CPB Netherlands Bureau for Economic Policy Analysis

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Labour Market Flexibility in the Netherlands

The role of contracts and self-employment

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Abstract

Labour market flexibility determines the possibilities of workers and firms to adjust to changes in the economic environment. This study focuses on the role of the most important types of labour relations that are observed on the Dutch labour market: permanent contracts, temporary contracts and self-employment. The five chapters in this study provide new empirical evidence on individual labour market outcomes in the most recent period in the Netherlands. The evidence shows that wages in the Netherlands increase strongly with tenure (chapter 3), that temporary workers earn less and are more often overeducated for the work they do (chapter 4), that temporary workers receive less employer-funded training (chapter 5), that temporary jobs can act as a steppingstone for certain kinds of workers, such as highly educated individuals (chapter 6), and that self-employment can act as a steppingstone for certain groups, as well (chapter 7). The evidence is nested in a conceptual framework that discusses the advantages and disadvantages of labour market flexibility for both workers and firms. An overall conclusion is that the coexistence of different types of labour contracts makes sense, since they serve different goals on the labour market.

Key words: Labour market flexibility, wages, tenure, training, human capital, mobility, temporary jobs, self-employment

Abstract in Dutch

De flexibiliteit van de arbeidsmarkt bepaalt de mogelijkheden van werknemers en werkgevers om zich aan te passen aan veranderende economische omstandigheden. Deze studie gaat in op de rol van de belangrijkste typen arbeidsrelaties die voorkomen op de arbeidsmarkt: permanente banen, tijdelijke banen en zelfstandig ondernemerschap. De publicatie bevat vijf hoofdstukken met nieuw empirisch onderzoek naar de arbeidsmarktsituatie van individuen voor recente jaren. Het onderzoek laat zien dat in Nederland de lonen relatief sterk stijgen met baanduur (hoofdstuk 3), dat tijdelijke werknemers minder verdienen en vaak overgekwalificeerd zijn (hoofdstuk 4), dat tijdelijke werknemers minder vaak scholing volgen die door hun werkgever wordt betaald (hoofdstuk 5), dat tijdelijke banen een opstap naar een betere baan kunnen zijn voor bepaalde werknemers zoals werknemers met een hoge opleiding (hoofdstuk 6), en dat ook zelfstandig ondernemerschap een opstap kan zijn voor bepaalde groepen (hoofdstuk 7). Het onderzoek is aangevuld met een conceptuele beschrijving van de voor- en nadelen van arbeidsmarktflexibiliteit voor werknemers en werkgevers. Een algemene conclusie is dat het bestaan van verschillende soorten arbeidsrelaties zinvol is omdat ze ieder een eigen doel dienen.

Steekwoorden: Flexibiliteit van de arbeidsmarkt, lonen, baanduur, training, menselijk kapitaal, mobiliteit, tijdelijke banen, zelfstandig ondernemersschap.

Contents

Preface

Labour market flexibility determines the possibilities of workers and firms to adjust to changes in the economic environment, such as business cycle movements and structural changes. This study focuses on the role of the most important types of labour relations that are observed on the Dutch labour market: permanent contracts, temporary contracts and self-employment. Why are there different types of employment relations on the labour market? What is the role of these labour relations over the life cycle and across different groups on the labour market? How do government policy and agreements between unions and employers impact individual labour market outcomes such as having a permanent or temporary contract, being self-employed, and mobility and wage growth during the working career? Are temporary workers really worse off, for example, and when do they have good opportunities to move on to a permanent job? And, which self-employed individuals manage to stay on the labour market? To contribute to the discussion, this study contains five chapters with new empirical evidence on individual labour market outcomes in the most recent period in the Netherlands. The evidence is nested in a conceptual framework that discusses the advantages and disadvantages of labour market flexibility for workers and firms.

The study has been written by staff members of CPB and ROA whose names are mentioned as authors of the respective chapters. Several staff members of Statistics Netherlands also contributed to the study. The coordination and editing was done by Rob Euwals (CPB), Frank Cörvers and Andries de Grip (ROA) and Nicole Bosch and Anja Deelen (CPB). They particularly acknowledge useful discussions with a group of experts from the Ministry of Social Affairs and Employment, the Ministry of Economic Affairs, Agriculture and Innovation, the Ministry of Finance, the Ministry of Education and Sciences, the Social and Economic Council of the Netherlands (SER), UWV, and Randstad. Several seminars at CPB and one seminar at ROA have sharpened the focus of the study and the different chapters. Suggestions and comments by Casper van Ewijk, Albert van der Horst, Egbert Jongen, Ruud de Mooij, Mark Roscam Abbing, Daniel van Vuuren and Bas ter Weel have been useful in preparing this research. The study provides input for the conference 'Flexibility of the Labour Market,' which will be held on 20-21 January in The Hague.

Coen Teulings
Director of CPB

Thomas Dohmen
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1 Introduction

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1.1 Setting the scene

About three out of four Dutch workers have a permanent contract, more than one out of ten workers have a temporary contract and more than one out of ten workers are self-employed. At the same time, temporary employment is on the rise: from about 11% in 1996 to about 16% in 2008 (according to the international definition). Over the life cycle, workers have different types of contracts, varying by gender and level of education. Temporary contracts are rather common among the young: while at ages 15-25 about 30% of all workers and about 40% of lower educated working women have a temporary contract, about 5% of workers aged 55-65 have such a contract.[1] Self-employment is rather common among older workers: while at ages 15-25 about 5% are self-employed, at ages 55-65 about 20% of all workers and about 25% of higher educated working men are self-employed. Temporary contracts and self-employment contribute to labour market flexibility – but this may come at the cost of investments in firm-specific human capital. Indeed, while about 9% of workers with a permanent contract have participated in employer-funded training, this holds for 5% of those with a temporary contract. In the Netherlands, wages increase strongly with tenure, and mobility is relatively low. While more than 40% of Dutch workers have been working for the same employer over the last ten years, this holds true for about 35% of workers in the OECD countries. The share of workers with a long tenure is high at each age in the Netherlands. The main observation is that while the Dutch labour market is relatively inflexible (because the share of workers with permanent contracts is high, especially among older male workers), it is also surprisingly flexible (because of the many temporary contracts among the young, and the rather substantial share of self-employment). This amounts to a certain duality on the Dutch labour market between those with permanent contracts and those with other contracts, which leads to inequality in terms of who bears the burden of shocks and who has opportunities to invest in human capital.

In recent policy discussions there has been a call for greater labour market flexibility, as globalisation and technological and organisational changes have led to accelerated change in the economic environment. Employers have become more hesitant to hire permanent workers, and instead hire temporary workers in order to accommodate to these changes and to absorb shocks. Furthermore, the current economic crisis has led to a drop in demand in particular sectors of industry, while other sectors are still expanding. The supply side of the labour market is changing as well. The ageing of the Dutch workforce may weaken its adaptability to labour market shocks because retraining or mobility is unlikely to be profitable for older workers. At the same time, older workers are more likely to be self-employed. The question is whether this is by choice or whether the trend represents a necessary career change after having been dismissed. Overall, there are plenty of reasons to measure and interpret labour market flexibility and the role of the different types of contracts in the Netherlands.

To analyse labour market flexibility, this study focuses on the role of the different types of prevailing labour relations. Labour market flexibility determines the possibilities of firms in terms of adjusting their workforce in response to changes in production. Flexibility also determines the possibilities of (unemployed) workers in terms of finding a job. Knowledge about the role of prevailing labour relations contributes to our understanding of the functioning of the labour market. What are the advantages and disadvantages of the different types of contracts for workers and firms? To what extent does employment protection of permanent jobs affect wages and mobility? In what way should temporary contracts and self-employment be promoted to increase flexibility? Or, should the adaptability of workers and firms be increased by promoting human capital formation during different stages of the life cycle?

This study presents answers to the aforementioned questions by documenting new empirical evidence for the Dutch labour market in the most recent period. The evidence, structured in five chapters, is based on survey data (containing individual information on labour market status, educational attainment, and training) as well as on administrative data (containing workers' labour market status and wages over a longer period of time). The study documents the labour market outcomes of those who stay with a firm relative to temporary workers and self-employed individuals. The

[1] Figures by demographics and educational attainment are for 2009, and are based on national definitions of employment.

evidence is nested in a theoretical framework that discusses the advantages and disadvantages of labour market flexibility for both workers and firms. The framework structures labour market flexibility over the life cycle (acknowledging the high degree of heterogeneity) and according to the various types of employment status observed in the Dutch labour market.

1.2 Policy issues

The study contributes to the policy discussion by presenting new empirical evidence on labour market outcomes in the Netherlands. Descriptive statistics indicate that the share of workers with a certain type of employment contract varies over the life cycle. Government policy and agreements between unions and employers have an impact on labour market outcomes such as having a permanent or temporary contract, being self-employed, and mobility and wage growth during the working career. Intervention on the labour market takes place in the form of institutions setting rules for the various types of labour contracts. Possible reasons for intervention include desiring to improve labour market allocation (efficiency) and pursuing greater equality.

In many countries, the government intervenes in the protection extended to workers on permanent contracts. Such interventions – for example, in the form of employment protection legislation – increase job security for those having a permanent contract. However, employment protection limits the flexibility of firms to adjust their workforce, and may make them reluctant to hire workers on a permanent basis. Furthermore, a large divergence between the protection of permanent and temporary contracts leads to inequality between workers – and may under certain circumstances induce firms to hire many temporary workers. By setting rules for permanent and temporary contracts, the government has substantial impact on the functioning of the labour market. But what impact do the rules have? What impact does employment protection legislation have on wages and mobility? Under what circumstances are temporary workers worse off, and when do they have good opportunities to move on to a permanent job?

Self-employment is a deliberate choice for most workers, but some may choose to become self-employed because they are not able to find a permanent job. When self-employment is not a deliberate choice, it may lead to inequality compared to workers who do have a permanent contract. However, the labour market prospects of the self-employed may flourish because of the accumulation of experience and their signalled willingness to work. The question remains: to what extent do self-employed workers survive on the labour market?

The role of the various types of labour relations has become a pressing matter in many countries, including the Netherlands. Labour market participation of older persons is increasing and will continue to do so, because of the postponement in retirement age. The ageing of the workforce will put rising wage profiles over the life cycle under pressure. Skills and knowledge of older workers will have to be maintained or upgraded, and deferred payment schemes will be harder to maintain because of the larger number of older workers. Also the efficient allocation of older workers to tasks in which they are most productive poses a major challenge to both workers and firms. Besides the major task at hand for the government is to design sustainable labour market institutions, the Dutch unions and employer organisations must step up to design sustainable arrangements.

1.3 General conclusions

The coexistence in the labour market of different types of labour contracts and self-employment makes sense, since the various forms serve different goals. Temporary contracts, including fixed-term contracts, temporary work agency contracts, and on-call contracts, are a growing part of the range of contracts observed in the Dutch labour market. Also self-employment is an important part of the labour market.

One of the first observations gleaned from this study is that temporary workers earn lower wages than similar workers on a permanent contract (Figure 1.1). The wage penalty of the temporary workers relative to permanent workers rises with the level of education and is between 2 and 7% for workers with a fixed-term contract and between 13 and 27% for those

on a temporary agency contract. Temporary contracts score high in terms of flexibility, since they allow firms to adjust the size of the workforce to changes in their economic environment. The empirical evidence shows that the allocation of workers to temporary jobs is particularly determined by the demand side of the labour market, in two respects. First, employers are more willing to offer permanent contracts when the labour market is tight. Second, graduates in fields of study with a small variation in employment over time are more likely to receive a permanent contract. On the supply side, there is no indication that the choice for flexible work is related to willingness to take risks. A temporary contract neither offers job security to the worker, nor provides financial compensation for this low level of security. The labour market is no frictionless market in which supply and demand simply meet each other at all times; instead, search frictions are likely to play a substantial role. Because of these frictions, different types of jobs exist in the labour market, with some jobs being temporary and not particularly well paid. Many workers will stay in such jobs for a limited period of time and will move on to better jobs.

Figure 1.1 Wage difference of temporary contracts relative to permanent contracts

The wage difference of temporary employment after taking demographic and educational variables into account.
Source: ROA (SIS), see also chapter 4 of this study.

Search behaviour and job-hopping behaviour are important reasons why youngsters, in particular, accept temporary jobs with relatively low wages. About 30% of workers aged 15-25 have a temporary contract – and this percentage varies from almost 25% of high-educated men to about 40% of low-educated women (Figures 1.2 and 1.3). Youngsters may not be directly in search of a permanent job because they are still learning about their abilities and preferences. If they are looking for a permanent job, they may not yet have found the right job. Because of the low wages, many workers stay in a temporary job for a short period of time only. Our empirical evidence shows that temporary contracts act as a steppingstone for some groups of young workers. These groups include university graduates, workers receiving firm-specific training, and some disadvantaged groups about which employers are uncertain. For other groups, temporary jobs are less attractive; some of our evidence indicates, for example, that particularly low-educated workers are less likely to find sustainable employment.

About three out of four workers are on a permanent contract. Figures 1.2 and 1.3 show that individuals aged 25-35 have a higher probability of having a permanent contract. This is particularly so for higher educated workers, as can be seen from comparing the right-hand side panels of Figures 1.2 and 1.3 with the left-hand side panels. At ages 25 and older, many of these individuals have finished formal education, and after a period of searching and job-hopping, many have found a good match. Such workers are likely to stay in their jobs for a longer period of time, in particular – as it is at this age that commitment in the private domain starts. Under such circumstances, investments in firm-specific human capital have a high return. At ages 25-35, the share of workers receiving employer-funded training reaches a maximum.

Survey evidence suggests that about 10% of workers have received such training in the last four weeks. Figure 1.4 shows that particularly those workers with a permanent contract are being trained by their employers. Workers on a temporary contract are less likely to participate in employer-funded training. Their training rate is lower, at rates between 4-6%. Our evidence suggests that temporary workers receiving employer-funded training have a higher probability of getting a permanent contract. Self-employed workers are even less likely to be involved in funded training schemes, with rates varying between 1-3%. Long-term contracts seem to encourage mutual investments in skills and knowledge, which increases the adaptability of firms to adjust to changing skill requirements due to technological and organisational changes. Our empirical evidence also shows that higher educated workers, in particular, are more likely to be involved in employer-funded training, which confirms the fact that 'skill begets skill'. The skills of higher educated workers are also more prone to obsolescence. This implies that investments are both beneficial and necessary for this group of workers.

Figure 1.2 Employment by age for men with low (left) and high (right) level of education

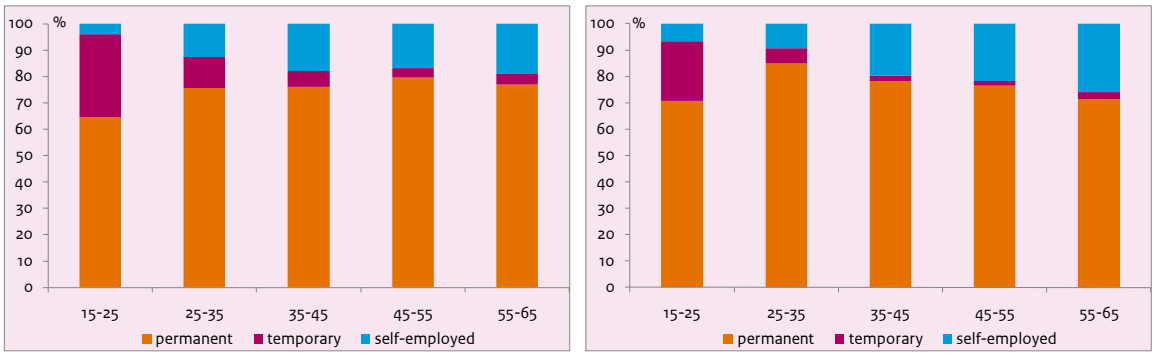
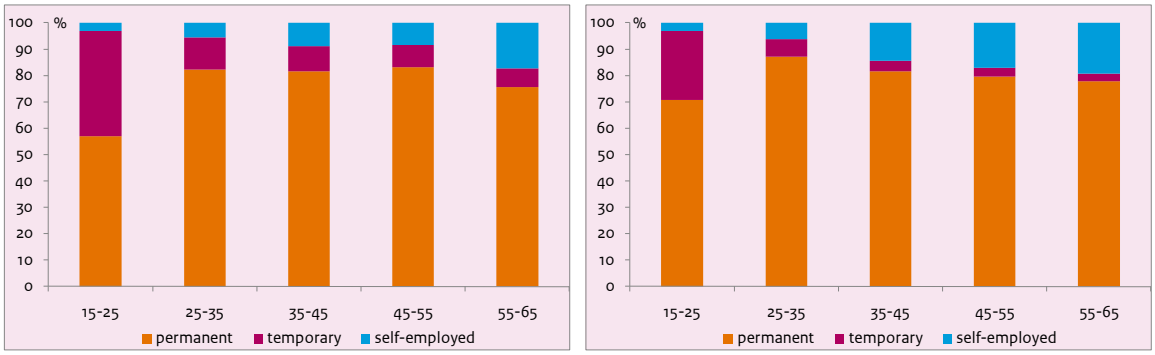


Figure 1.3 Employment by age for women with low (left) and high (right) level of education

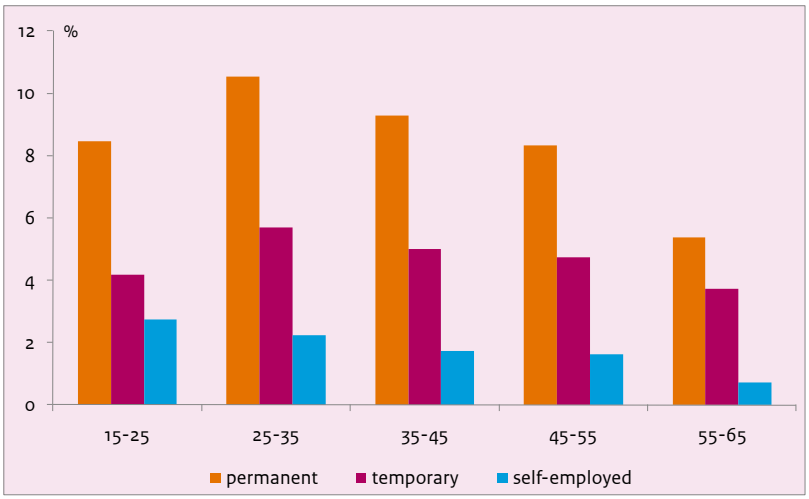


National definition of employment, low level of education includes primary and lower secondary education.

Source: Statistics Netherlands, Labour Force Survey, see also chapter 2 of this study.

The career patterns of relatively high- and low-educated workers differ substantially. While many higher educated workers are on a permanent contract, the share falls with age (see Figure 1.2). Possibly firm-specific skills and knowledge start to become obsolete, and new investments have too low of a return because of the short payback period. Not surprisingly, the share of workers in employer-funded training decreases with age as well (see Figure 1.4). The share of lower educated workers on a permanent contract seems to reach a maximum at a later age (around age 50), as can be observed from the left-hand side pictures in Figures 1.2 and 1.3. Employment protection of permanent contracts may keep such individuals in these contracts.

Figure 1.4 Employment-funded training by age and labour contract

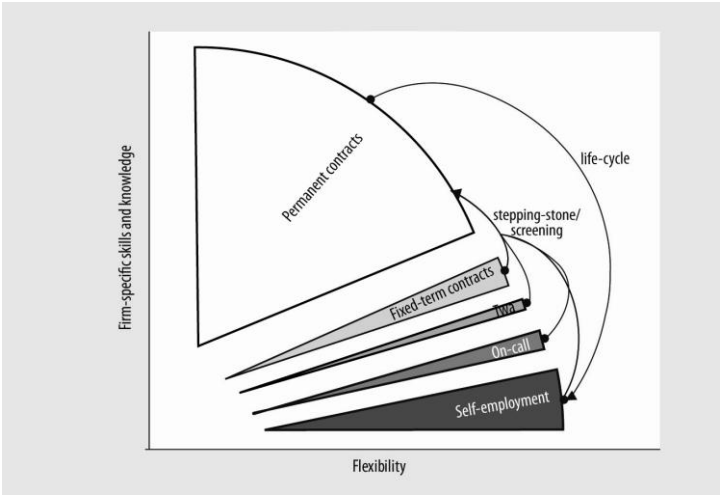


Source: Statistics Netherlands, Labour Force Survey, see also chapter 5 of this study.

Self-employment is an important part of the Dutch labour market. Self-employment scores high on flexibility. For both lower and higher educated workers, self-employment becomes an important alternative at advanced ages: the share of white in the bars in Figures 1.2 and 1.3 is increasing from ages 25-35 onwards. This is particularly true of the higher educated individuals: the rate of self-employment increases from about 10% for men and 5% for women at ages 25-35 to about 25% and 20% at ages 55-65. New investments in firm-specific human capital are not attractive at advanced age, and the share of self-employed receiving training paid by the firm that hires them is low (see Figure 1.4). An open question is why many high-educated workers opt for self-employment at advanced ages, with many having a permanent job and firm-specific skills. It is possible that independence becomes more important at advanced ages. Another reason for self-employment may be that some disadvantaged groups succeed in using such employment as a steppingstone - probably to obtain relevant experience.

Figure 1.5 summarizes some major conclusions of this study. The figure shows a trade-off between flexibility (horizontal axis) and investments in firm-specific skills and knowledge (vertical axis). The evidence in this study shows that labour market relations with a high level of flexibility have a low level of (employer-) funded training. The level of training is particularly low for the self-employed. The size of a slice in Figure 1.5 represents the share of a contract on the Dutch labour market, while the arrows represent the type of mobility between contracts. Most workers have a permanent contract. Such contracts score low on flexibility, as they give employers limited opportunities to adjust the size of the workforce. Such contracts, however, score relatively high on (employer-) funded training. Temporary contracts offer an opportunity to workers to enter the labour market and to continue searching for a better match. These contracts score high on flexibility, and firms use such contracts to screen workers. Investments in human capital are, however, low. From a certain age onwards, many workers move on to self-employment. Such employment scores high on flexibility, but the evidence in this study shows that human capital investments during such employment are clearly lower than for workers with a permanent contract.

Figure 1.5 Permanent contracts, temporary contracts and self-employment



The size of each slice represents the share in the Dutch workforce. A permanent contract mostly implies a high level of firm-specific skills and knowledge, and a low level of flexibility. Many workers start employment with a flexible contract, move on to a permanent contract (stepping stone / screening) and later in life self-employment becomes more important.

The empirical evidence in this study shows that wages increase strongly with tenure in the Netherlands. Furthermore, employment protection of permanent contracts increases the bargaining power of insiders with permanent contracts. This limits mobility, and many (in particular, low-educated) workers stay in permanent contracts until advanced ages. Irrespective of the explanation, the steep wage-tenure profiles make it difficult for firms with an ageing workforce to adapt to shifts in employment as well as to technological and organisational changes within sectors of industry that often induce both quantitative and qualitative shifts in labour demand. This inflexibility will particularly hold in an ageing society, where firms may suffer from productivity-wage gaps for older workers related to deferred compensation or the bargaining power of workers with permanent contracts. Moreover, the combination of employment protection and steep tenure-wage profiles makes it difficult for firms to adapt to the postponement of the eligibility age in pension systems and the reduced possibilities for other early labour market exit routes. Maintaining or upgrading productivity among older workers and efficiently allocating older workers to tasks and contracts in which they are most productive therefore poses a major challenge to both employees and employers.

1.4 Policy conclusions

This study offers new insights into the functioning of the Dutch labour market by measuring and interpreting labour market flexibility in the Netherlands. From a policy perspective, there are a number of important concerns: (1) the inequality between workers with flexible and permanent contracts, (2) the consequences for economic growth of changes in employment protection legislation for permanent contracts, and (3) the adjustment of arrangements for workers with permanent contracts to the postponement of the eligibility age in pension systems.

One of the foremost concerns for policy makers is that a sharp distinction between permanent and flexible jobs creates inequality. For some groups, temporary employment is less attractive, as wages are clearly lower. However, when temporary jobs act as steppingstones to sustainable employment, the unfavourable working conditions in these jobs may be acceptable for a certain period of time. Moreover, it should be noted that flexible jobs lower the thresholds to employ workers with uncertain productivity.

Public policy offers two options for reducing the distinction between flexible and permanent jobs: an increase in employment protection of temporary jobs or a decrease in employment protection of permanent jobs. The first option will mitigate the inequality among workers, but not necessarily within the entire labour force, since some flexible workers may become unemployed. Firms will hire fewer flexible workers, and will have fewer opportunities to adjust the size of their workforce in booms and busts. Moreover, there will be more screening for flexible jobs, where these jobs can still serve as steppingstones to better jobs. The second option will lead to less inequality among workers, and induces firms to hire more permanent workers. Lowering the protection of permanent jobs will give firms more flexibility to adjust their workforce to business cycle fluctuations or technological and organizational changes. This is achieved at the expense of workers in permanent jobs, who will then experience less job security.

A second concern is the level of employment protection of permanent contracts. Permanent contracts may act as a commitment device to invest in human capital. This does not necessarily imply, however, that employment protection of workers with permanent contracts encourages human capital investments. If such investments are important, workers and employers have incentives to agree upon the terms of the labour contract, including dismissal. Regulation in the form of employment protection seems therefore not a necessary condition for investments in human capital. According to economic theory, employment protection may even discourage employers to invest in human capital – as it strengthens the negotiation position of the workers, giving them power to demand a relatively large share of profits in case investments turn out to be fruitful. The empirical evidence on the impact of employment protection on productivity is, however, not conclusive. Several empirical studies found no clear relation, and only in some recent studies has evidence been found of a negative relation. But at least employment protection decreases job creation and labour market mobility, and limits the flexibility of firms, in the sense that it is costly to adjust the size of their workforce. This may hamper employment in new economic activities.

Public policy aimed at productivity growth focuses on monitoring of labour productivity, the acquisition of skills and knowledge during permanent employment in the different sectors of industry, and labour market mobility between sectors. When productivity growth is small in certain sectors and labour mobility is low as well, the rigidity of the labour market may slow down economic growth. Another policy option is to leave regulation of employment protection to workers and employers. In case investments in firm-specific skills and knowledge are indeed important, both parties have an incentive to agree upon the terms of the labour contract.

A third concern is that the steep wage-tenure profiles related to permanent contracts makes it difficult for firms with an ageing workforce to adapt to shifts in the sector structure of employment, as well as to technological and organisational changes. Skills may become obsolete, due to these changes. From this perspective, maintaining or upgrading productivity among older workers and efficiently allocating older workers to tasks in which they are most productive poses a major challenge to both these workers and their employers. Incentives to invest in human capital fall as the retirement age approaches, since retirement limits the amortisation period. The human capital investments should be made when workers are not close to retirement age. Obviously, it will take time before firms can adjust their arrangements with the workers to whom they offer permanent contracts. These adjustments include investments in the human capital as well as the tenure-wage profiles of such workers.

Public policy aimed at adjusting the arrangements of workers with permanent contracts is largely in the hands of the Dutch social partners (that is, the unions and employer organisations). The reason is because wages and working arrangements are largely determined at the collective level. It is in the interest of unions and employer organisations to agree upon wage and production arrangements that are sustainable for the Dutch economy facing an ageing workforce, worldwide competition from an increasing number of developing economies and an increasing level of uncertainty in terms of the allocation of production activities.

1.5 Outline of the study

The study contains five chapters (chapters 3-7) with new empirical evidence on the Dutch labour market. The evidence is complemented by a conceptual framework.

Chapter 2 presents the conceptual framework, discussing the advantages and disadvantages of the different types of prevailing labour relations for both workers and their firms. The chapter also discusses labour supply and demand, and the international position of the Netherlands. Chapter 3 studies wage-tenure profiles for the Netherlands on the basis of administrative data containing workers' labour market status and wages over a longer period of time. The chapter also investigates the impact of a particular element of Dutch employment protection legislation on wages, and investigates the relation between the wage-tenure profiles and mobility. Chapter 4 studies the incidence of temporary and permanent employment among graduates on the basis of a large-scale survey among graduates in the Netherlands. The survey contains information on education, exam results, and the willingness to take risks, which facilitates detailed analysis of the determinants of temporary employment incidence. Chapter 5 studies the incidence of employer- and self-paid training among workers with different types of labour contracts on the basis of the Dutch Labour Force Survey. The chapter also considers the relation between training and labour market mobility. Chapter 6 uses longitudinal administrative data to study long-term employment outcomes of workers starting a new permanent or temporary job. The chapter considers the labour market outcomes in 2007 of workers that started a new job in 2001. On the basis of longitudinal administrative data, Chapter 7 investigates survival of workers that entered self-employment in 2001. The chapter also considers alternative labour market outcomes in 2007 of workers starting in 2001. Finally, chapter 8 identifies five areas for future research.

2 Conceptual framework

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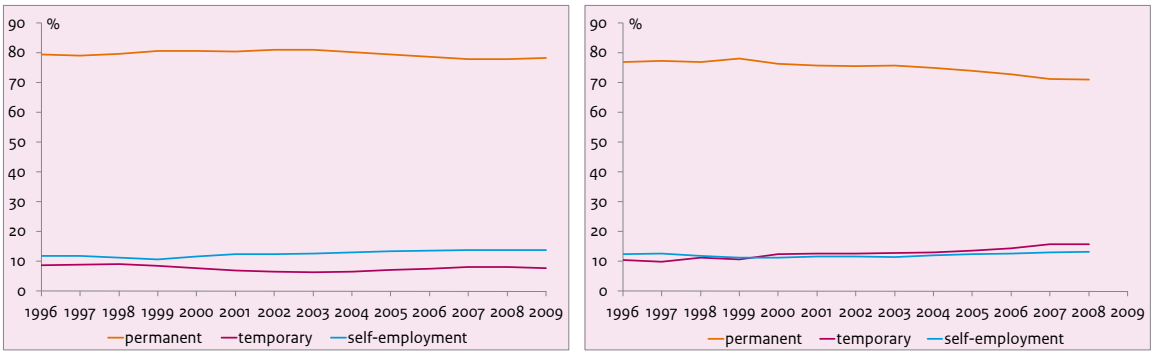
The coexistence of different types of labour contracts makes sense, since they serve different goals. Permanent contracts may act as a commitment device for both workers and firms to invest in human capital, enabling firms to adapt to changes in skill requirements due to technological and organisational changes. Temporary contracts and self-employment offer flexibility by allowing firms to adjust the size of their workforce to changes in the economic environment. Temporary contracts also allow firms to learn about the quality of workers. Furthermore, such contracts offer individuals opportunities to search for the right job. Over time, many temporary workers move on to permanent jobs, whereby some groups get stuck in such jobs. At older ages, self-employment becomes more common.

2.1 Introduction

About three out of four workers have a permanent contract, while more than one out of ten workers have a temporary contract and more than one of ten workers are self-employed. The right panel of Figure 2.1 reveals that according to the international definition, the share of workers with temporary contracts is rising over time, while the share of workers with permanent contracts is falling. This chapter discusses in a theoretical fashion the role of the different prevailing labour relations from the perspective of workers and firms. Knowledge about the role of the labour relations contributes to our understanding of the functioning of the labour market. It does so, acknowledging differences over the life cycle and heterogeneity across different groups observed in the Dutch labour market.

An important policy goal is to create a labour market that offers flexibility to react to changes in the economic environment and offers commitment such that workers and employers invest in firm-specific human capital and provide effort to reap the benefits. We use economic theory to structure the discussion on the design of a labour market in which there is a role for different types of contracts. An important question is who should bear the risks associated with flexibility and with investments in firm-specific skills? Workers generally are risk averse and many prefer commitment. Employers are willing to bear the risks associated with firm-specific investments when they are engaged in a long-term relationship with the worker. Furthermore, employers can reduce investment risk by diversifying their investment portfolio. An optimal design of labour market institutions needs to take these behavioural features and preferences into account. Note that the study considers flexibility resulting from the hiring and firing of workers and from investments in skills and knowledge. The study abstracts from flexibility in wages and working hours, although such forms of flexibility may have contributed to the moderate decrease of the unemployment level in the Netherlands and some other countries during the recent financial crisis (see CPB, 2010, and Eichhorst et al., 2010).

Figure 2.1 Employment in the Netherlands, national (left) and international (right) definition



The national definition is based on individuals who work 12 hours or more per week, while the international definition is based on individuals who work 1 hour or more per week. Furthermore, the national definition of flexible employment also only includes temporary contracts of less than one year, and without a prospect on a permanent contract. The international definition of flexible employment additionally includes temporary contracts of one year or more.
Source: Statistics Netherlands and OECD Statistical Database.

