



Network for Studies on Pensions, Aging and Retirement

# Netspar PANEL PAPERS

*Pieter Gautier and Bas van der Klaauw*

## Labor Market Policy and Participation over the Life Cycle





Pieter Gautier and Bas van der Klaauw

# Labor Market Policy and Participation over the Life Cycle

PANEL PAPER 26



Network for Studies on Pensions, Aging and Retirement

## **Colophon**

Panel Papers is a publication of Netspar  
February 2012

### **Editorial Board**

Roel Beetsma (Chairman) – University of Amsterdam  
Erik Beckers – Zwitserleven  
Bart Boon – Ministry of Finance  
Eddy van Doorslaer – Erasmus University Rotterdam  
Kees Goudswaard – Leiden University  
Martijn Hoogeweegen – ING Investment Management  
Arjen Hussem – PGGM  
Frank de Jong – Tilburg University  
Adrie Moons – Ministry of Social Affairs and Employment  
Johan Nieuwersteeg – AEGON  
Joos Nijtmans – Syntrus Achmea  
Alwin Oerlemans – APG  
Joeri Potters – Cardano Risk Management  
Peter Schotman – Maastricht University  
Hens Steehouwer – ORTEC Finance  
Peter Wijn – APG

### **Design**

B-more Design  
Bladvulling, Tilburg

### **Printing**

Printing Office Tilburg University

### **Editorial address**

Netspar, Tilburg University  
PO Box 90153, 5000 LE Tilburg  
info@netspar.nl

No reproduction of any part of this publication may take place without permission of the authors.

# CONTENTS

<i>Preface</i>	7
<i>Policy recommendations</i>	11
<i>Abstract</i>	13
1. <i>Introduction</i>	15
2. <i>Dutch labor market statistics</i>	19
3. <i>Moral hazard in benefit schemes: models and policy</i>	28
4. <i>Evidence on policies that reduce moral hazard for unemployed workers</i>	39
5. <i>Sickness and disability insurance</i>	52
6. <i>Macroeconomic effects: interaction between benefit schemes, employment protection, and general equilibrium effects</i>	56
7. <i>Conclusions and recommendations for the Netherlands</i>	63
<i>References</i>	65



## PREFACE

Netspar stimulates debate and fundamental research in the field of pensions, aging and retirement. The aging of the population is front-page news, as many baby boomers are now moving into retirement. More generally, people live longer and in better health while at the same time families choose to have fewer children. Although the aging of the population often gets negative attention, with bleak pictures painted of the doubling of the ratio of the number of people aged 65 and older to the number of the working population during the next decades, it must, at the same time, be a boon to society that so many people are living longer and healthier lives. Can the falling number of working young afford to pay the pensions for a growing number of pensioners? Do people have to work a longer working week and postpone retirement? Or should the pensions be cut or the premiums paid by the working population be raised to afford social security for a growing group of pensioners? Should people be encouraged to take more responsibility for their own pension? What is the changing role of employers associations and trade unions in the organization of pensions? Can and are people prepared to undertake investment for their own pension, or are they happy to leave this to the pension funds? Who takes responsibility for the pension funds? How can a transparent and level playing field for pension funds and insurance companies be ensured? How should an acceptable trade-off be struck between social goals such as solidarity between young and old, or rich and poor, and

individual freedom? But most important of all: how can the benefits of living longer and healthier be harnessed for a happier and more prosperous society?

The Netspar Panel Papers aim to meet the demand for understanding the ever-expanding academic literature on the consequences of aging populations. They also aim to help give a better scientific underpinning of policy advice. They attempt to provide a survey of the latest and most relevant research, try to explain this in a non-technical manner and outline the implications for policy questions faced by Netspar's partners. Let there be no mistake. In many ways, formulating such a position paper is a tougher task than writing an academic paper or an op-ed piece. The authors have benefitted from the comments of the Editorial Board on various drafts and also from the discussions during the presentation of their paper at a Netspar Panel Meeting.

I hope the result helps reaching Netspar's aim to stimulate social innovation in addressing the challenges and opportunities raised by aging in an efficient and equitable manner and in an international setting.

Roel Beetsma

Chairman of the Netspar Editorial Board



**Affiliations**

Pieter Gautier – VU University Amsterdam

Bas van der Klaauw – VU University Amsterdam

# LABOR MARKET POLICY AND PARTICIPATION OVER THE LIFE CYCLE

## **Policy recommendations**

1. Compared to other OECD countries, the Netherlands has low unemployment, particularly among young workers. The private employment agency sector is large in the Netherlands and an increasing number of workers is self-employed. This can be explained by the strict legislation related to employment protection. Among the unemployed there are relatively many persons who are without work for long periods. Reducing the entitlement period to unemployment insurance benefits increases the rate at which unemployed workers flow back to employment.
2. Labor force participation is relatively high in the Netherlands. On the other hand, the number of hours worked is side. The latter is particularly true for women and older workers. Empirical evidence shows that labor supply decisions respond to financial incentives, this is particularly true for women and older workers. An earned income tax credit is therefore a useful policy instrument. Finally, empirical evidence shows that stricter job search requirements stimulate even older unemployed workers to find work faster.
3. Productivity in the Netherlands is relatively low. This suggests that there is much hidden unemployment, such as self-employed workers producing little. Also, it takes a long time before workers sort into positions where they are most

productive. The strict (procedural) employment protection is responsible for this.

4. In the Netherlands, expenditures on active labor market programs have traditionally been high compared to other OECD countries. A substantial part of these expenditures involve maintaining services at the public employment offices. An international comparison shows that countries with high expenditures on active labor market programs usually have low unemployment rates. However, microeconomic evaluations often show a very limited effectiveness of the various programs. Therefore, it might be wise to be more selective in terms of which programs should be used and towards which job seekers these programs should be targeted. Programs targeted to young workers are usually ineffective.
5. Empirical evidence shows that financial incentives can be important in stimulating employment. Imposing sanctions on unemployed workers who do not comply with job search requirements increases the exit rate to work. Also positive financial incentives can work, but these have only long-term effects when permanent. Earned-income tax credits are therefore more effective than temporary wage subsidies and re-employment bonuses.
6. Long-term sickness absenteeism and disability is high in the Netherlands. However, recent disability insurance system reforms have reduced the inflow substantially. Therefore, the number of recipients of disability insurance benefits is also decreasing and this trend is likely to continue for the next few years. Measures to reduce the inflow are often more successful than stimulating the outflow from disability insurance. Currently, the main concern is youth disability (WAJong), so it is important to reduce the inflow into this benefit scheme.

**Abstract**

Empirical evidence shows that labor market decisions depend on financial incentives. For example, generous benefit schemes increase the dependency. This moral hazard occurs in all types of benefits, such as early retirement schemes, unemployment insurance, and disability insurance. Moral hazard implies that individuals have less incentive to avoid entering a benefits scheme or will reduce their efforts to leave the benefits scheme. This is not necessarily bad. If generous benefits make individuals more selective on the jobs they accept, that can lead to a higher quality of the worker–job match, which positively affects productivity.

In this report we discuss policy measures aimed at reducing moral hazard problems and that go beyond reducing the generosity of the benefits schemes. The empirical evidence shows that such policy measures can be effective both for young and old workers.

For unemployment benefit schemes, policies most often focus on stimulating the outflow. The most straightforward policy is to stimulate job search behavior. This can be done by strict monitoring and imposing benefit sanctions for noncompliance with job search guidelines. Strict monitoring is most effective when applied to more disadvantaged workers. There is also evidence that mandatory job search stimulates re–employment of older unemployed workers. Sanctions are effective in all benefits schemes.

The Dutch disability insurance program is much more substantial than unemployment benefit programs. Disability insurance programs suffer from the same moral hazard problems, but it is much more difficult to stimulate the exit rate. Therefore, most existing policies focus on reducing the inflow into the

program. Empirical evidence shows that financial incentives and increased employer responsibility reduce the inflow substantially.

There is some evidence of spillovers between benefit programs. For example, reducing the generosity of disability insurance increases entry into the unemployment insurance program. This should be kept in mind when implementing future reforms. Finally, general equilibrium effects are important when considering large-scale policy interventions or institutional reforms.

Keywords: institutions, incentives, labor market reforms, participation, life cycle.

## 1. Introduction

In most continental European Countries the welfare state was expanding until the early 1990s. Since then the generosity of benefit schemes has gradually been reduced. But compared to other OECD countries, continental European countries still provide relatively generous benefits. The general motivation for governments to provide unemployment insurance (UI) and disability insurance (DI) benefits is that workers wish to insure themselves against the risk of losing income. Adverse selection and correlated risks prevent UI and DI from being provided by the market. Mandatory insurance programs provided by the state overcome this.

However, providing benefits for inactivity causes moral hazard problems. Unemployed workers may exert too little effort to find work or become too choosy in which job offer to accept. The latter applies particularly for older unemployed workers, who typically have very long entitlement periods and a low returns from their job search efforts (since they only have a short remaining period on the labor market). Sick workers may exert not enough effort to avoid entering DI. Being choosy is not always bad. For example, unemployment benefits act as a search subsidy, i.e. individuals can financially survive without work and are not forced to immediately start working in the first available job, which might be ill-suited for them. In a system with generous benefits, the quality of the match between worker and job is typically better.

UI and DI are not the only benefit schemes that lead to disincentive to work. For example, the tax system and generous early retirement schemes also make work financially less attractive and can reduce productivity. The main motivation for providing generous early retirement schemes was that more jobs would

become available for young workers as older workers leave the labor market.

To reduce potential moral hazard problems in the labor market, many countries have introduced active labor market programs. An important policy question is whether a generous welfare state can be maintained with such programs. To answer this, two subquestions should be addressed. First, how important are the institutions of the welfare state in explaining benefit dependency? We will discuss empirical evidence showing that moral hazard is a major problem. Second, how effective are active labor market programs in reducing moral hazard problems? An international comparison shows that countries with relatively high expenditures for active labor market programs (e.g. Denmark, Sweden, and the Netherlands) also have low unemployment rates despite offering generous benefits. However, at the micro level, the evidence in favor of active labor market programs is mixed. This may imply that there are also other differences between countries affecting both labor market policy and their outcomes.

In this paper, we mainly consider policies intended to reduce moral hazard in the labor market. We provide details on the implementation of the different programs and discuss their effectiveness in reducing benefit dependency. We also consider labor market institutions, because the organization of benefit schemes determines how important moral hazard is. We discuss a number of recent reforms in institutions and their effects on the labor market. This provides valuable insight into the underlying mechanisms of the labor market. Examples of recent institutional reforms are stricter entry requirements for DI, reduced entitlement periods for UI, tax regulations providing more incentives to work, and less favorable early retirement possibilities.

Both theoretically and empirically, there are still a number of unsolved issues in developing optimal labor market policies under moral hazard. Empirical problems arise to complications in evaluating labor market programs. Such complications often result from non-random assignment: if individuals participating in a program are not comparable to those not participating in the program, then a simple comparison of the outcomes of participants and nonparticipants yields a biased and inconsistent estimate of the program's effectiveness. In this paper, we mainly consider studies which convincingly deal with selective participation.

Theoretical complications are due to technical difficulties in specifying and solving dynamic moral hazard models. But within the theoretical models we discuss the possible effects of, for example, screening benefit applications, job search monitoring, sanctions, and re-employment bonuses. This paper complements earlier surveys, such as that by Fredriksson and Holmlund (2006). But we also consider sickness and disability programs and benefit programs for older workers. We also address how different programs interact, and we discuss recent studies on the general equilibrium effects of activating labor market policies. There is, for example, evidence that changing the rules for entitlement to DI affects the size of UI and that reduced early retirement possibilities may affect both DI and UI. To get an idea of the welfare effects of active labor market programs, it is important to acknowledge that there are both positive and negative spillover effects. We discuss recent models that consider those effects, and we address the empirical evidence.

Finally, we give special attention to the Netherlands and provide recommendations on how labor market institutions and policy can be improved. Dutch labor market outcomes are unique.

