	13.7
Social sciences, business and law	29.1	36.9	33.8
Science	17.1	7.1	11.2
Engineering, manufacturing and construction	26.8	6.0	14.4
Agriculture	2.7	2.0	2.3
Health and welfare	3.0	13.6	9.3
Services	10.2	6.4	8.0
Total	100.0	100.0	100.0

Table 11. Division of male and female students by study fields in Estonia in 2010

Source: Estonian Ministry of Education and Research

Wage gap³⁰

The raw (i.e. unadjusted) gender pay gap in Estonia is the largest of all of the EU-27 countries. Eurostat data shows that, on average, women earned only 72.4 per cent of what men would earn in Estonia in 2008, i.e. the size of the gender pay gap was 27.6 per cent, whereas the EU-27 average was 18 per cent (see Figure 1).

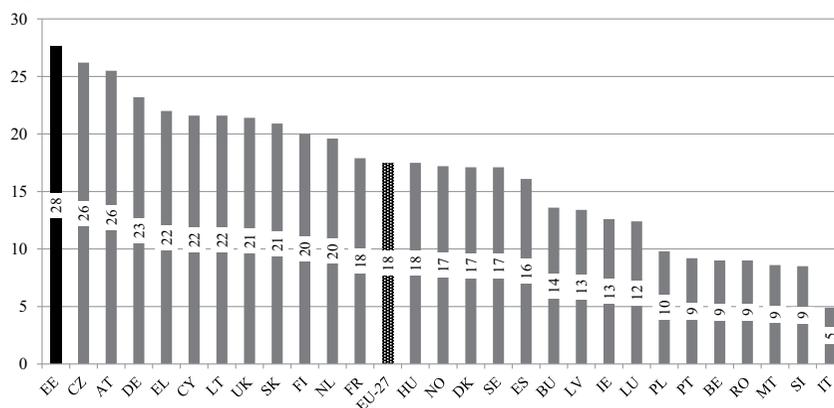


Figure 2. The gender pay gap in EU-27 countries and Norway in 2008

Source: Eurostat

Note: EE – Estonia, CZ, Czech Republic, AT – Austria, DE – Germany, EL – Greece, CY – Cyprus, LT – Lithuania, UK – United Kingdom, SK – Slovak Republic, FI – Finland, NL – Netherlands, FR – France, HU – Hungary, NO – Norway, DK – Denmark, SE – Sweden, ES – Spain, BU – Bulgaria, LV – Latvia, IE – Ireland, LU – Luxembourg, PL – Poland, PT – Portugal, BE – Belgium, RO – Romania, MT – Malta, SI – Slovenia, IT – Italy.

The Estonian alumni survey shows that the raw gender pay³¹ gap among recent graduates is at just about the same level as the whole economy: 24.7 per

30 In the analysis we use gross wages. The top and bottom 2.5 per cent of the wage scale was excluded to neutralise the effects of the outliers.

31 Our monthly wage variable has not been adjusted for different working hours as that information is missing from our data. This may not be a problem as part-time work is not common in Estonia (e.g. in 2008 just 7.2 per cent of those in employment worked part-time).

cent. However, there are considerable differences between graduates from different subject areas.

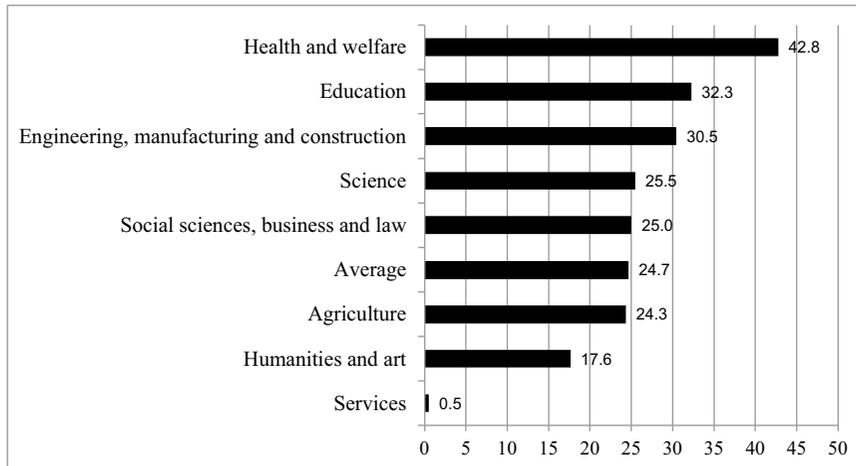


Figure 3. The gender pay gap of 2010 graduates by subject area

Source: Alumni survey (Themans, Espenberg and Eamets 2011), weighted, authors' own calculations

We used ordinary least squares (OLS) wage regressions to analyse which factors influence the wages of male and female recent graduates. As the results in Table 12 show, when all other variables are equal, white-collar workers earn more than blue-collar workers³²; however, the effect is double that for females compared to males and it is statistically significant. Thus, one important conclusion to be drawn is that there are no significant wage differences for recent graduate male white-collar and blue-collar workers, as in those occupations regarded as 'blue-collar', wages tend to be quite high in 'male areas' (for example, construction and engineering), but this result does not apply to 'female areas' (for example, female blue-collar workers in shops, etc.)³³.

32 In total, 8 per cent of respondents worked as blue-collar workers (weighted data).

33 As the explanatory variable explaining the wage gap, we also tried using the dummy variable for the current job being very closely, or closely, related to the field of study. Those people working in a job related to their field of study do have somewhat higher wages (by 16 per cent), yet that variable is only slightly lower among hard science graduates (67 per cent) than among social science graduates (75 per cent), which perhaps

As expected, educational level also plays an important role: master's/doctoral degree graduates earn more than bachelor's/applied higher education degree graduates, and those with longer job tenure earn more than those with less experience (but the effect is only statistically significant for females). The University from which they graduated also has an effect for females only.

The influence of the region where the job is located plays a role for females only: jobs in Northern and North-Eastern Estonia pay more than in any other region. Age has a positive and almost linear association with wages (as shown by the negative squared term). In terms of sectors, for females wages are higher in hotels and restaurants, which may seem surprising given that these are usually regarded as low-wage sectors, but we need to take into account here that we have a sub-sample of graduates of higher education institutions.

Table 12. Wage equations for male and female graduates

Variable	Males		Females	
	Coeff.	T-stat.	Coeff.	T-stat.
Age	0.125	(2.83)***	0.037	(2.07)**
Age squared	-0.002	(-2.68)***	-0.000	(-1.79)*
<i>District (ref. Southern Estonia)</i>				
Northern Estonia	0.151	(1.63)	0.309	(7.59)***
Central Estonia	-0.017	(-0.09)	0.080	(1.17)
North-Eastern Estonia	0.077	(0.16)	0.217	(2.30)**
Western Estonia	-0.028	(-0.10)	0.116	(1.83)*
<i>Master</i>				
Master	0.120	(1.68)*	0.152	(4.91)***
<i>University (ref. other)</i>				
University of Life Sciences	0.117	(0.44)	0.173	(1.95)*
Tallinn University of Technology	0.186	(0.79)	0.370	(4.72)***
University of Tartu	0.064	(0.26)	0.326	(4.25)***
Tallinn University	0.140	(0.58)	0.186	(2.55)**
<i>Tenure (ref. up to 3 months)</i>				
Tenure 4-12 months	0.173	(1.34)	0.075	(1.33)
Tenure 12-36 months	0.099	(0.89)	0.139	(2.61)***
Tenure more than 3 years	0.184	(1.55)	0.192	(3.41)***

explains why it turned out to be statistically insignificant in all the decomposition exercises.

Table 3. Continued

Variable	Males	Females	Variable	Males
<i>Occupation (ref. blue-collar)</i>				
White-collar	0.232	(0.83)	0.443	(6.36)***
<i>Sector (ref. agriculture)</i>				
Construction	0.099	(0.53)	0.053	(0.33)
Sales and trade	-0.501	(-1.52)	0.084	(1.03)
Hotels and restaurants	0.028	(0.13)	0.292	(3.01)***
Transport	-0.013	(-0.03)	0.015	(0.12)
Finance	0.253	(1.31)	0.194	(2.15)**
Other business services	0.145	(1.11)	0.271	(4.07)***
Public services	-0.041	(-0.54)	0.103	(2.70)***
Constant	6.851	(8.52)***	7.524	(24.66)***
Number of obs.	207		608	
R-squared	0.270		0.376	

Note: the dependent variable is the natural log of the wage variable. The category 'white-collar' includes legislators, senior officials and managers, professionals, technicians and associate professionals.

Source: Alumni survey data (2010), weighted, authors' own calculations

As the final step of the analysis, we also performed the Oaxaca-Blinder decomposition³⁴ of the wage difference between male and female graduates. The purpose of this exercise was to discover the extent to which the gender pay gap can be accounted for by different factors. We also analysed which part of the wage gap was linked to differences in the characteristics (i.e. an explained or objective gap) and which part was related to the differences in returns to these characteristics (i.e. an unexplained or a subjective gap).

Figure 4 shows the Kernel density functions for wage distributions. It is clear that male graduates have higher wages than female graduates, and that is consistent with the overall gender pay gap observed in Estonia. In the case of females, the highest wage earned was about 8000 kroons³⁵, in case of males it was 10000–15000 kroons.

34 In the sample used in the decompositions, 38 per cent were graduates of hard sciences.

35 1 EUR=15.6466 kroons.

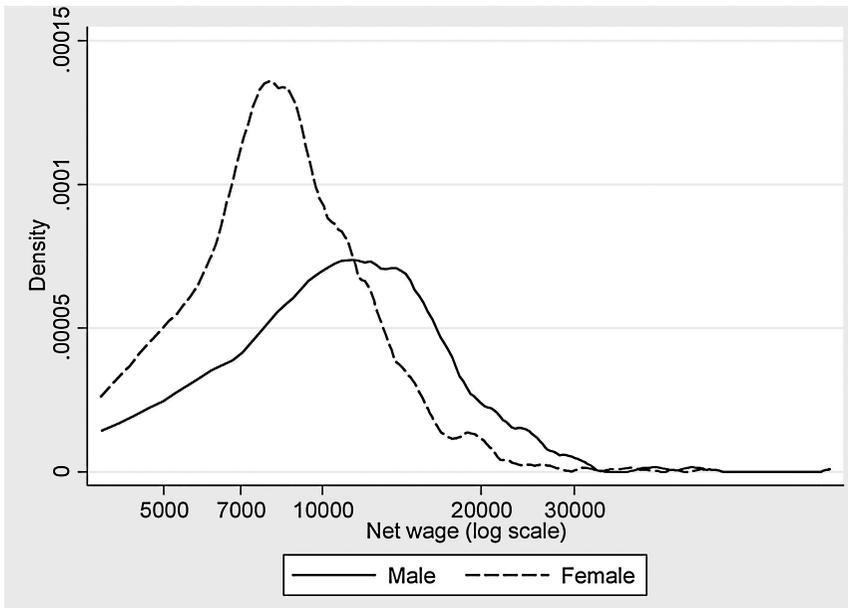


Figure 4. Kernel density for wage distribution (in EEK): gross wages, lower and upper 2.5 per cent observations dropped.

Source: Alumni survey data (2010), weighted, authors' own calculations

Table 13 shows the results of the Oaxaca-Blinder decomposition. The explained component has a negative sign which means that variables used in the model explain the higher wages of males, which was also seen in the raw data. To observe the effects of the different variables on the wage gap, we used a step-by-step approach when adding the factors into the analysis. There are five separate models. The first includes only the level of study (bachelor/applied higher educational versus master/doctoral degree). The second model incorporates university, age and occupation, and the third and the fourth include factors that were found to be important determinants of wage differences in previous studies. The last model includes all previous variables plus firm size and tenure.

Table 13. Oaxaca-Blinder decomposition of the wage gap between the men and females

Model	1	2	3	4	5
Average wage (female)	10712.6	10712.61	10712.6	10712.6	10712.6
Average wage (male)	14600.1	14600.1	14600.1	14600.1	14600.1
Wage gap (log difference)	-31.0%	-31.0%	-31.0%	-31.0%	-31.0%
Explained	-2.7%	-13.2%	-16.6%	-19.8%	-18.0%
Unexplained	-28.2%	-17.8%	-14.4%	-11.1%	-13.0%
Explained part by factors					
Level (master/bachelor)	-0.027 (-2.79)	-0.024 (-2.6)	-0.018 (-2.35)	-0.019 (-2.48)	-0.018 (-2.39)
University		-0.04 (-2.66)	-0.035 (-2.48)	-0.027 (-1.99)	-0.02 (-1.65)
Field of study		-0.041 (-1.48)	-0.039 (-1.44)	0.015 (0.56)	-0.02 (-2.55)
Age		-0.027 (-3.11)	-0.022 (-2.88)	-0.026 (-3.25)	-0.054 (-4.39)
Occupation			-0.052 (-4.1)	-0.052 (-4.22)	-0.085 (-3.62)
Sector				-0.089 (-3.68)	-0.006 (-0.97)
Location					0.017 (0.63)
Firm size					0.011 (1.44)
Tenure					-0.004 (-0.99)
Observations	718	718	718	718	718

Note. Z-statistics are in parenthesis. In order to control for possible measurement errors, we excluded the lower and upper 2.5 per cent of observations from the calculations. Graduates with bachelor's, applied higher educational, master's and doctoral degrees are included in the calculations. In all estimations the sample size is the same as we chose to include in the sample the observations with non-missing values in all relevant variables.

Source: Alumni survey data (2010), weighted, authors' own calculations

The total wage gap is around 31 per cent in favour of males. Note that the raw gap here differs from the numbers reported above because the calculations include only the observations with non-missing values of the variables included in the model. About 58 per cent of the wage gap is explained by the variables included in the model.

The results of the decomposition indicate that, of the different factors, occupation is the most important determinant of the wage gap – it explains almost half of the explained gap. Age is also very important – it explains about

a third of the explained gap. Smaller effects come from university, field of study and degree (there was a higher representation of males among those with master's degree). Enterprise-specific factors, like sector, location and size, are relatively unimportant and not statistically significant. Our results are fairly similar to those of Finnie and Frenette (2003) who show that occupation and sector are fairly highly correlated with field of study and adding those variables to the model will capture some of the effects of the subject field.

Conclusion

During last two decades, the proportion of females has increased in almost all study fields, especially in services, health and welfare, social sciences, and business and law. Estonian higher education is clearly gender segregated. Male students dominate in hard science (science, engineering, manufacturing and construction), female students in the social sciences and humanities (education, humanities and arts, social sciences, business and law), and health and welfare. Both genders are quite equally represented in services and agriculture. However, females tend to be more successful in finishing their studies – even in the study fields dominated mainly by men, the female proportion of graduates is higher than the female proportion of students.

We used data from a recent (2010) alumni survey to analyse the size and causes of the gender wage gap among recent graduates from 14 Estonian public and private universities. The survey covered graduates of all educational levels (bachelor's, applied higher education, master's and doctoral). Graduates were surveyed a year after graduation.

We found that there is a wide gender wage gap among recent graduates in Estonia. On average the raw wage gap (i.e. the unadjusted wage gap) is around 25 per cent, but there are large discrepancies between study fields. The male-female gap is highest in health and welfare (more than 40 per cent), education and engineering, and manufacturing and construction (more than 30 per cent). There is no gender wage gap observable in services. The probable explanation is the differences in the occupations that men and women hold – in health and services most low-paid jobs (like care workers and nurses) are held by women; men are mostly in higher-paid positions, like doctors. The same applies to education, where women are much more likely to be in the lower-paid jobs than men. The significant influence of the study field on the wage gap corresponds to previous studies, such as Finnie and Frenette (2003), Machin and Puhani (2003), Napari (2006) and Garcia-Aracil (2007). However, there may be other factors affecting the gender pay gap not related purely to differences in

productivity. There could be indirect discrimination based on sex, stemming from cultural stereotypes and traditions, and general opinions about the role of females in the labour market.

The wage regression and the Oaxaca-Blinder decomposition analysis indicate that 58 per cent of wage gap is explained by the factors used in the analysis. Employer-related factors like sector, size and location do not play a significant role in the graduates' gender pay gap. The most important factor, that explains about half of the female pay penalty, is occupation. This stresses the importance of occupational segregation on the male-female wage gap of graduates in Estonia. The results are in accordance with previous studies that have taken the wage gap at a more general level into consideration. As with our study, other recent studies in Estonia find occupation-related variables to be important in explaining the pay gap (Rõõm and Kallaste, 2004; Anspal et al., 2010) and this is the case in other countries as well (Triventi, 2011). Another important determinant of the explained gap is age. We found the relative importance of the explained and unexplained components to be quite different from the earlier Estonian studies using the labour force survey data. For instance, Rõõm and Kallaste (2004) find that in a total gap of 30 per cent for 1998–2000 the explained part was 8 per cent and the unexplained part 21.3 per cent; Krillo and Masso (2010) find the explained component to be 5 per cent and the unexplained component to be 24 per cent for 2005–2007. It needs to be stressed that our sample was just a segment of the total labour force, consisting of relatively well educated and well qualified workers. It could be that the issues of gender based discrimination are more important for the less educated labour force.

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5. SUMMARY OF STUDIES AND DISCUSSION

Inequalities on the labour market include a number of dimensions: participation inequality as well as wage inequality. For the former, participation level inequality measured via employment and unemployment rates and participation activeness measured via working hours are distinguished in this thesis. The development of such a concept was necessary to draw together the key aspects of the inequalities and understand the links between them.

In this chapter the main findings of the empirical studies are provided, with links to theoretical concepts and previous studies. The chapter is arranged according to the research questions and propositions outlined in chapter 2.1. The study mainly covers the early years of the Great Recession (2008–2010). The theoretical standpoints presented in the tables are introduced in greater detail in chapter 1. In this chapter they are briefly summarised in the respective parts of the tables. The main results of previous studies analysing developments in Estonia during the Russian crisis (1997–1999, see Appendix 1) and the Great Recession in other EU countries (described in chapter 3.3) are provided in the tables, which also present the synthesis of the main results of the studies. A more detailed overview (including references) can be found in the respective parts of the thesis. The summary tables also include references to the parts of the thesis in which the topic is analysed.

5.1. General developments in inequalities on the labour market during the Great Recession in Estonia and the role of institutions

Research question 1: What labour market adjustment mechanisms are used on the Estonian labour market during the Great Recession, and what are the differences between the public and private sectors?

The Great Recession was the first contradiction of the global economy since World War II (Keeley and Love 2010) and had wide-ranging effects on the labour market, including inequalities on the labour market. The Estonian labour market showed great flexibility during the Great Recession. All three adjustment measures – reductions in employment, working hours and wages – were extensively used to cope with the negative effects of the crisis. In an EU comparison, Estonia (with the other two Baltic States) stands out as an extreme case characterised by the most rapid increase in unemployment and remarkable wage decline in the early stages of the recession (see chapter 3.3). The average number of working hours also decreased, but this mechanism was used less than employment and wage reductions.

Table 7. Overview of propositions, theoretical standpoints, results of previous studies and this study for research question 1

Propositions	Theoretical standpoints	Results of previous studies	Results of this study
<p><u>Proposition 1:</u> All three adjustment mechanisms (adjustment in number of workers, working hours and wages) are used in Estonia during the Great Recession in order to cope with its negative effects.</p>	<p>Different adjustment mechanisms can be used to cope with the negative effects of a recession: a reduction in employment, working hours and wages. The choice and extent of use of adjustment mechanisms depend on employment protection legislation, the industrial relations system and the preferences of the employer.</p>	<p>In Estonia, during the Russian crisis, the main adjustment mechanism used was a reduction in employment. The average wage increased while the part-time employment rate and average working hours remained unchanged.</p> <p>In EU countries all three adjustment mechanisms have been used during the Great Recession, but the focus has been mainly on employment.</p>	<p><u>Confirmed</u></p> <p>In Estonia all three labour market adjustment mechanisms were used during Great Recession:</p> <ul style="list-style-type: none"> - rapid increase in unemployment (most rapid of any EU country) at the beginning of the recession (3.1.2.1; 3.2; 3.3); - decrease in working hours and increase in part-time work (3.1.3.1.); - decrease in wages (3.1.4.1) and part-time penalty (3.1.4.4.), increase in minimum wage earners in 2010 (3.1.4.4.). <p>Unlike other EU countries, in Estonia nominal wage decreases occurred in the early stage of the recession and adjustment in employment, hours and wages were much larger.</p>
<p><u>Proposition 2:</u> Wage inequality on the Estonian labour market decreases during the Great Recession.</p>	<p>Wage inequality may increase or decrease depending on the nature of the recession (which jobs are destroyed and which sectors are influenced by the recession). If the recession is skill-biased, wage inequality should decrease.</p>	<p>In Estonia, during the Russian crisis, wage inequality decreased. During the Great Recession wage inequality did not change much in EU countries, but in many countries mid-wage jobs were destroyed.</p>	<p><u>Partly confirmed</u></p> <p>The D9/D1 wage ratio did not change much, but middle-wage earners were hit relatively harder (3.1.4.4.).</p>

Propositions	Theoretical standpoints	Results of previous studies	Results of this study
<p><u>Proposition 3:</u> There are differences in the adjustment mechanisms used in the public and private sectors in Estonia during the crisis. In the public sector the adjustments are smaller, while in the private sector a reduction in employment and hours are used more often than in the public sector.</p>	<p>No unambiguous assumptions about differences between adjustment mechanisms used in the public and private sector. The choice of measures used depends on employment protection legislation, the industrial relations system and the preferences of the employer. Employment in the tradable sector tends to be more volatile than in the non-tradable sector.</p>	<p>During the recession wages, hours and employment have been more adversely affected in the private sector than in the public sector in EU countries. In most EU countries the public sector was hit with a delay.</p>	<p><u>Confirmed</u></p> <p>Large discrepancies between sectors in:</p> <ol style="list-style-type: none"> 1. increase in unemployment (3.1.2.2.; 3.1.4.3.; 3.1.4.5.; 3.2.2.); 2. decrease in working hours (3.1.3.1.; 3.1.3.3.; 3.1.4.5.; 3.2.5); and 3. wage decline (3.1.4.3.; 3.1.4.5.; 3.2.4.1.; 3.2.4.2.; 3.2.4.3. + case studies 3.1.7.1, Ch. 3.1.7.2). <p>In the private sector there were large differences between economic activities – in the largest industries all three adjustment measures were used (3.1.2.2.; 3.1.4.3. + case study 3.1.7.1). The main adjustment strategy used in the public sector was wage cuts (3.1.4.3), but also unpaid leave days (3.1.7.2.). Reductions in employment and working hours were lower compared to the private sector (3.2.2. + case studies 3.1.7.2; 3.2.8.1).</p>

The unemployment rate skyrocketed in Estonia during the recession. Several recent studies (Fabiani 2010, Wages and working... 2012) have highlighted Estonia (with Latvia and Lithuania) as a country where the negative impact of the crisis on the labour market emerged earliest in the EU and was severe in cross-country comparison. According to Statistics Estonia, the number of unemployed tripled from 38.400 in 2008 to 115.900 in 2010 (by way of comparison, the total workforce was *ca* 687.000 in 2010). Since the second half

of 2010 the unemployment rate has been decreasing, but still remains above the EU average.

