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Flexicurity and the Economic Crisis 2008-2009: Evidence from Denmark

Tor Eriksson

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FLEXICURITY AND THE ECONOMIC CRISIS 2008-9 - EVIDENCE FROM DENMARK

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ABSTRACT

A key feature of the Danish labour market is its so-called flexicurity, the coexistence of flexibility (low adjustment costs for both employers and employees) and security (owing to a developed social safety net with high coverage and high replacement ratios). This is often believed to have contributed to the resilience of the Danish labour market and especially to its ability to maintain a low and stable unemployment rate. The aim of this paper is to examine the performance of the flexicurity system and changes therein during the previous three decades, including the first years of the Great Recession. We carry out two types of analyses: at the levels of establishments and employees, respectively. First, we use linked employer-employee data for the private sector to examine how labour demand responds to output shocks by a study of firms' labour adjustment behaviour during economic upturns and downturns. Second, based on the same data set we examine how the flexicurity system protects workers from income losses associated with job losses due to plant closures or major lay-offs. In particular, we are interested in how the transformation of the flexicurity system since the mid-nineties to increasingly emphasise activation and to reduce maximum unemployment benefit durations has changed employees' security in case of displacement. We document large worker flows that exhibit strong cyclical variation giving rise to volatile unemployment dynamics. External flexibility of firms has remained unchanged for almost three decades. While we find no clear traces of trend changes in employers' labour adjustment behaviour, we do find that income losses of displaced workers have declined over time, mainly due to their faster re-employment. Although it is still early days to conclude with certainty, there are so far no strong indications of the re-emergence of unemployment hysteresis to the same extent as in previous recessions.

RESUMÉ

Une des principales caractéristiques du marché du travail danois est définie par ce qu'on appelle la flexicurité, coexistence de flexibilité (faibles coûts d'ajustement pour les employeurs et les employés) et de sécurité (en raison d'un filet de sécurité sociale mis au point avec une couverture élevée et des taux de remplacement élevés). On estime souvent que cela a contribué à la bonne tenue du marché du travail danois et spécialement à sa capacité à maintenir un taux de chômage faible et stable. L'objectif de cet article est d'examiner la performance du système de flexicurité et ses évolutions survenues au cours des trois dernières décennies, y compris les premières années de la Grande Récession. Nous réalisons deux types d'analyses: au niveau des établissements et des salariés, respectivement. Tout d'abord, nous utilisons des données appariées employeurs-salariés pour le secteur privé afin d'examiner la façon dont la demande de travail réagit aux chocs de production en étudiant le comportement des entreprises en termes d'ajustement du facteur travail en période de reprise et de ralentissement économique. En second lieu, sur la base des mêmes données, nous examinons comment le système de flexicurité protège les travailleurs contre des pertes de revenus liées a des pertes d'emplois consécutifs à des fermetures d'entreprises ou des licenciements massifs. En particulier, nous nous intéressons à la façon dont la transformation du système de flexicurité depuis le milieu des années 90, en mettant plus fortement l'accent sur l'activation et en réduisant la durée maximale de versement des prestations de chômage a modifié la sécurité des salariés en cas de suppressions d'emploi. Nous documentons les larges flux de travailleurs présentants de fortes variations au cycle et qui sont à l'origine d'une dynamique volatile du chômage. La flexibilité « externe » des entreprises est restée inchangée depuis près de trois décennies. Bien que nous ne trouvons aucun indice manifeste de changements de tendance dans le comportement des employeurs en termes d'ajustement de la main-d'oeuvre, nous constatons néanmoins que les pertes de revenu des travailleurs victimes de suppressions d'emplois ont diminué au fil du temps, principalement en raison de leur rapide retour à l'emploi. Bien qu'il soit encore trop tôt pour conclure avec certitude, il n'existe à ce jour aucune indication claire de la réémergence de l'hystérésis du chômage de même ampleur que lors des récessions précédentes.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS: 3

ABSTRACT 4

RESUMÉ 5

1. Introduction 8
2. The aggregate picture 10
3. The flexicurity policies – elements and development 12
   3.1 Stronger re-employment incentives 13
   3.2 From passive to active labour market policies 14
4. Data description 16
5. Analysis of establishment level adjustment 17
6. Consequences for dismissed employees 21

CONCLUSIONS 25

TABLES AND FIGURES 27

APPENDIX 37

REFERENCES 38

Tables

Table 1. Worker flow rates regressions, 1982-2009 27

Figures

Figure 1. Real GDP in Denmark, the Euro area and the United States, 2000-2011 27
Figure 2. Total employment, 1982-2010 28
Figure 3. Unemployment, 1982-2010 (OECD 28
Figure 4. Employment-to-population and labour force participation ratios, 2007.1 – 2011.4* 29
Figure 5. Hires and separations rates in the private sector, 1981-2009 29
Figure 6. Survival rates for unemployed and persons in activation, 2004, 2007, 2009 and 2010 30
Figure 7a. Hires and establishment employment growth, 2007-9 30
Figure 7b. Separations and establishment employment growth, 2007-9 31
Figure 8. Establishment growth rate distributions 31
Figure 9. Hires rates, actual and predicted values, 1982-2009 33
Figure 10. Separations rates, actual and predicted values, 1982-2009 34
Figure 11. Average share of displaced employees in employment 1-5 years later. Four sub-periods, both genders 34
Figure 12. Average annual earnings loss (in per cent of initial earnings) 1-5 years after displacement. Four sub-periods, both genders 35

Figure 13. Average annual earnings loss (in per cent of initial earnings) 1-5 years after displacement for displaced employees aged 25-29 and 30-35. Two recession periods 35
Figure 14. Average annual earnings loss (in per cent of initial earnings) 1-5 years after displacement for displaced employees aged 25-29 and 30-35. Two expansion periods 36
Figure A-1 Employment and work hours, 1982-2010 37

1. Introduction

1. During the decade before the current economic crisis, the Danish labour market attracted relatively much attention in the European policy discussion. This was in part because Denmark belonged to the group of countries which had experienced a significant decrease in unemployment. In the late eighties the Danish unemployment rate had climbed over the ten per cent level and had remained high for a relatively long period, but as from the mid-nineties it fell almost uninterruptedly to substantially lower levels and stood at 3.5-4 per cent before the onset of the Great Recession. The other reason for the interest in Danish labour market was because of its specific labour market institutions, subsumed under the heading "flexicurity", which was considered as an important contributing factor to the success in making the transition from a high- to low-unemployment economy.

2. The term flexicurity was introduced in 1995 by the Dutch sociologist, Hans Adriaans to capture the two key ingredients in the Danish (and Dutch) labour market model: the coexistence of flexibility and security. Expressed in economic terms, the flexicurity system creates lower adjustment costs for both the employers and their employees. This model is thought of as conducive to job creation, structural change and growth, and Denmark's low unemployment rate is considered as evidence in support of these notions.

3. The overall aim of this paper is to examine the performance of the flexicurity system and changes therein during the previous three decades, and in particular when the Danish economy was hit by the global shock of the Great Recession. With respect to the latter, we are in particular interested in to what extent flexicurity is "recession-proof" and whether we can expect the re-emergence of hysteresis effects, and hence persistently higher unemployment, in the Danish labour market in coming years. Although many of the central elements of flexicurity was already present in the seventies and eighties, Danish unemployment remained high for a long period after the first oil price shock in the seventies. The same is true for the period after the deep recession in the late eighties. Recent reforms of labour market policies aiming at re-employing unemployed at a faster rate may have unintended consequences during a period of deep recession.

4. We carry out two types of analyses: at the levels of establishments and employees, respectively. First, we examine how labour demand responds to output shocks by a study of firms' labour adjustment behaviour during economic up- and downturns. We make use of linked employer-employee data for the private sector to study hires and separations and how these are related to employment growth at the establishment level. Second, based on the same data set we examine how the flexicurity system protects workers from income losses associated with job losses due to plant closures or major lay-offs. As the generosity and availability of unemployment benefits have changed considerably since the mid-nineties and labour market policies have been through a series of reforms leading to a growing importance of activation elements, we are particularly interested in whether and how earnings losses have developed over time.

5. As a result of a weak employment protection for blue collar workers and a modest protection of white collar workers' job security, employers' labour adjustment costs (for hiring as well as firing) are low relative to those in many other European countries. The Danish legal rules regarding dismissals give the employers the right to give lay-off notices with relatively short durations. Thus, depending on agreements between unions and employers, the length of notice for blue collar workers varies from a few days to three months. For white collar employees the length of the notice period is typically tenure dependent and varies between one and nine months. In fact, restrictions on employers' possibilities to make use of fixed term contracts are chiefly found in the law for white collar workers ("funktionærloven"). Other employees are not protected by law in this respect.

6. However, job security is to an important extent regulated by means of collective agreements between employers' and workers' organisations. Most collective agreements do not contain restrictions on the use of different forms of employment contracts, but they often have rules for notifications of lay-offs after six to nine months of employment. These rules do not apply initially to fixed term contracts. However, when fixed term contracts are renewed the rules for permanent contracts regarding notification apply. Moreover, severance pay is less common and not as expensive for employers as in several other countries.

7. The weak employment protection means that the distinction between permanent and fixed term contracts is rarely applied in Denmark. There are fixed term employment contracts and temporary work agencies, but these are mainly found in connection with short-term projects, substitute work, etc., and are not utilised as a general employment adjustment mechanism.[1]

8. The adjustment costs associated with job/employer changes with or without intermittent unemployment spells are lowered for employees by two factors. The first is the fact that, for most employees, social benefits (sick insurance, pensions, vacations) are not tied to the employer, but are portable across employers without costs. A second factor contributing to lower costs of displacement for employees is the widespread availability of generous unemployment benefits. A large proportion of the labour force is covered (around eighty percent) and the replacement ratios are internationally high, in particular in the lower end of the wage distribution which has a relatively thick tail owing to the compressed wage structure. A typical reaction from employee representatives to suggestions to lower replacement ratios is to ask for extensions in the notification periods. Thus, the insurance element in membership of unemployment insurance funds is strongly protected, and as membership is voluntary, it is important to the funds to ascertain that there is a considerable difference in the benefit levels from unemployment insurance funds and other forms of social assistance in the event of joblessness.

9. Individual elements of the Danish labour market model exist also in other countries. What is specific to the Danish system is the coexistence of a generous and developed social safety net and liberal employment protection rules.

10. The notion that flexicurity was behind the resilience of the Danish labour market and especially its ability to maintain a low and stable unemployment rate, has been called into question. It has been repeatedly pointed out in particular that the system was already in place in the late sixties/early seventies and that the labour market performance of Denmark in the seventies and eighties was rather poor (e.g. Andersen and Svarer, 2007). One possibility is that the system worked less well when the shocks were large and global as were the oil price shocks in the seventies and eighties. The recent experience of the Great Recession offers a possibility to provide some additional evidence on this matter.

11. It should also be noted that since the mid-nineties the Danish wage setting system has become increasingly decentralised as wage bargaining has moved from industry (and earlier national) levels to the firm level (Dahl, le Maire and Munch, 2009). This tendency has been accompanied by an increased use of performance pay in firms and organisations (Eriksson, 2012). The increased decentralisation is likely to have given rise to more wage flexibility in response to shocks. Yet another factor which may have contributed to an improved functioning of Danish labour markets is globalisation and the accompanying threat of offshoring jobs which may have had a disciplinary impact on wage formation. A relatively early study by Andersen, Haldrup and Sørensen (2000) does indeed find some evidence in support of this mechanism, although the magnitude of the estimated impact is rather modest.

[1] An additional circumstance contributing to low costs of employee dismissals is the absence of experience rating in the unemployment insurance system.

12. Another factor, frequently emphasised in the Danish public discussion about the functioning of the labour market, is the significant transformation of the labour market policy regime from a predominantly passive policy regime where income support to jobless plays a central role to a regime characterised by an increasing importance of elements of activation of job seekers. These developments, which are described in more detail in Section 3 below, are likely to have increased resilience as activation policies contribute to a reduction in employees' adjustment costs and mitigate the disincentive effects of the unemployment insurance system (which itself has been changed as a consequence of the policy regime switch). An important issue related to the current economic crisis (see OECD (2010), Chapter 1, for a discussion) is the extent to which the strongly reduced work opportunities for the jobless challenge the effectiveness of the activation policies and hence create a fertile soil for the re-emergence of unemployment hysteresis. The recoveries from two previous severe recessions, in the late seventies and late eighties, respectively, were rather slow due to a substantial rise in long term unemployment. The Danish discussion about the reasons for this has mainly focused on the unemployment insurance system which, as will be discussed in more detail in Section 3, has been significantly changed.