For years the Dutch unemployment rate has been the lowest in Europe. Also youth unemployment rates are low. Even though participation rates of older workers have been increasing for some years, they are still below the OECD average. Participation rates of women are relatively high, but there is no other country with the same high rate of part-time work as the Netherlands. Disability rates in the Netherlands are high, although the number of workers receiving disability insurance benefits is decreasing. Also, Dutch UI and DI benefits are high and entitlement periods are relatively long. Until recently, for early retirement the Netherlands offered relatively generous opportunities and favorable tax schemes.

The remainder of this paper is organized as follows. Section 2 presents background information on the Dutch labor market. In Section 3 we provide a discussion on moral hazard in benefit schemes and mention policies that are intended to reduce moral hazard problems. In Section 4 we focus on unemployment benefit schemes and active labor market policies targeted at the unemployed. In Section 5 we consider sickness and disability benefit schemes. Section 6 discusses general equilibrium issues. In Section 7 we address implications for the Netherlands.

## 2. Dutch labor market statistics

In this section we provide a brief outline of the Dutch labor market situation compared to several OECD countries. We provide information on developments in the past decades and discuss current institutions.

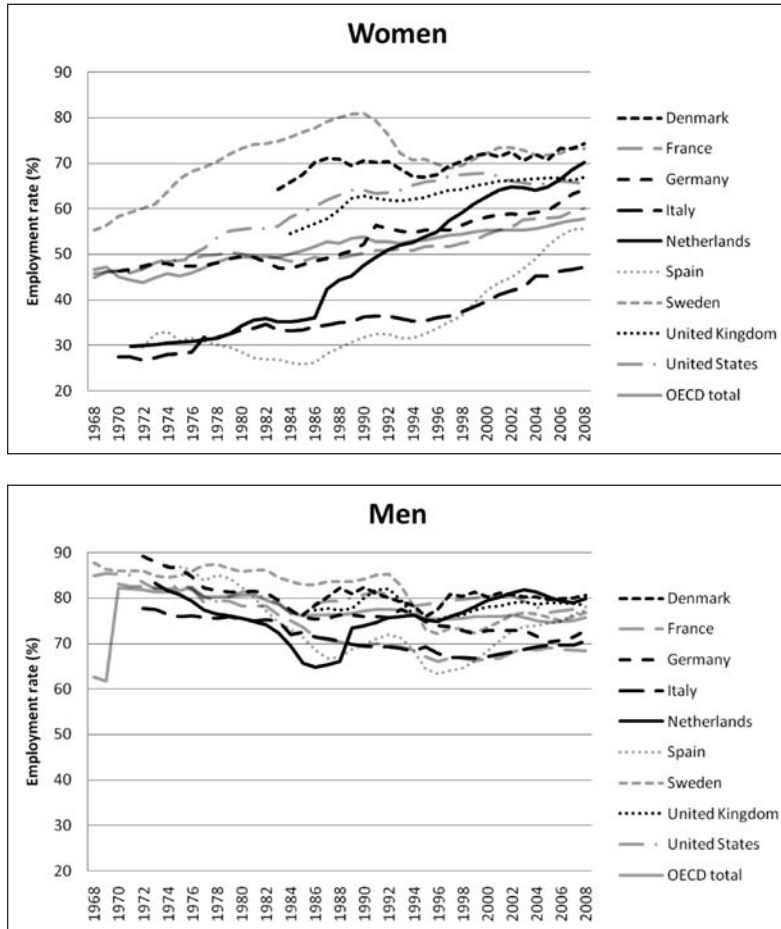
### 2.1 Background

Between 1970 and 2008 the Dutch population grew from 13 million to 16.4 million. During this period, the age structure also changed. The percentage of the population aged 15 to 64 grew between 1970 and 1989 from 62.6% to 69.0%. After 1989 it decreased slowly, leveling to 67.3% in 2008. The labor force participation during this period changed dramatically. Figure 1 shows that in the mid-1980s about two-thirds of men and one-third of women between 15 and 64 years old were employed. This was below the OECD average and lower than most comparable countries. Since the late 1980s employment rates have steadily risen: in 2008 about 82% of the men and 70% of the women were employed.

The Netherlands presently has one of the highest employment rates. However, in 1970 workers worked on average 91% of a full-time week, but by 2007 this had decreased to 78%. There is no country with such a high level of part-time employment, particularly among women. Figure 2 shows that the number of hours that a Dutch employee works is low compared to other countries. The negative trend in working hours until 2000 coincides with the increased labor force participation of women, many of whom work part-time.

Figure 3 shows the labor force participation of individuals in the 55 to 64 age category in different OECD countries. Until the mid-1980s the labor force participation of older workers in the

Figure 1: Female and male employment rates over time in different countries



Source: OECD Factbook 2010

Netherlands decreased dramatically. This coincided with the introduction of various early retirement schemes. During the 1980s, older individuals were much less likely to be still employed

*Figure 2: Annual hours worked of employed workers over time in different countries*

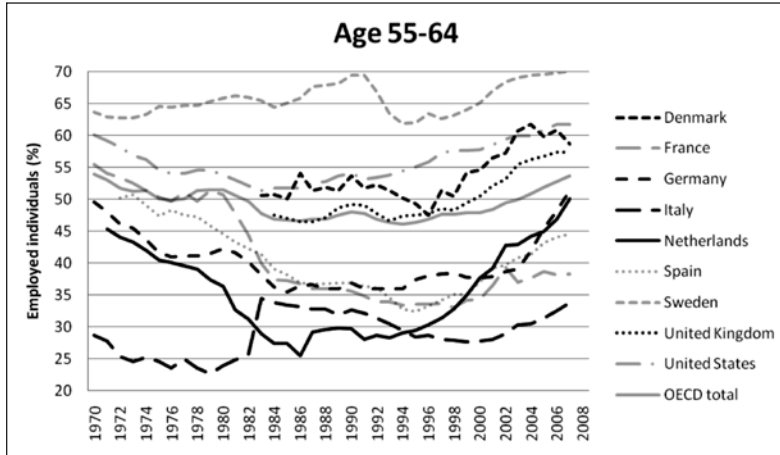


Source: OECD Factbook 2010

than their counterparts in many other countries. Since the mid-1990s, the labor force participation of older workers has increased from less than 30% to about 50% in 2008. The latter is slightly below the OECD average but still far below Scandinavian countries.

Since the mid-1970s the percentage of the population between 15 and 64 years in full-time education has remained constant (about 12%). The percentage of the population receiving benefits has fluctuated substantially. In 1970 about 9% received either unemployment, welfare or disability benefits. This percentage grew to 22% by 1994, which coincides with the end of the recession in the early 1990s. After 1994 the percentage of benefit recipients decreased to 16% in 2007. The reduction took mainly place in unemployment; the size of the welfare and disability insurance programs remained relatively constant.

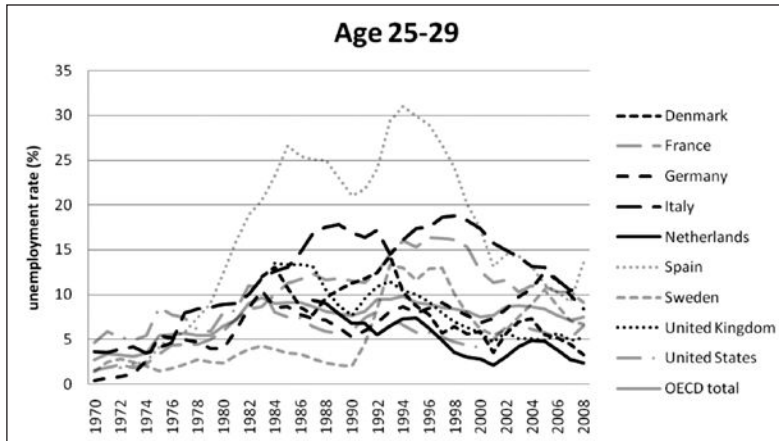
Figure 3: Employment rate of older workers over time in different countries



Source: OECD Factbook 2010

In 1970, the unemployment rate was only 0.6%, but in the period to 1984 it increased to 9.6%. In 1994, the unemployment rate was still 8.6%, but in subsequent years it dropped rapidly: in 2000 it stood at 4%. During the past decade the unemployment rate fluctuated, and in 2007 it was about 4.5%. The Dutch unemployment rate has now been the lowest within the OECD for a number of years. In 2007 there were about 344,000 unemployed workers. At the same time there were 226,000 vacancies, which is 2.8% of total employment. Unemployment among younger workers is likewise low in the Netherlands. Figure 4 shows the unemployment rate for workers between 25 and 29 years. Although the unemployment rate of this age group fluctuates over the business cycle also in the Netherlands, there is no country with a lower unemployment rate for this age group since the mid-1990s.

Figure 4: Youth unemployment rate over time in different countries

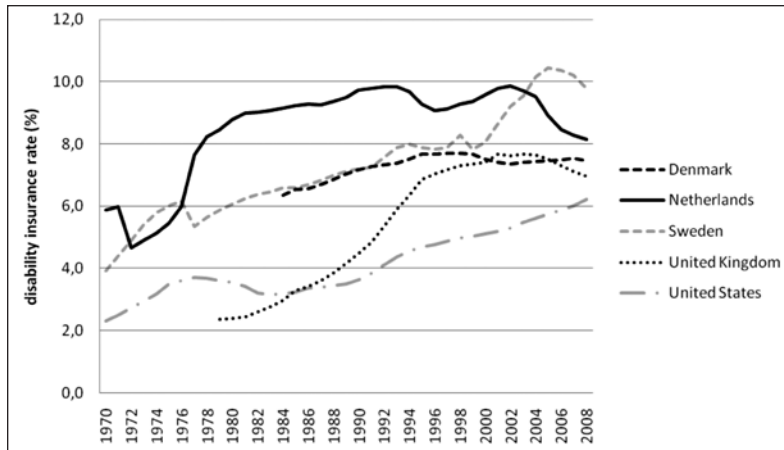


Source: OECD Factbook 2010

During the 1970s and 1980s the Dutch DI program was notorious for its excessive growth. In 2000, 9.1% of the work force collected DI benefits, with total expenditures as high as 2.65% of GDP. The number of beneficiaries has declined since 2002, but compared to other OECD countries the Dutch DI program is still voluminous (see Figure 5). The only group which shows a rising trend are individuals under the age of 25. These usually enter a specific program for young handicapped (*WAIJong*), which covers individuals who do not have any work history. In 2007 the percentage of recipients of *WAIJong* benefits within the total disabled population was 20%. Seven years later this was only 14%.

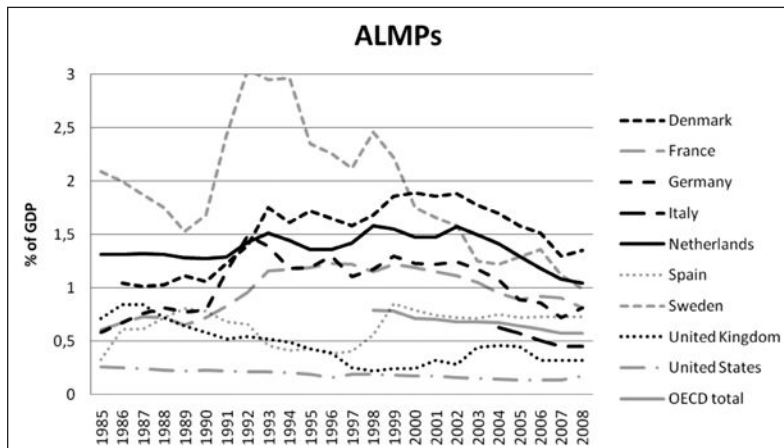
In 2007 the GDP for the Netherlands was €569 billion, and the average annual income of a worker was €32,300. The expenses on UI benefits were €2.86 billion, collected on average by 191,970 individuals. In that same year, there were about 304,710 welfare

Figure 5: Disability insurance rate over time in different countries



Source: OECD Factbook 2010

Figure 6: Expenditures on active labor market programs over time in different countries



Source: OECD Factbook 2010

recipients, with total welfare expenses amounting to €3.94 billion. Total expenses on DI were €10.14 billion. Furthermore, spending on active labor market programs was about 1.8% of GDP, which is high compared to other European countries (see Figure 6).