As with employment and wage adjustments, Estonia is particularly interesting for the fact that its working hour adjustments were the most severe in international comparison (see chapter 3.3). Hours worked decreased in the early stages of the recession (by around 2.4% in 2009 compared to 2008) which is in accordance with the labour hoarding theory: as the economic climate was highly unstable, to some extent employers preferred to shorten working hours instead of laying off large numbers of workers at the start of the recession (see the case studies in chapter 3.1). However, adjustment via flexible working time arrangements (including working hours – see the case studies in chapter 3.1) was only a short-term measure; the average number of hours worked recovered rapidly in 2010 and 2011.

Part-time work increased temporarily in sectors characterised by a dominance of male workers and an historically low incidence of part-time work. This contributed to the decrease in part-time pay penalties that emerged in the early phase of the recession (see chapter 3.1). However, these adjustments were temporary and when it became clear that the recession would have longer-lasting effects and that structural changes were necessary, large numbers of workers were laid off and working hours were recovered.

Quite uniquely in international comparison, average wages also decreased during the recession in Estonia. In most other EU Member States the nominal wage cuts were much more moderate and did not occur in such an early phase of the crisis. Similarly to the unemployment rate, average wages also decreased in the very early phase (from the 3rd quarter of 2008) in Estonia, which is exceptional among EU countries (see chapter 3.3). The average nominal wage decreased by 4% from 2008–2010 in Estonia. During the recession the proportion of those whose wages were cut was remarkable – more than 40% of workers in 2009 (see chapter 3.1). Therefore, it is evident that theories supporting the rigidity of wages did not hold in Estonia during the crisis.

Clear sectoral differences are observable in the adjustment mechanisms used across sectors in Estonia (see Table 8). Since Estonia did not abandon its goal of joining the Eurozone even when faced with great economic difficulties, the public sector was forced to follow internal devaluation during the recession in order to keep the debt level and budget deficit under control. With reduced tax revenue, costs needed to be cut.

Employment remained fairly stable in the public sector during the crisis and wage cuts were the main adjustment mechanism used in Estonia. It was the first EU country to introduce wage decreases for public sector employees, as early as 2009. As the case studies presented in chapter 3.2 indicate, the need to implement such measures was well communicated to employees. Facing poor labour market prospects in light of the rapidly increasing unemployment rate, public sector workers agreed to a reduction in wages without much resistance. The ability of Estonia (and the other two Baltic States) to recover via internal

devaluation and the ability to successfully overcome the deepest stage of the crisis via austerity measures are often used as best practice examples for European countries facing a similar situation today – Greece, Spain, Ireland and Portugal (see for example Aslund (2011) and Lindner (2011)).

The proportion of those who kept the same job during the crisis was considerably higher and flows from employment to unemployment considerably lower in the public sector compared to the private sector. Flows from unemployment to employment were also remarkably higher for former public sector employees. This is related to the relatively high educational level of public sector employees and lengthy public sector experience, which is in accordance with the economic theory proposing that during difficult economic periods the higher-educated and those who have more human capital are relatively better-off.

The adjustment mechanisms used in the private sector varied across economic activities. Similar to other European countries, manufacturing and construction suffered most during the recession. For manufacturing the main reason was shrinking foreign and domestic demand; construction suffered due to the decline in domestic demand caused by banks changing their lending policies, adopting a much more conservative approach. Around three-quarters of all job losses were experienced in these two sectors in Estonia, which was particularly harmful as these sectors account for approximately one-third of those employed in the country. Not only employment but also working hours and wages decreased at an above-average level in manufacturing and construction. Adjustment via all three mechanisms was also observable in many other sectors – agriculture, trade, transportation, accommodation, information and communication services, real estate, administrative activities, public administration and the arts.

However, much of this adjustment has been temporary in construction and manufacturing. Recovery has also been beneficial to these sectors. Growth in construction is mainly driven by government action, not recovery in demand by private households. From 2010–2012 part of the revenue from sales of CO₂ pollution quotas were invested in renewable energy projects. This led to a new construction boom which is not likely to be sustainable. In manufacturing demand has recovered, but it is also considered to be fragile because of the great dependency on external demand.

Wage inequality did not change significantly during the recession. The P90/P10 ratio was stable throughout the recession but increased during the recovery period in 2011, indicating the more favourable position of those in the upper part of wage distribution. This may be a sign of movement towards more knowledge-intensive jobs during the recovery period. The P90/P50 ratio increased and the P50/P10 ratio decreased in 2009, indicating that middle-wage earners were relatively worse-off during the early stages of the recession. This trend was also seen in a number of other EU countries (see chapter 3.3).

Table 8. Changes in employment, working hours and wages by economic activity, Estonia, 2009–2011 (% compared to previous year)

	Employed* 2008 (thousands)	Employment			Working hours			Wages		
		2009	2010	2011	2009	2010	2011	2009	2010	2011
Total	656.5	-9.2	-4.2	6.7	-2.4	2.2	1.1	-5.0	1.0	5.9
Agriculture	25.3	-5.1	0.4	11.6	-1.3	2.1	3.6	-6.9	5.5	4.5
Mining and quarrying	6	6.7	7.8	-11.6	-6.2	7.8	4.4	-7.9	11.6	10.2
Manufacturing	135	-15.7	-4.7	11.6	-3.5	5.3	0.8	-4.8	5.2	6.0
Electricity supply	8.2	-6.1	13.0	-5.7	-0.3	1.2	0.4	7.0	5.1	7.0
Water supply	2.3	4.3	-4.2	69.6	0.2	0.4	2.3	-2.0	-1.3	3.2
Construction	81	-28.0	-17.8	23.2	-4.5	4.7	3.9	-13.1	3.0	6.3
Wholesale and retail trade	92.5	-10.1	-3.8	1.6	-1.6	1.7	0.7	-6.9	-1.8	10.7
Transportation and storage	49.9	-0.4	-12.3	10.8	-0.8	1.6	0.6	-5.0	3.0	1.2
Accommodation	23.6	-14.8	-3.5	-1.0	-2.2	4.8	-2.4	-2.3	-1.8	2.8
Information	15.3	-6.5	-13.3	34.7	-2.3	0.0	0.3	-0.9	1.2	7.6
Financial activities	10.4	9.6	-17.5	8.5	-1.2	2.1	0.8	-3.8	-9.8	5.4
Real estate activities	10.2	-9.8	9.8	3.0	-2.8	1.4	-0.8	-6.4	-14.4	11.5
Professional activities	20.5	0.0	3.4	9.9	-3.4	1.6	0.6	-6.2	7.9	5.3
Administrative activities	17.3	-2.9	12.5	-9.5	-2.2	0.7	1.8	-3.4	1.3	6.4
Public administration	38.4	-4.4	10.1	-0.2	-1.7	-0.1	1.2	-7.5	-2.7	3.5
Education	59.9	4.3	-10.2	2.0	-1.3	-0.3	1.3	-2.5	-0.9	2.0
Health	31.1	6.1	4.8	2.6	-2.2	1.1	0.8	-2.6	-3.4	5.3
Arts	14.8	-4.1	3.5	-2.7	-3.5	-0.1	-0.2	-7.3	3.3	5.2
Other activities	14.8	-22.3	3.5	-13.4	-4.1	1.2	1.7	-6.3	-11.4	-4.9

Notes: change compared to previous year; * in thousands, 2008; for activities that constitute at least 5% of total employment in Estonia, remarkable decreases are marked in bold.

Agriculture – agriculture, forestry and fishing; electricity supply – electricity, gas, steam and air conditioning supply; water supply – water supply, sewerage, waste management and remediation activities; wholesale and retail trade – wholesale and retail trade – repair of motor vehicles and motorcycles; accommodation – accommodation and food service activities; information – information and communications; financial activities – financial and insurance activities; professional activities – professional, scientific and technical activities; administrative activities – administrative and support service activities; public administration – public administration, defence and compulsory social security; health – human health and social work activities; the arts – arts, entertainment and recreation.

Source: Statistics Estonia

Therefore, in Estonia there are no strong signs of the ‘hollowing out’ i.e. the disproportionate destruction of lowly-paid jobs during the recession that was observable in many other EU countries. This was due to the fact that unlike other Member States, many ‘male’ jobs that were destroyed – for example in the construction sector – were relatively highly paid, neutralising the increase in job destruction among the more low-paid.

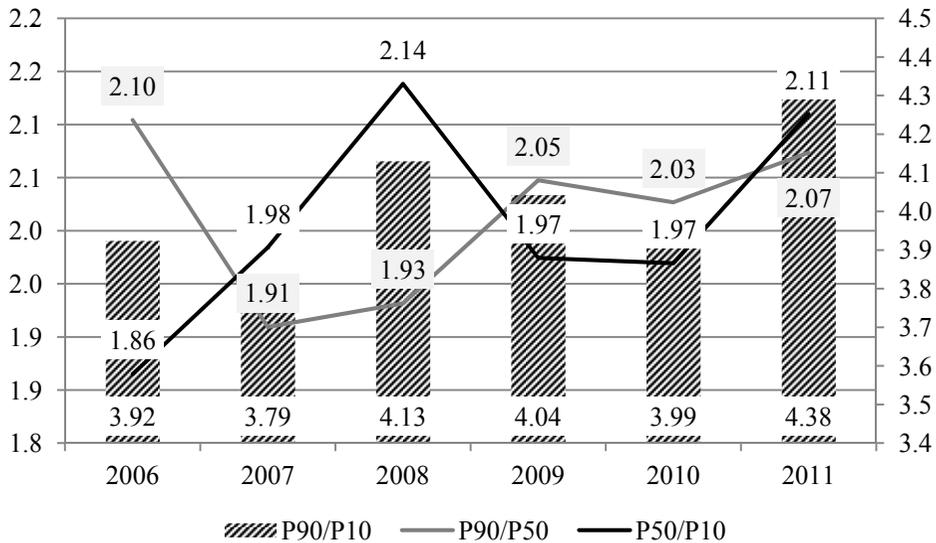


Figure 7. Wage decile ratios in Estonia 2007–2011

Note: P90/P50 and P50/P10 ratios – left-hand scale; P90/P10 ratio – right-hand scale

Source: Estonian LFS, author’s calculations

The evolution of the private/public wage gap during the recession indicates that in the private sector wage cuts have been more remarkable in Estonia. This is in accordance with the experience of other EU countries (see chapter 3.3). Due to this, the private sector wage premium observable on the eve of the crisis transformed into wage penalties in 2009. However, the decrease in the private-public wage gap is likely to be no more than a short-term phenomenon in Estonia. Since the Estonian government has announced that public sector wages will be frozen until at least 2014 and wages in the private sector are showing signs of upward wage pressure in the recovery phase, wage growth will probably be restored in the private sector sooner than in the public sector, which may lessen the attractiveness of the public sector as an employer.

In conclusion, the proposition that adjustments in employment, working hours and wages would be used in Estonia in order to cope with the negative effects of the crisis was confirmed. In an EU-wide comparison the Estonian

labour market remained highly flexible during the recession and adjustments occurring in employment, working hours and wages were the largest in the union. Similarly to other Member States, inequalities on the labour market developed in favour of those employed in the public sector during the crisis. Employment, wage and working hour adjustments occurred in both the public and private sectors, but the public sector adjustments were not as large as those in the private sector. Only wage reductions were notable, especially in public administration, as early as the beginning of 2009 to keep the state budget balanced. Medium-wage earners were hit hardest by the recession. However, during the recovery period low-wage earners are lagging behind.

Research question 2: What is the influence of labour market institutions on inequalities on the labour market in Estonia during the Great Recession?

Table 9. Overview of propositions, theoretical standpoints, results of previous studies and this study for research question 2

Propositions	Theoretical standpoints	Results of previous studies	Results of this study
<p><u>Proposition 4:</u> Labour market institutions have a limited impact on inequalities on the Estonian labour market during the recession.</p>	<p>Adjustment mechanisms used and their impact on inequality on the labour market depend not only on employer preferences but also on institutional factors – employment protection legislation, minimum wages and the strength of trade unions being the most important.</p>	<p>In Estonia, during the Russian crisis, employment and wages remained flexible despite relatively strict employment protection legislation. Trade union membership and collective agreement coverage has remained low in Estonia since it regained its independence and their influence on inequalities modest. Minimum wage as a share of average wage and the share of minimum-wage earners has been modest in Estonia.</p>	<p><u>Confirmed</u></p> <p>Trade union bargaining power remained low at both the enterprise and state level: they were forced to accept the decisions of employers (3.1.6.4.; 3.2.6. + case studies 3.1.7.2; 3.2.8.2).</p> <p>The new Employment Contracts Act that entered force in July 2009 increased labour market flexibility but was uniform for all workers, so did not directly influence inequalities on the labour market (3.1.6.3).</p> <p>The minimum wage had a limited impact on inequalities on the labour market during the crisis (3.1.6.4).</p>

Labour market institutions (labour laws, trade unions and the minimum wage) did not have much impact on inequalities on the Estonian labour market during the Great Recession. The most important institutional factor only indirectly influencing inequalities on the labour market (since the changes applied to all workers) and more directly influencing the decisions of employers in regard to which adjustment mechanisms to use (see the previous research question) was the introduction of the new Employment Contracts Act which entered force in at the beginning of the recession, in July 2009. With the new act the employment protection of workers decreased considerably and it became easier and less costly for employers to make workers redundant or to reduce their working hours.

The strength of trade unions is one institutional factor potentially influencing inequalities. If trade unions are strong, they may influence inequalities on the labour market by protecting their members at the expense of other workers or bargain with employers over which adjustment mechanisms are to be used and which not. Trade union membership and collective agreement coverage remains low in Estonia in general, although there are some extreme case examples (in the public sector, such as rescue services: see the case study in chapter 3.2) where developments led to a rise in trade union membership during the recession. The weakness of trade unions was not a result of the recession, but is a long-standing phenomenon in Estonia. In most sectors trade unions did not have a great deal of influence on the decisions of employers as to which adjustment mechanisms to use and which workers to lay off, because in Estonia enterprise-level trade unions prevail. This made it easier for employers to make workers redundant and reduce wages.

As the case studies indicated, in general trade unions did not have enough bargaining power to effectively defend the interests of employees even in sectors where trade unions are stronger (e.g. the public sector). Trade unions in the public sector did not have a great deal of power (see the case study of the police in chapter 3.1) because of the need to cut costs in light of decreasing revenue. Therefore, unions were largely forced to agree to the budget cuts and the decisions of employers. The wage cuts made in both the public and private sectors (see above) were enforced despite the opposition of the trade unions, which accepted the reductions in wages in order to avoid redundancies.

At the state level the bargaining power of social partners remained rather weak as well. As a result of postponing and/or abandoning several agreements protecting workers, the 'flexicurity' approach that was declared to be the main aim of drafting the new Employment Contracts Act (Explanatory note to the draft Employment Contracts Act 2008) only truly implemented flexibility for employers in practice. The government pushed through the rather painful decisions (reducing social guarantees and increasing the unemployment insurance contributions of both employees and employers) despite the resistance of employees' and employers' representatives (Espenberg, Vahaste 2012). Similarly to many other countries, the decision-making process during the crisis can be described as more centralised and politicised (Peters et al. 2011).

Minimum wages can contribute to a decrease in wage inequality, especially in the event of an increase in the minimum wage. If there are no spill-over effects, an increase in the minimum wage will decrease wage inequality. The effect of minimum wages on inequality on the Estonian labour market was modest during the recession. The minimum wage remained unchanged (at 278 EUR – *ca* 33% of the average wage in 2008) from 2008–2011 and was increased only slightly in 2012 (to 290 EUR – again *ca* 33% of the average wage). According to data from Statistics Estonia, the proportion of those belonging to the three lowest wage deciles decreased from 2009–2011 (no previous data available). According to Tax and Customs Board data, the number of those employed who had received the minimum wage for more than six months per year increased from 10,800 (1.6% of those employed) to 14,100 (2.4%) in 2009 and to 15,700 (2.7%) in 2010. Therefore, the minimum wage had some effect, if limited, in supporting the incomes of the lowest wage decile, as the proportion of minimum wage earners in Estonia is low.

As indicated in chapter 3.3, practices are very different among EU countries and no uniform conclusion can be drawn regarding the influence of institutions on inequalities on the labour market. In conclusion, employment protection legislation, trade unions and minimum wages did not have a significant influence on inequalities on the labour market in Estonia during the Great Recession.

5.2. Inequalities on the labour market by gender, age, nationality and education in Estonia during the Great Recession

In this chapter the development of inequalities on Estonian labour market by gender, age, nationality and educational level is analysed.

Research question 3: How do inequalities on the labour market by gender, age, nationality and educational level change in Estonia during the Great Recession?

Table 10. Overview of propositions, theoretical standpoints, results of previous studies and this study for research question 3

Propositions	Theoretical standpoints	Results of previous studies ¹⁸	Results of this study
Proposition 5: Female/male participation inequality and the gender pay gap decrease in Estonia during the recession.	Employment in the tradable sector is more volatile than in the non-tradable sector.	In Estonia, during the Russian crisis, the male/female unemployment gap increased and the gender pay gap decreased in Estonia. In EU countries men were more greatly influenced by the negative effects of the global financial crisis.	<u>Confirmed</u> Men were hit harder than women in terms of increased unemployment (3.1.2.2.; 3.1.2.3.; 3.1.4.5.; 3.2.4.3; 3.2.4.4.) and incidence of decreasing hours (3.1.3.1; 3.1.3.3.) and wages (3.1.4.4.; 3.1.4.5.).
Proposition 6: Participation and wage inequality by age increases, i.e. young people experience a higher incidence of losing their jobs and decrease in wages during the recession.	Employees with shorter tenures and lower skills are at higher risk of losing their jobs and experiencing wage decline during a recession.	In Estonia, during the Russian crisis, unemployment among young people increased much more than in other age groups in Estonia. In EU countries youth unemployment increased much more compared to other age groups during the Great Recession. The incidence of part-time work did not change among young people, but increased in the age group 25–54 and decreased among the elderly.	<u>Confirmed</u> Compared to older workers, young people experienced a higher increase in unemployment (3.1.2.2.; 3.1.4.5.), decrease in working hours (3.1.3.1.; 3.1.3.3.) and decrease in wages.

¹⁸ To the best of the author's knowledge, no previous studies are available for several aspects (e.g. wage development during the recession by age and nationality); therefore some aspects of inequality on the labour market are covered only partly in the table.

Propositions	Theoretical standpoints	Results of previous studies ¹⁹	Results of this study
<u>Proposition 7:</u> Participation and wage inequality between Estonians and non-Estonians increase during the recession.	Employees with shorter tenures and lower skills are at higher risk of losing their jobs and experiencing wage decline during a recession.	In Estonia, during the Russian crisis, the non-Estonian-Estonian unemployment gap increased and the wage gap decreased. In EU countries ethnic minorities were more influenced by the negative effects of the crisis.	<u>Confirmed</u> Compared to Estonians, non-Estonians experienced a higher increase in unemployment (3.1.2.2.; 3.1.2.3) and decrease in working hours and wages (3.1.4.4.).
<u>Proposition 8:</u> Participation and wage inequality between the highly and lower-educated increase during the recession.	Employees with shorter tenures and lower skills are at higher risk of losing their jobs and experiencing wage decline during a recession.	In Estonia, during the Russian crisis, the unemployment gap between the more highly and lower-educated increased. In EU countries the low-skilled were more affected by the negative effects of the global financial crisis.	<u>Confirmed</u> Compared to the more highly educated, the lower-educated experienced a higher increase in unemployment (3.1.4.5.) and a higher decrease in working hours (3.1.3.3.) and wages (3.1.4.4.; 2.1.4.5.).

The developments on the Estonian labour market by gender, age, nationality and educational level attained were largely in line with expectations. In general, men, young people, non-Estonians and the lower-educated were more vulnerable to the negative effects of the crisis and experienced a higher increase in unemployment as well as a decrease in working hours and wages during the early years of Great Recession (2008–2010) in Estonia (see Table 11 and Appendix 3). The only exception is the age dimension, where the reduction in working hours and wages was highest in the middle age group (25–49).

Table 11. Vulnerable groups by change in inequality on the labour market in Estonia during the Great Recession

	Unemployment	Working hours	Wages
Gender	Men	Men	Men
Age	Youth	Middle-aged	Middle-aged
Nationality	Non-Estonians	Non-Estonians	Non-Estonians
Education	Lower-educated	Lower-educated	Lower-educated

Source: Statistics Estonia

¹⁹ To the best of the author’s knowledge, no previous studies are available for several aspects (e.g. wage development during the recession by age and nationality); therefore some aspects of inequality on the labour market are covered only partly in the table.

Gender

In the early stages of the recession (2008–2010) males in Estonia were more negatively affected by the crisis than females in terms of unemployment, working hours and wages. The gender unemployment gap – which was practically non-existent in 2008 – increased considerably (while the average in the EU remained close to zero from 2008–2010, meaning that men and women experienced a similar increase in unemployment) and peaked at 6.6 percentage points in 2009. The decrease in working hours was also higher among men than women during the early stages of the recession. Although the part-time employment rate increased among men and women alike, for men the increase of those employed part-time involuntarily was much higher.

Flow analysis also confirms the more complex situation of men during the early stages of the recession. The increase in the separation rate was much higher for men than women. While only around 3% of men employed in 2007 were unemployed a year later, in 2009 the same figure was as high as 11%; for women the figures were 2.4% and 5.8% respectively. The male outflows from unemployment to employment decreased from 40.9% in 2008 to 26.7% in 2010; for females the decrease was from 48.8% to 35.5%. The gender wage gap decreased from 30.9% in 2007 to 26.6% in 2009 and to 22.9% in 2011 (Eurostat, Statistics Estonia).