13. There are also some costs associated with flexicurity that are frequently forgotten in the international discussion about the pros and cons of the Danish labour market model. In particular, there is a "spillover effect" of the flexicurity system to the (in the Danish case, large) group of individuals outside or only loosely connected to the labour market. Due to the high replacement ratios, the lowest wages paid in the labour market are too high for persons with few skills or ill health or for less educated immigrants to obtain employment, and hence the flexicurity system contributes to a worsening of the possibilities for these groups to enter the labour market. The number of individuals of working age in various transfer programs (such as different early retirement schemes, rehabilitation and activation programs) has been hovering between 800,000 and 900,000, which makes up about 20-25 percent of that age group, that is, the population aged 15-66, excluding students; see Economic Council (2007), pp. 172-3. The efforts during the last ten years to monitor more carefully job seekers' availability to work and to provide incentives to intensify their job search may have further increased the number of people outside the labour market because they make other transfer programs more attractive than unemployment benefits.

14. The remainder of this paper unfolds as follows. The following section (Section 2) provides a description of some of the key aggregate level variables as a background to the subsequent analysis. In Section 3, a brief description is given of flexicurity and the developments of two of its key elements, the unemployment insurance and active labour market policies, during the last two decades. Section 4 contains a description of the data sources used. The analysis of establishment level labour adjustment is given in the fifth section and the analysis of the consequences for the unemployed (displaced workers) is found in Section 6. Final comments and conclusions are provided in the seventh section.

2. The aggregate picture

15. As can be seen from *Figure 1*, while the development of real GDP in Denmark traced that of the Euro Area and the US quite closely up to the Great Recession, as from 2008 growth fell at a markedly steeper pace in Denmark than in the other regions. The Danish unemployment rate, which since 1994 had consistently stayed below the OECD average, also jumped to considerably higher levels in 2008-2010. Despite the strong increase, unemployment remains low as seen from an international perspective and continues to stay below the OECD average.

16. The fall in employment (over 5 per cent; see *Figure 2*) was actually larger than the corresponding increase in unemployment numbers; see *Figure 3*. There are three reasons for this (Economic Council, 2011). First, due to reduced work opportunities, students, many of whom earlier combined part-time work and study, have turned into full-time students. Second, a sizable number of the jobs lost, especially in the construction and some service industries, had been performed by foreign labour from Germany and Central

and Eastern European countries, and as these workers moved back to their home countries they do not show up in the Danish unemployment statistics. Finally, during the high employment years, an increasing proportion of the labour force had not joined (or even left) the unemployment insurance schemes, and so, during the Great Recession not all of them register as unemployed since they are not eligible for unemployment benefits. Still, as can be seen from *Figure 4*, the bulk of the decrease in the employment to population (aged 15-64) ratio has been due to the increase in unemployment. The decline in the labour force participation ratio, which took place in 2009, has been of the magnitude of about one percentage point.

17. As shown in OECD (2010), the labour input adjustment to the Great Recession has in many countries involved an unusually large contribution from reduction in work hours. Denmark is, however, one of the clear exceptions from this pattern. As can be seen from Figure A-1 in the Appendix, historically the changes in the total labour input in Denmark have primarily reflected changes in the number of employees, and this continues to be the case also during the current crisis. Short-time work schemes are rare.2 As a matter of fact there is a work sharing system ("arbejdsfordelingsordning"), but as is shown in Hijzen and Venn (2011), its take up rate is very low and hence, its impact on job preserving jobs is quite small. According to a recent survey of private sector firms carried out in late 2011 (Neamtu and Westergård-Nielsen, 2012), only about 2-3 percent of the firms that had implemented cost reductions as a response to the economic crisis has made use of this possibility. The same low share reported they had reduced costs by cutting base wages or bonuses. Both these numbers can be compared to the sixty per cent of the firms that answered they had reduced the number of their employees. [3]

18. One of the aims of this paper is to shed more light on Danish employers' labour adjustment under different business cycle conditions and in response to changes in labour market policies directed at job seekers' behaviour.[4] For this purpose we will focus on hires and separations at the level of establishments and how these are related to changes in establishment level employment. At the aggregate level, a number of previous studies (Albæk and Sørensen (1998), Bingley, Eriksson, Werwatz and Westergård-Nielsen (1999), Belzil (2000), Frederiksen (2008)) have documented the existence of large worker flows in the Danish economy, consistent with the notion of a high degree of flexibility.[5] Aggregate hires and separations rates move over time and vary around a level slightly below 30 per cent during the last three decades. This means that the annual total rate of worker turnover is about 60 per cent of employment which is not far from the annualised rate (about 70 per cent) estimated for the U.S. by Davis et al. (2006).[6] Note that since the Danish estimates are based on annual data they will be lower than the U.S. estimates that are based on monthly data.

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2 On the other hand, temporary lay-offs are common (Jensen and Westergård-Nielsen, 1990) and facilitated by the combination of generous unemployment benefits and absence of experience rating.

3 A recent cross-country study using firm-level data from ORBIS (Gal, Hijzen and Wolf, 2012) finds that of the nineteen countries examined, the elasticity of employment with respect to output shocks was highest in Denmark and the United States (while the elasticity with respect to earnings per worker was lowest in the same two countries).

4 A fairly large literature has been built up examining the impact of active labour market policies on the behaviour of unemployed job seekers. See Card, Kluve and Weber (2010) for a recent discussion of the international evidence and Arbejdsmarkedskommissionen (2009) and Economic Council (2007) for summaries of the Danish research.

5 More direct evidence on worker mobility and job tenure during employees' life cycles has shown that these are at levels comparable to the U.S.; see Eriksson and Westergård-Nielsen (2009).

6 Note that since the Danish estimates are based on annual data they will be lower than the U.S. estimates that are based on monthly data.

19. As can be seen from *Figure 5*, which displays both rates for the private sector, they are a few percentage points higher than for the overall economy and in fact, they also exhibit stronger cyclical variations. It is also worth pointing out that there is no visible trend in the hires and separations rates over time implying that the fluidity and dynamics of the Danish labour market has not changed. This is different from other countries like for instance the U.S., for which a downward drift in worker and job flows has been documented for the recent decades (Davis et al., 2006).

20. In years 2008-9, hires and separations rates drop significantly to historically low levels. As demonstrated by the figure, both rates were still above their historical average values in 2008, but one year later they are below and especially the hires rate has never before during the three decades period under study reached such low levels.

21. Large worker flows do not necessarily imply that unemployment in- and outflows are large too, as mobility between jobs can and typically does occur without intermittent spells of joblessness. In *Figure 6*, the survival rates for unemployed and persons in activation are displayed for four years[7]: 2004 (which was the year with the previous highest unemployment rate, 5.5 per cent), 2007 (the lowest unemployment year, 3.3 per cent), 2009 and 2010. From the figure we may note that the exit rates are still relatively high. Exit rates in 2009 and 2010 have come down since 2007, but this is not a natural reference year as the labour market in 2006 and 2007 was clearly characterised by excess demand. In 2009 the proportion still in unemployment (or activation) three months after becoming unemployed is 56.6 per cent and 47.6 per cent after six months.[8] Thus, even in the midst of the Great Recession, the majority of unemployment spells are relatively short. However, exit rates drop quickly with duration, and so, in 2008-2010 after one year a little over forty per cent remain in unemployment.

22. The corresponding numbers for 2007 are lower, especially for longer durations, but the differences are not large. However, they are still higher than those in 2004. These differences across years reflect not only differences in job finding rates but also other circumstances, such as the composition of the unemployment inflow[9] and also the size of the inflow itself, which for a given outflow automatically increases the stock of unemployed. Thus, the inflow in 2009 (when it was about 550,000 new spells commenced during the year) is substantially higher than two years earlier (about 350,000 new spells).

3. The flexicurity policies – elements and development[10]

23. Since the early 1990s, the flexicurity system has changed quite markedly during the two previous decades. There have been a series of reforms of the unemployment insurance system while the part of flexibility related to employment security has by and large remained the same. Moreover, there has been a parallel series of reforms of labour market policies, transforming them from a system with emphasis on passive measures to a policy package where the active measures are playing a more prominent role than before. Each will be discussed in detail below.

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7 These data are unfortunately only available since 2004.

8 The numbers change only marginally if the individuals in activation are excluded.

9 The inflow in 2004 was plausible more negatively selected than five years later when considerably more employees were hit by unemployment.

10 For a more detailed descriptions of the development of unemployment insurance and labour market policies (in Danish), see Economic Council (2007) and Arbejdsmarkedskommissionen (2009).

3.1 Stronger re-employment incentives

24. Prior to the early nineties, for an insured worker who met the requirements for eligibility, that is, she had worked for at least 26 weeks during the previous three years, she was entitled to unemployment insurance benefits for 2½ years. Before the expiration of benefits an unemployed person was by law entitled to a (subsidised) job for 7-9 months, after which s/he was again qualified for receiving unemployment insurance benefits for another 2½ year period. As a consequence, in practice there was no upper limit on entitlement to unemployment benefits. This was changed in 1993 when the right to an automatic renewal was abolished and an upper limit of seven years was introduced. For individuals over sixty years of age the period of entitlement to benefits was restricted to 2½ years.

25. Two years later, in 1995, the entitlement period was further shortened to maximum five years and eligibility now required one year in employment during the preceding three-year period. Notably, for youth under the age of twenty-five, the unemployment benefit was significantly lowered, that is, cut by fifty per cent, and eligibility was reduced. More precisely, a new rule was introduced according to which young people who have been unemployed for six months during the last nine months shall be offered 18 months of specially designed vocational education, during which they receive fifty per cent of unemployment benefits. Refusal to participate leads to total loss of unemployment benefits, which implies that the period of entitlement to benefits is effectively reduced.

26. In 1998 the maximum period of entitlement to unemployment insurance benefits for persons over 25 was shortened with one additional year and became four years. In 2009 a new reform was accepted that sought to reduce the maximum duration further from four to two years as from the beginning of 2012. However, the current government has postponed the implementation of the law, referring to the weak employment situation.

27. Despite several changes in the 1990s, the unemployment benefit entitlement period in Denmark remains among the longest in the OECD, only exceeded by those in Iceland, which has a maximum duration period of five years, and Belgium where there is no upper limit. In the two latter countries, replacement ratios are, however, considerably lower than in Denmark. The replacement ratios in the Danish unemployment benefit system are basically ninety percent of previous earnings. As there is a cap on the benefit, the actual replacement ratio is in practice often lower than ninety percent.[11] Low wage earners are more likely to experience unemployment and hence, the replacement ratios of the unemployed are substantially higher than for the employed. While the average replacement ratio for unemployed job seekers has remained unchanged during the last ten years, it has declined somewhat for full time employees (Arbejdsmarkedskommissionen, 2009).

28. A difficulty with studies examining the effects of longer entitlement periods or higher replacement ratios on unemployment is that both changes are likely to occur as a consequence of increasing unemployment caused by economic downturns or recessions.[12] Two studies of the effects of lengthening of entitlement durations that were not caused by adverse shocks to the labour market (Lalive, van Ours and Zweimüller (2006); van Ours and Vodopivec (2006)) have shown that longer benefit durations lead to longer durations of unemployment spells. A study of Nordic labour markets, which includes Denmark, finds that a ten percent increase in replacement ratios results in little over a one percentage point increase in the unemployment rate (Forslund, Gottfries and Westermark (2008)). The significant shortening of benefit entitlement durations and largely unchanged replacement ratios during the

11 Unemployment benefits are taxable income, but a special tax (8 percent) of all income from work does not apply to unemployment benefits.

12 This endogeneity problem is in particular present in US studies.

two preceding decades could therefore have contributed to a lower equilibrium unemployment rate in Denmark.

29. A distinguishing characteristic of the Danish unemployment structure is that the unemployment rate for young adults, aged 25-29 (but also for the 30-39 years age group) exceeds the average unemployment rate whereas the unemployment rate for the group under 25 is lower than the overall rate. This is due to two factors: the significantly lower unemployment benefit rates for the younger age category and the fact that many persons in the 25 to 29 years group have finished their education and are labour market entrants. For elderly labour force participants, the age group 55 to 59 has a higher than average unemployment rate, while the rate for the over 60 years age group is lower than average. This difference reflects the fact that the latter group is entitled to early retirement schemes and that the employees over 60 who choose to continue working face lower job loss probabilities.