## 2.2 Institutions

During the past there have been a number of reforms in all Dutch social insurance schemes, which had a substantial impact on institutions. Both UI and DI, which cover all employees, are handled by the National Social Insurance Institute (UWV). The current DI program is the result of the reform in 2006, which replaced the so-called *WAO* by *WIA*. While other OECD countries distinguish between impairment occurring on the job and impairment originating elsewhere, under the Dutch DI program only the consequence of the impairment is relevant. Any illness or injury entitles to entering DI after a mandatory waiting period of two years. The legitimacy of sickness absenteeism during the waiting period is checked by a physician of the occupational health service contracted by the employer. During the two-year waiting period the employer is responsible for financing the employee's sick pay. Employers must contract an occupational health service to prevent and manage sickness absenteeism.

The degree of disablement depends on both the severity and the permanence of the impairment. Severity is decided by the worker's residual earnings capacity (i.e. potential earnings with his or her functional limitations as a percentage of pre-disability earnings). If the capacity loss (the complement of earnings capacity) exceeds 80% and recovery is unlikely, then the individual is eligible for *IVA* (full and permanent) benefits. A capacity loss between 35% and 80% or above 80%, with the potential of recovery, entitles the individual to *WGA* (partial or

temporary benefits). *WGA* benefits consist of two chronologically linked parts. First, there are wage-related benefits with an entitlement period depending on work history and age. Then there are follow-up benefits which are often lower. The follow-up benefits are such that they yield financial incentives to return to work.

An important supplementary disability program is the *WAJong* scheme, which covers individuals who are disabled without ever having worked. Individuals with an illness or impairment at age 18 are entitled to *WAJong* benefits immediately. Individuals who apply for *WAJong* at a later age (for example, after leaving full-time education) have a waiting period. This program for young handicapped is currently the fastest growing benefits program.

Individuals with a substantial work history are often entitled to collect UI benefits. The current Unemployment Insurance Act (*WW*) is the result of the reform that took effect on October 1, 2006. The benefits level depends on the previous wage, the entitlement period on the number of years worked. UI recipients should be available for the labor market and must register as jobseekers. In addition, they may not be voluntarily unemployed. During the first two months the worker receives 75% of the last earned wage and thereafter 70%. The entitlement period is between 3 and 38 months depending on work history. If an unemployed worker worked at least 52 days during four of the past five calendar years ('year' condition), the entitlement period is extended to 6 months. For each additional year of employment beyond these four years, the period of entitlement to UI benefits is extended by one month.

Welfare is a safety net for households without sufficient income who are not covered by any other benefits program. The benefits level is fully determined by the household composition and by the

extent to which other sources of income and assets are available. Welfare benefits are related to what is considered to be the social minimum income.

The Dutch tax system is an individualized progressive tax system, with the exception of transferable tax credits. The current tax system is the result of the tax reform in 2001. Tax credits reduce the amount of tax paid, which provides incentives for working. There is a general tax credit of €2007, plus there are tax credits for working and parenting. In 2006 many of the tax advantages of early retirement were repealed. However, this did not affect individuals who entered early retirement prior to January 1, 2006. Also, nothing changed for workers who were over 55 years old in 2005.

### **3. Moral hazard in benefit schemes: models and policy**

#### **3.1 Moral hazard**

Countries with generous benefits often have lower re-employment rates. For example, European labor markets with high benefits and long entitlement periods are characterized by high average durations of unemployment (see Ljungqvist and Sargent, 1998, and Bean, 1994, for a survey). This is not merely an association, but there is convincing empirical literature that shows the causal effect of the generosity of a benefits program on the duration that individuals remain dependent on benefits. Lalive (2008) showed that extension of the entitlement period for UI benefits corresponds with a lower exit rate to work. Carlin et al. (2001) found that a higher level of benefits also reduces the exit rate to work. This clearly shows that moral hazard problems are more pronounced in more generous benefit schemes. There is no strong empirical evidence that more generous unemployment benefits improve the quality of the post-unemployment job (e.g. Card et al., 2007; and Lalive, 2007).

Disability and sickness benefit schemes can likewise suffer from moral hazard problems. The difference with unemployment benefit schemes is that, in these benefit schemes, moral hazard is more pronounced in the inflow than the outflow. The theoretical prediction is that a generous compensation level will not induce workers to prevent becoming sick, and will not stimulate sick workers to return to work quickly. The benefits level affects both the incidence and the duration of sickness absenteeism. The latter was empirically confirmed by Johansson and Palme (2002, 2005), Ziebarth and Karlsson (2009), and Meyer et al. (1995). However, the level of moral hazard may be very different between unemployment and disability benefits, which may explain

why policies aiming at unemployment programs and disability programs differ.

The dependence on early retirement schemes is also affected by the generosity of the scheme. The reduction in 2006 of the Dutch tax advantages for early retirement accelerated the increase of labor force participation of older workers. Moral hazard problems have been acknowledged in the past two decades by policymakers, who have therefore become interested in instruments to stimulate re-employment. In most Northern European countries (e.g. Sweden, Denmark and the Netherlands) expenditures on active labor market programs are high. Most of these programs are targeted at groups with low labor force participation rates, such as long-term unemployed and older workers. For example, since 2004 older unemployed workers in the Netherlands are required to actively search for work. Van den Berg and Van der Klaauw (2006) argue that the effects of job search assistance and monitoring might be higher when targeted at more disadvantaged workers. Kluge (2010) shows that programs targeted at young unemployed individuals are less effective than untargeted programs.

### **3.2 Models**

Before focusing on policies that aim at reducing moral hazard, it is useful to discuss the setup of a benefits program. Policymakers typically decide on the initial level, the duration and the slope (over time) of benefits. In deciding on the optimal level of benefits they must trade off moral hazard incentive effects (i.e. lower search effort, higher reservation wages) against the desire to support unemployed and disabled workers. Another important factor affecting the trade-off between incentive effect and benefits support is the extent to which workers can save

and borrow against future income. If workers have easy access to liquidity either from savings or from loans, optimal benefit levels can be kept low. Moral hazard differs over age, benefit and insurance types. If the degree of disablement is perfectly observable, it is clear that moral hazard is less of an issue than when the insurance administration only has an imperfect measure of the seriousness of the impairment.

Since wages increase with tenure and UI benefits depend on the last earned wage, the reservation wage of older workers is often higher than the wage levels offered for most jobs. This problem is not easy to solve because firms have good reasons to offer those contracts (Burdett and Coles, 2003; and Stevens, 2004). Furthermore, the remaining time on the labor market is limited for older workers. The returns of job search efforts are lower because, when finding a job, the worker receives wages for a shorter time period (Hairault et al., 2009). An older worker is also less likely to find a subsequent job after having accepted the first job. Also the returns to additional work experience are low. Older workers thus have a higher reservation wage than younger workers. This reduces their chance of finding work, particularly when during the career the worker mainly acquired firm-specific capital rather than general capital. A low probability of receiving a suitable job offer reduces job search effort, which in turn results in a low exit rate to work for older unemployed workers. Stimulating the exit rate to work is also complicated because many older workers have more options for benefit schemes, such as early retirement. Thus, requiring older individuals with UI benefits to devote more effort to job search may increase re-employment rates substantially, but it may also cause more workers to apply for other benefit schemes. We will discuss the effect of active labor

market policies in Section 4 and the interaction between benefits schemes in Section 6.

Recent work by Shimer and Werning (2008) and Lentz (2009) demonstrates the importance of separating liquidity from the insurance aspect. Liquidity is important for consumption smoothing, whereas UI benefits insure workers against long spells of unemployment. Clearly these are different issues. Therefore, if workers are identical and risk-averse and the environment is stable, benefits should, instead of being reduced over time (which is the conventional wisdom), be kept constant because those with the longest unemployment spells are the ones who lose most income. This contrasts with Hopenhayn and Nicolini (1997) and Shavell and Weiss (1979), who do not separate liquidity from insurance aspects. An intuition for this result is that, when the trade-off between moral hazard and insurance does not change over time, the associated benefit level should change neither. Of course, if human capital depreciates over time or if workers vary in terms of their value of leisure, then the insurance versus incentive trade-off of the average worker will change over time. In such case it is desirable that benefits change as well (see Shimer and Werning, 2006).

A drawback of much of the theoretical literature on dynamic moral hazard problems is that it is often partial in nature. Coles (2008) considers an equilibrium matching model that focuses on the trade-off between high taxes, fewer jobs and full insurance on the one hand, and low taxes, many jobs and incomplete insurance on the other hand. He concludes that UI benefits should be equal to the wage of a worker when fired (for consumption smoothing reasons) and then fall over time (otherwise the worker will not accept a new job). However, since Coles (2008) does not

allow workers to save, it is unclear to what extent the negative slope reflects this restriction or his equilibrium extension.

Blanchard and Tirole (2008) and Michau (2009) focus on the financing of the income of workers who leave employment. Blanchard and Tirole (2008) argue within a static framework that this should be financed through dismissal taxes because firms do not internalize the cost to society of financing UI benefits. However, in a static model, the job creation problem is ignored. Michau (2009) shows, with a dynamic equilibrium matching model in the vein of Mortensen and Pissarides (1994), that dismissal taxes are necessary but that firms should also receive job creation subsidies to offset the negative employment effects of those taxes.

### **3.3 Policies to reduce moral hazard in unemployment benefit programs**

The most straightforward method to reduce moral hazard is to require benefit recipients to devote a substantial amount of effort to job search and to accept suitable job offers. To make sure that benefit recipients comply with the job search requirement, the benefit agency must have the possibility to punish benefit recipients for noncompliance. This is done through sanctions whereby the benefits level is temporarily reduced. Job search requirements and strict monitoring of the worker's efforts imply that the worker must increase her job search effort. The worker cannot behave as she would have preferred without strict monitoring of the job search requirement. To leave the benefits program, the worker is willing to also accept also less suitable work. Strict monitoring of search requirements will thus make the worker search harder and be less choosy in accepting work. The exit rate to work will thereby increase.

The key assumption for a positive effect of job search monitoring on re-employment is that the benefits agency is capable of monitoring all relevant job search efforts. Van den Berg and Van der Klaauw (2006) consider the case where the benefits administration can only imperfectly monitor job search efforts. This substantially reduces the effectiveness of job search monitoring. Benefit recipients will substitute effort from the informal search channel (which cannot be monitored) to the formal search channel (which is monitored). Job search monitoring is ineffective for benefit recipients who devote much effort to informal search. Van den Berg and Van der Klaauw (2006) argue that these are typically unemployed workers with relatively good labor market prospects. The implication is that monitoring is more effective in stimulating the re-employment of more disadvantaged unemployed workers, such as the long-term unemployed.

Job search monitoring is ineffective without the threat of sanctions. Abbring et al. (2005) provide a theoretical discussion of sanctions within a partial job search model. Sanctions can have two effects. First, there is an ex-ante effect, implying that the unemployed worker knows that if she does not comply with the rules of the benefit agency, there is a risk of being sanctioned. So many unemployed workers will increase their search efforts to reduce the risk of a sanction. However, other unemployed workers will still prefer a low search effort and the corresponding risk of a sanction to a high search effort and a reduced sanction risk. Van den Berg and Van der Klaauw (2010) argue that the level of sanctions should increase rapidly to ensure a higher job search effort. If a sanction is imposed on unemployed workers, they (i) temporarily face a reduced benefits level and (ii) enter a regime of more intensive monitoring. Second, there is an ex-post

effect, meaning that unemployed workers actually experience a sanction due to an increase of their search effort and the corresponding reduction of their reservation wages. This leads to a higher re-employment rate. This effect is permanent when more intensive monitoring is applied.