The increase in the male/female unemployment gap and the decrease in the wage gap emerged due to high sectoral segregation. In Estonia both the occupational and sectoral segregation of the workforce by gender is the highest among the EU-27 (Bettio, Verashchagina 2009). As discussed above, employment, wage and working hour cuts were not uniform across sectors during the recession. Males were overrepresented in sectors that suffered particularly hard (see chapter 3.1). Decomposition of the gender wage gap indicates that the narrowing gap is to a large extent explained by the sectoral and occupational segregation of the workforce. As can be seen in Figure 8, there is a clear negative relationship between the proportion of men among workers and the decrease in employment during the recession.

However, the recovery period (2010–2011) favoured men: male-dominated sectors recovered more quickly (see the below panel in Figure 8). In 2010, the year of stabilisation and the start of the recovery period, the hiring rate of men increased (while continuing to decrease among women) and the unemployment rate and involuntary part-time work decreased. As a result, the male/female unemployment gap has rapidly decreased. The gender pay gap increased in 2010, a phenomenon not seen in most other EU countries (except Ireland, Portugal and Latvia). The main reason for decreasing unemployment among men was rapid recovery in manufacturing and construction. Whereas in manufacturing the main reason was the creation of jobs due to increased production volumes, in construction the recruiting of men to work abroad (mainly in Finland) was important (Statistics Estonia Yearbook 2012).

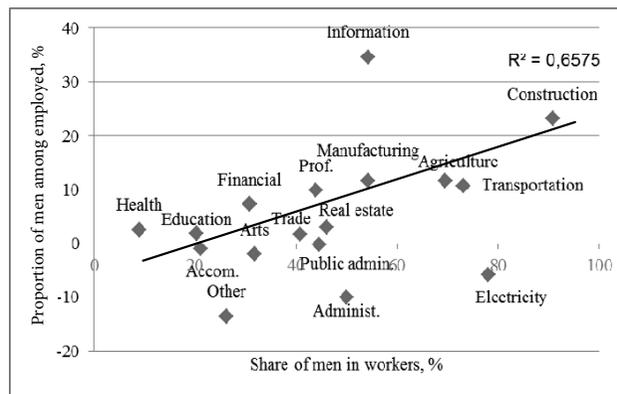
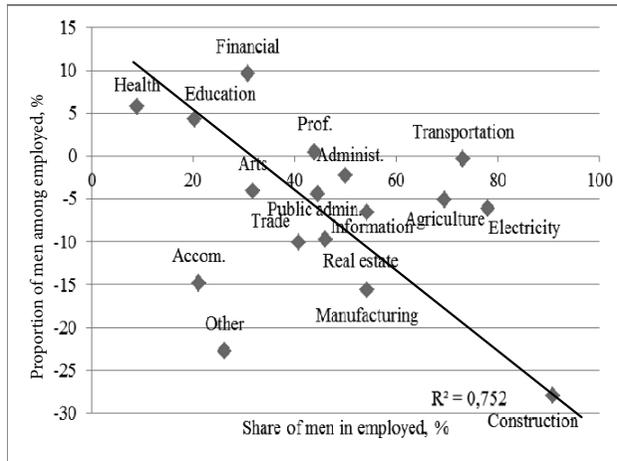


Figure 8. Proportion of men among workers (in 2008) and change in employment (in 2009 compared to 2008) by economic sector in Estonia (above); and proportion of men among workers (in 2008) and change in employment (in 2011 compared to 2010) by economic sector in Estonia (below)

Note: Accom. – accommodation and food service activities; Admin. – administrative and support service activities; Agriculture – agriculture, forestry and fishing; the Arts – the arts, entertainment and recreation; Electricity – electricity, gas, steam and air conditioning supply; Financial – financial and insurance activities; Health – human health and social work activities; Prof. – professional, scientific and technical activities; Public admin. – public administration, defence and compulsory social security; Trade – wholesale and retail trade and repair of motor vehicles and motorcycles; Transportation – transportation and storage.

When producing the linear regression line shown in the figure, the accommodation, other, transportation, agriculture and electricity sectors were excluded from the figure presented on the left. In the linear production shown in the figure the accommodation, other, transportation, agriculture and electricity sectors were excluded in the figure on the right.

Source: Statistics Estonia

Age

Unemployment increased in all age groups, but particularly rapidly among youth. While this development was not surprising from the point of view of theoretical considerations (which also assumes that younger workers face more difficult labour market prospects due to their lower skills and tenure) nor unique to Estonia (youth unemployment increased across the EU), it was the extent of the increase that is extraordinary: within just two years the youth unemployment rate more than tripled in Estonia. In 2010 it was as high as 33% – the highest in the EU after Spain and the other two Baltic States. However, unlike Greece and Spain, Estonia (along with Latvia and Lithuania) managed to get youth unemployment under control by 2011.

The increase in unemployment has also been large in other age groups in Estonia during the recession. While in most EU Member States the unemployment rate of people aged 25–49 increased moderately (by 2–4 percentage points from 2007–2010; EU average: 2.5 percentage points), in Estonia the increase was much more rapid – as much as 11.1 percentage points, comparable to Spain and Latvia and slightly lower than in Lithuania (which experienced an increase of almost 13 percentage points). In 2010 it peaked at 15.4%, the fourth highest after the countries mentioned. However, in 2011 positive signs could be seen, with unemployment falling in this age bracket to 12%.

The increase in unemployment among older people (age group 50–74) was the highest in Estonia during the recession. From 2007–2010 it increased by more than 11 percentage points, peaking at 14.3% in 2010 – the second highest in the EU after neighbouring Latvia. However, unlike in Latvia the elderly unemployment rate decreased in Estonia in 2011 (to 10.4%), indicating positive prospects in all age groups. However, the increase in long-term unemployment among the elderly is a worrying labour market development. In 2011 two out of three unemployed people aged 50–74 had been out of work for more than a year, indicating that those who lost their jobs during the recession are increasingly facing difficulties finding jobs during the recovery period. The proportion of the long-term unemployed is also increasing in the 25–49 age group (the share of the long-term employed among the unemployed in 2011 being 58%) and among youth (39%). This indicates that although the imbalances are partly recovering of their own accord, during the recovery period there are many unemployed people in all age categories facing difficulties returning to the labour market.

A reduction in working hours has been observable among youth (at the start of the recession) and the elderly (from 2008–2011). However, the increase in involuntary part-time work has been highest among the middle-aged. Within just two years (2008 and 2009) the proportion of those in involuntary part-time employment doubled in this age group. The wage decrease was not uniform across age categories. According to data from Statistics Estonia, while young people experienced more job losses and a greater decrease in average working hours than older workers, the share of those who experienced a decrease in

wages was much lower among youth than other age groups. This was probably due to the fact that young people who did not face the risk of losing their jobs were valuable to employers because of their knowledge and skills.

Nationality

Similarly to other EU countries, minorities in Estonia were more vulnerable during the recession. Unemployment increased much more among non-Estonians (from 8.2% in 2008 to 23.4% in 2010) compared to Estonians (from 4.2% in 2008 to 13.4% in 2010). Flow analysis indicates that while there were no remarkable differences in hiring and separation rates between Estonians and non-Estonians in 2008 and 2009, discrepancies emerged in 2010 when the separation rate increased by almost 7 percentage points for non-Estonians, reaching 30.9% in 2010, but the increase was much lower (less than 1 percentage point) for Estonians. Another interesting point is that while the hiring rate increased somewhat among Estonians in 2010, it decreased among non-Estonians.

While working hours did not change among Estonians, a more than one-hour reduction in weekly working hours was seen among non-Estonians. The proportion of people who experienced a wage decrease was also higher among non-Estonians. The recovery period has also been more beneficial to Estonians. Although no in-depth analysis was carried out to analyse the reasons for such developments in this study, possible explanations for the vulnerability of non-Estonians are lower language skills and the occupational segregation of the workforce (non-Estonians being overrepresented in lower-skilled and Estonians in higher-skilled jobs).

Education

In accordance with the human capital theory, gains in education were clearly observable during the Great Recession in Estonia. The unemployment rate increased particularly rapidly among those with primary (i.e. pre-primary, primary and lower secondary) education in Estonia until 2011, peaking at 31% in 2010. In an EU-wide comparison, Estonia and the other two Baltic States clearly stand out in this regard: in all three countries the increase in unemployment among those with only primary education was very high (in Estonia almost 20, in Latvia 21 and in Lithuania 32 percentage points).

In Estonia the increase in unemployment among the secondary- and tertiary-educated was also remarkable in international terms. However, compared to the primary-educated the rise in unemployment was more moderate. As a result, the primary-tertiary unemployment gap more than doubled and the secondary-tertiary unemployment gap tripled during the recession. The increase in unemployment among those with higher education was also remarkable during

the crisis, peaking at 9% in 2010. In 2011 a decrease was observable in all three groups, especially among the secondary-educated.

Working hours decreased most for the secondary-educated, but the proportion of involuntary part-time employees was highest among the primary-educated. In 2009 every third primary-educated part-time employee worked this way involuntarily (by way of comparison, among the secondary- and tertiary-educated the same figures were *ca* 20% and 15% respectively).

The wage premium of those with higher education relative to those with primary education increased by almost 35 percentage points during the recession. The same trend is observable when the wages of the secondary- and primary-educated are compared: whereas from 2005–2008 the wage premium of the secondary-educated remained quite stable (4–6%), in 2009 it jumped to 10% and in 2010 to 21%. Wage cuts were much more widespread for people with primary and secondary education compared to those with higher education. This indicates that those with lower education were more often forced to accept reduced wages. This conclusion seems and is in accordance with theoretical considerations introduced in chapter 1.2 since people with lower education often fill positions that require lower skills and are therefore more easily replaceable. Therefore, they faced the highest risk of losing their jobs during the recession and were more prone to accept wage reductions in order to maintain a living. This was particularly the case because of the generally high unemployment rate, which granted employers a somewhat better bargaining position – there were a lot of people on the labour market looking for work, so replacing workers (at least in the case of jobs which did not require specific skills) was relatively easy.

In addition to mapping general labour market developments during the crisis, one group was more specifically surveyed in the thesis: university graduates. It is a well-known fact that labour market prospects are better for the tertiary-educated. As mentioned earlier, a higher education premium was seen in terms of both employment and wages during the crisis. Two aspects were analysed in the thesis: the labour market prospects of real and social sciences graduates and the gender pay gap among graduates.

Research question 3.1: How large are the inequalities on the Estonian labour market between university graduates of the social and real sciences?

Table 12. Overview of propositions, theoretical standpoints, results of previous studies and this study for research question 3.1

Propositions	Theoretical standpoints	Results of previous studies	Results of this study
<p><u>Proposition 9:</u> Social sciences graduates have better labour market prospects than real sciences graduates on the Estonian labour market.</p>	<p>Workers with more specific skills are more valuable to employers.</p>	<p>No previous studies have been conducted in Estonia. Studies carried out in other countries have indicated the better labour market prospects of real sciences graduates.</p>	<p><u>Partly confirmed</u></p> <p>Social sciences students are more engaged in work during their studies (4.1.4.1.) and after completing a particular level of study (4.1.4.2.). The unemployment gap between social and real sciences graduates is negligible (4.1.4.3). At the master's level the wages of social sciences graduates are higher than those of real sciences students, while at the Bachelor's level there are no differences in wages (4.1.4.3). The wage gap favouring social sciences students transforms into pay penalties for social sciences students once extramural students are excluded (4.1.4.3).</p>

It is often claimed that Estonia's higher education system 'overproduces' social sciences graduates and that their labour market prospects are gloomy compared to those of real sciences graduates. However, the results of our analysis do not support this hypothesis. Contrary to popular belief, a social sciences education is worth more on the labour market than one in real sciences in terms of wages, at least at the master's/doctoral level and shortly after completing studies (wage evolution along the later career path may be different for real and social sciences graduates, favouring the former, but the study did not cover this aspect). The wage gap between the real and social sciences is only to a minor extent explained by factors like gender, age and sectoral and occupational differences.

Both real and social sciences students are successful on the Estonian labour market and the unemployment gap is low. Only a small share of recent graduates were unemployed a year after graduating. During the recession the

proportion of unemployed increased only slightly. The wage differences are partly explained by differences in work experience: compared to real sciences students, those in the social sciences are more engaged with the labour market while studying, and if we exclude extramural students the wage gap is in favour of graduates of real sciences.

Nevertheless, the crisis period has had its effects. For young people, continuing their studies has been one answer to gloomy labour market prospects: during the recession the incidence of further university studies increased. The incidence of working (without continuing studies) decreased, while the incidence of studying generally increased. This is in accordance with the experience of other European countries where shrinking employment possibilities are seen as an incentive to continue university studies (The European Higher Education Area 2012) and also supports the economic theory suggesting that an increase in university enrolment during a crisis is due to declining opportunity costs that give young people an incentive to invest in their future employability (Marcus and Gavrilovic 2010).

In addition, the incidence of part-time work clearly increased while that of full-time work decreased during the recession, compared to the boom period. Part-time work increased more among real sciences students. Also, fewer graduates were employed in leading occupations during the recession than in the boom period.

Research question 3.2: How large is the gender pay gap among university graduates in Estonia?

Table 13. Overview of propositions, theoretical standpoints, results of previous studies and this study for research question 3.2

Propositions	Theoretical standpoints	Results of previous studies	Results of this study
<u>Proposition 10:</u> The gender pay gap among university graduates is lower than the average gender pay gap in Estonia.	The gender pay gap between labour market entrants should be lower because of the smaller differences in tenure and job-related skills.	No previous studies have been conducted in Estonia. Studies carried out in other countries have shown that the gender pay gap between recent graduates is lower than the average gender pay gap in society.	<u>Not confirmed</u> The pay gap among recent graduates is high in Estonia (<i>ca</i> 25%), accounted for mainly by occupation (which explains almost half of the wage gap). Employer-related factors are relatively unimportant (4.2).

The gender wage gap between university graduates is about the same in magnitude as the overall gender wage gap in Estonia (25%). This is not in accordance with studies done in other countries, which have generally only documented a modest gender pay gap in the early stages of people's careers. Nor is such a gap supported by the human capital theory, which assumes that the gender pay gap reflects differences in accumulated human capital. Family obligations should not be different by gender among recent university graduates. The gender pay gap varies considerably across fields of study undertaken – from close to zero in services to more than 40% in health and welfare.

Occupation is the most important factor, accounting for *ca* 30% of the wage gap (around 58% of the gender wage gap of recent graduates is explained by characteristics such as age, occupation, sector, company location and size, tenure, level and field of studies and university graduated from). Enterprise-related differences are relatively unimportant. The unexplained part of the gap probably reflects in part the lower reservation wages (as also confirmed by the study by Mõtsmees and Meriküll 2012) of women and omitted variables, while some may be due to gender discrimination on the labour market.

No remarkable wage differences were seen among recently graduated blue- and white-collar males during the crisis. For women, however, the blue-collar/white-collar wage gap is significant. This is probably due to the fact that for those who complete their studies male-dominated blue-collar positions (in construction, for example) are relatively well-paid and therefore the wage is comparable to that received by white-collar workers. White-collar female graduates, however, earn significantly more compared to blue-collar female graduates.

5.3. Discussion

Estonian case is seen as a success story in coping with the severe effects of the recession. Although the country experienced a very deep decline in the beginning of the recession, it managed to effectively use the internal devaluation and recover without increasing remarkably the sovereign debt and keep the state budget balance under control. The Estonian labour market proved to be very flexible, the average wages decreased and hours were cut more than in most other EU countries during the early years of the recession. This enabled to find the balance both in public and private sector.

Although the Estonian economy experienced a recovery in 2011 and 2012, it is still too early to conclude that the recession is over. The EU has experienced the most severe economic crisis in its history and it is not certain that the most difficult period is behind us. The situation in some Member States remains worrying and it is unclear whether the European stability mechanism is powerful enough to help the EU overcome these problems. The countries in the

union are very closely related economically, which is why the problems of one Member State are problems that all EU countries have to handle.

The crisis clearly showed how vulnerable Estonia is to external shocks and how quickly rapid growth can turn into deep decline (see also OECD Economic... 2012). Therefore, particular attention should be paid to imbalances that can hinder sustainable economic growth in future. Analysis has shown that inequalities emerging on the Estonian labour market during the global financial crisis can be divided into two groups. The first group includes those inequalities that were short-lived and diminished during the recovery period. This study has shown that although men were more vulnerable than women during the recession in terms of both unemployment and a loss of working hours, this was a short-term phenomenon. The recovery period has also been beneficial to men. As such, initial developments indicate that no special gender-based measures need to be implemented at this stage in the recovery process. However, this does not mean that future developments should not be closely monitored.

The second group of inequalities includes those that demand appropriate policy attention now. The experience of the recession indicated that like other EU countries the most vulnerable groups on the labour market in Estonia were youth and the lower-educated, although other groups (older workers and those with secondary and even tertiary education) posted higher unemployment rates than the EU average. Therefore, special attention should be paid to these groups by implementing proper policy measures to return the unemployed to the education and labour market and avoid social exclusion. The experience of the crisis and recovery period has taught that Europe is not facing the same conditions as existed before the crisis. In order to support the rapid recovery and secure the international competitiveness of Estonia, an increase in the skills level needs to be achieved.

The key to achieving this is educational policy. There is a need to more strongly support participation in lifelong learning, not only by young people, but across all ages. Analysis results indicate that unemployment is highest among those that have only general education or less and much lower for those that have vocational education or a university degree. As knowledge-intensive jobs are the key to competitiveness in the long term, the Estonian education system needs to be reformed to provide the skills that correspond to labour market needs. This will help avoid a similar increase in unemployment among young people in the event of future recessions.

As a recent study indicated (Espenberg et al. 2012b), the drop-out rate in vocational education is a major problem in Estonia. Around one in five students drops out of vocational school each year. It is clear that the country's vocational education system needs to be reformed to better meet the needs of employers (several recent studies in Estonia having indicated that companies are not satisfied with the skills and knowledge of young people that have completed vocational training: see for example Eesti masinatööstuse... 2011; Energeetika

tööjõu... 2011) and the interests of students²⁰ (Espenberg et al. 2012c). Therefore, it is important to continue such programmes as TULE, KUTSE and VÕTA, which are aimed at getting people who have interrupted their studies to recommence them. In addition, particular attention should be paid to those who have only general education and proper policy measures developed to support the active participation in lifelong learning for all participating on the labour market.

Even during the deepest stage of the recession, graduates of both social and real sciences were successful on the labour market. The proportion of unemployed among both groups was negligible in 2007 and again in 2010. Analysis results indicate that at the beginning of people's careers the wages of master's level graduates in the social sciences are somewhat higher than those for real sciences graduates. This explains why young people prefer to study social sciences despite the fact that public educational policy favours real sciences, with most social sciences students having to fund their studies themselves.

A worrying result is the increase in numbers of the lowly-paid employed. The proportion of those who experienced a wage decrease in the previous year jumped from 25% in 2008 to *ca* 60% in 2009 and to 70% in 2010. The increase in people belonging to the lower end of wage distribution may possibly lead to an increased risk of poverty. The key here is to support the development of knowledge-intensive jobs which in turn requires an increase in skills.

The long-term unemployed need special attention, especially older people and non-Estonians. Many in the older age bracket (but also in the 25–49 age group) and non-Estonians who lost their jobs during the recession are facing problems re-entering job market. Long-term unemployment is increasing among the elderly and non-Estonians in absolute terms and as a percentage of the unemployed. In 2011 around two-thirds of the unemployed in the 50–74 age group and 62% of non-Estonians had been out of work for more than a year. The results of a recent study (Espenberg et al. 2012c) indicate that around half of older unemployed people lost their jobs as a result of lay-offs and that many are doubtful that they will find another job that matches their skills and knowledge. Employers see obsolete skills and knowledge as one of the main problems related to older workers (in addition to health-related problems). This means that the state should pay particular attention to this group and apply appropriate policy measures to reintegrate them into the labour market. Failing

²⁰ This reform is particularly important in light of the higher education reforms being implemented: due to the abolition of non-state funded study places it is likely that competition in vocational schools will increase. Therefore, while one of the main weaknesses of the current vocational system is the low quality of the students (which is a result of the low popularity of vocational schools in society – the general opinion being that after completing primary studies those who are talented should continue in high school, with vocational schools mainly meant for those who are less talented; see Espenberg et al. 2012b), solutions have to be found in regard to improving the quality of vocational education so that less capable youth still have the chance to acquire a profession.

in this would have a severe impact on recovery, especially since movement takes place during a recovery period towards knowledge-intensive jobs (which is likely to happen in Estonia). As such, a combination of appropriate life-long learning measures, support to establish enterprises and active labour market policies is needed in order to get the long-term unemployed back into work.

In order to help older people return to the labour market, a more focused approach to active labour market policy measures is needed. As the results of Espenberg et al. (2012c) and Kasearu, Trumm (2013) indicate, among the current active labour market policy programmes there are no measures specifically targeted at different age groups, although there is a clear need for this. Older unemployed people are overrepresented in active labour market measures that do not directly support them in finding a job (such as public work, work exercise and work clubs) and underrepresented in measures such as work-related training, work practice and grants to start companies.

The gender pay gap and the factors that determine it need proper attention in Estonia, which has been highlighted as the country in which the gap is the highest in the EU. Our analysis also revealed a large gender pay gap among recent university graduates – one that is comparable to the gender pay gap at the level of society. This indicates that gender-related stereotypes are inherent in society and it may result in the pay-related discrimination of women. Our study (as well as the results of Anspal et al. (2010), who analysed the general gender pay gap and Mõtsmees and Meriküll 2012 who analysed the reservation wages of Estonian men and women) indicates that to a large extent the gap is not explained by such factors as sectoral and occupational segregation, but rather society-level attitudes. Therefore, breaking such barriers needs consistent attention and may take long time to change attitudes in society.

6. CONCLUSION

Discourse on the concept of inequality dates back to ancient times. Aristotle is regarded as the first Western writer to distinguish between justice and equity in his “Nicomachean Ethics” as early as 350 BC. Since Adam Smith’s “Wealth of Nations” (1776) the concept of inequality has been an object of analysis in economic literature. There are two sides to inequality: inequality of opportunity, which reflects differences in access to equal conditions; and inequality of results, which indicates disparity in outcomes. Most strands of contemporary political philosophy of distributional equity and inequality support the idea of the need to guarantee equality of opportunity, i.e. equal treatment of those who are alike.