30. For youth and young adults the entitlement period was significantly shortened in 1995 and at the same time the replacement ratio was lowered substantially for unemployed under 25 years of age, and has since been about half of the ratio for the 25-29 years age group. The change in the rules clearly strengthened the incentives for youth to obtain employment or to take an education. As noted above, during the mid-nineties the unemployment rates for the below 25 years group fell below the overall unemployment rate. To what extent this change was due to the changes in unemployment benefits policy is, however, not clear as the youth unemployment rate fell below the average rate a couple of years before the change in policy.

31. Since the early nineties the coverage of the unemployment insurance system, that is, the share of members of unemployment insurance funds in the labour force, has decreased secularly up to the Great Recession from around 78 in 1993 to 74 percent in 2008.[13] The trend decline can have been due to the exceptionally long period of low and declining unemployment which may have given rise to a conception of permanently lower unemployment risks. This is consistent with the fact that as from 2008 when this notion proved to be false, the coverage rate has started to grow. The decrease has mainly occurred among young and less educated employees, which traditionally face higher unemployment risks. On the other hand, these are also the groups for which the contingency payments may seem expensive.

3.2 From passive to active labour market policies

32. During the seventies, eighties and still in the beginning of the nineties, the share of expenditure on active measures in total expenditure on labour market policies was quite low in Denmark. In fact, the expenditure on passive measures was the highest in the OECD even after "deflating" by the overall unemployment rate; see Jackman, Pissarides and Savouri (1990) and OECD (1992). Since the mid-nineties, there have been several reforms strengthening the role of active labour market policies. As a result of this series of reforms, Denmark is today the country in the OECD that spends most money on active labour policy measures in percent of GDP. An important motivation for the stronger emphasis on active labour market policy measures is that the generous unemployment benefits generate considerable moral hazard problems which need to be mitigated by means of policies aiming at assessing and securing the job seeker's availability to the labour market. The absence of measures to maintain job seekers' search incentives was a particularly weak part of the early flexicurity system. Worth pointing out in this context is especially the labour market policy reform in 1995 which reduced the duration of entitlement to unemployment benefits from seven years to first five, and then later in 1998, to four years. Another significant change brought about by the 1995 reform was an earlier introduction of activation measures for

13 It should be noted, however, that these shares underestimate the true coverage as for some groups, especially part-time employees who receive a grant from the State Education Grant and Loan Scheme (the so called "SU") and early or regular retirement schemes, unemployment insurance is irrelevant.

unemployed job seekers. Earlier this occurred after 24 months of unemployment but after the reform activation begins after nine months. For unemployed under the age of 30, the right and duty to be offered activation (of at least six months length) was changed to 13 weeks.[14]

33. Later reforms in years 2002, 2004 and 2006, aimed at intensification of the contact between job seekers and the job centers[15] and the start of activation measures has been further advanced into earlier stages of the individuals' unemployment spells. A number of studies have examined the effectiveness of these measures. A nice feature of some of these studies is that they exploit the randomised introduction of some of these policies, enabling researchers to uncover causal effects. This is the case for the "Hurtigt i gang"-experiment from 2006, which has been analysed by Graversen, Damgaard and Rosendahl (2007), Graversen and van Ours (2008) and Rosholm (2008).

34. Earlier and intensified contacts and introduction activation measures can in principle have two opposite effects. First, the mere threat of activation may motivate the job seeker to intensify her efforts to find and accept a new job offer. This contributes to shorter unemployment durations. Second, once activation begins this may have a lock-in effect on the program participant, due to the reduction in time available for active job search. This is in particular considered as a potential problem in connection with longer labour market training programs. Another problem with them is that participants may consider a less broad set of job vacancies and focus more on those directly related to the training received. The studies by Geerdsen (2006), Rosholm and Svarer (2008), Economic Council (2007), Graversen, Damgaard and Rosendahl (2007) show that the earlier and more intensified measures do indeed lead to shorter unemployment durations. The econometric evidence suggests that both the threat and lock-in effects are present, but on the whole, the former effect seems to dominate.

35. One of the most widely employed labour market activation measures in Denmark is labour market training. Investigations focusing explicitly on training have found rather limited, if any, positive effects on the program participants' subsequent employment histories, in the short term as well as in the long run; see Jespersen, Jacobsen and Bøge (2006) and Christensen and Jacobsen (2009). A study by Jespersen, Munch and Skipper (2008) examines possible differences between training activation that takes place in the private and the public sector respectively and finds that the positive effects on longer term employment are present in job training provided by the private sector, whereas training in the public sector is not associated with positive employment effects.

36. All in all, since the early nineties the Danish flexicurity system has been through a series of reforms. The accumulated impact is a significant reduction in the security component with respect to the maximum duration of benefit entitlement and stricter conditions for receiving benefits. At the same time, the level of the replacement ratios has changed only little. As a consequence, there has been a remarkable transformation of labour market policy from a basically passive income compensation system to labour market institutions where active policy measures play a central role. The labour market reforms have almost exclusively focused on the supply of labour , while policy measures targeting the demand side of the labour market have been thin on the ground.[16]

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14 For an analysis of the effects of this policy change on youth unemployment, see Jensen, Rosholm and Svarer (2003).

15 As from 2006, unemployed job seekers are obliged to register on the job center's homepage www.jobnet.dk every week. Several other small steps to strengthen the enforcement of job-search requirements have been introduced in 2001, 2003 and 2007; see Economic Council (2007).

16 This continues to be the case also during and after the financial crisis, and the labour market reforms planned by the current government are also all addressing labour supply issues.

37. How and to what extent have these changes affected the resilience of the Danish labour market? This is one of the key questions addressed in the next sections.

4. Data description

38. The source of the data used in the subsequent analysis is the so-called IDA-database which is kept by Statistics Denmark and is a longitudinal linked employer-employee database that contains information about all individuals aged fifteen to seventy-four (demographic characteristics, education, labour market experience, tenure and earnings) and employees in all establishments in Denmark since 1980. This information has been collected by merging information from several registers in Statistics Denmark with the help of unique identification numbers for individuals and establishments, respectively. The persons and establishments are matched at the end of November each year. Consequently, only changes between ends-of-Novembers are accounted for (not intermittent changes).

39. The samples for the current analysis are restricted to private sector establishments[17] with minimum ten employees. It should be noticed that employees in the establishments refer to persons holding their main job therein (that is, secondary jobs and job holders are excluded). The time period covered is 1981 to 2009. As the construction of some of the key variables makes use of data from two adjacent years, the period analysed is 1982 to 2009.

40. The three key concepts in the analysis of firms' labour adjustment in the next section are establishment growth, hires and separation rates, all measured at the level of the establishment. Establishment growth is measured as percentage growth in employment, that is, the net change in number of employees divided by the average number of employees in the current and preceding year. Following Davis, Haltiwanger and Schuh (1996) and Davis and Haltiwanger (1999), hires are defined as the number of people who are employed in the establishment in year t, but who were not there in t-1. Separations are similarly defined as the number of people who are not employed in the establishment in year t, but were there in t-1. These two worker flows are next divided by the average number of employees in the establishment in years t and t-1, yielding the hires and separation flow rates. Note that these rates will vary from -2 (when an establishment ceases to exist) to 2 (in case of new establishments). The data do not allow us to distinguish between layoffs and quits.[18]

41. In the analysis of the earnings losses associated with unemployment due to plant closures or major lay-offs in section 6 we will focus on primarily prime-aged, stable employees working in establishments with at least twenty full-time employees. This means that our sample (which comes from the same data source as above, IDA) consists of individuals who are 25 to 50 years of age and have at least 2 years of tenure at the employer from which some of them are dismissed due to establishment closures or large scale dismissals. The latter is defined as 30 per cent of the workforce. The longitudinal data set spans over years 1982 to 2009. (We will also carry out an analysis on two smaller sub-samples consisting of individuals aged 25-30 and 30-35.) The earnings measure is real pre-tax annual earnings from work.

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17 This is motivated in part because private firms' hiring and firing behaviour is different from that of public sector organisations, in part because establishments are not well defined for the public sector in the data.

18 Separations are also the result of withdrawals from the labour force due to old age or sickness retirement. Earlier studies (e.g. Frederiksen, 2008) have shown that these components make up only a small fraction of total separations which, moreover, displays little variation over time. Consequently, we have not attempted to identify them in the current exercise.

5. Analysis of establishment level adjustment

42. The methodology of the subsequent analysis closely follows the work in Davis et al. (2006, 2011) on establishment level labour adjustment in which the relationship between worker and job flows in a cross-section and over time are examined. The analysis by Davis et al. (2011) builds on work to extend the search and matching model of Mortensen and Pissarides (1994) by relaxing its iron link between worker and job flows, which for example implies that every separation is a job that is destroyed. As shown in Davis et al. (2011), relaxing the iron link implies a more complex and realistic hiring and separation behaviour of employers, and allows inter alia for simultaneous hiring and separations within firms. The aggregate hiring and separation rates and changes therein are in this framework the outcomes of the interaction of the distribution of economic shocks to the firms and the changes in the firms' hiring and separation behaviours.

43. We begin by measuring the latter. First we compute for each year average worker flow rates (the hires and separations rates as described above) conditional on net establishment employment growth. The latter is divided into narrow growth intervals (185 "bins"). Next we look for eventual shifts in these cross-sectional relations over time, and in particular examine the extent to which they are influenced by business cycle conditions, labour market policy reforms and the Great Recession.

44. Similar descriptive analyses have been carried out not only for the U.S. but also for France (Abowd, Corbel and Kramarz, 1999), Germany (Bellmann, Gerner and Upward, 2011), Japan (Hijzen, Kambayashi, Teruyama and Genda, 2011), and New Zealand (Fabling and Maré, 2011). While these studies and the current one make use of a common methodology, due to differences in the data sets used the results are not strictly comparable. In particular, the Danish register data at our disposal allow us to consider only annual information in computations of the hires and separations rates. This implies that hires into and the expiration of short-duration jobs, that is, employment relationships commencing after end-of-November in year t-1 and ending before end-of-November in t, cannot be accounted for. Thus, if an employee who has had a short-duration job like the one just described, and if this person is again employed at the end of November in year t (at another employer than in t-1), she will contribute only one hire and one separation (of her two actual hires and separations) to our rate figures. The data used in the German study (Bellmann et al., 2011) enable computations of hires and separations rates for different time periods. It shows that apart from somewhat higher churning,[19] when the flows are measured annually, differences in hires and separations rates between the six-month recall survey and annual data are small. To what extent use of administrative data or survey data (like JOLTS in the U.S.) makes a difference, and if so, how, we do not know.

45. We begin by considering the cross-sectional distribution of hires and separations for different establishment growth rates. *Figures 7a* and *7b* show by way of example how these relationships look like in years 2007-2009. Overall, it looks quite similar to those found for US and Germany. The hiring relation in Figure 7a exhibits a similar hockey-stick shape as has been documented for the U.S. by Davis et al. (2006). The kink in the relationship is clearly located in the vicinity of zero growth. Hires rates are positive for negative establishment growth rates, which is consistent with establishments hiring to replace workers who are abandoning the ship, i.e., leaving their shrinking employers. This is reflected in the fact when establishments are shrinking, separations rise proportionately faster than the decline in jobs. For positive job creation we may also note that hires increase more than one-for-one, most likely because of the need for replacement hires due to a larger share of poor matches when establishments are growing fast.

[19] This is expected and follows simply from the fact that longer the period is, the more likely it is that an establishment has both dismissed and hired workers during the period.

46. The linear relationship observed for the positive growth domain is also present for separations rates in the negative domain; see *Figure 7b*. The fact that the separations rates are positive for the entire positive establishment growth domain likely reflects that growing employers face high turnover rates among the most recently hired. Similar to Germany, but unlike for the U.S., the relationship is quite flat (not rising) for the positive growth domain.

47. From Figures 7a and 7b it can also be seen that there is a downward shift in both relations during the Great Recession, and especially in 2009. The shift is more pronounced in the "blade" part of the hires relation and the "stick" part of separations relation. However, these shifts are rather exceptional. From an ocular inspection (a more formal analysis is given below) of corresponding figures from other years we may overall conclude that there is a relatively stable relationship between the worker flow rates and establishment growth. Separations and hires rates are symmetric, i.e. separations react as fast to declines in employment as hires react to increases in employment in the establishment.

48. The main differences across years are in the churning rate and the location of the relationship in growth – hires/separations space. The churning rates are higher in expansion years and fall when the economy is entering a recession. This is consistent with fluctuations in churning reflecting pro-cyclical variation in quit rates. The year-to-year changes are typically relatively small.[20] During the expansion beginning in the mid-nineties the churning rates is quite stable. The boom years before the Great Recession (2006-8) are characterised by higher churning rates than before. However, in 2009 we observe the lowest churning rate, about 20 percent, during the period under study. During the Great Recession, it also seems that the linear relationships between employment growth and hires and separations are shifting to the right and left, respectively.