The coexistence of both permanent and flexible employment makes sense, since they serve different goals. Heterogeneity of labour contracts in the Dutch labour market points to demand and supply for different types of labour relations. Permanent contracts limit the flexibility of firms, since adjustments in the size of the workforce are costly, but in return the contracts may act as a commitment device to invest in human capital and long-run relationships with workers. Temporary contracts and self-employment offer flexibility by allowing firms to adjust the size of their workforce to changes in the economic environment, but offers fewer incentives to invest in human capital. Furthermore, temporary contracts allow firms to learn about the quality of workers and the match, and they offer workers opportunities to learn about their skills and to search for the right job. Differences over the life cycle suggest that many careers follow a pattern from temporary contracts to permanent contracts. At more advanced ages, some move on to self-employment.

The chapter proceeds as follows. Sections 2.2-2.4 discuss some functions of the prevailing employment contracts (permanent, temporary and self-employment). These sections are structured along three themes: flexibility, commitment and screening. Flexibility is important as firms may need to adjust their workforce because of changes in the economic environment, commitment is important as it may offer a basis for investments in human capital, and screening is important as firms may want more information about a worker before offering a permanent contract, and workers may be searching for the right job. The functions provide a basis for a comparison between different labour contracts. Section 2.5 considers changes in labour supply over the life cycle and heterogeneity in labour demand. Section 2.6 presents a number of salient differences across labour market institutions from an international perspective.

2.2 Permanent contracts

Permanent contracts are by far the most common employment contracts in the Netherlands (Figure 2.1). Employers offer permanent contracts to workers as a commitment device. This way the employer tries to secure the labour input of the worker. Furthermore, the contract expands the basis for investments in human capital. This human capital includes skills and knowledge needed for the current job, and possibly for future jobs with the employer. A major argument for a worker to accept a permanent contract is that it offers job security, while at the same time it hardly limits the worker's outside opportunities. Furthermore, for workers a permanent contract also offers a sound basis for investments in human capital.

The section discusses the impact of permanent contracts on flexibility, commitment, and screening. Table 2.1 summarizes the conclusions.

Table 2.1 Permanent contract

	Worker	Employer
Flexibility		-
Commitment	+	+
Screening	-	-

Flexibility

Permanent contracts give employers limited opportunities to adjust the size of their workforce and the types of workers to changes in the economic environment. The changes may be in the short run, for example, because of the business cycle, or in the long run, for example, because of technological and organisational changes. Permanent contracts and their high level of protection lead to low levels of job-to-job mobility. This limits the speed of adjustment between sectors of industry. Firms may be less willing to invest in new technologies and other risky business opportunities. In case the investments turn out to be fruitful it is costly to recruit more workers, whereas, on the other hand, if the investments are not successful, the costs of scaling back the workforce are high. This can lead to a low rate of productivity growth in the long run.[2]

Permanent contracts hardly limit workers in their mobility, since the term of notice is mostly relatively short and only few workers have contracts with a non-competition clause. Still, strict employment protection may have negative side effects. Employment protection reduces job turnover and increases the duration of a match between worker and employer. This has advantages for the worker (see the next subsection), but the low turnover also leads to a small number of job openings. This increases the rate of long-term unemployment. Therefore shocks in the economy will lead to an

[2] Autor et al. (2007) and Belot et al. (2007) do not find a clear negative effect of employment protection legislation on productivity, while more recent studies such as Bassanini et al. (2009) and Bartelsman et al. (2010) do find a negative effect.

unequal distribution of such effects across workers. Another negative side effect of strict employment protection and a small number of job openings is that entrants into the labour market have difficulties finding good jobs. This will particularly affect youngsters, migrants, women with children returning to the labour market, and older workers who have lost their job.

Commitment

Permanent contracts may act as a commitment device for both workers and employers to invest in firm-specific skills and knowledge.[3] The commitment of the workers does not come from the legal terms of the contract as they hardly limit the worker, but instead it may come from the signal of the employer who is willing to invest in the worker. This may induce the worker to deliver a high level of effort. Human capital investments enable firms to adapt to changes in skill requirements due to technological and organisation changes.[4] An investment in firm-specific human capital increases the productivity of workers in a particular firm, while outside the firm the value is low. One problem with firm-specific human capital is that, although the returns are potentially high, both firms and workers tend to invest an amount that is lower than the socially optimal level. This is called the 'hold-up problem' of firm-specific investments.[5]

Legal protection of permanent jobs, for example in the form of employment protection legislation, does not solve the hold-up problem of firm-specific investments.[6] The reason is that workers may extract rents from firm-specific investments made by the employer after they have turned out to be profitable. Wage renegotiation is hard to exclude. Employment protection does not protect firms against such renegotiations; it actually strengthens the position of workers.[7] This may make employers hesitant to hire workers on the basis of a permanent contract. One way to circumvent the problem is let workers share in the costs of the investments. But because most workers dislike risks, an optimal investment scheme would allocate the costs and the uncertain returns of firm-specific investments to the firm. Another way to circumvent the problem is leave regulation of employment protection to workers and employers. In case investments in firm-specific skills and knowledge are indeed important, both parties have an incentive to agree upon the terms of the labour contract.

One of the advantages of a permanent contract from the worker's perspective is that it offers job security. Job security does not, however, imply future employment security. The probability of losing a permanent job may be low, but if the event occurs, the probability of finding a new job will also be low (see the subsection on flexibility).[8] The combination of permanent contracts and unemployment insurance nevertheless offers income insurance and employment protection in the form of firing taxes, which may be part of an optimal system.[9]

Screening

A high level of employment protection for permanent contracts makes wrongful hires costly for employers. Of course, permanent contracts mostly include a probation period, but the signal from such a period may be imperfect. It does not pay for a worker to signal how good he or she is when it is hard for employers to interpret signals about workers' abilities.[10] For high-productivity workers – for example, the highly educated – a possible remedy is to offer a low starting

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[3] See, for example, MacLeod (2010). Carmichael and MacLeod (2003) and Hart and Moore (2004) argue that a contract can act as an efficiency-enhancing tool, whereby the former authors argue that parties follow a social norm that links them. Furthermore, firms may actually invest in general human capital as well. Lazear (2009) shows that a mix of investments in various general skills can make the human capital of a worker firm specific. Acemoglu and Pischke (1999) argue that imperfect competition on the labour market makes firms willing to invest in general human capital.

[4] See, for example, Violante (2002).

[5] The reason is that contracts on such investments are incomplete. Firms are willing to invest in firm-specific human capital, but the effort of workers is non-verifiable. This leads to a level of investment that is too low from a social point of view (Hosios, 1990, Crawford, 1990, Wasmer, 2006, Belot et al., 2007, Jongen, 2010). Note that a high level of employment protection can also lead to a level of investments that is too high from a social point of view.

[6] The hold-up problem can be addressed by making provisions for transfers when the contract is broken. Such provisions are common for specialist training and knowledge only (MacLeod, 2010).

[7] See Bovenberg and Teulings (2010) for an extensive theoretical underpinning of the arguments.

[8] Clark and Postel-Vinay (2009), for example, show that workers feel less secure in countries where jobs are well protected.

[9] See Deelen et al. (2006) for an extensive discussion on employment protection legislation.

[10] See, for example, Spence (1973).

wage, increasing the wage as the ability of the worker is revealed during employment.[11] At the lower end of the labour market, this may be difficult, however, because of minimum wages and collective wage agreements. In such cases, the worker needs an opportunity to signal his or her ability. Temporary contracts for entry jobs could then be used to extend the screening period. For young workers, this is not a problem, since they are still searching for a good match.

2.3 Temporary contracts

Temporary contracts, including on-call contracts, constitute a substantial part of the Dutch labour market. According to the national definition, their share of total employment is stable, at about 8% since 1996. Note that temporary contracts increase in absolute numbers, but total employment has increased as well. According to the international definition, the share of temporary employment in total employment is about 16% in 2008. The international definition differs from the national definition by also including labour contracts of less than 12 hours per week, whereas this category is excluded in the national definition. So the difference in growth of temporary contracts according to the two definitions is partly because in the Netherlands the number of flexible jobs of 1 to 12 hours per week has increased in recent years.[12] Figure 2.1 shows these patterns in the period 1996-2009 according to both definitions.

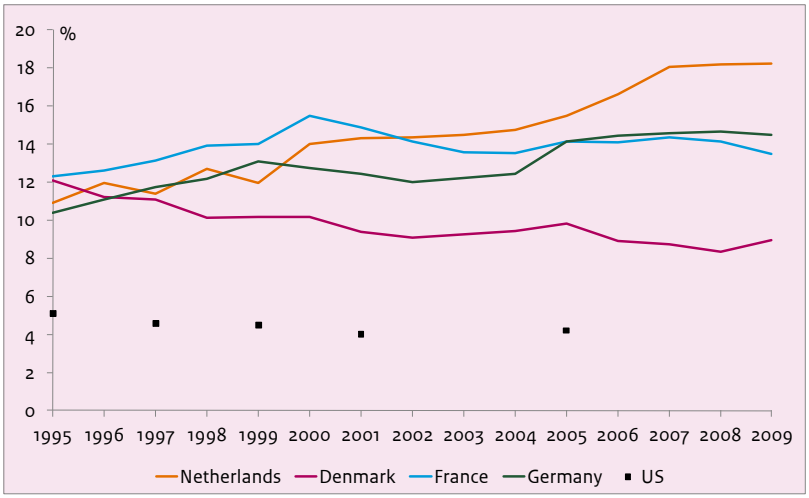
According to the international definition, temporary employment as a share of dependent employment is on the rise from about 11% in 1996 to about 18% in 2008. Figure 2.2 presents temporary employment as a share of dependent employment for Denmark, France, Germany and the United States. Especially since 2000, the trend in the Netherlands deviates from the other countries and by now the Netherlands is among the countries with the highest share of temporary employment. Only countries such as Spain (25%) and Portugal (22%) have higher shares of temporary employment.

Employers may have several reasons to hire flexible workers. They may need flexible workers to adjust for workload fluctuations and staff absences. Employers use temporary contracts to screen workers before offering them a permanent contract. Employers may hire temporary workers who have specific knowledge and skills that are required only on a temporary basis. In addition, employers may want to save on costs, since the wages of flexible workers are often lower.[13] From the workers' perspective, there are several reasons to accept a temporary job. Workers may accept such jobs because they have no other alternative of finding a permanent job, because of their low productivity or inability to signal their productivity to the employer.[14] Furthermore, some workers may appreciate the flexibility or may use the job to collect experience and improve their labour market position.

The arguments in this section are based on the fact that the labour market is dominated by permanent contracts, which feature a relatively high level of employment protection. Without such protection, temporary and permanent contracts would be rather similar.[15] Table 2.2 summarizes the main findings in terms of flexibility, commitment and screening.

[11] See Jovanovic (1979) and Harris and Holmstrom (1982) for theoretical application of this principle.
[12] The national definition only includes temporary contracts of less than one year and without a prospect on a permanent contract. The international definition does include temporary contracts of one year or more. So the difference in growth is also partly because the number of temporary jobs of one year or more has increased in recent years.
[13] See Houseman (2001) for a survey on employer arguments for hiring flexible workers.
[14] Spence (1973).
[15] Autor (2003) argues that temporary agency work increased in the United States because of an increase in the level of employment protection.

Figure 2.2 Temporary employment contracts as a percentage of dependent employment



Source: OECD Statistical Database.

Table 2.2 Temporary contract

	Worker	Employer
Flexibility [a]		+
Commitment	-	-
Screening [b]	+	+

a) Temporary contracts offer flexibility to workers as well, but the level of flexibility is not much higher than for a permanent contract.
b) From the worker point of view, temporary employment may also be a way to collect labour-market experience and to improve future employment prospects, which is the stepping stone hypothesis.

Flexibility

Temporary contracts offer flexibility to firms to adjust their workforce to fluctuations in labour demand (Table 2.2). Most countries have always allowed for temporary employment for seasonal patterns in production and the temporary replacement of absent regular workers. Since demand fluctuates, many employers hire temporary workers on top of their permanent staff. Temporary workers are mobilised when demand increases. When economic growth declines employers dismiss their temporary workers first. Furthermore, temporary work agencies supply workers on a so-called spot market, allowing firms to adjust their workforce quickly. Temporary employment can offer flexibility to the worker as well, which may be appreciated by workers with a low labour market commitment, such as students or retired workers.

Several European countries have liberalised the rules on temporary employment during recessions. The idea was that liberalisation of temporary work decreases the cost of labour at the margin, and thus increases employment. On the short run, employers hire more temporary workers because of the lower labour costs, while at the same time they cannot replace permanent workers for temporary workers as this needs time. On the longer run, employers do replace

permanent workers however, while at the same time the increase in employment turned out to be lower than the initial increase.[16]

Commitment

Since temporary employment at a certain firm has a clear ending date or condition, the level of commitment is low. An exception may be for those who work for temporary work agencies. Although these workers may be placed at many different firms, they will often perform similar types of tasks. Investments in occupational-specific skills may then make sense, and the temporary work agency may be willing to offer training in such skills to deliver more qualified workers. Furthermore, temporary work agencies may even offer training as a screening device to learn about a worker's ability.[17]

Screening

Temporary employment may serve as a screening device, which is at an advantage for both the firm and the worker. In many situations, an employer has uncertain information on the ability of a potential worker and will be reluctant to offer the worker a permanent contract. Minimum wages and high starting wages may prevent an employer from offering a low starting wage and collecting more information on worker ability during the job. In such a situation, an employer may learn about the ability of a potential permanent worker by offering a temporary contract. Another method for employers to gather information on potential workers is to use the services of a temporary work agency.[18]

Workers can also benefit from temporary employment, since this may serve as a stepping stone to a permanent contract. A temporary job may not be preferred to a permanent job, but without temporary jobs a worker may stay unemployed without getting the opportunity to prove himself on the labour market. Furthermore, these temporary jobs may enable workers to acquire skills and experience, which should make them more attractive for future employers. Lastly, a worker may use temporary jobs to search for the right employer.[19]

Labour costs

An additional reason for employers to hire temporary workers may be the relatively low wage costs. The flexibility offered by a temporary job is an advantage to the employer and generally a disadvantage to the worker. According to economic theory, employees should be compensated for the lack of insurance in the form of a higher wage. Empirical evidence shows that this is hardly the case, with all evidence showing that in European countries temporary workers earn 5–15% less than permanent workers.[20]

There are several reasons why temporary workers earn less than similar workers with a permanent contract. First, permanent workers may have more firm-specific skills. The incentive to invest in such skills is low for temporary workers. Second, in case employers use temporary contracts as a screening device, the reward for well-functioning temporary workers is a permanent contract, so there is no need to pay an equal wage. Third, since temporary workers can be easily dismissed, a high wage is not needed to motivate the worker. The wages of permanent workers may be higher to motivate them.[21] Fourth, the wages of permanent workers may be higher because of their bargaining power. Permanent workers are protected by employment protection legislation and may demand higher wages.

Although the wages of many temporary workers are lower than for permanent workers, this is not the case for all temporary workers. Employers may be willing to compensate workers for quantitative uncertainty, that is, compensation

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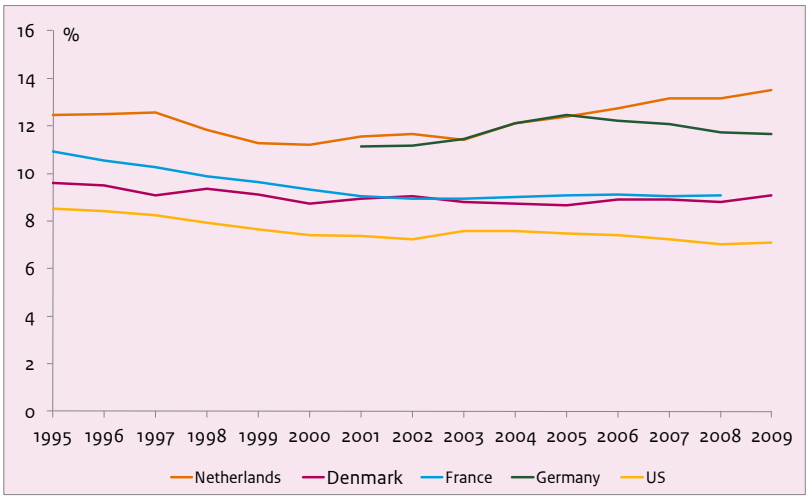
[16] Boeri and Garibaldi (2007) refer to this as a 'honeymoon effect' as in the beginning the policy increases the level of employment, but on the longer run the increase is lower. See Cahuc and Postel-Viney (2002), Blanchard and Landier (2010), Güell and Rodriguez Mora (2010) and Kahn (2010) for more evidence.
[17] See Autor (2001) on arguments why temporary work agencies provide free training.
[18] According to Autor (2004) screening is an important reason for US firms to use the services of temporary work agencies.
[19] See Ecorys-NEI (2002) for the motives of workers and firms to engage in temporary agency work, and see Heyma and De Graaf-Zijl (2009) on the role of temporary work agencies in public employment services.
[20] The European Commission (2003).
[21] This is called the efficiency wage theory. See Güell (2000) for an application to permanent and temporary employment.

for the uncertainty regarding future demand. The use and costs of temporary employment vary substantially between types of work and sectors of industry, and it concerns highly skilled individuals as well.[22]

2.4 Self-employment

According to the national and international definition, the self-employment rate was about 14% in 2008. Since the self-employment rate varies over time because of the business cycle, it seems to be premature to draw conclusions of a structural increase.[23] The self-employment rate in the Netherlands is comparable to that in Germany, but it is high compared to that in France and Denmark. Figure 2.3 shows this comparison for the Netherlands, Denmark, France, Germany and the United States. The rate is low compared to countries such as Italy (25%), Spain (17%) and Portugal (24%).

Figure 2.3 Self-employment as a percentage of total employment



Source: OECD Statistical Database.

Table 2.3 Self-employment

	Worker	Employer
Flexibility	+	+
Commitment	-	-
Screening [a]	+	+

a) From the worker point of view, temporary employment may also be a way to collect labour-market experience and to improve future employment prospects, which is the stepping stone hypothesis.

[22] See Houseman et al. (2003), de Graaf-Zijl (2009) and Heyma et al. (2010).
[23] See Bosch and van Vuuren (2010) for a discussion on self-employment in the Netherlands.

The most often stated reasons for employers to hire self-employed workers are flexibility and the specialised knowledge. Furthermore, there is no need to supervise the self-employed, since mostly the product or service to be delivered is well defined. Often, contracts are signed on the basis of "no cure, no pay". The most frequently stated motives for becoming self-employed are independence and the development of skills and knowledge. These are all positive reasons. However, in health care, self-employed individuals also state negative reasons related to stress and dissatisfaction with work quality in dependent employment.[24] Table 2.3 summarizes the main findings in terms of flexibility, commitment and screening.

Flexibility

Self-employment offers flexibility to the worker and the customer (Table 2.3). Both can adjust to changes in the economic environment or new opportunities. Flexibility constitutes a risk to the self-employed, however, as the customer may not extend a contract. This is the nature of self-employment, and many, though not all, self-employed individuals choose it deliberately because it enables them not to work under the authority of the customer. This means they have the autonomy to decide how and when they do their work, as long as they deliver the agreed goods or service in time. Flexibility possibly also leads to adverse selection. On the one hand, employers may not offer permanent contracts to workers with high disability risks while on the other hand, workers with low unemployment and disability risk may become self-employed to avoid contributions to social security arrangements.

Commitment

The benefits of self-employment are high for tasks and services for which transaction costs – such as information, search, and negotiation costs – firm-specific knowledge, and commitment to a particular firm are low. The literature on self-employment refers to asset specificity, meaning the extent to which investments made for one transaction may yield spillovers or reduce the costs of other transactions within the same firm. Say, for example, that to fill a regular task or service, the way of working and communicating within a firm is important. In that case a firm may prefer to hire an individual through a permanent contract instead of contracting a self-employed worker.[25]

Screening

Just like temporary employment, self-employment may serve as a screening device and a stepping stone. This is to the advantage to both the firm and the worker. In particular disadvantaged workers can improve their attachment to the labour market. Self-employment is promoted in a direct way by starting subsidies for the unemployed and advantageous tax benefits. Policy measures such as social security contributions, minimum wages, and employment protection are also important for the self-employment decision. At the lower end of the labour market, workers may not be able to find a job, since employers are uncertain about the productivity of these workers.

Income risk and effort

The self-employed individual is the residual claimant in a transaction with a costumer. Many self-employed individuals are risk seeking with respect to business opportunities. Being the residual claimant provides a strong incentive to supply a high level of effort. For self-employed workers, this is actually a major advantage of such employment, and it reduces the need for monitoring. [26]

Although the self-employed deliberately take business risks, the desirability of allocating individual risks such as disability to the self-employed is under discussion.[27] Private insurance is expensive because of the adverse selection problem. Preferences with respect to risk taking may, however, be heterogeneous within the group of self-employed; some may prefer mandatory collective insurance while others may not.

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[24] See Vroonhof et al. (2008) and EIM (2008).
[25] This dates back to Coase (1937) who formulated a theory of the firm.
[26] See Parker (2010a, 2010b) for a formal model.
[27] See SER (2010).

2.5 Supply and demand

The Dutch labour market consists of a mix of different employment relations. This indicates that for the different types of labour contracts supply and demand exists. On the supply side, differences over the life cycle suggest that preferences for a particular type of contract change over time. Labour demand is heterogeneous as well, particularly with respect to the need of human capital investments and vulnerability to changes in the economic environment.

Labour supply

Labour supply is heterogeneous in many aspects, including age, household position, level of education, and preferences with respect to risk and independence. Several of these aspects are related to the preference for commitment and affect the return to firm-specific investments. Investments in human capital have, on average, a higher return for workers with a high or intermediate level of education than for low-educated workers.[28] Higher educated workers are therefore more likely to be on a permanent contract.

At ages 15-25, many workers have a low preference for commitment. They may be working to finance investments in education or, when they finished education, they may still be in search of a good match. Even high-educated workers accept temporary jobs with low wages in the beginning of their career. The return to finding a good match is high, and it pays to try different jobs before one accepts a permanent job and start specific investments. Thus, many young workers, both men and women, have temporary contracts. Figures 2.4 and 2.5 illustrate this for high (right) and low-educated (left) workers and for men and women. Firms hire temporary workers to fill jobs that need little specific skills or to screen workers for permanent positions.

From ages 25-35 onwards, commitment starts to become important, as investment in education has finished and commitment in the private domain starts. Workers start to move upward in the wage distribution, partly due to moving from temporary to permanent jobs and partly because of moving towards higher quality jobs.[29] Once a worker has found a good match he is likely to stay for a longer period of time. Investments in firm-specific skills have a higher return, since the expected payback period is longer. This holds for highly educated individuals in particular. Their share among those on a permanent contract indeed reaches a maximum rate at ages 25-35, as can be seen from Figures 2.4 and 2.5.

Many low-educated individuals have a permanent contract as well, but nevertheless their share with a permanent contract is lower than for high-educated individuals (see the left-hand side of Figures 2.4 and 2.5). Several of the low-educated workers do not find a permanent job because firms do not want to hire them for such a position. They are stuck in low-wage jobs that need few specific skills. For low-educated men, self-employment seems to be a significant alternative, especially at younger ages.

The impact of growing older differs between high- and low-educated workers. Many highly educated workers aged 45-55 have a permanent contract, but this share decreases with age. Possibly firm-specific skills become obsolete at some age, and because new investments in such skill have a low return because of the short payback period some may opt for self-employment. For low-educated individuals, the probability of having a permanent contract reaches a maximum at ages 45-54 (Figure 2.4 and 2.5). The protection of permanent contracts may keep many low-educated older workers in such contracts.

[28] See, for example Cunha et al. (2006).
[29] Finding a good match on the labour market takes time and search alone can explain part of the movement upward in the wage distribution (Bontemps et al., 1999, 2000, Moscarini, 2005).

For both the low- and high-educated individuals, self-employment becomes an important alternative at advanced ages. This holds in particular for high-educated individuals. New investments in firm-specific skills are less attractive for firms and workers at an advanced age. But this cannot be the only reason for a worker with a lot of firm-specific human capital to leave the firm. A tentative explanation is that an advanced age independence becomes more important or that once released it is very hard at an older age to obtain a new permanent job.

Figure 2.4 Employment by age for men with low (left) and high (right) level of education

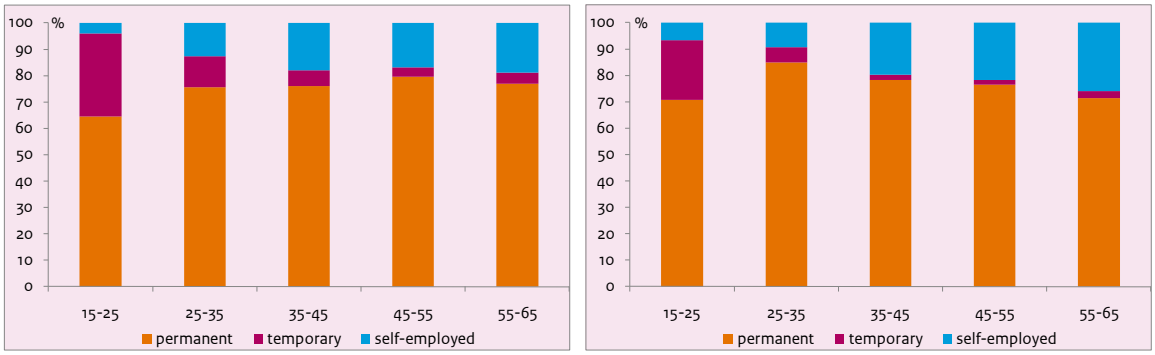
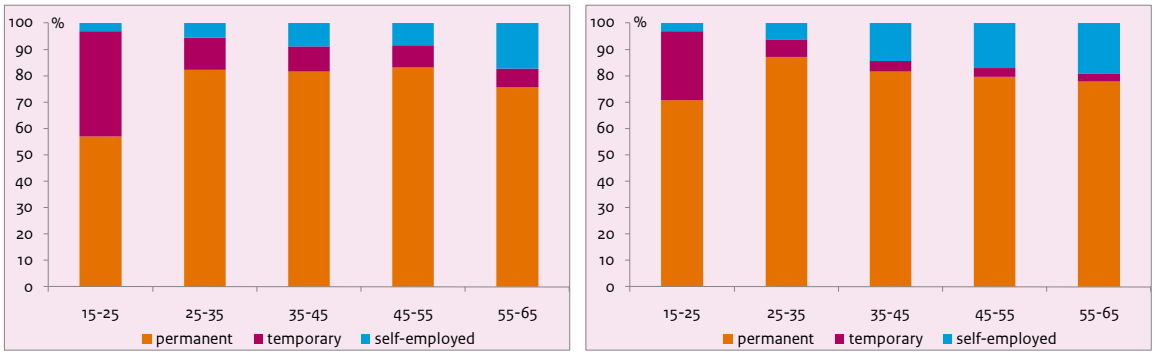


Figure 2.5 Employment by age for women with low (left) and high (right) level of education



Note: national definition of employment, low level of education includes primary and lower secondary education.
Source: Statistics Netherlands.

Labour demand

Labour demand is heterogeneous. For example, the need for general and firm-specific skills differs across jobs and over the life cycle and shocks in the economic environment have different impacts on different groups.

Technological progress, organisational change and international diversification in production change the process of production. This may have an impact on the need for general and firm-specific skills, which is particularly relevant for workers with high and intermediate (vocational) levels of education. An important question is what kinds of skills will be needed to compete on the world market in the upcoming decades?[30] On the one hand, general skills may become more important, since technological changes allow autonomous workers to perform different tasks. In such a world,

[30] See ter Weel et al. (2010).

permanent contracts may become less important, since the need for a commitment device for specific investments falls.[31] On the other hand, specific skills may become more important, since technological changes may ease communication between workers. This may enable them to perform specialised (firm-specific) tasks. In such a world, permanent contracts may remain important, since there may be a need for commitment.

Low-skilled labour-intensive services, such as cleaning, catering and personal care services, will remain important. This offers opportunities for low-educated workers. Because of the ageing of society, it is likely that the demand for these services becomes more important in the near future. In addition, the skills needed for the service plays an important role; employers will be reluctant to offer permanent contracts for jobs that hardly need particular skills.

Labour demand also varies with respect to vulnerability to changes in the economic environment. In particular, sectors of industry that need to compete on the international market are vulnerable to the business cycle and to structural changes. Such sectors therefore want to fill part of their jobs with flexible workers. Other sectors, such as education and health care, are less vulnerable to the business cycle; their need for temporary workers is lower than for other sectors, although in such sectors employers will also be reluctant to offer permanent contracts for jobs that hardly need particular skills. Furthermore some sectors, such as health care, will need more workers in the future. This poses a major challenge to public provision of care.

Labour supply meets demand

Both labour supply and demand are heterogeneous. As long as supply and demand for the different types of contracts meet each other, the labour market functions properly. This does not mean that all workers should have the preferred contract all the time. Workers that are not in search of a permanent contract and accept temporary contracts may be unemployed in between two contracts. Youngsters that are in search of a good match may accept temporary contracts to find this right match. The labour market functions less properly in case workers structurally need to accept contracts they do not want.

Some temporary workers and self-employed would like to have a permanent job, but they do not succeed in finding such a job. Two policies to address the difference between permanent and flexible employment exist: an increase in the protection of temporary jobs and the level of insurance for self-employed, and a decrease in the protection for permanent jobs. The first policy leads to less inequality among workers, but not necessarily within the labour force, since some temporary workers may become unemployed. Firms will hire fewer temporary workers, and so will have less flexibility to adjust the size of their workforce. The second policy will lead to less inequality among workers because firms will hire more permanent workers. Lowering the protection of permanent jobs reduces the inequality between the permanent and temporary workers, and it induces employers to hire more workers on the basis of a permanent contract.

The ageing of the workforce will be a major challenge for the labour market in the next decades. Employers with an ageing workforce will need to adapt to shifts in the sector structure of employment, as well as to technological and organisational changes. Skills may become obsolete due to these changes. Maintaining and upgrading productivity of older workers and efficiently allocating older workers to tasks in which they are most productive poses a major challenge to both older workers and their employers.

[31] Acemoglu and Pischke (1999) argue that firms also have an incentive to invest in general human capital in a labour market with imperfect competition. Technological progress may however also make labour markets less imperfect because of lower transaction costs.

2.6 International position of the Netherlands

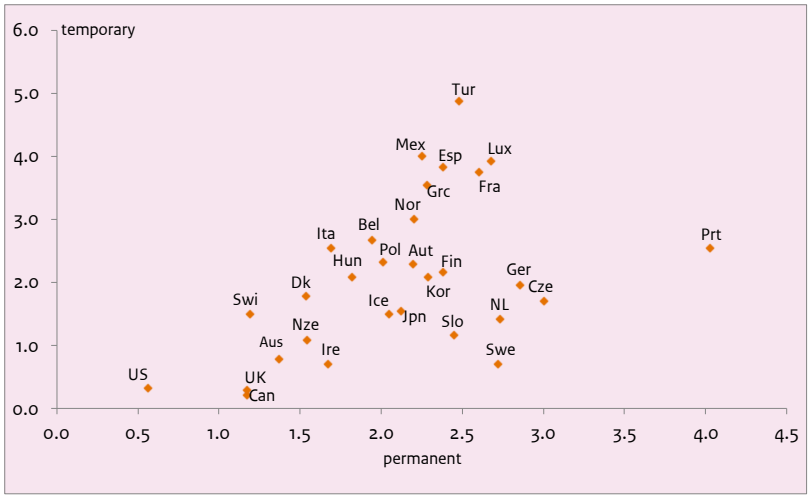
How do the Dutch labour market institutions on permanent and temporary contracts and self-employment compare to those in other countries? Such institutions have an impact on the mix of permanent and temporary contracts and self-employment on the labour market and partly determine the flexibility of the labour market.

Employment protection for permanent and temporary contracts

The overall level of employment protection is not particularly high in the Netherlands. The country takes an intermediate position in an international comparison. Many countries, especially southern European countries, have higher levels of employment protection. Countries such as the United States, Canada, United Kingdom, and Ireland have lower levels of protection. The Netherlands has a dual system for individual dismissal of workers with a permanent contract, the employer can choose between two routes. The first route is asking permission from the labour office, which mostly implies following inconvenient and time-consuming legal procedures. The second route is going to court, which usually implies paying a severance payment.[32]

The moderate average level of protection in the Netherlands hides a substantial divergence in protection for permanent and temporary contracts. The level of protection for permanent contracts is high, and only Germany, the Czech Republic, and Portugal have a higher level of protection (see Figure 2.6). The moderate average level is the result of a low protection for temporary contracts in the Netherlands. Only countries such as the United States, United Kingdom, Canada, and a few continental European countries have lower levels of protection for such contracts. As a result, the difference in protection for permanent and temporary contracts is great for the Netherlands. Only in Sweden and Portugal is the protection of temporary contracts lower compared to the protection for permanent contracts. Note that both measures are relative to other countries, and permanent contracts always have more employment protection than temporary contracts.