In this thesis the focus is on inequalities emerging on the labour market. Inequality in the labour market system developed in the thesis includes two dimensions: labour market participation inequality; and labour market remuneration inequality. Participation inequality is divided into two sub-groups: participation level inequality; and participation intensity inequality. Participation level inequality reflects differences between involvement on the labour market measured via unemployment and employment rates. Participation activeness inequality indicates the extent of involvement on the labour market, i.e. inequality in working hours.

To a certain degree inequalities are inherent in developed market economies and reflect differences in people’s abilities and preferences. In the policies of developed countries less emphasis is placed on achieving equality of results on the labour market, in terms of both participation and remuneration equality, for a number of reasons. Absolute equality in results on the labour market is questionable – for example, similar levels of (un)employment by gender or age – because of different preferences in work and family-related activities, talents, health etc. Absolute equality would also decrease people’s motivation to fully exploit their talent if all were rewarded equally (i.e. secured with jobs and the same wages) despite the results achieved. In other words, there are ‘natural’ inequalities stemming from preferences and person-specific abilities.

The emergence of inequalities on the labour market is not bad in itself, but because of their negative side-effects (such as poverty and social exclusion) they reduce social cohesion and retard economic growth. Therefore, in order to make informed policy decisions, it is important to have information about the nature and extent of the inequalities emerging on the labour market.

There is a complex set of interrelated factors that influence inequalities on the labour market. In this thesis they are divided into four groups: personal characteristics, society-level attitudes, economic factors and institutional factors. The first three sets of factors mostly cause inequalities on the labour market, while institutional factors can both create and tackle such inequalities, depending on the nature of the policy action. While personal characteristics and society-level attitudes mainly indicate why there are discrepancies in labour

market inequalities between groups, economic indicators mostly cause changes in inequalities (although, of course, they also have an influence on the level of inequalities).

Innate (dis)abilities, acquired skills and knowledge and family-related responsibilities may cause inequality on the labour market. These mostly represent the 'fair' part of inequalities, indicating differences in talents and preferences. At the level of society, stereotypes, norms and traditions influence inequalities on the labour market. These factors are 'invisible' obstacles that may hinder the labour market access and success of certain groups (such as women and minorities) without any objective grounds. These factors may cause both inequality of opportunity and inequality in results. Gender-related attitudes leading to the undervaluing of women's work and ethnic stereotypes are two of the best known examples of these factors.

Of economic indicators, the development level of the economy, industrial structure, integration in global markets and technological change all have an influence on the inequalities emerging on the labour market. The role of the state is seen as being to promote equality on the labour market by removing visible or invisible obstacles that lead to the exclusion of certain groups from certain sectors or occupations. Institutional measures are therefore mostly designed to achieve greater equality on the labour market. Still, some policy measures, like the tax system, are also targeted at fighting poverty and social exclusion, which likewise influence inequalities on the labour market. Anti-discrimination laws, income taxes, the national minimum wage and industrial relations are key institutional factors influencing inequalities on the labour market.

During a recession, the development of inequalities on the labour market depends highly on the nature of the crisis. There are several factors that influence inequalities: in addition to the aforementioned aspects, employers' preferences and employment protection legislation also play a role. There are many theories that explain which adjustment strategy (employment, hours or wages) employers are likely to prefer in a recession. Most assume rather rigid wages and adjustment via reduced employment. Several of these (for example, the implicit contract theory and the efficiency wage theory) assume rigid wages and adjustment via employment cuts, while the labour hoarding theory explains why decreases in working hours may occur. Most theories (including the turnover model and insider-outsider model) expect recessions to have a more severe effect on the labour market prospects of employees who have a lower skills level and lower tenure. Employment protection legislation and the strength of unions also affect the development of inequalities on the labour market during a recession.

In this thesis the focus is on Estonia's experience during the Great Recession, the most severe worldwide economic downturn since the Great Depression. The aim of the thesis was to ascertain which labour market groups proved the most vulnerable during the crisis in Estonia. Such analysis is necessary in order to develop appropriate policy intervention measures for

specific labour market groups, to support the sustainable recovery of the economy and to prevent negative consequences like social exclusion and poverty. In addition to general trends, inequalities on the labour market and their changes were analysed between the following groups: men and women; younger and older people; Estonians and non-Estonians; and more highly and lower-educated people.

Developments in inequalities on the labour market in the public and private sector were analysed in greater detail. Since the Estonian labour market is highly segregated and the effects of the crisis are unlikely to be uniform across the economy, this distinction was necessary in order to better understand the differences between sectors. In addition, the public sector can use reserves or increase sovereign debt to cover costs in light of decreasing revenue, whereas private sector companies have fewer opportunities to make use of such measures during the crisis. As such, it was highly likely that the adjustment mechanisms used would be different in the public and private sectors. Also, it was important to analyse developments in inequalities on the labour market separately in these sectors because of the limitations the Estonian public sector faced due to negotiations to join the Eurozone and the small domestic market. Since labour market institutions (most importantly the minimum wage, income tax and trade unions) can wield extensive influence on the dynamics of inequalities on the labour market during a crisis, their role in Estonia during the recession was also analysed.

While most previous studies have focused on lower-educated young people as a vulnerable group on the labour market during a crisis, there has been little discussion of highly educated young people's labour market prospects at the beginning of their careers during a crisis period. Analysis of recent university graduates during the recession was particularly interesting because the effects of a crisis are usually less severe on the highly educated. However, no analysis had focused on recent university graduates' labour market behaviour in Estonia. Since high-quality data were available it was possible to provide some insight into this. Two aspects were covered: inequalities on the labour market between social and real sciences graduates and the gender wage gap among recent university graduates.

The former is particularly interesting in light of the public debates in Estonia regarding the imbalances in the higher education system, which is said to 'overproduce' social sciences graduates, who then face difficulties after completing their studies, and the lack of engineers and other real sciences experts, which is hindering the growth. The gender pay gap analysis proved interesting because Estonia is characterised by the highest gender wage gap of any EU Member State. Since previous studies carried out in other countries document a modest gender pay gap in people's early careers, the analysis sought to establish whether the same holds true in Estonia.

Three research questions and ten propositions were formed in the thesis.

Research question 1: What labour market adjustment mechanisms are used on the Estonian labour market during the Great Recession, and what are the differences between the public and private sectors?

Proposition 1: All three adjustment mechanisms (adjustment in number of workers, working hours and wages) are used in Estonia during the Great Recession in order to cope with its negative effects.

This proposition was confirmed.

Proposition 2: Wage inequality on the Estonian labour market decreases during the Great Recession.

This proposition was partly confirmed.

Proposition 3: There are differences in the adjustment mechanisms used in the public and private sectors in Estonia during the crisis. In the public sector the adjustments are smaller, while in the private sector a reduction in employment and hours are used more often than in the public sector.

This proposition was confirmed.

Research question 2: What is the influence of labour market institutions on inequalities on the labour market during the Great Recession in Estonia?

Proposition 4: Labour market institutions have a limited impact on inequalities on the Estonian labour market during the recession.

This proposition was confirmed.

Research question 3: How do inequalities on the labour market by gender, age, nationality and educational level change in Estonia during the Great Recession?

Proposition 5: Female/male participation inequality and the gender pay gap decrease in Estonia during the recession.

This proposition was confirmed.

Proposition 6: Participation and wage inequality by age increases, i.e. young people experience a higher incidence of losing their jobs and decrease in wages during the recession.

This proposition was confirmed.

Proposition 7: Participation and wage inequality between Estonians and non-Estonians increase during the recession.

This proposition was confirmed.

Proposition 8: Participation and wage inequality between the highly and lower-educated increase during the recession.

This proposition was confirmed.

Research question 3.1: How large are the inequalities on the Estonian labour market between university graduates of the social and real sciences?

Proposition 9: Social sciences graduates have better labour market prospects than real sciences graduates on the Estonian labour market.

This proposition was partly confirmed.

Research question 3.2: How large is the gender pay gap among university graduates in Estonia?

Proposition 10: The gender pay gap among university graduates is lower than the average gender pay gap in Estonia.

This proposition was not confirmed.

In this thesis the main data sources used are Eurostat data, data from national statistical offices and labour force surveys. Analysis of the gender pay gap and inequalities between social and real sciences students is based on the alumni surveys of 2007 and 2010. Qualitative data gathered during interviews were also used in the case studies. The main indicators used to measure wage inequality were average wage gaps and percentile ratios. Employment and unemployment gaps were used to measure participation level inequality and gaps in average working hours and part-time work to measure participation activeness inequality. Among quantitative research methods, descriptive analysis was combined with regression analysis and Oaxaca-Blinder decomposition. Template analysis was mainly used to evaluate qualitative data.

The main results are as follows. The Estonian labour market remained highly flexible during the Great Recession. All three adjustment mechanisms – reductions in employment, wages and working hours – were used. Compared to other EU countries Estonia clearly stands out, since employment, hours and wage adjustments occurred in the very early phase of the recession and the negative consequences for the labour market were particularly severe. Unlike larger countries, where the volume of foreign orders decreased as a result of the general cooling-off of the economic climate in Europe, Estonia did not have an opportunity to switch its focus from the foreign to the domestic market. As such, economic difficulties among key trade partners had a severe and direct impact on Estonia's economy.

Political priorities also restricted the range of measures that could be implemented in response to the negative effects of the crisis in the public sector. Since Estonia was aiming to join the Eurozone, the government had to meet the Maastricht criteria – which meant that the budget deficit needed to be kept under strict control. Moreover, Estonian governments have followed balanced budget and low sovereign debt principles since the country regained its independence and these targets were not abandoned during the crisis. These limitations placed Estonia in a unique position compared to most other countries. Also, the private sector faced stringent lending conditions during the

recession. This inevitably led to a need to make adjustments on the labour market in line with decreasing demand.

In Estonia's public sector, austerity was mainly achieved via internal devaluation, which included public sector cuts – which in turn included pay cuts during the recession. Wages were reduced in many Estonian public sector organisations as early as 2008–2009, which was exceptional in Europe. Other EU countries have only recently started to apply this measure. In addition, other labour adjustment forms were used, such as unpaid leave days and (to some extent) lay-offs – the latter mostly as a result of restructuring in a number of public sector institutions. The public sector wage decrease was widely communicated in society, guaranteeing general support for such tough decisions. During this difficult period no protest action (such as strikes) was organised, which was again unique from an international perspective.

In light of such adjustments in the public sector it was easy for the private sector to follow this pattern. Facing generally gloomy labour market prospects, workers were forced to accept pay cuts and reduced working hours in many sectors. The impact of the crisis was not the same across all fields: developments were in accordance with economic theory, which suggests that tradable sectors (e.g. manufacturing) are more vulnerable to economic recession than non-tradable sectors (e.g. the service sector). However, average wages decreased in most economic sectors, and not only in average terms. The proportion of workers whose wages were reduced during the recession was clearly higher in Estonia than in other EU countries.

Employment also decreased. In several industries, like manufacturing and construction, the drop was particularly high, whereas in others (for example the services sector) it was rather modest. This pattern is not peculiar to Estonia, but was seen in many other EU countries. What is peculiar to Estonia is the timing: adjustments were made very early on compared to other Member States, and the extent of the adjustments – increased unemployment and decreased wages – was among the greatest in the EU.

Reductions in working hours were less commonly implemented than the other two adjustment mechanisms. However, this was a short-lived phenomenon, which indicates on the one hand the recovery of demand in some sectors (like construction) and on the other restructuring of work. Practices were quite divergent, however, depending on the sector, and varied from one company to the next. This measure was not used extensively in the public sector; however, it was used extensively in some private sector branches (like manufacturing and construction). To some extent labour hoarding was also used in Estonia at the beginning of the recession.

Wage inequality measured as a P90/P10 ratio remained largely unchanged during the recession, indicating that those at the upper and lower ends of wage distribution experienced wage cuts to a similar extent. Middle-wage earners, however, were hit harder during the recession. This is not only characteristic to Estonia: the same phenomenon was observed in several other EU Member

States. The proportion of low-wage earners increased in the early stages of the recession.

Labour market institutions played a modest role in influencing inequalities during the recession. The new Employment Contracts Act which entered force in mid-2009 decreased the laying-off costs of employers and may have supported the increase in unemployment although not directly influencing the inequalities on the Estonian labour market. Trade unions remained relatively weak during the recession, the minimum wage was unchanged and there were no changes in income tax or anti-discrimination laws. Although the Estonian government targeted a considerable amount of EU structural fund money in supporting the return to work of the unemployed and the recovery of the economy, these measures were aimed at the unemployed in general (and some to the long-term unemployed), not to particular (more vulnerable) labour market groups.

The effect of the recession was not uniform across labour market groups. Men were more severely affected, in terms of an increasing unemployment gap and decreasing working hours, being forced to work part-time. This was due to the high gender segregation on the Estonian labour market: those sectors where men dominate (like manufacturing and construction) were hit by the recession much more strongly than sectors where females dominate. Due to this, the male/female unemployment gap increased from almost zero in 2008 to 6.6 percentage points in 2009, and part-time employment also increased. This, however, was a short-term phenomenon: in 2011 the unemployment gap decreased back to the 2007 level, and part-time employment also decreased among men. Unemployment rates nevertheless remained far from the 2007 level, exceeding 13% for men and 12% for women in 2011. This indicates that although women suffered less during the recession, recovery has been more beneficial to men. This is also confirmed by labour market flow analysis: the hiring rate of men has increased much more than that of women during the recovery period.

Youth were particularly hard-hit by the recession. Although in 2011 their unemployment rate decreased by 10 percentage points, it still exceeding 20% and the incidence of working part-time was also high. Youth unemployment, however, is a relatively short-term phenomenon; unemployment is much more persistent among older people. The same worrying conclusion applies to non-Estonians – among unemployed non-Estonians around one-third have been out of work more than two years.

University graduates coped well during the recession. Only a small proportion of both real and social sciences graduates were unable to find a job after graduating. The impact of the recession, however, is reflected in the rise in continuing studies, which is in accordance with the human capital theory. Since during the recession the opportunity cost of working is lower and it is more difficult to find a job, university graduates continue their studies in order to strengthen their labour market competitiveness in the longer term. This trend

can also be seen in several other EU countries. Analysis of wage inequality between social and real sciences graduates indicated that a social sciences education pays off on the Estonian labour market. Especially at the master's and doctoral level the wages of social sciences graduates are higher and they are employed in higher-level occupations. However, the wage gap favours real sciences graduates once extramural students are excluded, indicating that differences mainly arise because of differences in job experience.

The high gender wage gap among recent graduates in Estonia is not in accordance with neither economic theory nor the results of other countries. The gap is only partly explained by differences in tenure, age, occupation and sector, indicating the importance of other factors. What these factors are and to what extent this reflects the lower wage demands of women remains an open question that requires further analysis. This partly reflects discrimination against women and role of traditions, norms and attitudes inherent in society, which demands an appropriate policy reaction in order to close the gap.

The focus of this thesis is an analysis of the short-term impact of the Great Recession on inequalities on the labour market in Estonia. Although the Estonian economy has recovered since 2011, at the time the thesis was written it was too early to declare that the recession had passed or to draw any conclusions about its long-term effects on inequality on the labour market. The crisis clearly showed how vulnerable Estonia is to external shocks. The EU has experienced the most severe economic crisis in its history and it remains to be seen whether the most difficult period is over. The situation in some Member States (Greece, Spain and Portugal) is worrying and it is unclear whether the European stability mechanism is powerful enough to help the union resolve these problems. EU countries are very closely related economically, due to which the problems of one Member State are actually problems that all EU countries have to handle.

Therefore, proper policy action needs to be implemented in order to solve problems that could hinder balanced economic growth in future. Analysis has shown that inequalities emerging on the Estonian labour market during the global financial crisis can be divided into two groups. The first group includes those inequalities that were short-lived and diminished naturally during the recovery period, such as the increase in male unemployment. This study has shown that although men were more vulnerable than women during the recession in terms of both unemployment and loss of working hours, the recovery period has also been beneficial to men. As such, no special gender-based measures are needed in this regard.

The second group includes inequalities that demand proper policy measures to support recovery and make it sustainable in the longer term. The crisis has changed economic conditions. In order to support the rapid recovery and secure the international competitiveness of Estonia, an increase in skills needs to be achieved. The experience of the recession indicates that as in other EU countries the most vulnerable groups on the local labour market were youth, minorities,

the less skilled and the lower-educated. Therefore, special attention should be paid to these groups by implementing proper policy measures to return the unemployed to the labour market and avoid social exclusion.

Great challenges are faced by the educational policy system, which needs to be reformed so as to more effectively support participation in lifelong learning – not only among youth, but for all people. As knowledge-intensive jobs are the key to competitiveness in the longer term, skills that correspond to labour market needs form the key to competitiveness. This will help avoid such a sharp increase in unemployment among young people in the event of future recessions and prevent the risk of social exclusion among older people.

Two labour market groups that require proper labour policy intervention measures are the elderly and non-Estonians. In 2011 *ca* two-thirds of unemployed people aged 50–74 and 62% of non-Estonians had been out of work for more than a year. The results of a recent study (Espenberg et al. 2012c) indicate that around half of all older unemployed people lost their jobs as a result of lay-offs and that many are doubtful they will find another job that corresponds to their skills and knowledge if they lose their job. Employers see obsolete skills and knowledge as one of the main problems related to older workers (in addition to health-related problems). This means that the state should pay particular attention to older people and non-Estonians and apply appropriate policy measures to integrate them into the labour market. Failing in this would have a severe impact on recovery, especially since it is highly likely that recovery will increase demand for workers due to a movement towards knowledge-intensive jobs. As such, appropriate life-long learning measures, support for establishing enterprises and active labour market policies are needed to get these people back into employment.

There is a need for a more individual-specific approach in active labour market policies in Estonia. The current policy programmes in this area are rather general. There are no specific measures targeted at younger and older unemployed people or non-Estonians. Individual counselling is also considered rather general, and for example older people who are out of work are overrepresented in measures that do not directly support them in finding a job (such as public work, work exercise and work clubs) and underrepresented in measures such as work-related training, work practice and grants for starting companies. More focused job consultation is needed here.

The gender pay gap and the reasons for it demand appropriate attention in Estonia, which has been identified as the country with the highest such gap in the EU. Our analysis also highlighted a large gender pay gap among recent university graduates which is comparable to the gap at the level of society. This indicates that gender-related stereotypes are inherent in society and may result in the pay-related discrimination of women.

There are several suggestions for future work. The scope of this thesis is limited to analysis of short-term developments in inequalities on the Estonian labour market during the global financial crisis. As such, there is a need to

analyse the development of inequalities during the recovery period in order to obtain information as to whether structural changes have occurred in Estonia as a result of the recession, whether there are effects that did not occur in the short term and what labour policy measures are needed in order to support the sustainability of growth and, if possible, reduce the vulnerability of the labour market.

The thesis analyses developments in inequalities. As the next step, the effects of these inequalities on the labour market should be analysed. As discussed in chapter 1, inequalities are not negative *per se*, but because of the side-effects they cause, such as poverty and social exclusion. For policy reasons it would also be interesting to find out what the effects of developments on the labour market on other inequalities (educational, health care, economic and social) have been.

Since the well-being of the individual also depends on the situation of other household members, income sharing and household composition are relevant issues for analysis (Jenkins et al. 2011). As an extension of this study, analysis of economic inequality would therefore provide a useful insight into inequalities in general.

It would also be interesting to analyse the effects of the recession on expenditure inequalities and consumption activities, since this determines the well-being of individuals. It has been documented that consumption expenditure inequality is lower than income inequality (Goodman and Oldfield 2004) and has not changed as much as income inequality (Krueger et al. 2010). During the crisis many people in Estonia faced not only the risk of losing their jobs, but also of reduced income. It would be interesting to analyse the effects of such developments on well-being.

It would also be interesting to analyse more thoroughly certain aspects analysed in a more general way in this study. For example, one suggestion for future work is to analyse how much the composition of wage distribution changed during the recession, i.e. how large a proportion of low-wage/high-wage earners remained in this wage group during the crisis. Cross-sectional data do not indicate how people fare over time, since some previously higher-earning individuals move into the bottom wage groups and vice versa. For example, Perri and Steinberg (2012) found using panel analysis that although the earnings of the bottom 20% of households rose slightly from 2006–2008, this was only due to the change in the group's composition; on average, households in the bottom 20% of earnings distribution actually suffered a decline in disposable income. In addition, the reasons behind the increase in inequalities between Estonians and non-Estonians and across age groups deserve more attention.

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APPENDIX I

Inequalities on the labour market: Estonian experience during Russian crisis

In this section an overview of unemployment and wage trends during the Russian crisis is given. The Russian financial crisis took place in the end of 1990s (1997–1999) and is the only recession Estonia has experienced after regaining the independence and before the start of the Great Recession. Although the economic situation has changed in Estonia quite considerably since the Russian crisis (Estonia is now the member of the EU) and Russian crisis and the Great Recession have differences (the former was a regional crisis while the latter has a much wider global dimension) the experience of the previous crisis is useful in order to get an insight what and why could happen during the crisis.

The main adjustment mechanism used during the Russian crisis was via employment. During the Russian crisis the unemployment increased from 10% in 1998 to almost 14% in 2000 (Statistics Estonia). The average increased slightly even during the Russian crisis. The wage inequality measured as D9/D1 ratio decreased from 4.9 in 1998 to 4.4 in 2000 and continued to decline until 2005 when it reached to 3.6 (self-calculations based on Estonian LFS). While the D9/D5 wage ratio remained at the same level, the D5/D1 ratio decreased, indicating the relatively better position of those in the lower end of wage distribution. It may be due to the low wages of those in the lower end of wage distribution that could not be deduced. The adjustment via working hours was modest, the incidence of part-time work remained unchanged (in 1997 the share of part-time workers was 7.6% of employed and in 1999 7.9%, Statistics Estonia) and working hours decreased only slightly. According to the Statistics Estonia, number of working hours for full-time workers remained stable in 1997–1998 (42.7 hours per week) and decreased to 41.9 in 1999.