49. For zero growth or small changes in establishment employment the hires and separations rates are on average in the 22-23 percent range. Is this a high or low churning rate? Given the high transferability of many social benefits in connection with change of employer and hence low costs of mobility it appears reasonable to assume that the churning rate, to the extent that it is mainly driven by quits[21], would be relatively high in Denmark. However, available churning rates estimates, which vary widely, would place Denmark somewhere in the middle close to US and Germany (see Davis et al. (2011) and Bellman (2011), respectively) but considerable below France and Japan (see Abowd et al. (1999) and Hijzen et al. (2011), respectively).

50. At any rate, the churning rate levels observed suggest that if firms hire at twenty per cent when their workforce is stable, they have in recent years been able to accommodate declines in employment by reductions in hiring. This was not the case in the nineties, during which it should be noted that employment was mainly growing.

51. Caution should, however, be taken in making comparisons across periods as the establishments may change their position in the growth distribution and moreover, the distribution itself is likely to shift in response to macroeconomic shocks. In *Figures 8a-d* kernel density estimates of the establishment growth rate distributions are displayed for three pairs of years, two downturn periods, 1985-6 and 2007-9, and one pair of years from a business cycle upturn, 1993-4, are displayed. The shifts are in the expected directions, that is, to the right in the 1993-4 upturn and to the left in the downturns. Especially noteworthy is the dramatically large shift to the left that occurred in 2009. The mean of the distribution turned negative and the proportion of establishments with no change in employment increased considerably. It should be

20 It should be noted, however, that churning rates observed are to some extent affected by the number of employment growth rates bins used.

21 Simultaneous hiring and dismissal of employees within establishments can also be the result of upgrading of workforce skills.

noticed, however, that for most years during the period under study, the distribution is quite stable. It seems as if it is only if there are sufficiently large shocks, like in the years shown in Figure 8, that these will give rise to significant shifts in the establishment growth distribution.

52. In addition to macroeconomic shocks the hires and separations rates may be affected by changes in the hires and separations behaviour of firms, that is, labour adjustment may change for a given distribution of establishment growth rates if there are changes in firms' hiring and separation technologies. Next, we will carry out an explorative analysis to examine if changes of this type have occurred.

53. The "hockey stick" is a cross-sectional relation. A simple way of accounting for business cycle influences is to allow it to shift up and down with the aggregate private sector employment growth rate. Thus, following Bellman et al. (2011) we estimate a simple linear model for hires and separations rates:

$$(1) \qquad (\text{hires rate})_{it} = \alpha + b_i + c_t + \beta_1((h_{it} - s_{it})D(pos) + \beta_2((h_{it} - s_{it})D(neg) + \varepsilon_{it}$$

where b_i and c_t are establishment fixed effects and year dummies, respectively. D(pos) and D(neg) are indicators equal to unity for a positive an increase and decline in establishment employment, respectively. The constant, α, is a measure of the churning rate, that is, the rate of worker turnover that is associated with unchanged employment. Other parameters of interest here are β_1 and β_2 which capture the response of the hires rate to employment increases and decreases, respectively. As a change in establishment employment equals the difference between hires and separations the coefficient picking up the response of separations to a decline in employment will equal $1+ \beta_2$.

54. The baseline model in (1) has been extended in two ways. First, in order to examine whether the relationship changes over the business cycle, we estimate the model for five time periods, two recessions (1988-93 and 2002-4) and three expansions (1982-87, 1994-2001 and 2005-7). Second, in addition to business cycle influences, it is also conceivable that the transformation of the flexicurity system since the mid-nineties has affected the hires and separations behaviour of the establishments. The policy changes aimed at increasing the availability of job seekers to the labour market and at strengthening incentives to find employment more quickly than before. Thus these changes may have increased the number of per period hires for a given number of vacancies and can also have lowered separations due to a reduction of quits. To examine this, we estimate (1) separately for two time periods, the first from 1982 to 1994 and the second from 1995 to 2009. The estimation results are given in *Table 1*.

55. Four results are of note. First, increases in establishments' employment are predominantly due to adjustments on the hires margin adjust. However, the separations margin also matters and is most important for decreasing establishments. Overall a ten per cent increase in establishment employment is accomplished through a 9.4 per cent increase in hires and a 0.6 per cent decline in separations. On the other hand, a ten per cent decline is associated with an 8.8 per cent increase in separations and a 1.2 per cent decrease in the hires rate.

56. Second, the estimates for sub-periods suggest that the relations between worker flows and establishment employment growth rates vary with aggregate labour market conditions. In years of aggregate employment growth both the hires and the separations relations shift up and conversely shift down in periods of negative employment growth. However, the magnitudes of these shifts are fairly small, and hence, once again, the overall impression is one of stability.

57. Third, there also a clear business cycle variation in the churning rates estimates. These are higher in the expansionary periods in all likelihood reflecting pro-cyclical fluctuations in quits. Finally, the estimates for the post-1994 period imply that there has been a small downward shift of the worker flow relations. The response in the hires rate to positive establishment employment growth has become weaker

since the mid-nineties, whereas the response of separations to negative employment growth has turned slightly stronger. The shorter periods of unemployment insurance eligibility and the stricter conditions for receiving benefits have increased costs of separations to employees, and may have contributed to the observed change in the separations relation.

58. We have also examined whether the responses to establish-level employment changes in terms of hires and separations vary across industries, companies of different size and with different skill structures of their workforces. As we do not unearth big differences with respect to these dimensions, our discussion can be brief (and to save space the tables of results are omitted but available upon request). Distinguishing between crude industrial categories – primary production, manufacturing, construction, wholesale and retail trade, transports and communication, business and financial services, and other services – we find some, but economically small, differences. This is rather surprising in view of the relatively large industry differences in worker turnover that has been documented in previous research.[22] But there do not appear to be correspondingly large differences in how they respond to a given change in establishment employment.

59. The same also holds for establishments of different size (we use three categories: less than 50 employees, more than 50 but less than 200 employees, and more than 200 employees). We find that larger establishments vary the size of their workforces by relying to a lesser extent on separations. Again, the differences are not large.[23] The final dimension we examined is the proportion of skilled labour , defined as employees with a vocational or university level education, in the establishment (we divide the data into three categories: less than 20, 20-35, and more than 35 per cent). Standard economic theory suggests that firms with more skilled labour face higher hiring and firing costs and consequently, one would expect that a decline in employment in larger establishments comes about via a smaller increase in separations and larger decrease in hires than in smaller firms. This conjecture is indeed confirmed by the data, but the differences are small.

60. As we have seen, the establishment level labour adjustment relations are not time-invariant, but they are not characterised by a high degree of variation over time, either. In order to examine whether we can observe traces of a corresponding change also in the aggregate hires and separations rates, we estimate simple regression models with the annual hires and separations rates (which were shown in Figure 4) as dependent variables and use changes in real GDP (contemporaneous and with one lag) as explanatory variables. In addition we also added a dummy for the post 1994 period. The latter turned out to improve the fit for the separations rate but not for the hires rate. The simple regression model for hires yields an R^2 value of 0.43, and the model predicts movements in hires rates reasonably well except for the large spike in 1986 and the large drop in 2009; see *Figure 9*.

61. The explanatory power of the separations rate equation, both with[24] and without the dummy for the period as from 1995, is clearly lower; the R^2 values are 0.35 and 0.29, respectively, and the model is less successful in tracing the actual separations rate as can also be seen from the fitted1 graph in *Figure 10*. Especially the development of the separations rate during 2008 and 2009 is not well explained by the regression model. Two ways of extending the models leads to a better fit. The first is to add the lagged hires rate as an additional explanatory variable. The idea is that when hires are above normal, the employee-job match is likely to be of lower quality, and this generates an increase in the separations rate.

22 Turnover is higher in the primary, construction and trade sectors; see e.g., Frederiksen (2008).

23 It should be pointed out that due to the specific Danish firm size structure that is characterised by predominantly small and medium-sized firms, our findings of a differences is based on a rather small sample of larger firms.

24 The coefficient to the post 1995 dummy attached a significant (at five per cent level) and negatively signed coefficient, indicating a one percentage point lower separations rate during the recent fifteen years.

This conjecture is indeed confirmed by the estimates. However, this extension of the model does not improve the fit of the model in the two Great Recession years. The other extension is somewhat more successful in this respect, as can be seen from the fitted2 graph in Figure 10. Following Davis et al. (2011), we enter as an additional explanatory variable the aggregate separation rate implied by a fixed cross-section model which picks up changes in the separation rate which are exclusively due to changes in the establishment growth rates distribution. More precisely, we estimate a fixed cross-section specification of

$$(2) \qquad s_i(g) = \gamma(g) + \varepsilon_i(g),$$

where s is the separate rate, g denotes the growth bin and ε is an error term.

62. Next, we calculate the implied aggregate separations rate by using the employment shares of establishments with growth rates g in year t. As in Davis et al. (2011), also here the fit improves considerably – the R^2 goes up from 0.35 to 0.45 – and demonstrates that the cross-section contains valuable information for tracking the aggregate separation flow, and that for understanding aggregate dynamics it is useful to use micro-economic data.[25]

6. Consequences for dismissed employees

63. A central pillar of the Danish flexicurity system is the protection of employees from income losses associated with a job loss. Thanks to the developed social safety net unemployment rarely poses a threat to a person's ability to support herself or her family. But there are, of course, potential earnings losses and an increased income uncertainty associated with involuntary job mobility. The earnings losses associated with unemployment are influenced by: (i) how long it takes to find new employment, (ii) the earnings at the new job as compared to the old one, and (iii) the share of the income lost during joblessness that is compensated by unemployment insurance and other social benefits. As the replacement ratios in the Danish social security system are fairly high, the last factor is less important in Denmark than in many other countries. Of the two other factors, the first is likely to be affected by both the flexibility and security aspects of the Danish labour market institutions. Income security weakens incentives to take on a new job whereas the flexibility may make it easier to find one. It is also possible that because of the low labour adjustment costs displaced workers are less selected and to a lesser extent conceived of as low productivity/quality employees, and this increases their job finding possibilities.

64. The changes in the Danish labour market institutions during the two previous decades may have affected all three of the factors mentioned above. The reforms aiming at intensifying job search should have contributed to shorter unemployment durations. The shortening of the periods during which the unemployed are entitled to unemployment insurance benefits provides additional incentives to find a new job more quickly, but can also have led to larger income losses in case of longer unemployment durations and expired benefits entitlements. Shorter job search durations may also result in poorer job-employee matches, one consequence of which is likely to be lower earnings at the new job. Thus, the impact of the reforms on post-displacement wages is an empirical matter.

65. Changes in the generosity and availability of unemployment benefits and the increased activation element in labour market policies may have had an impact on the labour market performance of job losers. The aim of the following analysis is to document differences in earnings losses due to establishment closures or large scale dismissals (defined as 30 per cent of the workforce) across economic up- and downturns. For this purpose we run the following regression model which has become the standard model

[25] The corresponding results for hires are less remarkable, though; the incremental gain in R^2 is 0.03.

in the literature on estimation of earnings losses – see von Wachter, Song and Manchester (2011) for a recent application – on the panel data set of individuals:

$$eit = \alpha i + \lambda t + \gamma(\text{average pre-}(ei)) + age_cubic + \sum \beta k Dit + u_{it}$$

66. where e_{it} is log of individual *i*'s annual earnings in year t, α_i individual fixed effects, λ_t year effects, average pre-(e_i) denotes individual *i*'s average earnings during the four year preceding the displacement year, age_cubic is a third degree polynomial in the individual's age, $\sum \beta_k D_{it}$ is a distributed lag function of dummy variables for the years before and after the unemployment spell (k: -4,…., 5), and u_{it} represents random factors. D_{it} equals unity in the *k*th year before/after displacement and is zero otherwise.

67. The number of prime-age dismissed employees per year in the sample varies between 620 and 810. The number is as expected, higher in downturns and lower in expansion years. Equation (3) has been estimated for both genders combined as well as separately for males and females, but as the differences by gender are small we present only the former.