Boone et al. (2007) study optimal UI benefits in a framework where the state has the option to sanction unemployed workers who do not search hard enough. They conclude that sanctions are welfare improving even if benefits are limited in duration. Arni et al. (2009) extend the model of Abbring et al. (2005). In particular, they consider two types of jobs: low-quality temporary jobs and high-quality permanent jobs. Sanctions lead unemployed workers to more often accept low-quality temporary jobs. Therefore, individuals leave unemployment faster, but they are more likely to return to the unemployed status, thus receiving lower wages on average.

There are also more positive financial incentives to stimulate employment. Examples of this are tax incentives, such as earned-income tax credits and re-employment bonuses. Tax benefits for individuals with a low income will stimulate them to accept jobs with relatively low wages rather than staying in a benefits scheme. Whereas tax credits are permanent, re-employment bonuses usually involve the payment of a lump-sum amount to an unemployed worker who finds work. The idea is that this makes work more attractive, thus stimulating unemployed workers to increase their job search efforts. Because unemployed workers are also less choosy as to which job to accept, the re-employment rate increases. If the first job is a stepping stone towards later better-paying jobs, a single lump-sum payment may be sufficient to prevent a person from returning to benefit dependency. However, if this is not the case, the long-term effect

will be low. Therefore, some re-employment bonus schemes make the bonus conditional on remaining employed for a given period.

There are also other possibilities to reduce moral hazard. Workfare programs require benefit recipients to work in jobs that involve very low productivity. This is to avoid workfare jobs from crowding out regular jobs from the labor market. Considering the type of tasks that participants perform, workfare programs do not aim to increase the human capital or skills of benefit recipients. The goal of these programs is mainly to reduce the leisure time of benefit recipients. The underlying idea is that benefit recipients enjoy their leisure, and that restricting their leisure reduces the value of being unemployed. Workfare programs are meant to make benefit recipients more prone to accept job offers. The risk of workfare programs is that they not only restrict the leisure time of benefit recipients but also the time that they can devote to job search.

Pavoni et al. (2009) consider the following policy instruments: (i) UI benefits conditional on active job search, (ii) monitoring and job search assistance, (iii) UI benefits, (iv) mandatory work, and (v) transitory work. The differences between these instruments are the effort levels required from the unemployed worker and the public costs. Job search assistance and social assistance require little extra effort of the worker, so their desirability depends on their marginal costs and benefits. To prevent workers from losing their human capital while unemployed, optimal policies involve switches. For example, if a country opts for high UI benefits, it is optimal to offer job assistance after a few weeks if the worker has not yet found work and then offer social assistance if the worker still has not found a job. Alternatively, if UI benefits are low, it is optimal to offer transitory work after a few weeks and then mandatory work if the worker has still not found a job. Key to the

analysis by Pavoni et al. (2009) is that the various instruments should not be looked at in isolation from each other but that focus should be on their dynamic interaction.

### **3.4 Policies to reduce moral hazard in sickness and disability benefit programs**

Whereas active labor market policies for unemployment benefit schemes are mainly targeted at stimulating the outflow, it is widely believed that this is not very effective for disability programs. Increasing the exit rate from disability to employment is often assumed to be difficult. Therefore, most active labor market policies targeted at sickness and disability programs aim at reducing the inflow. Our discussion extends the theoretical framework discussed in De Jong et al. (2011). This model deals with Dutch institutions, but it applies to any sickness insurance program that involves a waiting period during which the employer is responsible for sick pay. So the discussion should fit most European benefit schemes.

When a worker cannot work due to illness or impairment, that worker's productivity is lost. The legitimacy of absence is often checked by an independent physician. This may be the GP or a doctor from an occupational health service. A doctor's assessment soon after the worker reports sick will reduce the chance of illegitimate sickness absenteeism. However, this means a heavy burden on physicians, since they must also assess workers returning to their job after a short period of sickness.

In most continental European countries sick workers are entitled to receiving sick pay, the amount depending on the worker's wage level. Sick pay is usually provided by the employer. After a defined period, the employer stops paying sick pay and the worker enters a DI scheme. We refer to the period of sick pay as the waiting

period (before becoming eligible for DI). There are some obvious effects of the length of the waiting period. If the waiting period is long, the financial risks for the employer are larger. A long waiting period will discourage employers from using DI as a channel to lay off employees. Employers can insure themselves against the risk of sick pay. Commercial insurance companies will (most likely) use experience ratings to determine premium amounts. This will obviously also provide incentives to reduce sickness absenteeism within the firm. Governments can also use experience ratings to determine the premiums for DI. Greater premium diversification for DI obviously has the same effect for the employer as extending the length of the waiting period. Employers with high inflow rates have higher costs.

The empirical evidence discussed in the previous subsection showed that less generous benefit schemes reduce sickness absenteeism. Employers also have an incentive to prevent workers from becoming sick. Sick workers are not productive for the firm, while employers are responsible for sick pay. However, in some cases, it is more attractive to lay off a worker who receives DI. DI benefits are often more generous than UI benefits, disabled workers are subjected to fewer job search and other requirements, and their entry requirements are less strict. As a result, employers have used DI as a lay-off channel, for example as an alternative for early retirement. This indicates that there is a substitution mechanism between the inflows of different social insurance programs.

During the waiting period of sickness absenteeism, employers are obliged to organize reintegration activities and workplace accommodations. The goal of these activities is that workers return either to their old job or to an alternative job. In the Dutch case the DI agency screens if the employer provided sufficient

reintegration activities. This screening is done when the sick worker applies for DI benefits towards the end of the waiting period. If the DI administration decides that the employer has not fulfilled the minimum requirements, it can then impose a sanction on the employer. The probability of being sanctioned and the severity of the sanction increase with the extent of noncompliance.

Reintegration efforts are costly to employers. Employers choose their reintegration activities such that marginal costs equal marginal returns. Reintegration activities not only reduce the threat of sanctions but, if effective, also raise the probability of earlier work resumption and hence reduced sick pay. If optimal reintegration effort already exceeds the minimum requirements set by the DI administration, the employer's behavior will not change. However, if optimal effort is below the minimum requirement, then imposing minimum requirements will lead to more reintegration activities. If such activities are effective, they will lead to higher work resumption rates during sickness absenteeism and to lower DI application rates.

Minimum reintegration requirements and screening reduce the attractiveness of the DI program to potential applicants and trigger a mechanism of self-selection or self-screening (Parsons, 1991). The decision to start a DI application process triggers a comparison of the expected utilities of alternatives, such as unemployment, early retirement and continuing work. Screening the reintegration requirements raises the costs of a DI benefit application. Self-screening can lead to potential applicants who think that their DI application will not meet eligibility requirements deciding not to apply for the program. Obviously, self-screening can also arise because of other policy instruments that lower the attractiveness of a sickness and disability program.

## **4. Evidence on policies that reduce moral hazard for unemployed workers**

### **4.1 Unemployment**

In this section, we discuss current policies to reduce moral hazard. In most European countries, active labor market policies have been developed since the early 1990s. Many of the early programs involved job search assistance and monitoring. Kluge (2010) presents a survey of about one hundred evaluation studies of active labor market programs mostly in Europe operating after 1990. The institutional environment and the macroeconomic situation do not seem to be very important for the effectiveness of a program. Traditional training programs often have at most a modest effect on finding work. Direct employment programs in the public sector are almost always ineffective and often hamper employment prospects. Card et al. (2010) present an assessment of active labor market policies, based on approximately 200 European and US microeconomic evaluations. They conclude that subsidized public sector employment programs are relatively ineffective. Job search assistance programs have a favorable impact especially in the short run. Classroom and on-the-job training programs, on the other hand, are not favorable in the short run but have more positive impacts after two years. Below, we provide further insight into these policies.

### **4.2 Job search monitoring and sanctions**

#### *4.2.1 Practical implementation of job search monitoring and sanctions*

Job search monitoring usually consists of regular meetings between the caseworker of the benefits administration and the

unemployed workers. During these meetings recent job search effort is evaluated (monitoring) and the unemployed workers are advised with respect to their future job search efforts (counseling). Obviously, if the caseworker detects a lack of job search effort, the unemployed worker should be sanctioned with a temporary reduction of the UI benefits. The details of the program and the target population vary by country and also by evaluation study.

The theoretical discussion in Subsection 3.3 considers sanctions for lack of job search effort. In many OECD countries sanctions are also given for other reasons. These may include unnecessary job loss, unwillingness to participate in active labor market programs, fraud, failure to provide information, and not accepting suitable job offers. Sanctions are imposed by the benefit agency, but also other organizations, such as the public employment office or agencies that provide active labor market programs, can report noncompliance with the rules. Many countries have experienced strong increases in sanction rates, but no countries have sanction rates as high as Switzerland and the Netherlands. The sanction policy in Switzerland differs from the Netherlands in that a warning is first issued. So only the second violation of the rules results in a punitive benefit reduction. In the Netherlands warnings are also used, but only for minor noncompliance and in case of mitigating circumstances.

In the Netherlands, sanctions usually range from a 5% to 20% benefit reduction for a period of 4 to 16 weeks. According to the guidelines, providing information about sickness too late is to be punished with a 5% reduction during 4 weeks, while insufficient job search and refusing suitable job offers are punished with a 20% reduction during 16 weeks. However, there is some discretionary power. In case of mitigating circumstances the reduction may be cut to half of the indicated reduction. In case

of serious fraud, the benefits may be terminated immediately. It is often argued that sanctions are accompanied with a stricter job search monitoring regime. Van der Klaauw and Van Ours (2010) report that sanctions are imposed during about 10% of the (starting) welfare spells, and 1.5% of recipients receive warnings. In the UI the sanction rate is slightly higher; in about 12% of cases at least one sanction is imposed. UI benefit periods are, on average, much shorter than welfare benefit periods, so the monthly risk of getting a sanction is higher for a UI benefit recipient than for a welfare benefit recipient.

This works better than countries like Sweden, where monitoring mainly focuses on whether benefit recipients refuse suitable job offers. From a theoretical point of view this is not optimal because it leads to lower search efforts. In the extreme case a benefit recipient who fails to apply for jobs cannot get a job offer, and can thus also not be punished for not accepting job offers.

#### *4.2.2 Empirical evidence on job search monitoring*

In many countries, job search monitoring is one of the oldest active labor market policies. It involves checking actual search behavior, and it is often provided in combination with advising unemployed workers in their search for work. In various countries randomized experiments have been conducted to evaluate the effectiveness of such policies (e.g. Gorter and Kalb, 1996, and Van den Berg and Van der Klaauw, 2006, for the Netherlands; Ashenfelter et al., 2005, and Johnson and Klepinger, 1994, for the US; and Dolton and O'Neill, 1996, for the UK). Mixed results are found for the effectiveness of job search monitoring. For example, Ashenfelter et al. (2005), Gorter and Kalb (1996) and Van den Berg and Van der Klaauw (2006) found only very modest and insignificant effects, while Dolton and O'Neill (1996), Johnson

and Klepinger (1994), Manning (2009), and McVicar (2008) found significant and substantial positive effects. Van den Berg and Van der Klaauw (2006) provide a comparison of results of these studies. They argue that the effectiveness of job search monitoring depends strongly on the target population and on macroeconomic conditions.

Gorter and Kalb (1996) and Van den Berg and Van der Klaauw (2006) focus on UI benefit recipients in The Netherlands. However, the study by Gorter and Kalb (1996) reflects more disadvantaged recipients and worse macroeconomic conditions (1989/1990 compared to 1998/1999). Furthermore, they study an increase of the usual level of monitoring, while Van den Berg and Van der Klaauw (2006) study a decrease of the usual level of monitoring. Gorter and Kalb (1996) found that the effect of counseling and monitoring on success in job finding is modest and insignificant for individuals who previously had a permanent contract and significantly negative for individuals who previously had a temporary contract. They explain this big difference by stating that the aim of counseling and monitoring is to provide unemployed workers with a permanent contract, which may be difficult to realize for individuals who were previously temporarily employed. Furthermore, they find that counseling and monitoring significantly increases the job application rate. Van den Berg and Van der Klaauw (2006) found a very small and insignificantly positive effect of counseling and monitoring on the probability of finding work. Since counseling and monitoring are relatively inexpensive, the benefits in terms of unpaid UI benefits are approximately the same as the costs of providing counseling and monitoring.