The influence of the crisis was not uniform across different labour market groups, however. Since the adjustments occurred in the Estonian labour market mainly via employment, in what follows the short overview about developments in unemployment inequality by gender, age, nationality and educational level is given. The data provided in the figures cover longer time period than Russian crisis in order to give insight about

The unemployment gap between men and women increased during the Russian crisis (see Figure 1). This was mainly due to the sectoral segregation of the workforce by gender. As found by Eamets (2004) the male-dominated sectors like manufacturing, agriculture were hit the most when the export opportunities to former Eastern bloc countries shrank and the flow from employment to unemployment increased more in industry than in services and agriculture. As a result, the unemployment gap between men and women increased. This, however, was a short-time phenomenon. The male-female unemployment gap increased only in 1998–1999, but stayed also high in 2000.

By 2001 the gender unemployment gap was almost diminished because of the fast recovery of the sectors that were characterised by high male proportion in the workforce.

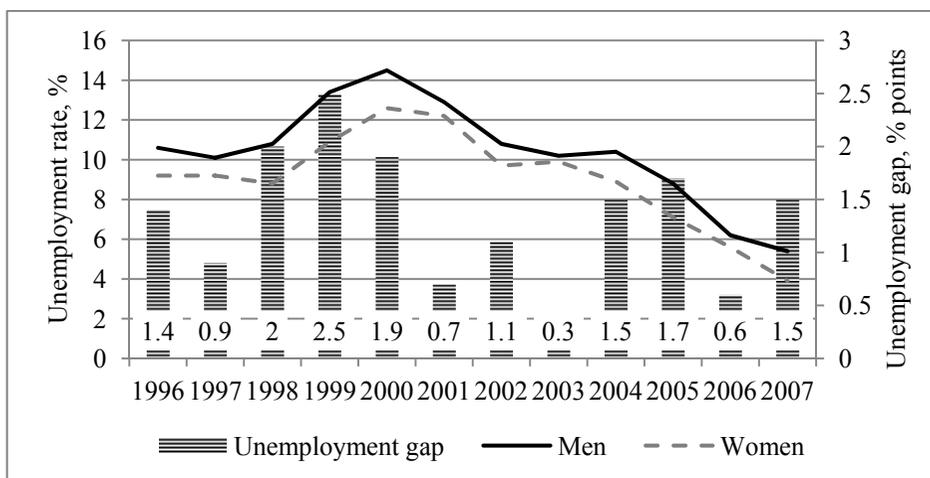


Figure 1. Unemployment rate by gender (in the left axis) and gender unemployment gap (in the right axis) in Estonia, 1996–2007

Source: Statistics Estonia

The high youth unemployment rate has been the continuing challenge that the government has faced during the whole period after re-gaining the independence. During the Russian crisis, however, the unemployment gap between young people (aged 15–24) and other age groups increased considerably, peaking at almost 11 percentage points in 2000 when the youth unemployment reached as high as 24%. In following two years (2001–2002) the youth unemployment rate decreased, but it was not only caused by the higher demand for their labour, but also by the considerable increase in the number of young people being outside the labour force due to studies. While in 2001 the average number of students was 104,000, in the first quarter of 2002 it was 127,000 (Rõõm, Viilmann 2003). After the Russian crisis, the youth unemployment remained high compared to other age groups and in 2003–2004 increase in unemployment gap was again observable because of the increase in youth unemployment rate in the situation where in other age groups unemployment decreased. During that time the segmentation of the youth based on educational level obtained was observable. Especially worrying was the fact that even during the recovery the number of the young with low educational level did not change (Unt, Saar 2006).

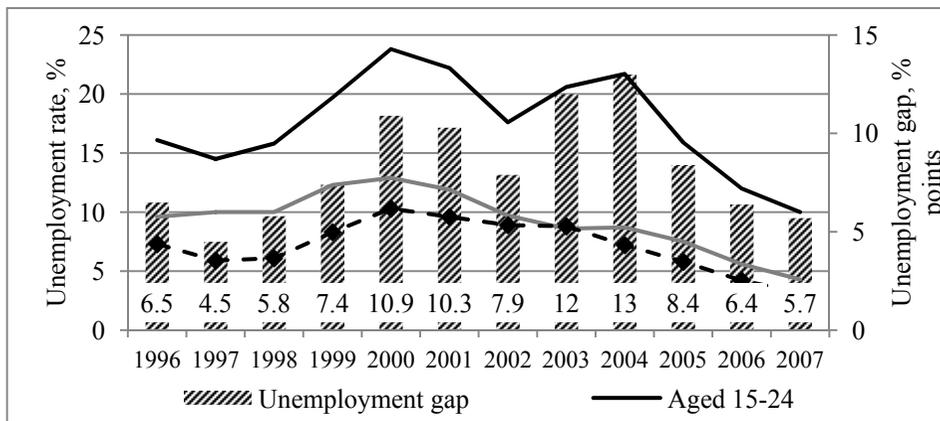


Figure 2. Unemployment rate by age (in the left axis) and unemployment gap between youth (aged 15–24) and middle-aged (aged 25–49) (in the right axis) in Estonia, 1996–2007

Source: Statistics Estonia

The Estonians-non-Estonians unemployment gap that had been existent throughout the transition period, widened a bit during the Russian crisis. The unemployment gap between Estonians and non-Estonians as well as the non-Estonians unemployment rate remained high after the crisis. The unemployment gap had an upward trend and the non-Estonians' unemployment rate quite stable and high until 2004, starting to decrease in 2005 when the boom period started in Estonia. It indicates that the structural changes that occurred as a result of the Russian crisis, posed non-Estonians at the risk of unemployment.

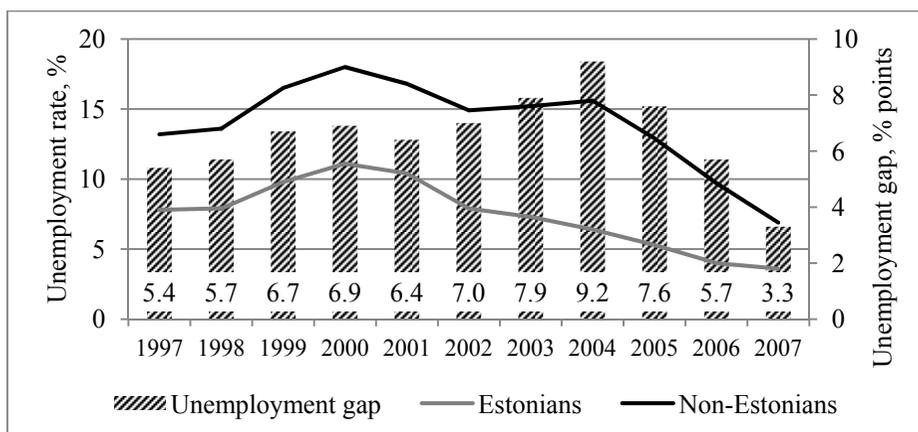


Figure 3. Unemployment rate by nationality (in the left axis) and unemployment gap between Estonians (aged 15–24 and non-Estonians (in the right axis) in Estonia, 1997–2007

Source: Statistics Estonia

During the Russian crisis the educational unemployment gaps increased. The unemployment rate increased in all educational categories (see Figure 4), but the increase was the most modest for those who had tertiary education (for this group the unemployment also returned soon to pre-crisis level) and much more remarkable for those who had pre-primary or primary education. As a result, the unemployment gaps between primary and secondary versus tertiary education increased during the Russian crisis. The primary-tertiary education unemployment gap was especially severe, peaking at 16.5 percentage points in 2000.

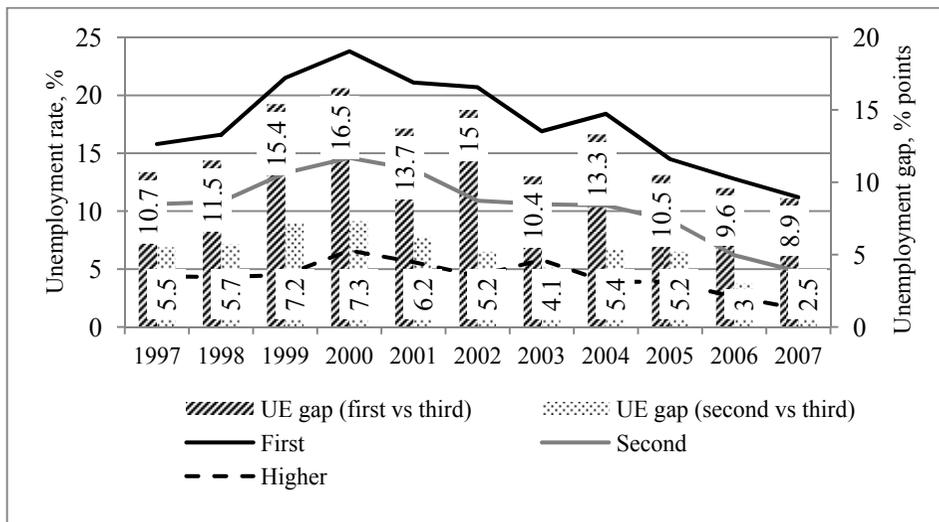


Figure 4. Unemployment rate by educational level (in the left axis) and unemployment (UE) gap (in the right axis) in Estonia, 1997–2007

Explanations: UE gap – unemployment gap; First – pre-primary and primary education; Second – secondary, post-secondary and pre-tertiary education; Third (tertiary education) – professional secondary education based on secondary education and higher education (includes the category “higher”); Higher – bachelor, master or doctoral degree.

Source: Statistics Estonia

The hiring and separation rates are important indicators of labour market adjustments during the crisis. Hiring rate measures the probability of the unemployed or non-active person to become employed, i.e. get a job. Separation rate measured the probability of the employed to lose a job. As Rõõm and Viilmann (2003) and Meriküll (2011) show, during the Russian crisis years (1997–1999) the separation rate remained unchanged (slightly less than 18%), but the hiring rate decreased sharply (from slightly more than 18% to about 15%). According to Meriküll (2011), the modest change in separations and drop in hiring occurred.

During the Russian crisis the wages were downward flexible in Estonia (Eamets 2004). Although the average wage did not decrease during the Russian crisis, in 1998–1999 the average real wage decreased in several sectors, especially in sectors affected most by the decline in the east-bound external trade, such as agriculture (wage decrease 8.9%), fisheries (–7.9%), construction (–10.6%) and in hotels and restaurants sector (–13.8%), less manufacturing (–2.4%) and forestry (–1.4%) (Rõõm, Viilmann 2003). Since the male-dominated sectors were affected worse, the gender pay gap decreased in Estonia (see Figure 5). However, during the recovery it remained stable until the start of the economic boom in mid-2000s.

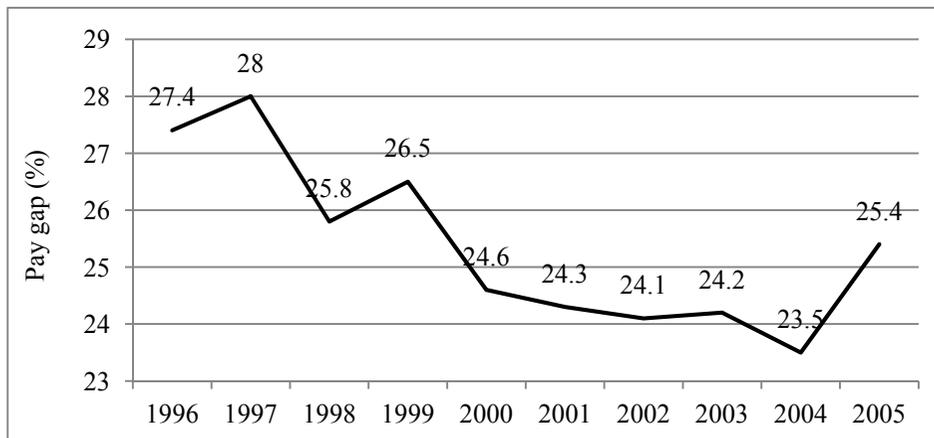


Figure 5. Gender pay gap in Estonia, 1996–2007

Source: Statistics Estonia

As a result of the crisis the pay gap between Estonians and non-Estonians increased and remained high until 2003. It is quite interesting to observe that while in 1998 the pay gap by nationality increased in the following year 1999 that marked the most severe crisis point the decrease was observable. This, however, was a short-time fluctuation and during the recovery the pay gap by nationality increased.

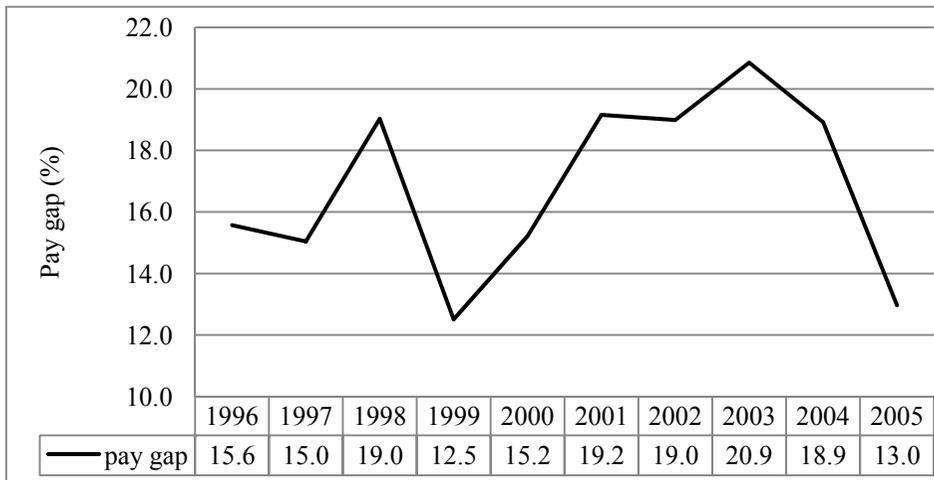


Figure 6. Estonian-non-Estonian pay gap in Estonia, 1996–2007

Source: Estonian LFS, author's calculations

APPENDIX 2. Overview of results of studies analysing inequality on labour market during global financial crisis in EU countries

Study	Focus	Data	Main findings		
			Employment	Working hours	Wages
Hurley et al. 2011	Sectoral and occupational	European LFS (II Q 2008-II Q 2010), EU-27	<p>Polarisation of employment structure. At the Member State level the three main patterns in employment shift were:</p> <ul style="list-style-type: none"> - sharp decrease in low-medium (2nd wage quintile) and medium (3rd wage quintile) paying jobs (polarisation); - employment in top-paying jobs increased in both the public and private sectors (upgrading); and - job destruction greater in higher-paying jobs while lower-paid employment either grew or experienced a small decline (downgrading). <p>Women fared better on the labour market than men.</p> <p>Employment levels of older workers remained high; young workers were severely affected.</p> <p>Marked losses in temporary jobs at the beginning of the recession transformed into gains: the majority of employment growth from 2009 onwards took place in temporary (lower-paying) jobs.</p> <p>Part-time work has expanded (lower-paid part-time men's jobs in agriculture, food and beverages and higher-paid women's jobs in education, health and professional services).</p>		

Study	Focus	Data	Main findings	
			Employment	Wages
Fabiani et al. 2010	Wage rigidity in firms with at least 5 employees in manufacturing, trade and market services	9 EU countries, Wage Dynamics Network		<p>Working hours worked is the least common strategy.</p> <p>Labour costs are more commonly adjusted than non-labour costs.</p> <p>Flexible wage components are more often cut than base wages.</p> <p>No significant increase in the incidence of wage cuts during the crisis. Estonia is a notable exception, presenting a high incidence of wage cuts in addition to wage freezes.</p>
Wages and working... 2012	Five key sectors: manufacturing, construction, accommodation and food services, financial services & public administration	EU-27 + Norway, Eurofound questionnaire completed by national correspondents, 1 st phase of crisis (2008–2010)	<p>Sectoral data show that the crisis has had a greater effect on employment than on wages.</p> <p>Reducing the number of hours worked was used as one of the strategies to cope with the crisis.</p>	<p>The main wage trends from 2008–2010 were deceleration and freezing. Wage cuts remained modest. Estonia is an exception in this regard as wage reductions were employed extensively.</p> <p>Trends in occupational pay gaps were mixed: in 2009 the pay gap in the high/mid and mid/low categories rose in around half of countries and shrank in others and had a mirroring pattern.</p> <p>Mixed sectoral effects: Manufacturing and construction were hit by restructuring and downsizing in almost every EU Member State, mainly through employment reductions and in some countries wage cuts.</p>

Study	Focus	Data	Main findings	
			Employment	Working hours
Arpaia, Curci 2010	Job inflows and outflows	European Labour Force Survey, 2 nd quarter 2008-2 nd quarter 2009	<p>Workers with weaker (i.e. temporary or on-call) contracts who are less qualified and less experienced face a greater risk of losing their jobs.</p> <p>Men more affected than women</p> <p>Younger workers hit harder than older workers</p>	<p>Working hours decreased more than unemployment increased at the start of the recession (indicating some degree of labour hoarding) in many EU countries.</p>
				<p>Wages</p> <p>Service sectors suffered less: accommodation and food services shows a scattered pattern; 16 countries experienced an employment decrease. Financial services were affected primarily through wage decreases. Public administration was a relative safe haven.</p> <p>Wage inequality has either remained the same or increased.</p> <p>Particular groups – the low-skilled, the young and migrants – have been hit hard by the crisis (either losing their jobs or their jobs becoming more precarious).</p> <p>Decline in compensation per employee is to a large extent led by the fall in the variable component, not the base wage.</p>

APPENDIX 3. Indicators of inequality in the labour market by gender, age, nationality and educational level

Table 1. Indicators by gender

	2007	2008	2009	2010	2011
Men					
Employed (thousands)	330.0	330.9	288.1	275.1	301.4
Unemployed	18.9	20.2	58.5	66.5	45.6
Unemployment rate	5.4	5.8	16.9	19.5	13.1
Share of those unemployed more than 12 months	52.9	35.6	26.8	48.4	59.6
Part-time (% of employed)	4.3	4.0	7.0	7.1	5.6
Involuntary part-time (% of part-time)	12.1	14.9	29.1	22.6	20.6
Working hours	41.4	41.1	40.4	40.5	40.6
Share of employed experiencing wage decrease				8.3	1.5
Share of employed experiencing wage increase				1.7	2.6
Women					
Employed (thousands)	325.4	325.6	307.7	295.8	307.7
Unemployed	13.1	18.1	36.5	49.4	41.3
Unemployment rate	3.9	5.3	10.6	14.3	11.8
Share of those unemployed more than 12 months	45.0	26.0	28.5	41.3	53.5
Part-time (% of employed)	12.1	10.4	13.8	14.5	15.4
Involuntary part-time (% of part-time)	14.0	7.4	16.0	18.8	18.7
Working hours	38.6	38.6	38.2	38.2	38.0
Share of employed experiencing wage decrease				7.8	1.0
Share of employed experiencing wage increase				2.1	2.1

Table 2. Indicators by age

	2007	2008	2009	2010	2011
15–24					
Employed (thousands)	70.9	73.1	56	47.6	55.8
Unemployed (thousands)	7.9	10	21.3	23.4	16.1
Unemployment rate	10	12	27.5	32.9	22.3
Share of those unemployed more than 12 months	30.4	24.0	26.8	37.2	39.1
Part-time (% of employed)	13.8	12.9	17.6	21.2	17.1
Involuntary part-time (% of part-time)	NA	NA	19.3	NA	10.5
Working hours	38.7	38.9	37.6	36.7	37.4
Share of employed experiencing wage decrease				4.6	..
Share of employed experiencing wage increase			
25–49					
Employed (thousands)	394.6	392.7	357.1	350.1	366.2
Unemployed (thousands)	17.8	19.5	53.2	63.6	49
Unemployment rate	4.3	4.7	13	15.4	11.8
Share of those unemployed more than 12 months	50.6	25.6	25.6	47.5	58.0
Part-time (% of employed)	5.6	4.7	7.7	7.4	7.3
Involuntary part-time (% of part-time)	19.6	12.8	23.4	28.4	24.7
Working hours	40.6	40.4	40.0	40.2	40.2
Share of employed experiencing wage decrease				8.1	1.4
Share of employed experiencing wage increase				2.0	2.8
50–74					
Employed (thousands)	189.8	190.8	182.7	173.2	187.1
Unemployed (thousands)	6.3	8.9	20.5	28.9	21.8
Unemployment rate	3.2	4.4	10.1	14.3	10.4
Share of those unemployed more than 12 months	69.8	49.4	33.2	47.4	67.0
Part-time (% of employed)	11.4	10.1	13.9	15.3	15.1
Involuntary part-time (% of part-time)	9.6	7.9	16.5	17.0	17.2
Working hours	39.1	39.2	38.3	38.3	38.1
Share of employed experiencing wage decrease				8.9	1.2
Share of employed experiencing wage increase				1.3	1.3

Table 3. Indicators by nationality

	2007	2008	2009	2010	2011
Estonians					
Employed (thousands)	443.1	444	403.8	389.3	420.8
Unemployed	16.3	19.3	50	60.5	45
Unemployment rate	3.6	4.2	11	13.4	9.7
Share of those unemployed more than 12 months	42.9	28.5	26.0	43.0	51.6
Part-time (% of employed)	9.2	7.8	10.4	11	11.1
Involuntary part-time (% of part-time)	12.0	9.0	19.2	17.3	15.3
Working hours	39.9	39.8	39.4	39.4	39.2
Full-time workers in main job	41.6	41.4	41.3	41.5	41.3
Part-time workers in main job	22.5	21.9	22.9	22.2	22.4
Share of employed experiencing wage decrease				7.29	1.13
Share of employed experiencing wage increase				1.65	2.36
Non-Estonians					
Employed (thousands)	212.2	212.6	192.1	181.6	188.3
Unemployed	15.7	19.1	45	55.5	41.9
Unemployment rate	6.9	8.2	19	23.4	18.2
Share of those unemployed more than 12 months	56.1	33.0	29.1	47.9	62.3
Part-time (% of employed)	5.9	6.0	10.8	10.9	9.5
Involuntary part-time (% of part-time)	18.6	11.7	22.2	25.7	30.5
Working hours	40.2	40	38.9	39.3	39.4
Full-time workers in main job	41.3	41.2	41.0	41.3	41.1
Part-time workers in main job	22.9	21.4	22.1	23.2	23.5
Share of employed experiencing wage decrease				9.6	1.6
Share of employed experiencing wage increase				2.4	2.3
Primary					
Employed (thousands)	64.4	67.6	51.8	46.7	53.3
Unemployed	8.1	9.2	20.7	20.9	18.9
Unemployment rate	11.2	12	28.6	30.9	26.2
Part-time (% of employed)	7.6	6.2	10.2	10.6	9.3
Involuntary part-time (% of part-time)	33.3	28.6	25.8
Working hours	39.3	39.7	39.4	38.8	38.9
Share of employed experiencing wage decrease				9.2	..
Share of employed experiencing wage increase			

Secondary					
Employed (thousands)	364.9	361.2	313.4	304.4	324.7
Unemployed	18.5	22.2	59	72.6	47.8
Unemployment rate	4.8	5.8	15.8	19.3	12.8
Part-time (% of employed)	7.6	6.2	10.2	10.6	9.3
Involuntary part-time (% of part-time)	14.7	11.6	21.6	20.1	21.2
Working hours	40.2	40.2	39.3	39.4	39.6
Share of employed experiencing wage decrease				8.8	1.4
Share of employed experiencing wage increase				2.2	2.8

Tertiary					
Employed (thousands)	226.1	227.7	230.6	219.8	231.1
Unemployed	5.4	6.9	15.3	22.4	20.1
Unemployment rate	2.3	2.9	6.2	9.3	8
Part-time (% of employed)	8.1	8.5	10.5	10.9	12.1
Involuntary part-time (% of part-time)	12.0	5.7	14.9	17.1	15.7
Working hours	39.8	39.5	39.2	39.3	39.0
Share of employed experiencing wage decrease				6.7	1.0
Share of employed experiencing wage increase				1.5	1.8

SUMMARY IN ESTONIAN

Ebavõrdsus Eesti tööturul Suure Majanduslanguse ajal

Töö aktuaalsus ja uudsus

Diskussioon ebavõrdsuse, selle põhjuste ja tagajärgede teemal on sama vana kui inimühiskond. Lääne filosoofidest peetakse esimeseks Aristotelest, kes käsitles õigluse ja võrduse küsimusi oma Nicomachean Ethicsis juba aastal 350 e.Kr. Adam Smith oli esimene, kes käsitles ebavõrdsuse küsimusi majanduslikust vaatevinklist oma teoses „Riikide rikkusest“ (*Wealth of Nations*), mis ilmus 1776. aastal.