68. The counterfactual earnings path is when $D_k = 0$ for all k. Thus, the "control group" includes only so called "non-separators", that is, it excludes employees who quit or who were laid off by firms with a smaller employment decline than 30 percent. The estimates of (3) are used to compute the annual earnings losses before and after job displacement relative to control group earnings expressed as percentage of pre-displacement earnings.[26] These are computed for four sub-periods: two expansions 1985-87 and 1994-2001, and the two recessions in 1989-93 and 2002-4, respectively.[27] This exercise is first carried out for the whole sample and later for the two sub-samples of 25 to 30 and 30 to 35 year olds.

69. Before looking at the earnings losses, we consider the employment consequences for the displaced employees, as this is likely an important component of the former. The proportion of the displaced that are back in employment[28] one to five years after the displacement is displayed in *Figure 11* for the four sub-periods. We can see that most of the increase in the share in employment occurs during the first two-three years after which the increase is only marginal. Worth noticing is also the clear difference between the expansion and recession years; being displaced in a recession is associated with a lower chance of gaining employment and this difference is rather persistent. Furthermore, we may note that the proportion in subsequent employment is higher in the two later sub-periods. However, the extent to which this is due to the changes in the unemployment insurance system and active labour market policies is hard to tell, as the recession in 2002-4 was a mild one (especially compared to 1989-93 recession) and as the expansion in 1985-87 was followed by a severe recession whereas the nineties expansion period was not.

70. Turning next to *Figure 12* which shows the average annual earnings (from work) losses[29] for the same sub-periods and the same number of years since displacement as in Figure 11, it can be seen that there is an annual earnings loss of about 12-15 per cent during the first year after displacement, but that loss diminishes considerably in the second year as from which earnings are now 5-8 per cent lower than

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26 Note, that unlike studies using displacement surveys, we do not require a displaced employee to have positive earnings in the subsequent years.

27 Because the data period ends in 2009 and as years 2008 and especially 2007 do not have all the features characterising a recession, we cannot unfortunately estimate the earnings losses for displaced employees during the Great Recession.

28 It should be recalled that the date of observing the individual in employment is end of November.

29 Unfortunately, the data do not contain information on (hourly) wage rates. Consequently, it is not possible to compute pure wage losses.

before displacement. Still, even five years later, a small permanent earnings loss remains.[30] Similarly to subsequent employment, also here is there a difference between recession and expansion years with larger losses associated with recession years. This is probably reflecting greater difficulties in gaining employment in these periods. Likewise, as for employment, the earnings losses are slightly smaller in the latter recession and expansion sub-periods.

71. International comparisons of the earnings losses of displaced workers are notoriously difficult and even estimates from within the same country often vary substantially. Still, it seems as if the losses for Denmark are somewhat smaller than in many other countries that have been studied. The earnings losses are largely mirroring differences in the probability to gain re-employment rather than differences in post-displacement earnings. To what extent are the labour market institutions specific for Denmark contributing to this? One could think of two closely related reasons for why the lower firing (and hiring) costs in Denmark make displaced workers moving faster back into employment than elsewhere. One is that as employers' labour adjustment costs are lower, displacements may be less selective. Moreover, because of the low costs of workforce turnover, firms can more easily employ unemployed job searchers whose productivity is low or uncertain. A second reason is that owing to the low adjustment costs, displacement is less stigmatising in the Danish labour market which makes it easier for the displaced to gain employment. These effects must be fairly strong as the generosity of the unemployment benefit system is likely to have effects operating in the opposite direction.

72. In order to shed some light on the role of policy changes, we have performed the same analysis as above on two considerably smaller sub-samples of displaced employees. These consist of individuals aged 25 to 30 and 30 to 35 who otherwise fulfill the same restrictions regarding tenure and the scale of dismissals for being included as for the full sample.[31] Recall, that after the 1995 reform, activation measures for unemployed job seekers under the age of 30 were introduced after 13 weeks of unemployment, which was substantially earlier than before (that is, 24 months). As is described in section 3 above, young unemployed were also affected by other policy changes in the mid-nineties, such as significant cuts in both unemployment benefit entitlement periods and replacement ratios. For the unemployed over 30 there were also a shortening of benefit entitlement periods and earlier introduction of activation, albeit at a later stage than for the young job seekers. Thus, the comparison between the 25-30 and 30-35 age groups before and after the 1995 reform is not a clean treatment vs. control group exercise.

73. The estimated earnings losses for the two age groups in recessions and expansions are shown in *Figures 13* and *14*, respectively. From these it can be seen that the losses are somewhat smaller in magnitude than for the aggregate sample. This is as expected as younger employees are likely to have accumulated less firm specific human capital and to have seized a smaller share of firms' rents. From Figure 13 we may note that the change in earnings losses between the pre- and post-1995 periods is larger for the 25-30 years age group. However, there is also a change towards smaller earnings losses for the 30-35 age group and the age group differential is not big. The same pattern emerges for the expansion periods (Figure 14), but the differences across periods and between age groups are smaller than for the recessions.

30 Albæk, van Audenrode and Browning (2002) find somewhat smaller earnings losses, but their study only considers displaced workers who have are back in employment. Another difference with respect to our analysis is that their study is concerned with employees with at least three years of tenure at the job they were displaced from. Moreover, no age restrictions were applied to the included individuals.

31 As the restrictions especially regarding tenure reduces the samples considerably, this is even more the case for these small age groups. While the number of individuals per year fulfilling the restriction criteria varies between 620 and 810, the corresponding numbers for the 25-30 and 30-35 years old are 140-160 and 155-170, respectively. Consequently, the precision with which the earnings losses are estimated is clearly lower for the small age groups and in particular the estimates for losses four to five years after the dismissal have large standard errors and therefore in several cases do not differ significantly from zero.

Overall, the estimated earnings losses for the two age groups and changes therein suggest that the policies targeted at young unemployed aiming at bringing them faster back into employment have contributed to a reduction in the young workers' earnings losses associated with displacement. However, as in connection with the analysis for the sample aged 25-50, it should be noted that the recessions as well as the expansions during the pre- and post-reform periods differ regarding magnitude and length, and may, therefore, explain some of changes in losses observed. If we are willing to assume that differences in the depth of the previous recessions play a minor role for observed smaller decline in post-displacement earnings, this would suggest that hysteresis effects of the current recession are likely to be smaller.

CONCLUSIONS

74. Corroborating some earlier studies we have demonstrated that the aggregate hires and separations rates in the Danish flexicurity labour market are indeed high, with hires and separation rates under normal conditions being in the 30 to 35 per cent range. And yet, these are lower bounds as the data only allow us to measure workers flows with an annual frequency. The strong cyclical variations in hires and separations are mirrored in the volatile behaviour of the unemployment rate.

75. The micro level hiring and separation rates captured by the estimated relations between these and the establishment level employment growth rates show strong resemblance to patterns observed for other countries, as diverse as Germany, US and Japan. The relations are to some extent influenced by aggregate labour market conditions, but the overall picture is that they have do not vary much over time nor over the business cycle.

76. The observed stability over time in the patterns of firms' hiring and separation behaviours is not very surprising in view of the fact that changes in the flexicurity system have not addressed the demand for labour . On the other hand, there have been significant changes on the supply side of the market induced by a series of policy reforms transforming an essentially passive labour market policy regime into one characterised by increasingly stronger elements of activation policies. Policies to strengthen the incentives for increased job search intensity and for faster transitions from joblessness to employment could have contributed to a higher job-filling rate and hence to a higher (lower) hiring (separations) rate for a given number of vacancies. Our estimates do not find evidence in support of this notion, however. Rather, the small changes in firms' hiring and separation behaviours that can be observed during the reform period have moved in the opposite direction.

77. The recent economic crisis has meant a quite dramatic shift in the employment growth distribution and this explains to a large extent the observed decreases and increases in hires and separations, respectively. Exit rates out of unemployment have declined during the Great Recession, but a large proportion of the jobless nevertheless continues to find employment relatively quickly. Thus, at least so far, the flex part of the flexicurity appears to continue to do a good job.

78. Can the same be said about security part? Two things are worth pointing out. First, earnings losses associated with plant closures or major worker displacements seem to be relatively small from an international perspective. To some extent this is likely due to the compressed Danish wage structure. Second, the "net effect" of the reforms after the mid-nineties that have aimed at reducing income security elements in the Danish labour market institutions in order to address moral hazard problems while simultaneously increasing the emphasis on activation, seem to be that earnings losses have become somewhat smaller since the mid-nineties. This could, however, be due to the fact that the business cycle pattern has differed significantly from that in the period from the beginning of the eighties to the mid-nineties. As for the losses incurred by dismissed workers during the recent economic crisis, it is still too early conclude whether they will be larger or smaller than in the previous severe recession in the late eighties. But, if the smaller decline we have observed in post-displacement earnings since the reforms of unemployment compensation and labour market policies does not only reflect differences in work opportunities but also reflects strengthened incentives to re-employment, this would suggest that a recovery would be associated with less persistent long-term unemployment than in earlier recessions.

79. All in all, so far there have not been many strong indications of the re-emergence of hysteresis effects in the Danish labour market. Despite the high elasticity of employment with respect to output shocks that has been observed for Denmark, the impacts on employment and unemployment became clearly visible only as from 2009. Thus, due to the significant time-lag in data availability of the micro data allowing us to follow developments at the establishment level, we can only observe notable changes for 2009. On the other hand, the more timely data on entry and exit rates to and out of unemployment, do not suggest dramatic changes in unemployment exit flows. While it seems that the Danish labour institutions have managed to cope with the macroeconomic shocks in the short term, it remains to be seen whether they will be able to do that also in the case of a longer period of sustained low growth which has been predicted for Denmark for the coming years.

TABLES AND FIGURES

Table 1. **Worker flow rates regressions, 1982-2009**

	β_1	$1+\beta_2$	A	R^2
Whole period	0.936	-0.882	0.215	0.721
	(0.036)	(0.031)	(0.004)	
1982-87	0.943	-0.875	0.225	0.674
	(0.035)	(0.025)	(0.005)	
1988-93	0.921	-0.894	0.202	0.719
	(0.040)	(0.026)	(0.003)	
1994-2001	0.928	-0.890	0.209	0.732
	(0.037)	(0.030)	(0.003)	
2002-4	0.935	-0.894	0.202	0.684
	(0.39)	(0.031)	(0.003)	
2005-7	0.952	-0.878	0.229	0.692
	(0.040)	(0.025)	(0.005)	
1982-94	0.939	-0.880	0.0216	0.702
	(0.038)	(0.028)	(0.003)	
1995-2009	0.929	-0.892	0.220	0.695
	(0.038)	(0.027)	(0.004)	

Figure 1.

Figure 2. **Real GDP in Denmark, the Euro area and the United States, 2000-2011**