Ashenfelter et al. (2005) analyzed the effect of a system of more intensive monitoring on labor market outcomes of US UI

recipients. Three of their four experiments give rise to positive effects on the exit rate to work. But the effects are all insignificant and quantitatively very small. Johnson and Klepinger (1994) found, however, that much stricter job search requirements reduce the length of collecting UI benefits in the US. Specifically, the requirement of making at least three employer contacts per week reduces the mean duration of unemployment for the treatment group by around three weeks compared to the mean, in the absence of job search requirements. This requirement is much larger than in the Netherlands (one employer contact per week) and in Ashenfelter et al. (2005).

Meyer (1995) provided a survey of US social experiments involving job search assistance programs. It turns out that the effect on the exit rate to work increases with the intensity of the assistance. The decrease in the duration of UI dependence ranges from around half a week to more than three weeks. Finally, for Hungary, Micklewright and Nagy (2005) found that stricter monitoring only increases the re-employment of women over 30 years old. This is a group of individuals that typically does not devote much effort to job search. A feature of the monitoring in Hungary is that the caseworker also acts as a matching agent who offers suitable vacancies to unemployed workers.

We can conclude that the evidence on the effectiveness of counseling and monitoring is mixed, and that it depends on the state of the business cycle and on the precise treatment. Van den Berg and Van der Klaauw (2006) attempt to summarize the existing empirical evidence and to interpret that within their model framework. The key feature of their model is that they distinguish between formal and informal job search, and job search monitoring is incomplete since it only relates to formal job search. Many empirical studies show that unemployed

workers with a small distance to the labor market (short-term unemployed, favorable characteristics or business cycle) will use informal job search channels more frequently. Monitoring these individuals may only cause a substitution in search behavior without a substantial increase in the re-employment rate. More disadvantaged unemployed workers have less access to informal search channels. In their case, monitoring is (almost) perfect and increases the chances of re-employment.

The key prediction is that monitoring is more efficient in stimulating re-employment of more disadvantaged and long-term unemployed, and it has larger effects during recessions. The number of empirical studies on job search monitoring is small and involve quite different institutional settings. But the results on the effectiveness of job search monitoring in these studies are largely consistent with the model discussed in Van den Berg and Van der Klaauw (2006). Care should be taken, however, because policy implementation methods differ.

The discussion has focused thus far on all type of workers. There is, however, also some empirical evidence on imposing job search requirements for older workers. As mentioned in Section 3, older workers have a shorter remaining time on the labor market and are therefore likely to invest less in job search (Hairault et al., 2009). In the Netherlands, until 2003 unemployed workers above the age of 57.5 years were exempted from the obligation to actively search for work. The Netherlands was no exception; also in other countries older unemployed workers were exempted from the job search obligation. Since 2004, older worker are no longer exempted. Bloemen et al. (2010) used this policy discontinuity to investigate the effect of introducing stricter job search requirements for older workers. They find a substantial increase in the exit rate from UI to work. After two years, 6% more men and

11% more women were working. This shows that older workers are capable of finding work again after becoming unemployed. A similar result has also been found for Australia. However, not only the exit to work increased, but also more older unemployed workers started collecting some type of sickness insurance benefits. We return to this issue in Section 6, where we discuss the interaction between benefit programs.

#### *4.2.3 Empirical evidence on sanctions*

Grubb (1999) notes in his survey that sanctions are applied in many countries. Sanctions are given for insufficient job search effort, but they can also be imposed for other failures to comply with benefit agency rules, such as when benefit recipients refuse to participate in a training program. Sanctions often take the form of temporary reductions of the benefits level. Whereas imposing punitive benefit reductions have been found to have large effects on re-employment rates (e.g. Abbring et al., 2005; Lalive et al., 2005; Svarer, 2007; and Van den Berg et al., 2004), there is also recent evidence that sanctioned workers suffer in the long run (Arni et al., 2009; and Van den Berg and Vikstrom, 2009). All studies on effectiveness apply the same identification strategy. In particular, the unanticipated nature of the imposition of sanctions is exploited. This implies that the process towards finding work is jointly modeled with the probability of sanctions being imposed. This approach takes account of unobserved differences between individuals who have been punished with a sanction and those who did not receive a sanction.

The first studies on the effectiveness of benefit sanctions are from the Netherlands. Abbring et al. (2005) focused on UI recipients, while Van den Berg et al. (2004) studied welfare recipients. For welfare recipients, similar issues arise as for UI

recipients, but in this paper we focus on UI recipients. Both studies use administrative data from the 1990s. Abbring et al. (2005) found that a sanction increases the re-employment rate of women by about 90% and of men by about 50%. Van den Berg et al. (2004) also found a significant and substantial effect of sanctions on the transition rate from welfare to work. A sanction raises the exit rate to work by about 140%. The probability that a young man (25 years old) finds work within two years after inflow into welfare is 0.66. A sanction after six months increases this probability to 0.93. For an older man (50 years old) a sanction increases these re-employment probability from 0.29 to 0.54.

Lalive et al. (2005) found for Switzerland a smaller effect of actually imposing sanctions than was found in both Dutch studies. As mentioned before, there are two important differences between the Swiss and the Dutch policy regimes on sanctions. First, in Switzerland has a system of warning unemployed workers prior to imposing a sanction. Roughly one third of the warnings is followed by a sanction. Lalive et al. (2005) showed that the effect of a warning is as large as the effect of actually imposing a sanction. Second, Switzerland has a much stricter sanction regime than the Netherlands (e.g. Grubb, 1999). Whereas in the Netherlands the annual sanction rate during a period of unemployment is below 5%, in Switzerland this can be as high as 12%. In the Netherlands, re-employment rates of sanctioned individuals are often very low so that there is much room for increase. In Switzerland, also individuals who already have higher re-employment rates get punished, so that there is less room for increases in re-employment rates of sanctioned workers. Svarer (2007) finds that in Denmark sanctions increase the re-employment rate by about 50%.

Arni et al. (2009) and Van den Berg and Vikstrom (2009) investigated the long-term effects of sanctions. They find for Switzerland and Sweden, respectively, that imposing a sanction reduces the quality of the post-unemployment job (lower wage, shorter employment duration, fewer hours of work, and lower occupational level).

The main conclusion from the empirical studies is thus that, as predicted by the theoretical models, sanctions do increase the exit rate to work. However, this comes at the cost of worse labor market outcomes in the long term.

### **4.3 Other financial incentives**

During the 1980s a number of experiments were conducted in the US on re-employment bonus schemes. The first experiment was in Illinois (1984/1985). It promised new applicants for UI benefits a cash bonus of \$500 for finding work (at least 30 weekly hours) within 11 weeks and keeping the job for at least four months. Woodbury and Spiegelman (1987) found that this reduced the unemployment duration by approximately one week. Next, in the New Jersey experiment (1987) the bonus amount declined during unemployment to zero after 11 weeks. Anderson (1992) found that the effect of a bonus on the job finding rate is significantly positive early in the offer period, when the bonus was largest. Decker (1994) compared the Illinois and New Jersey experiments. He found that the declining bonus offer in New Jersey affected "short-term unemployed" relatively more, while the constant bonus offer in Illinois had a substantial impact on "longer-term unemployed". The studies of the 1988 and 1989 experiments in Pennsylvania and Washington involved different amounts and qualification periods. Decker and O'Leary (1995) found that more

generous bonus offers generated larger impacts than did less generous offers, but the overall effects are relatively modest.

Meyer (1996) re-examined the results from the part of the Illinois re-employment bonus experiment in which the bonus was paid to UI recipients and focuses on the suitability of a re-employment bonus program for permanent adoption. According to Meyer, in a permanent program a larger percentage of workers that qualify for a bonus complete the paperwork necessary to receive it. Furthermore, a permanent bonus program encourages unemployed workers to file for UI.

The target population in the US re-employment bonus experiment consists of new applicants for UI benefits. Van der Klaauw and Van Ours (2010) studied the effectiveness of re-employment bonuses for welfare recipients in the Netherlands. Not only the target population differed, but also the institutional setup. To avoid having an effect on the inflow, only individuals on welfare for at least 12 months were entitled to receiving a bonus. However, welfare recipients close to collecting benefits for 12 months may anticipate this and reduce their job search efforts just before becoming eligible, thereby causing a possible disincentive effect. Van der Klaauw and Van Ours (2010) did not find evidence of any substantial effects of the re-employment bonuses. A possible explanation is that the take-up of the bonuses is slightly less than 40%. A low take-up is not uncommon. In the Illinois re-employment bonus experiment the take-up rate was 54%.

Re-employment bonus schemes are closely related to in-work cash transfers. The idea of in-work cash transfers is that low-income workers receive a temporary cash supplement to their income while employed. An example is the Canadian Self Sufficiency Project, which was introduced in the early 1990s. This subsidy scheme applies to welfare recipients who accept a

full-time job; the payments can last up to three years. Card and Hyslop (2005) showed that even for long-term welfare recipients the subsidies have a positive effect on employment. However, the effects are not permanent.

Bosch and Van der Klaauw (2012) used the 2001 Dutch tax reform to investigate the effect of financial incentives on female labor supply. The focus of their study was on married women between 20 and 50 years old with a working partner. In 2000 about 74% of these women had a job of on average 25 hours per week. The reform caused the average after-tax hourly (real) wage to increase by about 5%, while the marginal after-tax hourly (real) wage increased by 7.5%. Bosch and Van der Klaauw (2012) estimated traditional labor supply models (e.g. Heckman, 1974; and Blundell et al., 1998). They found that the tax reform increased female labor force participation by about 2.5%, with the effect being most substantial for women with low education. Hours of work do not respond closely to the increased after-tax marginal hourly wage. The estimated wage elasticity is even negative but insignificant. Overall, within the overall female population, the tax reform caused working hours to increase on average from 17.9 to 18.3 hours per week. This effect was highest for the lowest-educated women; it decreased as the level of education goes up. In the literature the wage elasticity is usually estimated to be slightly higher (e.g. Meghir and Phillips, 2008).

Obviously, the extensive margin of female labor supply is sensitive to financial incentives, while the intensive margin does not react. Earned income tax credits mainly affect the extensive margin as low-income work becomes financially more attractive. There are some recent evaluations of earned income tax credits (e.g. Eissa, 1995; Eissa and Hoynes, 2004; Eissa and Liebman, 1996). Eissa and Liebman (1996) provide empirical evidence that

earned income tax credits stimulate the labor force participation of disadvantaged women.

#### **4.4 Employment programs**

Workfare programs have been widely implemented, mainly in welfare benefit systems. For example, The Netherlands, Germany and the US have extensive workfare programs. The empirical evidence on the effectiveness of workfare programs is, however, very limited. Fredriksson and Holmlund (2006) provide an overview of workfare programs, but they mainly point towards substantial threat. Benefit recipients are more likely to leave the benefits system just before entering a program. For comparison purposes, Autor and Houseman (2010) explored the fact that some caseworkers in Detroit were more likely to assign unemployed workers to temporary jobs while others were more likely to assign workers to permanent jobs. They found that workers assigned to temporary jobs experienced long-term income losses and were less likely to be employed.

The main difference between workfare programs and subsidized employment programs or wage subsidies is that such programs aim at increasing human capital by providing work experience in regular jobs. Usually a distinction is made between wage subsidy programs in the private sector and employment programs in the public sector. The goal of wage subsidies in the private sector is to encourage employers to hire additional workers or to maintain jobs that would otherwise be destroyed. Often such programs are targeted at disadvantaged workers, such as long-term unemployed or very low-skilled workers. Kluve (2010) summarized the empirical evidence of such programs and found that they can be effective in improving the participants' labor market outcomes. In his survey, he also concluded that similar programs in the

public sector are often detrimental for the employment prospects of participants. The main reason is that the type of jobs created for such programs are often non-regular jobs with no close counterpart in the labor market. Therefore, participants do not obtain relevant work experience or additional human capital.