2000. aastate lõpus aset leidnud majanduskriis, mida tuntakse ka Suure Majanduslangusena²¹ (*Great Recession*), oli viimasel sajandil aset leidnud kriisidest suurim. Kuivõrd täna on arenenud riikide vahelised suhted tunduvalt tihedamad kui paarkümmend aastat tagasi, siis kandus Ameerika Ühendriikidest alguse saanud finantskriis kiiresti Euroopasse, sealhulgas Eestisse. Vähenevate tootmismahude tingimustes pidid ettevõtted leidma võimalusi kulude, sh tööjõukulude kärpimiseks.

Majanduskriis ei mõjutanud mitte üksnes era-, vaid ka avalikku sektorit. Kuigi tunnustatud majandusekspertid soovitasid Eestile kriisiga toimetulekuks krooni devalveerimist, ei kaalunud Eesti valitsus vähemasti avalikes sõnavõttudes seda tõsiseltvõetava võimalusena. Põhjuseid oli mitmeid – lisaks soovile liituda eurosooniga pidi valitsus arvestama ka sellega, milline oluiks krooni devalveerimise mõju leibkondadele olukorras, kus suur osa laenudest oli väljastatud eurodes. Seega valis Eesti valitsus nõu sisemise devalveerimise tee ehk siis vähenenud riigikassa tulude tingimustes kulude, sh tööjõukulude märkimisväärse kärpimise.

Need arengud mõjutasid otseselt ka tööturu olukorda. Eesti tööturгу tabas kriis sarnaselt ülejäänud kahele Balti riigile eriti teravalt. Hõive langus oli Balti riikides kriisiperioodi alguses ELi riikidest suurim, Eestit edestas vaid Läti (hõive langus vastavalt 16,7% ja 19,2%, Hurley jt 2011). Käesoleva töö fookuses on tööturul ilmnevate ebavõrdsuste areng Eestis kriisi ajal (eeskätt aastatel 2008–2010). Ebavõrdsuse analüüs on väga oluline, kuivõrd ebavõrdsus võib endaga kaasa tuua mitmeid ebasoovitavaid sotsiaalseid tagajärgi nagu vaesuse kasvu ja sotsiaalse tõrjutuse. Sestap on oluline arenguid pidevalt jälgida, et vajadusel kasutada sobivaid meetmeid negatiivsete mõjude vähendamiseks.

Töös analüüsitakse, milliseid kohanemismehhanisme kasutati tööturul kriisiga toimetulemiseks, milline oli institutsionaalsete meetmete roll ning millised olid erinevused sektorite vahel ja soo, vanuse, rahvuse ja haridustaseme

²¹ Terminit kasutas esimest korda D. Strauss-Kahn, endine Rahvusvahelise Valuutafondi juht oma 15. mail 2009. aastal peetud kõnes „Crisis Management and Policy Coordination: Do We Need an New Global Framework?“ Termini kasutamine laienes kiiresti ning on nüüdseks ülemaailmselt tuntud.

lõikes. Analüüsitulemusi saavad poliitikakujundajad kasutada asjakohaste tööpoliitika meetmete väljatöötamiseks, mis toetaksid jätkusuutlikku taastumist. Kõik see toetab tasakaalustatud majandusarengut, kus tööturul osalejatel on võimalik end parimal viisil rakendada, luues seeläbi parimat kasu ühiskonnale.

Töö on uudne nii teoreetilisest kui empiirilisest aspektist. Töö on seni ainus, kus analüüsitakse süsteemselt tööturul ilmnevaid ebavõrdsuse, st nii hõive kui palkade ebavõrdsuse arenguid Eestis Suure Majanduskriisi ajal. Esiteks luuakse teoreetiline tööturul ilmnevate ebavõrdsuste raamistik, mis koondab süsteemselt kokku kolm tööturu ebavõrdsuse tahku: hõive, töötundide ja palga ebavõrdsuse. Tööturul ilmnevaid ebavõrdsusi pole üldjuhul kahte tööturu aspekti – osalemist ja tasustamist – süsteemselt kokku tuues varasemates töödes analüüsitud.

Teiseks töö oluliseks panuseks on Eesti kogemuse ja kriisile reageerimise meetmete analüüs rahvusvahelisele lugejaskonnale, kasutades ajakohaseid andmeid. Viimasel ajal on küll lisandunud ülevaateid, mis käsitlevad Eesti üldisi tööturuarenguid (eeskätt hõive muutusi) kriisi ajal, kuid nende analüüsi-sügavus on töös käsitletust oluliselt väiksem ning need on avaldatud märksa hiljem, kui ilmusid töö empiirilise osa moodustavad artiklid. Töö oluliseks panuseks on avalikus sektoris toimunud tööturuarengute analüüs. Eesti oli kriisiperioodi alguses võrreldes teiste Euroopa Liidu liikmesriikidega unikaalses seisundis, kuna soovi tõttu liituda eurotsooniga tuli täita Maastrichti kriteeriume. See seadis selged piirid riigi võlakooormale ja eelarvedefitsiidile ning valitsusel tuli leida võimalusi kriisi ületamiseks sisemise devalveerimise vahendeid kasutades.

Kolmandaks on töös analüüsitud mitmeid tööturul ilmnevaid ebavõrdsuse aspekte, mis pole seni Eestis käsitlemist leidnud. Senisest tunduvalt põhjalikumalt on käsitletud Eesti avaliku sektori tööturu ebavõrdsuse arenguid majanduskriisi ajal ning avalikus ja erasektoris kasutatud tööturualaste kohenemismehhanismide erinevusi. Lisaks on analüüsitud erinevaid ebavõrdsuse aspekte äsja kõrgkooli lõpetanute seas. Kõrgkoolilõpetanute puhul on käsitletud sügavuti kahte aspekti: soolist palgaebavõrdsust ning tööturul ilmnevaid ebavõrdsusi sotsiaal- ja reaalteaduste lõpetanute vahel. Teemade valikul lähtuti ühiskonnas toimuvast diskussioonist. Eestis on sooline palgalõhe Euroopa Liidu riikidest kõrgeim. Anspal jt (2010) on analüüsinud soolise palgalõhe põhjusi ning leidnud, et suur osa sellest on selgitamata, kajastades mudelis arvesse võtmata tegureid, sh teatud osas ilmselt ka diskrimineerimist. Teistes riikides tehtud uuringute tulemused on näidanud, et tööelu alustajate seas on sooline palgalõhe üldiselt väiksem kui ühiskonnas keskmiselt. Sestap analüüsi, kas see kehtib ka Eestis.

Sotsiaal- ja reaalteaduste vilistlaste tööturu edukuse võrdlus on oluline ühiskonnas toimuva debati valguses, kus väidetakse, et Eesti kõrgharidussüsteem „ületoodab“ sotsiaalteadlasi, kellel on pärast lõpetamist raskusi töökohtade saamisega. Mõlemad teemad on Eestis aktuaalsed ning olulised, kuid seni puudusid empiirilised uuringud, mis võimaldaksid teha neis valdkondades informeeritud ja teadmistel põhinevaid otsuseid.

Töö eesmärk ja uurimisülesanded

Töö eesmärgiks on välja selgitada, millised tööturugrupid olid kriisi ajal kõige enam haavatavamad ning millised muutused toimusid tööturul ilmnevates ebavõrdsustes majanduskriisi perioodil. Töös on seatud seitse uurimisülesannet:

1. luua tööturul ilmnevate ebavõrdsuste süsteem, mis koondab hõive ja töötasu ebavõrdsused;
2. analüüsida, milliseid kohanemismehhanisme kasutati Eesti tööturul Suure Majanduslanguse ajal ja kuidas need muutsid tööturul ilmnevaid ebavõrdsusi;
3. analüüsida erinevusi avalikus ja erasektoris kasutatud tööturu kohanemismehhanismides Suure Majanduslanguse ajal;
4. analüüsida, kuidas muutusid Eesti tööturul ilmnevad ebavõrdsused kriisi ajal soolises, vanuselises, rahvuselises ja hariduslikus lõikes;
5. analüüsida, kuidas mõjutasid tööturu institutsioonid Eesti tööturul ilmnevaid ebavõrdsusi Suure Majanduslanguse ajal;
6. analüüsida sotsiaal- ja reaalteaduste ülikoolilõpetajate vahel Eesti tööturul ilmnevaid ebavõrdsusi ja nende põhjuseid Suure Majanduslanguse ajal;
7. hinnata soolist palgalõhet ülikooli lõpetajate vahel Suure Majanduslanguse ajal.

Uuringu objektiks on tööturul ilmnevate ebavõrdsuste areng Eestis nn Suure Majanduslanguse ajal. Töö fookuses on tööturul ilmnevad ebavõrdsused, mis jagunevad kaheks grupiks: tööturul osalemise ebavõrdsus ja töötasu ebavõrdsus (vt pikemalt osa “Teoreetiline taust”), st vaatluse alla ei kuulu ülejäänud sissetuleku ebavõrdsuse aspektid, mis tulenevad mittetöisest tulust. Põhirõhk on Eesti arengute analüüsil, kuigi laiema rahvusvahelise tausta avamiseks käsitletakse ka teistes Euroopa Liidu riikides (eeskätt teistes Balti riikides) toimunud arenguid. Fookus on indiviidi tasandi, st erinevate tööturugruppide vahelisel ebavõrdsusel. Näitajateks, mille lõikes tööd ebavõrdsuse ilminguid tööturul analüüsitakse, on sugu, vanus, haridustase ja rahvus. Vaatluse all on peamiselt kriisiperiood, st aastad 2008–2010, mil kriis aset leidis. Sellest tulevalt analüüsitakse töös kriisi lühiajalisi mõjusid ebavõrdsusele, pikemaajaliste mõjude kohta on hetkel veel liialt vara järeldusi teha.

Eraldi pööratakse töös rõhku äsja kõrghariduse omandanute tööturu ebavõrdsusele viimase majanduskriisi ajal. Tegu on huvipakkuva tööturukategooriaga, kuna reeglina on kõrgharidusega inimeste tööturupositsioon parem kui madalama haridustasemega inimestel – nende töötuse määr on madalam ning ka kriisi ajal tõuseb töötus vähem. Samas võib kriisiperioodil nende ligipääs tööturule olla keerukam. Lisaks üldistele arengutele analüüsitakse töös sügavuti kahte teemat: kõrghariduse omandanud sotsiaal- ja reaalteaduste lõpetanute vahel ilmnevaid ebavõrdsusi tööturul ning soolist palgalõhet.

Töö ülesehitus

Töö koosneb kuuest sisupeatükist. Esimeses kahes peatükis antakse ülevaate tööturul ilmnevate ebavõrdsuste teoreetilisest taustast ja töös uuritavatest teemadest. Esimeses peatükis käsitletakse tööturul ilmnevate ebavõrdsuste olemust ja mõjutegureid. Esimese peatüki esimeses alapeatükis tutvustatakse erinevaid kaasaegseid filosoofilisi ebavõrdsuse ja jaotusliku võrdsuse käsitlusi, tööturul ilmnevate ebavõrdsuste olemust ning selle positsiooni ebavõrdsuste süsteemis, et asetada uurimisteema laiemasse ebavõrdsuste konteksti. Tööturul ilmnevad ebavõrdsused on majandusliku ebavõrdsuse (*economic inequality*) üheks osaks, mis on omakorda seotud haridusliku, tervishoiu ja sotsiaalse ebavõrdsustega. Esimese peatüki teises alapeatükis antakse ülevaade tööturul ilmnevaid ebavõrdsusi mõjutavatest teguritest ning tutvustatakse erinevaid teooriaid, mis selgitavad, mistõttu ning millises suunas võivad majanduslanguse perioodil toimuda muutused tööturul ilmnevates ebavõrdsustes.

Teises peatükis kirjeldatakse töös käsitletavaid uurimisküsimusi ja -väiteid. Püstitatud uurimisküsimused ja -väited tuginevad esimeses peatükis tutvustatud teooriale ning Vene kriisi kogemusele, mis on ainus majanduslangus, mille Eesti on pärast siirdeperioodi lõppu üle elanud. Kuigi tuleb arvestada, et Vene kriisi kogemus ei ole 2000. aastate lõppu ülekantav, kuna Eestis on kümne aasta jooksul, mis kahte kriisi lahutab, toimunud olulised muudatused (näiteks ühine mine Euroopa Liiduga on majanduse avatust märkimisväärselt suurendanud), annab varasem kogemus siiski olulist infot, kuidas võib tööturg kriisi tingimustes reageerida. Samuti tutvustatakse teises peatükis töös kasutatavaid andmeid, näitajaid, mida kasutatakse tööturul ilmnevate ebavõrdsuste mõõtmiseks ning töös kasutatavaid andmeanalüüsi meetodeid.

Kolmas ning neljas töö peatükk on empiirilised ning koosnevad eraldiseisvatena teadusartiklitenä avaldatud publikatsioonidest. Erandiks on peatükk 3.3., kus antakse ülevaade Suure Majanduslanguse ajal Euroopa Liidu riikides toimunud tööturu arengutest ning muudatustest tööturul ilmnevates ebavõrdsustes. See analüüs on vajalik, et asetada Eesti tulemused laiemasse rahvusvahelisse konteksti ning mõista, kas Eestis kasutatud kohanemismehhanismid ja nende ulatus olid sarnased teiste liikmesriikide kogemusega või oli Eesti eripärane.

Kolmas alapeatükk keskendub tööturul toimunud üldistele arengutele ja ebavõrdsuse muutustele. Alapeatükis 3.1 analüüsitakse tööturul ilmnevate ebavõrdsuste arengut Suure Majanduslanguse esimestel aastatel. Tegu on ühega esimestest publikatsioonidest, mis tutvustas Eesti kriisiaja tööturu kohandumisi ja ebavõrdsuste arenguid rahvusvahelisele lugejaskonnale. Töö selles osas antakse ülevaade erinevatest kohanemismehhanismidest (vallandamise, osajaga töötamine, sunnitud puhkused, palgaalandamised jms), mida Eesti tööturul Suure Majanduslanguse ajal kasutati. Peatüki alguses antakse lühiülevaade teguritest, mis viisid Eestis majanduse ülekuumenemise ja konkurentsivõime vähenemise ohuni, et luua vajalik taustateadmine tööturul toimuvate arengute mõistmiseks. Seejärel analüüsitakse, kuidas muutusid tööturul erinevate tööturugruppide vahel ilmnevad ebavõrdsused kriisiperioodil. Peatükk

sisaldab ka kahte juhtumiuuringut, neist esimene annab ülevaate viies Eesti suures ettevõttes kriisiperioodil kasutatud tööturualastest kohanemismehhanismidest. Teise juhtumiuuringu fookuses on kriisiperioodil tehtud töötajaskonnaga seotud kohandamised Eesti Politsei- ja Piirivalveametis, mis on suurim avaliku sektori tööandja.

Alapeatükis 3.2 on fookuses majanduskriisi ajal toimunud muudatused Eesti avalikus sektoris, tuues paralleelse erasektoriga. Eesti eripära avaldub selle teema puhul selgelt, kuna erinevalt teistest riikidest kärbiti avaliku sektori kulusid juba 2009. aasta alguses. Artiklis antakse põhjalik ülevaade, milliseid kohanemismehhanisme kasutati Eesti avalikus sektoris tööjõukulude kärpimiseks ja milliseid muutusi ebavõrdsustes võrreldes erasektoriga need kaasa tõid. Artikkel sisaldab kahte juhtumianalüüsi. Neist esimene analüüsib, kuidas mõjutasid tervishoiusektoris kriisi ajal tehtud kärped tervishoiuteenuste kättesaadavust. Teise juhtumianalüüsi fookuses on kriisiajal tehtud kärpete tulemusena toimunud muutused Eesti Päästeameti teenuste kvaliteedis ja hõives. Mõlemas artiklis käsitletakse ka tööturuinstitutsioonide rolli kriisi tingimustes muudatuste tegemisel.

Neljandas peatükis on fookus kõrgkooli lõpetajate vahel tööturul ilmnevate ebavõrdsuste analüüsil. Alapeatükis 4.2 analüüsitakse tööturul ilmnevaid ebavõrdsusi sotsiaal- ja reaalteaduste lõpetanute vahel. Artikkel koosneb teema olulisuse motivatsioonist, Eesti kõrgharidussüsteemi ja analüüsi aluseks olevate andmete tutvustusest ning sotsiaal- ja reaalteaduste lõpetanute tööturul ilmnevate ebavõrdsuste analüüsist. Alapeatükis 4.2 on huviorbiidis kõrgkoolilõpetajate sooline palgalõhe suurus ning seda selgitavate tegurite analüüs.

Viiendas peatükis selgitatakse sünteesitult erinevate artiklite peamisi tulemusi, tuginedes teises peatükis sõnastatud uurimisküsimustele. Kuuendas peatükis esitatakse kokkuvõtvalt töö põhijäreldused, sh teoreetiline taust, empiirilised tulemused ning nende süntees.

Andmed ja uurimismetoodika

Töös on põhirõhk Eestis Suure Majanduslanguse ajal toimunud ebavõrdsuse arengute analüüsil, kuid laiemal taustal loomiseks kõrvutatakse üldiste tööturul ilmnevate ebavõrdsuste analüüsis Eesti kogemust teiste Balti riikide ja ka laiemalt teiste Euroopa Liidu liikmesriikidega. See võimaldab asetada Eesti tulemused laiemasse rahvusvahelisse võrdluskonteksti, andes ühtlasi infot selle kohta, millised arengud olid Eestile ainuomased ja millised sarnased teistes riikides toimunuga.

Töös on kasutatud mitmeid andmeallikaid. Agregeeritud andmete allikaks on Eurostati ja Balti riikide statistikaameti andmebaasid. Erinevate tööturugruppide vaheliste ebavõrdsuste analüüsimiseks on kasutatud indiviidi tasandi andmebaase. Soolise, vanuselise, haridusliku ja rahvuslase ebavõrdsuse analüüs tugineb suuresti Eesti tööjõu-uuringu andmetele. Kõrgkoolilõpetanute soolise palga-

lõhe ja sotsiaal- ja reaalteaduste lõpetanute vahel tööturul ilmnevate ebavõrdsuste analüüsimisel kasutakse kõrgkoolide vilistlaste uuringute andmeid.

Juhtumiuuringutes on kasutatud nii avalikult kättesaadavaid allikaid kui uuringu raames kogutud andmeid, eelkõige läbiviidud intervjuude tulemusi, aga ka andmeid, mida erinevad asutused, mille kogemusi analüüsi, võimaldasid kasutada. Selline kombineeritud andmete kasutamine võimaldab anda olukorrast sügavuti mineva ülevaate, kus erinevatest allikatest saadud andmed ning teostatud andmeanalüüs toetavad tervikliku pildi saamist.

Kasutatud on nii kvantitatiivseid kui kvalitatiivseid andmeanalüüsi meetodeid. Lisaks kirjeldavale statistilisele analüüsile kasutatakse töös töötrükoogude analüüsi ning mitmeid ökonomeetrilisi andmeanalüüsimeetodeid, näiteks lineaarseid regressioonimudelid, probit-mudeleid ning kvintiilide analüüsi. Erinevates töö osades on kasutatud ka Oaxaca-Blinderi dekomponeerimist, et eristada selgitatud ja selgitamata osa ebavõrdsusest. Kvalitatiivsetest uurimismeetoditest kasutati töös peamiselt mallianalüüsi (*template analysis*).

Ebavõrdsusi käsitledes on selge, et see saab ilmnedda kellegi/millegi vahel. Töös analüüsitakse soolist, vanuselist, rahvuselist ja hariduslikku ebavõrdsust. Vanuselise ebavõrdsuse analüüsis eristatakse kolme gruppi: noored (vanuses 15–24), keskmise vanusegruppi kuulujad (vanuses 25–49) ja vanemaalised (vanuses 50 ja enam).

Teoreetiline taust

Amartya Sen (1973) on tabavalt märkinud, et ebavõrdsuse olemus on ühtaegu nii lihtne kui keeruline. See on nii lihtne, et enamik inimestest mõistab selle olemust, samas sedavõrd keerukas, et on ajendanud paljusid filosoofe, riigiteadlasi, sotsiolooge ja majandusteadlasi juba aastatuhandeid arutlema selle sisu üle. Kõige lihtsamalt võiks ebavõrdsust määratleda kui võrdsuse puudumist, kuid see varjaks kontseptsiooni keerukat loomust. Ebavõrdsuse käsitlemise puhul on peamiseks küsimusteks, millised ebavõrdsused ning mil määral on aktsepteeritavad või isegi soovitud.