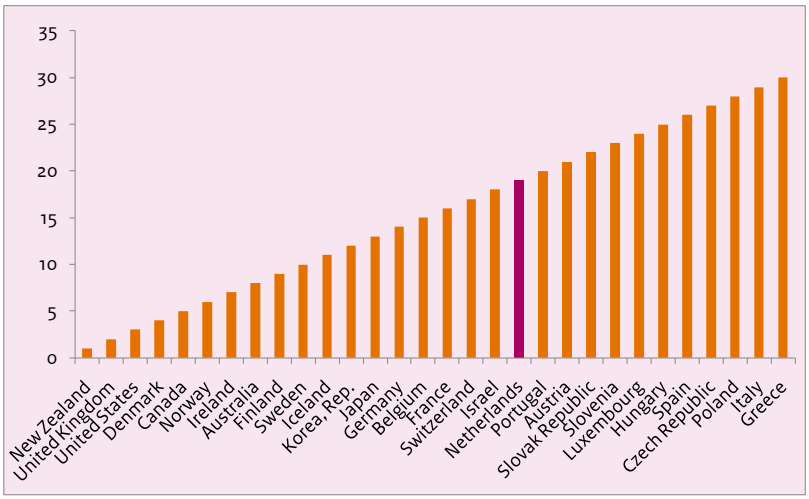
Figure 2.6 Employment protection for permanent and temporary contract



Source: OECD Statistical Database.

[32] See Deelen et al. (2006) for details.

Figure 2.7 Ease of doing business index, 2009



A high ranking on the ease of doing business index means the regulatory environment is more conducive to the starting and operation of a local firm. The index averages the country's percentile rankings on 9 topics, made up of a variety of indicators, giving equal weight to each topic.

Source: Worldbank Doing Business Report 2011.

Position of self-employed

Being self-employed and doing business is not particularly easy in the Netherlands. According to the World Bank index on the ease of doing business, the Netherlands ranks 19 from 30 OECD countries (figure 2.7). The index comprises procedures, time, and costs to run a business and the items included in the index are starting a business, dealing with construction permits, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, and closing a business. Starting an own business is also not particularly easy in the Netherlands, on this index the Netherlands rank 21 from 30 OECD countries.

The relative inconvenience to start an own business makes self-employment less attractive relative to a temporary or permanent contract. Nevertheless self-employment is an important alternative to such contracts for many workers. This hints at the fact that many other aspects, like preferences for independence play an important role.

Appendix on labour contracts

The current chapter distinguishes permanent employment, flexible employment – including temporary, on-call, and temporary agency employment – and self-employment. *Permanent and flexible employment* are characterized by employment contracts: employees work under the authority of an employer and receive a salary in return. An employment contract mostly defines the duties or the kind of work, working hours, number of holidays, terms of notice, and, if applicable, pension rights and a non-competition clause. Flexible employees have special conditions in their contracts with respect to the period of employment or working hours. Most contracts in the Netherlands fall under a collective labour agreement, implying that aspects such as number of holidays, terms of notice, and pension rights are determined at the collective level. A *self-employed individual* is independent and works for a customer on the basis of an agreement that formulates a task or a service and its price.

A *permanent contract* implies that the contract does not include a date or condition upon which the contract automatically ends. The employee can resign but needs to take the term of notice and sometimes a non-competition clause into account. An employer however can dismiss a worker against his will only if specific conditions are met. Only during the probation period or in the case of serious worker misbehaviour can an employer dismiss at once. The probation period

has to be stated in the contract and takes two months at most for permanent contracts. In all other cases, the employer needs to undertake steps for termination of the contract. Under Dutch law, workers are protected against dismissal against their will by a system of a priori control of dismissals. This means that an employer, when there is no mutual consent, before dismissing a worker need to have the permission of the labour office (the 'UWV') or the rescission of the contract by a judge. The first route is time-consuming because of a notification period, and requires the employer to prove that a worker cannot stay with the firm. The second route is less time-consuming because the judge can terminate the contract at short notice, but may be costly because the employer mostly needs to pay severance payment.

The Dutch labour market distinguishes three different types of *flexible contracts*: the fixed-term contract, the on-call contract, and the temporary agency contract.

A *fixed-term* contract includes a date or condition upon which the contract automatically ends. Such contracts are subject to legally binding rules on the number of contracts a firm is allowed to successively offer to a same individual. During the probation period or in the case of serious worker misbehaviour an employer can dismiss at once. The probation period, which has to be stated in the contract, takes two months at most for fixed term contracts having a duration of at least two years, and at most one month for fixed term contracts with a duration of less than two years. Fixed term contracts can not be terminated prematurely by the employer or the employee, unless the right to terminate prematurely is stated in the contract. In that case, the regular dismissal conditions like notice periods must be applied and a permission for dismissal by the labour office is required. After three temporary contracts with less than three months between contracts, the fourth contract automatically becomes a permanent contract. When the second or subsequent contract leads to an employment relation of 36 months or more, the contract is converted into a permanent contract as well. For youngster up to age 27, the contract is converted into a permanent one after four contracts. Unions and employer organisations can get permission to deviate from the legal rules in collective agreement.

The Dutch legal rules distinguish three types of *on-call contracts*. A worker with the first type of contract can decide freely to accept a call or not. For this contract, similar rules as for temporary contracts hold. A worker with a second type of on-call contract must accept a call. After six months the employer, however, needs to pay the worker, even when there has been no work. The latter rule may be adjusted in collective agreements. The third type of on-call contract defines a minimum number of work hours per week, but the employer can ask the worker to work more hours (up to a certain maximum).

Employment through a *temporary work agency* is defined by legal rules. The worker has an employment contract with the agency, and his or her rights increase with tenure at the agency. After certain duration or a certain number of contracts, the worker's contract will be converted into a permanent contract with the agency.

A *self-employed individual* works for a customer on the basis of an agreement that formulates a task or a service and its price. The individual is independent; she does not work under the authority of the customer. In the Netherlands, self-employment is subject to rules on, for example, the number of days per week that a self-employed can work for one particular customer. A declaration by the fiscal authority ('Verklaring Arbeidsrelatie') clarifies the employment status of an individual.

3 Wage-tenure profiles and mobility

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In the public debate, it is often suggested that the low level of job mobility in the Netherlands, especially among older workers, may be related to the Dutch wage structure. This chapter contributes to the debate by presenting new micro econometric evidence that – compared to those in other countries – Dutch wage-tenure profiles are steep. The results indicate that Dutch wages are partly related to firm-specific elements. Moreover, employment protection is found to increase the wages of older workers because it strengthens their bargaining position. Finally, we find that firms in industries that have high returns to tenure have relatively high shares of older workers in their workforce, as well as high average tenures, indicating that steep tenure profiles are indeed correlated with low mobility.

3.1 Introduction

There is a growing awareness that the Dutch labour market is relatively rigid for older workers. Compared to other countries, employment protection for workers on regular contracts is high, job mobility is low, and unemployment duration is long. Last, but not least, cross-sectional data suggest that Dutch wages increase quite steeply with age (OECD, 2006, Euwals et al., 2009). These characteristics may be interrelated: The wages of older workers may be high due to bargaining power derived from strict tenure- and age-related employment protection, while low job mobility among older workers may be caused by steep wage-tenure profiles. With an ageing labour force, there is an increasing need to understand the relation between wage profiles and the labour market position of older workers.

This chapter aims to increase our understanding of the Dutch labour market. It focuses on the impact of tenure (the duration of a match between a worker and a firm) on wages as opposed to the impact of experience on wages. In empirical studies, the effect of experience on wages is often interpreted as returns to investment in general human capital. Since general human capital is not firm related, its returns are no impediment to mobility. On the other hand, the effect of tenure is generally interpreted as the firm-related component of wages, for example, the return on firm-specific human capital (Becker, 1964) or deferred compensation schemes (with junior employees receiving wages below their marginal productivity and senior employees receiving wages in excess of marginal productivity; see Lazear (1981). If the worker moves to another firm, he or she will no longer receive this wage component. Thus, unlike experience, tenure can be an impediment to mobility. Given the low job mobility of older workers in the Netherlands, it is important to gain a better understanding of the magnitude of Dutch returns to tenure.

This chapter's main research question is as follows: Are Dutch wage-tenure profiles steep compared to those in other countries and to what extent is this reflected in lower job mobility? The first part of the question is analysed by estimating the returns to tenure, controlling for experience, and by investigating wage losses experienced in involuntary job switches. Ideally we would want to not only assess the magnitude of returns to tenure, but also know the underlying reasons for the steep wage-tenure profiles. Unfortunately, our data do not allow us to pin down all the possible determinants of steep wage-tenure profiles. For example, the effect of deferred payment schemes and investments in firm-specific human capital cannot be identified. Our data do, however, allow us to analyse a third possible source of returns to tenure: quasi-rents that senior workers are able to capture due to the bargaining power deriving from their seniority resulting from the last-in, first-out (LIFO) layoff rule. Therefore, the effect of workers' seniority positions (relative to their colleagues in the same firm) on wages is analysed. Finally, we investigate whether there is a correlation between the high returns to tenure measured in some sectors and the low job mobility of older workers in these sectors' firms. The empirical research is performed by means of regression analysis techniques, using an extensive micro dataset.

It is important to note that the combination of steep wage-tenure profiles and low job mobility does not necessarily pose a problem for the Dutch labour market. Firms can adopt wage-tenure profiles for several reasons. For instance, to lengthen the payback period of investment in their workers (e.g., transaction costs associated with hiring), they may wish to reduce their workers' mobility. Alternatively, they may use wage-tenure profiles as a tool for promoting worker effort. Furthermore, when rents of firm-specific investments are shared between employer and employee, wage-tenure profiles do not necessarily push the wages of older workers above their marginal productivity. In all these cases, returns to tenure and low job mobility may be optimal in terms of welfare.

With the ageing of the workforce, these mechanisms favouring wage-tenure profiles may, however, face increasing pressure as the period of employment at old age increases, the knowledge of workers risks becoming obsolete (De Grip and van Loo, 2002), and the relative number of young workers decreases. In addition, a rigid labour market can harm efficiency by preventing an optimal allocation of workers over jobs. Low mobility then reduces the flexibility of the economy in case of a technological shock or when the economic environment gets more dynamic, for example, due to globalisation. Strict (tenure-based) employment protection may add to this effect.

Three main conclusions can be drawn from this empirical study. First, Dutch wage-tenure profiles are steep compared to those of other countries. The results indicate that wage growth is partly related to firm-specific elements, which are lost

in the case of job mobility. Second, the findings suggest that quasi-rents obtained due to the LIFO layoff rule increase the wages of senior workers. However, this seniority effect is modest when compared internationally, and wage-tenure profiles remain steep after correcting for this aspect of Dutch employment protection legislation. A possible interpretation is that quasi-rents obtained due to tenure-related notice periods and severance payments may be captured in the estimated returns to tenure. Hence, the measured seniority effect is a lower limit of the total effect on wages of enhanced bargaining power for older workers. Third, a correlation between high returns to tenure and low mobility is found: the higher the returns to tenure in an industry, the higher the share of older workers, the average age, and the average tenure in firms belonging to that industry. Several explanations are possible for this correlation. It may indicate that deferred compensation prevails in these industries and firms, giving older workers an incentive to remain with their firm. But the causality can also run the other way: The presence of a high share of older workers in a firm can generate steep wage-tenure profiles, as can well-protected older workers who use their strong position in wage bargaining.

The chapter is organised as follows. Section 3.2 reviews the economic literature on wage-tenure profiles and discusses some potential determinants of steep wage-tenure profiles. Section 3.3 briefly presents some Dutch institutions surrounding labour contracts, particularly institutions surrounding wage formation. It also provides descriptive statistics regarding job mobility, tenure, and wages. Section 3.4 presents new empirical evidence for the Netherlands on wage-tenure profiles and mobility. Section 3.5 concludes and discusses a few policy options.

3.2 Literature review

A variety of theoretical models explain the rise of wages over job tenure. First, human capital accumulation by workers due to investment in specific human capital (Becker, 1964) may provide an explanation, as far as workers are able to capture part of the specific value of the investment.[33] Second, incentive theories emphasise that, since effort is often difficult to observe, deferred compensation (Lazear, 1981) may be optimal. Firms and workers enter into an implicit contract that serves as an incentive device which solves the agency problem of the firm. Workers receive a wage below the marginal productivity while their tenure is still low and a wage above their marginal productivity when tenure becomes high. Third, search and matching models are able to explain stylised facts on returns to tenure (Burdett, 1978; Jovanovic, 1979). Unobservable characteristics inducing high wages are at the same time responsible for fewer quits and layoffs, which leads to a positive relation between tenure and wages. Fourth, bargaining theories are congruous with wages rising over tenure. Since firm-specific capital represents a value to the firm, under certain assumptions it is in the firm's interest to avoid workers quitting. One such strategy may be to let wages increase gradually with tenure (Burdett and Coles, 2003). Other theories say that firms need senior workers to instruct and cooperate with new workers (Lindbeck and Snower, 1990) and that incumbent workers receive a seniority profile in wages as well as a LIFO layoff rule in exchange (Kuhn and Robert, 1989).

The theoretical literature therefore offers no single explanation for tenure-related wages. Meanwhile, the empirical literature shows a lack of agreement on how to calculate returns to tenure. Early studies regarding the United States address the problem of tenure endogeneity in the wage equation. Tenure is not a fully exogenous explanatory variable of wages, since unobserved individual characteristics and match-specific characteristics may determine both the wage level as well as tenure. In other words, high-productivity individuals tend to experience fewer quits and layoffs and high-quality matches tend to survive longer. Altonji and Shakotko (1987) and Abraham and Farber (1987) solve the endogeneity problem by using instrumental variable (IV) estimators. The impact of tenure on wages found is much lower than the least-squares estimates and the experience slopes are steeper, indicating that this technique corrects for the heterogeneity bias. Topel (1991) addresses the endogeneity problem by applying a two-stage first-differences (FD)

[33] However, investment in specific human capital does not necessarily imply that wages depend on job tenure. In an ideal world, the firm, instead of the risk-averse worker, should both bear the entire risk of the investment and receive all the quasi-rents, since firms can diversify risks on the capital market. In practice, however, labour contracts are incomplete, leaving room for renegotiation during the contract period (Grout, 1984; Hosios, 1990).

estimation procedure and finds substantial returns to tenure for the United States.[34] Alternatively, one can use panel data models that control for fixed effects (FE) to tackle the endogeneity problem (Abowd at al., 1999).

Studies of wage losses after job displacement, however, take a different angle (Kletzer, 1989; Jacobson et al., 1993; Hijzen et al., 2010), suggesting that firm-specific factors are an important determinant of wage growth. Dustmann and Meghir (2005) use a sample of displaced workers to identify the effect of tenure on wages. The underlying idea is that these workers constitute a random sample, since they switched job not by choice but due to firm closure, which is an exogenous event.[35] The authors find strong evidence of positive returns to firm tenure in Germany, especially for unskilled workers. Beffy et al. (2006) take on another approach to cope with the endogeneity of the mobility decision. They use a structural model, estimating the wage equation along with separate equations for mobility and participation and controlling for unobserved person heterogeneity in the wage equation. The authors find low returns to tenure for France, although these rise with worker educational level. For the United States, the authors find higher returns to tenure, and their interpretation is that returns to tenure there serve as a device to counter excess job mobility.

The heterogeneity of workers as well as of firms has received increasing attention in the literature to explain countries' wage structures (Postel-Vinay and Robin, 2002; Abowd et al., 1999). Lazear and Shaw (2008) explore the structure of wages based on linked employer-employee data for various countries, including the Netherlands. The authors find as a stylised fact that while there is high wage dispersion within firms, the average wages of firms also differ considerably between firms, with 'high-wage firms' and 'low-wage firms'. High-wage firms are, in general, characterised by low turnover. In the Netherlands, however, the authors find that there is little variation in wage growth between industries; wage differences at the firm level contribute for 12% of differences in wage growth, while 87% of the variation is due to individual differences (Lazear and Shaw, 2008). Firm heterogeneity thus seems less important in explaining Dutch wage variation between individuals than worker heterogeneity.

Not many empirical studies exist on the relation between wages and productivity, because labour productivity is often unobserved. Borghans et al. (2007) give a nice overview of studies on productivity-wage gaps regarding the United States and Canada. These studies (Medoff and Abraham, 1981; Kotlikoff et al., 1993; Dostie, 2006) generally provide evidence that older workers are paid wages exceeding their marginal productivity. Van Ours et al. (2010) conducted the only recent empirical study available for the Netherlands in this field: Many of the specifications estimated in their study indicate that older workers are relatively overpaid. The final specification, however, accounting for the potential endogeneity of the change in age composition, shows that productivity and wage both increase with age. Their study concludes that the productivity-wage gap at high ages is bound to be small in the Netherlands.

Regarding the relation between wages and mobility, the empirical analysis in Borghans et al. (2007) shows that a higher wage growth of older workers in firms is correlated with a lower outflow of older workers towards other jobs or early retirement. High wage variation within firms is found to be correlated with the greater mobility of both younger and older workers; more flexible remuneration is thus associated with greater mobility.

3.3 Institutions and long-tenured contracts

Negotiations between labour unions and employer organisations play a pivotal role in the Dutch wage formation process. Collective labour agreements can be concluded at the industry level, as well as at the company or plant level. Agreements at the industry level are reached between one or more employers or employer organisations and one or more

[34] In a reassessment, Altonji and Williams (2005) explain the differences between Topel (1991) and Altonji and Shakotko (1987). They argue that Topel's estimator of the return to tenure is biased upward by individual heterogeneity, while the estimator in the latter paper is biased downward by job match heterogeneity.

[35] As in Topel (1991), a two-step approach is followed. In the first step, the effect of tenure and experience cannot yet be distinguished. In the second step, Dustmann and Meghir use the sample of displaced workers to estimate the unbiased effect of experience on wages; the result is then used to obtain the effect of tenure separately.

workers' organisations. They are binding for all firms and employees represented by these parties. However, it is common practice that the parties request the Minister of Social Affairs and Employment to declare the agreement to be 'universally binding', implying that the agreement is extended to all employers in the industry. Although the Dutch union density (or membership) rate is fairy low (19%), the coverage of collective labour agreements in the Netherlands (79%) is relatively high from an international perspective. Several continental European countries (Germany, Italy, Portugal) feature comparable levels, while coverage in the United Kingdom (35%), the United States (13%), and, for example, Denmark (52%) is considerably lower.[36] Dutch wage bargaining is characterised by an intermediate level of centralisation, since agreements are predominantly closed at the industry level. However, this is combined with a fairly high level of coordination at the national level. Tripartite consultation in the Social Economic Counsel serves as an important channel here.

Flexible components of remuneration are fairly common in the Netherlands: For about 30% of workers, the yearly adjustment of individual wages is explicitly based on an evaluation of accomplishments. This incidence decreases with age, all other things being equal (Tijdens et al., 2008). Other forms of flexible remuneration, such as once-only payments and bonuses related to performance at the company level, are less common. These types of flexible remuneration generally do not have a structural effect on wage levels.

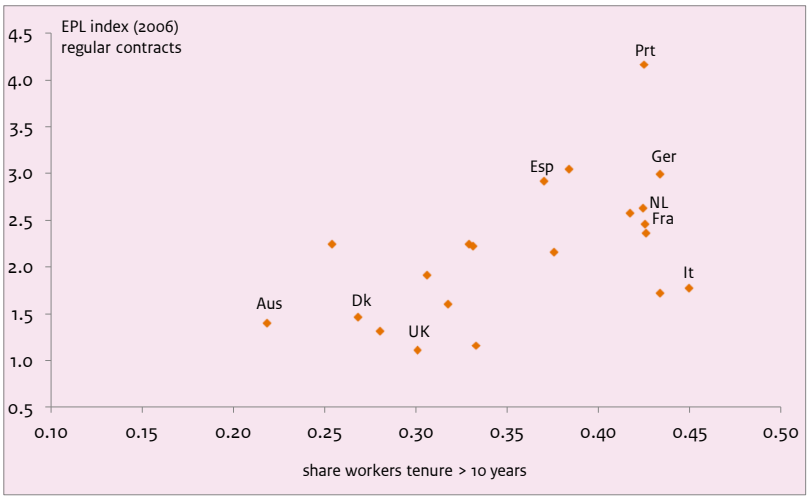
It is sometimes suggested that wage profiles are steep not because older workers get paid high wages, but because young workers are paid low wages. As such, it is interesting to pay some attention to the (youth) minimum wage system. Dutch minimum wage levels are fairly high from an international perspective, although the Netherlands do not stand alone. The real hourly minimum wage (US$8.22 in terms of 2008 purchasing power parity) is comparable to that in countries such as France, Belgium, and the United Kingdom. Minimum wage levels in southern European countries (Portugal, Spain, and Greece) are about half as high. The United States and Canada take an intermediate position. Expressed as a percentage of the average wage of full-time workers, the Dutch minimum wage (0.38) falls between that of the United States (0.25) and France (0.50). The United Kingdom and Canada show figures similar to those of the Netherlands, which may mean that the minimum wage has an uplifting effect on large parts of the wage structure.

Young workers up to the age of 22 are covered by a system of youth minimum wages. The minimum wage increases quickly over age: For example, the minimum wage of a worker aged 18 amounts to 45.5% of the adult minimum wage level. For a worker aged 20, this increases to 61.5%, while at age 22 the minimum wage is 85% of the adult minimum wage level. Since, however, this increase is age-related; no impact is expected on returns to tenure in the empirical analysis.

The international position of the Netherlands concerning the incidence of long tenures is illustrated by Figure 3.1, which plots the share of workers with 10 or more years of tenure against the strictness of employment protection for regular contracts as measured by the OECD Employment Protection Legislation (EPL) index. Figure 3.1 suggests a positive correlation between employment protection and the incidence of long tenures. In other words, there is a negative relation between job mobility and employment protection. It is striking that both the Dutch EPL index and the share of long tenures exceed those of most countries.

[36] The source of the figures mentioned is Boeri and van Ours (2008), Table 3.1.

Figure 3.1 Share of workers with 10+ years of tenure plotted against EPL index on regular contracts



Source: OECD StatExtracts (tenure) and OECD Going for growth, 2009 (EPL).

Table 3.1 Share of male workers holding a job with tenure > 10 years, by age group, 2009

Age	20 to 29	30 to 44	45 to 54	55 to 64	Total
Country					
Australia	0.02	0.19	0.39	0.46	0.22
Korea	0.00	0.21	0.41	0.26	0.22
Mexico	0.06	0.30	0.50	0.50	0.25
Denmark	0.01	0.21	0.43	0.57	0.27
Canada	0.02	0.25	0.51	0.53	0.28
Iceland	0.04	0.24	0.44	0.54	0.28
United Kingdom	0.04	0.30	0.48	0.51	0.30
Hungary	0.02	0.30	0.49	0.53	0.31
Ireland	0.03	0.31	0.58	0.67	0.32
Norway	0.01	0.26	0.52	0.69	0.33
Poland	0.02	0.37	0.55	0.55	0.33
Switzerland	0.03	0.28	0.52	0.68	0.33
Spain	0.03	0.32	0.62	0.72	0.37
Czech Republic	0.03	0.40	0.57	0.60	0.38
Finland	0.01	0.33	0.60	0.72	0.38
Luxembourg	0.00	0.38	0.67	0.74	0.42
Netherlands	0.04	0.36	0.63	0.75	0.42
Portugal	0.06	0.43	0.66	0.70	0.42
Austria	0.06	0.44	0.69	0.75	0.43
Belgium	0.02	0.40	0.69	0.79	0.43
France	0.03	0.42	0.69	0.75	0.43
Germany	0.05	0.41	0.65	0.74	0.43
Italy	0.04	0.40	0.67	0.76	0.45
Average (unweighted)	0.03	0.33	0.56	0.63	0.35

Source: OECD StatExtracts.

Table 3.1 specifies the share of long tenures by age group. For each age group the Dutch shares exceed the OECD average. The deviation from the OECD average increases with age. Of workers aged 55–64 years, 75% have held their current position for 10 years or more, compared with 51% in the United Kingdom and 46% in Australia. Only in Italy and Belgium is the share of older workers working that long at the same employer higher, while France and Austria show figures similar to that of the Netherlands. The counterpart is that the share of Dutch workers aged 55–64 (aged 45–54) in a new job (tenure < 1 year) is only 2% (4%).[37] The outflow of older workers into early retirement and disability schemes presumably plays a role. For younger age groups, the Netherlands is less of an outlier, but the overall share of long tenures still remains fairly high. In addition, data on worker flows point to moderate job mobility in the Netherlands[38]; both accession and separation rates seem a bit lower than in other countries, although the set of countries for which these data are available is limited.

3.4 Empirical evidence on wages and mobility

This section answers four empirical research questions. First, are Dutch wage-tenure profiles steep by international standards? Second, to what extent is wage growth over the job spell lost in case of an involuntary job switch? These two questions combined indicate the degree in which firm-specific elements play a role in wage setting, possibly providing an explanation for the low job mobility in the Netherlands. The data do allow us to assess the importance of one possible source of returns to tenure: quasi-rents that senior workers are able to capture due to the bargaining power derived from their seniority as a result of the LIFO layoff rule. Therefore, the third question is what is the impact of the relative seniority position of workers (compared to colleagues in the same firm) on wages? And fourth, is there a correlation between the impact of tenure on wages and the share of older workers in a firm? Using an extensive micro dataset, these questions are answered using regression analysis techniques.

Data

The core dataset used is the Dutch Social Statistical Database (SSB-jobs) for the years 1999–2005. This linked employer-employee dataset is based on administrative data. It is a complete dataset of all Dutch jobs, but information on gross wages and hours worked is available only for about one-third of the observations. Since this subsample remains largely the same over time, the dataset has the characteristics of a panel dataset. The level of educational attainment is included by merging SSB-jobs to the Dutch Labour Force Survey (DLFS) 1996–2005, which contains repeated cross sections covering about 10% of the labour force. The educational attainment level an individual has in DLFS is assigned to all years of our administrative dataset SSB-jobs, assuming that this variable is time invariant. After selecting on the availability of gross wages as well as educational attainment, about 1.7 million observations remain. We further restrict our analysis to male workers, working full-time (defined as a workweek of 35 hours or more) in the private sector, aged 18–60, and working in firms with at least 10 employees. Standby employees and employees working for temporary work agencies are excluded from the sample. Depending on the specification of the wage regressions, 300,000–400,000 observations remain.

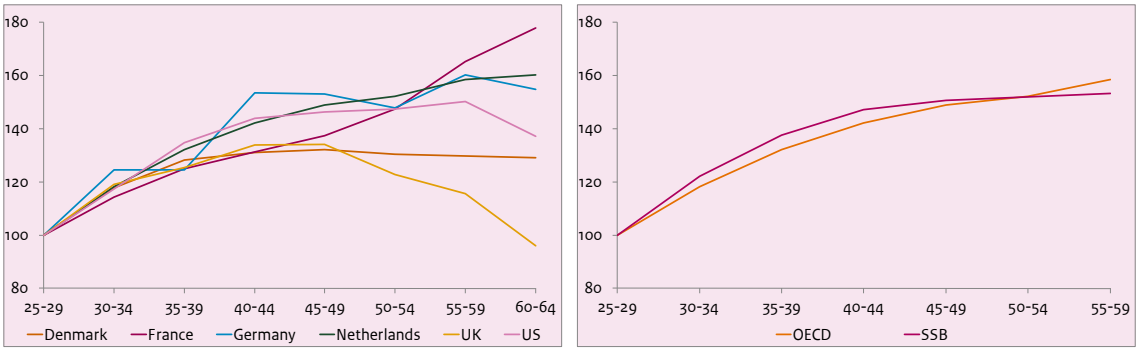
Tenure can be calculated accurately, since the exact starting date of jobs is included in the dataset. A job is defined here as a contractual relationship between an employee and an employer. Internal mobility within a firm is not observed in the dataset. Potential experience is defined as the age of an individual minus the expected years of education given the attainment level.

An international comparison of cross-sectional data suggests that the Dutch wage profile is relatively steep (Figure 3.2, left). This pattern, as published by the OECD (OECD, 2006; Euwals et al., 2009), is fairly similar to that found in our administrative dataset SSB-jobs (Figure 3.2, right): The average real wage for males in the sample shows a substantial increase over age that gradually levels off. For each level of educational attainment in our administrative dataset, the

[37] Source: OECD StatExtracts.
[38] Jongen (2010), Table 2.1.

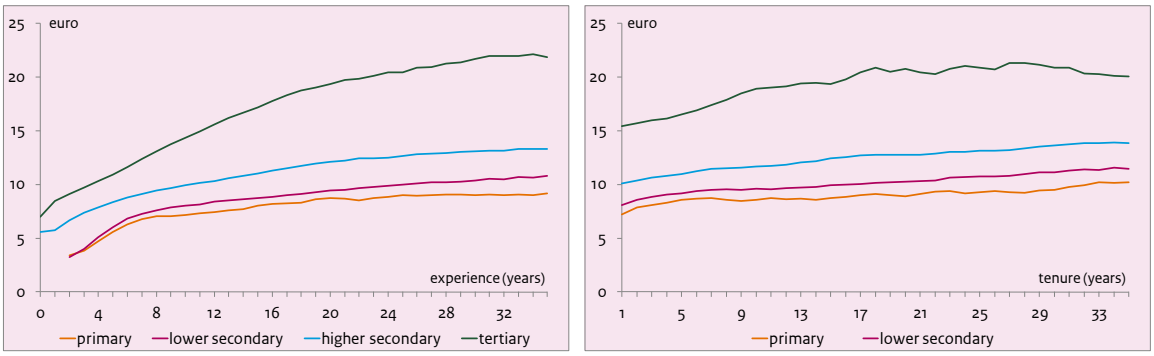
average real wage for men increases with potential experience. The increase is more pronounced for higher levels of education (Figure 3.3, left). Moreover, for each level of educational attainment, the average real wage seems to increase with job tenure (Figure 3.3, right).[39] However, it is complicated to interpret these descriptive statistics, since cross-sectional averages do not control for selectivity or for the correlation between experience and tenure. Since our interest is in the marginal effect of tenure on wages, conditional on experience and other characteristics, regression techniques are used to analyse the data in the remainder of this chapter.

Figure 3.2 Wage profiles by age for males for a selection countries (left) and a comparison of OECD data with dataset SSB (right)



Source: Live Longer, Work Longer', OECD, 2006.

Figure 3.3 Average real wages of men by experience (left) and tenure (right)



The figure refers to men, aged 18-64, working full-time in the market sector in firms with 10 or more employees.

Source: own calculations, SSB-jobs 1999-2005 and Dutch Labour Force Survey 1996-2006 (level of attained education).

[39] This is consistent with Borghans et al. (2007). Exploring the same dataset, they find that the highest percentiles experience the highest wage increases.

Empirical model

To assess the effect of tenure on wages, three methods that are common in the literature are applied. All of these methods address the problem of endogeneity of tenure and/or experience in the wage equation, but in different ways.[40] The endogeneity problem, as discussed in Section 3.3, relates to the facts that high-productivity individuals tend to experience fewer quits and layoffs and high-quality matches tend to survive longer. Therefore simple ordinary least squares (OLS) regressions would lead to biased coefficients. The first method to address this problem is Topel's (1991) approach, which consists of a two-stage estimation procedure to assess the effect of tenure and experience on wages. In the first step, the wage equation, expressed in FD, is estimated on a sample of stayers (individuals who work for the same firm since at least a year). Estimating in FD assures that fixed job and individual effects are controlled for.[41] A drawback is that the linear effects of tenure and experience cannot be distinguished, since both increase by one year. Therefore, a second step is needed in Topel's approach to disentangle the linear effects of tenure, on the one hand, and experience, on the other. Second, the approach of Altonji and Shakotko (1987) is followed, where the endogeneity problem is addressed by using instrumental variables (IV) for tenure and experience.