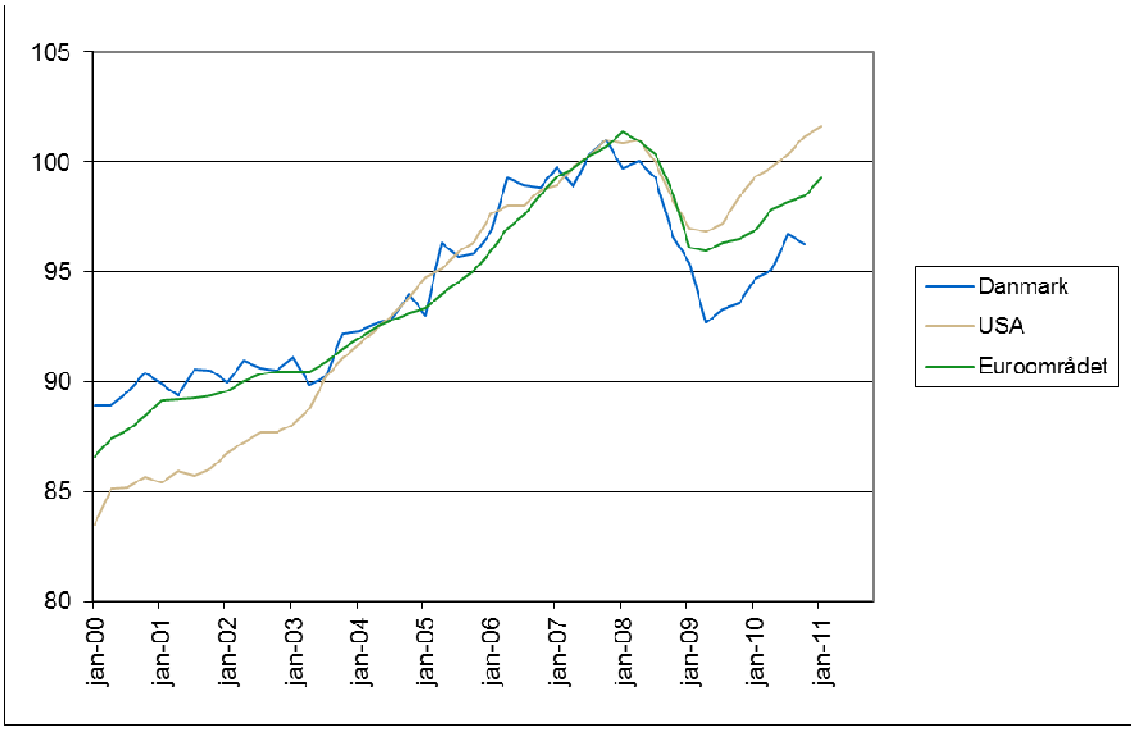


Figure 3. **Total employment, 1982-2010**



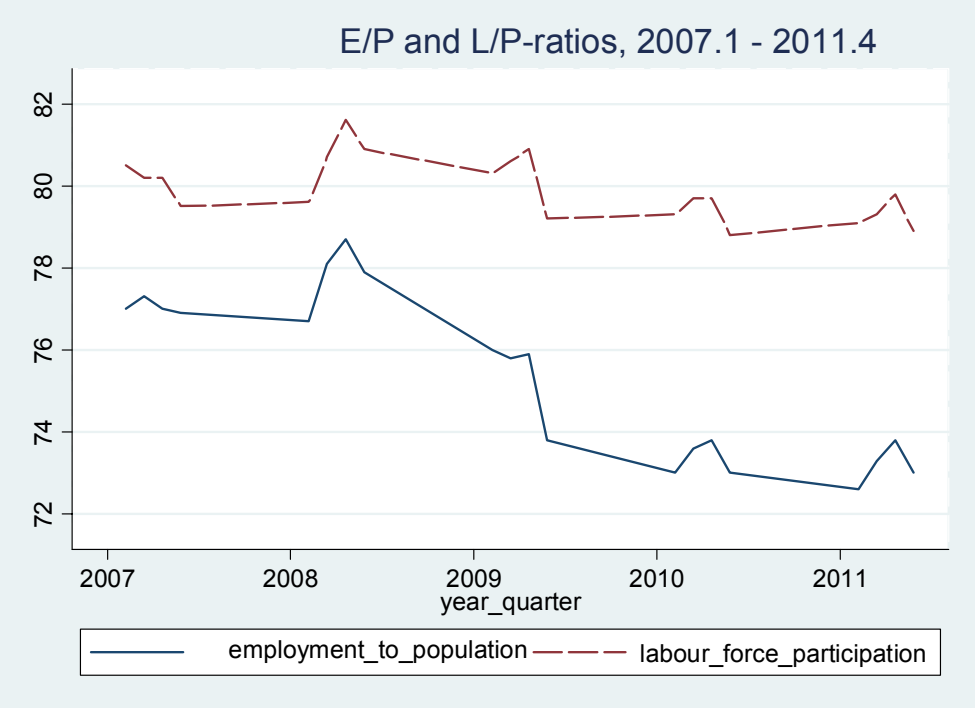
Source: Employment statistics, Statistics Denmark

Figure 4. **Unemployment, 1982-2010 (OECD "harmonised" definition)**



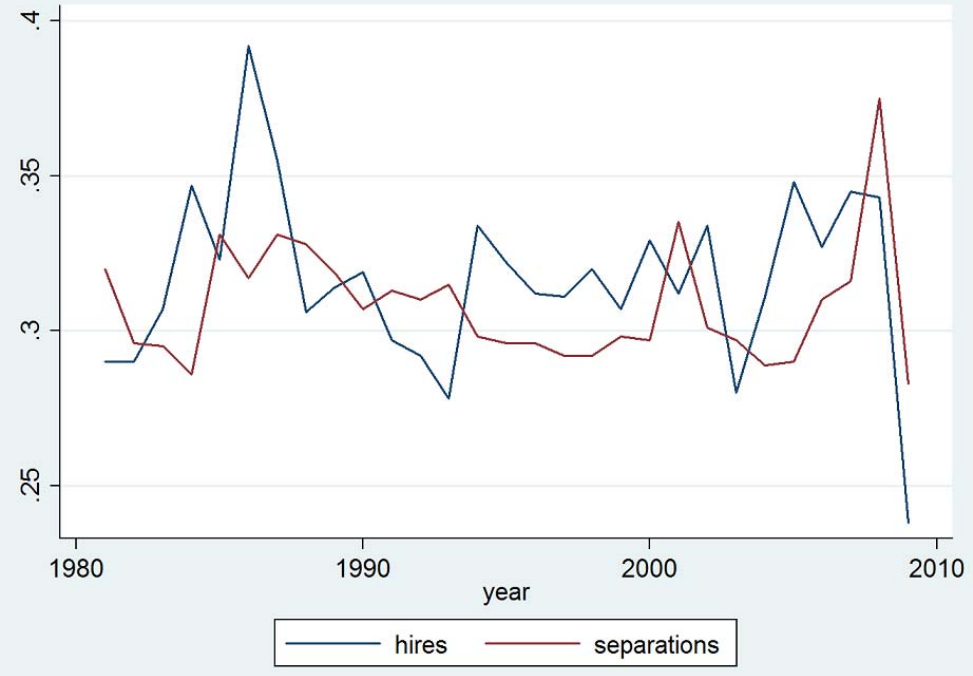
Source: OECD Main Economic Indicators

Figure 5. **Employment-to-population and labour force participation ratios, 2007.1 – 2011.4***



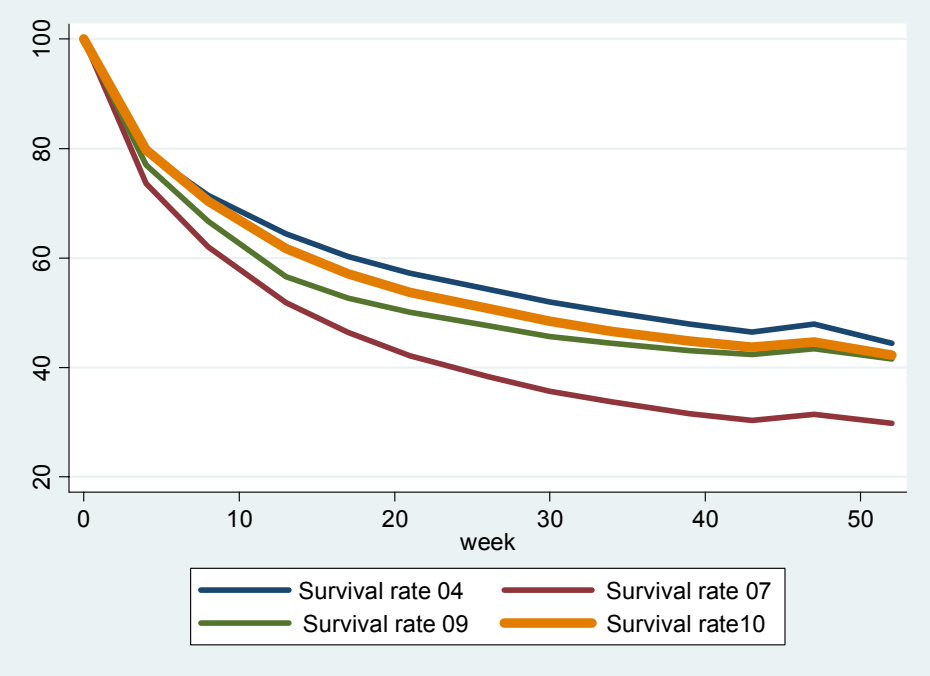
* Population aged 15-64. Source: Labour Force Surveys

Figure 6. **Hires and separations rates in the private sector, 1981-2009**



Source: Author's calculations from IDA

Figure 7. **Survival rates for unemployed and persons in activation, 2004, 2007, 2009 and 2010***