Seega on ebavõrdsuse diskursus tihedalt seotud jaotuslike ja võrdsuse küsimustega. Riigiteaduste juured ulatuvad nende teemade käsitlemisel Vana-Kreekasse, ka Rooma õiguses leidub viiteid võrdsuse küsimuste käsitlemisele. Tänapäevaste teoreetilise lähenemiste autoriks jaotusliku võrdsuse küsimuse käsitlemisel loetakse J. Bethamit, kes 18. sajandil pani aluse utilitarismile, mille põhipostulaadiks on seisukoht, et ressursid tuleks ühiskonnas jagada nii, et maksimeeritaks ühiskonna heaolu. Mitmed jaotusliku õigluse teooriad on utilitaristide vaadet edasi arendanud, alates 1970. aastatest on paljud mõjukad filosoofid nagu A. Sen, J. Rawls, R. Dworkin ja J. Roemer andnud ebavõrdsuse kontseptsiooni arendamisse tugeva panuse.

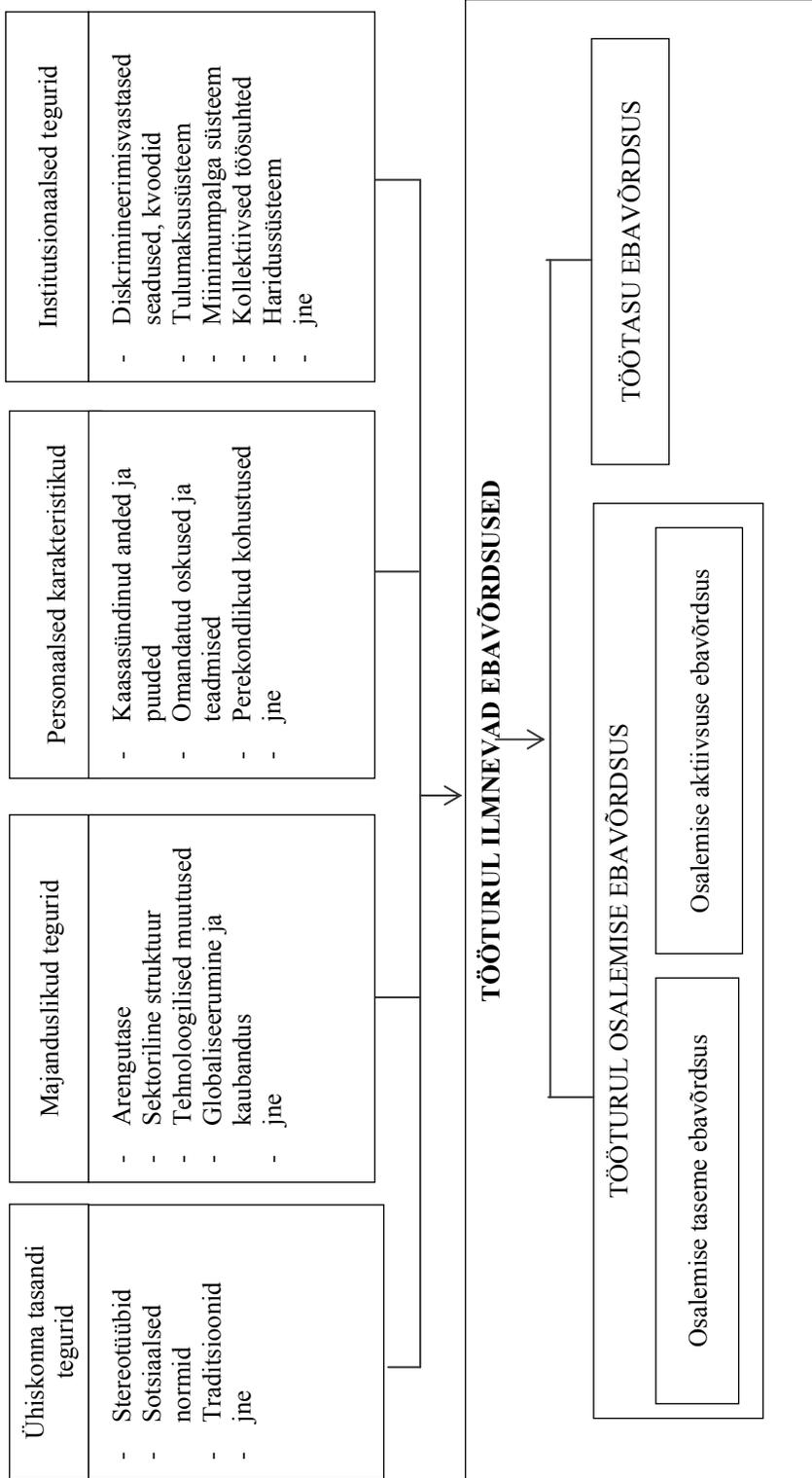
Kuigi erinevate kaasaegsete jaotusliku võrdsuse filosoofiliste lähenemiste vahel on erinevusi, on neil ka ühiseid jooni, seda ka ebavõrdsuse käsitlemisel.

Võrdsuse kontseptsioonis eristatakse kahte vormi: võimaluste võrdsust (*equality of opportunity*) ja tulemuse võrdsust (*outcome equality, results equality*). Võimaluste võrdsus tähendab, et neid, kes on sarnased, koheldakse sarnaselt (Roemer 1998a). Kaasaegsed jaotuslikule võrdsusele ja selle õigusele kesken-duvad filosoofilised voolud on valdavalt ühisel arvamusel, et riigi ülesandeks on eeskätt tagada võimaluste võrdsus, kuigi teatud aspektides (näiteks soolise segregatsiooni vähendamisel sektorite ja ametialade lõikes) toetatakse ka tulemuste võrdsust. Samuti on erinevad võrdsuse teooriad ühisel seisukohal, et tulemuste võrdne jaotus ei ole õiglane jaotus, kuna ühelt poolt on inimeste võimed ja eelistused erinevad ning teisalt vähendaks võrdne jaotus andekate motivatsiooni oma võimeid maksimaalselt rakendada.

Ebavõrdsuste süsteemis võib eristada nelja tüüpi ebavõrdsuseid: majanduslikku, sotsiaalset, hariduslikku ja tervisehoiualast ebavõrdsust. Käesolevas töös on vaatluse all tööturul ilmnevad ebavõrdsused, mis on osa majanduslikust ebavõrdsusest, käsitledes selle tööturu poolseid aspekte. Majanduslikku ebavõrdsust on Oxfordi Handbook of Economic Inequality defineerinud kui „ebavõrdsuseid, millel on majanduslik mõju või päritolu, olles sama palju selle aluseks olevate majandusprotsesside tulemus kui nende protsesside sisend“ (Salverda jt 2011, lk 8).

Autori koostatud ebavõrdsuse kontseptsioon toob kokku tööturul osalemise ja tasustamise aspektid (vt joonis 1). Tööturul osalemise ebavõrdsus jaguneb omakorda kaheks: taseme ja aktiivsuse ebavõrdsuseks. Taseme ebavõrdsus tähendab erisusi tööturul osalemises, mida töös mõõdetakse töötuse ja hõive määra kaudu ning aktiivsuse ebavõrdsus tähistab erisusi tööturul panustamisel, st erinevusi tööajast mõõdetuna töötundide, sh osaajaga töötamise kaudu. Töötasu ebavõrdsust mõõdetakse töös palgaerinevuste kaudu.

Tööturul ilmnevaid ebavõrdsusi mõjutavad erinevad tegurid, mis on töös jaotatud neljaks grupiks: ühiskonna tasandi suhtumine, personaalsed karakteristikud, majanduslikud tegurid ja institutsionaalsed tegurid (vt joonis 1).



Joonis 1. Tööturul ilmnevate ebavõrdsuste kontseptsioon ja neid mõjutavate olulisemad tegurid (autori koostatud)

Personaalsed karakteristikud on isikuomadused, mis mõjutavad inimese tööturul osalemise edukust. Need võib jagada kaheks: individuaalsed ja perekondlike kohustustega seotud aspektid. Individuaalsed isikuomadused, mis mõjutavad tööturuedukust, on ühelt poolt kaasasündinud anded ja puuded ning karakteristikud, mida inimene mõjutada ei saa (näiteks sugu, rahvus, rass), kuid millel võib olla mõju tööturule ligipääsule ja seal hakkamasaamisele, ning teisalt omandatud teadmised ja oskused (haridustase, töökogemus). Samuti on olulised perekondlikud karakteristikud nagu vara suurus, suhtumine haridusse ja perekondlikud kohustused.

Ühiskonna tasandi teguritest mõjutavad tööturul ilmnevaid ebavõrdsusi kõige enam stereotüübid, normid ja traditsioonid. Need tegurid viivad ebavõrdsuste tekkeni, mis pole sageli objektiivselt põhjendatavad ning takistavad teatud tööturugruppide tööturule ligipääsu või seal võrdsetel alusel osalemist, sh diskrimineerimiseni. Näideteks on sooga seotud ning rassilised stereotüübid.

Kui ühiskonna ja isiku tasandi tegurid selgitavad tööturul ilmnevate ebavõrdsuste tekkepõhjusi gruppide vahel, siis majanduslikud tegurid on nõ välised mõjutajad, mis toovad peamiselt kaasa muutusi ebavõrdsustes. Olulisimateks majanduslikeks teguriteks on riigi arengutase ja sektoraalne jaotus. Viimane on ebavõrdsuste käsitlemisel oluline eeskätt tööturul ilmneva sektorilise ja ametialase segregatsiooni tõttu. Samuti on tööturul ilmnevate ebavõrdsuste mõjutamisel oluline roll globaliseerumisel ja rahvusvahelisel kaubandusel, mis mõjutab muuhulgas ka sektorilist jaotust ja riigi arengutaset.

Kui ühiskonna, isiku tasandi ja majanduslikud tegurid selgitavad tööturul ilmnevate ebavõrdsuste tekkepõhjusi, siis institutsionaalsed tegurid võivad nii ebavõrdsusi tekitada kui vähendada. Võimaluste võrdsuse tagamisel on oluline roll diskrimineerimisvastastel seadustel ja kvootidel ning nende rakendamisel. Miinimumpalk võib vähendada tööturul ilmnevaid töötasu ebavõrdsusi, seades minimaalse piiri, millest madalama tasu maksmine on keelatud. Üksikisiku tulumaksusüsteem võib mõjutada ebavõrdsusi, progressiivne tulumaksusüsteem on üks olulistest tulu ümberjaotamise võimalustest. Ka haridussüsteem võib oluliselt mõjutada tööturul ilmnevaid ebavõrdsusi, kas vähendades või tugevdades sotsiaalse kihistumise efekte. Tugevad ametiühingud võivad mõjutada tööturu ebavõrdsusi, tagades teatud töötajatele (oma liikmeskonnale või teatud sektoris) teistest soodsamaid tingimusi.

Tööturul ilmnevate ebavõrdsuste areng majanduslanguse perioodil sõltub eeskätt majanduslanguse iseloomust ja rakendatavatest institutsionaalsetest meetmetest. Tööturul ilmnevate ebavõrdsuste areng kriisi ajal on tihedalt seotud tööturu paindlikkusega, st võimega paindlikult kohaneda sisemiste ja välimiste tasakaalustamatustega. Tööturu paindlikkus näitab tööturu kohanemisvõimet ning tööturul ilmnevad ebavõrdsused seda, milliseid gruppe muutused enam mõjutavad.

Mitmed teooriad selgitavad, miks võivad ebavõrdsused majanduslanguse ajal ilmned. Vaikimisi lepingute teooria (*implicit contract theory*) kohaselt eelistab tööandja teatud (üldjuhul ettevõtte jaoks väärtuslikumate) töötajatega

sõlmida vaikumisi pikaajalised kokkulepped, et ka majanduse langusperioodil ei muudeta palkasid. Efektiivsuspalga teooria (*efficiency wage theory*) kohaselt väldivad ettevõtted ka kriisiperioodil palkade langetamist, kuna palk on seotud töötaja tootlikkusega. Seega eelistatakse kasutada teisi tööjõukulude vähendamise meetmeid, nagu töötundide ning vajadusel ka tööjõu hulga vähendamist. Kuna ettevõttele on väärtuslikumad suurema töökogemuse ja paremate oskustega töötajad, on kriisi tingimustes haavatavad eeskätt need töötajad, kelle töökogemus ja ettevõttespetsiifiline inimkapital on väiksem. Tööjõu volavuse mudeli (*turnover model*) ja negatiivse valiku mudeli (*adverse selection model*) kohaselt mõjutab palgatase mitte üksnes töötaja tootlikkust, vaid ka töökohalt lahkumise tõenäosust. Seetõttu on tõenäoline, et palka alandatakse vajadusel eeskätt neil töötajatel, keda ettevõttes on lihtsam asendada. Sees- ja väljasolijate teooria (*insider-outsider theory*) kohaselt on kriisiajal „seesolijad“ ehk pikema tööstaazi ja ettevõtte jaoks väärtuslike teadmistega töötajad tööturul eelisseisus ning ettevõtted vallandavad töötajaid või valivad, kelle palka alandada, eelkõige nende ettevõttes töötamise aega arvesse võttes. Tööjõu varu teooria (*labor hoarding theory*) kohaselt eelistavad ettevõtted vähemasti kriisiperioodi alguses hoida teatud tööjõuvaru, st vähendavad töötajate arvu nõudluse langusest vähem, kuna tööjõukohandumiste tegemine on kulukas ning majanduskasvu taastudes võib olla keerukam leida ettevõttele vajalike oskuste ja teadmistega töötajaid.

Kuigi on palju teooriaid, mis selgitavad, milliseid kohanemismehhanisme (töötajate arvu või töötundide vähendamine, palga alandamine) tööandjad võivad kriisi ajal kasutada, on eri teooriad suuresti samal seisukohal küsimuses, kes on kriisiperioodil haavatavamad. Juhul, kui ettevõttel on tarvis tööjõukulusid vähendada, on töökoha kaotamise või töötasu vähendamise risk kõrgem väiksema töökogemuse ning madalamate oskuste ja teadmistega töötajatel.

Uurimisväärted ja tulemused

Tööturu teooriatele ja Vene kriisi kogemustele toetudes püstitati töös kolm uurimisküsimust ning kümme uurimisväärtet.

Uurimisküsimus 1: milliseid kohanemismehhanisme kasutatakse Eesti tööturul Suure Majanduskriisi ajal ning millised on erinevused avaliku ja erasektori vahel?

Uurimisväited	Teoreetilised seisukohad	Varasemad uuringud	Empiirilise analüüsi järeldus
<u>Uurimisväide 1:</u> Eestis kasutatakse majanduskriisile reageerimisel kõiki kolme kohanemismehhanismi, nii hõive, töötundide kui palga kohandamist.	Majandustsüklitele reageerimiseks on võimalik asutada hõive, töötundide ja palga kohandamist. Mehhanismide valik ja nende kasutamise ulatuslikkus sõltub eeskätt tööturuinstitutsioonidest, töandja eelistustest ning ametiühingute tugevusest.	Vene kriisi ajal kasutati Eestis majanduslangusele reageerimisel peamiselt hõive ja palga kohandamist. ELi riikides kasutati Suure Majanduslanguse ajal kõiki kolme kohanemismehhanismi, kuid enim vähenes hõive.	Väide on tõene. Eestis kasutati Suure Majanduslanguse ajal tööturul kõiki kolme kohanemismehhanismi: hõive, töötundide ja palga kohandamist.
<u>Uurimisväide 2:</u> palga ebavõrdsus Eesti tööturul väheneb Suure Majanduskriisi ajal	Majanduslanguse mõju palga ebavõrdsusele sõltub kriisi iseloomust. Kui majanduslanguse tulemusena kaovad proportsionaalselt rohkem madalalga lised töökohad, siis palga ebavõrdsus väheneb.	Venemaa majanduskriisi ajal palkade ebavõrdsus vähenes. Suure Majanduskriisi ajal ei muutunud keskmine palga ebavõrdsus mõõdetuna detšiilide suhtena (D9/D1) ELis, kuid töökohad kadusid enim palgajaotuse keskmises osas.	Väide on osaliselt tõene. D9/D1 palgaebavõrdsus ei muutunud, kuid keskmise palga saajad kannatasid kriisi tõttu kõige enam.
<u>Uurimisväide 3:</u> avalikus ja erasektoris kasutatakse erinevaid kohanemismehhanisme. Avalikus sektoris on muutused väiksemad, erasektoris kasutatakse võrreldes avaliku sektoriga rohkem hõive ja töötundide vähendamist.	Sektorid, mis toodavad eksporditavaid kaupu, on kriisi mõjudele avatumad kui sektorid, mis põhiosas teenivad siseturgu.	Enamikus riikides avaldusid kriisi negatiivsed mõjud tööturul avalikus sektoris hiljem kui erasektoris. Nii hõive, töötunnid kui palgad on ELis erasektoris vähenenud rohkem kui avalikus sektoris.	Väide on tõene. Sektoriti olid erinevused hõive, töötundide ja palga kohandamises märkimisväärsed. Erasektoris kasutati kõiki kolme kohanemismehhanismi, erinevused tegevusalade lõikes olid suured. Avalikus sektoris kasutati peamiselt palga kohandamist, aga samuti ka tasustamata puhkepäevi. Hõive ja töötundide langus oli avalikus sektoris väiksem kui erasektoris.

Suur Majanduslangus näitas, kui haavatav on Eesti majandus välistele šokkidele. Kriisi mõjud avaldusid Eestis varem kui enamikus teistest ELi riikidest, mis sundis riiki ka teistest varem jätkusuutlikke lahendusi otsima, mis võimaldaksid kriisist väljuda ning majanduse konkurentsivõimet taastada ja tugevdada. Sestap rakendati Eestis ka kohanemismehhanisme teistest riikidest varem ning ulatuslikumalt. Eestis kasutati kriisiga toimetulemiseks tööturul kõiki kolme kohanemismeedet, eeskätt hõive ja palga, aga ka töötundide kohandamist. Töötuse kasv oli kriisi algusperioodil Eestis üks kõrgemaid ELis, jäädes alla vaid Lätile. Eestis kasutati palkade alandamist märksa enam kui teistes ELi riikides. Perioodil 2008–2010 vähenes keskmine palk Eestis 4% ning palka alandati enam kui 40% töötajatest. Töötundide abil kohandamist kasutati kriisiperioodi alguses aastatel 2008–2009, kui polnud kindel, kui sügavaks kriis kujuneb. Edasistel aastatel on töötundide arv kasvanud ning taastunud kriisieelsel tasemel.

Kuivõrd eurotsooniga liitumiseks tuli Eestil täita Maastrichti kriteeriume, seadis see selged piirangud eelarvedefitsiidi ja välisvõla suurusele. Avalikus sektoris toimus kohanemine Eestis peamiselt läbi palga alandamise, töötajate arvu ja töötunde kohandati vähem. Ka erasektoris olid kohanemismehhanismid tegevusalade lõikes märkimisväärselt erinevad. Sarnaselt teiste ELi liikmesriikidega mõjutas kriis kõige enam tööstus- ja ehitussektorit, kus oli kriisi eel hõivatud kolmandik hõivatutest. Ligikaudu $\frac{3}{4}$ kriisiperioodil kaotatud töökohtadest olid neis kahes sektoris.

Palga ebavõrdsus mõõdetuna 1. ja 9. detšiili palkade suhtena ei muutunud kriisi algusperioodil oluliselt. Küll aga suurenes D9/D5 ja vähenes D5/D1 näitaja, viidates sellele, et majanduskriis mõjutas alguses negatiivselt eeskätt palgajaotuse keskmises osas olijaid. Sarnane areng toimus ka mitmetes teistest ELi riikides. Alates 2010. aastast on D9/D1 näitaja ning madalapalgaliste osakaal hõivatute seas suurenenud, viidates, et taastumisperioodil on palga osas eelis pigem kõrgemapalgalisel tööjõul.

Uurimisküsimus 2: kuidas mõjutavad tööturuinstitutsioonid Eesti tööturul ilmnevaid ebavõrdsusi Suure Majanduslanguse ajal?

Uurimisväited	Teoreetilised seisukohad	Varasemad uuringud	Empiirilise analüüsi järeldus
Uurimisväide 4: tööturuinstitutsioonidel on kriisi-perioodil piiratud mõju Eesti tööturul ilmnevatele ebavõrdsustele.	Tööturul kasutatavad kohanemismehhanismid sõltuvad lisaks tööandja eelistustele tööturuinstitutsioonidest, eeskätt hõive kaitse seadusandlusest, ametiühingute tugevusest ja miinimum-palkadest.	Vene kriisi ajal oli Eesti tööturg paindlik hoolimata jäigast hõive kaitse seadusandlusest.	Väide on tõene. Ametiühingute läbirääkimisvõime oli nii ettevõtte kui riigi tasandil madal, ametiühingud nõustusid tööandjate otsustega. Uus töölepingu seadus vähendas töötajate vallandamise ja koondamise kulusid, suurendades seeläbi paindlikkust, kuid kuivõrd seadus laienes kõikidele töötajatele ühtmoodi, ei olnud sellel otsust mõju tööturul ilmnevatele ebavõrdsustele. Miinimumpalk ei muutunud Suure Majanduslanguse ajal.

Tööturuinstitutsioonidel ei olnud Suure Majanduslanguse ajal olulist mõju ebavõrdsuste arengule tööturul. Uus, 2009. aastal jõustunud töölepingu seadus, mis muutis töötajate vallandamise ja koondamise märksa hõlpsamaks ja vähem kulukaks, ei teinud erisusi töötajate vahel, mistõttu polnud sellel ka otsust mõju ebavõrdsustele. Küll aga võis see suurendada kasutatud kohanemismehhanismide ulatuslikkust, kuna liigsetest töötajatest vabanemine muutus tööandjate jaoks senisest lihtsamaks ja odavamaks.