Instruments are variables that are correlated to the regressor (here tenure and experience) but are assumed to be uncorrelated to the error term. Following Altonji and Shakotko (1987), the degree to which the actual tenure of an individual deviates from his or her average tenure over the observed job spell is used as an IV for that individual's tenure, and likewise for experience. Unfortunately, it is difficult to give an economic interpretation of these instruments. Two models are distinguished: the IV-ten model, where only tenure is instrumented, and IV-tenexp, where both tenure and experience are instrumented. Third, a fixed effects (FE) model[42] is estimated to control for unobserved heterogeneity at the level of the employer-employee match.

Wage-tenure profiles

This section presents the estimated effect of tenure on real wages according to the various estimation models. Table 3.2 presents the cumulative effects of tenure on the real wages of male workers in the private sector. The cumulative effect of tenure can be interpreted as an estimate of what a typical worker would lose if his job were to end exogenously. The results for the IV and FE models indicate that the return of remaining in a job for 10 years, compared to leaving earlier, is 6–7% in terms of real wages. After a tenure of 20 years, the cumulative return amounts to 9–12%. As is well known from the literature, the FD approach generates a much higher return to tenure[43] than the IV and FE models.

To answer the question whether wage-tenure profiles in the Netherlands are steep, the estimation results are compared with other countries' outcomes obtained by the same regression techniques. Focussing on the actual level of the returns seems less fruitful, because of the variation between different methods. Compared to other studies, the FD model appears to generate relatively high returns to tenure for the Netherlands, much higher than those found for the United States (Table 3.3). In addition, compared to several European countries, the returns for the Netherlands are substantial. Only the returns to tenure for West Germany are of the same order of magnitude. According to the IV-ten model, again the returns to tenure are relatively high compared to those for other countries (Table 3.4, upper panel). The Dutch returns are again comparable with those for West Germany, as found by Zwick (2008). The returns for the United States vary: Altonji et al. (1987) find moderate returns. Finally, the results of the IV-tenexp model (Table 3.4, lower panel) also indicate that the Dutch returns to tenure are substantial.

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[40] For a more elaborate overview of both the empirical model and the estimation results, see Deelen, 2011.

[41] The FD estimates are conducted using a two-step approach. The first step obtains the joint linear effect of tenure and experience. To distinguish the effect of tenure, two approaches are applied in the second step. First, following Topel (1991), simulated wages at the start of the current job (calculated using the estimation results from the FD equation) are estimated using the simulated experience at the start of the job as an explanatory variable. The second approach is to regress the wage change of involuntary job switchers (who have a tenure of less then one year by definition) on experience (where involuntary is determined by using a sample of job switchers who received unemployment benefits before starting in a new job). The average return to experience from these two approaches is subtracted from the joint effect of tenure and experience to determine returns to tenure.

[42] The FE model is equivalent to an OLS model where all variables are taken in deviations from means over the job spell.

[43] The FD return in Table 1.2 is the average of the returns obtained when applying two different methods in the second step.

Table 3.2 Estimated cumulative return to job tenure

	5 Years	10 Years	15 Years	20 Years
First Differences	0.21	0.42	0.62	0.81
Instrumental variables (for tenure)	0.03	0.07	0.09	0.12
Instrumental variables (tenure and experience)	0.04	0.07	0.10	0.11
Fixed Effects	0.04	0.06	0.08	0.09

Figures refer to the cumulative returns to tenure according to different estimation techniques with additional correction for experience, demographic and educational variables. For all regressions the impact of tenure is highly significant.

Table 3.3 Returns to tenure for various countries according to First Differences (FD) model

	5 years	10 years	15 years	20 years
Netherlands 2000-2005 [a]	0.21	0.42	0.62	0.81
Topel (1991) for USA 1968-1983	0.18	0.25	0.28	0.34
Lefranc (2003) for USA 1981-1992	0.06	0.11	0.15	0.19
Lefranc (2003) for France 1990-1997	0.08	0.15	0.20	0.25
Williams (2008) for UK 1991-2001	0.08	0.11	N.A.	0.09
Zwick (2008) for West Germany 1998-2003	0.23	0.40	0.56	0.73

a) Figures refer to the cumulative returns to tenure according to the First Differences model, including corrections for experience and demographic and educational variables. The impact of tenure is highly significant.

Table 3.4 Returns to tenure for various countries according to Instrumental Variables (IV) models

	5 years	10 years	15 years	20 years
IV_ten				
Netherlands 1999-2005 [a]	0.03	0.07	0.09	0.12
Altonji *et al.* (1987), USA 1968-1983	0.03	0.03	0.03	0.04
Dustmann *et al.* (2005), West Germany 1991-1997	0.01	0.02	0.04	0.06
Williams (2008), UK 1991-2001	0.05	0.06	NA	0.08
Zwick (2008), West Germany 1998-2003	0.06	0.08	0.09	0.10
IV_tenexp				
Netherlands 1999-2005 [a]	0.04	0.07	0.10	0.11
Altonji *et al.* (1987)	0.04	0.03	0.04	0.05
Dustmann *et al.* (2005), West Germany 1991-1997	-0.01	-0.02	-0.03	-0.03
Zwick (2008), West Germany 1998-2003	0.05	0.05	0.05	0.05

a) Figures refer to the cumulative returns to tenure according to two Instrumental Variables models. In the IV_ten model, only tenure is instrumented (IV_ten) while in the IV_tenexp model, both tenure and experience are instrumented. Both specifications include corrections for experience and demographic and educational variables. The impact of tenure is highly significant.

Compared to returns to tenure, returns to experience are much higher. This is not only the case for the Netherlands; it is common throughout the literature.[44] Since experience is not firm related, returns to experience – which are generally associated with general human capital – are no impediment to mobility.

To summarise, this subsection investigates whether wage-tenure profiles in the Netherlands are steep. The empirical findings confirm that returns to tenure in the Netherlands are indeed high compared to those in other countries. In other words, it pays not to be mobile on the Dutch labour market.

Job switchers

Another way to learn about the impact of tenure on real wages is by analysing the real wage change of involuntary job switchers, since returns to tenure are match specific and not expected to carry over to the new job. Recent studies, however, recognise that labour market skills are not either fully general or fully specific to a firm but, rather, partially transferable across occupations, especially if individuals move to occupations with similar task requirements (Lazear, 2003; Gathmann and Schönberg, 2009). This may mitigate wage losses in case of job mobility.

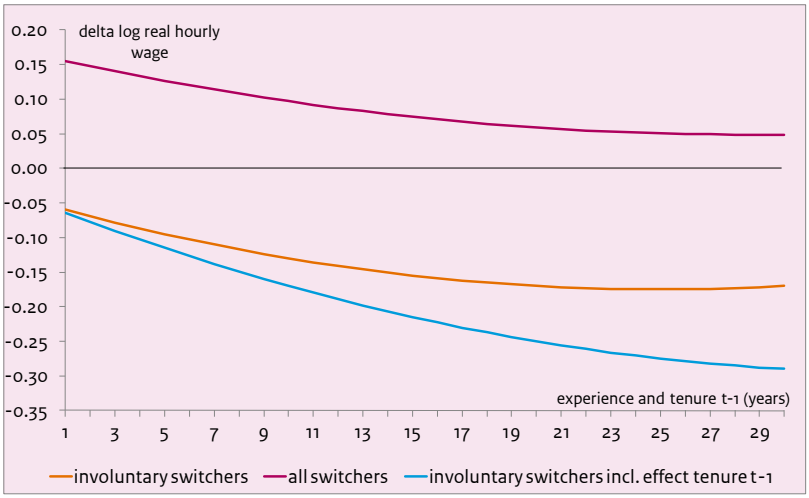
In the empirical analysis, two subsamples of job switchers are distinguished. The first subsample consists of all individuals (again males, aged 18–64, and working full-time in the market sector) who were in different jobs in two subsequent years (9,026 observations). The second subsample consists of those job switchers who received unemployment benefits in between two jobs held in two subsequent years (737 observations).[45] The latter group proxies for the group of involuntary switchers; it can be assumed that selectivity in the mobility decision is of minor importance for this group, since their job loss is closer to an exogenous event.

The average real wage increase between jobs amounts to 4.5% for the group of all switchers, whereas involuntary switchers, on average, face a wage drop of 1.3%. The positive wage rise for all switchers matches our expectations, since this group exists for the larger part of voluntary switchers. Selection effects play a role here, since the wage change will be one of the determinants in the mobility decision.

The effects of experience and tenure on the wage change of job switchers are identified using OLS regressions, where the real wage change of job switchers acts as dependent variable, while experience (including experience squared) and tenure in the previous job are the explanatory variables of interest. The impact of experience on the real wage change for all switchers is depicted by the topmost line in Figure 3.4. The more experienced the worker, the lower his average wage increase. The same is found for involuntary switchers, since the middle line in Figure 3.4 indicates that wage loss grows with experience, although this effect eventually flattens out. The bottommost line in Figure 3.4 depicts the effect of both experience and tenure in the departed job.[46] Tenure is found to have a negative impact on the wage change of involuntary switchers: After 10 years the effect is 4% and after 20 years of tenure the additional wage loss (above the effect of experience) amounts to 8%.[47]

[44] To illustrate, returns to experience after 10 (20) years according to the IV-ten model amount to 62% (80%) for the Netherlands, 47% (91%) for the United States (own calculation based on estimation results in Altonji et al., 1987), and 68% (132%) for West Germany (Zwick, 2008).
[45] Note that all jobs observed in the sample are jobs existing in December, since the survey (which covers one-third of the SSB dataset) from which the data on wages and hours worked stem is held in December each year. Selecting cases that receive unemployment benefits in the second year is therefore a good proxy for individuals who receive benefits between two observed jobs. Instead of using unemployment benefits as an indicator of involuntary job mobility, one could use data on collective dismissals (see Fouarge and de Grip, 2010).
[46] In Figure 3.4, it is assumed that tenure and experience move together, so the bottommost line can be interpreted as the wage effect of time for an individual who remains in one and the same firm over his or her entire career.
[47] The additional downward effect of tenure in the previous year on the real wage growth is found for the subsample of all switchers as well (not depicted in Figure 3.4), but to a lesser extent.

Figure 3.4 Wage change of (involuntary) job switchers by experience and tenure in the previous job



The topmost line depicts the effect of experience on the real wage change between the jobs of all switchers, the middle line shows the effect of experience on the real wage change between jobs for involuntary switchers, and the bottommost line depicts the effect of both experience and tenure in the departed job for involuntary switchers.

These results can be interpreted as showing that wage growth over a job spell partly depends on firm-specific factors. This part of the wage growth is lost in case of job mobility. This finding is in line with the robust results from the growing literature on displaced workers, where the wage losses of displaced workers increase with tenure on the lost job. Moreover, these results confirm the findings in the previous section, that there are positive returns to tenure in the Netherlands. The fact that the effect of tenure on the wage losses of involuntary job switchers is slightly smaller than the returns to tenure found in the previous section may indicate that a minor part of the effects of tenure are transferable to new jobs (Kuhn and Sweetman, 1999). However, the results need to be interpreted carefully. First, the sample of involuntary job switchers is of limited size, and receiving unemployment benefits is perhaps an imperfect proxy for involuntary unemployment. Second, the sample is probably subject to selection effects: For example, wages are only observed for individuals who actually find a job. Older workers often have alternatives such as unemployment or disability benefits or early retirement arrangements, leading to relatively high reservation wages.

To summarise, this subsection empirically analyses the wage change of Dutch job switchers. The results indicate that, on average, involuntary switchers experience a real wage drop when moving to a new job. The wage decrease is larger the higher the tenure in the departed job, indicating that wage growth over the job spell partly depends on firm-specific factors, which is lost in the case of job mobility. These results confirm the findings in the previous section of positive returns to tenure in the Netherlands.

Seniority index

The last two sections provide evidence that there are positive returns to tenure in the Netherlands and indicate that these returns are substantial from an international perspective. No attempt has been made so far to explain these positive returns to tenure. The data do not allow one to determine the importance of, for example, deferred payment schemes and investments in firm-specific human capital. Another possible source of returns to tenure is quasi-rents that senior workers may be able to capture due to the bargaining power they derive from their seniority, to which the LIFO layoff rule

in the Netherlands probably contributes.[48] This section empirically assesses the impact of seniority on real wages, apart from the effect of tenure, by estimating the effect on wages of a worker's relative seniority position in his firm.

The seniority index, which describes the seniority of an individual relative to that of his colleagues in the same firm, is determined empirically using the complete datasets for each year, comprising \all workers in all firms. The seniority index is defined, in conformity with Buhai et al. (2008), in such a way[49] that the seniority index of the most recently hired employee in a firm is zero, and the more senior a worker in the firm, the higher his seniority index. The seniority index is not a perfect approximation of the probability of being dismissed, inter alia, because in the Netherlands the LIFO layoff rule is not applied across the board but per job group. Therefore, job heterogeneity within firms can restrict the representativeness of the seniority index, because employers may want to reduce some job groups more than others. Moreover, firms can actively change the categorisation of workers over job groups in the preamble of reorganisations to affect the selection of workers to be fired.

The empirical analysis of the impact of the seniority index on real wages is implemented by extending the real wage equation with the seniority index. This has been done for the standard specifications of the various models (FD, FE, and IV) discussed earlier in this section. Hence, the effect of seniority is measured on top of that of tenure so that it can be seen as the impact of higher seniority if all other characteristics, including tenure, are equal between two workers. In line with the theoretical expectation that the enhanced bargaining power obtained by the LIFO layoff rule will lead to higher wages, all the models presented in Table 3.5 find the seniority index to have a significant positive effect on real wages. An effect of 0,006 implies that, if a worker develops from being the most newly hired worker to the most senior worker in a firm, his real wage increases by 3–4%[50] solely due to the improvement in his seniority position. If the seniority index is left out of the specification, this effect is picked up by the tenure variable, so the tenure effect presented partly reflects the effect of seniority.

The magnitude of the Dutch seniority effect is, however, low in comparison to the effects for Portugal and Denmark, as found in Buhai et al. (2008). This is a striking result, since employment protection legislation for regular contracts in the Netherlands is stricter than in Denmark, according to the OECD EPL index. Moreover, the Dutch score for the item 'difficulty of unfair dismissal' of this index (1,5), which relates, among other things, to LIFO, lies in between the scores of Denmark (0) and Portugal (2) (OECD, 2004). Although there is some positive effect of seniority on wages, Dutch senior workers apparently exploit their individual bargaining power derived from their seniority position only to a limited extent.

Finally, in interpreting the results, one should bear in mind that the seniority index is not a perfect measure of the probability of being dismissed, as pointed out earlier. A possible interpretation of the modest effect found is that the pivotal role of unions in the Netherlands reflects a high social value attached to wage equality and the minor importance of wage renegotiations at the individual level. A second possible interpretation is that the need to exploit the individual bargaining power derived from the seniority position is low because Dutch returns to tenure are already high for other reasons, in contrast with, for example, Denmark.[51] Since both notice periods and severance payments are strongly tenure related in the Netherlands, LIFO may not be the only source of enhanced bargaining power for older workers. Therefore, returns to tenure as measured may still partly reflect quasi-rents captured by high-tenured workers, apart from the effect

[48] In case of collective dismissal or dismissal for economic reasons, the LIFO principle, applied per job group, prevailed up to early 2006, at which time the Dutch government implemented a minor policy reform. Since then, the LIFO principle has been replaced by the so-called reflection principle. Under this new system, employees per job group are classified in 10-year age groups and the LIFO layoff rule is applied to each of these groups. The underlying policy aim is to distribute dismissals more evenly over the age groups.

[49] The seniority index of worker i in firm j at period t is defined as log(number of workers in firm j at period t employed at least as long as worker i)/(total number of workers in firm j at time t) (Buhai et al., 2008).

[50] For example, for a firm with 1,000 workers, when a worker moves from being the newest hire (999 colleagues have higher seniority) to the most senior worker, the effect on wages is the estimated coefficient times the change in seniority index, that is, 0.006 * ((log(0.001) (log (0.999)) = 0.04.

[51] In Denmark, returns to tenure are relatively small, and the seniority effect is large compared to the return to tenure (Buhai et al., 2008, footnote 16).

of seniority. Hence, the measured seniority effect is a lower limit of the effect of older workers' enhanced bargaining power on wages.

To recap, this subsection empirically assesses the impact of seniority on real wages, separate from the effect of tenure, by estimating the effect on wages of a worker's relative seniority position in a firm. In line with the theoretical expectation that the enhanced bargaining power obtained by the LIFO layoff rule will lead to higher wages, a significant and positive effect of seniority on real wages is found. Compared internationally, the effect is modest. Apparently, quasi-rents obtained as a result of the LIFO layoff rule are not a major factor in explaining the steep Dutch tenure profiles. On top of this, quasi-rents due to tenure-related notice periods and severance payments may be captured in the estimated returns to tenure. Hence, the measured effect is a lower limit of the real effect of older workers' enhanced bargaining power on wages.

Table 3.5 Effect of the seniority index on real wages

	Netherlands		Denmark		Portugal	
FD	0.002	**	0.005	***	0.014	***
FE	0.006	** *	0.010	***	0.019	***
IV_tenexp	0.004	*				

The seniority index measures the seniority position of a worker relative to his colleagues in the same firm.
***, ** and * indicate that the estimated coefficient is significant at 1%, 5% respectively 10% level.

Share of older workers in a firm's workforce

This subsection investigates whether there is a correlation between steep wage-tenure profiles and low job mobility in the Netherlands. More precisely, the research question of interest is whether firms belonging to industries with relatively high returns to tenure display a higher share of older workers and higher average tenure.

Deferred compensation schemes (where the young are paid below their marginal productivity in favour of older workers) may serve as a tool for firms to purposefully reduce the mobility of their workforce. High transaction costs, for example, when hiring workers may be an argument for firms to apply deferred compensation[52]; this way, employers lengthen the payback period of their investments. Hence, if deferred compensation schemes are applied, empirically a positive correlation is expected between returns to tenure and the share of older workers in a firm, or the average age and tenure.

The relationship between mobility and returns to tenure is analysed by regressing the share of older workers in firms[53] on a measure for the industry-specific tenure effect (next to several control variables). Firm-level regressions for other variables regarding the composition of the workforce of firms (e.g., average age, average tenure, share of young workers, and share of flexible workers) are also performed.[54] The measure for the industry-specific tenure effect is derived from the wage-tenure analysis described earlier, where now the specification of the IV-tenexp model is extended by introducing one extra variable that measures tenure in a specific industry.[55] In total, 33 industries in the private sector are

[52] Two other main arguments for deferred compensation schemes are the following: First, firms want to stimulate workers' efforts and, second, firms are uncertain about the productivity of newly hired workers and want to preserve their existing highly productive workers by paying them higher wages (Blinder, 1982).
[53] The variables regarding the composition of the workforce are calculated using the integral dataset, containing all workers in all Dutch firms.
[54] Zwick (2008, pp. 17) performs a similar analysis for Germany and finds that German establishments that pay a higher seniority wage than the average establishment in their sector can retain their employees longer than the average establishment.
[55] The extra variable is an interaction variable consisting of an industry dummy variable times the linear tenure variable as measured at the individual level.

distinguished. The regression then produces 33 estimated industry-specific tenure coefficients, which serve as a measure of the effect of tenure on wages in these particular industries.

Table 3.6 only presents the coefficient of the measure for the industry-specific tenure effect; coefficients for other (control) variables are not presented. Hence, each row relates to a separate regression. All effects are significant at the 1% level. The results clearly show that the higher the returns to tenure (in the industry a firm belongs to), the higher the share of older workers (aged 55–64) in the firm and the lower the share of young workers (aged 15–24) and workers on flexible contracts. Furthermore, the higher the returns to tenure in the industry concerned, the higher the average age and tenure of workers in the firm.

Summarising, a clear correlation is found between steep wage profiles and the low mobility of older workers. Several explanations are possible. The correlation found may indicate that deferred compensation prevails in these industries and firms, giving older workers an incentive to remain with their firms for a longer period. But the causality can also run the other way: a high share of older workers in a firm may generate steep wage-tenure profiles as well-protected older workers use their strong wage bargaining position. Another possibility is that older workers are highly represented in sectors of the industry where investments in firm-specific human capital are important.

Table 3.6 Estimation results regarding various aspects of the Composition of the workforce of firms

	Coefficient industry-specific tenure effect	
Share of workers aged 55-64	1.02	***
Share of workers aged 25-54	6.03	***
Share of workers aged 15-24	-7.13	***
Share of flexible workers	-7.82	***
Average age workforce	175.33	***
Average tenure workforce	106.85	***

The figures display the estimation results for six separate regressions explaining different aspects of the composition of the workforce of firms. Variable of interest is a measure of the industry-specific tenure effect. The regressions include control variables for firm characteristics like firm size and firm growth.
*** indicates that the estimated coefficient is significant at 1% level.

3.5 Conclusions

This chapter investigates Dutch wage-tenure profiles using an extensive administrative dataset. Empirical evidence is provided that returns to tenure are high by international standards. In other words, mobility is not very attractive for older workers in the Netherlands. This is confirmed by the finding that involuntary job switchers, on average, experience a wage drop between jobs. This wage drop is larger the higher the tenure was in the departed job. This finding can be interpreted as wage growth over a job spell partly depends on firm-specific factors, which is lost in the case of job mobility.

Unfortunately, the data do not allow one to assess the importance of all possible sources of steep wage-tenure profiles, such as returns to firm-specific human capital or deferred compensation. One possible source of high returns to tenure that could be analysed, however, is quasi-rents. Senior workers may be able to capture quasi-rents due to strong bargaining power derived from their seniority position because of the LIFO layoff rule. Empirically, we find a significant but modest positive effect of seniority on real wages. Apparently, quasi-rents obtained as a result of the LIFO layoff rule are not a major factor in explaining the steep Dutch tenure profiles. However, on top of that, quasi-rents due to tenure-related notice periods and severance payments may be captured in the estimated returns to tenure. Hence, the measured seniority effect is a lower limit of the total effect of older workers' enhanced bargaining power on wages.

Moreover, a clear correlation is found between steep wage profiles and the low mobility of older workers. Several possible explanations exist for this finding. It can be an indication that deferred compensation prevails in these industries and firms; high investments in specific human capital may also be a reason. Another possible explanation is that a high share of older workers in a firm generates steep wage-tenure profiles, as well-protected older workers using their strong position in wage bargaining.

A remaining question is what causes Dutch wage profiles to be steep? Returns to investment in firm-specific human capital may play a role, but it is unclear why Dutch firm-specific investments would be larger than in other countries. Perhaps the high share of large firms in the Netherlands, offering large internal labour markets with high specific investments, contributes to the explanation. Deferred payment schemes may play a role as well, but again the question remains why Dutch schemes should differ from their international counterparts. Furthermore, quasi-rents following tenure-related notice periods and severance payments may be captured in the estimated returns to tenure. All in all, these constitute an open invitation for future research.

4 Flexible contracts among recent graduates

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This chapter shows that flexible jobs are generally less attractive relative to permanent jobs for graduates entering the labour market. Recent graduates with temporary contracts earn less, are more often overeducated, work more frequently outside their domain, and more often regret their choice of study. Our main conclusion is that the selection of recent graduates into either permanent or flexible jobs mainly takes place at the demand side of the labour market, i.e., by employers. If labour markets become tighter, employers are more willing to offer graduates permanent contracts rather than temporary contracts, and graduates in fields of study with small employment variations receive a permanent contract more often when entering the labour market. In addition, the more able graduates are, the more likely employers are to offer them a permanent contract. Only at university level are there any indications that the selection process is different. Some recent university graduates are able to get fixed-term jobs that match their education better than recent university graduates in permanent jobs, their selection into flexible jobs is much less dependent on the business cycle, and university graduates with higher grades are more likely to have fixed-term jobs. Finally, there is no indication that flexible work among graduates entering the labour market is related to their willingness to take risks. Recent graduates who dislike insecure jobs more than others have equal chances to be selected into temporary contracts.

4.1 Introduction

This chapter aims to explain the probability of recent graduates from secondary or higher education entering into either permanent or temporary employment. We distinguish between the two main categories of temporary jobs among recent graduates that are both regarded as flexible employment: fixed-term and temporary agency jobs. Since flexible employment is very common among recent graduates, as will be shown in this chapter, it is important to understand which groups of recent graduates have the largest probability of a temporary job and for what reasons. For example, are recent graduates selected into temporary jobs because employers use them as a buffer to adapt to demand shocks, or for other reasons? The main question is to what extent the probability of flexible employment among recent graduates is driven by labour demand, such as business cycle effects, or reflects the characteristics and preferences of the graduates.

The central difference between temporary and permanent contracts is grounded in employment protection legislation. If employers are faced with declining demand for products or poorly performing employees, they have to pay high costs to fire the permanent workers. In contrast, fixed-term employees are excluded from all redundancy procedures and severance pay when their contracts terminate. Moreover, temporary employment agencies supply workers on the so-called spot market, which makes it possible for companies to adjust their workforce quickly.

To answer the question raised above, we will analyse the impact of educational level and field on the probability of entering into these two types of contracts. Based on previous empirical studies (see Section 4.2) and our own analyses of job characteristics, we will argue that, in general, recent graduates in flexible jobs are worse off than those in permanent jobs. We will show that both the level and the field of education matter, and introduce five factors related to recent graduates' education that may explain the probability of a temporary job.

First, labour demand is more susceptible to employment variations for some fields of study than for others. These variations can stem from the business cycle as well as from other factors, such as changes in government budgets for health care or education. From the theory of adjustment costs (Hamermesh and Pfann, 1996) we can infer that employers may be more likely to enter into temporary contracts with graduates educated in fields susceptible to large employment variations. Second, if unemployment is high for graduates with particular degrees, employers can allow themselves to screen recent graduates with these degrees more intensively by postponing a permanent contract offer. Therefore a high incidence of flexible employment in particular fields of study may be a manifestation of a weak labour market position (De Grip et al., 1997). Third, graduates educated in fields that are strongly attached to particular occupational domains may have a better position to enter into permanent contracts than more broadly educated graduates (Borghans and Heijke, 1998), since employers will be more certain about the tasks they are able to perform and consequently their productivity. Fourth, graduates can signal motivation, ambition and ability by means of their final exam grades (Spence, 1973). Employers may be more willing to engage in permanent contracts with graduates that can achieve high productivity. Fifth, graduates who are more willing to take risks may enter into temporary contracts first, since they demand less compensation from their employers for job insecurity (see Rosen, 1986).

The next section reviews the literature that addresses the most important reasons why graduates enter into temporary contracts. Section 4.3 discusses the data and the general trends of recent graduates working in flexible contracts, and compares these to all employees in the Dutch labour force for the period 1996-2008. In Section 4.4, we look at several job aspects and analyze how a higher prevalence of temporary contracts for recent graduates from particular fields of study may be interpreted. Section 4.5 presents an empirical model to explain the probability of a recent graduate receiving a temporary contract using educational level and field as predictors. Section 4.6 analyses to what extent the five factors mentioned above can explain the probability with which recent graduates at the different levels of education may be offered a temporary job. Section 4.7 concludes.

4.2 Reasons for temporary contracts

Few studies have examined why recent graduates enter into temporary contracts. In general, the minimization of adjustment costs of the workforce can be seen as the main motive for employers to offer temporary contracts. Fluctuations in the demand for goods and services (like seasonal work) and temporary absences of incumbent staff due to for example holidays or sickness are the most prevalent motives (Dutch: 'piek en ziek') for employers to hire flexible workers (Houseman, 2001; Storrie, 2002). Other related motives for employers to choose flexible workers include filling a position temporarily to bridge the time until an appropriate permanent worker is found, and hiring expertise required for specific projects. It is, however, not known to what extent these motives are relevant for recent graduates.

Another important motive for employers to offer graduates a temporary contract may be the screening motive (Winkler, 1987). The employer can offer permanent contracts to the most able graduates or those that meet the required standards. Autor (2004) asserts that temporary agency work is more important as a screening instrument than for dealing with fluctuations over the business cycle. Temporary employment agencies are able to gather important information concerning the quality and motivation of temporary agency workers by training and testing them. Thus, they may be better able to match graduates and vacancies than employers are.

Although temporary contracts can be useful for employers for the above mentioned reasons, flexible work may be related to so-called 'bad jobs' in the secondary labour market segment (Doeringer and Piore, 1971; Reich et al., 1973; Rebitzer and Taylor, 1991). This may be particularly true for those groups that traditionally have a weak position in the labour market in terms of high unemployment and loose attachment to the labour market. These groups include not only immigrant, low-skilled and female workers, but also young people entering the labour market. Young people may move from one flexible job to another, interrupted by periods of unemployment or inactivity. Another explanation for a higher incidence of flexible jobs among graduates can be inferred from the so-called insider-outsider theory (Bentolila and Dolado, 1994). Permanent workers (insiders) dominate the labour unions and will make sure that their terms of employment are guaranteed as much as possible relative to the outsiders. These outsiders are the groups of people with a weak link to the labour market, including new entrants like recent graduates. Unfavourable job aspects for the outsiders' jobs may include temporary contracts and low wages as well as detrimental working conditions, more work accidents, lack of training opportunities and higher job strain (Houseman, 2001; Zijl, 2006). Thus, an employer may choose to employ graduates on a temporary basis to offer lower wages, less training or worse working conditions.

Young people, including recent graduates, must often accept temporary rather than permanent jobs when they are faced with high youth unemployment rates (Treu, 1992). Two empirical studies specifically analyse the labour market position of recent graduates, and point to the less attractive aspects of temporary jobs among these graduates. Wieling and Borghans (2001) show that the incidence of temporary work for Dutch graduates of different educational programs depends on excess supply of people educated in these programs on the labour market. They find that working for a low wage, below the educational level (i.e., the graduate is overeducated) or outside the occupational domain are other job aspects associated with temporary jobs that indicate a weak labour market position for recent graduates. Furthermore, Try (2004) shows that temporary jobs are widespread among recent graduates in Norway, and that temporary jobs are generally associated with working below the educational level and for lower wages.

Since most individuals are risk averse, graduates will usually prefer permanent over flexible jobs. According to the theory of compensating wage differentials (Rosen, 1986), employees should only accept a temporary job if they receive a higher salary than that of permanent workers. However, as has been argued above, compensation for temporary workers is lower than for permanent workers with the same background characteristics and occupying the same kind of job (European Commission, 2003). These so-called wage penalties vary from ca. 5 percent less remuneration in France, Germany, Belgium and Austria to more than 15 percent less in the Netherlands. Nevertheless, it may be expected that graduates who are least risk averse (i.e. most willing to take risks and require the smallest compensation), will have the highest probability to end up in flexible work (Dohmen et al., 2009).

Of course, temporary contracts make it possible for recent graduates whose manpower is only required on a temporary basis to be employed and have income anyway. Temporary contracts may increase the probability that unemployed graduates enter the labour market, which reduces unemployment duration[56]. When people are offered employment by means of temporary contracts, they can obtain work experience, acquire essential competencies that make them more attractive for other employers, demonstrate their motivation and capacities and develop their informal network. Thus flexible jobs may serve as a stepping stone toward a permanent job (Booth et al., 2002; Heyma and De Graaf-Zijl, 2009). Try (2004) indeed finds evidence that recent graduates consider some flexible jobs (in particular, research fellowships) as a good investment opportunity.

There are many other motives for choosing flexible jobs (Ecorys-NEI, 2002; Houseman, 2001), which may in particular hold for recent graduates. They can use flexible jobs for screening interesting jobs or employers, choose for flexible jobs if they like variation in their work, or bridge the time to another (permanent) job. Flexible work may provide extra income relative to receiving unemployment benefits, or can be supplementary to earnings in another job or to a study grant.