## **5. Sickness and disability insurance**

This paper has so far mainly considered unemployed workers receiving either UI or welfare benefits. However, in many countries, such as the Scandinavian countries and the Netherlands, sickness and disability benefit schemes are more substantial (both in terms of recipients and expenditures).

In the Netherlands no distinction is made between temporary and permanent disability at the start of sickness, and the two systems are integrated. During a waiting period of sickness, all workers receive sick pay, which is a substantial percentage of the worker's regular pay. This sick pay is supplied by the employer, and the labor contract is only terminated after the waiting period, when a worker enters DI. Currently, the waiting period is two years. The Dutch waiting period is rather long, but most employers insure themselves in the commercial insurance market. In Germany the waiting period is 6 weeks, in Norway 16 days.

### **5.1 Legitimacy of Sickness Absenteeism**

In most countries the legitimacy of sickness absenteeism is checked by an independent physician. In Sweden a doctor's certificate is required after seven days of sickness. In Germany this is already the case after three days. In the Netherlands, only after six weeks does a doctor from an occupational health service assess the sickness of the worker and make a treatment plan. However, most employers insure themselves for sick pay with commercial insurers, who also provide doctor's visits and early interventions (depending on the contract type). The empirical evidence on this topic is mainly from the Scandinavian countries. Hesselius et al. (2005) reported on a social experiment conducted in 1988 in Sweden. They studied the effects of the first formal legitimacy

check of sickness absenteeism after 8 instead of 15 days. Their experiment involved true randomization. They found no effect on the incidence of sickness absenteeism, but substantial effects on duration. Also Markussen (2010) found that the doctor can play an important role in reducing sick pay. He studied a Norwegian reform in 2004, which mainly involved that physicians stimulate sick persons to remain active as a treatment form. This reform caused a very substantial reduction of 23% in sick leave. It should be noted that in Norway certification by a physician already takes place after three days of sickness.

In Norway, primary care physicians are responsible for assessing the legitimacy of sickness absenteeism. Carlsen and Nyborg (2009) argue that there may be a tension between their healing responsibilities and their gatekeeper role.

## **5.2 Experience rating of insurance premiums**

Koning (2004) provides Dutch evidence on experience rating of DI premiums. In the Netherlands, experience rating was gradually introduced after 1998. When an employee was awarded a disability benefit, the employer faced a higher contribution rate; the opposite applied upon employment of a disability beneficiary. Koning (2004) examined the effects of experience rating, using a difference-in-difference analysis. The overall picture that emerged from his empirical analysis is that the impact of experience rating on DI inflow was substantial. After one year the inflow in DI already decreased by 15%, mainly because employers increased their preventive activities in response to an increase in their premium rates ('ex post incentives'). As far as we are aware, this is the only paper considering experience rating of DI premiums.

### **5.3 Extending the waiting period of sickness absenteeism**

A longer waiting period can be considered to be a type of experience rating. There are, as far as we know, no empirical evaluation studies of the effect of extending the waiting period. De Jong (2009) discusses the extension of the waiting period in the Netherlands from one year to two years in 2005. Therefore, there was no inflow into DI in the year 2005. Between 2004 and 2006 the inflow into the Dutch DI dropped by 50%.

### **5.4 Empirical evidence on screening**

De Jong et al. (2011) discuss a situation of stricter screening of disability insurance applicants, focusing on the introduction of the Dutch gatekeeper protocol in April 2002. The gatekeeper protocol included screening of DI applications. The screening focused on re-integration activities provided by employers during the period of sickness absenteeism. De Jong et al. (2011) have investigated the intensity of this screening, which is a policy measure of the DI agency. They conducted an experiment whereby, in two Dutch regions, a stricter screening regime for DI applications was implemented. The case workers in these two regions spent on average 9.4% additional time on each DI application.

The empirical results show that this regime of stricter screening reduces the number DI applications. In particular, fewer workers report sick. If stricter screening were to be applied nationwide, the number of sickness absenteeism cases would be reduced by 5.2% and DI applications by 4.8%. A cost-benefit analysis shows that the costs of additional screening are negligible compared to the reduction in DI benefit payments. This is due to the lower inflow into disability insurance. In particular, the DI administration can save over €60 million annually by implementing stricter screening.

It should be noted that the reduction in DI applications did not increase the inflow into UI.

There is substantial literature about self-selection and disincentive effects in the US. Most studies mainly rely on state-level variation in the implementation of DI rules (e.g. Autor and Duggan, 2003; Gruber, 2000; Gruber and Kubik, 1997; and Parsons, 1991). Often denial rates are used as a proxy for strictness of entry requirements. For example, Parsons (1991) shows that increased denial rates induce a mechanism of self-selection of potential applicants.

De Jong et al. (2011) focus on the introduction of the gatekeeper protocol in the Netherlands in April 2002. This shifted responsibilities for re-integration activities from the DI administration to the employer. Between 2002 and 2004 the inflow into DI reduced by 40%. De Jong (2009) ascribes half of this reduction to the introduction of the gatekeeper protocol. But he also points towards three other factors which helped reduce the inflow. First, as discussed above in 2003, the experience rating in DI premiums paid by employers became fully 'biting' (see Koning, 2004). Second, between 2002 and 2004 the Dutch economy experienced a downturn, which reduced sickness absenteeism. Furthermore, the generosity of the DI program was reduced.

## **6. Macroeconomic effects: interaction between benefit schemes, employment protection, and general equilibrium effects**

### **6.1 Interaction between benefit programs**

Benefit programs are likely to interact. As already mentioned in Subsection 4.2, changing the entitlement rules for SI or DI affects the inflow into UI. If an employer decides to lay off a worker, the employer and worker are likely to choose the benefits program that is most generous and easily accessible. Therefore, SI and DI programs contain some hidden unemployment (see Autor and Duggan, 2003, for evidence for the US). When it becomes more difficult to enter SI or DI, the employer and worker may decide to apply for UI rather than SI and DI.

There are very few empirical studies on the interaction between benefit programs. De Jong et al. (2011) studied the effect of stricter screening of DI applications. They showed that the stricter screening reduced both DI applications and long-term sickness absenteeism. However, there was no effect on inflow into UI. This suggests that at the margin studied in this paper there is no spillover between DI and UI. This contradicts the findings by Koning and Van Vuuren (2007) for the Netherlands. They argued that 3% of all dismissals take place via DI, which implies that about 25% of all DI enrolment consists of hidden unemployment. They do not find evidence for reverse substitution, i.e. disabled workers entering UI.

As to Sweden, Hall and Hartman (2009) and Larsson (2006) found evidence for substitution between DI and UI. They show that in Sweden unemployed workers who can receive sickness benefits that are higher than UI benefits tend to apply for sickness benefits. This implies some hidden unemployment in SI and DI and may also be a source of moral hazard in SI and DI programs

As discussed in Section 4, Bloemen et al. (2010) show that imposing stricter job search requirements on older workers increases the exit rate from unemployment to work. However, they also show that the exit to sickness insurance benefits programs increases. After two years, women are 9% more likely to be in a sickness insurance benefits scheme; for men this is 4%. This shows that making the unemployment insurance benefit scheme less attractive pushes individuals into other social insurance schemes. In general, prior to their mandatory retirement age, older workers search for the most attractive channel to leave the workforce. Those channels include remaining employed, early retirement, or some accessible social insurance scheme. This seems to be confirmed by the Dutch tax reform in 2006, which made early retirement financially less attractive. Whereas prior to the reform the percentage of individuals between age 55 and 64 who were employed increased annually with less than 1%, after the reform the annual increase was over 2%. Kalwij et al. (2009) evaluate how early retirement of older workers affects the labor market opportunities of young workers. Policymakers often motivated stimulating early retirement by suggesting that new entrants on the labor market would benefit, leading to a reduction of youth unemployment. However, Kalwij et al. (2009) empirically show that there are no such spillovers. The latter implies that early retirement causes job destruction.

## **6.2 Employment protection legislation**

General employment protection policies may reduce moral hazard by employers, as mentioned by Blanchard and Tirole (2008). Michau (2009) argues that if you want to tax employers for firing workers, you should also reward companies that hire workers. In practice this may lead to a lot of extra bureaucracy in which

case it is better to have neither firing taxes nor hiring subsidies. It has also been argued that employment protection legislation (EPL) can be seen as an alternative insurance against the risk of job loss (e.g. Pissarides, 2000). As expected and confirmed by data (Bertola, 1990), EPL reduces both employment outflow and inflow. For risk-neutral workers this is undesirable because the bad state (unemployment) will last longer once a worker enters it. Moreover, strict EPL may lead to lower productivity. Bartelsman et al. (2010) have shown, for example, that in countries with high EPL, risky sectors (which have a large fluctuations in productivity) are relatively small. IT-intensive sectors tend to be more variable in terms of profitability, which is consistent with the slowdown of European productivity relatively to the US in the mid-1990s. In general, when a new technology arrives, strict EPL makes it more costly to adopt this technology. In the absence of EPL, bad outcomes are bounded by the option to close production units, while good outcomes are unbounded. EPL makes it more costly to exercise the exit option. Samaniego (2006) gives evidence that EPL correlates negatively with ICT diffusion, and he develops a simple vintage capital model where a firm's optimal size decreases over time when the firm's technology falls behind the frontier (the speed of which depending on the rate of technical change). Bassanini et al. (2009) provide evidence that productivity in high turnover industries is relatively low if EPL is strong. That is consistent with our findings (in our model, turnover is endogenous and depends on the choice of technology). Finally, Cunat and Melitz (2010) showed that countries with flexible labor markets concentrate their exports mainly in sectors with higher volatility. In our empirical exercises, we add a new set of findings to the large literature on the effects of EPL on labor market performance and productivity based on international and micro

evidence: risky, aggregate productivity enhancing activities are harmed relatively heavily by EPL.

The Netherlands has substantial EPL, moving from the 18th (in the late 1980s) to the 25th position of the overall EPL ranking of the OECD (the US is number 1, with the least EPL, and Portugal has the strongest EPL at rank 27). This is mainly due to extensive procedural cost.

Finally, note that many countries have a LIFO (last in, first out) dismissal policy and that employment protection is relatively strong for older workers. That makes it less attractive to hire them (see Buhai et al., 2008).

### **6.3 General equilibrium effects and search externalities**

As we discussed in Section 3, most policies aim at increasing the search intensity of unemployed workers either by using "carrot" type instruments (counseling, re-employment wage bonuses) or "stick" type policies (sanctions). So far, we have ignored possible search externalities from the treatment group to the control group (negative) and to the employers (positive). In this section we consider how general equilibrium effects may change our conclusions.

Treatment externalities have recently received increasing attention in the empirical literature. Blundell et al. (2004) evaluated the impact of an active labor market program (consisting of job search assistance and wage subsidies) targeted at young unemployed workers. The empirical results show that treatment effects can change sign when general equilibrium effects and displacement effects are taken into account. Also Ferracci et al. (2010) found strong evidence for the presence of spillover effects in a French training program for unemployed workers. Lise et al. (2004) specified a matching model to quantify

spillover effects of a wage subsidy program. The model was first tested for 'partial equilibrium implications' using experimental data. This implies that the model was calibrated to the control group, but it can predict treatment group outcomes as well. The results show that general equilibrium effects are substantial and may even reverse the cost-benefit conclusion made on the basis of a partial equilibrium analysis.