*. Source: www.jobindsats.dk

Figure 7a. **Hires and establishment employment growth, 2007-9**

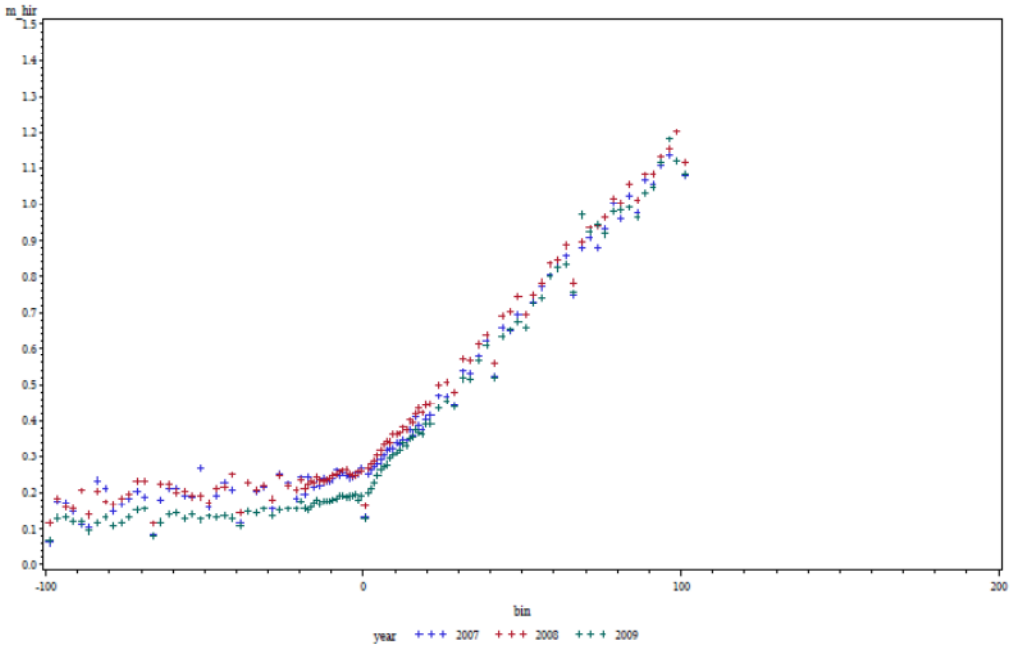


Figure 7b. **Separations and establishment employment growth, 2007-9**

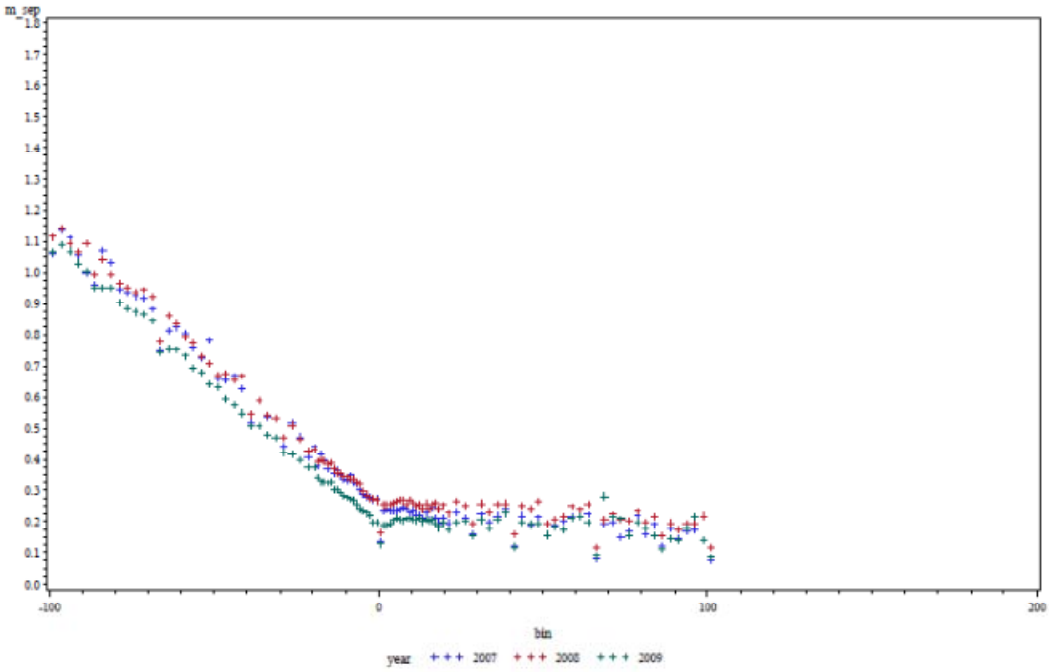
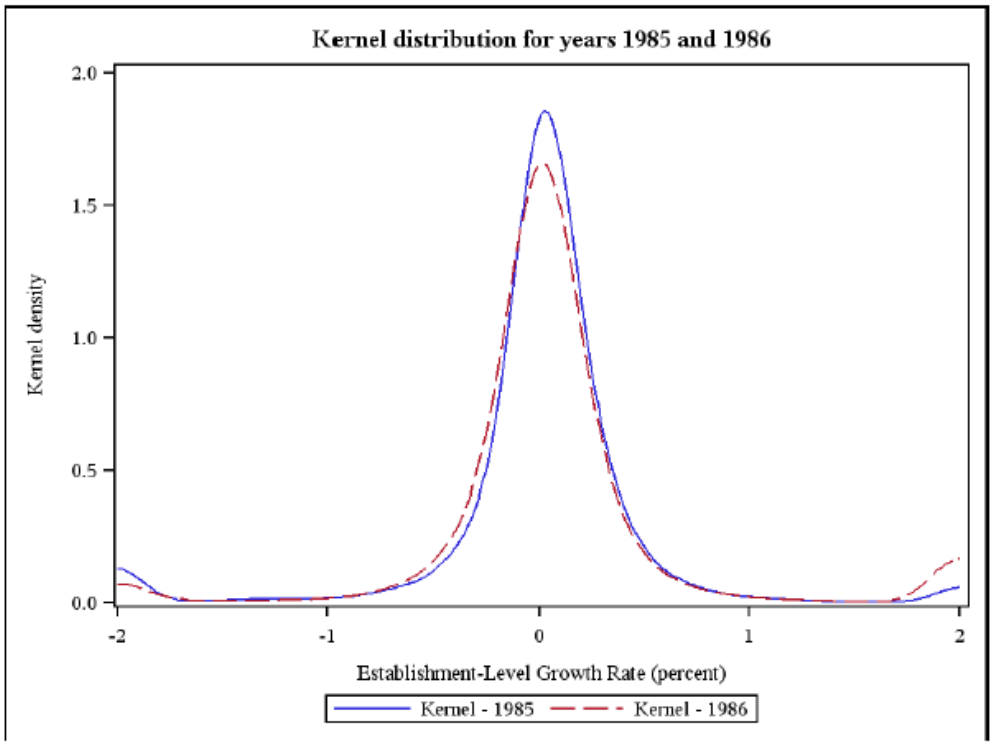
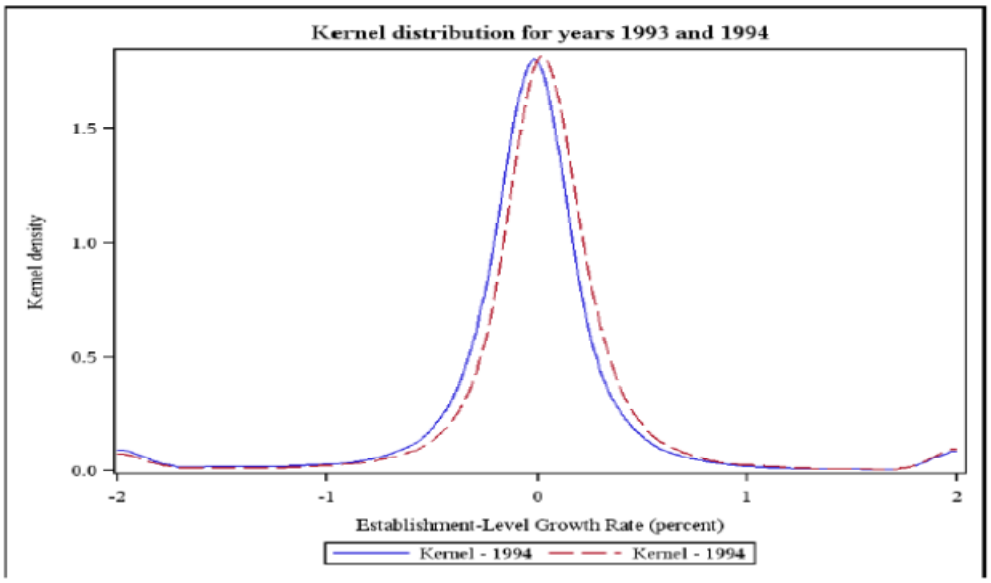


Figure 8. **Establishment growth rate distributions**

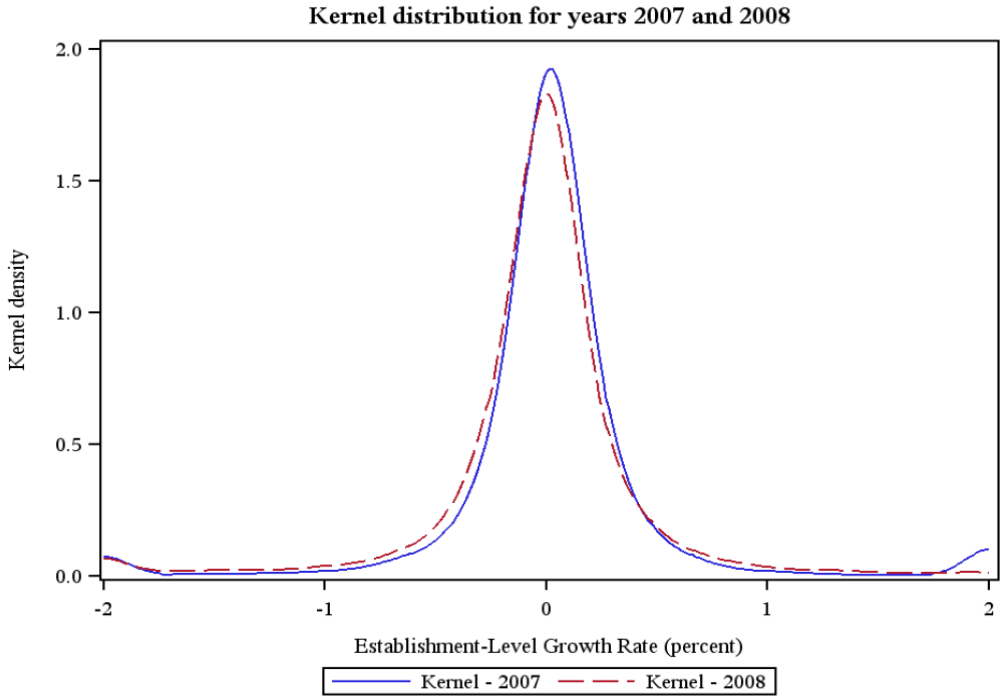
a. 1985-86



b. 1993-94



c. 2007-8



d. 2008-9

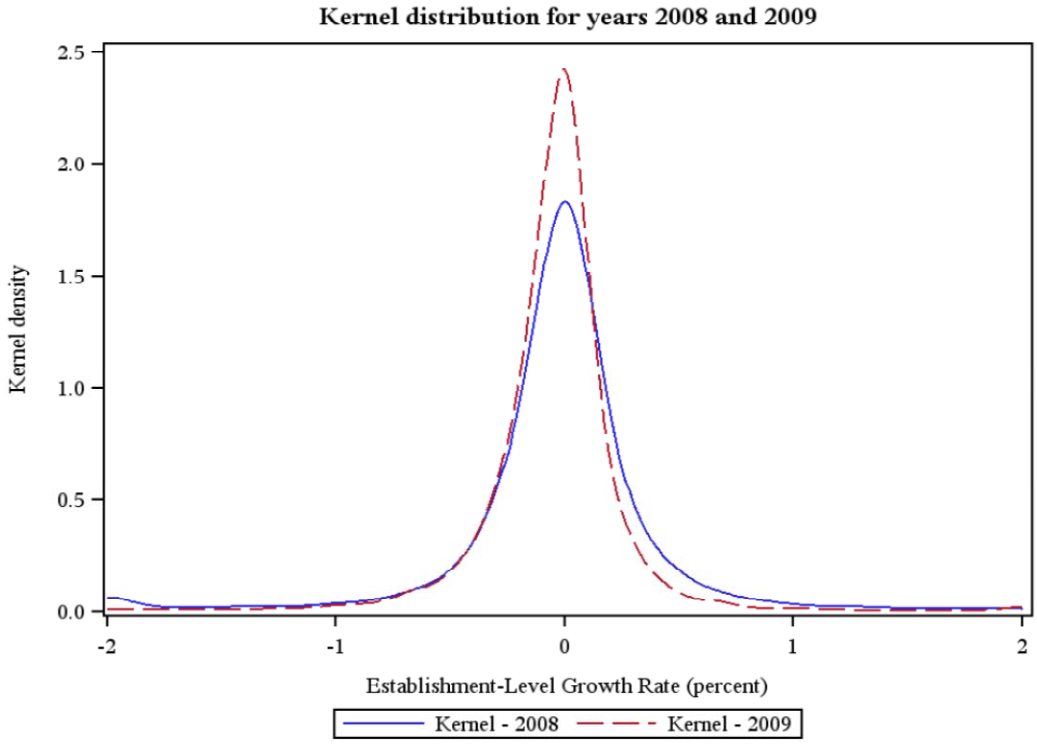


Figure 9. **Hires rates, actual and predicted values, 1982-2009**

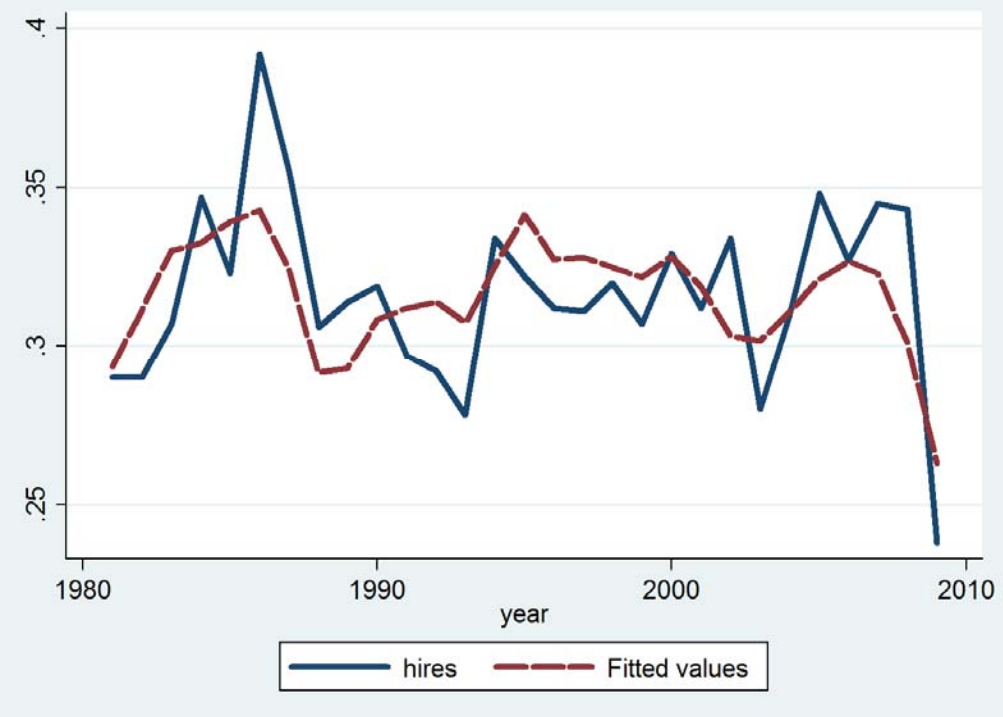


Figure 10. **Separations rates, actual and predicted values, 1982-2009**

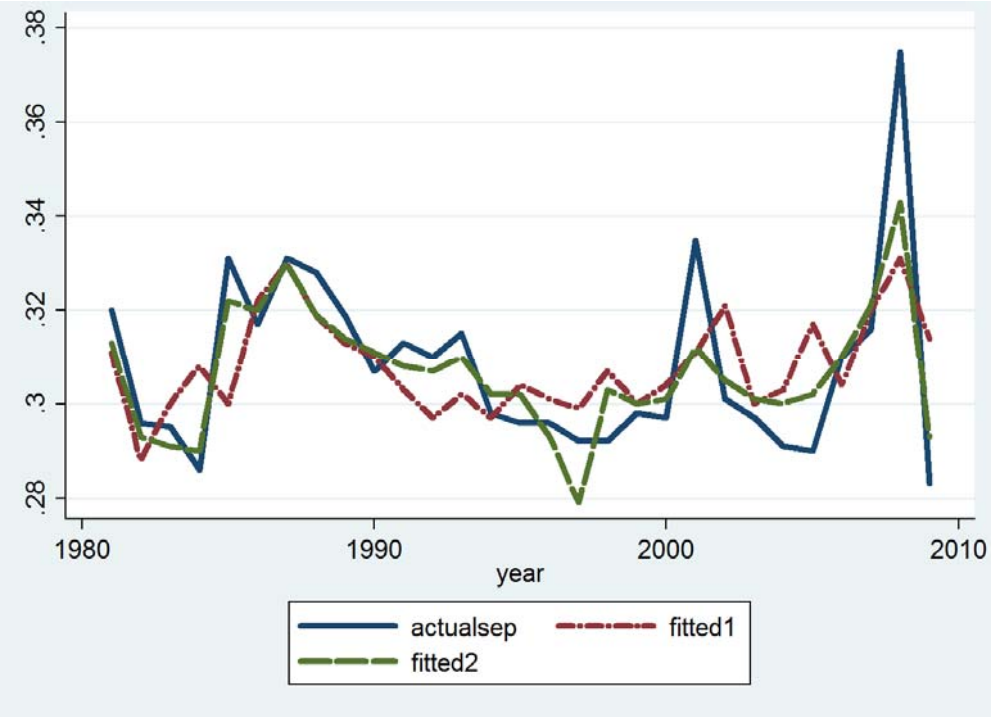


Figure 11. **Average share of displaced employees in employment 1-5 years later. Four sub-periods, both genders**