4.3 Data preview

To distinguish between the types of employment contracts offered to graduates, the definition for flexible work by Statistics Netherlands (CBS) has been adopted. Statistics Netherlands distinguishes the following types of flexible employees: workers with a fixed-term contract, temporary agency workers, and on-call workers. In this definition of flexible work, Statistics Netherlands excludes the self-employed, freelancers and so forth. To construct the sample of permanent and temporary graduates in this chapter, we exclude the small groups of on-call and self-employed workers and include all recent graduates working at least one hour per week, in contrast to the 12-hour threshold used by Statistics Netherlands.[57] A sample of almost 300,000 graduates remained for the period from 1996 to 2008.[58]

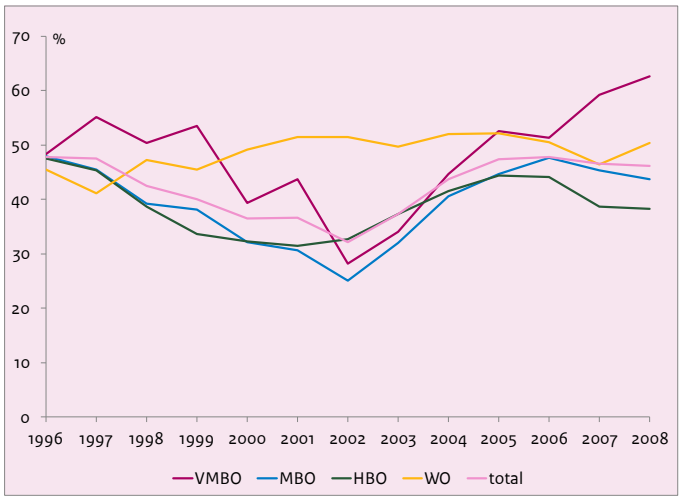
Data are drawn from large-scale graduate surveys conducted annually in the Netherlands by the Research Centre for Education and the Labour Market (ROA). These surveys include recent graduates of pre-secondary vocational (VMBO), upper general secondary (HAVO), pre-university (VWO), secondary vocational (MBO, or BOL/BBL[59]), higher professional (HBO[60]) and university (WO) education. The surveys take place 18 months after graduation and focus on aspects of the education-to-work transition. Extensive information is collected on the graduates' educational background as well as their current job. The information on graduates' current job includes income, hours worked, type of contract and a variety of other indicators of the quality of the job match. To measure the match between education level and current job, the survey uses an employee self-rating method in which respondents are asked to indicate the education level required by the employer and the match between their field of study and their current job. For this chapter we use the surveys conducted between 1996 and 2008, which refer to the 1994/1995 to 2006/2007 graduate cohorts.

Figure 4.1 shows the proportion of recent graduates in flexible jobs (excluding the self-employed), broken down by level of education for the period 1996-2008. Except for university graduates (WO), the figure suggests that the share of flexible work among recent graduates is cyclical. From 1996 to 2001, continuing economic growth, declining unemployment and a rising number of vacancies increased the bargaining position of workers, including recent graduates, and resulted in a lower percentage of graduates accepting flexible work positions. When economic growth declines or the economy shrinks, it is cheaper for employers to fire the flexible workforce first. Since Dutch economic growth began to decline in

[56] For example, Wieling and Borghans (2001) refer to the possibility of a trade-off between different job aspects, including temporary work.
[57] However, in the figures below we use the 12-hour threshold.
[58] For many analyses in Section 4.5, the number of graduates is lower since a shorter period must be used due to missing variables.
[59] BOL (Beroepsopleidende Leerweg) refers to primarily school-based vocational education, whereas in BBL (Beroepsbegeleidende Leerweg), apprentices go to school about one day each week. Both tracks are part of the so-called dual system of intermediate vocational education in the Netherlands. In accordance with the definition by Statistics Netherlands, the lowest of the four levels of BOL/BBL is considered to be the VMBO-level.
[60] HBO-institutions profile themselves internationally as universities of applied sciences.

2001, and remained just above zero in 2002, we can explain the low percentage of flexible work in 2002. The labour market situation dramatically changed during 2002; unemployment rose sharply, peaking at about 6.5 percent in 2004/2005. For graduates of pre-secondary and secondary vocational education (VMBO and MBO), the percentage of flexible work reached a minimum in 2002, whereas for graduates of higher professional education (HBO), the minimum was reached one year earlier.

Figure 4.1 Share of temporary workers among recent graduates by level of education



See text for abbreviations. The data concerning MBO excludes BBL graduates, since data for this group is not available for all years. Definition of employment by Statistics Netherlands is used. The figure refers to graduates in paid employment (1996-2008), this is exclusive of self-employment, but includes on-call workers.
Source: ROA (SIS).

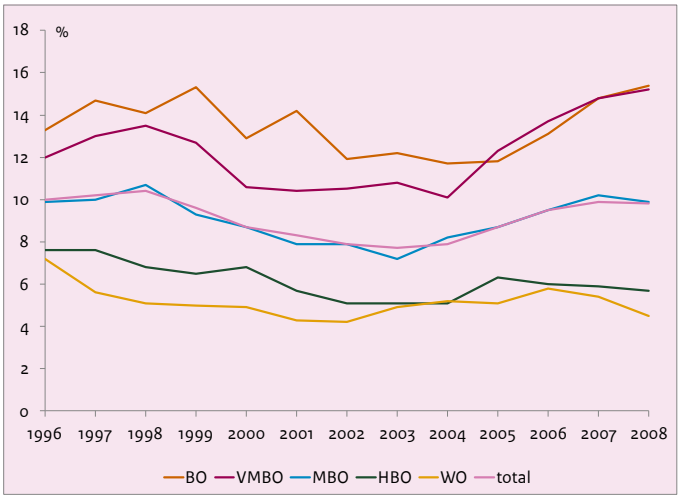
The effect of a growing economy on the volume of flexible relative to permanent work develops in two stages (Zijl et al., 2003). First, after economic stagnation, a growing economy results in an increase in demand for flexible workers in order to meet the increasing need for goods and services. Figure 4.1 indeed shows a rising share of flexible jobs among graduates entering the labour market after 2002. Second, continuing economic growth leads to tight labour markets and many hard-to-fill vacancies. Since 2004, the economy (i.e., GDP) grew at a rate of 2 percent per year or more (particularly in 2006 and 2007). After 2006, the share of flexible work decreased due to the rising bargaining power of employees (in particular for MBO- and HBO-graduates), assuming that employees usually prefer a permanent contract to a temporary contract.

The cyclical movement suggests that flexible work among recent graduates primarily functions as a buffer in the workforce to adapt to changes in labour demand. Only for university graduates (WO) did the percentage of flexible jobs remain at a high level – about 50 – during nearly all of the study period. This may indicate that university graduates are more often engaged in temporary contracts for other purposes, like screening and training. University graduates may in particular hold trainee posts at hospitals, traineeships in banks or insurance companies or PhD positions at universities. The share of flexible jobs among university graduates entering the labour market may be therefore less susceptible to business cycle fluctuations than it is among graduates at the lower education levels.

Figure 4.2 shows the percentage of flexible workers by level of education for the total group of employees in the period 1996-2008. These data are drawn from the Dutch Labour Force Survey. It is obvious that flexible work is much less common among employees than among recent graduates. This indicates that employees who have gained several years of experience in the labour market generally have a better labour market position in terms of job security. In addition, Figure 4.2 indicates that the percentage of flexible workers diminishes with the level of education. Note that this

relationship with educational level does not hold for the percentage of flexible jobs among recent graduates shown in Figure 4.1. Of all employees with an HBO diploma, less than 6 percent had a temporary contract in 2008, and of those with a university degree, this percentage was even smaller (4.5 percent). The share of flexible workers among the total group of employees decreased after 1998, reached the lowest level in 2003 when less than 8 percent had a temporary contract. Thereafter, the share rose again to almost 10 percent in 2007. The fluctuations in the percentage of flexible workers are much smaller among the total group of employees than among recent graduates. This indicates that the absorption of the labour market inflow of graduates is particularly important to cope with fluctuations in labour demand caused by the business cycle.

Figure 4.2 Share of temporary workers among employees by level of education



See text for abbreviations; BO = Basisonderwijs (without diploma in secondary education, unskilled). Definition of employment by Statistics Netherlands is used. The figure refers to employees (1996-2008), this is exclusive of self-employment, but includes on-call workers.
Source: Statistics Netherlands (Labour Force Survey).

4.4 Flexible contracts and other job aspects

In this section, we examine the relationship between having a flexible job and eight distinct aspects of graduates' jobs. These job aspects are retrieved from the graduate surveys of ROA discussed in the previous section. Logistic regression analyses have been performed in order to estimate the marginal effect of having a temporary contract on (among others) the probability that graduates work outside their discipline, work part-time or are dissatisfied with their job. The analyses in this section are conducted for graduates with a fixed-term contract as well as graduates in temporary agency work. In both analyses, graduates with a permanent contract are the reference group. We conduct separate analyses for each job characteristic for recent graduates of secondary vocational education (MBO), higher professional education (HBO) and university education (WO).[61] We control for gender, ethnicity, age, work region, survey year, level of the course (solely for MBO) and final exam result. Before discussing the results, it is important to note that the marginal effects of temporary contracts on each of the job aspects are not necessarily causal.

[61] There are not enough observations for VMBO and HAVO/VWO graduates in employment to conduct similar analyses. The regressions are restricted to the 2002-2008 period since information on the final exam results of graduates was not available for earlier years.

Graduates in fixed-term jobs

Table 4.1 shows the impact that a fixed-term contract has on the incidence of several job aspects for graduates of MBO, HBO and WO. It can be concluded from the table that secondary vocational (MBO) graduates with a fixed-term contract work significantly more often outside their discipline, in a job below their educational level, in a part-time job.[62] They are more often dissatisfied with their job, experience a poorer transition between study and job, regret their choice of study more often and are trained less than MBO graduates with a permanent contract. Moreover, the gross monthly wage of MBO graduates with a fixed-term contract is 3.2 percent lower than for MBO graduates with a permanent contract. We find similar results regarding the impact that a fixed-term contract for higher professional (HBO) graduates has on the job aspects. On average, gross monthly wage is 3.3 percent lower for graduates with a fixed-term rather than a permanent contract.

The results of the logistic regression analysis concerning university (WO) graduates differ to some extent from the results at the lower educational levels. For WO graduates, the labour market position occasionally seems to be better for employees with a fixed-term contract instead of a permanent contract. WO graduates with a fixed-term contract work less often outside their discipline, are less often overeducated and experience a poor study to job transition less frequently than university graduates with a permanent contract. This remarkable result may be explained by the fact that university graduates often have jobs with an enormous learning content such as trainee posts (hospitals), traineeships (banks or insurers) or PhD positions (Try, 2004). Employers may screen these graduates for ability, motivation and discipline. Moreover, for graduates these positions may be a stepping stone to a permanent job. The unique job aspects of university graduates may explain why the share of temporary contracts among university graduates exhibits almost no co-movement with the business cycle (see Figure 4.1). However, for the other job aspects, WO graduates remain worse off with a fixed-term contract. They get considerably less training and earn significantly less than graduates in permanent jobs.

Table 4.1 Impact of a *fixed-term contract* on job aspects of recent graduates, 2002-2008

Job aspects	MBO		HBO		WO	
Outside discipline	0.046	***	0.030	***	-0.035	***
Below educational level	0.021	**	0.010	***	-0.082	***
Part-time	0.031	**	0.049	***	0.050	***
Dissatisfied in job	0.013	***	0.009	***	0.004	**
Poor study-job transition	0.031	***	0.015	***	-0.006	**
Regret education	0.041	***	0.031	***	0.018	***
No training	0.065	*	0.098	***	0.134	***
Gross monthly wage	-0.032	***	-0.033	***	-0.076	***

The number of stars shows the statistical significance of the marginal effects: *** = 1%; ** = 5%; * = 10%.
Graduates from the BBL-track are excluded from MBO.
The marginal effects are based on logistic regression analyses performed by level of education, except for the effect of having a fixed-term contract on gross monthly wage, which is estimated by means of an OLS regression. Gross monthly wage is based on full-time work.
The following control variables have been incorporated in the analyses: gender, ethnicity, interaction gender*ethnicity, age, age squared, work region, survey year, final exam result, and level of the course (for MBO only).

[62] Part-time work is another aspect of so-called 'atypical work' that may indicate a disadvantageous situation for the worker (De Grip et al., 1997).

Graduates in temporary agency jobs

We conduct analyses for temporary agency workers in the same way as for fixed-term workers. Table 4.2 presents the marginal effects on several job aspects for graduates with a temporary agency contract instead of a permanent contract. At the secondary vocational (MBO) level, temporary agency work is significantly positively related to all unfavourable job aspects. In addition, it can be concluded that MBO graduates with a temporary agency contract are worse off in terms of their gross monthly salary, since they earn 14 percent less than MBO graduates with a permanent contract. This is also worse than for MBO graduates with a fixed-term contract (see Table 4.1).

At the higher professional (HBO) level, graduates in temporary agency jobs are worse off on all eight job aspects compared to graduates in permanent jobs. This is similar to the results for fixed-term workers. Graduates in temporary agency jobs are particularly more likely to work outside their discipline and below their level, and are trained less often than permanent workers of this level, as can be concluded from the high marginal effects (25, 21 and 15 percent, respectively) relative to those for MBO graduates. Moreover, they earn 18 percent less per month than permanent workers, whereas fixed-term workers earn 3 percent less than permanent workers (see Table 4.1).

At the university (WO) level, the job aspects of graduates in temporary agency jobs are also considerably worse than similar aspects of graduates in permanent and fixed-term jobs. Unlike some job aspects for fixed-term graduates at the university level, this holds for all job aspects. The effects on the unfavourable job aspects of WO graduates in temporary agency jobs are usually even stronger compared to those of HBO graduates. University graduates in temporary agency jobs are particularly more likely to work below their educational level than university graduates in permanent jobs (40 percent). Finally, there is a vast difference in gross monthly wages between temporary agency jobs and permanent jobs for WO graduates. The former group of jobs pay 27 percent less per month than the latter, which is also considerably less than temporary agency jobs at the HBO level and fixed-term workers at the WO level (see Table 4.1).

Table 4.2 Impact of a *temporary agency contract* on job aspects of recent graduates, 2002-2008

Job aspects	MBO		HBO		WO	
Outside discipline	0.161	***	0.250	***	0.350	***
Below educational level	0.092	***	0.214	***	0.396	***
Part-time	0.113	***	0.235	***	0.283	***
Dissatisfied in job	0.044	***	0.057	***	0.140	***
Poor study-job transition	0.057	***	0.169	***	0.342	***
Regret education	0.071	***	0.107	***	0.111	***
No training	0.208	***	0.145	***	0.325	***
Gross monthly wage	-0.137	***	-0.179	***	-0.266	***

Notes: See Table 4.1.

4.5 Empirical evidence on recent graduates

In this section, we examine the impact that educational background has on the probability of a temporary employment relationship. The temporality of a job is usually perceived as a less attractive job characteristic that many recent graduates have to accept out of necessity when the labour market situation deteriorates. The previous section indeed shows that a flexible job is usually associated with several less favourable job aspects. However, as has been mentioned in Sections 4.1 and 4.2, there may be other reasons for a high incidence of flexible work among graduates in particular fields of study. In the next section we return to the explanations of the differing probabilities of flexible work in each educational program.

Table 4.3 Regression results of having a fixed-term or temporary agency job, 1996-2008

		Fixed-term job		Temporary agency job	
Educational programme (ref.: VMBO Theory)					
VMBO	Agriculture	-0.054	***	-0.003	
	Engineering	-0.051	***	-0.021	**
	Economics	-0.043	***	-0.002	
	Care & welfare	-0.052	***	0.001	
	Other/remaining	0.004		0.073	***
HAVO/VWO		-0.096	***	0.018	**
MBO	Agriculture	-0.145	***	-0.050	***
	Engineering	-0.133	***	-0.036	***
	Social & cultural	-0.163	***	-0.032	***
	Health care	-0.215	***	-0.065	***
	Economics	-0.115	***	-0.033	***
	Other/remaining	-0.137	***	-0.038	***
HBO	Education	-0.114	***	-0.061	***
	Social & cultural	-0.066	***	-0.030	***
	Agriculture	-0.010		0.005	
	Engineering	-0.106	***	-0.058	***
	Paramedical	-0.168	***	-0.062	***
	Economics	-0.100	***	-0.052	***
	Other/remaining	-0.055	***	-0.050	***
WO	Language & literature	0.079	***	-0.022	***
	Agriculture	0.147	***	-0.004	
	Engineering & science	0.030	**	-0.074	***
	Medical science	0.270	***	-0.077	***
	Economics & law	-0.069	***	-0.092	***
	Other/remaining	0.170	***	-0.049	***
Control variables		Yes		Yes	
Observations		N= 222,494		N= 162,821	
Log likelihood		-139,039.98		-56,124.45	
Pseudo R^2		0.039		0.053	

The table shows the statistical significance of the marginal effects: *** = 1%; ** = 5%; * = 10%.
The marginal effects are based on logistic regression analyses.
VMBO = pre-vocational secondary education; HAVO = senior general secondary education; VWO = senior general secondary education; MBO = secondary vocational education; HBO = higher professional education; WO = university education.
BBL is excluded in MBO.
The following control variables have been incorporated in the analyses: gender, ethnicity, interaction gender*ethnicity, age, age squared, work region, survey year.

Table 4.3 presents the marginal effects of the educational programs of recent graduates on the probability of having a fixed-term or a temporary agency job by means of logistic regression analyses. The reference group consists of recent graduates with a permanent contract. The table focuses on the marginal effects of the educational programs on the probability of working in either a fixed-term job or a temporary agency job. The control variables included are gender, ethnicity, age, work region and survey year. The results for the control variables are available upon request with the authors, but will be briefly discussed here.[63]

As has been argued before, both types of flexible work may point to a disadvantageous labour market situation of graduates, since they are related to several negative job aspects and since graduates usually prefer permanent over temporary jobs. Female graduates and graduates from minority groups have a larger probability of fixed-term and temporary agency jobs. This confirms the often reported result in empirical studies that the labour market position of these groups is relatively weak. Fixed-term work initially increases with age, but the age effect is parabolic. The impact of work region on flexible work shows that the labour market is loosest in the North (i.e., the most rural part), and tightest in the West (i.e., the most urbanized part) of the Netherlands. The estimated effects for the year dummies suggest that the business cycle impacts the probability of flexible work.

The effect of the educational program of recent graduates on the incidence of flexible work in Table 4.3 is estimated relative to the reference group of VMBO Theory. The results show that educational program has a greater effect on fixed-term than on temporary agency contracts. It can be concluded that VMBO graduates in all fields of study have a relatively high probability of being offered either type of contract. Graduates from HAVO/VWO frequently have a temporary agency contract. MBO graduates with a degree in health care have the lowest probability of fixed-term and temporary agency jobs, and therefore have a high level of job security, indicating a good labour market situation. This also holds at the HBO for graduates with a degree in paramedics. In general, we interpret a low probability of temporary work as an indication that graduates of a particular educational position enjoy a relatively good labour market position. Interestingly, the results differ substantially for the probability of graduates on fixed-term and temporary agency jobs at the university level (WO). While university graduates in several fields of study have a rather low probability of accepting a temporary agency contract, the same cannot be concluded for university graduates with a fixed-term contract. At the university level, graduates of almost all fields of study are relatively likely to have a fixed-term contract. This is especially true for those obtaining a degree in medical science. Only university graduates with a degree in economics and law have a smaller probability of a fixed-term contract than the reference group. Fixed-term contracts might be highly prevalent among recent university graduates not because these graduates face a poor labour market situation, but rather because they pursue positions that are more likely to include fixed-term contracts, like trainee posts (hospitals) or PhD positions (universities).[64]

4.6 Labour market situation, characteristics and preferences

In this section we present five different factors that are related to the graduates' education and which may explain the probability of a flexible job. We analyse to what extent the following five factors can explain differences in the incidence of flexible work among graduates entering the labour market: employment variation, unemployment rate, labour market dispersion, final exam result and willingness to take risks. These factors have been introduced and discussed in the first two sections of this chapter. The first three factors are measured for each of the more than 100 educational types, which fall within 25 broader educational programs.[65] The last two factors represent the ability and preference of each individual graduate. We expect that the five factors can explain differences in the probability with which graduates of different educational programs accept flexible jobs. The estimations below are based on the same explanatory model as in Section

[63] The results are the same as in Bertrand-Cloodt et al. (2011), who also include a similar logistic regression analysis for all employees in the labour force.
[64] See also Try (2004) on this point.
[65] Educational types are thus more differentiated programs than those presented in the last section. See ROA (2009) for an overview of educational programs and types.

4.5, but do not include the dummy variables that indicate the differences between educational programs. In this way we should be able to uncover some explanations for the differences between educational programs with regard to the incidence of flexible work.

Employment variation

As has been discussed in Section 4.2, employers may be more inclined to enter into temporary contracts when uncertainties regarding production volume and labour demand are larger. The employment variation by educational type is dependent on the employment changes (including business cycle effects) of both industries and occupations in which the educational types are most relevant. Apart from the indicator for employment variation (EV) by educational type, we include year dummies as the usual control variables for cyclical variations.

The first column of Table 4.4 accounts for the impact of employment variations of secondary education (reference group), HBO and WO graduates on the probability of having a fixed-term contract (relative to a permanent contract). Generally, if graduates have a diploma in a field of study that is more heavily subject to employment variations, they are significantly more likely to have a fixed-term employment relationship. For HBO and WO graduates, the interaction effect concerning employment variations is significantly negative. The net effect is significantly negative for WO.

Similarly, in the right-hand column we present the results for the probability of a temporary agency contract (relative to a permanent contract). Graduates whose field of study is heavily subject to employment variations are more likely to have a temporary agency contract, although the effects are smaller than for fixed-term contracts. For recent graduates from HBO and WO, the interaction effect is significantly negative. However, only for WO graduates is the net effect significantly negative. From Table 4.4, we can conclude that employers use graduates from secondary education primarily to adapt to cyclical changes in labour demand.

Table 4.4 The impact of employment variation on the probability of having a flexible job

Labour market aspect	Fixed-term job		Temporary agency job	
Employment variation (EV)	1.584	***	0.203	***
EV*HBO	-1.454	***	-0.204	***
EV*WO	-3.124	***	-0.320	***
Control variables	Yes		Yes	
Observations	N= 188,363		N= 133,364	
Log likelihood	-118,851.09		-39,170.81	
Pseudo R^2	0.030		0.023	

The marginal effects are based on logistic regressions analysing the impact of employment variations on the probability of having a fixed-term or temporary agency job among graduates, 1996-2008.
The following control variables have been incorporated in the analyses: gender, ethnicity, interaction gender*ethnicity, age, age^2, region where the employer is located, survey year and level of education.

Unemployment rate

As has been argued before, employers will take more time to screen graduates who face a poor labour market situation. Graduates encountering excess supply in the labour market have a weaker bargaining position and will more readily accept temporary instead of permanent contracts. To account for differences in the labour market position of educational programs, we include the average unemployment rates of the educational types for the period between 2002 and 2008 as explanatory variables for the incidence of flexible work among graduates. Table 4.5 reports the results. According to expectations, graduates in educational programs exposed to high unemployment have a higher probability of engaging in both types of flexible work. This holds even more strongly for university graduates from different types of education. University graduates thus are less likely to obtain a permanent contract when they are in a poor position in the labour market than graduates at the secondary level of education.

Table 4.5 The impact of the unemployment rate on the probability of having a flexible job

Labour market aspect	Fixed-term job		Temporary agency job	
Unemployment rate (UR)	0.019	***	0.007	***
UR*HBO	0.012	***	0.002	
UR*WO	0.008	**	0.014	***
Control variables	Yes		Yes	
Observations	N= 91,809		N= 61,220	
Log likelihood	-59,361.79		-15,725.72	
Pseudo R^2	0.029		0.041	

The marginal effects are based on logistic regressions analysing the impact of the unemployment rate on the probability of having a fixed-term or temporary agency job among graduates, 1996-2008.
The following control variables have been incorporated in the analyses: gender, ethnicity, interaction gender*ethnicity, age, age^2, region where the employer is located, survey year and level of education.

Labour market dispersion

Apart from unemployment, high labour market dispersion is another indicator for a weak labour market position of recent graduates from particular fields of education. Table 4.6 shows that the effect of labour market dispersion on the share of fixed-term contracts is significantly positive. Thus, as the occupations for graduates of a particular type of education grow more dispersed on the labour market, the probability with which graduates accept a fixed-term contract increases the more dispersed occupations on the labour market for graduates of a particular type of education are, the larger their probability to have a fixed-term contract. In other words, graduates' opportunity to choose from a wider range of alternative occupations comes at the cost of job security. For HBO graduates this effect is even stronger, while the interaction effect is significantly negative for WO graduates. For WO graduates, the net effect is close to zero. For temporary agency contracts, we only find significantly positive effects for HBO and WO graduates.

Table 4.6 The impact of labour market dispersion on the probability of having a flexible job

Labour market aspect	Fixed-term job		Temporary agency job	
Labour market dispersion (LMD)	0.005	***	0,001	
LMD*HBO	0.003	***	0,002	***
LMD*WO	-0.004	***	0,002	***
Control variables	Yes		Yes	
Observations	N= 188,363		N= 133,364	
Log likelihood	-118,877.53		-38,117.09	
Pseudo R^2	0.030		0.050	

The marginal effects are based on logistic regressions analysing the impact of labour-market dispersion on the probability of having a fixed-term or temporary agency job among graduates, 1996-2008.
The following control variables have been incorporated in the analyses: gender, ethnicity, interaction gender*ethnicity, age, age^2, region where the employer is located, survey year and level of education.

Final exam result

Generally, it may be expected that graduates with lower average grades have a weaker labour market position than more able (or more ambitious) graduates, and are therefore selected more frequently for fixed-term and temporary agency jobs. In Table 4.7 the results are presented for recent graduates in the period from 2002 to 2008. The effects of the final exam result on the probability of a fixed-term contract reveal that only the interaction between final exam results and WO is significant. Moreover, this marginal effect is positive, indicating that university graduates with higher grades are more prone to fixed-term employment relationships. This may be caused by the aforementioned specific type of temporary contracts for these university graduates, like trainee posts (hospitals) or PhD positions (universities).

The final exam result has a significantly negative effect on the probability of a temporary agency contract. This means that higher grades decrease the probability of a temporary agency job. For HAVO/VWO and HBO graduates, there is no additional effect of the final exam result. For WO graduates, we find that exam result has a small but significantly positive effect on the probability of being a temporary agency worker, although the net effect is still negative.

Table 4.7 The impact of final exam results on the probability of having a flexible job

	Fixed-term job		Temporary agency job	
Final exam result (FER)	-0.004		-0.032	***
FER*HAVO/VWO	0.005		0.026	
FER*HBO	-0.005		0.003	
FER*WO	0.033	***	0.008	**
Control variables	Yes		Yes	
Observations	N= 76,291		N= 50,344	
Log likelihood	-49,729.10		-13,334.68	
Pseudo R^2	0.027		0.038	

The marginal effects are based on logistic regressions analysing the impact of final exam results on the probability of having a fixed-term or temporary agency job among graduates, 2002-2008.
The following control variables have been incorporated in the analyses: gender, ethnicity, interaction gender*ethnicity, age, age^2, region where the employer is located, survey year and level of education.

Willingness to take risks

It may be expected that recent graduates who are more willing to take risks are also more likely to have a temporary contract. In Table 4.8 we present the results for the impact of willingness to take risks on the probability of flexible work among graduates in 2008. We do not find the expected relationship for the probability of a fixed-term job, or for the probability of a temporary agency job. On the contrary, we find that willingness to take risks has a small negative effect (only marginally significant) on the probability of a fixed-term contract, indicating that graduates who are more prone to take risks are less likely to have a fixed-term contract relative to a permanent contract.[66] Willingness to take risks of graduates doesn't seem to play a significant role in the selection of the type of contract when graduates enter the labour market.

[66] Using alternative risk measures or including interaction terms between willingness to take risks and educational levels still does not lead to significant results for willingness to take risks. Furthermore, we perform additional regression analyses that include both final exam result and graduates' willingness to take risks, and find no significant results.

Table 4.8 Impact of willingness to take risks on the probability of having a flexible contract

	Fixed-term job		Temporary agency job
Willingness to take risks (WTR)	-0.023	*	-0.005
WTR*HAVO/VWO	0.013		0.006
WTR*HBO	0.018		0.006
WTR*WO	0.021		0.006
Control variables	Yes		Yes
Observations	N= 3,277		N= 2,172
Log likelihood	-2,155.35		-729.68
Pseudo R^2	0.030		0.059

The marginal effects are based on logistic regressions analysing the impact of the willingness to take risks on the probability of having a fixed-term or temporary agency contract among school leavers.
The following control variables have been incorporated in the analyses: gender, ethnicity, interaction gender*ethnicity, age, age^2, region where the employer is located, and level of education.

4.7 Conclusions

Economic literature offers several motives for both employers and employees to choose a flexible job. These motives may also hold for the specific situation of recent graduates. Employers' main motives for temporary contracts are that employment protection and severance pay of temporary workers are lower, dealing with fluctuations in the demand for personnel is easier, screening of graduates can be done over a longer period and labour costs of temporary workers are (usually) lower. Job-seekers, including new entrants like recent graduates, get the opportunity to enter the labour market by means of a temporary job and can use it as a stepping stone to a permanent job. A temporary job enables them to acquire the necessary competencies for a future job. Furthermore, consecutive temporary jobs can serve as screening of potential employers. However, many studies reveal that a high incidence of temporary jobs usually points to a weak labour market position, including lower wages, a worse job match and poorer working conditions. This is confirmed in our analyses of the job aspects of graduates 18 months after entering the labour market. Recent graduates with temporary contracts earn less, work below their educational level (i.e. are overeducated) or outside their domain more often and are more likely to regret their choice of study. Only university graduates seem to be better off with fixed-term rather than permanent contracts with respect to the job match when they enter the labour market.

Business-cycle fluctuations impact the share of graduates in flexible jobs at all levels of education. This is particularly true for recent graduates, who usually have a higher probability of accepting a temporary contract than the average employee in the labour force. This indicates that recent graduates, compared to employees, are often used as a buffer for dealing with fluctuations in the demand for personnel. However, the business cycle does not seem to have the same effect on university graduates.

The logistic regression analyses reveal that VMBO graduates and graduates from HAVO/VWO entering the labour market frequently have a high probability of engaging in flexible work. MBO and HBO graduates in health care have the lowest probability of fixed-term and temporary agency jobs and therefore have much higher job security, which may be indicative of a good labour market situation. University graduates of several fields of study have a low probability of accepting a temporary agency contract, but a rather high probability of accepting a fixed-term contract. This dynamic is particularly prevalent among university graduates in medical science. Fixed-term contracts might be so common among recent university graduates not because these graduates face a weak labour market situation, but rather because they pursue positions that are more likely to include fixed-term contracts, like trainee posts (hospitals) or PhD positions (universities).

Next, we attempt to better explain why the probability of temporary contracts differs between fields of study. We find that recent graduates in fields of study that are more heavily subject to employment variations are significantly more likely to have a fixed-term or temporary agency job. This suggests that employers are more reluctant to enter into permanent contracts when uncertainty in labour demand is higher. However, the probability with which more highly educated graduates accept fixed-term positions seems to depend less on large variations in employment. Moreover, in fields of study with structurally higher unemployment or labour market dispersion, recent graduates are more likely to have accepted temporary contracts. Employers will take more time to screen graduates in fields of study with higher unemployment rates or with a loose attachment to the specific occupations in their companies. This indicates that the labour market position of educational programs can indeed explain the share of flexible work of recent graduates from these programs. Thus a high incidence of flexible work can be interpreted as an indicator for a weak labour market position.

We find evidence that graduates with higher average grades face a better labour market position compared to graduates with lower grades. Employers can use final exam grades as a screening instrument to reduce the risk of a bad job match. Recent graduates with high grades are therefore selected less frequently into temporary contracts. In contrast, university graduates with higher grades are more likely to have fixed-term jobs. This may be caused by the specific type of temporary contracts that many university graduates obtain to invest in their skills. Trainee posts in hospitals or PhD positions at universities may offer a stepping stone for a career. We find that willingness to take risks has no positive effect on graduates' probability of entering into either fixed-term or temporary agency employment.

This chapter shows that flexible jobs are generally less desirable relative to permanent jobs for graduates entering the labour market. Our main conclusion is that the selection of recent graduates into either permanent or flexible jobs occurs primarily on the demand side of the labour market (choices made by employers rather than graduates). If labour markets become tighter, employers are more willing to offer graduates permanent contracts instead of temporary contracts, and graduates in fields of study with small employment variations are more likely to receive a permanent contract when they enter the labour market. In addition, the more able graduates are, the more often they are offered permanent contracts by employers. Only at the university level are there some indications that the selection process is different. Some university graduates get fixed-term jobs that match their education better than university graduates in permanent jobs, their selection into temporary jobs seems to be less dependent on the business cycle, and university graduates with higher grades are more likely to have fixed-term jobs. Finally, there is no indication that flexible work among recent graduates is related to their willingness to take risks. Graduates with a greater dislike for insecure jobs have a probability of accepting a temporary contract that is equal to that of graduates with a greater willingness to take risks.

5 Flexible contracts and human capital

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As suggested by human capital theory, workers with flexible contracts participate less often in training than those with permanent contracts. This is merely due to the fact that flexworkers receive less employer-funded training, a gap they can only partly compensate for by their own training investments. This shows that there is a trade-off between the 'quantitative' labour market flexibility derived from flexwork arrangements and the qualitative flexibility based on workers' adaptability to changing skill demands in the labour market. However, for those who participate in employer-funded training, temporary employment appears to be a stepping stone to a permanent contract. This does not hold for participation in self-paid training, which only leads to mobility towards another temporary job.