Crepon et al. (2011) used data from a randomized experiment to identify the spillover effects of a counseling program. The target population included highly educated unemployed workers below the age of 30, who had been unemployed for at least six months. This is only a very small fraction of the total population of unemployed workers. So it is doubtful that variation in the treatment intensity for this group would have any general equilibrium effects. Furthermore, even individuals assigned to the program participated on a voluntary basis, and refusal rates turned out to be very high. Indeed, it is not surprising that no spillover effects were found even though the estimated treatment effect was substantial. Also Gautier et al. (2011) investigated a job search assistance program, but this one in Denmark. The program improved the job finding results of participants, but spillover effects could be quite substantial. In particular, the effectiveness of the program is substantially reduced in case of a large scale rollout compared to the small scale pilot.

A couple of papers have argued that UI benefits can improve welfare, even if workers are risk neutral, by serving as a search subsidy; see Burdett (1979), Diamond (1981), Marimon and Zilibotti (1999) and Teulings and Gautier (2004). The idea is that in the presence of search frictions, workers meet only a limited number of employers per time unit and cannot therefore be too choosy. However, when accepting an imperfect match, workers do not

internalize that (i) the job they take may suit another worker better, and (ii) the worker is no longer available for jobs that suit the worker in question better. UI benefits can prevent workers from taking bad jobs and make them choosier. The policies to reduce moral hazard that we discussed in Section 2 can have potentially harmful effects since they make workers less rather than more choosy. Of course, the more efficient on-the-job search is, the less costly it is if workers accept bad job offers. If on-the-job and off-the-job search are equally efficient, there is no role for UI benefits as search subsidy. Instruments to increase the efficiency of on-the-job search are a well-functioning housing market and the absence of frictions in the pension system (i.e. the worker does not lose pension rights when switching jobs). Gautier et al. (2010) show that when on-the-job and off-the-job search are equally efficient, firms impose business-stealing externalities on each other. That may justify positive UI benefits.

The literature on optimal participation and search intensity is also relevant. In Frijters and Van der Klaauw (2006), true duration dependence of unemployment can push the reservation wage of workers below the value of home production, and UI benefits conditional on job search can help to prevent workers from leaving the workforce. In Gautier et al. (2009), search intensity is defined as the number of applications that workers send out per quarter. They structurally estimate the search cost distribution, the implied matching probabilities, the productivity of a match, and the flow value of non-labor market time. Those estimates are then used to derive the socially optimal distribution of job search intensities. They found that due to a standard hold-up problem, not enough workers participate in the labor market (participation requires ex ante investments and part of the benefits go to the employers). At the same time, some unemployed workers search too much. This

is due to coordination friction (each additional application creates congestion externalities for other unemployed workers) and rent seeking behavior (workers do not only search hard to find a job but also to find the highest possible wage). Again, UI benefits (conditional on search) are desirable to stimulate participation, but it is not clear that unemployed workers do not search hard enough. How much congestion workers impose on each other depends on the shape of the matching technology; Gautier et al. (2009) make some specific assumptions on this. Wolthoff (2009) is more flexible in this respect and also takes the recruitment efforts of employers into account. He finds for the US that, in an equilibrium situation, workers do not search hard enough.

Finally, introducing sanctions for benefit recipients has a downward effect on wages because it makes the non-employment state less attractive. This in turn makes it more attractive to open vacancies, leading to new positive employment.

## 7. Conclusions and recommendations for the Netherlands

In this report we have provided empirical evidence that social insurance programs for unemployment, sickness and disability are likely to encounter serious moral hazard problems. Moral hazard implies that generous benefits increase the take-up of such benefits. Moral hazard problems exist for all age groups, but there are some specific problems for older workers. In the past two decades, Dutch benefit programs have become less generous. There have been some very substantial reforms which reduced the generosity of UI, repeal of fiscal benefits for early retirement, increased enrollment requirements for DI and stricter job search requirements for unemployed workers. All these policy measures reduce moral hazard problems. Indeed, the size of most benefit programs reduced in the last decade, and labor force participation has increased, particularly among older workers. However, compared to other countries, benefits are still generous, i.e. benefits are relatively high and entitlement periods can be long.

Recently, expenditures on active labor market programs have been reduced. One may argue that the need for active labor market programs is less when institutions provide sufficient incentives for working. Empirical evidence shows that stricter monitoring of job search requirements and imposing sanctions is effective in stimulating exit rates, but even more when targeted towards groups with lower re-employment rates (e.g. long-term unemployed and older workers). Training programs and subsidized employment are often ineffective. Earned-income tax credits have been shown to stimulate employment. The key to this program is that the subsidy is permanent.

There are, however, still some concerns about the Dutch labor market. First, employment protection legislation is still

relatively strict, which may result in more workers either having temporary contracts or being self-employed. De Graaf-Zijl et al. (2011) show that accepting a temporary job shortens the period of unemployment but that such jobs are not a stepping stone toward a regular job. A second concern is that workers in the Netherlands work relatively few hours, which limits economic growth. Women reduce their working hours when having children, and older workers also reduce their working hours before retiring. The evidence that tax rates affect the labor supply is modest, but targeted subsidies such as for child care may have larger effects on the labor supply.

The size of the DI program is reducing but is still relatively large. The main concern is the growth of the program for young handicapped (*WAO Jong*) program. Stimulating re-employment for individuals in this benefit program is difficult. Therefore, policy should aim at reducing entry into the program. This can be done by considering stricter entry requirements and better screening. Finally, there is empirical evidence of general equilibrium effects of active labor market programs and spillovers between benefit programs. This should be taken into account when considering the impact of specific programs. This also shows the need of stricter entry requirements for the various programs.

## References

- Abbring, J.H., G.J. van den Berg and J.C. van Ours (2005), The effect of unemployment insurance sanctions on the transition rate from unemployment to employment. *Economic Journal* 115, 602–630.
- Anderson, P.M. (1992), Time-varying effects of recall expectation, a reemployment bonus, and job counseling on unemployment durations. *Journal of Labor Economics* 10, 99–115.
- Arni, P., R. Lalive and J.C. van Ours (2009), How effective are unemployment benefit sanctions? Looking beyond unemployment exit. Mimeo.
- Ashenfelter, O., D. Ashmore and O. Deschenes (2005), Do unemployment insurance recipients actively seek work? Randomized trials in four U.S. states. *Journal of Econometrics* 125, 53–75.
- Autor, D. and M. Duggan, (2003), The rise in the disability rolls and the decline in unemployment. *Quarterly Journal of Economics* 118, 157–205.
- Autor, D. and S. Houseman (2010), Do temporary-help jobs improve labor market outcomes for low-skilled workers? Evidence from work first. *American Economic Journal: Applied Economics*, forthcoming.
- Bartelsman, E.J., P.A. Gautier and J. de Wind (2010), Employment protection, technology choice and worker allocation. Mimeo, Tinbergen Instituut.
- Bassanini, A., L. Nunziata and D. Venn (2009), Job protection legislation and productivity growth in OECD countries. *Economic Policy* 24, 349–402.
- Bean, C.R. (1994), European unemployment: a survey. *Journal of Economic Literature* 32, 573–619.
- Bertola, G. (1990), Job security, employment and wages. *European Economic Review* 34, 851–879.
- Blanchard, O.J. and J. Tirole (2008), The joint design of unemployment insurance and employment protection: a first pass. *Journal of the European Economic Association* 6, 45–77.
- Bloemen, H., S. Hochguertel and M. Lammers (2010), The effects of job search requirements for older unemployed workers. Mimeo, Tinbergen Institute.
- Blundell, R., M. Costa Dias, C. Meghir and J. van Reenen (2004), Evaluating the employment impact of a mandatory job search program. *Journal of the European Economic Association* 2, 569–606.
- Blundell, R., A. Duncan and C. Meghir (1998), Estimating labor supply responses using tax reforms. *Econometrica* 66, 827–861.
- Boone, J., P. Fredriksson, B. Holmlund and J.C. van Ours (2007), Optimal unemployment insurance with monitoring and sanctions. *Economic Journal* 117, 399–421.
- Bosch, N. and B. van der Klaauw (2012), Analyzing female labor supply: evidence from a Dutch tax reform. *Labour Economics*, forthcoming.

- Buhai, S., M. Portela, C. Teulings and A. van Vuuren (2008), Returns to tenure or seniority. Mimeo, Tinbergen Institute.
- Burdett, K. (1979), Unemployment insurance payments as a search subsidy: a theoretical analysis. *Economic Inquiry* 17, 333–343.
- Burdett, K. and M. Coles (2003), Equilibrium wage–tenure contracts. *Econometrica* 71, 1377–1404.
- Card, D., R. Chetty and A. Weber (2007), Cash-on-hand and competing models of intertemporal behavior: new evidence from the labor market. *Quarterly Journal of Economics* 122, 1511–1560.
- Card, D. and D.R. Hyslop (2005), Estimating the effects of a time-limited earnings subsidy for welfare-leavers. *Econometrica* 73, 1723–1770.
- Card, D., J. Kluve and A. Weber (2010), Active labor market policy evaluations: a meta-analysis. *Economic Journal* 129, F452–F477.
- Carlin, K., B. Holmlund and A. Vejsiu (2001), Do benefit cuts boost job finding? Swedish evidence from the 1990s. *Economic Journal* 111, 766–790.
- Carlsen, B. and K. Nyborg (2009), The gate is open: primary care physicians as social security gatekeepers. Mimeo, University of Oslo.
- Coles, M. (2008), Optimal unemployment policy in a matching equilibrium. *Labour Economics* 15, 537–559.
- Crepon, B., E. Duflou, M. Gurgand, R. Rathelot and P. Zamora (2011), Do labor market policies have displacement effects? Evidence from a clustered randomized experiment. Mimeo.
- Cuñat, A. and M.J. Melitz (2012), Volatility, labor market flexibility, and comparative advantage. *Journal of the European Economic Association*, forthcoming.
- Decker, P.T. (1994), The impact of reemployment bonuses on insured unemployment in the New Jersey and Illinois reemployment bonus experiments. *Journal of Human Resources* 29, 718–741.
- Decker, P.T. and C.L. O’Leary (1995), Evaluating pooled evidence from the reemployment bonus experiments. *Journal of Human Resources* 30, 534–550.
- De Jong, Ph. (2009), Recent changes in Dutch disability policy. Working paper, APE The Hague.
- De Jong, Ph., M. Lindeboom and B. van der Klaauw (2011), Screening disability insurance applications. *Journal of the European Economic Association* 9, 106–129.
- De Graaf–Zijl, M., G.J. van den Berg and A. Heyma (2011), Stepping stones for the unemployed: the effect of temporary work on the duration until (regular) work. *Journal of Population Economics* 24, 107–139.
- Diamond, P.A. (1981), Mobility cost, frictional unemployment and efficiency. *Journal of Political Economy* 89, 798–812.
- Dolton, P. and D. O’Neill (1996), Unemployment duration and the restart effect: some experimental evidence. *Economic Journal* 106, 387–400.