Ametiühinguliikmelisuse ja kollektiivlepingutega kaetuse määr jäid ka Suure Majanduslanguse ajal madalale tasemele. Ametiühingute läbirääkimisvõime oli nõrk ning mõju tööturul ilmnevatele ebavõrdsustele tagasihoidlik, kuna enamik läbirääkimistest toimub Eestis ettevõtte tasandil. Ka avalikus sektoris, kus ametiühinguliikmelisus on kõrgem ning läbirääkimisvõime tugevam, olid ametiühingud sunnitud aktsepteerima palga langetamist, kuna tunnetati, et riiklike kulude kärpimine vähenevate riigi tulude valguses oli vajalik. Kriisi ajal muutus otsuste tegemine tsentraliseeritumaks: riigi tasandil olid sotsiaalpartnerid sunnitud aktsepteerima riigi tehtud otsuseid (näiteks sotsiaalgarantiide vähendamist, töötuskindlustusmäära tõusu).

Miinimumpalk säilis perioodil 2008–2011 samal tasemel (278 EUR ehk 33% keskmisest palgast). Eesti Statistikaameti andmete kohaselt kasvas kolme madalamatesse palgadetsiili kuulujate osakaal hõivatutest kriisiaastatel, Maksu-

ja Tolliameti andmete kohaselt kasvas miinimumpalga saajate arv 10800-lt aastal 2008 15 700-ni aastal 2010. Arvestades hõivatute üldarvu, moodustavad miinimumpalga saajad siiski väikese osa hõivatutest, seega oli miinimumpalga roll tööturul ilmnevate ebavõrdsuste mõjutajana tagasihoidlik.

Uurimisküsimus 3: Kuidas muutuvad tööturul ilmnevad ebavõrdsused soo, vanuse, rahvuse ja haridustaseme lõikes Suure Majanduslanguse ajal Eestis?

Uurimisväited	Teoreetilised seisukohad	Varasemad uuringud	Empiirilise analüüsi järeldus
Uurimisväide 5: naiste-meeste tööturul osalemise ja palgalõhe vähenemine Eestis majanduskriisi ajal.	Sektorid, mis toodavad eksporditavaid kaupu, on kriisi mõjudele avatumad kui sektorid, mis põhiosas teenindavad siseturgu.	Vene kriisi ajal vähenes meeste-naiste hõive lõhe ning suurenes meeste-naiste töötuse lõhe. Suure Majanduslangus mõjutas ELi riikides mehi negatiivsemalt kui naisi.	Väide on tõene. Mehi mõjutas Suur Majanduslangus negatiivsemalt kui naisi: meeste töötuse määr kasvas rohkem, töötunnid vähenesid enam ning palgalangus oli suurem kui naistel.
Uurimisväide 6: tööturul osalemise ja palgalõhe vanuse lõikes kasvab Eestis majanduskriisi ajal, st noortel on kriisi tingimustes keerulisem tööturul hakkama saada.	Väiksema staaži ja madalamate oskustega töötajatel on kriisi ajal suurem tõenäosus töökoht kaotada ning kogeda palgalangust.	Vene kriisi ajal kasvas noorte töötus märksa rohkem kui teistes vanusegruppides. Suure Majanduslanguse ajal kasvas noorte töötus märksa enam kui teistes vanusegruppides, osajaga töötamine noorte seas ELis keskmiselt ei suurenenud.	Väide on tõene. Noorte seas oli töötuse kasv ning töötundide ja palga vähenemine ulatuslikum kui teistes vanusegruppides.
Uurimisväide 7: tööturul osalemise ja palgalõhe eestlaste ja mitte-eestlaste kasvab Eestis majanduskriisi ajal.	Madalamate oskustega töötajatel on kriisi ajal suurem tõenäosus töökoht kaotada ning kogeda palgalangust.	Vene kriisi ajal mitte-eestlaste ja eestlaste vaheline töötuse lõhe kasvas ja palgalõhe vähenes. Suure Majanduslanguse ajal on vähemusrahvuste esindajate töötuse määr EL-is kasvanud rohkem kui põlisrahvastiku seas.	Väide on tõene. Võrreldes eestlastega oli mitte-eestlaste seas töötuse määr kasv Suure majanduslanguse ajal kõrgem ning töötundide vähenemine ja palga alanemine ulatuslikum.

Uurimisväited	Teoreetilised seisukohad	Varasemad uuringud	Empiirilise analüüsi järeldus
Uurimisväide 8: tööturul osalemise ja palgalõhe kõrgelt- ja madalalt haritute vahel kasvab Eestis majanduskriisi ajal, st madalama haridustasemega inimestel on kriisi tingimustes keerulisem tööturul hakkama saada.	Madalamate oskustega töötajatel on kriisi ajal suurem tõenäosus töökoht kaotada ning kogeda palgalangust.	Vene kriisi ajal kasvas töötuse lõhe madalamalt ja kõrgemalt haritud töötajate vahel. Suure Majanduskriisi ajal kasvas töötuse lõhe madalamalt ja kõrgemalt haritud töötajate vahel.	Väide on tõene. Võrreldes kõrgemalt haritutega oli madalamalt haritute seas töötuse määra kasv Suure majanduskriisi ajal kõrgem ning töötundide vähenemine ja palga alanemine ulatuslikum.

Majanduslanguse algusperioodil tabas kriis mehi valusamalt kui naisi: meeste seas kasvas töötuse määr enam kui naistel (kui 2008. aastal oli meeste ja naiste töötuse määr võrdne, siis 2009. aastal kasvas see 6,6 protsendipunktini), samuti oli ulatuslikum töötundide ja palga vähenemine. Sooline palgalõhe vähenes ligi 31%-lt aastal 2007 26,6%-ni 2009 and 22,9%-ni 2011. Nii soolise töötuse kasv kui palgalõhe vähenemine on selgitatav eeskätt sektorilise ja ametialase segregatsiooniga. Meeste ja naiste vahel kriisiperioodil ilmnunud muutused ebavõrdsustes olid ajutised ning kahanesid majanduse taastudes, olles taas seotud soolide segregatsiooniga tööturul: sektorid, mille töötajaskonnas domineerivad mehed, taastusid kriisist kiiremini kui need, kus on hõivatute hulgas ülekaalus naised.

Kriisiperioodil kasvas töötus kõikides vanusegruppides, kuid enim noorte (15–24-aastaste) seas. Noorte nõrgem tööturupositsioon võrreldes teiste vanusegruppidega ei ole üllatav ning on põhjendatav nende madalama töökogemuse ja oskuste tasemega, küll aga eristus Eesti kriisiperioodi alguses teistest riikidest noorte töötuse rekordilise kasvu poolest. Vaid kahe aastaga noorte töötuse määr enam kui kolmekordistus, ulatudes 2010. aastal 33%-ni. Siiski suutis riik saada noorte töötuse kontrolli alla ning 2011. aastal oli täheldatav noorte töötuse määra vähenemine.

Murettekitav on pikaajaliste töötute osakaalu kasv töötute hulgas eelkõige vanemaeliste (50 ja enama aastaste) töötute seas. 2011. aastal oli 2/3 vanemaelistest töötutest olnud töötutena enam kui aasta. Pikaajaliste töötute osakaal on kasvanud ka teistes vanusegruppides: 25–49-aastaste töötute seas oli 2011. aastal pikaajaliselt töötuid 58% ning noorte (15–24-aastaste) seas 39%. Palgalangust kogesid kriisiperioodil noored märksa vähem kui teiste vanusegruppide töötajad, mis võib olla selgitatav sellega, et need noored, kes kriisi ajal tööd ei kaotanud, olid tööandjatele oma teadmiste ja oskuste taseme tõttu väga väärtuslikud ning tööandjad ei soovinud riskida sellega, et palga alandamise tõttu noored lahkuvad.

Sarnaselt teiste riikidega olid vähemusrahvuste esindajad võrreldes eestlastega Suure Majanduslanguse ajal tööturul haavatavamad: võrreldes eestlastega kasvas mitte-eestlaste seas töötus märksa enam (perioodil 2008–2010 vastavalt 12 ja 9 protsendipunkti). Ka töötundide langus on mitte-eestlaste seas võrreldes eestlastega kõrgem ning nende hõivatute osakaal, kelle palkasid alandati, kõrgem. Kuigi süvaanalüüsi selliste arengute põhjuste väljaselgitamiseks töös ei tehtud, on potentsiaalseteks selgitusteks ametialane segregatsioon (eestlased on proportsionaalselt enam esindatud kõrgematel ning mitte-eestlased madalamatel ametikohtadel) ning mitte-eestlaste kehvem keeleoskus.

Suure Majanduslanguse ajal ilmnes selgelt hariduse mõju tööturu edukuse tagajana. Kuigi töötuse kasv oli rahvusvahelises võrdluses märkimisväärne ka teise ja kolmanda haridustasemega inimeste seas, kasvas esimese taseme haridusega inimeste töötus kriisiperioodil kõige enam (20 protsendipunkti, ulatudes 2010. aastal 31%-ni), jäädes alla vaid Lätile ja Leedule. Ka töötundide vähenemine oli selle haridustaseme töötajate seas kõrgeim, 2009. aastal töötas iga kolmas esimese haridustasemega hõivatute osaajaga mittevabatahtlikult, kolmanda haridustasemega hõivatute seas oli mittevabatahtlikult osaajaga töötajaid 15%. Kriisiperioodil ilmnes selgelt hariduslik palgapreemia ning esimese ja teise haridustasemega inimesed kogesid palgalangust märksa sagedamini kui kolmanda haridustasemega hõivatud.

Uurimisküsimus 3.1: kui suured on tööturul ilmnevad ebavõrdsused Eesti tööturul sotsiaal- ja reaalteaduste kõrgkoolilõpetajate vahel?

Uurimisväited	Teoreetilised seisukohad	Varasemad uuringud	Empiirilise analüüsi järeldus
Uurimisväide 9: sotsiaalteaduste lõpetanute tööturuväljavaated on võrreldes reaalteaduste lõpetajatega Eesti tööturul paremad.	Spetsiifilisemate oskustega töötajad on tööandja jaoks väärtuslikumad.	Varasemad uuringud Eestis puuduvad. Teistes riikides tehtud uuringud viitavad, et reaalteaduste lõpetanute tööturupositsioon võib olla parem.	Sotsiaalteaduste lõpetanute hulgas on võrreldes reaalteaduste lõpetanutega rohkem neid, kes töötasid õpingute ajal ning pärast lõpetamist. Töötuse määr on nii sotsiaal- kui reaalteaduste lõpetanute hulgas madal. Magistritaseme lõpetanute hulgas on sotsiaalteaduste vilistlaste palgad kõrgemad kui reaalteaduste lõpetanutel, bakalaureusetaseme lõpetanud sotsiaal- ja reaalteaduste vilistlaste palgad on võrdsed.

Vastupidiselt üldiselt levinud arvamusele saavad sotsiaalteaduste tudengid tööturul paremini hakkama kui reaalteaduste tudengid. Töötuse määr on mõlema grupi puhul ka kriisiperioodil (aastal 2010) väga madal, kuid magistri-tasemel on sotsiaalteaduste lõpetanute palgatase kõrgem kui reaalteaduste lõpetanutel. See on osaliselt selgitatav töökogemuste erinevustega: õpingute ajal töötab märksa suurem osa sotsiaalteaduste tudengitest.

Uurimisküsimus 3.2: kui suur on sooline palgalõhe kõrgkooli lõpetanute seas Eestis?

Uurimisväited	Teoreetilised seisukohad	Varasemad uuringud	Empiirilise analüüsi järeldus
Uurimisväide 10: sooline palgalõhe kõrgkooli lõpetanute hulgas on madalam kui keskmine palgalõhe Eestis.	Kõrgkooli lõpetajate sooline palgalõhe peaks olema keskmisest palgalõhest madalam, kuna varases tööelu staadiumis on meeste ja naiste perekondlikud kohustused, töökogemus ja oskused sarnased.	Karjääri alguses on sooline palgalõhe keskmisest palgalõhest madalam.	Väide ei ole tõene. Kõrgkoolilõpetajate sooline palgalõhe on Eestis kõrge ja võrreldav üldise soolise palgalõhega (ca 25%) ning selgitatav peamiselt ametialaste erinevustega.

Eestis on kõrgkoolilõpetanute seas aasta pärast lõpetamist sooline palgalõhe võrreldav üldise palgalõhega (25%). Seejuures esinevad märkimisväärsed erinevused õppevaldkondade lõikes: palgalõhe on praktiliselt olematu teenindusvaldkonna lõpetanute hulgas ning 40% tervise ja heaolu valdkonna lõpetanutel. Palgalõhe on selgitatav meeste ja naiste ametialase segregeeritusega, mis selgitab 30% selgitatud palgalõhest.

Analüüsi järeldused

Eesti tööturg oli kriisi ajal paindlik ning seda tuuakse rahvusvahelistes võrdlustes esile positiivse kohandumise näitena, kus hoolimata riigi väiksusest ning kriisi suurest mõjust suutis riik rakendada meetmeid ning seejärel pöörata sügava languse peagi tõusuks. Eest avaliku sektori kärped võimaldasid hoida riigivõla kasvust ning hoida avaliku sektori eelarvedefitsiit kontrolli all.

Kuigi 2011.–2012. aastal Eesti majandus kasvas, on hetkel veel liialt vara öelda, et kriis on lõplikult möödas. Suur Majanduslangus on kõige tõsisem majanduskriis, mida Euroopa Liit on kogunud ning hetkel ei ole veel selge, kas kõige keerulisem periood on ületatud. Teatud ELi liikmesriikidel on tõsisemid raskusi ning esseeisvad aastad näitavad, kas stabiilsusmehhanism suudab liidu majanduse stabiilsuse taastada.

Kriis näitas selgelt, kui avatud on Eesti majandus välistele šokkidele ning kui võrd kiiresti võib kiire majanduskasv pöörduda sügavaks languseks. Seega

tuleb taastumisperioodil pöörata tähelepanu neile tasakaalustamatustele, mis võivad ohustada jätkusuutlikku arengut tulevikus. Suure Majanduslanguse ajal Eesti tööturul ilmnenu ebavõrdsused võib jaotada kahte gruppi. Esimesse kuuluvad lühiajalised ebavõrdsused, mis majanduse taastudes kadusid, näiteks meeste-naiste töötuse lõhe. Teine grupp hõlmab ebavõrdsusi, mis võivad pikemas perspektiivis piirata majanduskasvu ning millega toimetulemiseks on vaja rakendada asjakohaseid poliitikameetmeid. Kriisi ajal ilmnenu ebavõrdsuste analüüs näitab, et noored, vähemusrahvused ja madalama haridustasemega inimesed olid tööturul kriisi mõjude osas kõige enam haavatavad, kuigi ka teistes gruppides, näiteks vanemaaliste ja kesk- ning kõrgharidusega inimeste seas kasvas Eestis töötus võrreldes ELi riikidega enam.

Kriis ja taastumisperiood on näidanud, et majanduslik olukord ei ole selline nagu kriisi eel. Jätkusuutliku arengu seisukohalt on võtmesõnaks liikumine teadmispõhise majanduse poole, mis nõuab oskuste tõusu. Seega on hariduspoliitikal oluline roll tagamaks, et töötajate teadmised ja oskused vastavad tööturu vajadustele. Hiljutised uuringud (Espenberg et al. 2012b; Kasearu, Trumm 2013) viitavad kutseharidussüsteemi probleemidele ning vajadusele seda reformida. Elukestva õppe toetamiseks on oluline jätkata selliste programmidega, nagu KUTSE, TULE ja VÕTA, mis tooksid haridustee katkestanud tagasi kooli.

Kõrgharidusega noored olid ka kriisiperioodil edukad. Nii sotsiaal- kui reaalteaduste lõpetanute seas oli ka kriisi kõige sügavamas faasis töötute osakaal marginaalne. Analüüsitulemused viitavad, et karjääritee alguses on magistritaseme lõpetanute seas sotsiaalteaduste lõpetanute palgad mõnevõrra kõrgemad kui reaalteaduste lõpetanutel, mis selgitab ka seda, miks hoolimata sellest, et riiklik hariduspoliitika soosib reaalteaduste õpinguid, otsustab siiski märkimisväärne osa noortest õppida sotsiaalteadusi, kuigi enamikul tuleb õpingute eest ise maksta.

Taastumisperioodil on nii vähemusrahvuste hulgas kui vanusegruppides 25–49 ning 50 ja enam kasvanud pikaajaliselt töötute arv (nii absoluutarvuna kui osakaaluna töötutest). 2011. aastal oli 2/3 50–74-aastastest töötutest ning 62% vähemusrahvusest töötutest olnud töötä enam kui aasta. Kuivõrd pikaajaline töötus tõstab sotsiaalse tõrjutuse riski, on oluline rakendada asjakohaseid poliitikameetmeid nende inimeste tööturule tagasitoomiseks. Hiljutise uuringu tulemused (Espenberg jt 2012c) viitavad vajadusele rakendada aktiivsete tööturumeetmete, eeskätt nõustamise puhul rohkem individuaalset lähenemist.

Kuigi soolise palgalõhe temaatikale on viimastel aastatel Eestis tähelepanu pööratud, on selle teemaga tarvis jätkuvalt tegeleda. Uuringu tulemused viitavad, et sooline palgalõhe ilmneb juba tööalase karjääri alguses ning ei ole selgitatav meeste ja naiste ametialase ja sektoripõhise segregatsiooniga. Seega võib oma roll olla ka diskrimineerimisel ning ühiskonnas juurdunud arusaamadel naiste ja meeste rollidest.

Institutsioonide roll jäi Eesti tööturul ilmnevate ebavõrdsuse mõjutajatena majanduslanguse tingimuses võrdlemisi tagasihoidlikuks.

Soovitused edasisteks uurimusteks

Kuivõrd töö on kirjutatud laial ja väga kompleksel teemal, siis on seda võimalik mitmes suunas edasi arendada. Alljärgnevalt on toodud viis võimalust, mida autor peab kõige olulisemaks. Esiteks, kuna töös oli vaatluse all kriisi algusperiood, siis on võimalik laiendada analüüsi ajalist perspektiivi, käsitledes taastumisperioodil ilmnevaid efekte. Pikemaajaliselt võivad kriisi tulemusena avalduda struktuursed muutused ning mõjud, mis lühiajaliselt ei ilmnenu. Neile asjakohaste poliitikameetmetega reageerimine võib tugevdada majanduskasvu ning vähendada tööturu haavatavust.

Teiseks, kuivõrd töös analüüsiti tööturul ilmnevaid ebavõrdsusi majanduskriisi ajal, on üheks edasiarendamise suunaks ilmnenu ebavõrdsuste tagajärgede analüüs. Ebavõrdsus on halb mitte iseenesest, vaid juhul, kui see toob kaasa negatiivseid kõrvalmõjusid. Sestap on oluline sügavuti analüüsida kriisi ajal ilmnenu ebavõrdsuste pikemaajalisi tagajärgi, sh mõju vaesusele ja sotsiaalsele tõrjutusele.

Kolmandaks, kuivõrd indiviidi heaolu sõltub mitte üksnes tema, vaid ka teiste leibkonnaliikmete majanduslikust olukorrast, on üheks võimalikuks töö edasiarendamise suunaks majanduslike ebavõrdsuste analüüs laiemalt. Samuti on oluline analüüsida, millised on tööturul ilmnevate ebavõrdsuste seosed teiste ebavõrdsustega (sotsiaalne, hariduslik, tervishoiu alane ning majanduslik ebavõrdsus laiemalt).

Neljandaks töö võimalikuks edasiarendamise suunaks on kulutuste ebavõrdsuse analüüs, kuivõrd mitte niivõrd tulud, vaid eeskätt kulutused määravad indiviidi heaolu. Nagu analüüsitulemused viitavad, vähendati Suure Majanduslanguse ajal paljude hõivatute palkasid ning töötus kasvas olulisel määral. Seega oleks huvitav analüüsida, kuidas need arengud mõjutasid inimeste heaolu.

Viiendaks töö arendamise võimaluseks, mis sisaldab endas tegelikkuses mitmeid soovitusi, on minna tehtust enam süvitsi teatud uurimistemadega, mida käsitleti käesolevas töös võrdlemisi üldiselt. Näiteks võiks põhjalikumalt uurida, mis põhjustas tööturul ilmnenu ebavõrdsusi rahvuse ja vanuse lõikes. Samuti oleks kasulik uurida, kuidas muutus palgajaotus kriisi ajal erinevates tööturugruppides.

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2007–2013 doktoriõpingud, Tartu Ülikool, majandusteaduskond
2005–2007 magistriõpingud, Tartu Ülikool, majandusteaduskond
2001–2005 bakalaureuseõpingud (lõpetatud *cum laude*), Tartu Ülikool, majandusteaduskond
1998–2001 Hugo Treffneri Gümnaasium (lõpetatud kuldmedaliga)

Ametikäik:

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2009–... Sotsiaalteaduslike rakendusuringute keskus, Tartu Ülikool, juhataja kt, projektijuht-analüütik
2007–... Rahapesu andmebüroo, Politsei- ja Piirivalveamet, strateegiline analüütik
2003–2007 Majandusteaduskond, Tartu Ülikool, referent

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Teadustöö kirjeldus:

Hiljutised projektid:

2012–2013 GINI: Growing Inequalities' Impacts (7. raamprogrammi projekt, rahastajaks Euroopa Komisjon)
2011–2012 Adjustments in the public sector: Scope, effects and policy issues (rahastajateks Euroopa Komisjon ja Rahvusvaheline Tööorganisatsioon)
2010–2011 Growing Inequalities Impacts (7. raamprogrammi projekt, rahastajaks Euroopa Komisjon)
2010 Inequalities in the World of Work: The Effects of the Crisis Assessment and Policy Answers (rahastajateks Euroopa Komisjon ja Rahvusvaheline Tööorganisatsioon)
2008–2009 The minimum wage revisited in the enlarged EU: Issues and Challenges (rahastajateks Euroopa Komisjon ja Rahvusvaheline Tööorganisatsioon)

Retsenseerimine:
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Õpetamine:

- 2007/2008 õa õppetöö läbiviimine Tartu Ülikooli majandusteaduskonna magistriõppe 1. aasta tudengitele ainekursuse „Mitmemõõtmeline statistika” raames (vastutav õppejõud Kaia Philips).
- 2009/2010 õa õppetöö läbiviimine Tartu Ülikooli majandusteaduskonna magistriõppe 1. aasta tudengitele ainekursuse „Mitmemõõtmeline statistika“ raames (vastutav õppejõud Kaia Philips)
- 2009/2010 õa kevadsemestril vastutava õppejõuna õppetöö läbiviimine aines „Statistilise analüüsi teostamine Exceli ja SPSSi abil”

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