5.1 Introduction

Flexible labour contracts enable firms to adjust employment to a fast-changing environment, as in a sudden collapse in product demand. The recent economic crisis clearly showed how firms that were heavily affected by the unexpected fall in product and service demand directly disposed of their workforce with temporary contracts and those employed via temporary work agencies. However, the continuous shifts in skills demanded in the labour market also require that workers participate in training courses that update their skills. This raises the following questions: to what extent is the training participation among flexworkers similar to the training participation of workers with permanent contracts, and whether there is a trade-off between the quantitative labour market flexibility derived from flexwork arrangements and the qualitative flexibility based upon workers' adaptability to changing skill demands due to technological and organizational changes.

This chapter investigates the extent to which flexible contracts and training investments are mutually exclusive human resource strategies, and to what extent this may further weaken the labour market position of workers with flexible contracts. We successively deal with the following questions:

1. Do flexworkers participate less often in training than workers with permanent contracts?
2. Do investments in the human capital of flexworkers improve their internal or external employability?
3. Which factors determine the human capital investment of workers with flexible and permanent contracts?

Our analyses distinguish between five different kinds of contract arrangements: permanent contracts, temporary contracts, temporary work agency contracts, on-call contracts, and self-employment without personnel.

As mentioned, the economic literature suggests the existence of a possible trade-off between temporary contracts and investments in human capital (Arulampalam and Booth, 1998). Human capital theory predicts that firms will not invest in firm-specific training for employees who are likely to leave the firm soon, because the payback period of such investments is short. If there were such a trade-off between human capital investments by firms and the use of flexworkers, then the future employability of flexworkers would be at risk when they face skills obsolescence at some stage in their working life. This risk is particularly large when there is a low transition probability of employees with flexible labour contracts to permanent employment, which means that flexworkers would be 'trapped' in this type of contract due to low levels of human capital investment (Dekker, 2007). However, this trade-off may not be a problem if flexible workers compensate for the lack of employer-funded training through their own human capital investments, or when flexible contracts are a stepping stone to permanent work in which workers can catch up in the development of their skills.

Our analyses show that workers with flexible contracts participate less often in employer-funded training than those with permanent contracts, and that flexworkers can only partly compensate for this difference by their own training investments. This suggests that there is indeed a trade-off between labour market flexibility derived from flexible labour arrangements and employees' adaptability to changing skill demands in the labour market. Therefore, workers with flexible contracts may be stuck in these flexible jobs all through their working careers and will have difficulties remaining employed when skill demands in the labour market change. However, this does not hold for workers with flexible contracts whose participation in employer-funded training is a stepping stone towards a permanent contract with a firm whose training participation is part of the selection process in the temporary jobs they offer new employees (Autor, 2001). However, those who do not participate in employer-funded training cannot adequately compensate for this difference by investing in their own skills, since the latter only helps them find another flexible job.

The chapter is organized as follows. Section 5.2 gives an overview of prior research on the relation between flexible labour contracts and human capital investments. Section 5.3 shows the trends in training participation of workers with different contractual arrangements in the Netherlands. Section 5.4 first analyses the relation between different kinds of labour contracts and workers' training participation, and the way in which this is related to other employee or firm characteristics. Second, it performs a Blinder–Oaxaca decomposition to show what share of the difference in training

participation can be explained by differences in the characteristics of workers with flexible contracts and those with permanent contracts. Finally, we analyse the relation between the training participation of flexworkers and their future labour market position. Section 5.5 summarizes our main findings and concludes the chapter.

5.2 Literature review

Labour market flexibility is a major issue in labour economics. However, it is interesting to see that it is also a topic in the operations management literature. In this literature, which focuses on the optimisation of the efficiency of business operations, labour flexibility is defined as a lower-order flexibility type that contributes to first-order flexibility types such as volume flexibility, product mix flexibility, and delivery flexibility (Slack, 1991; Suarez et al., 1996). Oke (2005) identified employment terms as fundamental factors of volume flexibility, whereas labour skills contribute towards both volume and product mix flexibility. Oke and Idiagbon-Oke (2007) identified multi-skilling as a shared factor for both product volume and product mix flexibility, enabling workers to be moved from a quiet area of a plant to a busy area, irrespective of skill level requirements. The operations management literature shows that labour market flexibility is not merely related to flexible contracts; instead, it may also gain from further investments in workers' skills.

Within labour economics, investments in workers' skills are the backbone of human capital theory. The central principle of human capital theory is that the knowledge and skills acquired in training represent human capital, which is valued by employers because it leads to higher productivity (Becker, 1975). Employers will invest in the training of their workers if the expected rate of return from the investment in training is higher than the alternative rate of return on investments with a similar risk (e.g., the market interest rate). Of course, the expected rate of return on training for the firm is dependent on training costs and benefits. The firm will be able to appropriate some of the benefits of training as long as the higher productivity of its workers is not completely offset by higher wages. According to human capital theory, employees' motivations to invest in their own human capital do not differ fundamentally from the employers' motivations. Employees benefit from training if it leads to higher wages. How the training benefits are shared between the firm and the employees depends on both the firm specificity of the training and the investment horizon, that is, the time window in which the benefits of training can be reaped.

Human capital literature in particular focuses on the differences between general and firm-specific training, to emphasize the differences between training that raises the productivity of workers in one firm as well as in others and training that has no effect on workers' productivity if they switch to another firm. Since firm-specific training is of no or limited value to other firms, it will not increase employees' market wages, allowing firms to pay their employees less than the value of their productivity. General training, on the other hand, is also valuable for other firms and will thus lead to an increase in employees' market wages, limiting the firm's possibilities of appropriating some of the training benefits. Becker's (1975) argument that firms only benefit from firm-specific training was later modified by various studies, such as Katz and Ziderman (1990), Stevens (1994), Booth and Chatterji (1995), Booth and Snower (1996), Acemoglu and Pischke (1998), and Lazear (2009), which focus on three related arguments.

1. Several studies argue that training enables firms to generate private information on employees' skills and abilities (e.g., Katz and Ziderman 1990; Acemoglu and Pischke, 1998).
2. Other studies focus on labour market imperfections that give firms some market power in setting wages. Stevens (1994) argues that when training is transferable between firms with market power in setting wages, the potential benefits from training are not only for the firm providing it and the employee acquiring it, but also for other firms that can poach the trained employees. In addition, since the poachers acquire some of the benefits from training, there is no way for the employee demanding the training or the firm supplying it to capture all the rewards from this training. Inevitably, this leads to an underinvestment in training, particularly for employees with flexible contracts, since these contracts reflect a lack of mutual commitment between the firm and employee.
3. More recently, Lazear (2009) showed that training cannot simply be decomposed into general and specific components, since all firms require a firm-specific mix of different kinds of general and specific training. This skill-weights approach claims that all training is part of employees' firm-specific human capital.

Actually, for both employees and employers, the investment horizon is particularly important in determining the amount of training investments. For a given level of training costs and training benefits per period, the shorter the expected investment horizon, the lower the rate of return on the investment will be. For firms, the investment horizon equals the expected time employees will remain within the organization. For employees, the investment horizon is closely related to the specificity of the training. If the training is firm specific, the investment horizon is the length of time employees expect to stay with the firm, whereas if the training is general, the investment horizon is the time they expect to remain on the labour market. Employers will therefore be less likely to train employees with temporary contracts, since they do not intend to continue relations with these employees for long. Moreover, they will perceive a higher risk that these employees will leave the firm relatively soon. For employees, the willingness to invest in training depends only on the type of contract if the training is firm specific. Crawford (1988, 1990) analysed training investments in the more general context of relation-specific capital productivity, that is, capital whose productivity depends on the continuation of the relation. The author argued that if there is no long-term contract to commit to future compensation for sunk costs of training investments, the firm and the worker will agree to underinvest. Temporary contracts will therefore lead to a lower participation in training.

Several studies show that the training participation of workers with temporary contracts is significantly lower than that of workers with permanent contracts (e.g., Booth et al., 2002; Forrier and Sels, 2003; Almeida-Santos and Mumford, 2004; Albert et al., 2005). Booth et al. (2002) found that, in Britain, work-related training is 12% lower for male employees on fixed-term contracts and 20% lower those on seasonal–casual contracts compared to male employees with a permanent contract. Female employees on fixed-term contracts have a 7% lower probability than permanent employees of being trained, while those with a seasonal–casual contract have a 15% lower probability of participating in a training course. Using matched employer–employee data for the UK, Murphy et al. (2008) showed that employees on temporary contracts are 6–9% less likely to receive training compared to employees on permanent contracts. In their study on the Australian labour market, Draca and Green (2004) also found that employees in flexible employment face a substantially diminished probability of receiving employer-funded training. The authors found that these differences are even more marked for training intensity, as indicated by the duration of the training and the number of courses in which workers participate. For the Netherlands, Jonker and De Grip (1999) also found that employees with temporary contracts receive half as much training as employees with permanent contracts, although they do not find that the duration of the training is shorter. More recently, De Graaf-Zijl et al. (2010) reported on a significant 12% difference in the participation of employer-paid training between employees with a temporary contract and those with a regular job.

Booth et al. (2002) examined whether temporary jobs in the UK are 'dead end' jobs with poor pay and prospects or 'stepping stones' to permanent employment. The authors found that fixed-term contracts are effective stepping stones to permanent work, but this does not hold for casual–seasonal employment. Dekker (2007) presents comparative evidence for the UK, Germany, and the Netherlands and concludes that, although mobility to permanent employment is low, flexible employment acts as a stepping stone to standard employment. However, none of these studies consider whether this mobility is related to training participation.

Loewenstein and Spletzer (1997) found that training often takes place after a few years of job tenure. They argue that employers may be reluctant to invest in the training of employees until they learn the quality of the worker–firm match. This suggests that firms will also not invest in the training of employees who are still in a temporary job, which is meant to be a selection period for permanent employment at the firm. However, Autor (2001) found that temporary work agencies do invest in the training of their employees. Building on the studies of Katz and Ziderman (1990) and Acemoglu and Pischke (1998), the author argued that temporary work agencies provide up-front training during unpaid hours prior to taking any paid jobs. This is because, in addition to developing human capital, this training serves two complementary functions. First, the opportunity to be trained induces self-selection, enabling the agency to recruit employees with valuable unobserved ability (see also Barron et al., 1989). Second, it facilitates employee screening by generating private information on the skills and abilities of employees. The key premise of Autor's model is that training is more productive to high-ability employees. The implication of this positive selection is that temporary work agencies not only provide flexible spot market labour to other firms, but also information on employee quality.

5.3 Institutions and training participation

Institutional context

The workforce with a flexible work arrangement has grown considerably in recent years. In 1999, 14.2% of the workers had a flexible work arrangement; by 2009 this figure had increased to 18.2%.[67] As mentioned in the introduction, we distinguish between five types of employment contracts: permanent contracts without flexible features, temporary contracts, temporary work agency contracts, on-call contracts, and self-employment without personnel.

There are few institutional restrictions on the use of fixed-term contracts in the Netherlands, and employment protection for temporary employment is far less strict than for permanent employment (OECD, 2004). Until 1999, when the Flexibility and Security Act was put into place, employers could renew such temporary contracts only once. Since that date, employers can renew this type of contract up to three times. Between 1999 and 2009, the share of workers on a temporary contract increased from 2.5% to 3.8%, whereas the share of temporary work agency workers had decreased by even more in this period.

Probably the most flexible type of employment from the firm's point of view is on-call contracts. The percentage of workers on such type of contracts decreased between the 1980s and the early 2000s (De Graaf-Zijl et al., 2010), possibly due to the regulations of the 1999 Flexibility and Security Act. This act limits the maximum duration of such contracts and requires a minimum number of paid hours be guaranteed by the employer. From 2000 on, the share of workers on on-call contracts has remained more or less stable.

The last type of flexible employment, self-employment without personnel, has grown steadily between 1999 and 2009 (see also Leufkens, 2010). In 2009 there were 640,000 such self-employed workers, which is 10% of total employment, excluding students. The growth of this type of employment can be explained by its fiscal attractiveness. For this and several other reasons, self-employed workers prefer their status above a permanent contract with an employer, a preference that does not hold for most of the other categories of flexible workers (Dekker, 2007).

Flexible employment and training participation

There are few institutional arrangements for the training of flexworkers. Human capital investments for temporary work agency workers are facilitated through the Sector Fund for Education and Development of Temporary Work Agencies (STOOF). STOOF was set up in 2003 to advise, stimulate, and co-finance training activities in temporary work agencies. The training fund available through STOOF is created by a levy of employees' wages. In addition, STOOF can mediate in the acquisition of other co-financing through, for example, the European Social Fund.

The data from the OSA Labour Supply Panel enable us to indicate trends in training participation for employees with flexible and permanent contracts in the last decades. As in several other studies (see, e.g., Bassanini et al., 2007), training is measured in this panel as employee participation in work-related courses in the previous two years, excluding courses taken as a hobby. As Figure 5.1 shows, training participation among flexible workers is, at each time point between 1986 and 2008, less than that among employees with a permanent contract. This is in line with earlier findings discussed in Section 5.2. Whereas training participation among employees with a permanent contract has increased steadily from 19% in 1986 to 47% in 2008, training participation among flexworkers has increased from 10% in 1986 to 41% in 2008. This suggests that, in the long run, the relative difference in training participation between both groups of workers has decreased. However, the increase in the difference in training participation between both groups of workers in the years 1994–2002 is noteworthy. This may be explained by adverse selection in the groups of flexible workers. The years 1994–2000 were characterized by increasing shortages on the labour market, and it is possible that only the least-productive and least-motivated workers remained employed on flexible contracts and were offered comparatively fewer training

[67] Excluding students and workers with part-time jobs of fewer than 12 hours a week.

opportunities. However, since 2002, the training participation of flexworkers appears to be catching up to some extent with that of workers who have a permanent contract.

Figure 5.1 Trends in training participation for workers with a permanent or temporary contract

One or more training courses in the past two years.

Source: OSA Labour supply panel.

5.4 Empirical evidence

Data

For the empirical analyses in this chapter, we make use of the Dutch Labour Force Survey (LFS) for the years 2004–2008. Besides, we used the years 2006/2007–2008/2009 of the LFS for analysing the relation between training participation and mobility on the labour market. This survey is a rotating panel survey among 65,000 households a year. Within each household, all persons aged 15 or older are interviewed.[68] Households are followed during one year. After the first face-to-face interview, households are contacted four more times by telephone. The period between each interview is about three months. Because of the panel character of the survey, the LFS is very suitable for the analysis of labour market dynamics (Bierings et al., 2009; Kerkhofs et al., 2009). The LFS contains detailed information on the type of contract,[69] firm, occupation, and occupational background of employees. In this chapter, we exclude students and workers with jobs of fewer than 12 hours a week.

The LFS contains information on the training the respondent followed at the time of the first interview or, in the case where a training course lasts less than six months, on the training the respondent followed up to four weeks before the first interview. As a consequence, training participation in short training courses is probably slightly underestimated. The LFS also contains information on whether the employees or the firms financed the training and whether the respondent could participate in the training during work hours.

[68] Our analyses only include working individuals of the age 15–64.

[69] Permanent contracts concern employees in permanent employment with a fixed number of hours. Flexible labour contracts distinguish employees by the duration of the contract and terms of employment. Temporary contracts are defined as temporary contracts of less than two years. Terms of employment distinguish between temporary work agencies contracts and on-call contracts. Self-employment without personnel concerns persons working in their own company or practice, without other staff.

Mobility is measured by comparing the employment situation at the time of the fifth interview with that one year earlier, at the first interview: Respondents are asked whether they are still with the same employer and whether they still have the same type of work arrangement.

Training participation

As expected, employees with permanent contracts participate more often in training than workers with flexible work arrangements. In 2004–2008, the participation rate of permanent workers was 11.5%, whereas only 7.7% of workers with a flexible work arrangement participated in training. There are considerable differences, however, between different types of flexible work arrangements. Training participation is lowest among self-employed workers and workers on on-call employment. Strikingly, the differences between different flexible work arrangements are more pronounced for men than for women. For example, among self-employed women without personnel, 9.0% participate in training, whereas this is the case for only 5.1% of self-employed men. This gender difference is partly due to the fact that women and men are self-employed in different sectors and thus have different training needs. Self-employed men are, for instance, overrepresented in sectors such as agriculture, manufacturing, and construction, where the training participation of the self-employed is rather low. However, in the transportation, communication, and healthcare sectors, self-employed women appear to participate more often in training than self-employed men.

Furthermore, Table 5.1 shows that for almost all age groups, the training participation of workers with flexible contracts is lower than that of workers with permanent contracts. The only exception is workers aged 60–65. For this age group, training participation is low for workers with either flexible or permanent contracts. This can be understood from a human capital perspective, because for this age group the time horizon to recoup human capital investments for workers with a temporary contract is rather similar to that of workers with a permanent contract.

Table 5.1 Participation in training by gender and age, 2004-2008[a]

	Total	Male	Female	15 to 25 years	25 to 35 years	35 to 45 years	45 to 55 years	55 to 65 years
	%							
Permanent employment	11.5	11.3	11.7	13.2	140	12.0	10.3	6.6
Temporary work agency employment	9.8	9.2	10.9	9.5	11.7	9.0	8,0	6.9
Temporary contract	9.6	9.8	9.4	9.2	12.2	9.5	7.3	6.4
On-call employment	8.9	7.8	9.8	12.3	10.8	8.9	7.5	4.4
Self-employed without personnel	6.3	5.1	9.0	9.4	7.8	6.6	6.8	3.8
Total	10.9	10.5	11.4	12.4	13.4	11.3	9.8	6.2

a) Training in the past four weeks.
Source: Statistics Netherlands, Labour Force Survey.

As Table 5.2 shows, the most important reason to participate in training is to keep up with new skill demands. However, this reason holds far less for workers who have a temporary contract and for those who are employed by a temporary work agency. Conversely, for self-employed workers this reason is more important than for employees with a permanent contract. Employees with temporary contracts and those who work for temporary work agencies participate more often in training with the aim of increasing their opportunities to obtain different work.

Table 5.2 Main reason for participation in training, 2004-2008

	Not work related	To keep up	Compulsory	Promotion	Different work
	%				
Permanent employment	9.7	40.5	22.7	9.8	16.4
Temporary work agency employment	10.3	19.2	22.5	7.5	38.6
Temporary contract	12.5	23.6	21.0	7.4	33.0
On-call employment	12.2	37.7	20.3	5.2	23.0
Self-employed without personnel	14.0	48.9	14.4	3.6	18.5
Total	10.1	40.0	22.2	9.3	17.5

Source: Statistics Netherlands, Labour Force Survey.

As can be expected from human capital theory, workers with flexible work arrangements have to pay all training costs themselves more often than workers with permanent contracts (see Table 5.3). This is likely due to the shorter expected time horizon for employers to recoup their training investments with flexible workers. This is especially true for those who work for temporary work agencies. Obviously, those who are self-employed also have to pay the training costs themselves. However, there is also a group of self-employed workers who report having participated in employer-financed training. This group consists of self-employed workers who also have a paid job and self-employed workers who receive training in the firm that contracts them, as is very often the case, for example, in the healthcare sector.

Table 5.3 Who paid for the training, 2004-2008

	(Partly) employer	Self	Other
	%		
Permanent employment	77.8	13.5	1.4
Temporary work agency employment	52.5	39.1	4.8
Temporary contract	51.0	38.5	5.9
On-call employment	61.7	28.7	6.7
Self-employed without personnel	25.7	64.1	7.9
Total	73.6	17.6	2.0

Source: Statistics Netherlands, Labour Force Survey.

Table 5.4 shows the estimation results of a logit analysis of the probability of participating in training for flexworkers compared to those who have a permanent contract. Table 5.4 also distinguishes between employer-paid training and self-financed training. Except for workers on an on-call contract, training participation is significantly lower for workers with a flexible work arrangement. However, Table 5.4 shows that this only holds for employer-funded training. Workers with flexible contracts have a higher probability of participating in training on their own expense, especially for female self-employed workers. These estimation results show that workers with a flexible contract partly compensate for the lack of employer-funded training with their own training investments. This also explains why their training does not focus on the skills they need for their current job but, instead, on the skills they need for another job, as has been shown in Table 5.2.

Table 5.4 Logit analyses on the probability of training participation

	Participation in training		Employer paid training		Self paid training	
	b		b		b	
Temporary work agency employment	-0.148	*	-0.395	***	0.763	***
Temporary contract	-0.198	**	-0.406	***	0.459	***
On-call employment	-0.138		-0.193	*	0.167	
Self-employed without personnel	-0.426	***	-1.296	***	1.393	***
Woman	-0.028		-0.102	***	0.321	***
Foreign background (western)	-0.001		-0.019		0.121	
Foreign background(non-western)	0.046		-0.020		0.248	**
Age	0.035	***	0.049	***	-0.040	**
Age squared	-0.066	***	-0.081	***	0.020	
Primary education	-0.576	***	-0.505	***	-0.796	***
Lower secondary education	-0.272	***	-0.269	***	-0.325	***
Higher professional education	0.106	***	0.115	***	0.032	
University education	-0.133	***	-0.115	***	-0.251	***
part-time worker	-0.190	***	-0.214	***	0.066	
N	91,208		88,960		82,612	

The reference individual is a native man with higher secondary education working full-time in a permanent job.
Note: * p<0.10, ** p<0.05, *** p<0.01.
Source: Statistics Netherlands, Labour Force Survey.

An important question is the extent to which the lower training participation of flexworkers compared to workers with a permanent contract is due to group differences in measurable characteristics. To answer this question, we use an extension of the Blinder–Oaxaca decomposition technique to logit models developed by Fairlie (2005). Again, workers with permanent contracts are the reference group.[70] Table 5.5 shows our estimation results with respect to participation in employer-funded training. Table 5.5 shows that, for temporary agency workers, only 21% of the training participation gap for employer-funded training can be explained by observable characteristics of the firm or the worker. Particularly, workers' occupations and educational backgrounds explain part of the lower training participation. Note that the (young) age of temporary agency workers would predict more rather than less employer-paid training. For workers with a flexible contract, 40% of the training participation gap for employer-funded training can be explained by observable characteristics. For these workers, firm characteristics are the most important factors explaining the training participation gap. For workers on an on-call contract, 64% of the training participation gap can be explained by observable characteristics. The lower participation in employer-funded training is mainly due to their occupation, industry sector, and firm size. Furthermore, the higher incidence of part-time employment is also an important factor. Not surprisingly, the training participation gap for employer-funded training is largest for self-employed workers. Only 18% of this difference can be explained by worker or firms characteristics. But, as mentioned before, self-employed workers reporting employer-provided training are a particular type of worker: Either they are self-employed workers who also hold a salaried job or they are self-employed workers who receive training from the firm that contracts them.

[70] We use the estimated logit for permanent workers only.

Table 5.5 Non-linear decompositions of training participation gap for employer-funded training

	Temporary work agency employment		Temporary contract		On-call employment		Self employed without personnel	
Participation gap	-0.035		-0.043		-0.034		-0.072	
Woman	2%	***	4%	***	4%	***	-1%	***
Foreign background	0%		0%		0%		0%	
Age	-9%	***	-2%		7%	***	8%	***
Education	12%	***	4%	***	6%	***	1%	***
Part-time worker	1%	***	11%	***	16%	***	1%	***
Occupation	24%	***	11%	***	13%	***	4%	**
Firm size and sector of industry	-6%	***	15%	***	22%	***	8%	***
Region	-1%		0%		0%		0%	
Year	-1%	***	-2%	***	-3%	***	-1%	***
Total explained	21%		40%		64%		18%	

Note: * p<0.10, ** p<0.05, *** p<0.01.
Source: Statistics Netherlands, Labour Force Survey.

Table 5.6 shows that for all flexible work arrangements, the participation gap for self-paid training is positive (flexible workers are more likely to finance their own training), but smaller than the gap for employer-paid training. This indicates that the gap in employer-paid training is only partly compensated for by the own training investments of flexworkers. This therefore suggests that there is indeed a trade-off between quantitative flexibility – based on the use of flexible contracts – and qualitative flexibility – based on workers' adaptability to changing skills needs. For workers with on call contracts, the lower training participation is most related to observable differences in group characteristics. Again, firm size and industry sector matter the most. For temporary workers and temporary work agency workers, age is the most important factor in explaining the lower participation in self-paid training. Remarkably, our estimation results show that self-employed workers without personnel should, given their observable characteristics, invest more in training than workers with permanent contracts. This suggests that, for this group, either the direct training costs are too high or the possibilities of undertaking training are limited because of their workload, since they cannot share tasks with co-workers, because there are none.

Table 5.6 Non-linear decompositions of training participation gap for self-paid training

	Temporary work agency employment		Temporary contract		On-call employment		Self employed without personnel	
Participation gap	0.020		0.014		0.006		0.027	
Woman	-1%	**	2%	***	4%	***	-2%	***
Foreign background	3%	*	2%	*	0%		0%	
Age	11%	***	15%	***	10%	**	-6%	***
Education	-2%	**	-2%	***	-3%		-2%	**
Part-time worker	0%	*	4%		11%		0%	*
Occupation	-1%		0%		-13%		3%	
Firm size and sector of industry	0%		12%	***	33%	***	-4%	
Region	0%		1%	*	2%		1%	***
Year	0%	**	1%	*	1%		0%	**
Total explained	10%		35%		45%		-12%	

Note: * p<0.10, ** p<0.05, *** p<0.01.
Source: Statistics Netherlands, Labour Force Survey.

Training participation and the mobility

Table 5.7 shows that workers who participated in training are less likely to lose employment than those who did not participate in any training course. There are, however, considerable differences between workers with different types of flexwork arrangements. For workers with a temporary contract and for those employed by a temporary work agency, the impact of training on the transition to unemployment is substantial. For workers on an on-call employment contract and those who are self-employed, the probability of losing employment does not differ significantly from that for those who participated in training and for those who did not.

Table 5.7 Participation in training and loss of employment after one year, 2006/2007 – 2008/2009

	Loss of employment after one year		
	Participation in training	No participation in training	
	%	%	
Permanent employment	2.4	4.0	***
Temporary work agency employment	11.1	16.8	*
Temporary contract	14.7	20.5	*
On-call employment	11.0	10.2	
Self-employed without personnel	4.6	4.7	
Total flexible employment	8.9	10.2	
Total	3.1	5.1	***

Note: * p<0.10, ** p<0.05, *** p<0.01.
Source: Statistics Netherlands, Labour Force Survey.

Table 5.8 shows that training participation seems to help both workers with temporary contracts and those employed by temporary work agencies obtain a permanent contract. For both categories of flexible workers, these differences are highly significant. However, training participation does not help workers with an on call contract to get a permanent contract.

Table 5.8 Participation in training and finding a permanent job after one year, 2006/2007 - 2008/2009

	Permanent job after one year		
	Participation in training	No participation in training	
	%	%	
Permanent employment	98.2	98.0	
Temporary work agency employment	60.4	45.0	***
Temporary contract	52.4	42.8	***
On-call employment	63.8	66.6	
Self-employed without personnel	5.4	3.0	*
Total flexible employment	32.2	21.8	***
Total	91.5	86.5	

* p<0.10, ** p<0.05, *** p<0.01.
Source: Statistics Netherlands, Labour Force Survey.

As Table 5.9 shows, there are also substantial differences in job mobility between different types of flexworkers. Those with a temporary contract and those who are employed by a temporary work agency change employers more often than workers on an on-call contract. Self-employed workers without personnel are even less mobile than workers with a permanent contract. The latter suggests that most self-employed workers prefer their flexibility above a permanent contract with an employer. However, although flexworkers who train are more likely to be working for another employer one year later than those who do not train, the differences for the various types of flexible employment are not statistically significant.

Table 5.9 Participation in training and change of employer after one year, 2006/2007 - 2008/2009

	Participation in training		No participation in training		
	Same employer after one year	Other employer after one year	Same employer after one year	Other employer after one year	
	%				
Permanent employment	90.8	9.2	91.5	8.5	
Temporary work agency employment	61.4	38.6	56.1	43.8	
Temporary contract	69.4	30.6	65.6	34.3	
On-call employment	90.5	9.5	86.9	13.1	
Self-employed without personnel	94.8	5.2	95.7	4.3	
Total flexible employment	82.2	17.8	83.6	14.6	**
Total	89.9	10.1	90.3	9.7	

* p<0.10, ** p<0.05, *** p<0.01.
Source: Statistics Netherlands, Labour Force Survey.

Table 5.10 shows the estimation results of logit analyses on several labour market transitions. These logit analyses only refer to workers with flexible contracts. Moreover, the self-employed without personnel are not included in these analyses. The estimation results of the logit analyses respectively refer to (1) the probability of losing employment, (2) the probability of getting permanent work in another firm, (3) the probability of being employed in a flexible job in another firm, and (4) the probability of obtaining a permanent contract with the same employer.

The estimation results confirm that the relation between the training participation of flexworkers and their labour market mobility depends on who paid for the training. Those who participated in employer-funded training less often lose employment, and those who participated more often received a permanent contract with the same firm. This suggests that firms invest in flexible workers if they want to continue the employment relationship for a longer period. For these workers, the temporary job appears to be a stepping stone to a permanent contract. Moreover, the finding can indicate that firms use this training in the selection process for their permanent staff (Autor, 2001). Conversely, flexworkers who paid for their own training more often found a new job in another firm; however, they did not get a permanent contract in these firms more often. This suggests that, for flexworkers, self-paid training is not a stepping stone to a better job but merely a means to find another temporary job. Besides, the results show that those who paid for their own training more often lose their employment. However, this might be due to a selection effect: Those workers who run the risk of losing their jobs will try especially hard to improve their position by investing in training.

Table 5.10 Probability to loose employment, change employer and obtain a permanent contract

	Not employed		Other employer / permanent contract		Other employer / flexible work arrangement		Same employer / permanent contract	
	b		b		b		b	
Temporary contract	-0.071		-0.716	***	-0.720	***	-0.384	***
On-call employment	-0.565	***	-1.204	***	-1.589	***	0.922	***
Employer financed training	-0.406	*	-0.004		-0.232		0.303	*
Self financed schooling	0.601	*	0.334		0.769	**	0.164	
Woman	0.438	***	0.041		0.092		-0.045	
Foreign background (western)	0.400	**	-0.187		0.032		-0.096	
Foreign background(non-western)	0.589	***	-0.468	**	0.244		-0.192	
Age	-0.183	***	0.021		-0.015		0.035	
Age squared	0.220	***	-0.096	**	-0.026		-0.067	**
Primary education	0.145		-0.193		0.261		-0.192	
Lower secondary education	0.027		-0.072		0.032		-0.013	
Higher professional education	-0.515	***	0.077		0.113		-0.043	
University education	-0.045		0.256		-0.113		-0.053	
part-time worker	0.051		-0.429	***	-0.294	**	-0.510	***
General	0.281	*	0.167		0.100		-0.259	*
Teaching	0.132		-0.395		0.015		0.319	
Agriculture	-0.083		-0.378		0.541		-0.837	**
Science and engineering	0.008		-0.165		-0.181		-0.217	
Transport	0.031		0.317		0.203		0.133	
(Para)medical	-0.140		-0.114		-0.398		0.039	
Language and culture	-0.617		-0.742		0.389		-0.735	*
Behaviour and society	-0.303		-0.147		0.522	*	0.423	*
Personal and social care	-0.059		0.110		-0.495	*	-0.071	
Management	-0.112		x		0.306		-0.252	
Constant	2.341	***	0.558		0.546		-0.008	
Pseudo R-squared	0.060		0.121		0.111		0.081	
N	2,123		2,033		1,978		2,862	

* p<0.10, ** p<0.05, *** p<0.01.
The results refer to Logit analyses for workers with flexible labour contracts of the chance to lose employment, the chance to change employer and the chance to obtain a permanent contract with the same employer (excl self-employment, 2006/'07-2008/'09).
Controls for sector of industry, firm size and survey year included.
The reference individual is a native man with higher secondary education, an occupation in economics, and full-time working for a temporary work agency.

Table 5.11 shows the analyses of different employment transitions for self-employed workers. The probability of losing employment is hardly related to any of the observed personal characteristics of self-employed workers. The probability of (re)entering salaried employment decreases with age. Moreover, women and part-time workers have a higher chance of (re)entering salaried employment. Neither the chance to lose employment nor the chance to (re)enter into salaried employment is affected by training investments. This result is not surprising. As discussed above, most self-employed workers seem to prefer their independence above a permanent contract with an employer. In addition, the training investment of this group is not usually aimed at increasing the possibilities of obtaining other employment but is aimed at keeping up with new skill demands.