- Eissa, N. (1995), Taxation and labor supply of married women: the tax reform of 1986 as a natural experiment. Working Paper 5023, NBER.
- Eissa, N. and H.W. Hoynes (2004), Taxes and the labor market participation of married couples: the earned income tax credit. *Journal of Public Economics* 88, 1931-1958.
- Eissa, N. and J.B. Liebman (1996), Labor supply responses to the earned income tax credit. *Quarterly Journal of Economics* 111, 605-637.
- Ferracci, M., G. Jolivet and G.J. van den Berg (2010), Treatment evaluation in the case of interactions within markets. Working paper, IZA Bonn.
- Fredriksson, P. and B. Holmlund (2006), Improving incentives in unemployment insurance: a review of recent research. *Journal of Economic Surveys* 20, 357-386.
- Frijters, P. and B. van der Klaauw (2006), Job search with nonparticipation. *Economic Journal* 116, 239-277.
- Gautier, P.A., J.L. Moraga-Gonzalez and R. Wolthoff (2009), Structural estimation of search intensity: do non-employed workers search enough? Mimeo, Tinbergen Institute.
- Gautier, P.A., C.N. Teulings and A. van Vuuren (2010), On the job search mismatch and efficiency. *Review of Economic Studies* 77, 245-272.
- Gautier, P.A., P. Muller, B. van der Klaauw, M. Rosholm and M. Svarer (2011), Estimating equilibrium effects of job search assistance. Mimeo, Tinbergen Institute.
- Gorter, C. and G.R.J. Kalb (1996), Estimating the effect of counseling and monitoring the unemployed using a job search model. *Journal of Human Resources* 31, 590-610.
- Grubb, D. (1999), Making work pay: the role of eligibility criteria for unemployment benefits. Mimeo, Paris, OECD.
- Gruber, J. (2000), Disability insurance benefits and labor supply. *Journal of Political Economy* 108, 1162-1183.
- Gruber, J. and J.D. Kubik (1997), Disability insurance rejection rates and the labor supply of older workers. *Journal of Public Economics* 64, 1-23.
- Hairault, J.-O., F. Langot, S. Ménard and T. Sopraseuth (2009), Optimal unemployment insurance for older workers. Working Paper 4071, IZA Bonn.
- Hall, C. and L. Hartman (2009), Moral hazard among the sick and unemployed: evidence from a Swedish social insurance reform. *Empirical Economics*, forthcoming.
- Heckman, J.J. (1974), Shadow prices, market wages and labor supply. *Econometrica* 42, 679-694.
- Hesselius, P., P. Johansson and L. Larsson (2005), Monitoring sickness insurance: evidence from a social experiment. Working paper, IFAU Uppsala.
- Hopenhayn, H.A., and J.-P. Nicolini (1997), Optimal unemployment insurance. *Journal of Political Economy* 105, 412-438.

- Johansson, P. and M. Palme (2002), Assessing the effect of a public policy on worker absenteeism. *Journal of Human Resources* 37, 381–409.
- Johansson, P. and M. Palme (2005), Moral hazard and sickness insurance. *Journal of Public Economics* 89, 1879–1890.
- Johnson, T.R. and D.H. Klepinger (1994), Experimental evidence on unemployment insurance work-search policies. *Journal of Human Resources* 29, 695–717.
- Kalwij, A., A. Kapteyn and K. de Vos (2009), Early retirement and employment of the young. Working paper, Rand.
- Kluve, J. (2010), The effectiveness of European active labor market programs. *Labour Economics* 17, 904–918.
- Kluve, J. and C.M. Schmidt (2002), Can training and employment subsidies combat European unemployment? *Economic Policy* 35, 411–448.
- Koning, P. (2004), Estimating the impact of experience rating on the inflow into disability insurance in the Netherlands. CPB Discussion Papers, 37.
- Koning, P. and D.J. van Vuuren (2007), Disability insurance and unemployment insurance as substitute pathways. *Applied Economics* 42, 575–588.
- Lalive, R. (2007), Unemployment benefits, unemployment duration, and post-unemployment jobs: a regression discontinuity approach. *American Economic Review Papers and Proceedings* 92, 108–112.
- Lalive, R. (2008), How do extended benefits affect unemployment duration? A regression discontinuity approach. *Journal of Econometrics* 142, 785–806.
- Lalive, R., J.C. van Ours and J. Zweimüller (2005), The effect of benefit sanctions on the duration of unemployment. *Journal of the European Economic Association* 3, 1386–1417.
- Larsson, L. (2006), Sick of being unemployed? Interactions between unemployment and sickness insurance. *Scandinavian Journal of Economics* 108, 97–113.
- Lentz, R. (2009), Optimal unemployment insurance in an estimated job search model with savings. *Review of Economic Dynamics* 12, 37–57.
- Lise, J., S. Seitz and J. Smith (2005), Equilibrium policy experiments and the evaluation of social programs. Working paper.
- Ljungqvist, L. and T.J. Sargent (1998), The European unemployment dilemma. *Journal of Political Economy* 106, 514–550.
- Manning, A. (2009), You can't always get what you want: the impact of the UK jobseeker's allowance. *Labour Economics* 16, 239–250.
- Marimon, R. and F. Zilibotti (1999), Unemployment vs. mismatch of talents: reconsidering unemployment benefits. *Economic Journal* 109, 266–291.
- Markussen, S. (2010), How physicians can reduce sick leave – evidence from a natural experiment. Working paper, Ragner Frisch Centre for Economic Research.

- McVicar, D. (2008), Job search monitoring intensity, unemployment exit and job entry: quasi-experimental evidence from the UK. *Labour Economics* 15, 1451–1468.
- Meghir, C. and D. Phillips (2008), Labour supply and taxes. Working Paper 8, IFS London.
- Meyer, B.D. (1995), Lessons from the U.S. unemployment insurance experiments. *Journal of Economic Literature* 33, 91–131.
- Meyer, B.D. (1996), What have we learned from the Illinois reemployment bonus experiment? *Journal of Labor Economics* 14, 26–51.
- Meyer, B.D., W.K. Viscusi and D.L. Durbin (1995), Workers' compensation and injury duration: evidence from a natural experiment. *American Economic Review* 85, 322–340.
- Michau, J.B. (2009), Optimal policy in a dynamic search model with risk aversion. CEP working paper.
- Micklewright, J. and G. Nagy (2010), The effect of monitoring unemployment insurance recipients on unemployment duration: evidence from a field experiment. *Labour Economics* 17, 180–187.
- OECD (2010), Employment Outlook. OECD, Paris.
- Mortensen, D. and C. Pissarides (1994), Job creation and job destruction in the theory of unemployment. *Review of Economic Studies* 61, 397–415.
- Parsons, D.O. (1991), Self-screening in targeted public transfer programs. *Journal of Political Economy* 99, 859–876.
- Pavoni, N., O. Setty and G. Violante (2009), Optimal welfare programs with search, work, and training. Mimeo.
- Samaniego, R.M. (2006), Employment protection and high-tech aversion. *Review of Economic Dynamics* 9, 224–241.
- Shavell, S. and L. Weiss (1979), The optimal payment of unemployment insurance benefits over time. *Journal of Political Economy* 87, 1347–1362.
- Shimer, R. and I. Werning (2006), On the optimal timing of benefits with heterogeneous workers and human capital depreciation. NBER Working Paper 12230.
- Shimer, R. and I. Werning (2008), Liquidity and insurance for the unemployed. *American Economic Review* 98, 1922–1942.
- Stevens, M. (2004), Wage–tenure contracts in a frictional labour market: firms' strategies for recruitment and retention. *Review of Economic Studies* 71, 535–551.
- Svarer, M. (2007), The effect of sanctions on the job finding rate: evidence from Denmark. IZA Discussion Paper 3015.
- Teulings, C.N. and P.A. Gautier (2004), The right man for the job. *Review of Economic Studies* 71, 553–580.

- Van den Berg, G.J. and B. van der Klaauw (2006), Counseling and monitoring of unemployed workers: theory and evidence from a controlled social experiment. *International Economic Review* 47, 895–936.
- Van den Berg, G.J. and B. van der Klaauw (2010), Structural empirical evaluation of job search monitoring. Mimeo.
- Van den Berg, G.J., B. van der Klaauw and J.C. van Ours (2004), Punitive sanctions and the transition rate from welfare to work. *Journal of Labor Economics* 22, 211–241.
- Van den Berg, G.J. and J. Vikstrom (2009), Monitoring job offer decisions, punishments, exit to work, and job quality. IFAU Working Paper 18.
- Van der Klaauw, B. and J.C. van Ours (2011), Carrot and stick: how reemployment bonuses and benefit sanctions affect exit rates from welfare. *Journal of Applied Econometrics*, forthcoming.
- Wolthoff, R. (2009), Applications and interviews: a structural analysis of two-sided simultaneous search. Mimeo, University of Chicago.
- Woodbury, S.A. and R.G. Spiegelman (1987), Bonuses to workers and employers to reduce unemployment: randomized trials in Illinois. *American Economic Review* 77, 513–530.
- Ziebarth, N.R. and M. Karlsson (2009), A natural experiment on sick pay cuts, sickness absence, and labor costs. Working paper, DIW Berlin.



# PUBLICATIONS IN THE PANEL PAPERS SERIES

1. *Saving and investing over the life cycle and the role of collective pension funds*  
Lans bovenberg , Ralph Koijen, Theo Nijman and Coen Teulings
2. *What does behavioural economics mean for policy? Challenges to savings and health policies in the Netherlands*  
Peter Kooreman and Henriëtte Prast
3. *Housing wealth and household portfolios in an aging society*  
Jan Rouwendal
4. *Birth is the sessenger of death – but policy may help to postpone the bad news*  
Gerard van den Berg and Maarten Lindeboom
5. *Phased and partial retirement: preferences and limitations*  
Arthur van Soest and Tunga Kantarci
6. *Retirement Patterns in Europe and the U.S.* (2008)  
Arie Kapteyn and Tatiana Andreyeva
7. *Compression of morbidity: A promising approach to alleviate the societal consequences of population aging?* (2008)  
Johan Mackenbach, Wilma Nusselder, Suzanne Polinder and Anton Kunst
8. *Strategic asset allocation* (2008)  
Frank de Jong, Peter Schotman and Bas Werker
9. *Pension Systems, Aging and the Stability and Growth Pact* (2008) Revised version  
Roel Beetsma and Heikki Oksanen
10. *Life course changes in income: An exploration of age- and stage effects in a 15-year panel in the Netherlands* (2008)  
Matthijs Kalmijn and Rob Alessie
11. *Market-Consistent Valuation of Pension Liabilities* (2009)  
Antoon Pelsser and Peter Vlaar
12. *Socioeconomic Differences in Health over the Life Cycle: Evidence and Explanations* (2009)  
Eddy van Doorslaer, Hans van Kippersluis, Owen O'Donnell and Tom Van Ourti
13. *Computable Stochastic Equilibrium Models and their Use in Pension- and Ageing Research* (2009)  
Hans Fehr
14. *Longevity risk* (2009)  
Anja De Waegenaere, Bertrand Melenberg and Ralph Stevens

15. *Population ageing and the international capital market* (2009)  
Yvonne Adema, Bas van Groezen and Lex Meijdam
16. *Financial Literacy: Evidence and Implications for Consumer Education* (2009)  
Annamaria Lusardi and Maarten van Rooij
17. *Health, Disability and Work: Patterns for the Working-age Population* (2009)  
Pilar García-Gómez, Hans-Martin von Gaudecker and Maarten Lindeboom
18. *Retirement Expectations, Preferences, and Decisions* (2010)  
Luc Bissonnette, Arthur van Soest
19. *Interactive Online Decision Aids for Complex Consumer Decisions: Opportunities and Challenges for Pension Decision Support* (2010)  
Benedict Dellaert
20. *Preferences for Redistribution and Pensions. What Can We Learn from Experiments?* (2010)  
Jan Potters, Arno Riedl and Franziska Tausch
21. *Risk Factors in Pension Returns* (2010)  
Peter Broer, Thijs Knaap and Ed Westerhout
22. *Determinants of Health Care Expenditure in an Aging Society* (2010)  
Marc Koopmanschap, Claudine de Meijer, Bram Wouterse and Johan Polder
23. *Illiquidity: implications for investors and pension funds* (2011)  
Frank de Jong and Frans de Roon
24. *Annuity Markets: Welfare, Money's Worth and Policy Implications* (2011)  
Edmund Cannon, Ian Tonks
25. *Pricing in incomplete markets* (2011)  
Antoon Pelsser
26. *Labor Market Policy and Participation over the Life Cycle* (2012)  
Pieter Gautier and Bas van der Klaauw

## Labor Market Policy and Participation over the Life Cycle

Empirical evidence shows that labor market decisions depend on financial incentives. For example, generous benefits schemes increase the dependency on such benefits. This moral hazard is present in all types of benefits such as early retirement schemes, unemployment insurance and disability insurance. Moral hazard implies that individuals have less incentives to avoid entering a benefits scheme or to reduce their efforts to leave the benefits scheme. In this report Pieter Gautier and Bas van der Klaauw (both VU University Amsterdam) discuss policy measure aiming at reducing moral hazard problems, which go beyond reducing the generosity of the benefits schemes.