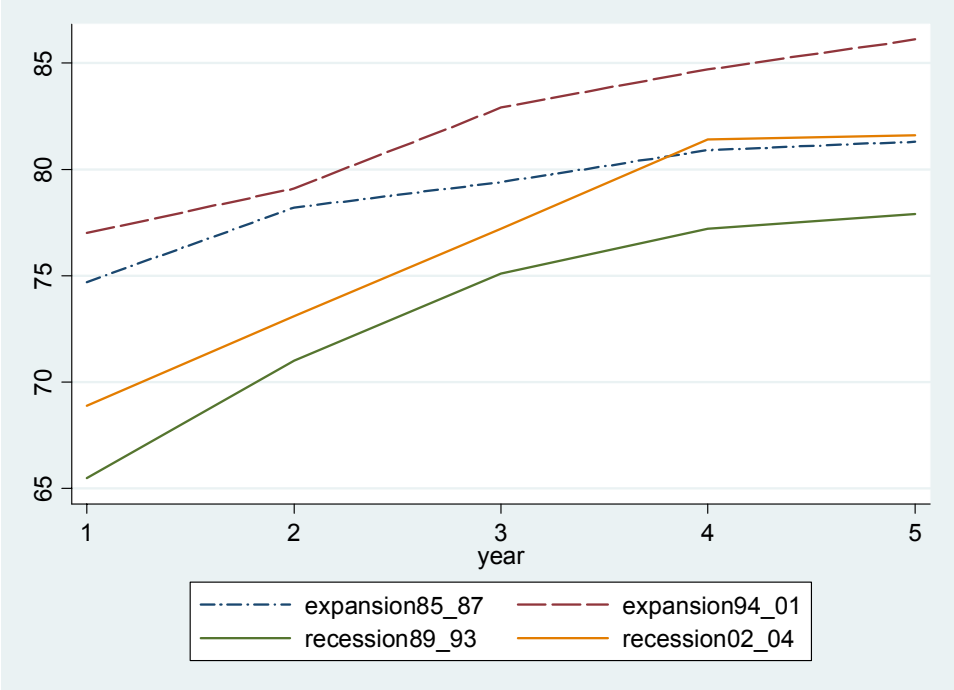


Figure 12. **Average annual earnings loss (in per cent of initial earnings) 1-5 years after displacement. Four sub-periods, both genders**

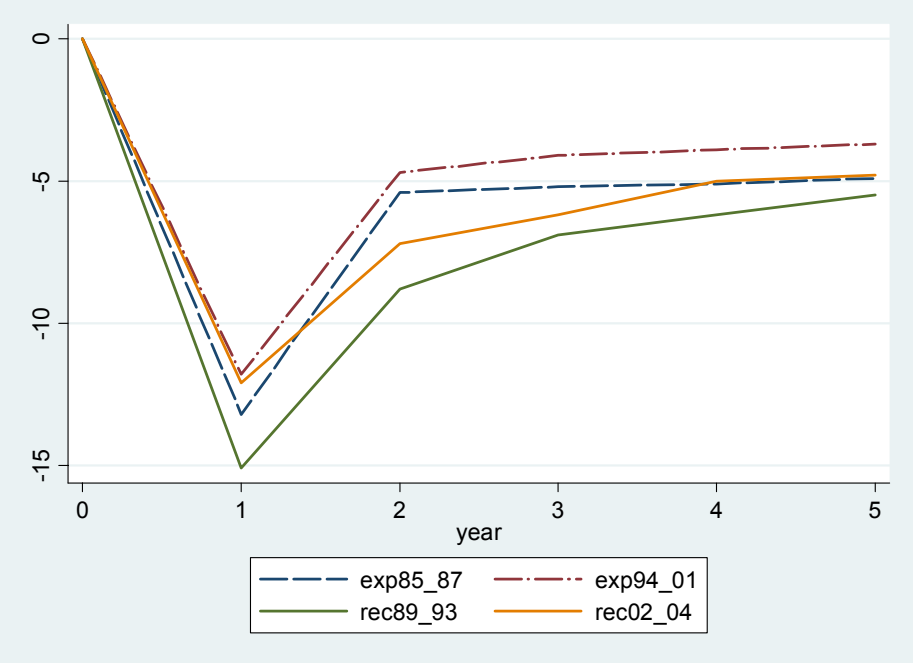


Figure 13. **Average annual earnings loss (in per cent of initial earnings) 1-5 years after displacement for displaced employees aged 25-29 and 30-35. Two recession periods**

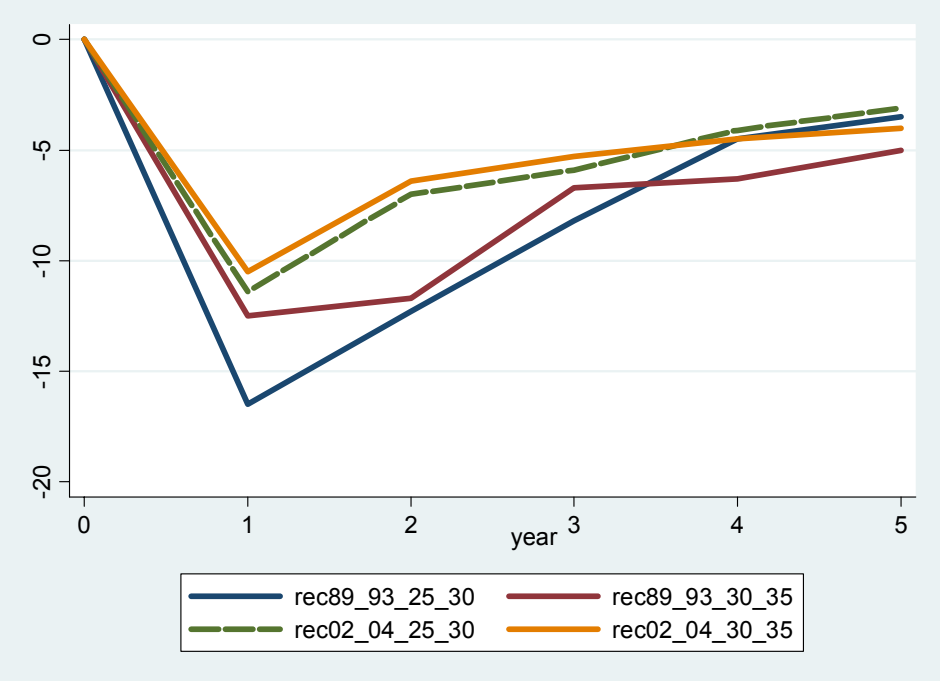
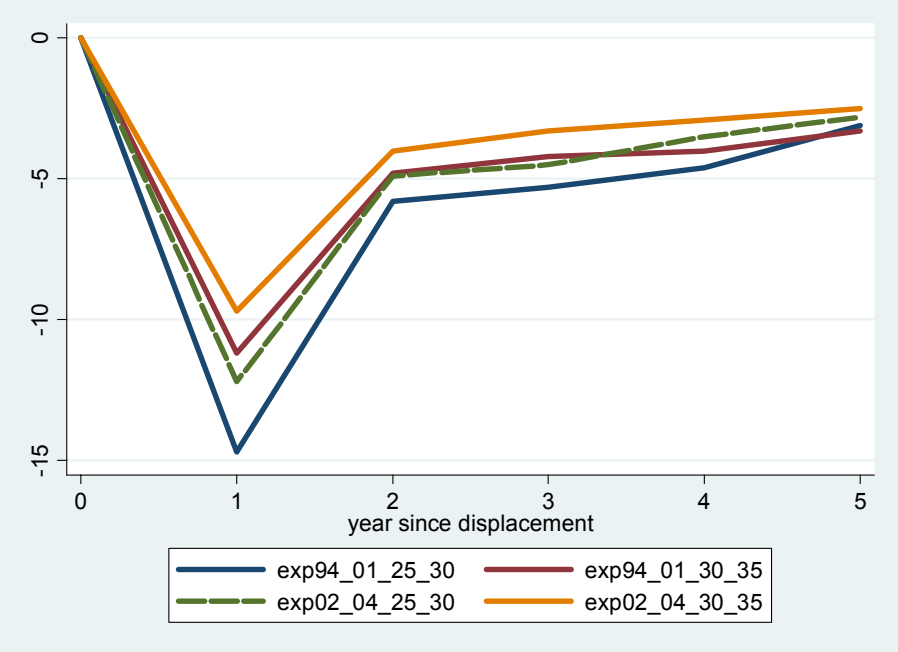
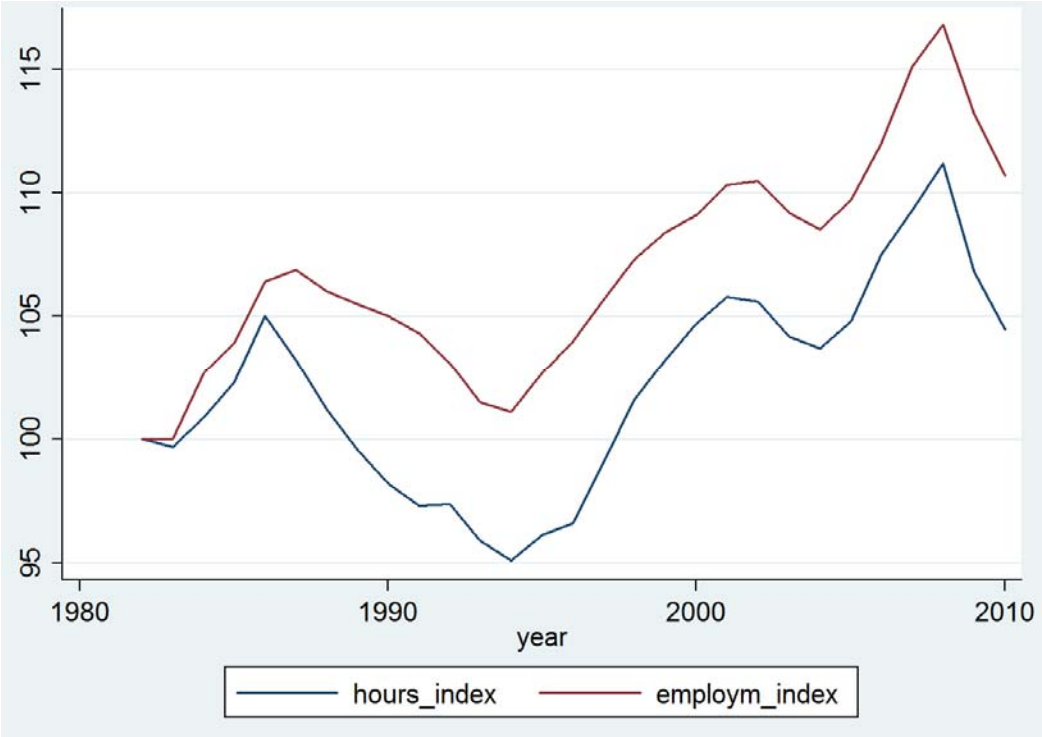


Figure 14. **Average annual earnings loss (in per cent of initial earnings) 1-5 years after displacement for displaced employees aged 25-29 and 30-35. Two expansion periods**



APPENDIX

Figure A-1. **Employment and work hours, 1982-2010**



Source: National Accounts, Statistics Denmark

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