Table 5.11 Probability for self-employed to loose employment and to (re)enter paid employment

	Not employed		Permanent contract	
	b		b	
Employer financed training	0.059		0.429	
Self financed training	-0.314		-0.241	
Woman	-0.026		0.654	***
Foreign background (western)	0.024		0.572	***
Foreign background(non-western)	0.650	**	0.597	*
Age	-0.066		-0.255	***
Age squared	0.037		0.332	***
Primary education	-0.065		0.103	
Lower secondary education	0.004		0.152	
Higher professional education	0.258		0.169	
University education	0.302		-0.081	
part-time worker	0.357	**	1.296	***
General	-0.743		0.372	
Teaching	-0.115		-0.116	
Agriculture	-1.706	***	-0.550	
Science and engineering	-0.363		-0.044	
Transport	-1.365	**	1.096	*
(Para)medical	-0.855	**	-0.551	*
Language and culture	-0.325		-0.346	
Behaviour and society	-0.448		-0.590	
Personal and social care	-0.086		0.081	
Management	0.000		0.048	
Constant	-1.102		0.124	
Pseudo R-squared	0.057		0.140	
N	7,423		7,615	

* p<0.10, ** p<0.05, *** p<0.01.
The results refer to Logit analyses for self-employed workers without personnel on the chance to lose employment, the chance to (re)enter paid employment, 2006/'07-2008/'09.
Controls for sector of industry, region and survey year included.
The reference individual is a native man with higher secondary education, an occupation in economics, and full-time working for a temporary work agency.

5.5 Conclusions

Although the differences in training participation have decreased in recent years, the estimation results presented in this chapter confirm the hypothesis from human capital theory that workers with a flexible labour contract participate less often in training than those with a permanent contract. This holds for all types of flexwork, but there are considerable differences between the various types of flexible work arrangements. The lower training participation of flexworkers is merely due to the fact that these workers get less employer-funded training. Workers with a flexible contract partly compensate for the lack of employer-funded training with their own training investments, which explains why their training does not focus on the skills they need for their current job but, rather, on the skills needed for another job.

Furthermore, we analyse the extent to which participation in training helps workers with flexible contracts remain employed and improve their labour market position. We find that for those who participate in employer-funded training, the temporary job appears to be a stepping stone to a permanent contract. However, participation in self-paid training does not appear to be a stepping stone to a better job but merely a means to find another temporary job.

The lower training participation of flexworkers shows that there is indeed a trade-off between the quantitative labour market flexibility derived from flexible labour arrangements and workers' adaptability to changing skill demands in the labour market. However, this does not hold for workers with flexible contracts whose participation in employer-funded training is a stepping stone towards a permanent contract with the firm. But those who do not participate in employer-funded training cannot adequately compensate for this by investing in their own skills, since the latter only helps them find another flexible job.

Within the flexible workforce, self-employed, independent workers are a specific group. Their training participation is low, particularly for male workers. This probably signals the short-term horizon of many self-employed workers, as well as the difficulties they face when they participate in training courses, since they cannot share their workload with co-workers. Moreover, their labour market mobility is even lower than for workers with a permanent contract. This suggests that most self-employed workers prefer their independence and in this way contribute to labour market flexibility by adjusting their workload and the tasks they perform.

6 Flexible contracts and long-term outcomes

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A flexible job may be the start of a successful employment career. Obviously, workers starting flexible jobs are less likely to remain employed than workers starting permanent jobs. Still, the results indicate that fixed-term jobs improve the employment outcomes of high-educated individuals and non-Western migrants. Temporary work agencies offer reasonable employment prospects to low-educated individuals.

a) The chapter was written while Clovis Hopman was working at CPB.

6.1 Introduction

For many workers it is not easy to find a job on the labour market. A flexible job can act as a stepping stone to a successful employment career. But how do the careers of workers who start flexible jobs develop? Are they still employed after a number of years? And did their wages increase with the accumulation of work experience? This chapter uses longitudinal administrative data to follow workers over time. It considers the probability of being employed for at least nine months a year for a certain period of time, and it considers wage growth over the same period. This chapter distinguishes between flexible workers with on-call contracts, workers with contracts with a fixed ending term (fixed-term contracts), and workers who are employed through a temporary working agency (Twa or uitzendwerk). The employment outcomes of these flexible workers are compared with those for workers with permanent contracts.

Flexible employment serves different goals on the labour market. It offers flexibility to firms. The fact that employers know they can fire easier parts of their workforce may induce them to hire more workers than they would have otherwise. It also offers flexibility to workers who do not care for a permanent position. Furthermore, it offers an opportunity to workers to collect labour market experience and prove themselves, which is also known as the stepping stone hypothesis. Some of the workers would not have been hired in the absence of flexible jobs. Since there is uncertainty about a potential worker's ability, flexible employment limits the risk of hiring. For public policy it is important to know whether flexible jobs act as a way to remain employed and, if so, for whom this is the case.

We find workers with on-call or fixed-term contracts to have lower wages than workers with permanent contracts. Workers who start in a flexible job are less likely to be employed for at least nine months a year than workers who start a permanent job. A fixed-term job turns out to act as a stepping stone for highly educated individuals; they have a significantly higher probability of remaining employed for at least nine months a year. This also holds for non-Western migrants. An explanation for this result may be that firms use temporary contracts as a screening device for these two groups and are willing to invest in a long-term relationship. Furthermore, temporary work agencies offer reasonable employment prospects to low-educated individuals. For all other groups and temporary agency workers, employers seem to use flexible jobs mainly to increase flexibility in the short run.

The previous chapters consider flexible employment among graduates and human capital accumulation during flexible employment. They were based on survey data, and workers could not be followed over a long time period. This chapter is based on administrative data for the period 2001–2007, so workers can be followed over a period of six years.

Flexible jobs serve different goals on the labour market, one being that such jobs may act as stepping stones for individuals who want to enter or improve their situation on the labour market.[71] Ichino et al. (2005) find that temporary agency work increases the probability of finding a permanent job in Italy; Guell and Petrongolo (2007) find low conversion rates of flexible to permanent contracts in Spain; Autor and Houseman (2010) find that the placement of workers in temporary jobs does not improve employment outcome in the United States; and De Graaf-Zijl et al. (2011) find that temporary jobs shorten the unemployment duration spell but do not increase the probability of finding a permanent job in the Netherlands.

This chapter defines the employment outcome as being employed for at least nine months a year. Although the choice of nine months is somewhat arbitrary, this chapter explicitly does not consider full employment during a year, since many flexible workers, particularly temporary work agency workers, are seldom fully employed during a year. The data do not allow us to distinguish between permanent and temporary employment. Recent research concludes that a longer stay in flexible employment is not synonymous with the lower part of the labour market. In addition, a substantial percentage of the highly skilled remain in flexible employment (Heyma et al., 2010).

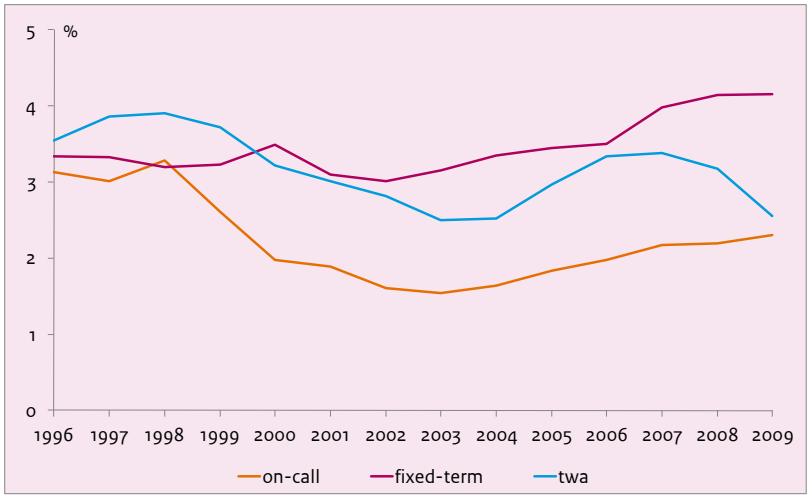
[71] See Chapter 2 for other goals of flexible jobs on the labour market.

The chapter is organised as follows. The next section discusses the incidence and legislation of flexible employment in the Netherlands. Section 6.3 presents the data and descriptive statistics and, furthermore, discusses the employment outcomes and wage growth for workers starting a new job in 2001. Section 6.4 summarises and concludes.

6.2 Flexible contracts in the Netherlands

The share of flexible contracts shows some relation with the business cycle, since the number of flexible contracts was relatively low around 2003, which is at the end of a period of relatively low economic growth in the Netherlands (Figure 6.1). A clear upward or downward trend in the total fraction of flexible employment is not visible, however. The fraction decreased from about 11% in 1998 to 8% in 2003 and then increased again to 9% in 2006. Within the group of flexible contracts, there seems to be a shift from on-call contracts, which decreased from 3% in 1996 to 2% in 2006, to fixed-term contracts, which increased from about 3% in 1996 to about 4% in 2006. According to de Graaf-Zijl (2009), this shift is related to a change in the legislation of flexible contracts, which is discussed below. Note that the conclusion on the trend is based on the Dutch definition of employment, which includes individuals who work 12 hours or more per week. According to international definitions, flexible employment did increase over time (Figure 2.1). This hints at the fact that flexible employment increased partly because the number of flexible jobs of 1 to 12 hours per week has increased in recent years.[72]

Figure 6.1 Flexible employment as a percentage of dependent employment



Source: Labour Force Survey, Statistics Netherlands.

A major change concerning the legislation of flexible contracts was the Flexibility and Security Act in 1999 (wet flexibiliteit en zekerheid or flexwet). The main constraint in the use of flexible contracts by employers is the maximum permitted number of contracts with the same employee, which is three in general and four for youngsters until age 27. The maximum duration of these contracts being 36 months in general and extended to 48 months for youngsters. For many countries, including the Netherlands, fixed-term and other flexible contracts become permanent contracts after a certain amount of time, which is 36 months in general and 48 months for youngsters in the Netherlands. The legal rules

[72] The national definition only includes temporary contracts of less than one year and without a prospect on a permanent contract. The international definition does include temporary contracts of one year or more. So the difference in growth is also partly because the number of temporary jobs of one year or more has increased in recent years.

set the norm for the Dutch labour market. Collective labour agreements (CAOs) may, however, deviate to some extent from these rules.

The law on flexibility also changed the position of temporary work agencies. Before that date, workers always had temporary contracts with such agencies. Since 1999, however, the rights of workers increase with tenure at an agency. After certain duration, the contract of the worker will be converted to a permanent contract with the agency.

The law also changed the position of on-call contracts on the labour market. In the first six months, employers pay only for the hours worked. Afterwards employers must pay for a minimum amount of the average working hours of the last three months, irrespective of true hours worked. This makes on-call contracts less attractive for firms. The number of such contracts has decreased since 1999, while the hourly wage has decreased as well (de Graaf-Zijl, 2009).

Dutch legislation on temporary contracts is not considered strict in comparison with other countries. Only countries such as the United States, the United Kingdom, and Canada and a few continental European countries have lower levels of protection for such jobs (Figure 2.6). The level of protection of temporary jobs may not affect their functioning as a screening device for employers, since in the end it will be the level of protection of the permanent jobs that matters most for screening. The level of protection may, however, affect firms' use of such employment for flexibility purposes (see Chapter 2 for a more extensive discussion).

6.3 Empirical evidence

Data

The core dataset used in this chapter is the Dutch Social Statistical Database (SSB) for the years 2000–2007. In particular, this database is used to obtain information from jobs (the so-called SSB-jobs part of the database). This linked employer–employee dataset is based on administrative data from the tax authorities, municipality data, and a large survey of employers. The unit of observation in the database is a job, and it contains information on roughly 10 million jobs a year. Each job is described by variables on the person who holds the job, the fiscal income it generates, and the firm at which the person is employed. It is important to note for this chapter that until 2006, the database did not provide information on contract type, so it is unknown whether a job is permanent or temporary. Furthermore, hours worked are available for only about one-third of the observations. Since the subsample with observed wages remains largely the same over time, it is still possible to create a reasonably large panel dataset of many individuals who can be followed for many years in a row. However, information such as type of contract and educational attainment is missing.

The administrative data are enriched by the more detailed individual information from the Dutch Labour Force Survey (DLFS).[73] The DLFS is a yearly survey among 80,000 individuals that includes demographic and employment information such as age, gender, educational attainment, labour force participation, and type of contract. Because of the importance of the type of contract, only individuals for whom information in the DLFS is available are included in the empirical part of this chapter. This chapter considers individuals who started a new job in 2001 and compares the employment outcome of workers who started in flexible jobs with the outcome of those who started permanent jobs.[74] Note that the information on the type of job is from the DLFS and that we follow the working individual using administrative data. Therefore we will not be able to tell whether a starter has a permanent or a temporary job after a number of years; we only know whether the worker has a job.[75]

[73] For individuals with more than one job, we use the information of the job with the highest fiscal income. From the DLFS, we consider only jobs that exist on the reference date, December 1, of the wage information.
[74] A job is considered to be new if it started during the year 2001. Wages are observed on December 1.
[75] The administrative data include information on the type of contract for the years 2006 and 2007. This chapter does not use this information, since the survey and administrative data contradict each other in a substantial number of cases. Merging the two types of data would require a careful and time-consuming investigation.

Descriptive statistics

Workers who start a new job are much more likely to have a flexible contract than the average worker on the labour market. While almost one out of five job starters has a flexible contract, about one out of 10 workers has such a contract. This finding already hints at the fact that many who start a new job with a flexible contract are then able to obtain a permanent contract. On-call jobs are the most common way to start a new job, and fixed-term and temporary work agency jobs are also common (Table 6.1). A comparison with all employees, which is not presented in Table 6.1, makes it clear that fixed-term and Twa jobs in particular are less likely among all employees than among workers who start a new job.

In particular, the young and the old tend to start in flexible jobs. The young are likely to start a new job with an on-call contract, and fixed-term contracts are also rather common. This holds for the elderly as well, whereby individuals aged 55–64 are particularly likely to start a new job with a fixed-term contract. Furthermore, individuals with a low level of education are likely to start an on-call or a fixed-term contract, while individuals with a secondary level of education are likely to start a Twa job.

Which individual characteristics explain the incidence of having a flexible contract in particular? Both the young and the low educated have a high probability of having a flexible job. This is true for all types of contracts and all workers, including those who start a new job. These results are in line with the results of previous chapters. The results also confirm that elderly workers are very likely to start a new job with an on-call or a fixed-term contract. Employers seem to be interested in hiring older workers on a temporary base. Note that not many individuals over age 65 work, so their number is small within the group of workers with flexible contracts.

Table 6.1 Descriptive statistics for individuals that start a new job by contract in 2001 [a]

	On-call	Fixed-term	Twa[b]	Permanent
	%			
Overall	13.3	9.8	9.2	67.8
Age 15-24	21.9	12.8	11.0	54.3
Age 25-34	6.0	5.0	10.0	79.1
Age 35-44	7.7	6.4	8.2	77.6
Age 45-54	10.1	11.2	5.2	73.5
Age 55-64	16.7	22.4	5.0	55.9
Age 65+	39.1	27.2	9.8	23.9
Man	10.9	7.9	9.9	71.3
Woman	15.6	11.5	8.5	64.4
Primary education	18.7	16.1	9.2	56.1
Lower secondary education	9.6	10.1	9.4	70.9
Higher secondary education	12.5	7.8	10.9	68.8
Tertiary education	9.0	6.7	5.9	78.4
Natives	14.0	10.1	7.6	68.4
Western migrants	11.4	7.6	22.4	58.6
Non-western migrants	9.8	9.5	9.7	71.1

a) Individuals starting a new job with working hours of one hour or more per week.
b) Temporary work agency contract.
Source: Dutch Social Statistical Database on Jobs and Dutch Labour Force Survey.

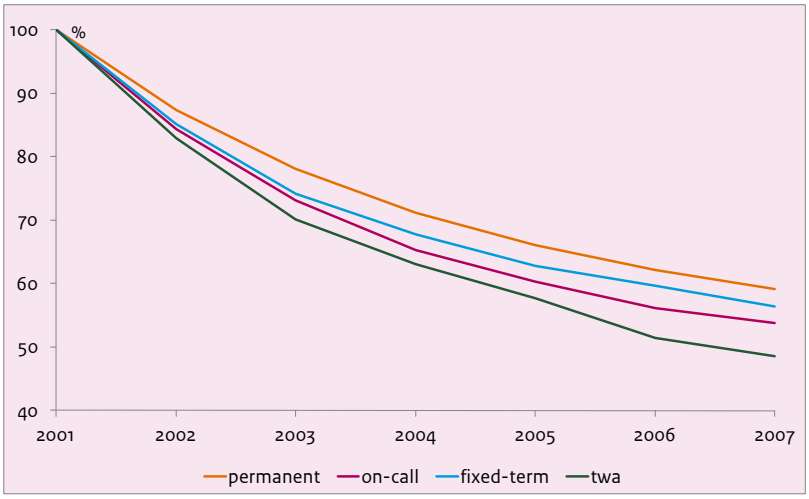
Workers who start a new job with a flexible contract clearly earn less than workers who start with a permanent contract. The difference in the median wage for the starters was about 16% in 2001, which is smaller than the 28% difference for all employees. Of course, the less favourable labour market characteristics of flexible workers are likely to be important. After taking such characteristics into account for those individuals starting in a new job, on-call workers actually earn the same wage as permanent workers, while fixed-term workers earn less (see also de Graaf-Zijl, 2009). The results show that Twa workers earn somewhat more than permanent workers, which contradicts the results of Chapter 4 on temporary work among graduates. Note that the current chapter takes few individual characteristics into account, whereas Chapter 4 considers, for example, final exam results. Temporary work agencies seem to select on characteristics not taken into account in this chapter, a result that is in line with the fact that selection, individual coaching, and supervision are their job.

Employment outcomes

What is the probability that an individual starting a job in 2001 is still employed after a certain number of years? Note that for an individual with a flexible contract it would not make much sense to investigate the probability of remaining employed without taking unemployment or non-employment spells into account. Such spells are rather common between employment spells. Therefore, we define the relevant employment outcome as being employed for at least nine months a year. Of course one would expect workers who start a new job with a permanent contract to be the most likely to remain employed. So the relevant question is how much lower is the probability of remaining employed for workers who start a new job with a flexible contract?

Workers who start a new job with a flexible contract have a relatively low probability of being employed from 2001 to 2007, but the difference between types of contracts is substantial (Figure 6.2). While workers with fixed-term contracts have a probability of about 65% of being employed until 2007, which is not much lower than for permanent workers, temporary agency workers have a probability of only about 50%. This does not necessarily imply that temporary agency workers do worse on the labour market; they may have less favourable labour market characteristics, such as a low level of education.

Figure 6.2 Survival rate of workers who started a new job in 2001



Source: SSB and DLFS, own calculations.

Individuals starting a new job with working hours of one hour or more per week. Probability to be employed for at least nine months a year for different contracts beginning in 2001.

Table 6.2 Marginal effects of probability to remain employed until 2007[a]

	All		On-call		Fixed-term		Twa[b]		Permanent	
Type of contract										
On-call	-0.15	**								
Fixed term	-0.23	**								
Twa[b]	-0.08	**								
Age										
15-24	0.01		0.01		0.05	**	0.01		-0.01	
25-34	0.05	**	-0.02		0.05		0.05		0.05	**
Gender										
Women	-0.07	**	-0.08	**	-0.15	**	0.01		-0.06	**
Education										
Lower secondary education	0.08	**	0.02		0.07	**	0.04		0.10	**
Higher secondary education	0.21	**	0.14	**	0.20	**	0.12	**	0.23	**
Tertiary education	0.25	**	0.21	**	0.23	**	0.14	**	0.27	**
Migrant background										
Western	-0.14	**	-0.17	**	0.00		-0.14	**	-0.15	**
Non-western	-0.11	**	-0.17	**	0.08	**	-0.20	**	-0.10	**

a) Probability to remain employed until 2007 for workers that start a new job in 2001, age 15 to 44. Marginal effects of probit model, parameters with * and ** are significant at a 5 and 10% level, the reference group is a native male worker age 35-44 with a primary level of education starting a permanent contract.
b) Temporary work agency contracts.
Source: Dutch Social Statistical Database on Jobs and Dutch Labour Force Survey.

What is the difference in probability of remaining employed for workers who start a new job with permanent and flexible contracts after taking individual characteristics into account? It turns out that the correction changes the ordering of the contracts considerably. Workers starting a new job with a fixed-term contract have the lowest probability of remaining employed until 2007 (Table 6.2). The probability is also lower for temporary agency workers than for permanent workers, but not substantially. In other words, temporary agency workers seem to do better than expected on the basis of their observed characteristics. This confirms the result that wages are higher for Twa jobs, possibly due to the selection of motivated individuals and individual coaching and supervision, which is part of the task of temporary work agencies.

The results further show that educational attainment is important: Workers with a high educational attainment have a higher probability of remaining employed until 2007. Both Western and non-Western migrants have a lower probability of still being employed if they start a job with a flexible type of contract.

The impact of individual characteristics varies substantially between the contracts. Having a high level of education is important for workers with an on-call or a fixed-term contract, and such workers have a significantly higher probability of remaining employed. Another important result is that fixed-term employment seems to function as a stepping stone for non-Western migrants, who have a significantly higher probability of remaining employed, even compared to those starting in permanent jobs.

For temporary agency workers, educational attainment matters as well, but the difference between the educational groups is small compared to those with other flexible contracts. The predicted probability of remaining employed for a low-educated individual starting a Twa job is obviously lower than for such an individual starting a permanent job. Still, this probability is larger than for low-educated individuals starting an on-call or a fixed-term contract. Therefore, Twa

jobs seem to offer reasonable employment prospects to low-educated individuals. Again, this outcome may be the result of the selection of motivated individuals and the individual coaching and supervision of temporary work agencies.

If an individual starts a new job and remains employed, what happens to this worker's wage during this period? Did it increase and, if so, by how much? Increasing wages are good from an individual point of view, since this implies more income and greater consumption. But it also hints at increasing productivity. One may expect individuals starting with a less favourable type of job to experience a substantial increase in wages due to increased experience.

The results on the growth of wages between 2001 and 2007 are tentative, since the number of observations becomes small.[76] Obviously a high starting wage leads to a lower average growth of wages during the first years, and this result is clearly statistically significant for each type of contract. Individual characteristics, such as age, gender, and migrant background, do not have a statistically significant impact on wage growth. There is one exception, however: Individuals with a tertiary level of education and who start in on-call or fixed-term contracts experience greater wage growth than low-educated individuals. This result is statistically significant, which supports the finding on employment outcomes. A temporary contract may act as a stepping stone for highly educated individuals.

6.4 Conclusions

This chapter uses longitudinal administrative data to investigate the career developments of workers who start a flexible job. Flexible jobs serve different goals on the labour market, and one of them is that they may act as a stepping stone to a successful employment career. So the question is how do the careers of workers who start flexible jobs develop? Are they still employed after a number of years, and did their wages increase?

The results show that workers who start employment with a flexible contract in 2001 are less likely to be employed for at least nine months a year until 2007 than workers who start with a permanent contract. A flexible employment relation is a stepping stone for the high-educated individuals in particular; they have a significantly higher probability of being employed nine months a year until 2007. At the same time, the wages of those in a fixed-term or on-call contract increased more. The stepping stone effect is also present for non-Western migrants. So firms may indeed use temporary contracts as a screening device for these two groups. For some groups, the screening function seems to be less relevant, particularly for low-educated individuals. Nonetheless, temporary work agencies offer reasonable employment prospects to low-educated individuals. For all other groups and the temporary work agency workers, employers seem to use flexible jobs mainly to increase flexibility in the short run.

[76] Fewer than 150 observations per type of flexible contract.

7 Success of self-employment

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An alternative to dependent employment is self-employment. This chapter focuses on the career developments of individuals starting their own business in the Netherlands. It shows that the quitting probability for groups with a high unemployment risk is significantly higher than for groups with a low unemployment risk. Nevertheless, some survive in self-employment and about one-third enter dependent employment. For these groups, self-employment therefore may act as a stepping stone.

7.1 Introduction

The self-employed constitute about 14% of the Dutch workforce. The high growth of self-employment in recent years and its alleged beneficial role in the recent economic crisis has increased policy interest in this phenomenon. Currently, policy promotes self-employment directly through advantageous tax benefits and by starting subsidies for the unemployed, and indirectly through social security contributions, minimum wages, and employment protection.

This chapter discusses self-employment as an alternative to dependent employment. Instead of hiring an employee, a firm can outsource part of its production to individual contractors, and instead of being an employee, an individual can start her own business. Self-employment has both disadvantages and advantages from the firm perspective and the individual perspective. From the firm perspective, self-employment offers flexibility in the workforce. By hiring contractors, a firm can more easily adjust to demand fluctuations. Self-employment is also part of the employment decision of individuals. Compared with paid employment, for some individuals self-employment is an alternative because it can generate a higher income and/or more independence. Chapter 2 discusses the advantages and disadvantages of self-employment in more detail.

In recent years, the public debate about self-employment has intensified. On the one hand, self-employment is seen as an opportunity because it generates flexibility to demand fluctuations for employers, and because it is an alternative for paid employment for groups with high unemployment risks. On the other hand, self-employment is also interpreted as undermining the welfare state. Individuals may self-select into self-employment to avoid paying social security benefits. This becomes a risk for the sustainability of the welfare state when these individuals are the 'good' risks, meaning that they pay more premiums than they receive benefits. Although all these issues are policy relevant, this chapter will focus on one particular aspect of self-employment: who survives in self-employment and who is able to use it as a stepping stone to dependent employment.

Although much of the policy debate on self-employment is on promoting entry, some claim that the continuation decision is more important than the entry decision because of the high failure rates (Geroski, 1995). If self-employment is supposed to act as an alternative to paid employment and, for this reason, is promoted by starting subsidies, then it is important to determine whether it is a temporary state or not. If workers quit self-employment after a few years and find no other paid alternative, then self-employment did not act as a stepping stone. While the entry decision has garnered a lot of attention in empirical research and the knowledge is profound, the answers to the last question are less clear. To date, no Dutch study exists on the duration of self-employment. This chapter fills this gap by empirically disentangling the determinants of duration.

This chapter focuses on the career developments of individuals starting their own business, with a special focus on disadvantaged groups. Our main research question is how do the careers of the self-employed with high unemployment risks develop in comparison with the careers of those with low unemployment risks. Is a period of self-employment beneficial for future labour market positioning? We distinguish two possible exit routes, either into paid employment or into inactivity. A flow into paid employment is interpreted as a stepping stone effect. Can self-employment act as a stepping stone and, if so, for which groups in particular? For a conclusive assessment of self-employment, one needs to compare the findings on future labour market position with similarly disadvantaged groups that found dependent employment or no employment at all. Of all unemployment benefit recipients in 2002, 23% found paid employment a year later and only 2% started a business in 2003 (WRR, 2007). Unfortunately, this information is missing in the current data.

Information on previous and future labour market positions for each individual is crucial for this analysis. This chapter uses a new combined dataset containing this information for the period 2000–2007. To answer the question above, several determinants of duration are empirically disentangled: individual characteristics, such as age, ethnicity, education, and starting position; firm characteristics such as sector; and macroeconomic circumstances and dependence on duration itself.

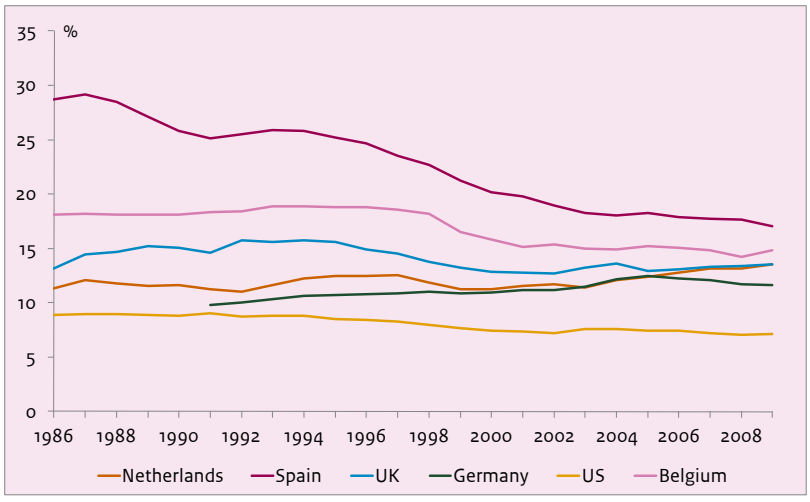
We draw the following conclusions from the empirical analysis. First, after five years, half of new start-ups survive, in line with international survival rates. Second, the duration is shorter for people starting from disadvantageous starting positions, such as unemployment, disability, and social assistance. Among the unemployed, there is a clear distinction between individuals with unemployment benefits (recently fired) and those with social assistance. Third, there is negative duration dependence, meaning that the conditional quitting probability is highest in the first three years after start-up, and lower thereafter. This is in line with a learning process. We do not find a clear business cycle pattern. Fourth, although those starting from an inactivity situation have a higher chance of returning to inactivity in the future, for about one-third self-employment may act as a stepping stone to paid employment. Fifth, self-employment seems to act as a stepping stone for almost all groups, but particularly for already advantaged groups.

This chapter is organised as follows. First, Section 7.2 introduces self-employment in the Netherlands, with special attention to the definition of self-employment. Section 7.3 provides a short summary of the international empirical literature. Section 7.4 discusses some descriptive statistics before Section 7.5 presents the estimation results. Section 7.6 summarises and concludes.

7.2 Self-employment in the Netherlands

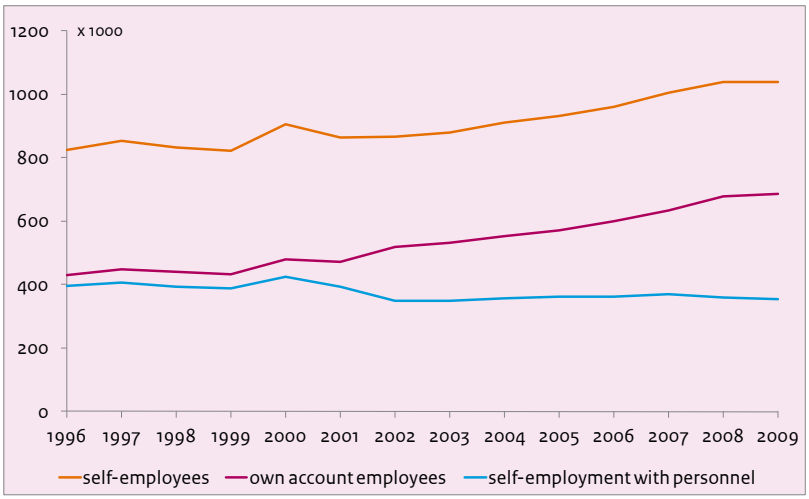
Self-employed people accounted for about 14% of the workforce in the Netherlands in 2009 (see Figure 7.1). Compared with other Western European countries, this is an average share. Spain has by far the largest share of self-employed, followed by Belgium. Denmark and Norway (not shown) have the lowest share of self-employed people. One of the lowest self-employment rates is found in the United States. The development of the self-employment rate over time is somewhat different. While other countries such as Belgium, Spain, and the United Kingdom experienced a drop in the self-employment rate during the nineties, the share in the Netherlands and Germany rose. In recent years the share of self-employment in the Netherlands rose to about 1 million people in 2009, an increase entirely attributed to the increase in self-employed individuals without personnel (Figure 7.2).

Figure 7.1 Self-employment rates, 1986-2009, as a percentage of civilian employment



Source: Labour Force Statistics, OECD.

Figure 7.2 Self-employment in 1996-2009, in thousands of persons



Source: Labour Force Survey, Statistics Netherlands.

The share is subject to debate, with the number of self-employed individuals without personnel ranging from 350,000 to 600,000.[77] Few articles try to explain the increase in self-employment. A recent empirical study concludes that only part of the increase can be explained by changes in composition, such as the ageing of the working population. A large part of the upward trend is unexplained, indicating a generic policy or a sociocultural trend. The study concludes that generic policy seems to be the most important cause, since the greatest effects are found in recent years, contradicting a gradual trend (Van Es and Van Vuuren, 2010). Some surveys convey stated reasons for becoming self-employed, with the most common motives being a search for independence and to better develop knowledge and skills (RWI, 2007; EIM, 2008; Vroonhof et al., 2008). These are all positive reasons. In the health care sector, however, negative motives are also mentioned, such as stress and dissatisfaction with work quality in paid employment.

Previous figures are based on information from questionnaires. In this chapter information is gathered from administrative data based on information from the tax authorities. As a consequence, a fiscal definition is employed. A self-employed person is regarded as an entrepreneur and that person's income is regarded as 'profit from enterprise' (Winst uit Onderneming in Dutch) if the employment involves risk, capital, profit, and liability. The judgement of the tax authority is important, because only entrepreneurs paying income taxes are entitled to favourable tax benefits such as the tax allowance for the self-employed (zelfstandigenaftrek in Dutch) and the tax allowance for starters (startersaftrek in Dutch). The distinction between entrepreneurs with and without personnel is not made in the data.

How easy is it to start a business in the Netherlands? The World Bank reports the 'Ease of doing business index' each year, which comprises procedures, time, and costs to run a business (Worldbank Doing Business Report 2011). The information includes starting a business, dealing with construction permits, registering property, obtaining credit, protecting investors, paying taxes, trading across borders, enforcing contracts, and closing a business. The Netherlands ranks 30th of all 183 countries, and 19th of 30 OECD countries. A low rank is obtained for 'dealing with construction permits', as in obtaining a building permit or an occupancy permit. More costs and time are involved compared with other OECD countries. Starting a business is relatively hard, with the Netherlands ranking 21st of 30 OECD countries. Although it only

[77] The definition of the self-employed with and without employees is not always clear. A recent article has tried to provide more insight into different categories and their numbers (Bosch and Van Vuuren, 2010).

takes eight days to legally start a business, compared with 14 days in an average OECD country, the costs and capital requirements are higher.

7.3 Literature review

The growth in the self-employment rates of some countries from the 1990s onwards has led to a renewed interest in self-employment in the empirical literature. The growth rates follow decades of steady decline in the share of self-employment. To explain the visible pattern, most empirical studies focus on the entry decision, but there are also studies on the continuation decision. This section highlights the main empirical findings.

Empirical evidence of entry

There is a vast theoretical and empirical literature on the employment decision. There are several reasons why individuals prefer to be self-employed, take more risks, and forgo a certain guaranteed income, with the main reason mentioned being autonomy or independence. This may also explain why we see a growth in the number of self-employed people without personnel. A recent survey study by Parker (2010a) divides the determinants into pecuniary versus non-pecuniary incentives, human and social capital, risk factors, other psychological traits, and demographic characteristics. The role of several determinants is highlighted. First, the results on the importance of relative earnings are mixed. Some studies find no effect of pecuniary incentives, suggesting that non-pecuniary incentives are more important. Indeed, in the UK Labour Force Survey, independence is the single most important reason cited to enter into self-employment. Several studies find the same result in the Netherlands. Stated motives for becoming a self-employed person are independence to perform a task and the development of knowledge and skills (RWI, 2007; EIM, 2008; Vroonhof et al., 2008). These are all positive reasons. However, in health care, self-employed individuals also state negative reasons related to stress and dissatisfaction with the work quality in dependent employment.

Second, although the probability of entering self-employment increases with age, after age 40–50 this probability decreases. Third, contrary to common opinion, there is relatively little evidence that social capital, like social networks, promotes entry. Fourth, experience in self-employment is positively related to chances of re-entry. Fifth, most studies find a positive effect of education. Sixth, family background, that is, having a self-employed father, doubles the probability of self-employment; as some argue, entrepreneurship 'runs in the family'. Considerable attention is given to psychological traits such as optimism and risk attitudes, but the results are ambiguous.

The first and only empirical study for the Netherlands concludes that the chance to enter self-employment depends positively on earnings differentials, IQ level, and paternal employment status (De Wit and Van Winden, 1989).

Empirical evidence of duration

In most theoretical models, the decision to continue is positive if the expected benefits outweigh those from alternative employment. There can, however, be switching costs, which would mean that individuals remain in their current occupation even if the returns are less than in the alternative (Dixit and Rob, 1994). Jovanovich (1982) provides a theoretical model for the shape of the conditional quit rate, the so-called hazard rate. This hazard rate presents the probability of quitting in a certain year, given the entrepreneur was still in business the year before. In this theory, a learning process determines the shape of the hazard rate. It takes time for the self-employed to recognize their own managerial abilities and know market conditions. The shape of the hazard rate is therefore as follows: high exit routes in the beginning and low exit rates after a few years. Several empirical studies find this shape (Van Praag, 2003, Evans and Leighton, 1989).

In a recent survey study, Parker (2010a) disentangles the empirical determinants of survival. The author cites studies analysing individual characteristics, firm characteristics, and macroeconomic factors. Most studies find that the entrepreneur's age, education level, and self-employment duration itself are the main determinants of survival. Previous experience in unemployment or paid employment does not promote survival. Some studies find that starting from an unemployment state triples exit rates, compared with paid employment (Carrasco, 1999). Some studies report higher exit

rates for female entrepreneurs. At the firm level, age and size are the main determinants. Poor macroeconomic factors such as lower demand, increased competition, and higher unemployment rates are associated with lower survival rates.

To date, no Dutch research on duration exists. The next paragraph tries to fill the information gap about the determinants of survival in the Netherlands.

7.4 Descriptive evidence

This section investigates the duration of self-employment and disentangles the different determinants of duration, such as demographic and educational characteristics, paying special attention to individuals starting their own business from an inactivity situation. Individuals starting with an unemployment benefit or on welfare may be expected to have a lower probability of survival, but how much lower? This section will also investigate what happens if self-employment does not last. Whether an individual returns to inactivity or enters paid employment is policy relevant. In the latter case, self-employment may then be seen as a stepping stone.

Data and definition

The empirical analysis is based on a new dataset containing information from several databases. The main database is the Social Statistical File on the Self-Employed (SSB-zelfstandigen), which contains information on fiscal profit, sector, and company size. It is an administrative database including data on entrepreneurs earning profit from enterprises in the Netherlands. The tax authority uses several criteria to determine whether the source of income is 'profit from enterprises'. A self-employed person is regarded as an entrepreneur and her income is regarded as 'profit from enterprise' (Winst uit Onderneming in Dutch), dependent on several criteria such as the risk involved, amount of capital, profit, and liability.

The empirical analysis in the chapter is based on information from the national tax authority, and the chapter employs the same fiscal definition. Self-employed people earning 'freelance income', individuals working in a payroll construction, and owner/managers of incorporated businesses (Directeur-grootaandeelhouders in Dutch) are not seen as entrepreneurs and are therefore not in the database. This chapter sticks to the term self-employed and not entrepreneur, because usually owner/managers of incorporated businesses are seen as entrepreneurs as well.

The second dataset is the municipal database (Gemeentelijke basisadministratie). Municipalities hold information on important individual characteristics such as age, gender, and certain household characteristics.

Information on education is based on a third dataset, the Dutch Labour Force Survey (DLFS) for 1996–2007.Each year counts about 800,000 self-employed individuals, with education level information for 60,000, of whom about 5,500 are starters. The definition of a starter in this chapter is a person who earns entrepreneurial income in one year who had no income from entrepreneurship the year before. According to this definition, persons with a small job starting a business are also seen as starters. By combining information from other social statistical files, that is, statistical files on jobs (SSB-banen), unemployment benefits (SSB-WW), social assistance (SSB-Abw), and disability benefits recipients (SSB-AO), information on other states is gathered. The aforementioned databases are all from Statistics Netherlands. The resulting combined database is a panel for 2000–2007 containing information on previous and future occupational states for about 17,000 individuals who started their business in 2001–2003.

Table 7.1 Descriptive statistics, self-employed persons in 2001-2003, in %

	Starters	All self-employed
Women	34	33
Age 18-30	27.7	11.9
Age 31-40	35.4	30.7
Age 41-50	22.7	30.4
Age 51-65	14.1	27.0
Education level		
Primary	6	6
Lower secondary	21	20
Higher secondary	44	47
Tertiary	28	27
Unknown	1	1
Ethnicity		
Native	83	89
Household characteristics		
Youngest child 0-4	13.7	11.8
Youngest child 4-12	18.9	20.1
Youngest child 12-18	10.1	12.3
Youngest child 18+	12.4	15.5
No children	44.9	40.4
Sector		
Financial services	26.2	20.1
Trade	18.6	19.0
Construction	10.9	10.1
Previous labour-market experience		
Paid employment	70.3	n.a.
Unemployment	1.4	n.a.
Disability	2.1	n.a.
Social security	1.7	n.a.
Combination of inactivity	2.1	n.a.
No income	22.4	n.a.
Number of observations	17,287	181,615

n.a. = not available.
Source: Dutch Social Statistical Database on entrepreneurs and Dutch Labour Force Survey.

Descriptive statistics

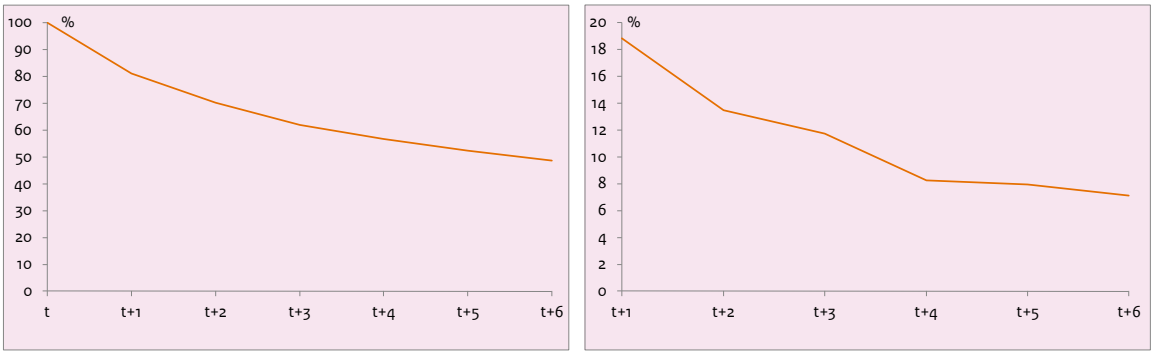
This section summarises some variables of interest. Subsequent subsections will focus on individual characteristics, duration dependence, and different exit routes.

A starting self-employed is usually a 40-year-old man with a higher secondary education, previously in a paid job, and opening a business in financial services (Table 7.1). Compared with all self-employed individuals, starters are younger, somewhat less educated, more often non-natives, and working in financial services.

After six years, only half of all starters remain in business (Figure 7.3, left). The definition of survival is 'still being self-employed'. Note that survival is not equal to success, and quitting is not equal to failure. First, the self-employed can have years of losses instead of profits, which is not a success. Second, exiting due to finding a paid job is not necessarily a failure. Survival sharply declines in the first years and becomes rather constant after four or five years. This pattern is consistent with a learning process (Jovanovich, 1982). It takes time for the self-employed to know their own capabilities and market opportunities.

Another way to show the dependence of time is a picture of the conditional quit rate, the so-called hazard rate. The hazard rate (Figure 7.3, right) measures the probability of a self-employed person quitting in a certain year given that he or she was still in business a year earlier. If the chance to stop is the same every year, there is no duration dependence and the hazard rate is a constant. However, Figure 7.3 shows that the hazard rate is high in the beginning and lower after three or four years. This indicates a learning pattern.

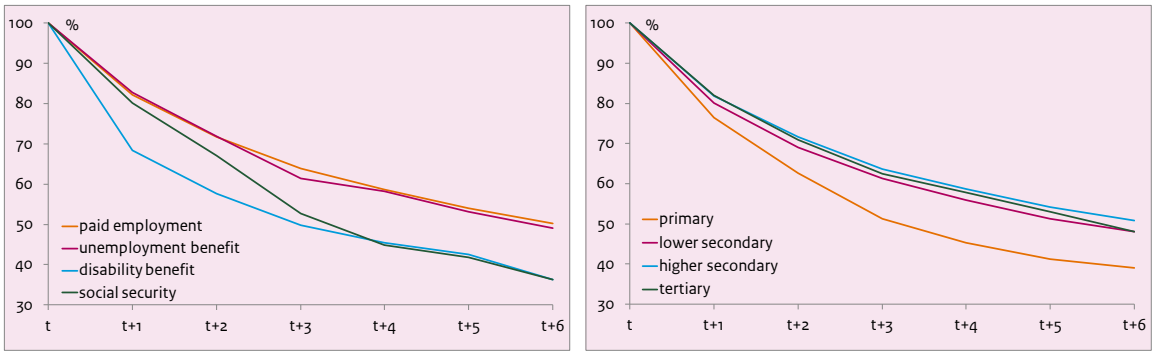
Figure 7.3 Survival rate (left) and hazard rate (right), starters 2001-2003



Probability of business survival after certain years (left) and that a self-employed quits in a certain year given that he was still in business a year before (right). Individuals that started a business in 2001-2003 are included.

It is interesting to see whether survival rates differ between groups. Since we are interested in a possible 'stepping stone' effect of a period of self-employment, our focus is on the starting position. Figure 7.4 presents the survival rates for different previous labour market states and for different education attainments. For the sake of exposition and because the minimum survival rate after six years is 40%, the y axis starts at 30%. Individuals with working experience – either a job or with an unemployment insurance benefit for workers – have a higher survival rate than those starting from an inactive or longer-term unemployment position. Individuals with a primary education level have a lower survival rate. The survival rates of other education levels are alike.

Figure 7.4 Survival rates by previous labour-market states and by educational attainment



Source: Dutch Social Statistical Database on entrepreneurs and Dutch Labour Force Survey, own computations.
Probability of business survival after certain years by previous labour market status (left) and by education (right). Individuals that started a business in 2001-2003 are included.

The survival rates of natives and non-natives differ greatly. A native starter has a 10%-point higher survival rate (not shown) than a non-native. Younger starters have higher survival rates, but after age 45 survival rates are lower. Interestingly, the survival rates of men and women are almost identical. Previous figures do not correct for differences in other background characteristics. Moreover, these figures do not take into account the different exit routes. Exit routes give insight in whether starting a business was a failure or a success. These aspects will be addressed in the following section.

Exit routes

It is interesting to see whether individuals who exit enter into paid employment or inactivity. In the first case, self-employment acts as a stepping stone towards paid employment; in the latter case, self-employment is only a temporary improvement and does not raise employment prospects. Of all starters, almost half (48%) quit in 2007 (Table 7.2).

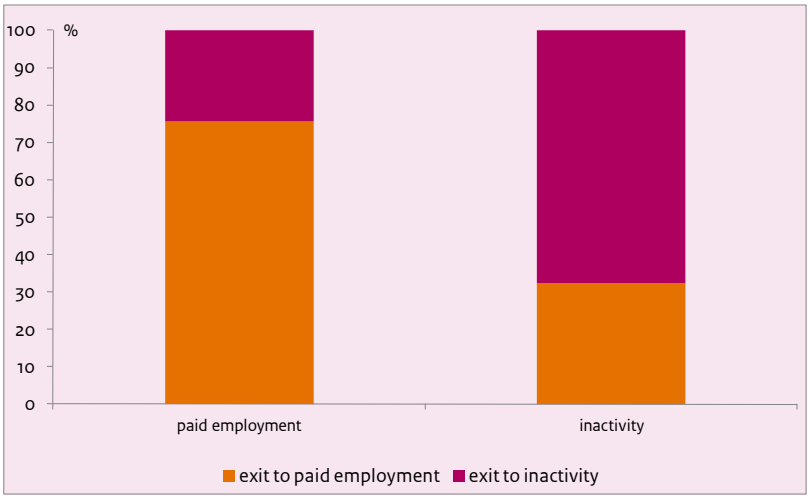
Table 7.2 Previous and labour market status after 4 years, starters 2001-2003

Share, in %	Future labour-market status after 4 years			
	Self-employment	No self-employment	Share of no self-employment	
			Paid employment	Inactivity
Previous labour-market position				
Paid employment	59	41	76	24
Unemployment	58	42	41	59
Disability	46	54	16	84
Social assistance	45	55	24	76
Combination of inactivity	51	49	45	55
No income	54	46	33	67
Share	57	43	61	39

Source: Dutch Social Statistical Database on entrepreneurs and Dutch Labour Force Survey, own computations.

More than half (61%) of those who quit get a job afterwards, and 39% flow (back) into inactivity within four years. For those starting from paid employment, the flow to paid employment is higher (76%), and that to inactivity is lower (24%). The contrary is true for those starting from an inactivity situation. On average, two-thirds return to some inactivity state and one-third flow into paid employment (Figure 7.5).

Figure 7.5 Exit routes for different starting positions, four years after start-up



Source: Dutch Social Statistical Database on entrepreneurs and Dutch Labour Force Survey, own computations.

7.5 Empirical evidence

In the empirical analysis, an econometric model explains the conditional probability of quitting self-employment. The dependent variable is a dummy variable equal to one if the self-employed has stopped in a certain year, given that he or she was still in business the year before. The empirical analysis consists of three parts that take into account different characteristics.

In the first part, differences in observed individual, household, and macroeconomic characteristics are part of the model. Individual and household characteristics such as age, education, ethnicity, and the presence of children are included. Special emphasis is given to previous labour market status, because this provides some information on the stepping stone effect of self-employment. Furthermore, a starting year indicator is added to measure possible business cycle effects. Finally, duration dummies are included in the first step. Since the observed maximum duration is six years (2007–2001), there are six duration dummies. These dummies represent the dependence of the chance to quit on time elapsed since start-up.

To clearly interpret our results, the second step estimates a different model in which several exit routes are taken into account. Exit into paid or dependent employment is interpreted as a stepping stone effect of self-employment. The conditional probability to exit either to paid employment or to inactivity is estimated separately. In all models, the conditional quitting probability is estimated by the method of maximum likelihood.

The third part disentangles the effect of duration dependence and differences in unobserved characteristics. Subsequent subsections focus on individual characteristics, different exit routes, and duration dependence.

Table 7.3 Conditional quit probability for different exit routes, marginal effects, in % [a.b]

	All exits		Paid employment		Inactivity	
	Marginal effects	Significance [c]	Marginal effects	Significance [c]	Marginal effects	Significance [c]
	%					
Women	-0.3		-0.9	***	0.5	***
Age31-40	-1.0	***	-0.5	*	-0.4	*
Age41-50	0.4		-0.4		0.7	***
Age51-65	3.4	***	-0.2		2.9	***
Education level						
Lower secondary	4.9	***	0.7		3.4	***
Higher secondary	1.9	***	0.4		1.2	***
Tertiary	0.6	*	0.0		0.5	***
Ethnicity						
Native	-2.1	***	-0.1		-1.7	***
Household characteristics						
Youngest child 0-4	-0.4		0.1		-0.4	*
Youngest child 4-12	-0.7	*	0.6	**	-1.0	***
Youngest child 12-18	-0.6		1.2	***	-1.2	***
Youngest child 18+	-0.8	**	0.1		-0.6	***
Sector						
Sector dummies		yes		yes		yes
Previous labour market experience						
Unemployment	0.1		-3.1	***	4.7	***
Disability	3.3	***	-4.9	***	10.2	***
Social security	2.6	***	-3.9	***	8.3	***
Combination of inactivity	1.5	*	-1.9	***	4.5	***
No income	1.3	***	-3.8	***	5.3	***
Business cycle						
Year2002	-1.6	***	-1.1	***	-0.2	
Year2004	4.4	***	2.2	***	1.6	***
Year2005	-1.4	***	-1.3	***	0.0	
Year2006	1.9	***	-0.3		1.9	***
Year2007	-1.7	**	-0.5		-1.0	**
Duration dependence						
2nd year	-3.7	***	-2.5	***	-0.6	***
3rd year	-5.5	***	-3.5	***	-1.2	***
4th year	-6.6	***	-4.1	***	-1.7	***
5th year	-7.1	***	-4.3	***	-1.9	***
6th year	-6.4	***	-3.8	***	-1.6	***
Log likelihood	-23478.93		-16693.31		-11659.46	
N	64,585		64,585		64,585	

a) Results from a logit model.
b) Reference group: Men, age 18-30, tertiary education, non-native, no children, sector financial services, previously paid employment, year2003, first year.
c) Significant at different significance levels, 10% (*), 5% (**) or 1% (***).
Source: Dutch Social Statistical Database on entrepreneurs and Dutch Labour Force Survey, own computations.

Individual characteristics

Individual characteristics such as age, education, and ethnicity have various effects on the probability of quitting (see Table 7.3, first column). Older, less-educated, and non-native self-employed individuals have a higher chance of quitting self-employment. Interestingly, there is no difference between tertiary and higher secondary education or between men and women. Self-employed people starting with a disability or social security benefits have a 2–3% higher chance of quitting. The year dummies represent possible business cycle effects. There is no clear business cycle pattern: Some years exhibit higher exit rates (for example, 2004 and 2006), while other years have lower rates, while the economy grew during the entire period, 2002–2007. Some sectors have higher exit rates than others (not shown), and the quitting probability is relatively high in construction and the health care sector. The last lines in Table 7.3 show dependence on duration. Its effect is negative, meaning that after time elapses, the chance of quitting decreases. The pattern is nonlinear: In the first four years the chance of quitting increases from 4% to 7% compared with the first year. After four years, however, the chance of quitting that year declines. A later subsection will take a closer look at duration dependence.

Exit routes

The survival rate is about 50% after six years; that is, after six years, half of all self-employed people quit their business and either started a paid job or became unemployed. To get more information on whether quitting constitutes a failure or not, information on the destination status is used. Two exit routes are distinguished The first is an exit into paid employment and the second is an exit into inactivity, meaning either unemployment, disability, social security, or having no income. The relative shares of exit into paid employment and inactivity are 60% and 40%, respectively (see Table 7.2).

The marginal effects differ for each of the exit routes. The results are even opposite for sex, the presence of children, and labour market position. Whereas in the overall hazard model, the chances of men and women did not differ, this is no longer true for the different exit routes. Women have a significantly lower probability of entering paid employment and a higher probability of entering inactivity states than men. Individuals with children have a higher probability of exiting to paid employment and a lower probability of exiting to inactivity. The results for education attainment are noticeable. Compared with the highest education level, starters with primary or lower secondary education have a 0.4–0.7% higher chance of flowing into paid employment. Most clear are the opposite effects for previous labour market status. Individuals previously receiving social assistance have a 3.9% lower chance of entering paid employment and a 8.3% higher chance of entering inactivity than those previously working. Although the chances are much lower, some of them, however, find a job after a period of self-employment.

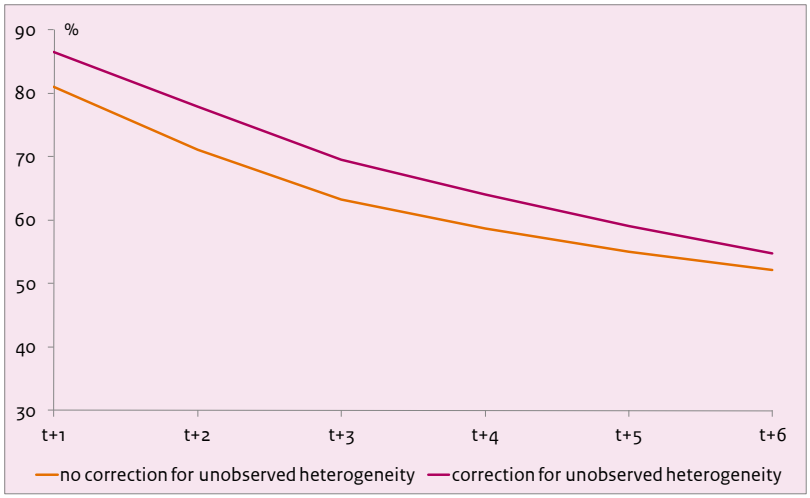
Duration dependence

There is duration dependence if the chance to quit after three years is different than the chance to quit after four years, given survival that far. If there is no duration dependence, the conditional quitting rate is constant. Previous research shows that it is important to correct for unobserved differences, since this can lead to wrong conclusions on duration dependence. This section presents the results after differences in unobserved characteristics are taken into account. The idea is that self-employed people differ not only in observed characteristics, such as education, but also in unobserved characteristics such as motivation or ability. Because individuals are more heterogeneous than can be measured, this part is called unobserved heterogeneity. To deal with unobserved characteristics in the estimation, a distribution is assumed. A common approach is to use the normal distribution.

Allowing for unobserved heterogeneity increases the survival rate (Figure 7.6); at the same time it reshapes duration dependence. Part of duration dependence is due to changes in unobserved characteristics affecting the duration. The composition of the remaining group of self-employed people changes, and those with more favourable survival probabilities remain. The survival rate is higher, because part of the duration dependence should be attributed to changes in the group's composition.

Although allowing for unobserved heterogeneity reshapes duration dependence, the effects on other determinants are small.

Figure 7.6 Survival rates: duration dependence and unobserved heterogeneity



Probability to survive for an average individual depending on time elapsed after start-up. The difference between the two lines indicates that part of the duration dependence is due to differences in unobservable characteristics.

7.6 Conclusions

This chapter analyses the career developments of individuals who started a business in 2001–2003. Our main research question is to what extent does self-employment act as a stepping stone for different groups? Information on previous and future labour market positions for each individual is crucial for this analysis. This chapter uses a new combined dataset containing such information for the period 2000–2007.

The descriptive statistics show that after five years, half of all the self-employed have quit, with 60% of quitters flowing into paid employment and 40% flowing to inactivity. Individuals starting from an inactivity state return to inactivity more often and flow into paid employment less often than those who were previously working.

In the empirical analysis, the model takes into account differences in individual and household characteristics. Furthermore, the role of macroeconomic circumstances and business cycle effects is analysed and differences in unobserved characteristics are corrected for. The results indicate that age, education, starting position, and ethnicity are important determinants for the probability of quitting self-employment. Individuals with a previous disability or social security benefits have a higher chance of quitting than those previously working. There is no clear business cycle pattern. After time elapses, the chance of quitting decreases. Quitting self-employment does not necessarily have to be a failure.

A separate model is estimated for each of the different exit routes, into either paid employment or inactivity. An exit into paid employment is interpreted as a stepping stone effect of self-employment. Previously inactive individuals have a higher probability of entering inactivity after self-employment than individuals who previously worked. Still, for almost all groups, self-employment may act as a stepping stone, albeit somewhat more for more advantaged groups. In conclusion, although those starting from an inactivity situation have a higher chance of returning to inactivity in the future, for about one-third self-employment may act as a stepping stone to paid employment. For this group, self-employment may be a valuable alternative to paid employment, a commonly promoted route by various policy measures.

Summing up, this empirical research shows that for almost all groups, self-employment is a stepping stone. However, this is even more so for already advantaged groups, such as the previously working. Even though the quitting probability

is higher for disadvantaged groups, such as former long-term unemployed or disabled individuals, self-employment may still be a valuable alternative to dependent employment.

8 Future research

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This study has documented and interpreted recent trends in labour market flexibility in the Netherlands. In particular, it has presented empirical evidence about the role of permanent and temporary contracts and self-employment over the life cycle and across different labour market groups. At the same time, many questions about the functioning of the labour market, which are crucial to policy makers who need to redesign labour market institutions, have not been answered yet. A great many facts have been documented now, but there is still a strong need for future research to improve our insight in the effects of policy reforms. Here, we identify up to five pressing areas for future work.

What is the relation between wages and productivity?

The results presented in Chapter 3 of this study show that in the Netherlands wage-tenure profiles are steep. Several explanations may contribute to these steep profiles, but on the basis of the available data it is not possible to test which explanations are most important. It would be highly interesting to know how wage profiles relate to productivity profiles over the lifecycle. The standard and simplest lifecycle model economists use, predicts a levelling off and a possible decline of productivity at more advanced ages, which may call for a wage that is potentially levelling off with age as well.

More knowledge about productivity – and in particular on the role of general and firm-specific skills and knowledge – is crucial. The economic literature shows however that productivity is hard to measure. Future research may benefit from more adequate data on the tasks workers perform and the skills workers develop in their job. These data would enable us to determine the relative productivity of younger workers and more experienced workers in various tasks, and to analyse the relevance of the different types of human capital for firm productivity.

Do institutions protect insiders?

Another ill-understood aspect of steep wage-tenure profiles is to what extent this is the results of labour market institutions. The current Dutch institutions, for example tenure related employment protection and unemployment insurance, favour the bargaining position of workers with long tenures. Why does the government intervene in the terms of contracts concluded between workers and firms? And what effect does the intervention have?

Future research on labour market institutions could formulate an analytical framework on the regulation of the labour market. An important argument for government intervention on the labour market may be that workers and employers do not take certain external effects of their actions into account. So a question is: what external effects justify a labour market institution like employment protection legislation? What would be the impact of leaving the regulation of employment protection to workers and employers? The results of Chapter 2 clearly show that institutions affect wage setting in the Netherlands. The causality of the impact and how this impact materializes remains, however, unclear. Future empirical research on wage setting would contribute to the understanding of this aspect. The research could focus on questions like how the composition of the workforce of firms and sectors of industry affect the collectively agreed wage scales, and how the wage scales affect individual wage growth. The research could additionally focus on variation in notice periods as concluded in collective agreements. Again the composition of the workforce may affect the agreements, while at the same time the agreements may affect future wage growth.

Is self-employment a last or a new step in a working career?

The role of self-employment as a way to prolong the working life of older workers is a further policy relevant research direction. A period of self-employment can postpone retirement and act as an alternative for dependent employment. Furthermore, self-employment suits the need for independence and personal development in one's job. In the United States, older workers often have a bridge job or start a second "encore" career (Freedman, 2007). While a bridge job is mostly done to overcome the period until reaching access to social security, the encore career is characterized by meaningful work, continued income and social impact. Such kind of work may be done by self-employed. A better understanding of the role of self-employment on the labour market for elderly workers is important because the share of older workers will rise due to ageing and postponement of retirement age.

Future research could focus on the tasks older workers perform in self-employment, and whether these tasks different from their previous tasks in dependent employment. For which groups of elderly is self-employment attractive, and is it more common in certain occupations? What kinds of tasks are performed by such workers? And does self-employment contribute to the allocation of older workers to tasks in which they have a comparative advantage?

Do temporary contracts and self-employment increase flexibility?

This study provides evidence that firms use temporary employment and self-employment for screening purposes. But the importance of such employment for providing flexibility at the macroeconomic level may be underestimated. The Dutch unemployment rate has increased during the current financial crisis, but this increase has been only moderate. It is likely that flexible employment has contributed to this moderate reaction.

The importance of flexible employment for the adaptability of the labour market during the financial crisis is subject of current research. The research includes collection and interpretation of new information on the recent developments in employment. Moreover, the issue touches upon some other factors of interest, such as the flexibility to adapt the number of working hours per week. Flexibility from on-call contracts and self-employment is probably to an important extent gained by changing the number of working hours. This could lead to low incomes among these groups. In this case particular groups bear the costs of flexibility. Also on this issue collection and interpretation of recent developments on the labour market will contribute to a better understanding.

What are the macroeconomic consequences of the various types of contracts?

The current study has documented the advantages and disadvantages of the various types of contracts, but does not allow determining the optimal mix of the various types of contracts. The labour market is a complex system in which individuals search for a good job, invest in skills and knowledge and improve their position, and start to withdraw at some age. At the same time, different types of employers are in search for the best available workers for certain jobs and tasks. Institutions have an impact on both individuals and firms. A sound understanding of these aspects and comprehensive policy analysis would require a theoretical model or framework which contains these different aspects.

Future research could address the issue of welfare and policy analysis by developing a theoretical model with a role for the different types of labour contracts. Such a model should include search and matching behaviour of workers and firms, and possibly uncertainty about the productivity of workers and uncertainty about returns on investments in firm-specific human capital. The model should allow for temporary shocks to represent the business and permanent shocks to represent structural changes in the economic environment.

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Labour market flexibility determines the possibilities of workers and firms to adjust to changes in the economic environment. In policy discussions there is a call for more flexibility, as globalisation and technological and organisational changes lead to an accelerating change in the environment. In addition to these changes, the supply side of the labour market is also undergoing change due to the ageing of society.

To analyse flexibility, this study focuses on the role of the different types of labour relations prevailing in the Netherlands: permanent contracts, temporary contracts and self-employment. Using recent data for the Netherlands, the five chapters in the study present new empirical evidence on individual labour market outcomes. The evidence is nested in a conceptual framework that discusses the advantages and disadvantages of labour market flexibility for workers and firms. The study will be of interest to policy makers, social partners, political parties, economists and other professionals and social scientists from both the Netherlands and other countries.

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